

## Appendix 1. SageCon Partners

Agency/Organization	Name	Role/Work Group Participation
American Wind and Wildlife Institute	Allison, Taber	Energy/Utility Focus Group
Association of Oregon Counties	McArthur, Mike	Director, Policy Team
Association of Oregon Counties	Nystrom, Mark	ODFW RAC, DLCD RAC, Policy Team, State Technical Team
Audubon	Sallinger, Bob	Policy Team, ODFW RAC
Backcountry Hunters and Anglers	Jennings, Brian	Conservation Focus Group
Baker County	Bennett, Mark	Commissioner, County Planning Work Group, ODFW RAC, DLCD RAC
Baker County	Kerns, Holly	ODFW RAC, DLCD RAC, County Planning Work Group
Baker County	Warner, Fred	Commissioner
Bentz Solutions LLC	Bentz, Andy	CCAAs
Bonneville Power Administration	Ackley, Sandra	Energy/Utility Focus Group
Bonneville Power Administration	Sharp, Carolyn	Energy/Utility Focus Group
Bureau of Land Management	Barnes, Tim	
Bureau of Land Management	Burkett, E. Lynn	State Technical Team
Bureau of Land Management	Estes, Robin	
Bureau of Land Management	Fedrizzi, Jeff	Fire and Invasives Team
Bureau of Land Management	Frederick, Glenn	Mitigation Technical Team, Core Team
Bureau of Land Management	Goodell, Craig	
Bureau of Land Management	Haske, Mike	SageCon Co-Convener, Core Team
Bureau of Land Management	Jensen, Cathie	
Bureau of Land Management	Langlas, Margaret	
Bureau of Land Management	Mathis, Jan	
Bureau of Land Management	O'Ferall, Fred	
Bureau of Land Management	Rose, Jeff	Fire and Invasives Team
Bureau of Land Management	Rubado, Jessica	
Bureau of Land Management	Suther, Joan	Staff lead, Oregon RMP Amendment
Bureau of Land Management	Weil, Jodie	
Bureau of Land Management	White, Toby	
Burns Paiute Tribe	Heinrick, Kyle	
Burns Paiute Tribe	Kesling, Jason	Policy Team, ODFW RAC
Confederated Tribes of Umatilla Indian Reservation	Quaempts, Eric	
Congressman Walden's Office	Strader, Nick	

<b>Agency/Organization</b>	<b>Name</b>	<b>Role/Work Group Participation</b>
Crook County	Ferguson, Colleen	
Crook County	McCabe, Mike	County Planning Work Group
Crook County	Stenbeck, Phil	
Crook County	Zelenka, Bill	Policy Team, County Planning Work Group
Defenders of Wildlife	Lieberman, Erin	Conservation Focus Group
Department of Land Conservation and Development	Abbott, Amie	Staff support for DLCD RAC
Department of Land Conservation and Development	Jinings, Jon	Staff lead - DLCD RAC, Policy Team, Core Team
Department of Land Conservation and Development	Rue, Jim	Director
Department of Land Conservation and Development	Young, Grant	
Department of State Lands	Abrams, Mary	Director
Department of State Lands	Quackenbush, Lanny	CCAAs
Deschutes County	Baney, Tammy	Commissioner
Deschutes County	Gutowsky, Peter	County Planning Work Group
Deschutes County	Lelack, Nick	
Deschutes County	Unger, Alan	Commissioner, ODFW RAC, DLCD RAC
First Wind	Makarow, Irina	Energy/Utility Focus Group
Governor's Office	Hoffman, Margi	Governor's Office, Energy/Utility Focus Group, Core Team
Governor's Office	Oneil, Stacey	
Governor's Office	Tasnady, Julie	Staff support
Governor's Office	Whitman, Richard	SageCon Co-convenor, Core Team, Policy Team, DLCD RAC
Governor's Office	Wolf, Greg	
Harney County	Grasty, Steve	Commissioner, ODFW RAC, DLCD RAC, Core Team, Policy Team, County Planning Work Group
Harney County	Johnson, Sharon	
Harney County	McMullen, Brandon	County Planning Work Group
Harney County Extension	Johnson, Dustin	
Harney SWCD	Anderson, Bill	CCAAs
Harney SWCD	Suter-Goold, Marty	CCAAs
Idaho Power	Baczkowski, Stacey	Energy/Utility Focus Group
Idaho Power	Jarvis, Evyan	Energy/Utility Focus Group



<b>Agency/Organization</b>	<b>Name</b>	<b>Role/Work Group Participation</b>
Idaho Power	Oxley, Gary	Energy/Utility Focus Group
Institute for Natural Resources	Burcsu, Theresa	Staff lead - SageCon Technical Program
Institute for Natural Resources	Creutzburg, Megan	
Institute for Natural Resources	Gaines, Lisa	Director
Institute for Natural Resources	Kagan, Jimmy	
Institute for Tribal Government	Sampsel, Roy	
Interested Party-native plants	Garrett, Stu	
Klamath Tribe	Mitchell, Jeff	
Lake County	Johnson, Darwin	County Planning Work Group
Lake County	Kestner, Ken	Commissioner, County Planning Work Group, Policy Team, ODFW RAC, DLCD RAC
Lake County SWCD	Ferrell, Justin	CCAAs
Land Conservation and Development Commission	Morrow, Catherine	Commissioner, ODFW RAC, DLCD RAC
Malheur County	Joyce, Dan	Commissioner, County Planning Work Group
Natural Resources Conservation Service	Alvarado, Ron	SageCon Co-convenor, Core Team
Natural Resources Conservation Service	Maestas, Jeremy	Fire and Invasives Team, State Technical Team, CCAAs
Natural Resources Conservation Service	Makowski, Tom	CCAAs
Natural Resources Conservation Service	Ryan, Zola	CCAAs
Natural Resources Conservation Service	Santana, Lars	
Northwest Natural	Bauer, Gary	Energy/Utility Focus Group
Northwest Natural	Brownstein, Shanna	Energy/Utility Focus Group
Oregon Association of Conservation Districts	Lee, Jan	CCAAs
Oregon Association of Conservation Districts	Nicolescu, Jerry	CCAAs
Oregon Association of Conservation Districts	Saelens, Mark	CCAAs
Oregon Cattlemens Association	Kerbs, Skye	
Oregon Cattlemens Association	Martin, Curtis	
Oregon Cattlemens Association	O'Keeffe, John	Policy Team, ODFW RAC, DLCD RAC
Oregon Cattlemens Association	Rosa, Jerome	CCAAs

<b>Agency/Organization</b>	<b>Name</b>	<b>Role/Work Group Participation</b>
Oregon Cattlemens Association	Skinner, Bob	RFPAs, CCAAs
Oregon Concrete and Aggregate Producers Association	Angstrom, Richard	
Oregon Department of Agriculture	Callens, Judith	Fire and Invasives Team
Oregon Department of Agriculture	Hilburn, Daniel	
Oregon Department of Corrections	Angelozzi, Roberta	
Oregon Department of Energy	Cornett, Todd	Energy/Utility Focus Group
Oregon Department of Energy	Enright, Diana	
Oregon Department of Energy	Gustafson, Virginia	Energy/Utility Focus Group
Oregon Department of Energy	Kaplan, Mike	
Oregon Department of Energy	Krumenauer, Matt	
Oregon Department of Energy	Woods, Max	Energy/Utility Focus Group
Oregon Department of Fish and Wildlife	Anglin, Ron	
Oregon Department of Fish and Wildlife/Governor's Office	Brownscombe, Brett	Staff lead, ODFW RAC, DLCD RAC, Core Team, Policy Team, Fire and Invasives Team, Mitigation Technical Team
Oregon Department of Fish and Wildlife	Budeau, Dave	State Technical Team
Oregon Department of Fish and Wildlife	Cupples, Jacqueline	ODFW Sage-Grouse Coordinator, Core Team, Policy Team, ODFW RAC, Mitigation Technical Team
Oregon Department of Fish and Wildlife	Hagen, Christian	
Oregon Department of Fish and Wildlife	Hooton, Bob	Staff support
Oregon Department of Fish and Wildlife	Melcher, Curt	Director
Oregon Department of Fish and Wildlife	Michael, Holly	Core Team, Mitigation Technical Team
Oregon Department of Fish and Wildlife	Vaughan, Joy	
Oregon Department of Fish and Wildlife Commission	Akenson, Holly	Commissioner, ODFW RAC, DLCD RAC
Oregon Department of Forestry	Babbs, Kris	
Oregon Department of Forestry	Decker, Doug	Director
Oregon Department of Forestry	Foster, Gordon	Fire and Invasives Team
Oregon Department of Forestry	Pew, Brian	Fire and Invasives Team

<b>Agency/Organization</b>	<b>Name</b>	<b>Role/Work Group Participation</b>
Oregon Department of Forestry	Ponte, George	
Oregon Department of Forestry	Shaw, Mike	
Oregon Department of Geology and Mineral Industries	Riggs, Richard	
Oregon Department of Geology and Mineral Industries	Sanders, Isaac	Policy Team, DLCD RAC
Oregon Department of Transportation	Farnsworth, Gary	
Oregon Department of Transportation	Frost, Russell	
Oregon Department of Transportation	Hansen, Norman	
Oregon Department of Transportation	Haupt, Susan	
Oregon Department of Transportation	Jilek, Christian	DLCD RAC, Policy Team
Oregon Department of Transportation	Livingston, Brad	
Oregon Department of Transportation	Sipp, Craig	
Oregon Department of Transportation	Wirfs, Paul	
Oregon Farm Bureau	Nash, Mary Anne	Policy Team, ODFW RAC, DLCD RAC
Oregon Farmer Bureau	Dressler, Jennifer	
Oregon Farmer Bureau	Fast, Katie	
Oregon Foundation for North American Wild Sheep	Houston, George	Conservation Focus Group
Oregon Foundation for North American Wild Sheep	Welsh, Robert	Conservation Work Group
Oregon Habitat Joint Venture	Taylor, Bruce	DLCD RAC, Core Team, Policy Team, Mitigation Technical Team
Oregon Hunters Association	Elkins, Al	Conservation Work Group
Oregon Natural Desert Association	Fenty, Brent	Conservation Focus Group
Oregon Natural Desert Association	Morse, Dan	ODFW RAC
Oregon Solutions	Babcock, Julia	Staff lead - SageCon Administrative
Oregon Solutions	Dalke, Pete	SageCon staff
Oregon Solutions	Odell, Turner	SageCon Facilitator, Core Team
Oregon State University	Hagen, Christian	State Technical Team
Oregon State University	Lorimor, Alden	
Oregon Watershed Enhancement Board	Loftsgaarden, Meta	Director, Policy Team
Pacific Gas and Electric Company	McCarthy, Brendan	Energy/Utility Focus Group
Pacific Gas and Electric Company	Seaman, Varner	Energy/Utility Focus Group
PacifiCorp	Bolton, Scott	Energy/Utility Focus Group
PacifiCorp	Dunlap, Alisa	Energy/Utility Focus Group

<b>Agency/Organization</b>	<b>Name</b>	<b>Role/Work Group Participation</b>
PacifiCorp	Fritz, Brian	Energy/Utility Focus Group
Regional Solutions	Fairley, Scott	
Regional Solutions	Julber, Susanna	
Regional Solutions	Liebe, Annette	
Regional Solutions/Institute for Natural Resources	Damon, Jamie	Staff lead - SageCon Project Manager
Renewable Northwest	Barbour, Hillary	Energy/Utility Focus Group, Policy Team
Renewable Northwest	Decker, Megan	Energy/Utility Focus Group
Renewable Northwest	Sharp, Lynn	Energy/Utility Focus Group, Mitigation Technical Team, Policy Team
Representative Cliff Bentz	Bentz, Cliff	Legislative
Roaring Springs Ranch	Davies, Stacy	Policy Team
Roaring Springs Ranch	Shields, Andrew	ODFW RAC, DLCD RAC, Policy Team
Senator Merkley's Office	Chang, Phil	
Senator Merkley's Office	Oken-Berg, Jake	
Senator Merkley's Office	Scheeler, Elizabeth	
Senator Merkley's Office	Whelan, Dan	
Senator Wyden's Office	Cathy, Kathleen	
Senator Wyden's Office	Gautreaux, Mary	State Director
Senator Wyden's Office	Kinney, Wayne	
Sharp Ranches	Sharp, Tom	CCAAs
Sitka Technology Group	Hess, Damon	
Stoel Rives	Craig, Barbara	Energy/Utility Focus Group
Stoel Rives	McMahon, Tim	Energy/Utility Focus Group
Sustainable Northwest	Audley, John	Energy/Utility Focus Group
Sustainable Northwest	Williamson, Alice	Conservation Focus Group
The Nature Conservancy	Fuller, Garth	Staff support, Policy Team
The Nature Conservancy	Kerby, Jay	Fire and Invasives Team
The Nature Conservancy	Macdonald, Cathy	ODFW RAC, DLCD RAC, Core Team, Policy Team, Mitigation Technical Team
The Nature Conservancy	O'Brien, Danielle	Staff support
Theodore Roosevelt Conservation Partnership	Sheppard, Mia	Conservation Focus Group
U.S. Department of Agriculture	Boyd, Chad	Fire and Invasives Team, State Technical Team

<b>Agency/Organization</b>	<b>Name</b>	<b>Role/Work Group Participation</b>
U.S. Department of Agriculture	Svejcar, Tony	Fire and Invasives Work Group, Policy Team, State Technical Team
U.S. Department of Agriculture	Williams, David	
U.S. Fish and Wildlife Service	Everett, Jeff	Core Team, Mitigation Technical Team
U.S. Fish and Wildlife Service	Ginger, Shauna	Core Team, Policy Team, Mitigation technical Team
U.S. Fish and Wildlife Service	Henson, Paul	Core Team, Policy Team
U.S. Fish and Wildlife Service	Karges, Chad	
U.S. Fish and Wildlife Service	Siani, Jennifer	Policy Team
U.S. Fish and Wildlife Service	Sitz, Angela	Staff support, State Technical Team
U.S. Fish and Wildlife Service	Zisa, Joe	
U.S. Forest Service	Bonanno, Kristen T.	
U.S. Forest Service	Hollen, Debbie	
U.S. Forest Service	Steele, Dede	State Technical Team
Union County	Jenkins, Hanley	ODFW RAC, DLCDC RAC, County Planning Work Group
Union County	McClure, Steve	
Vestas	Nielsen, Dorte	
Warm Springs	Brunoe, Bobby	Policy Team
Warm Springs	Penhollow, Clay	DLCDC RAC, Policy Team
Western Association of Fish and Wildlife Agencies	Mayer, Ken	Staff lead - Fire and Invasives Team, Core Team
Wheeler County	Perry, Patrick C.	
Willamette Partnership	Cochran, Bobby	Staff support
Willamette Partnership	Obrien, Sara	Staff lead - Mitigation Technical Team, Core Team, Fire and Invasives Work Group
World Resources Institute/Willamette Partnership	Gartner, Todd	Conservation Focus Group

## Appendix 2. Summary of the U.S. Fish and Wildlife Service 2010 “Warranted but Precluded” Determination

This appendix contains a summary of the U.S. Fish and Wildlife Service (USFWS) 12-month findings for petitions to list the greater sage-grouse as threatened or endangered in 2010<sup>1</sup> that identified the sage-grouse as a candidate for the endangered species list. The contents of this section reflect the basis for the determination and are intended to provide an overview of the determination documented in the Federal Register. Where appropriate, information germane to Oregon has been identified.

The Endangered Species Act § 424.11(c) requires that any listing or reclassification of a species as threatened or endangered be made on the basis of the best scientific and commercial data available. The five listing factors that must be considered pursuant to Section 4 of the ESA are as follows:

Factor A: The Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

Factor B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Factor C: Disease and Predation

Factor D: Inadequacy of Existing Regulatory Mechanisms

Factor E: Other Natural or Manmade Factors Affecting the Species’ Continued Existence

The USFWS is responsible for evaluating each of these factors and making findings on the status of the species with regard to each. The 2010 finding by USFWS that the sage-grouse is “warranted but precluded” from listing under the ESA identified two of the five listing factors (A and D) as significant threats for the *rangewide* persistence of the species. The following paragraphs summarize the 2010 determination with respect to each of the five listing factors.

Factor A: *The Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range*

The 2010 “warranted but precluded” determination found the following with regard to Factor A:

Several factors are contributing to the destruction, modification, or curtailment of the greater sage-grouse's habitat or range. Several recent studies have demonstrated that sagebrush area is one of the best landscape predictors of greater sage-grouse

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<sup>1</sup> 75 Fed. Reg. 13910–14014 (March 23, 2010)

persistence (Aldridge et al. 2008, p. 987; Doherty et al. 2008, p. 191; Wisdom et al. in press, p. 17). Sagebrush habitats are becoming increasingly degraded and fragmented due to the impacts of multiple threats, including direct conversion, urbanization, infrastructure such as roads and power lines built in support of several activities, wildfire and the change in wildfire frequency, incursion of invasive plants, grazing, and nonrenewable and renewable energy development. Many of these threat factors are exacerbated by the effects of climate change, which may influence long-term habitat trends.<sup>2</sup>

The determination also went on to discuss in greater detail loss of habitat due to conversion for agriculture, urbanization, and habitat fragmentation by infrastructure (roads, energy development, transmission lines, communications towers, rail lines).<sup>3</sup>

The USFWS also found that “fire has been identified as a primary factor associated with sage-grouse population declines”:

Fire is one of the primary factors linked to population declines of greater sage-grouse because of long-term loss of sagebrush and conversion to monocultures of exotic grasses (Connelly and Braun 1997, p. 7; Johnson et al. in press, p. 12; Knick and Hanser in press, pp. 29-30). Loss of sagebrush habitat to wildfire has been increasing in western areas of the greater sage-grouse range for the past three decades. The change in fire frequency has been strongly influenced by the presence of exotic annual grasses and significantly deviates from extrapolated historical regimes. Restoration of these communities is challenging, requires many years, and may, in fact, never be achieved in the presence of invasive grass species.<sup>4</sup>

Barring alterations to the current fire pattern, as well as the difficulties associated with restoration, the concerns presented by this threat will continue and likely will strongly influence the persistence of the greater sage-grouse, especially in the western half of its range, within the foreseeable future.<sup>5</sup>

The USFWS also found invasive plants, including non-native grasses and native conifers such as western juniper, to be a primary threat to sage-grouse and sagebrush habitat.

Invasive plants negatively impact sage-grouse primarily by reducing or eliminating native vegetation that sage-grouse require for food and cover, resulting in habitat loss and fragmentation. A variety of nonnative annuals and perennials (e.g., *Bromus tectorum*, *Euphorbia esula*) and native conifers (e.g., pinyon pine, juniper species) are invasive to

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<sup>2</sup> Id. at 13924

<sup>3</sup> Id. at 13924-13931

<sup>4</sup> Id. at 13931

<sup>5</sup> Id. at 13935-13936

sagebrush ecosystems. Nonnative invasives, including annual grasses and other noxious weeds, continue to expand their range, facilitated by ground disturbances such as wildfire, grazing, and infrastructure. Pinyon and juniper and some other native conifers are expanding and infilling their current range mainly due to decreased fire return intervals, livestock grazing, and increases in global carbon dioxide concentrations associated with climate change, among other factors.

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*Bromus tectorum* is widespread at lower elevations and pinyon-juniper woodlands tend to expand into higher elevation sagebrush habitats, creating an elevational squeeze from both low and high elevations. Climate change will likely alter the range of individual invasive species, increasing fragmentation and habitat loss of sagebrush communities. Despite the potential shifting of individual species, invasive plants will persist and continue to spread rangewide in the foreseeable future.<sup>6</sup>

Grazing was identified as the predominant land use in sagebrush steppe habitat. The USFWS found that the best scientific evidence indicated both negative and positive effects of livestock grazing, noting that impacts may depend more on specific grazing practices than on stocking levels.

Livestock management and domestic grazing can seriously degrade sage-grouse habitat. Grazing can adversely impact nesting and brood-rearing habitat by decreasing vegetation concealment from predators. Grazing also has been shown to compact soils, decrease herbaceous abundance, increase erosion, and increase the probability of invasion of exotic plant species. Once plant communities have an invasive annual grass understory dominance, successful restoration or rehabilitation techniques are largely unproven and experimental (Pyke in press, p. 25). Massive systems of fencing constructed to manage domestic livestock cause direct mortality to sage-grouse in addition to degrading and fragmenting habitats. Livestock management also can involve water developments that can degrade important brood-rearing habitat and or facilitate the spread of WNV. Additionally, some research suggests there may be direct competition between sage-grouse and livestock for plant resources. However, although there are obvious negative impacts, some research suggests that under very specific conditions grazing can benefit sage-grouse.<sup>7</sup>

Further, the USFWS included wild/feral horse impacts as among the negative potential impacts associated with grazing.

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<sup>6</sup> Id. at 13939

<sup>7</sup> Id. at 13939-13942



Similar to domestic grazing, wild horses and burros have the potential to negatively affect sage-grouse habitats in areas where they occur by decreasing grass cover, fragmenting shrub canopies, altering soil characteristics, decreasing plant diversity, and increasing the abundance of invasive *Bromus tectorum*.<sup>8</sup>

Another important threat to sage-grouse habitat, according to the USFWS 2010 determination, was energy development, both nonrenewable and renewable.

Energy development is a significant risk to the greater sage-grouse in the eastern portion of its range (Montana, Wyoming, Colorado, and northeastern Utah – MZs I, II, VII and the northeastern part of MZ III), with the primary concern being the direct effects of energy development on the long-term viability of greater sage-grouse by eliminating habitat, leks, and whole populations and fragmenting some of the last remaining large expanses of habitat necessary for the species' persistence.

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Renewable energy resources are likely to be developed in areas previously untouched by traditional energy development. Wind energy resources are being investigated in south-central and southeastern Oregon where large areas of relatively unfragmented sage-dominated landscapes are important for maintaining long-term connectivity within the sage-grouse populations (Knick and Hanser in press, pp. 1-2.).<sup>9</sup>

Another habitat-related threat identified in 2010 by the USFWS was climate change.<sup>10</sup>

In summing up its conclusions regarding habitat, the USFWS stated:

Fragmentation of sagebrush habitats is a key cause, if not the primary cause, of the decline of sage-grouse populations. Fragmentation can make otherwise suitable habitat either too small or isolated to be of use to greater sage-grouse (i.e., functional habitat destruction), or the abundance of sage-grouse that can be supported in an area is diminished. Fire, invasive plants, energy development, various types of infrastructure, and agricultural conversion have resulted in habitat fragmentation and additional fragmentation is expected to continue for the foreseeable future in some areas.

In our evaluation of Factor A, we found that although many of the habitat impacts we analyzed (e.g., fire, urbanization, invasive species) are present throughout the range, they are not at a level that is causing a threat to greater sage-grouse everywhere within

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<sup>8</sup> Id. at 13942

<sup>9</sup> Id. at 13954

<sup>10</sup> Id. at 13954-13957

its range. Some threats are of high intensity in some areas but are low or nonexistent in other areas. Fire and invasive plants, and the interaction between them, is more pervasive in the western part of the range than in the eastern. Oil and gas development is having a high impact on habitat in many areas in the eastern part of the range, but a low impact further to the west. The impact of pinyon-juniper encroachment generally is greater in western areas of the range, but is of less concern in more eastern areas such as Wyoming and Montana. Agricultural development is high in the Columbia Basin, Snake River Plain, and eastern Montana, but low elsewhere. Infrastructure of various types is present throughout the most of range of the greater sage-grouse, as is livestock grazing, but the degree of impact varies depending on grazing management practices and local ecological conditions. The degree of urbanization and exurban development varies across the range, with some areas having relatively low impact to habitat.

While sage-grouse habitat has been lost or altered in many portions of the species' range, habitat still remains to support the species in many areas of its range (Connelly et al. in press c, p. 23), such as higher elevation sagebrush, and areas with a low human footprint (activities sustaining human development) such as the Northern and Southern Great Basin (Leu and Hanser in press, p. 14), indicating that the threat of destruction, modification or curtailment of the greater sage-grouse is moderate in these areas. In addition, two strongholds of contiguous sagebrush habitat (the southwest Wyoming Basin and the Great Basin area straddling the States of Oregon, Nevada, and Idaho) contain the highest densities of males in the range of the species (Wisdom et al. in press, pp. 24-25; Knick and Hanser in press, p. 17). We believe that the ability of these strongholds to maintain high densities to date in the presence of several threats indicates that there are sufficient habitats currently to support the greater sage-grouse in these areas, but not throughout its entire range unless these threats are ameliorated.

As stated above, the impacts to habitat are not uniform across the range; some areas have experienced less habitat loss than others, and some areas are at relatively lower risk than others for future habitat destruction or modification. Nevertheless, the impacts are substantial in many areas and will continue or even increase in the future across much of the range of the species. With continued habitat destruction and modification, resulting in fragmentation and diminished connectivity, greater sage-grouse populations will likely decline in size and become more isolated, making them more vulnerable to further reduction over time and increasing the risk of extinction.

We have evaluated the best scientific and commercial information available regarding the present or threatened destruction, modification, or curtailment of the greater sage-grouse's habitat or range. Based on the current and ongoing habitat issues identified here, their synergistic effects, and their likely continuation in the future, we conclude

that this threat is significant such that it provides a basis for determining that the species warrants listing under the Act as a threatened or endangered species.<sup>11</sup>

Factor B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The USFWS did not find Factor B to be a significant threat to sage-grouse. Recreational hunting is allowed in 10 of the 11 states with sage-grouse.<sup>12</sup> The USFWS did indicate some concern with the level of take allowed and scientific uncertainty associated with the impacts of recreational hunting, particularly with regard to female mortality.<sup>13</sup> “Although harvest as a singular factor does not appear to threaten the species throughout its range, negative impacts on local populations have been demonstrated and there remains a large amount of uncertainty regarding harvest impacts because of a lack of experimental evidence and conflicting studies.”<sup>14</sup>

Factor C: Disease and Predation

With the exception of West Nile virus (WNV), the USFWS found no evidence that disease is a basis for listing sage-grouse under the ESA. WNV is a significant mortality factor for sage-grouse when an outbreak occurs; however, to date, the annual patchy distribution of the disease has resulted in minimal and isolated impacts.<sup>15</sup>

Predation is the most commonly identified cause of direct mortality for sage-grouse during all life stages. Much of this has to do with the fact that sage-grouse, like other grouse, are a prey species. Where habitat is not limited and is of good quality, predation is not a threat to the persistence of the species. However, predation facilitated by anthropogenic influences on sagebrush habitats (e.g., fences, power lines, and roads) can present a localized threat. Nevertheless, the impact of predation on sage-grouse populations is considered relatively low and localized compared to other threats. While predation will continue to affect the species, the USFWS concluded that predation is not a significant threat to the species’ continued viability and persistence.<sup>16</sup>

Factor D: Inadequacy of Existing Regulatory Mechanisms

The 2010 USFWS finding states:

Under this factor, we examine whether threats to the greater sage-grouse are adequately addressed by existing regulatory mechanisms. Existing regulatory mechanisms that could provide some protection for greater sage-grouse include: (1)

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<sup>11</sup> Id. at 13962

<sup>12</sup> Id. at 13963

<sup>13</sup> Id. at 13964

<sup>14</sup> Id. at 13966

<sup>15</sup> Id. at 13970

<sup>16</sup> Id. at 13973

local land use laws, processes, and ordinances; (2) State laws and regulations; and (3) Federal laws and regulations.<sup>17</sup>

The USFWS identified only one local land use regulation that specifically addresses sage-grouse.<sup>18</sup> At the state level, the only regulatory mechanism that USFWS recognized as having some protective effect was the executive order issued by the Governor of Wyoming.<sup>19</sup> At the Federal level, the USFWS reviewed the Resource Management Plans (RMPs) of the Bureau of Land Management, which manages 51 percent of sage-grouse habitat, and found that:

Of the existing 92 RMPs that include sage-grouse habitat, 82 contain specific measures or direction pertinent to management of sage-grouse or their habitats (BLM 2008g, p. 1). However, the nature of these measures and direction vary widely, with some measures directed at a particular land use category (e.g., grazing management), and others relevant to specific habitat use categories (e.g., breeding habitat) (BLM 2008h).<sup>20</sup>

The Service concluded, with regard to BLM-administered lands:

In many areas existing mechanisms (or their implementation) on BLM lands and BLM-permitted actions do not adequately address the conservation needs of greater sage grouse, and are exacerbating the effects of threats to the species described under Factor A.<sup>21</sup>

#### Factor E: Other Natural or Manmade Factors Affecting the Species' Continued Existence

Under this factor, the USFWS identified pesticides, non-consumptive recreational activities, environmental contamination, and drought as considerations. Although localized concerns exist, the USFWS determined that Factor E “does not singularly pose a significant threat to the species now or in the foreseeable future.”<sup>22</sup>

In sum, the USFWS “warranted but precluded” finding in March 2010 reflected a rangewide rather than an Oregon-specific review of the status of the greater sage grouse. The occurrence, extent, intensity, and severity of the threats to sage grouse under each of the above ESA listing factors vary across the species’ range. However, the “warranted but precluded” finding centered on the threats posed by two primary factors relevant to Oregon and elsewhere: the present or threatened destruction, modification, or curtailment of habitat or range (Factor A), and the inadequacy of existing regulatory mechanisms to conserve sage-grouse and their habitats (Factor D).

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<sup>17</sup> Id.

<sup>18</sup> Id.

<sup>19</sup> Id. at 13974

<sup>20</sup> Id. at 13976

<sup>21</sup> Id. at 13979

<sup>22</sup> Id. at 13986

## Appendix 3. Metrics Tables

### Overview

The Oregon Sage-Grouse Action Plan identifies conservation actions to ameliorate Oregon-specific threats to sage-grouse and their habitats. A description of each threat appears in Section IV of the Action Plan (“Assessing and Addressing Threats to Sage-Grouse”) as well as an outline and discussion of associated conservation actions. These actions are also organized in the table below and enhanced with further details including:

- Specific conservation action—name and number carried over from Section IV
- Strategy level (large-scale planning or site-specific management)
- Incremental objectives related to accomplishing actions
- Performance measures by which progress will be measured
- Responsible parties (expanded information based upon listing of such parties in Section IV)
- Timelines by which actions are anticipated to be completed
- Funding and other resources identified to implement actions.

Implementation Guidelines and Recommendations (IRGs) for a selection of conservation actions are also described in Appendix 4. Conservation actions are designed to be specific, measurable, and achievable. The Metrics Table below and IRGs will help meet those objectives and thus improve conservation effectiveness overall. In many cases, multiple parties will be responsible for implementing actions collaboratively across land ownership jurisdictions. However, as part of the SageCon implementation refinement phase for this Plan in fall 2015, lead agencies will be identified to coordinate efforts across the species’ range, in accordance with annual priorities, goals, funds, and other resources identified by the statewide governance board. **\*\*Note: In light of the forthcoming implementation discussions and pending determinations over specific resource allocation, some aspects of the Metrics Table below remain in draft form and will be revised or completed more fully during 2015 and early 2016 implementation and coordination efforts.**

Conservation actions and IRGs identified in this Action Plan will be implemented in different ways, depending on land ownership.

- On federal lands, implementation of the conservation actions and IRGs will be guided by the Bureau of Land Management’s Resource Management Plan Amendment for Oregon (hereafter “BLM RMP FEIS”) (BLM 2015) and other regulations specific to federal lands. As such, an effort has been made to advance alignment between development of conservation actions and IRGs applicable to federal lands as part of this Plan and those developed and identified in the BLM RMP FEIS (BLM 2015).
- On state-owned lands, the State has authority to ensure that the conservation actions and IRGs in this Plan are implemented by relevant state agencies. The Plan advances this outcome through authorities including Governor Kate Brown’s Executive Order directing

state agencies to implement the provisions of this Action Plan and the new rules by the Land Conservation and Development Commission (LCDC) and the Oregon Department of Fish and Wildlife (ODFW) governing development and mitigation in significant sage-grouse habitat (OARs 660-023-0115 and 635-140-0025, respectively). More information on the rules and the Executive Order can be located at the beginning of this Plan, in Section II, the individual threat subsections of Section IV, and in Appendices 17 and 19. Additionally, lands managed by the Department of State Lands (DSL) have been enrolled in a Candidate Conservation Agreement with Assurances (CCAA), and conservation measures detailed in site-specific plans for these lands must be implemented in accordance with the provisions of the CCAA.

- On private lands, conservation actions and IRGs related to habitat and land management (other than compensatory mitigation), including livestock management, are anticipated to be implemented voluntarily by landowners. It is recognized that the State of Oregon has no authority to direct habitat management on private lands. Thus, the State relies upon landowners to voluntarily implement conservation actions through incentive-based programs advanced by SWCDs, the Oregon Watershed Enhancement Board, the NRCS, and others. That said, Oregon’s leadership and significant landowner enrollment in Candidate Conservation Agreements with Assurances (CCAAs) or other federal or state incentive programs designed to reduce the threats to sage-grouse will provide enhanced certainty around advancement of voluntary actions. As such, during the development of this Action Plan, conservation actions and IRGs applicable to private lands were generally aligned with those identified in the Programmatic CCAA developed for Oregon (Harney SWCD and USFWS 2014). Commitment of significant state funding (see Section II) and federal funding also enhances the certainty of action implementation on private lands. Further, the State’s land-use development and mitigation rules apply to private lands, providing regulatory assurances regarding sage-grouse habitat protections and conservation benefit through mitigation actions.

### Literature Cited

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Secretary of the Interior (USDOI). 2015. Rangeland fire prevention, management, and restoration. Implementation Plan: Secretarial Order 3336. U.S. Department of the Interior, Washington, D.C., USA.

Stiver, S., E. T. Rinkes, D. E. Naugle, P. D. Makela, D. A. Nance and J. W. Karl. 2015. Sage-grouse habitat assessment framework: a multiscale assessment tool. Technical Reference 6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, Colorado, USA.

## Monitoring Category Metrics

Sage-Grouse Biological Data: Action MON-1	
<b>Description</b>	<p><b>Action MON-1:</b> Monitor sage-grouse population trends at four geographic scales: (1) statewide, (2) BLM district, (3) wildlife management unit (WMU), and (4) Priority Area for Conservation (PAC).</p> <p><b>Action MON-1-1</b> Assess sage-grouse population trends within PACs to determine if “hard” or “soft” thresholds (per BLM RMP FEIS) have been triggered</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Inventory a statistically valid sample<sup>1</sup> of leks within each stratum (small, medium, large, extra-large) at each geographic scale, annually. <ul style="list-style-type: none"> <li>○ Inventory all trend leks (continuous data since at least 1980) in PACs and outside of PACs.</li> <li>○ Inventory a minimum of 2 leks per stratum per PAC, plus a random selection of leks within each PAC for a total of 50% of leks in each PAC sampled.</li> </ul> </li> <li>• Analyze lek data to determine: <ul style="list-style-type: none"> <li>○ Minimum spring population estimates and trends determined at four geographic scales</li> <li>○ If statewide and regional management goals in the 2011 Strategy are met</li> <li>○ If BLM adaptive management thresholds have been met</li> <li>○ Areas of population richness</li> </ul> </li> </ul>
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Annual reporting of: <ul style="list-style-type: none"> <li>○ Proportion of leks inventoried at each geographic scale</li> <li>○ Minimum spring population estimates and trends determined at four geographic scales</li> <li>○ Annual data in relation to BLM adaptive management thresholds and statewide and regional management goals.</li> </ul> </li> <li>• Annual update of lek conservation status (occupied, pending, unoccupied) shared with LCDR and counties for designation of “significant sage-grouse habitat”</li> <li>• Update of GIS layer representing lek locations</li> <li>• Development of GIS layer representing areas of population richness</li> <li>• Incorporation of the areas of population richness GIS layer into ORDSS, with regular updates.</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• Adopt-a-Lek</li> <li>• BLM</li> <li>• ODFW</li> <li>• USFWS</li> <li>• TNC</li> </ul>
<b>Timeline</b>	Ongoing (annually)

<sup>1</sup> Statistically valid sample to be determined in consultation with statistician during fall 2015.

Sage-Grouse Biological Data: Action MON-1	
<b>Funding<sup>2</sup></b>	<p><b>Identified Funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> <li>• Ongoing ODFW, BLM, USFWS district budgets for lek inventories</li> <li>• BLM Eastern Oregon Sage-Grouse Monitoring Agreement (2015-2020) (5-yr. agreement; initial 2-yr. funds \$320K) to support <ul style="list-style-type: none"> <li>○ 2 temporary ODFW biologists annually for lek surveys (including vehicle/fuel costs and related supplies/per diem)</li> <li>○ Helicopter and aerial infrared lek surveys</li> <li>○ Statistical consultant</li> </ul> </li> <li>• USFWS Recovery Project funds awarded to ODFW in 2015 (2015-2016 initial funds \$37K) for <ul style="list-style-type: none"> <li>○ 2 temporary ODFW biologists for lek surveys</li> <li>○ Support of Adopt-a-Lek volunteers (travel/per diem reimbursement)</li> </ul> </li> <li>• Oregon Wildlife Heritage Foundation funds (anticipated \$5-7K annually to support Adopt-a-Lek volunteer coordinator)</li> <li>• Ongoing BLM state office funds for assessment of population trends in relation to BLM adaptive management thresholds</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• Oregon Wildlife Heritage Foundation funds (anticipated \$5-7K annually to support Adopt-a-Lek volunteer coordinator)</li> </ul> <p><b>Funds to be identified:</b></p> <p>Funds TBD (awarded or requested from TNC to maintain the ORDSS)</p>

Sage-Grouse Biological Data: Action MON-2	
<b>Description</b>	<p><b>Action MON-2:</b> Monitor sage-grouse habitat utilization in response to conservation actions or habitat degradation.</p> <p><b>Action MON-2-1</b> Employ new research to monitor sage-grouse response to conservation actions related to habitat improvement that will be implemented under this Plan and through the efforts of partner organizations.</p>
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Research objectives are documented elsewhere for current projects.</li> <li>• Objectives for new monitoring projects will be developed as research priorities emerge.</li> </ul>

<sup>2</sup> See Section II, Table 1 and Table 2 for a listing of specific agency Policy Option Packages (POPs) funded by the 2015 Oregon State Legislature, as well as a listing of ongoing relevant funding tied to specific agency programs (ODFW, ODA, DSL, ODF, OWEB, etc.).



Sage-Grouse Biological Data: Action MON-2		
Monitoring and Reporting	<ul style="list-style-type: none"> <li>Progress reports submitted quarterly for: <ul style="list-style-type: none"> <li>South Warner research investigating long-term sage-grouse response to juniper removal</li> <li>Trout Creeks research investigating long-term sage-grouse response to wildfire</li> </ul> </li> <li>MS theses and PhD dissertations</li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>BLM</li> <li>ODFW</li> </ul>	<ul style="list-style-type: none"> <li>OSU</li> </ul>
Timeline	<p>Phase 1 (John Severson, PhD Candidate, U of Idaho) South Warner research expected completion: <b>Fall 2015</b></p> <p>Phase 2 (Andrew Olsen, PhD Candidate, Oregon State University) South Warner research expected completion: <b>2018</b></p>	<p>Phase 1 (Lee Foster, MS Candidate, Oregon State University) Trout Creeks research expected completion: <b>December 2015</b></p> <p>Phase 2 (Catherine Engelman, PhD Candidate, Oregon State University) Trout Creeks research expected completion: <b>2018</b></p>
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>All funds for existing MS and PhD research have been identified.<sup>3</sup></li> </ul> <p><b>Funds to be identified:</b></p> <p>Funds for future research efforts will be identified as research priorities emerge.</p>	

Development: Action MON-3	
Description	Action MON-3: Monitor current and new development and cultivated agriculture (approved and completed) within PACs.
Strategy Level	I (Large-Scale Planning)
Objectives	<ul style="list-style-type: none"> <li>Create a centralized development registry.</li> <li>Develop procedures for permitting entities to report new development for inclusion in development registry.</li> <li>Analyze development data within PACs in relation to incremental thresholds (1% per decade per PAC) and total threshold (3% per PAC).</li> <li>Incorporate new development into ORDSS.</li> </ul>

<sup>3</sup> Funding sources include Lakeview BLM (Healthy Lands Initiative funds), Oregon Hunters Association, Oregon Wildlife Heritage Foundation, and others.

Development: Action MON-3		
Monitoring and Reporting	<ul style="list-style-type: none"> <li>Centralized development registry created</li> <li>Documentation of new large-scale development (approvals and completed projects) in registry</li> <li>Current reporting of development within PACs in relation to incremental thresholds (1% per decade per PAC) and total threshold (3% per PAC)</li> <li>Updated development GIS layer within ORDSS.</li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>BLM</li> <li>DLCD</li> <li>ODFW</li> </ul>	<ul style="list-style-type: none"> <li>OWRD</li> <li>Sage-grouse counties planning departments</li> <li>TNC</li> </ul>
Timeline	<p>Creation of development registry: <b>December 2015</b></p> <p>Incorporation of GIS layer into ORDSS: <b>December 2015</b></p> <p>Documentation of developments: <b>Ongoing</b></p>	<p>Analyses of development within PACs: <b>Ongoing</b></p> <p>Updates to GIS layer: <b>Ongoing</b></p>
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>4</sup></li> <li>Ongoing BLM state office funds for assessment of development in relation to BLM adaptive management thresholds</li> </ul> <p><i>Related funds:</i> \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>5</sup></p> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Funds to be identified:</b></p> <ul style="list-style-type: none"> <li>Funds TBD (awarded or requested from INR to conduct development analyses)</li> <li>Funds TBD (awarded or requested from TNC to maintain the ORDSS)</li> </ul>	

Conservation Actions: Action MON-4
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<sup>4</sup> Agency package: DLCD-108.

<sup>5</sup> Agency package: ODFW-130.

Conservation Actions: Action MON-4		
Monitoring Action Description	<b>Action MON-4:</b> Monitor conservation actions implemented by a variety of stakeholders including, but not limited to: <ul style="list-style-type: none"> <li>• Natural Resources Conservation Service (NRCS) Sage-Grouse Initiative (SGI)</li> <li>• ODFW habitat programs (Mule Deer Initiative, Upland Game Bird funded projects, Access and Habitat Program)</li> <li>• BLM, USFWS, USFS (habitat projects on federal lands)</li> <li>• Mitigation creditors (habitat projects implemented for mitigation credits)</li> <li>• Soil and Water Conservation Districts (SWCDs)</li> <li>• Private landowners (e.g., CCAA conservation measures)</li> <li>• Department of State Lands (e.g., CCAA conservation measures)</li> <li>• Cooperative weed management areas (CWMAs)</li> </ul>	
Strategy Level	I (Large-Scale Planning) and II (Site-Specific Management)	
Objectives	<ul style="list-style-type: none"> <li>• Create a centralized registry that includes conservation actions.</li> <li>• Issue an annual data call for conservation actions from stakeholders.</li> <li>• Analyze conservation actions within relevant geographic scales: <ul style="list-style-type: none"> <li>○ Statewide</li> <li>○ BLM district</li> <li>○ PACs</li> <li>○ Within 4 mi of leks.</li> </ul> </li> <li>• Create a conservation actions GIS layer and incorporate it into ORDSS.</li> </ul>	
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Centralized conservation actions registry created</li> <li>• Annual data call for conservation actions from stakeholders</li> <li>• Annual reporting (summary statistics) of conservation actions within relevant geographic scales:</li> <li>• Annual reporting of conservation actions in relation to targets outlined for specific threat performance measures: <ul style="list-style-type: none"> <li>○ Statewide</li> <li>○ BLM district</li> <li>○ PACs</li> <li>○ Within 4 mi of leks.</li> </ul> </li> <li>• Current conservation actions GIS layer within ORDSS</li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> </ul>	<ul style="list-style-type: none"> <li>• ODFW</li> <li>• Private landowners</li> <li>• SWCDs</li> <li>• USFS</li> <li>• USFWS</li> <li>• TNC</li> </ul>
Timeline	Creation of conservation actions registry: <b>December 2015</b>	Analyses of conservation actions: <b>Annually</b>

Conservation Actions: Action MON-4	
	<p>Incorporation of GIS layer into ORDSS: <b>December 2015</b></p> <p>Annual data call: <b>Request sent October 15 annually; data call deadline December 31 annually</b></p> <p>Updates to GIS layer: <b>Annually</b></p>
<b>Funding</b>	<p>Funds indicated below will be utilized for implementation, as well as contributing to/maintaining a central registry for conservation actions.</p> <p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>6</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>7</sup></li> </ul> <p><i>Related funds:</i> \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>8</sup></p> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; ongoing ODA funding (Noxious Weed Program and SWCD Program); ongoing DSL funding tied to State CCAA.</p> <p><b>Funds to be identified:</b> Funds TBD (awarded or requested from TNC to maintain the ORDSS)</p>

Landscape-Level Habitat Condition: Actions MON-5 and MON-6	
<b>Monitoring Action Description</b>	<p><b>Action MON-5:</b> Assess sage-grouse habitat trends within PACs to determine if “hard” or “soft” thresholds (per BLM RMP FEIS; also see “Monitoring” in Section IV) have been triggered.</p> <p><b>Action MON-6:</b> Monitor sage-grouse habitat quality according to vegetation states using predictive models trained and validated by plot data.</p>
<b>Strategy Level</b>	I (Large-Scale Planning) and II (Site-Specific Management)

<sup>6</sup> Agency package: ODFW-132.

<sup>7</sup> Agency package: ODFW-105.

<sup>8</sup> Agency package: ODFW-130.

Landscape-Level Habitat Condition: Actions MON-5 and MON-6		
<b>Objectives</b>	<ul style="list-style-type: none"> <li>Analyze habitat data: <ul style="list-style-type: none"> <li>In relation to BLM adaptive management triggers</li> <li>Summary statistics of each vegetation state within relevant geographic scales (statewide, BLM district, PACs, within 4 mi of leks)</li> <li>Spatial analyses of habitat that transitioned from one vegetation state to another within relevant geographic scales.</li> </ul> </li> <li>Assess accuracy of currently available modeling tools; select desired tool to use moving forward.</li> <li>Create a landscape-level habitat condition GIS layer and incorporate it into ORDSS.</li> </ul>	
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>Annual landscape-level habitat condition report</li> <li>Current landscape-level habitat condition GIS layer within ORDSS with annual updates.</li> </ul>	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>BLM</li> <li>INR</li> </ul>	<ul style="list-style-type: none"> <li>ODFW</li> <li>TNC</li> </ul>
<b>Timeline</b>	<p>Completion of accuracy assessment of currently available modeling tools: <b>December 2015</b></p> <p>Incorporation of GIS layer into ORDSS: <b>December 2015</b></p>	<p>Habitat analyses: <b>Annually</b></p> <p>Updates to GIS layer: <b>Annually</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>\$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>9</sup></li> <li>Ongoing BLM state office funds for assessment of habitat trends in relation to BLM adaptive management thresholds</li> </ul> <p><i>Related funds:</i> \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>10</sup></p> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Funds to be identified:</b></p> <ul style="list-style-type: none"> <li>Funds TBD (awarded or requested from INR to develop predictive models)</li> <li>Funds TBD (awarded or requested from TNC to develop predictive models and to maintain ORDSS)</li> </ul>	

<sup>9</sup> Agency package: ODFW-132.

<sup>10</sup> Agency package: ODFW-105.

Site-Specific Habitat Condition: Action MON-7		
<b>Monitoring Action Description</b>	<b>Action MON-7:</b> Conduct site-specific monitoring of habitat quality according to vegetation states at the map-unit level. Map units are geographic areas delineated during CCAA site-specific planning, mitigation credit planning, or other habitat improvement planning. (See related monitoring action <b>MON-2</b> .)	
<b>Strategy Level</b>	II (Site-Specific Management)	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Monitor habitat quality as described in other documents (CCAA site-specific plans, mitigation credit site-specific plans, BLM rangeland and habitat assessments, etc.)</li> <li>• Conduct spatial analyses of habitat that has transitioned from one vegetation state to another within relevant geographic scales.</li> </ul>	
<b>Monitoring and Reporting</b>	Annual “roll-up” report on site-specific habitat condition	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• NRCS</li> <li>• Mitigation creditors</li> </ul>	<ul style="list-style-type: none"> <li>• ODFW</li> <li>• OWEB</li> <li>• DSL</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	Habitat monitoring: <b>As described in site-specific plans</b>	Habitat analyses and reporting: <b>Annually</b>
<b>Funding</b>	<p>Funds indicated below will be utilized for implementation, including site-specific monitoring of conservation actions at the map-unit scale.</p> <p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M funded to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>11</sup></li> <li>• \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>12</sup></li> <li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>13</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>14</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>15</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>16</sup></li> <li>• \$1.5M awarded to USFWS for habitat improvements on Hart Mt. National Wildlife Refuge<sup>17</sup></li> </ul>	

<sup>11</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>12</sup> Agency package: ODFW-130.

<sup>13</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds.

<sup>14</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>15</sup> Agency package: ODFW-132.

<sup>16</sup> Agency package: ODFW-105.

<sup>17</sup> Department of the Interior (DOI) Resilient Landscapes project funds.

Site-Specific Habitat Condition: Action MON-7	
	<p><i>Related Funds:</i> Ongoing DSL funding tied to state CCAA; ongoing ODA funding (SWCD Program)</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

## Primary Threats Metrics

Juniper Encroachment (JPR): Action JPR-1	
<b>Description</b>	<b>Action JPR-1:</b> Promote education and outreach through SWCDs and other partner organizations to encourage participation in the NRCS Sage-Grouse Initiative (SGI) and CCAAs.
<b>Strategy Level</b>	I(Large-Scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>Enroll a minimum of 80% of eligible acres into CCAAs by enrollment deadline.</li> <li>Enroll a minimum of TBD% of eligible landowners into SGI.</li> </ul>
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>Documentation of the number of recruitment activities completed annually by each SWCD and other partner organizations</li> <li>Documentation of the number of landowners/acres recruited/enrolled to participate in SGI and CCAAs summarized annually</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>NRCS</li> <li>OWEB</li> <li>ODFW</li> <li>SWCDs</li> </ul>
<b>Timeline</b>	Landowner outreach: Ongoing Summary of recruitment: Annually
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>\$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>18</sup></li> <li>OWEB (minimum of \$10M 2015-2025)<sup>19</sup></li> <li>\$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>20</sup></li> <li>\$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>21</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-grouse Conservation Coordinator; ongoing ODA funding (SWCD Program).</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>NRCS \$200M SGI funding over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

<sup>18</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>19</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>20</sup> Agency package: ODFW-132.

<sup>21</sup> Agency package: ODFW-105.



Juniper Encroachment: Action JPR-2	
<b>Action Description</b>	<p><b>Action JPR-2:</b> Enlist LITs to apply local expert knowledge in conjunction with the spatial decision support tool (currently under development) to identify priority areas to address juniper encroachment.</p> <p><b>Action JPR-2-1</b> Develop GIS layers with polygons spatially representing priority areas for juniper removal (note: coarse layers have already been created by FIAT, coordinated by the BLM for Focal Habitat and Planning Areas specific to that process).</p> <p><b>Action JPR-2-2</b> Develop a regional LIT work plan identifying priority areas to address juniper encroachment, timelines, and responsible parties.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Create GIS layers with polygons spatially representing priority areas for juniper removal (note: coarse layers have already been created by FIAT, coordinated by the BLM for Focal Habitat and Planning Areas specific to that process).</li> <li>• Develop regional LIT work plans identifying priority areas to address juniper encroachment, timelines, and responsible parties.</li> </ul>
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Completed GIS layers</li> <li>• Development of regional LIT work plans</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM FIAT</li> <li>• LITs</li> <li>• ODFW</li> <li>• TNC</li> </ul>
<b>Timeline</b>	<p>Completion date: <b>Spring 2016</b></p> <p>(with ongoing updates as juniper removal is completed)</p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> </ul> <p><i>Related funds for conveying priority habitat improvement areas to mitigation creditors: \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>22</sup></i></p> <p><b>Funds to be identified:</b></p> <ul style="list-style-type: none"> <li>• Funds TBD (awarded or requested from TNC to maintain the ORDSS)</li> </ul>

## Juniper Encroachment: Action JPR-3

<sup>22</sup> Agency package: ODFW-130.

Juniper Encroachment: Action JPR-3		
<b>Action Description</b>	<p><b>Action JPR-3:</b> Reduce Phases I and II juniper encroachment (&lt;10% canopy cover) in sage-grouse priority habitats (PACs) and important areas of connectivity in Oregon to a rate greater than or equal to the rate of encroachment.</p> <p><b>Action JPR-3-1</b> Prioritize juniper removal within 4 miles of known leks (with an active or pending status) on federal, private, and state lands.</p> <p><b>Action JPR-3-2</b> Within 1 mile of known leks, completely remove juniper. Beyond the 1-mile buffer and within 4 miles of leks, completely remove juniper where feasible; where complete juniper removal is not feasible, reduce juniper canopy cover to less than 4%.</p> <p><b>Action JPR-3-3</b> After treatments within lek buffers are complete, prioritize Phases I and II juniper removal in additional priority areas that provide adequate sage-grouse habitat (e.g., sagebrush land cover &gt;25%), have the potential to improve connectivity, and, particularly, have medium-to-high resistance and resilience. Prioritize removal of juniper encroaching into riparian zones</p>	
<b>Strategy Level</b>	I (Large-Scale Planning) and II (Site-Specific Management)	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• (Note: Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</li> <li>• Remove a minimum of 10% of total acres of Phases I and II juniper within 4 mi of leks annually on private and state lands (over 10 years).</li> <li>• Remove a minimum of 5% of total acres of Phases I and II juniper within 4 mi of leks annually on public lands (over 20 years).</li> <li>• As priority areas are addressed and resources are available, remove a minimum of 5% of total acres of Phases I and II juniper beyond 4-mi lek buffers in additional priority habitats annually on private, state, and federal lands.</li> </ul>	
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Annual report detailing: <ul style="list-style-type: none"> <li>○ Acres of juniper removal within 4 mi of leks on private, state, and federal lands</li> <li>○ Juniper canopy cover within 4 miles of leks</li> <li>○ Acres of Phases I and II juniper removal beyond 4 mi lek buffers in additional priority habitats</li> </ul> </li> </ul>	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> </ul>	<ul style="list-style-type: none"> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> <li>• USFS</li> </ul>
<b>Timeline</b>	Removal of juniper within 4 mi of leks on private and state lands: <b>December 2025</b>  Removal of juniper within 4 mi of leks on public lands:	Removal of Phases I and II juniper beyond 4-mi lek buffers in additional priority habitats: <b>December 20XX (date TBD)</b>

Juniper Encroachment: Action JPR-3	
	December 2035
Funding	<p><b>Identified funds:</b> (shared with actions JPR-4 and -5)</p> <ul style="list-style-type: none"> <li>• OWEB (minimum of \$10M 2015-2025)<sup>23</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>24</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>25</sup></li> <li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>26</sup></li> <li>• \$1.5M awarded to USFWS for habitat improvements on Hart Mt. National Wildlife Refuge<sup>27</sup></li> <li>• \$18M (\$9M to SWCDs plus match) via RCPP award for implementation of CCAAs (3 FTE positions)<sup>28</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; ongoing DSL funding for CCAA/juniper work on state lands.</p> <p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Juniper Encroachment: Action JPR-4	
Action Description	<p><b>Action JPR-4:</b> Strategically treat Phase III juniper encroachment (&gt;10% canopy cover) as needed in sage-grouse priority habitats where the greatest opportunities exist to restore connectivity, reduce risk of catastrophic wildfire, and create future sage-grouse habitat opportunities.</p> <p><b>Action JPR-4-1</b> Prioritize Phase III juniper removal after Phases I and II have been addressed. Prioritize Phase III areas in or</p>

<sup>23</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>24</sup> Agency package: ODFW-132.

<sup>25</sup> Agency package: ODFW-105.

<sup>26</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds

<sup>27</sup> Department of the Interior (DOI) Resilient Landscapes project funds.

<sup>28</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

Juniper Encroachment: Action JPR-4		
	adjacent to priority areas that provide adequate sage-grouse habitat (e.g., sagebrush land cover >25%), particularly in areas with medium-to-high resistance and resilience.	
Strategy Level	I (Large-Scale Planning) and II (Site-Specific Management)	
Objectives	(Note: Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.) Remove TBD % of Phase III juniper annually beyond 4-mi lek buffers in priority habitats.	
Monitoring and Reporting	Annual reporting of acres of Phase III juniper removal beyond 4-mi lek buffers in priority habitats.	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> <li>• USFS</li> </ul>	
Timeline	Removal of Phase III juniper beyond 4-mi lek buffers in priority habitats: <b>December 20XX (date TBD)</b>	
Funding	<p><b>Identified funds:</b> (shared with actions JPR-3 and -5)</p> <ul style="list-style-type: none"> <li>• OWEB (minimum of \$10M 2015-2025)<sup>29</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>30</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>31</sup></li> <li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>32</sup></li> <li>• \$1.5M awarded to USFWS for habitat improvements on Hart Mt. National Wildlife Refuge<sup>33</sup></li> <li>• \$18M (\$9M to SWCDs plus match) via RCPP award for implementation of CCAAs (3 FTE positions)<sup>34</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; ongoing DSL funding for CCAA/juniper work on state lands.</p> <p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p>	

<sup>29</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>30</sup> Agency package: ODFW-132.

<sup>31</sup> Agency package: ODFW-105.

<sup>32</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds

<sup>33</sup> Department of the Interior (DOI) Resilient Landscapes project funds.

<sup>34</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

Juniper Encroachment: Action JPR-4	
	<p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Juniper Encroachment: Action JPR-5	
<b>Action Description</b>	<b>Action JPR-5:</b> Conduct long-term (>30 years) monitoring and evaluation of vegetation responses to treatments. Use an adaptive management approach to maintain the benefit of juniper removal within sage-grouse habitats, including retreatment as necessary.
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Monitor 100% of juniper treatment areas at 5-year intervals.</li> <li>• Document sagebrush and understory perennial grass recovery at 100% of juniper treatment areas (using metrics TBD).</li> <li>• Adaptively manage in 100% of treatment areas identified to be in need of improved vegetation responses.</li> </ul>
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Documentation of: <ul style="list-style-type: none"> <li>○ Sagebrush and understory perennial grass recovery</li> <li>○ Adaptive management undertaken to improve vegetation responses as needed</li> </ul> </li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> <li>• USFS</li> </ul>
<b>Timeline</b>	<p>Completion date:</p> <p><b>Monitoring should occur at 5-year intervals.</b></p>
<b>Funding</b>	<p><b>Identified funds:</b> (shared with actions JPR-3 and -4)</p> <ul style="list-style-type: none"> <li>• OWEB (minimum of \$10M 2015-2025)<sup>35</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>36</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>37</sup></li> <li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>38</sup></li> </ul>

<sup>35</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>36</sup> Agency package: ODFW-132.

<sup>37</sup> Agency package: ODFW-105.

<sup>38</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds

Juniper Encroachment: Action JPR-5	
	<ul style="list-style-type: none"> <li>• \$1.5M awarded to USFWS for habitat improvements on Hart Mt. National Wildlife Refuge<sup>39</sup></li> <li>• \$18M (\$9M to SWCDs plus match) via RCPP award for implementation of CCAAs (3 FTE positions)<sup>40</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; ongoing DSL funding for CCAA/juniper work on state lands.</p> <p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Juniper Encroachment: Action JPR-6	
<b>Action Description</b>	<b>Action JPR-6:</b> Monitor sage-grouse habitat utilization and/or population response in select areas where junipers have been removed. (See related monitoring actions <b>MON-2</b> and <b>MON-4</b> .)
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Continue South Warner research investigating long-term sage-grouse response to juniper removal.</li> <li>• Research objectives are documented elsewhere for current projects.</li> <li>• Objectives for new monitoring projects will be developed as research priorities emerge.</li> </ul>
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Progress reports submitted quarterly for: <ul style="list-style-type: none"> <li>◦ South Warner research investigating long-term sage-grouse response to juniper removal</li> </ul> </li> <li>• MS theses and PhD dissertations</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• ODFW</li> <li>• OSU</li> </ul>
<b>Timeline</b>	Phase 1 (John Severson, PhD Candidate, U of Idaho) South Warner research expected completion: <b>Fall 2015</b>

<sup>39</sup> Department of the Interior (DOI) Resilient Landscapes project funds.

<sup>40</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

Juniper Encroachment: Action JPR-6	
	Phase 2 (Andrew Olsen, PhD Candidate, Oregon State University) South Warner research expected completion: <b>2018</b>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• All funds for existing MS and PhD research have been identified.<sup>41</sup></li> </ul> <p><b>Funds to be identified:</b></p> <p>Funds for future research efforts will be identified as research priorities emerge.</p>

Invasive Annual Grasses (IAG): Action IAG-1	
<b>Action Description</b>	<p><b>Action IAG-1:</b> Enlist LITs and cooperative weed management areas (CWMAs), in cooperation with state, federal, and private land managers, to apply local expert knowledge in conjunction with the spatial decision support tool (currently under development) to develop regional strategic work plans that identify priority areas to address invasive annual grasses, timelines, and responsible parties. Regional strategic work plans should identify areas for invasive annual-grass <i>prevention, treatment and restoration, and containment</i>. More detailed actions relating to these three invasive plant management approaches are listed below.</p> <p><b>Action IAG-1-1</b> As part of regional strategic work plans, develop GIS layers with polygons spatially representing priority areas for invasive annual-grass treatment and containment (note: coarse layers have already been created by FIAT, coordinated by the BLM for Focal Habitat and Planning Areas specific to that process).</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Create GIS layers with polygons spatially representing priority areas for invasive annual-grass response (note: coarse layers have already been created by FIAT, coordinated by the BLM for Focal Habitat and Planning Areas specific to that process).</li> <li>• Develop regional LIT work plans identifying priority areas to address invasive annual grasses, timelines, and responsible parties.</li> </ul>
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Completed GIS layers</li> <li>• Development of regional LIT work plans</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM FIAT</li> <li>• CWMAs</li> <li>• LITs</li> <li>• ODFW</li> <li>• ODA</li> <li>• TNC</li> </ul>
<b>Timeline</b>	<p>GIS layers for fire suppression priorities: <b>June 2016</b></p> <p>Regional strategic work plans: <b>Spring 2016</b></p>

<sup>41</sup> Funding sources include Lakeview BLM (Healthy Lands Initiative funds), Oregon Hunters Association, Oregon Wildlife Heritage Foundation, and others.

Invasive Annual Grasses (IAG): Action IAG-1	
	(with ongoing updates as annual-grass invasions are contained)
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> </ul> <p><i>Related funds for conveying priority habitat improvement areas to mitigation creditors:</i> \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>42</sup>; ongoing ODA funding (Noxious Weed Program and SWCD Program).</p> <p><b>Funds to be identified:</b></p> <p>Funds TBD (awarded or requested from TNC to maintain the ORDSS)</p>

Invasive Annual Grasses: Action IAG-2	
<b>Action Description</b>	<p><b>Action IAG-2:</b> Implement invasive annual-grass management plans for each PAC that identify priority areas for <i>prevention</i>.</p> <p><b>Action IAG-2-1</b> Prioritize proactive herbicide treatments as a prevention strategy in recently burned areas, particularly areas with low resistance and resilience that are proximal to valuable sage-grouse habitat. Prioritize sites within 4 miles of leks (active or pending) and sites &lt;2 miles from "key habitat," defined as areas with 75% breeding bird density and where sagebrush land cover is &gt;65%.</p> <p><b>Action IAG-2-1a</b> Remove administrative and policy barriers that delay herbicide treatments from the most effective implementation timeframe.</p> <p><b>Action IAG-2-2</b> Conduct systematic and strategic surveys to detect areas of expanding invasive annual grasses and expedite reporting and treatment of new infestations (see section 7b (vii) of SO 3336 Implementation Plan).</p> <p><b>Action IAG-2-3</b> In priority invasive annual-grass prevention sites, limit disturbance within and around all remaining large, intact sagebrush patches, particularly in low-elevation sites with low resistance and resilience, because these sites are highly vulnerable to annual-grass invasion once desirable species are removed or disturbed.</p> <p><b>Action IAG-2-4</b> Require general techniques to prevent human-caused spread of annual invasive grasses resulting from road maintenance (e.g., blading), construction/development, and OHV activity, as well as during fire suppression activities.</p> <p><b>Action IAG-2-5</b> Suppress fire in areas within or proximal to valuable sage-grouse habitat that are particularly vulnerable to annual-grass invasion.</p>

<sup>42</sup> Agency package: ODFW-130.



Invasive Annual Grasses: Action IAG-2	
	<p><b>Action IAG-2-6</b> Utilize grazing management techniques that increase the resilience of systems to invasive annual-grass establishment.</p> <p><b>Action IAG-2-7</b> Monitor areas impacted by ground-disturbing activities for a minimum of 3 years and apply herbicide to new invasions of annual grasses expeditiously.</p>
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	<p>(Note: Specific objectives will be developed/refined in LIT regional work plans. Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Treat a minimum of 80-100% of recently burned acres (depending on the scale and severity of annual fire seasons) as a prevention strategy on private, state, and federal lands (prioritized in areas with low resistance and resilience proximal to valuable sage-grouse habitat).</li> <li>• Complete 100% of herbicide treatments during the most effective timeframe.</li> <li>• Complete systematic surveys annually.</li> <li>• Treat 100% of all newly identified infestations during the fall following identification.</li> <li>• Require and implement prevention plans for 100% of the human activities identified to have the potential to spread invasive annual grasses.</li> <li>• Suppress 100% of fires in areas proximal to valuable sage-grouse habitat that are at risk of annual-grass invasion.</li> <li>• Develop grazing management plans for 100% of acres enrolled in CCAAs/CCAs to reduce spread of invasive annual grasses as enrollment occurs.</li> <li>• Develop and implement monitoring and adaptive management plans for 100% of all disturbed areas.</li> </ul>
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Annual documentation of: <ul style="list-style-type: none"> <li>○ Acres treated in recently burned areas on private, state, and federal lands</li> <li>○ Systematic surveys and follow-up treatments of newly identified infestations</li> <li>○ Inclusion in fuels/fire suppression protocol of Implementation Recommendations and Guidelines (IRGs) for fuels management and fire suppression activities to prevent human-caused spread of annual invasive grasses</li> <li>○ Inclusion of IRGs for development and construction projects to prevent human-caused spread of annual invasive grasses as a requirement of permits</li> <li>○ Suppressed fire ignitions</li> <li>○ Grazing management plans developed/implemented</li> <li>○ Monitoring and adaptive management actions undertaken in disturbed areas</li> </ul> </li> </ul>

Invasive Annual Grasses: Action IAG-2				
Responsible Parties	<ul style="list-style-type: none"><li>• ARS</li><li>• BLM</li><li>• BLM FIAT</li><li>• County weed depts.</li><li>• CWMAs</li></ul>	<ul style="list-style-type: none"><li>• DSL</li><li>• Local road districts</li><li>• NRCS</li><li>• ODA</li><li>• ODFW</li></ul>	<ul style="list-style-type: none"><li>• ODOT</li><li>• OSU</li><li>• OSWB</li><li>• OWEB</li><li>• Private landowners</li></ul>	<ul style="list-style-type: none"><li>• RFPAs</li><li>• Sage-Grouse Habitat Program Manager</li><li>• SWCDs</li><li>• USFS</li><li>• Watershed councils</li></ul>
Timeline	Preventive treatments in burned areas: <b>Ongoing, as needed</b>  Systematic surveys for invasive annual grasses: <b>Annually</b>  Treatment of new infestations: <b>During the fall following identification</b>  Incorporation of IRGs in fuels/fire suppression protocol: <b>June 2015</b>		Incorporation of IRGs as requirement of development/ construction permits: <b>Ongoing</b>  Fire suppression in prioritized areas: <b>As needed</b>  Development of grazing management plans: <b>Ongoing, as CCAA/CCA enrollment and SSPs occur</b>  Development of monitoring and adaptive management plans for disturbed areas: <b>Concurrent with new disturbance</b>	
Funding	<b>Identified funds:</b> <ul style="list-style-type: none"><li>• \$100K funded to ODA (2015-2017) for Oregon Invasive Species Council (sage-grouse) for overall response to invasive species, including restoration and protection<sup>43</sup></li><li>• OWEB (minimum of \$10M 2015-2025)<sup>44</sup></li><li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>45</sup></li><li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>46</sup></li><li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>47</sup></li><li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>48</sup></li></ul>			

<sup>43</sup> Agency package: ODA-320.

<sup>44</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>45</sup> Agency package: ODFW-132.

<sup>46</sup> Agency package: ODFW-105.

<sup>47</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds.

Invasive Annual Grasses: Action IAG-2	
	<p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; ongoing DSL funding (state lands); ongoing ODA funding (Noxious Weed Program and SWCD Program).</p> <p><i>Related funds (for fire suppression in priority areas for invasive annual-grass prevention):</i> \$1.6M funded to ODF (2015-2017) for RFPA support (1.5 FTE positions)<sup>49</sup></p> <p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) Greater sag-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Invasive Annual Grasses: Action IAG-3	
<b>Action Description</b>	<p><b>Action IAG-3:</b> Implement invasive plant management plans for each PAC that identify priority areas for <i>treatment and restoration</i>.</p> <p><b>Action IAG-3-1</b> Prioritize treatment and restoration of invaded sites with the greatest potential to succeed (e.g., moderate infestations or areas with inadequate perennial species and medium-to-high resistance and resilience) that are proximal to valuable sage-grouse habitat.</p> <ul style="list-style-type: none"> <li>• Prioritize sites within 4 miles of leks (active or pending) and sites &lt;2 miles from "key habitat," defined as areas with 75% breeding bird density and where sagebrush land cover is &gt;65%. Over time, expand treatment and restoration activities outward from key habitat patches.</li> </ul> <p><b>Action IAG-3-2</b> Prioritize restoration efforts in recently burned areas, particularly areas that are proximal to valuable sage-grouse habitat.</p> <ul style="list-style-type: none"> <li>• Prioritize sites within 4 miles of leks (active or pending) and sites &lt;2 miles from "key habitat," defined as areas with 75% breeding bird density and where sagebrush land cover is &gt;65%.</li> </ul> <p><b>Action IAG-3-3</b> Implement successful novel techniques such as "precision restoration" and bio-controls (e.g., ACK55/soil</p>

<sup>48</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>49</sup> Agency package: ODF-119 and ODF-120.

Invasive Annual Grasses: Action IAG-3		
	<p>bacterium <i>Pseudomonas fluorescens</i>, D7 <i>Rhizobacterium</i> strain), in areas where they are expected to have demonstrated efficacy.</p> <p><b>Action IAG -3-4</b> Monitor restoration projects for effectiveness and repeat rehabilitation activities if performance objectives are not met. (See related monitoring actions <b>MON-2</b> and <b>MON-4</b>.)</p>	
<b>Strategy Level</b>	II (Site-Specific Management)	
<b>Objectives</b>	<p>(Note: Specific objectives will be developed/refined in LIT regional work plans. Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Treat and restore a TBD % of prioritized areas annually.</li> <li>• Implement restoration efforts in a minimum of 80-100% of recently burned areas in priority areas (depending on the scale and severity of annual fire seasons).</li> <li>• Pending resource availability and completion of scientific trials, implement novel restoration techniques in 100% of areas where they are expected to be effective.</li> <li>• Develop and implement monitoring and adaptive management plans for 100% of all restoration areas</li> </ul>	
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Annual documentation of: <ul style="list-style-type: none"> <li>○ Acres receiving restoration treatments in prioritized areas on private, state, and federal lands</li> <li>○ Efforts that employ “precision restoration techniques”</li> <li>○ Monitoring and adaptive management of restoration projects</li> </ul> </li> </ul>	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• ARS</li> <li>• BLM</li> <li>• BLM FIAT</li> <li>• County weed depts.</li> <li>• CWMAs</li> <li>• DSL</li> <li>• Local road districts</li> </ul>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODA</li> <li>• ODFW</li> <li>• ODOT</li> <li>• OSU</li> <li>• OSWB</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• RFPAs</li> <li>• Sage-Grouse Habitat Program Manager</li> <li>• SWCDs</li> <li>• USFS</li> <li>• Watershed councils</li> </ul>
<b>Timeline</b>	Restoration treatment in prioritized areas: TBD	Monitoring and adaptive management: Annually

Invasive Annual Grasses: Action IAG-3	
Funding	<p><b>Identified funds:</b> (shared with actions IAG-2 and -4)</p> <ul style="list-style-type: none"> <li>• \$100K funded to ODA (2015-2017) for Oregon Invasive Species Council (sage-grouse) for overall response to invasive species, including restoration and protection<sup>50</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>51</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>52</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>53</sup></li> <li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>54</sup></li> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>55</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; ongoing DSL funding (state lands); ongoing ODA funding (Noxious Weed Program and SWCD Program).</p> <p><i>Related funds (for fire suppression in priority areas for invasive annual-grass prevention):</i> \$1.6M funded to ODF (2015-2017) for RFPA support (1.5 FTE positions)<sup>56</sup></p> <p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) Greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president’s budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>
Invasive Annual Grasses: Action IAG-4	

<sup>50</sup> Agency package: ODA-320.

<sup>51</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>52</sup> Agency package: ODFW-132.

<sup>53</sup> Agency package: ODFW-105.

<sup>54</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds.

<sup>55</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>56</sup> Agency package: ODF-119 and ODF-120.

Invasive Annual Grasses: Action IAG-4		
<b>Action Description</b>	<p><b>Action IAG-4:</b> Implement invasive plant management plans for each PAC that identify priority areas to <i>contain</i> existing patches of invasive weeds.</p> <p><b>Action IAG-4-1</b> Implement and maintain containment programs for large infestations that may include the following techniques: (1) border spraying; (2) establishing a barrier to expansion with aggressive perennial species that are competitive with invasive weeds; (3) biological control agents; and/or (4) targeted grazing.</p> <p><b>Action IAG-4-2</b> Prioritize containment where large infestations of invasive annual grasses threaten highly valuable sage-grouse habitat. Prioritize sites within 4 miles of leks (active or pending) and sites &lt;2 miles from "key habitat," defined as areas with 75% breeding bird density and where sagebrush land cover is &gt;65%.</p>	
<b>Strategy Level</b>	II (Site-Specific Management)	
<b>Objectives</b>	<p>(Note: Specific objectives will be developed/refined in LIT regional work plans. Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Contain TBD % of prioritized areas annually.</li> <li>• Repeat containment efforts as required (adaptive management).</li> </ul>	
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Annual documentation of acres treated as a containment strategy in prioritized areas on private, state, and federal lands</li> </ul>	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• BLM FIAT</li> <li>• County weed boards</li> <li>• DSL</li> </ul>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODA</li> <li>• ODFW</li> <li>• Private landowners</li> <li>• Sage-Grouse Habitat Program Manager</li> <li>• SWCDs</li> <li>• USFS</li> </ul>
<b>Timeline</b>	<p>Containment treatment in prioritized areas:</p> <p><b>Date TBD</b></p>	
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$100K funded to ODA (2015-2017) for Oregon Invasive Species Council (sage-grouse) for overall response to invasive species, including restoration and protection<sup>57</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>58</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>59</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>60</sup></li> </ul>	

<sup>57</sup> Agency package: ODA-320.

<sup>58</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>59</sup> Agency package: ODFW-132.

Invasive Annual Grasses: Action IAG-4	
	<ul style="list-style-type: none"> <li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>61</sup></li> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>62</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; ongoing DSL funding (state lands); ongoing ODA funding (Noxious Weed Program and SWCD Program).</p> <p><i>Related funds (for fire suppression in priority areas for invasive annual-grass prevention):</i> \$1.6M funded to ODF (2015-2017) for RFP support (1.5 FTE positions)<sup>63</sup></p> <p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) Greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president’s budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Invasive Annual Grasses: Action IAG-5	
<b>Action Description</b>	<p><b>Action IAG-5:</b> Develop grazing management plans for lands and allotments enrolled in CCAAs and CCAs, as well as other Farm Bill programs that employ grazing techniques that maintain or improve the perennial native grass and shrub community and prevent spread of annual invasive grasses.</p> <p><b>Action IAG-5-1</b> Assess pastures/allotments dominated by Wyoming big sagebrush and prioritize implementation of proper grazing management plans for those with documented improper grazing impacts to native perennial grass and forbs, and soil biotic crusts.</p> <p><b>Action IAG-5-2</b> Identify allotments with invasive annual grasses and implement control measures to prevent the transfer of invasive species via livestock.</p> <p><b>Action IAG-5-3</b> Evaluate and treat heavily used areas (e.g., water sources or transfer areas) for non-native grass invasions and</p>

<sup>60</sup> Agency package: ODFW-105.

<sup>61</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds.

<sup>62</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>63</sup> Agency package: ODF-119 and ODF-120.

Invasive Annual Grasses: Action IAG-5		
	<p>prioritize for treatment and containment actions.</p> <p><b>Action IAG-5-4</b> Utilize targeted livestock grazing to reduce annual invasive plants, increase desirable perennial grasses and forbs, and maintain and increase desired habitat structure.</p>	
Strategy Level	II (Site-Specific Management)	
Objectives	<p>(Note: Specific objectives will be developed/refined in LIT regional work plans and/or CCAA/CCA site-specific plans. Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Develop grazing management plans for 100% of acres enrolled in CCAAs/CCAs (or other Farm Bill programs) to reduce spread of invasive annual grasses as enrollment occurs.</li> <li>• Assess TBD % of prioritized allotments annually. <ul style="list-style-type: none"> <li>○ Implement control measures in 100% of areas identified to have impacts from improper grazing annually.</li> </ul> </li> <li>• Assess TBD % of heavily used areas annually. <ul style="list-style-type: none"> <li>○ Implement control measures in 100% of heavily used areas with invasive annual grasses.</li> </ul> </li> <li>• Utilize targeted livestock grazing in 100% of the areas in which such a strategy is expected to successfully reduce invasive annual grasses.</li> <li>• Document invasive annual-grass reduction and understory perennial grass and shrub recovery in all treatment areas (using metrics TBD).</li> </ul>	
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Annual documentation of: <ul style="list-style-type: none"> <li>○ Allotments with impacts resulting from improper grazing</li> <li>○ Control measures implemented on allotments with invasive annual grasses</li> <li>○ Heavily used areas treated to control invasive annual-grass spread</li> <li>○ Allotments where grazing is used for invasive annual-grass control, including effectiveness reporting</li> <li>○ Monitoring and adaptive management of grazing management plans and prevention/treatment/containment projects</li> </ul> </li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• NRCS</li> <li>• Permittees enrolled in CCAs with grazing management as part of allotment SSPs</li> <li>• Private landowners enrolled in CCAAs with grazing management as part of SSPs</li> <li>• SWCDs</li> </ul>	
Timeline	<p>Development of grazing management plans:</p> <p><b>Ongoing, as CCAA/CCA enrollment and SSPs occur</b></p>	<p>Containment measures implemented in allotments with invasive annual grasses:</p> <p><b>Date TBD</b></p>



Invasive Annual Grasses: Action IAG-5	
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>64</sup></li> <li>• Ongoing DSL funding (state lands CCAA)</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) Greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Invasive Annual Grasses: Action IAG-6	
<b>Action Description</b>	<p><b>Action IAG-6:</b> Support infrastructure, resources, and research that will enhance annual grass prevention and habitat restoration (see section 7b (vii) in SO 3336 Implementation Plan).</p> <p><b>Action IAG-6-1</b> Support ongoing research and implementation of pilot efforts evaluating annual-grass prevention and control techniques, as well as precision restoration technologies seeking to improve the likelihood of success when actively restoring sagebrush sites. Advance treatments that employ these new techniques and technologies (e.g., ACK55/soil bacterium <i>Pseudomonas fluorescens</i>, D7 <i>Rhizobacterium</i> strain) in order to test their effectiveness, and expand to a wider scale where effective and where re-establishment of perennial grasses is likely to occur.</p>
<b>Strategy Level</b>	I (Large-Scale Planning) and II (Site-specific Management)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Identify funds TBD for prevention and restoration technology research.</li> <li>• Identify funds TBD for local, native seed and/or plant collection and storage.</li> <li>• Advance project efforts that utilize and test new techniques and technologies, and scale up where appropriate.</li> </ul>
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Documentation of funding identified for prevention; restoration technology research; and local, native seed stock</li> <li>• Documentation of the quantity of local, native seed and/or plants available locally, as well as efforts and opportunities to expand local capacity</li> <li>• Number of projects (and acres) addressed with new techniques and technologies, as well as project unit costs and effectiveness relative to other approaches</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• ARS</li> <li>• BLM</li> <li>• TNC</li> </ul>

<sup>64</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

Invasive Annual Grasses: Action IAG-6		
Timeline	Funding requests submitted for research: <b>Ongoing</b>	Native seed facility with TBD quantity of seed available established: <b>Date TBD</b>
Funding	<b>Identified funds:</b> <ul style="list-style-type: none"> <li>• OWEB (min. \$10 mil. over 10 years)</li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)</li> <li>• DSL ongoing funding (state lands)</li> <li>• ODA ongoing funding (Noxious Weed Program and SWCD Program)</li> <li>• Funds TBD identified for ARS</li> <li>• Funds TBD identified for local, native seed collection/banks</li> </ul>	

Invasive Annual Grasses: Action IAG-7		
Action Description	<b>Action IAG-7:</b> Create “grass banks” or reserve forage areas as alternative grazing opportunities to provide rest for over-utilized rangelands or allotments, or to be utilized during drought conditions, post-fire, or after restoration work. Do so in a manner compatible with livestock operations locally.  <b>Action IAG-7-1</b> Remove administrative barriers to establishing “grass banks” on federal land.  <b>Action IAG-7-2</b> Maintain fencing and other improvements on “grass banks” so they are ready for use as need emerges.  <b>Action IAG-7-3</b> Assess “grass banks” to determine whether, if ungrazed, they are contributing to fire risk/fuel loads, and use grazing as a management tool to reduce fuel loads if required.	
Strategy Level	I (Large-Scale Planning)	
Objectives	<ul style="list-style-type: none"> <li>• Develop policies to facilitate converting relinquished allotments into grass banks.</li> <li>• Designate a minimum of TBD acres to be grass banks by 20XX (date TBD).</li> <li>• Conduct routine maintenance on infrastructure in grass bank allotments.</li> </ul>	
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Documentation of the number of allotments reserved for grass banks and the quantity of cattle that can be accommodated during restoration activities elsewhere</li> <li>• Administrative policy developed to facilitate grass bank establishment</li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> </ul>	
Timeline	Policy completion: <b>Spring 2016</b>	Grass bank(s) established: <b>Opportunistically</b> , as grazing permits are relinquished

Invasive Annual Grasses: Action IAG-7	
Funding	<b>Identified funds:</b> <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds for policy work</li> <li>• Ongoing BLM district funds</li> <li>• Ongoing DSL funds</li> </ul>

Invasive Annual Grasses: Action IAG-8	
Action Description	<p><b>Action IAG-8:</b> Remove administrative or procedural barriers to invasive annual-grass management.</p> <p><b>Action IAG-8-1</b> Place cheatgrass on Oregon’s noxious weed list.</p> <p><b>Action IAG-8-2</b> Support policy changes to remove the court-ordered injunction prohibiting the use of herbicides on all federally administered lands in Oregon.</p> <p><b>Action IAG-8-3</b> Support restructuring of the post-fire emergency stabilization and restoration (ESR) funding scheme to ensure that adequate funds are available for long-term post-fire habitat management (see section 7b (v) in SO 3336 Implementation Plan).</p> <p><b>Action IAG-8-4</b> Support development of a post-fire emergency stabilization and restoration program for private lands.</p> <p><b>Action IAG-8-5</b> Coordinate with state and federal agencies to develop consistent procedures and policies for the treatment of noxious and invasive plants, chemical usage, and timing.</p>
Strategy Level	I (Large-Scale Planning)
Objectives	<ul style="list-style-type: none"> <li>• Add cheatgrass to Oregon’s noxious weed list.</li> <li>• Complete all environmental assessments (EAs) to support removal of court-ordered injunction on herbicide use on federal lands.</li> <li>• Develop private land ESR program.</li> <li>• Restructure federal ESR program.</li> <li>• Align state and federal policies and procedures for invasive annual-grass treatment.</li> </ul>
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Addition of cheatgrass to noxious weed lists</li> <li>• Removal of court-ordered injunction on herbicide use on federal lands</li> <li>• New private land ESR program created</li> <li>• Restructuring of federal ESR completed</li> <li>• Alignment of federal and state policies/procedures completed</li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• County weed boards</li> <li>• ODA</li> </ul>
Timeline	Updating of noxious weed lists: <b>January 2016</b> Development of private land ESR: <b>20XX (date TBD)</b>

Invasive Annual Grasses: Action IAG-8	
	<p>Removal of court-ordered injunction: <b>January 2016</b></p> <p>ESR restructuring: <b>June 2015</b></p> <p>Policy alignment: <b>June 2016</b></p>
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing ODA funds for policy work</li> <li>• Ongoing BLM state office funds for policy work</li> </ul>

Wildfire: Action WF-1	
Action Description	<p><b>Action WF-1:</b> Implement best practice, proactive <i>fire risk reduction</i> strategies to reduce the threat wildfire poses to sage-grouse habitat in PACs and important areas of connectivity.</p> <p><b>Action WF-1-1</b> Identify and map priority habitat areas (e.g., sagebrush communities with low resilience to disturbance and low resistance to invasive annual grasses associated with warm and dry soil temperature and moisture regimes), where implementation of proactive management strategies should be prioritized. As part of this prioritization effort, emphasis should be placed on areas with high wildfire risk potential (e.g., areas dominated by invasive annual grasses with low resistance and resilience) that are within or proximal to areas highly valuable to sage-grouse (e.g., intact habitat in or adjacent to PAC areas or important to connectivity).</p> <p><b>Action WF-1-2</b> Based on the above prioritization effort, pre-position resources near PACs when conditions are conducive to large fire growth (e.g., high fire severity conditions, forecasted lightning) in order to ensure rapid response to ignitions. Coordinate among fire response agencies and entities to ensure that adequate equipment and funds are available for pre-positioning efforts.</p> <p><b>Action WF-1-3</b> Restrict unnecessary motorized travel (while maintaining access to livestock for grazers) and ban campfires in sage-grouse habitat during high fire severity conditions to reduce the risk of accidental ignitions.</p> <p><b>Action WF-1-4</b> Reduce the risk of vehicle or human-caused wildfires and the spread of exotic species by planting perennial vegetation (e.g., green strips) paralleling road rights-of-way.</p> <p><b>Action WF-1-5</b> Take steps to prevent future degradation and address currently degraded sagebrush systems (as described in the “Juniper Encroachment” and “Invasive Annual Grasses” sections above) to promote habitat resilience and reduce the impacts of wildfire in sage-grouse habitat.</p>

Wildfire: Action WF-1	
	<p><b>Action WF-1-6</b> Conduct fuel management treatments, including those identified below, designed to protect existing high-quality sagebrush habitat, modify fire behavior, restore native plants, and create habitat resilience and landscape patterns that benefit sage-grouse (see Section 7b (iii) in SO 3336 Implementation Plan).</p> <p><b>Action WF-1-6a</b> Reduce juniper fuel loads in areas adjacent to valuable sage-grouse habitat. Prioritize Phases I and II juniper stands within 4 miles of known leks. Prioritize Phase III juniper stands after Phases I and II have been addressed. Prioritize Phase III areas in or adjacent to priority areas (PACs) that provide adequate sage-grouse habitat (e.g., sagebrush land cover &gt;25%), particularly in areas with medium-to-high resistance and resilience.</p> <p><b>Action WF-1-6b</b> Strategically use livestock grazing to reduce fuel loads in years with high accumulation of fuels to reduce wildfire risk, using grazing management that maintains or improves the native plant community health (e.g., dormant season use). (See related <b>Action WF-3-4c.</b>)</p> <p><b>Action WF-1-6c</b> Establish fuel breaks and/or green strips in strategic locations to compartmentalize future fires, thereby reducing the potential acres burned and fire risk to sage-grouse habitat. Strategically place fuel breaks where high fire risk coincides with sage-grouse habitat with the lowest potential for post-fire recovery (e.g., areas with low-to-moderate resistance and resilience). Monitor and maintain fuel breaks to prevent annual-grass invasion in these disturbed areas and to determine if species planted in green strips spread beyond fuel breaks.</p> <p>When designing fuel breaks, consider the following:</p> <ol style="list-style-type: none"> <li>1. The potential fire containment benefits versus the area of sage-grouse habitat lost in the fuel break footprint</li> <li>2. Existing roads or utility corridors that could be widened with mowing, green-stripping, or black-stripping</li> <li>3. Natural fuel breaks</li> <li>4. Prevailing winds that may influence the placement of fuel breaks (e.g., prioritize east-to-west roads or place on south side of road if only one side is mowed); use of fire-resistant perennial species (e.g., crested wheatgrass or forage kochia) as an effective means to slow the spread of fire while preventing the establishment of non-native annual grasses. Consider the risk of these species spreading beyond seeded fuel breaks.</li> </ol> <p><b>Action WF-1-6d</b> In areas identified to be at very high risk for wildfire, with dense sagebrush that may contribute to fuel loads and where patch removal of sagebrush has been determined to not have a negative impact on sage-grouse, create a mosaic of sagebrush density to intersperse areas of low fuel continuity (less than 25 acres in size and making up less than 15% of the treatment block) among areas of desired shrub density required by sage-grouse (see Appendix 4 for desired sagebrush densities).</p>
Strategy Level	I (Large-Scale Planning) and II (Site-Specific Management)
Objectives	(Note: Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)

Wildfire: Action WF-1		
	<ul style="list-style-type: none"> <li>• Create GIS layers with polygons spatially representing priority areas for fire risk reduction (note: coarse layers have already been created by FIAT, coordinated by the BLM for Focal Habitat and Planning Areas specific to that process).</li> <li>• Complete TBD % of green-stripping, prescribed fires, fuels reduction activities, and/or fuel breaks identified in FIAT assessment areas in Oregon annually (see related objectives for invasive annual-grass and juniper removal).</li> <li>• Reduce overall average annual fire size by TBD %.</li> <li>• Reduce human-caused fires by TBD % by implementing additional motorized travel and campfire bans and green-stripping along roads.</li> <li>• Decrease response time by TBD % by pre-positioning fire suppression resources.</li> </ul>	
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Completed GIS layers with polygons spatially representing priority areas for fire risk reduction (Note: coarse layers have already been created by FIAT teams coordinated by the BLM.)</li> <li>• Annual summary report/review documenting and evaluating the effectiveness of proactive fire risk reduction steps implemented by the BLM, ODF, and RFPAs, including: <ul style="list-style-type: none"> <li>○ Pre-positioning of resources</li> <li>○ Motorized travel and campfire bans</li> <li>○ Fuel management treatments.</li> </ul> </li> <li>• Annual documentation of fuel reduction activities including: <ul style="list-style-type: none"> <li>○ Juniper removal within 4 mi of leks on private, state, and federal lands</li> <li>○ Spot treatments to create mosaic of sagebrush density</li> <li>○ Strategic livestock grazing</li> <li>○ Fuel break development</li> <li>○ Invasive annual-grass treatment.</li> </ul> </li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• BLM FIAT</li> <li>• DSL</li> </ul>	<ul style="list-style-type: none"> <li>• LITs</li> <li>• ODF</li> <li>• Private landowners</li> <li>• RFPAs</li> <li>• USFS</li> </ul>
Timeline	<p>GIS layer prioritizing risk reduction locations (FIAT): <b>June 2015</b></p> <p>Pre-positioning of fire resources: <b>Ongoing during fire season</b></p> <p>Annual summary report/review detailing fire-risk reduction steps: <b>Annually in November</b></p>	<p>Completion of green-stripping, prescribed fires, and/or fuel breaks, per FIAT assessments: <b>Annually</b></p> <p>Summary of fuels reduction activities: <b>Annually</b></p> <p>See also juniper and invasive annual-grass performance measures and timelines.</p>

Wildfire: Action WF-1	
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$100K funded to ODA (2015-2017) for Oregon Invasive Species Council (sage-grouse) for overall response to invasive species, including restoration and protection<sup>65</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>66</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>67</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>68</sup></li> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>69</sup></li> <li>• Ongoing BLM Fire Operations funds</li> <li>• \$1.6M funded to ODF (2015-2017) for RFPA support (1.5 FTE positions)<sup>70</sup></li> <li>• In-kind contributions from RFPA volunteers</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; ongoing DSL funding (state lands); ongoing ODA funding (Noxious Weed Program and SWCD Program).</p> <p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• Funds TBD (e.g., other new BLM funds for fire suppression)</li> </ul>

Wildfire: Action WF-2	
<b>Action Description</b>	<p><b>Action WF-2:</b> Focus fire <i>suppression</i> activities in prioritized sage-grouse habitat within the framework of the federal and state wildland fire policies (see Section 7 b (ii) in SO 3336 Implementation Plan).</p>

<sup>65</sup> Agency package: ODA-320.

<sup>66</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>67</sup> Agency package: ODFW-132.

<sup>68</sup> Agency package: ODFW-105.

<sup>69</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>70</sup> Agency package: ODF-119 and ODF-120.

## Wildfire: Action WF-2

**Action WF-2-1** Utilize trained resource advisors (biologists with sage-grouse expertise) to assist in prioritizing fire suppression activities so that valuable sage-grouse habitat is protected. Involve sage-grouse expertise with fire operations expertise as early and continuously as possible in fire suppression/ incident command efforts so as to integrate input on sage-grouse protection into the mapping and implementation of fire response efforts.

**Action WF-2-2** After protection of life and property, including livestock, prioritize sagebrush habitats within 4 miles of a lek for fire suppression. Further prioritize suppression to prevent fire from entering valuable habitat (PAC and low-density) that is most vulnerable to invasion by annual grasses (e.g., Wyoming big sagebrush communities, areas with low resistance and resilience).

**Action WF-2-3** Enhance fire response planning and coordination in sage-grouse habitat.

**Action WF-2-3a** Utilize mobile technology to ensure that incident management teams can access dynamically updated spatial data that can assist in prioritizing sage-grouse habitat protection during fire suppression.

**Action WF-2-3b** Ensure coordination among the BLM, RFPAs, and rural fire protection districts (RFPDs) to increase initial attack and extended attack capability and effectiveness.

**Action WF-2-3c** Agencies should focus an appropriate combination of resources to quickly arrive at new ignitions, combined with effective suppression strategies supported by appropriate tactical resources, also known as Speed and Focus, a principle of fire suppression actions.

**Action WF-2-3d** Reallocate fire response resources (crews, equipment, etc.) to important sage-grouse habitats, while maintaining adequate resources as required to protect life and property. Identify where resources are lacking and provide those resources to decrease response time to fires in sage-grouse habitats.

**Action WF-2-3e** To the extent possible, locate wildfire suppression facilities (e.g., base camps, spike camps, drop points, staging areas, helibases) in areas where physical disturbance to sage-grouse habitat can be minimized. Preferred areas for suppression facilities may include previously disturbed areas, grasslands, areas near roads/trails, or other areas where there is existing disturbance or minimal sagebrush cover.

**Action WF-2-4** During fire suppression, use tactics that will retain the most sage-grouse habitat, including those listed below.

**Action WF-2-4a** Retain unburned areas of sage-grouse habitat (including interior islands and patches between roads and the fire perimeter), unless there is a compelling safety, resource protection, or control objective at risk. Consider the use of aircraft and mechanized equipment to protect these islands. This may require additional suppression (e.g., aircraft and mechanized equipment) and resources for holding and mop-up. Fire managers and resource advisors should proactively anticipate and plan for these needs early in the incident.

**Action WF-2-4b** Judiciously use heavy equipment and limit brush removal to the level necessary to expeditiously extinguish the



Wildfire: Action WF-2		
	<p>fire. Use existing fuel breaks, such as roads, utility corridors, or areas with fire-resistant vegetation, to minimize fire spread. Establish additional defensible fire lines in areas where (1) effectiveness is high; (2) fire risk is likely; and (3) negative impacts (fragmentation) are minimal.</p> <p><b>Action WF-2-4c</b> Use direct attack tactics when they are safe and effective to reduce the amount of burned habitat. Direct attack supported by any available mechanized equipment (e.g., bulldozer, tractor with blade, aerial drops) is the most efficient at reducing the overall size of rangeland fires, thereby keeping habitat intact.</p>	
Strategy Level	I (Large-Scale Planning) and II (Site-Specific Management)	
Objectives	<p>(Note: Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Train TBD (number of) resource advisors annually and utilize them 100% during fires in sage-grouse habitat.</li> <li>• Prevent fire 100% of the time from burning in priority habitats.</li> <li>• Achieve effective communication and coordination among fire responders 100% of the time during fire suppression.</li> <li>• Reduce the sagebrush impacted by fire or fire suppression activities by TBD % through the use of tactics identified in <b>Action 2-4</b>.</li> </ul>	
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Annual identification and training of resource advisors</li> <li>• Procurement and implementation of mobile technology by incident management teams</li> <li>• Documentation of completed opportunities to enhance or improve suppression capability in and around emphasis areas, as identified during FIAT planning, including: <ul style="list-style-type: none"> <li>○ Asset acquisition</li> <li>○ Coordination activities.</li> </ul> </li> <li>• Annual summary report/review documenting and evaluating the effectiveness of fire suppression activities implemented by the BLM, ODF, and RFPAs, including: <ul style="list-style-type: none"> <li>○ Coordination among BLM and RFPAs before and during fire season</li> <li>○ Acres of sage-grouse habitat impacted by or protected from wildfire during fire season</li> <li>○ Allocation of fire response resources</li> <li>○ Use of best practices to retain unburned areas, develop fuel breaks, and site wildfire suppression facilities, etc.</li> </ul> </li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• BLM FIAT</li> <li>• DSL</li> <li>• ODA</li> <li>• ODF</li> <li>• Private landowners</li> <li>• RFPAs</li> <li>• USFS</li> </ul>	
Timeline	<p>GIS layer prioritizing risk reduction locations: <b>June 2015</b></p> <p>Identification and training of resource advisors</p>	<p>Completion of FIAT-identified opportunities to enhance or improve suppression capabilities: <b>Date TBD</b></p>

Wildfire: Action WF-2	
	<p><b>June annually</b> Annual summary report/review detailing fire suppression activities: <b>Annually in November</b></p> <p>Procurement and incorporation of mobile technology by incident management teams: <b>June 2015</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing BLM Fire Operations funds</li> <li>• \$1.6M funded to ODF (2015-2017) for RFPA support (1.5 FTE positions)<sup>71</sup></li> <li>• In-kind contributions from RFPA volunteers</li> </ul> <p><i>Related funds:</i> ongoing DSL funding (state lands)</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• Funds TBD (e.g., other new BLM funds for fire suppression)</li> </ul>

Wildfire: Action WF-3	
<b>Action Description</b>	<p><b>Action WF-3:</b> <i>Build capacity and support planning and policies</i> so that state and federal agencies are best equipped to reduce the threat of wildfire in sage-grouse habitat.</p> <p><b>Action WF-3-1</b> Identify areas of sage-grouse habitat where fire response capacity is lacking or weak due to remoteness, difficulty of terrain, or lack of RFPA coverage, and implement an approach to improve response capabilities.</p> <p><b>Action WF-3-1a</b> Expand RFPAs to fully cover the extent of priority sage-grouse habitat in Oregon or provide contracted or other capacity to cover currently uncovered lands.</p> <p><b>Action WF-3-1b</b> Provide funding for contracted assistance, other partnership capacity, trainings, or other approaches that will improve fire response capacity, capability, and effectiveness in and adjacent to priority sage-grouse habitat.</p> <p><b>Action WF-3-2</b> Support pre-fire planning activities that will ensure readiness and swift decision making during the fire season (see Section 7b(i) of SO 3336 Implementation Plan (Secretary of the Interior 2015)).</p> <p><b>Action WF-3-2a</b> Compile greater sage-grouse information into statewide tool boxes. Tool boxes will contain maps, lists of</p>

<sup>71</sup> Agency package: ODF-119 and ODF-120.

### Wildfire: Action WF-3

resource advisors, contact information, local guidance, and other relevant information for each BLM district.

**Action WF-3-2b** Preload maps of sage-grouse PAC and low-density habitat as well as connectivity corridors into all dispatch plans (e.g., WildCAD, run-cards).

**Action WF-3-2c** Inform fire duty officers about sage-grouse management objectives and PAC, low-density, and connectivity habitat to be prioritized in the event of a fire.

**Action WF-3-2d** Provide education to fire suppression personnel about the need for and value of protecting sagebrush landscapes.

**Action WF-3-2e** Annually review district fire management plans (Phase I) to incorporate new sage-grouse information (e.g., lek and habitat maps) and fire suppression resources (including location of fuel breaks, water sources, etc.) to ensure that up-to-date information is available and distributed to fire suppression personnel for setting wildfire suppression priorities and initial attack planning.

**Action WF-3-2f** Train resource advisors to assist in working with incident commanders and incident management teams to prioritize sage-grouse considerations during fire suppression activities.

**Action WF-3-3** Support policies of and collaborate with all wildfire protection entities (Including BLM, ODF, and RFPAs) to promote integration across agencies and jurisdictions to provide seamless fire suppression during fires.

**Action WF-3-3a** Implement policy changes that integrate and coordinate more fire suppression resources, such as Air National Guard Mobile Airborne Firefighting Units and rangeland fire protection associations (RFPAs). Local resources such as RFPAs are often closest to ignition sites, knowledgeable of the landscape and infrastructure, and able to quickly mobilize. Optimize engagement of these resources during critical periods such as initial attack and in communicating with federal incident command teams to ensure that all parties are aware of what local conditions to avoid or take advantage of during suppression efforts.

**Action WF-3-3b** Encourage RFPAs to adopt minimum personnel training and equipment standards to ensure optimum coordination among BLM, RFPAs, and RFPDs across ownership boundaries and to most effectively achieve fire suppression and management outcomes.

**Action WF-3-3c** Conduct interagency training exercises with local, state, and federal agencies to ensure and optimize safety, coordination, communication, and effectiveness during fire management operations.

**Action WF-3-4** Support policies of and collaborate with the BLM, USFS, and DSL to minimize administrative barriers to implementing fire prevention activities.

**Action WF-3-4a** Support administrative policies to implement habitat management activities, such as fire prevention efforts, that maintain habitat values associated with federal lands with special designations (e.g., Wilderness Study Areas, Areas of Critical

Wildfire: Action WF-3	
	<p>Environmental Concern).</p> <p><b>Action WF-3-4b</b> Build flexibility into grazing permits on public lands so that grazing intensity may be adjusted during periods of low or high grass productivity (See related <b>Action WF-1-6b</b>).</p> <p><b>Action WF-3-5</b> Build capacity so that agencies and entities responsible for fire suppression have adequate resources to take appropriate actions.</p> <p><b>Action WF-3-5a</b> Identify funds to upgrade or construct additional airports outside sage-grouse habitat that meet the requirements of single-engine air tankers to shorten response and turn-around times for suppression aircraft.</p> <p><b>Action WF-3-5b</b> Identify funding to acquire additional fire-fighting resources where needed, including communication and other equipment as well as contracted support and partnerships. Consider establishing new incident attack centers in or adjacent to PACs.</p> <p><b>Action WF-3-5c</b> Identify existing water sources and strategically develop additional water sources in priority sage-grouse habitats that (a) have high wildfire risk and (b) are &gt;7 miles from an existing source. Pursue development of water sources that will not increase mosquito breeding areas.</p> <p><b>Action WF-3-5d</b> Identify existing travel routes and primitive roads that, if upgraded, would minimally increase disturbance to sage-grouse habitat while affording decreased fire response time and reducing the need for cross-country travel during fire suppression. Incorporate strategies, such as locked gates and seasonal road closures, to restrict travel and, thereby, disturbance to sage-grouse, on any upgraded roads.</p>
Strategy Level	I (Large-Scale Planning)
Objectives	<p>(Note: Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Create GIS layers with polygons spatially representing priority areas to expand fire response capacity (note: coarse layers have already been created by FIAT, coordinated by the BLM for Focal Habitat and Planning Areas specific to that process).</li> <li>• Secure \$\$ funds to meet needs for enhanced fire response capacity.</li> <li>• Increase fire response efficiency by TBD % through pre-planning activities.</li> <li>• Eliminate all administrative barriers to seamless integration across agencies</li> <li>• Complete TBD % of identified water development and route upgrades/enhancement activities annually.</li> </ul>
Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Completed GIS layers with polygons spatially representing priority areas to expand fire response capacity (note: coarse layers have already been created by FIAT teams coordinated by the BLM.)</li> <li>• Funding acquired to enhance fire response capacity</li> <li>• Completion of pre-fire planning activities including: <ul style="list-style-type: none"> <li>○ Development of statewide sage-grouse tool boxes (to be updated annually)</li> </ul> </li> </ul>

Wildfire: Action WF-3		
	<ul style="list-style-type: none"> <li>○ Annual preloading of sage-grouse habitat into all dispatch plans</li> <li>○ Annual training of duty officers on sage-grouse habitat priorities</li> <li>○ Annual training of resource advisors</li> <li>○ Annual review of district fire management plans</li> <li>○ Interagency training exercises</li> <li>● Annual summary report/review documenting and evaluating the effectiveness of the pre-fire planning activities listed above and implemented by the BLM, ODF, and RFPAs</li> <li>● Revised policies that promote integration across agencies and minimize administrative barriers</li> <li>● Completion of TBD % of water development and travel route upgrades identified in FIAT assessment areas in Oregon annually</li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>● BLM</li> <li>● BLM FIAT</li> <li>● DSL</li> </ul>	<ul style="list-style-type: none"> <li>● LITs</li> <li>● ODF</li> <li>● RFPAs</li> <li>● USFS</li> </ul>
Timeline	<p>GIS layer prioritizing areas to increase fire response capacity: <b>June 2015</b></p> <p>Funds acquisition for enhanced fire response: <b>July 2015</b></p> <p>Statewide sage-grouse tool boxes developed: <b>June 2015</b></p> <p>Pre-fire planning activities/trainings: <b>May, annually</b></p>	<p>Annual summary report/review detailing pre-fire planning activities: <b>Annually in November</b></p> <p>Policy revisions relating to agency integration: <b>Date TBD</b></p> <p>Water developments and travel route upgrades: <b>Date TBD</b></p>
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>● Ongoing BLM Fire Operations funds</li> <li>● \$1.6M funded to ODF (2015-2017) for RFPAs support (1.5 FTE positions)<sup>72</sup></li> <li>● Ongoing BLM state office funds for policy work</li> <li>● In-kind contributions from RFPAs volunteers</li> </ul> <p><i>Related funds:</i> ongoing DSL funding (state lands)</p>	

<sup>72</sup> Agency package: ODF-119 and ODF-120.

Wildfire: Action WF-3	
	<p>Pending funds:</p> <ul style="list-style-type: none"> <li>• TBD (e.g., other new BLM funds for fire readiness capacity)</li> </ul>

Wildfire: Action WF-4	
Action Description	<p><b>Action WF-4:</b> Coordinate with private and federal land managers to prioritize <i>post-fire rehabilitation</i> and ensure that adequate resources are available for emergency stabilization and ongoing restoration activities to protect, maintain, or restore sage-grouse habitat within PAC areas and to restore connectivity between PAC areas (see sections 7b (v) and 7b (vi) of SO3336 Implementation Plan).</p> <p><b>Action WF-4-1</b> Prioritize herbicide treatments as an invasive weed/annual-grass prevention strategy in recently burned areas, particularly areas with low resistance and resilience that are proximal to valuable sage-grouse habitat. Use best available science to strategically prioritize herbicide treatments in areas that will provide the greatest benefit to sage-grouse.</p> <p><b>Action WF-4-2</b> Prioritize post-fire rehabilitation and longer-term restoration efforts in areas that are proximal to valuable sage-grouse habitat. Use best available science to strategically prioritize longer-term post-fire rehabilitation investments in areas that will provide the greatest benefit to sage-grouse.</p> <p><b>Action WF-4-3</b> Utilize best practice management techniques to prevent invasive annual grasses and restore burned areas as described in the “Invasive Annual Grasses” section above.</p> <p><b>Action WF-4-4</b> Coordinate with the BLM and USFWS to adapt Emergency Stabilization and Rehabilitation (ESR) and Burn Area Emergency Response (BAER) programs to meet the needs of large-scale fire rehabilitation in sage-grouse habitat areas (see sections 7b (v) and 7b (vi) of SO3336 Implementation Plan).</p> <p><b>Action WF-4-4a</b> Revise ESR and BAER policy direction and administrative procedures to ensure that planning and implementation time periods (1) allow for immediate herbicide treatments where required and (2) are adequate to ensure strategic and effective use of funds for short- and long-term site rehabilitation and restoration success.</p> <p><b>Action WF-4-4b</b> Allocate adequate funds through ESR and BAER to ensure that rehabilitation projects are monitored so that adaptive management techniques can be applied to foster project success.</p> <p><b>Action WF-4-4c</b> Develop mechanisms within ESR and BAER plans to protect rehabilitation investments over time.</p> <p><b>Action WF-4-5</b> Develop mechanisms to ensure that timely and adequate funding is available for emergency stabilization and rehabilitation on private lands.</p> <p><b>Action WF-4-6</b> Monitor sage-grouse habitat utilization and/or population response to areas that have burned and to post-fire</p>

Wildfire: Action WF-4			
	restoration activities. (See related monitoring actions <b>MON-2</b> and <b>MON-4</b> .)		
<b>Strategy Level</b>	I (Large Scale Planning) and II (Site-Specific Management)		
<b>Objectives</b>	<p>(Note: Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Complete herbicide treatments on a minimum of 80-100% of recently burned acres (depending on the scale and severity of annual fire seasons) as a prevention strategy on private, state, and federal lands (prioritized in areas with low resistance and resilience proximal to valuable sage-grouse habitat).</li> <li>• Complete 100% of herbicide treatments during the most effective timeframe.</li> <li>• Complete longer-term restoration efforts on a minimum of 80-100% of recently burned acres (depending on the scale and severity of annual fire seasons) as a prevention strategy on private, state, and federal lands (prioritized in areas with low resistance and resilience proximal to valuable sage-grouse habitat).</li> <li>• Develop private land ESR program.</li> <li>• Restructure federal ESR program.</li> <li>• Develop and implement monitoring and adaptive management plans for 100% of all fire rehabilitation projects.</li> <li>• Document understory perennial grass and shrub recovery (using metrics TBD).</li> <li>• Continue Trout Creeks research investigating long-term sage-grouse response to wildfire.</li> <li>• Research objectives are documented elsewhere for current projects.</li> <li>• Objectives for new monitoring projects will be developed as research priorities emerge.</li> </ul>		
<b>Monitoring and Reporting</b>	<ul style="list-style-type: none"> <li>• Annual documentation of acres treated as a prevention strategy in recently burned areas on private, state, and federal lands (prioritized in areas with low resistance and resilience proximal to valuable sage-grouse habitat)</li> <li>• Annual documentation of acres receiving post-fire restoration treatments in prioritized areas on private, state, and federal lands</li> <li>• Finalization of ESR/BAER policy restructuring</li> <li>• Development of ESR program/policies for private lands</li> <li>• Progress reports submitted quarterly for: <ul style="list-style-type: none"> <li>○ Trout Creek research investigating long-term sage-grouse response to wildfire</li> <li>○ MS theses and PhD dissertations</li> </ul> </li> </ul>		
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• BLM FIAT</li> <li>• LITs</li> </ul>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODA</li> <li>• ODF</li> </ul>	<ul style="list-style-type: none"> <li>• ODFW</li> <li>• OSU</li> <li>• OWEB</li> </ul>
			<ul style="list-style-type: none"> <li>• RFPAs</li> <li>• SWCDs</li> <li>• USFS</li> </ul>
<b>Timeline</b>	Preventive treatments in burned areas: <b>Ongoing, as needed with initial herbicide treatment occurring the first fall after fire</b>		
		Rest from livestock grazing: <b>As needed</b>	

Wildfire: Action WF-4		
	<p>Post-fire rehabilitation restoration activities in burned areas: <b>Ongoing, as needed</b></p> <p>Federal ESR policy restructuring: <b>June 2015</b></p> <p>Development of ESR program for private lands: <b>June 2016</b></p> <p>Grass bank(s) established: <b>Opportunistically</b>, as grazing permits are relinquished</p>	<p>Monitoring of sage-grouse use of fire impacted areas:</p> <p>Phase 1 (Lee Foster, MS Candidate, Oregon State University) Trout Creeks research expected completion: <b>December 2015</b></p> <p>Phase 2 (Catherine Engelman, PhD Candidate, Oregon State University) Trout Creeks research expected completion: <b>2018</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <p>For post-fire rehabilitation on federal lands:</p> <ul style="list-style-type: none"> <li>• BLM ESR funds are to be determined as need emerges.</li> </ul> <p>Potential sources for post-fire rehabilitation on nonfederal lands include:</p> <ul style="list-style-type: none"> <li>• \$100K funded to ODA (2015-2017) for Oregon Invasive Species Council (sage-grouse) for overall response to invasive species, including restoration and protection<sup>73</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>74</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>75</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>76</sup></li> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>77</sup></li> </ul> <p>For policy work:</p> <ul style="list-style-type: none"> <li>• \$1.6M funded to ODF (2015-2017) for RFPA support (1.5 FTE positions)<sup>78</sup></li> </ul>	

<sup>73</sup> Agency package: ODA-320.

<sup>74</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>75</sup> Agency package: ODFW-132.

<sup>76</sup> Agency package: ODFW-105.

<sup>77</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>78</sup> Agency package: ODF-119 and ODF-120.



Wildfire: Action WF-4	
	<ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> </ul> <p>For monitoring of sage-grouse habitat utilization post-fire:</p> <ul style="list-style-type: none"> <li>• All funds for existing MS and PhD research have been identified.<sup>79</sup></li> <li>• Funds for future research efforts will be identified as research priorities emerge.</li> </ul> <p><i>Related funds:</i> Ongoing DSL funding (state lands); ongoing ODA funding (Noxious Weed Program and SWCD Program).</p> <p><b>Pending funds:</b></p> <p>Potential sources for post-fire rehabilitation on federal lands include:</p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president’s budget</li> </ul> <p>Potential sources for post-fire rehabilitation on nonfederal lands include:</p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

<sup>79</sup> Funding sources include Lakeview BLM (Healthy Lands Initiative funds), Oregon Hunters Association, Oregon Wildlife Heritage Foundation, and others.

## Development Threats Metrics

Including: Urban and Exurban Development; Renewable Energy; Electric and Natural Gas Transmission; Mining; Roads and Other Infrastructure

Development: Action DEV-1		
<b>Action Description</b>	<b>Action DEV-1:</b> Implement a memorandum of understanding for coordination among permitting counties, federal agencies, the Oregon Department of Land Conservation and Development (DLCD), the Oregon Department of Energy (ODOE), the Oregon Department of Geological and Mining Industries (DOGAMI), Department of State Lands (DLS), Oregon Parks and Recreation (OPR), Oregon Department of Transportation (ODOT), and all other land management or permitting agencies to site developments in accordance with ODFW's Sage-Grouse Mitigation Policy (OAR-635-140-0025) and the LCDC rule governing development in sage-grouse habitat (OAR 660-023-0115).	
<b>Strategy Level</b>	I (Large-Scale Planning)	
<b>Objective</b>	Develop MOU directing implementation of new sage-grouse OARs.	
<b>Performance Measures</b>	MOU developed and signed by all parties	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• Counties</li> <li>• DLCD</li> <li>• DOGAMI</li> <li>• ODFW</li> <li>• ODOE</li> <li>• ODOT</li> <li>• OPR</li> <li>• OWRD</li> </ul>	
<b>Timeline</b>	Completion date: <b>November 2015</b>	
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>80</sup></li> <li>• \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>81</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)</li> <li>• Ongoing BLM state office funds for assessment of development in relation to BLM adaptive management thresholds</li> <li>• Funds TBD (awarded or requested for Willamette Partnership to finalize and scenario-test Habitat Quantification Tool)</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds:</i> Ongoing permitting agencies and counties reviewing applications against LCDC rule</p> <p><i>Related funds:</i> Ongoing ODFW district funds for pre-consultations with biologists</p>	

<sup>80</sup> Agency package: DLCD-108.

<sup>81</sup> Agency package: ODFW-130.

Development: Action DEV-2		
Action Description	Action DEV-2: Regulate new development (as defined in and using the methodologies adopted in OAR 660-023-0115) within PACs to ensure that future development does not exceed 3% of the total PAC acreage, including current baseline developed areas, and that future development does not exceed the metering described in OAR 660-023-0126 (no more than 1% in any 10-year period; see related Action MON-3.) <sup>82</sup>	
Strategy Level	I (Large-Scale Planning)	
Objective	Note: Also see objectives for Action MON-3. <ul style="list-style-type: none"> <li>• Maintain development rate within PACs below 1% of total PAC acreage over any 10-year period.</li> <li>• Maintain development acreage within PACs below 3%.</li> </ul>	
Performance Measures	See performance measures for Action MON-3.	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• Counties</li> <li>• DLCD</li> <li>• DOGAMI</li> <li>• ODFW</li> <li>• ODOE</li> <li>• ODOT</li> <li>• OPR</li> <li>• OWRD</li> </ul>	
Timeline	Ongoing, commencing August 2015	
Funding	<p><b>Identified funds:</b> (shared with actions DEV-1, -3, -4, and -5)</p> <ul style="list-style-type: none"> <li>• \$300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>83</sup></li> <li>• \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>84</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)</li> <li>• Ongoing BLM state office funds for assessment of development in relation to BLM adaptive management thresholds</li> <li>• Funds TBD (awarded or requested for Willamette Partnership to finalize and scenario-test Habitat Quantification Tool)</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds:</i> Ongoing permitting agencies and counties reviewing applications against LCDC rule</p> <p><i>Related funds:</i> Ongoing ODFW district funds for pre-consultations with biologists</p>	

<sup>82</sup> Existing rights under the General Mining Law of 1872, as amended, on federal lands and existing mining operations permitted by DOGAMI on all land ownerships are not subject to development limits in the event the development cap of 3% is reached within a PAC. However, all mining developments, including those associated with existing locatable minerals rights (regardless of whether extraction operations have commenced) will count toward the development calculations as defined in and using the methodologies adopted in OAR 660-023-0115.

<sup>83</sup> Agency package: DLCD-108.

<sup>84</sup> Agency package: ODFW-130.

Development: Action DEV-3	
<b>Action Description</b>	<b>Action DEV-3:</b> Halt or slow development activities if predetermined “hard” or “soft” sage-grouse population and/or habitat adaptive management triggers are reached—as described in Appendix D, “Adaptive Management Strategy” in the BLM RMP FEIS (BLM 2015). (See related <b>Actions MON-1-1</b> and <b>MON-5</b> .)
<b>Strategy Level</b>	I (Large-Scale Planning) and II (Site-Specific Management)
<b>Objective</b>	Note: Also see objectives for <b>Actions MON-1</b> and <b>MON-5</b> . <ul style="list-style-type: none"> <li>• Maintain or exceed PAC-level sage-grouse population and habitat goals as described in BLM RMP FEIS).</li> </ul>
<b>Performance Measures</b>	See performance measures for <b>Actions MON-1</b> and <b>MON-5</b> .
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• Counties</li> <li>• DLCD</li> <li>• DOGAMI</li> <li>• ODFW</li> <li>• ODOE</li> <li>• ODOT</li> <li>• OPR</li> <li>• OWRD</li> </ul>
<b>Timeline</b>	Habitat and population analyses: <b>Annually</b>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>85</sup></li> <li>• \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>86</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)</li> <li>• Ongoing BLM state office funds for assessment of development in relation to BLM adaptive management thresholds</li> <li>• Funds TBD (awarded or requested for Willamette Partnership to finalize and scenario-test Habitat Quantification Tool)</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds:</i> Ongoing permitting agencies and counties reviewing applications against LCDC rule</p> <p><i>Related funds:</i> Ongoing ODFW district funds for pre-consultations with biologists</p>

Development: Action DEV-4	
<b>Action Description</b>	<b>Action DEV-4:</b> Apply ODFW’s mitigation hierarchy, as described in OAR-635-140-0025, to new development impacts in significant sage-grouse habitat that is subject to state permitting or state jurisdiction on federal lands. Where development in sage-grouse habitat is

<sup>85</sup> Agency package: DLCD-108.

<sup>86</sup> Agency package: ODFW-130.

Development: Action DEV-4		
	<p>permitted in accordance with the aforementioned rules, (1) ensure that projects minimize the extent to which sage-grouse are negatively impacted; (2) require compensatory mitigation for direct and indirect impacts consistent with the standard defined in OAR-635-140-0025, such that a net conservation benefit for sage-grouse is achieved that replaces the lost functionality of the impacted habitat to a level capable of supporting greater sage-grouse numbers than the habitat which was impacted.</p> <p><b>Action DEV-4-1</b> Per OAR-635-140-0025 and OAR 660-023-0115, require consultation (at minimum a pre-application conference) with ODFW to assess the functionality of the habitat proposed to be impacted by developments.</p> <p><b>Action DEV-4-2</b> Develop mitigation banking and/or advance mitigation opportunities, consistent with OAR 635-140-0025.</p> <p><b>Action DEV-4-3</b> Utilize Oregon's Greater Sage-Grouse Mitigation Manual and Habitat Quantification Tool (Appendix 6) to calculate and implement compensatory mitigation requirements and opportunities (i.e., credits) consistently for all development projects that impact sage-grouse habitat. (See related Actions <b>MON-4</b> and <b>MON-7</b>.)</p>	
<b>Strategy Level</b>	I (Large-Scale Planning)	
<b>Objective</b>	<ul style="list-style-type: none"> <li>• Develop a Habitat Quantification Tool (HQT) that accurately conveys the mitigation requirement for developers, per ODFW's mitigation standard, as well as credit calculation and development opportunities for mitigation credit producers.</li> <li>• Create mitigation banking and advance mitigation credit opportunities to promote sage-grouse benefits prior to future impacts occurring.</li> <li>• Complete pre-application conferences for 100% of required proposed developments subject to the applicable OAR's.</li> <li>• Ensure that ODFW's mitigation standard is met by applying mitigation hierarchy requirement to 100% of applicable proposed developments.</li> </ul>	
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Finalization of Habitat Quantification Tool (HQT) for use in determining mitigation requirements for new development and for developing and calculating credits.</li> <li>• Completion of a mitigation banking and advance mitigation mechanism, with engagement by credit producers.</li> <li>• Documentation of progress toward achieving objectives set out in site-specific plans for mitigation projects in annual report.</li> </ul>	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• Counties</li> <li>• DLCD</li> </ul>	<ul style="list-style-type: none"> <li>• DOGAMI</li> <li>• ODFW</li> <li>• ODOE</li> <li>• ODOT</li> <li>• OPR</li> <li>• OWRD</li> </ul>
<b>Timeline</b>	<p>Application of mitigation standard: <b>Ongoing, commencing August 2015</b></p> <p>Completion HQT: <b>December 2015</b></p>	<p>Mitigation banking/advance mitigation mechanism: <b>January 2016</b></p> <p>Mitigation Program reporting: <b>Annually</b></p>

Development: Action DEV-4	
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>87</sup></li> <li>• \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>88</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)</li> <li>• Ongoing BLM state office funds for assessment of development in relation to BLM adaptive management thresholds</li> <li>• Funds TBD (awarded or requested for Willamette Partnership to finalize and scenario-test Habitat Quantification Tool)</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds:</i> Ongoing permitting agencies and counties reviewing applications against LCDC rule</p> <p><i>Related funds:</i> Ongoing ODFW district funds for pre-consultations with biologists</p>

Development: Action DEV-5	
<b>Action Description</b>	<p><b>Action DEV-5:</b> Identify and implement opportunities to reduce the risk of habitat loss due to development.</p> <p><b>Action DEV-5-1</b> Implement mechanisms in coordination with county planning departments and/or DLCD to further limit the density of farm-use dwellings and associated out-buildings within 3.1 miles of leks.<sup>89</sup></p> <p><b>Action DEV-5-2</b> Require site planning to consolidate infrastructure associated with new developments.</p> <p><b>Action DEV-5-3</b> Seek opportunities to acquire easements from willing landowners to eliminate future habitat conversion and development threats.</p> <p><b>Action DEV-5-4</b> Do not relinquish public lands for the purpose of urban development in priority sage-grouse habitat.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objective</b>	<ul style="list-style-type: none"> <li>• Protect 100% of leks from other development not covered in new LCDC rule by: <ul style="list-style-type: none"> <li>○ Developing new county overlays for buffered sage-grouse leks to assist in local efforts to avoid or limit farm-use dwelling/infrastructure density in buffered leks.</li> <li>○ Designating set-back distances or other approaches to lek protection.</li> </ul> </li> <li>• Work with the Land Trust Alliance and others to identify at least one land trust to expand service to eastern Oregon sage-grouse</li> </ul>

<sup>87</sup> Agency package: DLCD-108.

<sup>88</sup> Agency package: ODFW-130.

<sup>89</sup> Dwelling density to be determined.

Development: Action DEV-5	
	<p>country.</p> <ul style="list-style-type: none"> <li>Identify a priority private acreage and opportunities (including incentives) for enrollment in a working land easements or other conservation-focused land management options.</li> <li>Protect 100% of public lands in priority sage-grouse habitat from urban development.</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>Development of new county overlays for buffered sage-grouse leks within which efforts would be made to avoid or limit farm-use dwelling/infrastructure density<sup>Error! Bookmark not defined.</sup></li> <li>Set-back distances from leks and/or other protections adopted for farm-use dwellings/infrastructure in county ordinances</li> <li>Monitoring/tracking of the number of farm-use dwellings and the density of farm-use infrastructure developed within 3.1 miles of leks</li> <li>Documentation of the number of recruitment activities completed annually for landowner participation in conservation easements, as well as the amount of priority acreage engaged in easements or other conservation-based management</li> <li>Documentation of acres of public land retained as sage-grouse habitat</li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>DLCD</li> <li>Counties</li> <li>ODFW</li> </ul>
Timeline	<p>New county ordinances: Spring 2016</p> <p>Conservation easements/Other options: Ongoing recruitment, annual reporting</p>
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>\$300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>90</sup></li> <li>\$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>91</sup></li> <li>OWEB (minimum of \$10M 2015-2025)</li> <li>Ongoing BLM state office funds for assessment of development in relation to BLM adaptive management thresholds</li> <li>Funds TBD (awarded or requested for Willamette Partnership to finalize and scenario-test Habitat Quantification Tool)</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds:</i> Ongoing permitting agencies and counties reviewing applications against LCDC rule</p> <p><i>Related funds:</i> Ongoing ODFW district funds for pre-consultations with biologists</p>

Development: Action DEV-6
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<sup>90</sup> Agency package: DLCD-108.

<sup>91</sup> Agency package: ODFW-130.

Development: Action DEV-6	
<b>Action Description</b>	<p><b>Action DEV-6:</b> Encourage private landowners to participate in long-term or permanent sagebrush habitat protection or enhancement programs.</p> <p><b>Action DEV-6-1</b> Encourage private landowner participation in Candidate Conservation Agreements with Assurances offered through county SWCDs. Once enrolled, landowners must agree to “maintain contiguous habitat by avoiding further fragmentation” and are required to maintain their land with no net loss in habitat quantity or quality.</p> <p><b>Action DEV-6-1a</b> Conduct outreach and education to promote private landowner enrollment in CCAAs.</p> <p><b>Action DEV-6-2</b> Encourage private landowners to participate in conservation easements with restrictions that preclude further agricultural conversion, with particular focus on land within PAC habitat.</p> <p><b>Action DEV-6-2a</b> Promote the development of land trusts and encourage existing land trusts to expand service areas to eastern Oregon in order to accommodate conservation easements on lands in sage-grouse habitat.</p> <p><b>Action DEV-6-3</b> Identify opportunities, involving willing landowners, to transfer or exchange lands where such action would result in significant conservation benefits for sage-grouse, and would support rather than undermine rural economic values.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objective</b>	<ul style="list-style-type: none"> <li>• Enroll a minimum of 80% of eligible acres into CCAAs by enrollment deadline.</li> <li>• Enroll a minimum of TBD % of eligible landowners into SGI.</li> <li>• Secure funds TBD for CCAAs and other habitat management assistance programs.</li> <li>• Work with the Land Trust Alliance and others to identify at least one land trust to expand service to eastern Oregon sage-grouse country. <ul style="list-style-type: none"> <li>◦ Identify a priority private acreage and opportunities (including incentives) for enrollment in a working land easements or other conservation-focused land management.</li> </ul> </li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of the number of recruitment activities completed annually by each SWCD and other partner organizations</li> <li>• Funds identified and allocated to habitat management assistance programs</li> <li>• Documentation of the number of land trusts developed or with expanded service areas</li> <li>• Documentation of the number of private landowners/acres engaged in conservation-focused land management programs (SGI, CCAA's, working lands easements, conservation-based ownership).</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODFW</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Landowner outreach: Summary of recruitment:</p> <p>Ongoing Annually</p>



Development: Action DEV-6	
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>92</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Development: Action DEV-7	
Action Description	<p><b>Action DEV-7:</b> Identify areas where mining leases or surface occupancy is not compatible (or not compatible without stipulations) with maintaining functional sage-grouse habitat.</p> <p><b>Action DEV-7-1</b> Consider options to limit future development of existing leases on county and state lands in incompatible areas (e.g., withdraw under-performing or under-developed leases; limit extensions of under-developed leases).</p> <p><b>Action DEV-7-2</b> Where deemed necessary to limit disturbance to sage-grouse or their habitat, add relevant restrictions (e.g., timing and seasonality of operations) to existing state and federal leases.</p>
Strategy Level	I (Large-Scale Planning)
Objective	<ul style="list-style-type: none"> <li>• Develop maps and GIS layers with identified exclusion areas.</li> <li>• Place relevant operational restrictions on 100% of the leases where current operations threaten sage-grouse.</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• Development of maps and GIS layers with identified exclusion areas</li> <li>• Documentation of relevant restrictions placed on state and federal leases</li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DOGAMI</li> </ul>
Timeline	<p>Maps/GIS layers: December 2015</p> <p>Lease restrictions: Case-by-case basis, ongoing</p>
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> <li>• Ongoing DOGAMI funds</li> </ul>

<sup>92</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS

Development: Action DEV-8	
<b>Action Description</b>	<p><b>Action DEV-8:</b> Eliminate or minimize risk to sage-grouse by utilizing Implementation Recommendations and Guidelines in the siting, construction, operation, and maintenance of new or existing infrastructure.</p> <p><b>Action DEV-8-1</b> Develop conservation agreements with developers to ensure that Implementation Recommendations and Guidelines for all activities associated with development will be implemented to minimize risk to sage-grouse (see “Implementation Recommendations and Guidelines,” Appendix 4).</p> <p><b>Action DEV-8-2</b> Ensure that state regulatory oversight exists to minimize impacts to sage-grouse habitat for all relevant types of mining operations.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objective</b>	<ul style="list-style-type: none"> <li>• Develop conservation agreements with 100% of project proponents.</li> <li>• Review and consider revised mining regulations for types of operations that do not meet the definition in ORS 517.750 and do not trigger LCDC rules.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of the number and quality of conservation agreements initiated with developers</li> <li>• Development of mining regulations where regulatory gaps exist (see Section IV for gaps)</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DOGAMI</li> <li>• DLCD</li> <li>• ODFW</li> </ul>
<b>Timeline</b>	<p>Conservation agreements: Ongoing</p> <p>Evaluation of need for new state mining regulations: December 2015</p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>93</sup></li> <li>• \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>94</sup></li> <li>• Ongoing BLM state office funds</li> <li>• Ongoing DOGAMI funds</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds:</i> Ongoing ODFW district funds for consultations with biologists</p>

<sup>93</sup> Agency package: DLCD-108.

<sup>94</sup> Agency package: ODFW-130.

Development: Action DEV-9	
<b>Action Description</b>	<p><b>Action DEV-9:</b> Prioritize reclamation of all mines, including abandoned mines in PAC areas, with the aim to restore areas disturbed by mining and associated facilities to healthy sagebrush ecosystems.<sup>95</sup></p> <p><b>Action DEV-9-1</b> Develop reclamation plans with a realistic timeline that incorporates the likelihood of multiple treatments to return disturbed areas to functional sage-grouse habitat.</p> <p><b>Action DEV-9-2</b> Evaluate the need for restoration of previously reclaimed infrastructure sites. Prioritize areas in need of additional restoration efforts and identify potential funding sources, including mitigation credit/banking options.</p> <p><b>Action DEV-9-3</b> Monitor reclamation activities to document habitat and sage-grouse response.</p> <p><b>Action DEV-9-4</b> Evaluate and, where needed, develop improved state regulations and standards related to reclamation to reduce threats to sage-grouse.</p>
<b>Strategy Level</b>	I (Large-Scale Planning) and II Site-Specific Management
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Develop reclamation plans for 100% of mines, including abandoned mines, as well as funding sources.</li> <li>• Monitor all reclamation sites, including previously reclaimed sites, at set year intervals TBD. <ul style="list-style-type: none"> <li>○ Document sagebrush and understory perennial grass recovery at reclamation sites (using TBD metrics).</li> <li>○ Conduct a policy/regulation review to identify opportunities to improve reclamation standards in sage-grouse habitat. Ensure that designated “secondary uses” of mining sites will reclaim and return the area to sage-grouse habitat where appropriate.</li> </ul> </li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of the number and quality of reclamation plans</li> <li>• Documentation of funding sources to implement reclamation plans, including connection to advance mitigation/mitigation banking mechanisms.</li> <li>• Documentation of sagebrush and understory perennial grass recovery at reclamation sites</li> <li>• Documentation of adaptive management undertaken to improve outcomes of reclamation plans</li> <li>• Policy/regulation review completed; policies and regulations strengthened where necessary</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DOGAMI</li> <li>• ODFW</li> <li>• DLCD</li> <li>• Mine claimants</li> </ul>
<b>Timeline</b>	<p>Development of reclamation plans for abandoned mines: TBD</p> <p>Monitoring of reclamation sites should occur at <b>set year intervals</b> TBD.</p>

<sup>95</sup> DOGAMI must approve reclamation proposals by applicants if they are compatible with the secondary land uses (uses of mining areas no longer employed for mining) designated by the local land-use administrator. Secondary land uses are determined on a case-by-case basis. If the land-use administrator specifies that areas disturbed by mining be returned to sagebrush habitat, DOGAMI has the authority to ensure compliance. However, other secondary uses that are not compatible with sage-grouse habitat needs may be designated by the local land-use administrators, and DOGAMI must approve reclamation proposals for these uses as well.

Development: Action DEV-9		
	Development of reclamation plans for new mines: <b>Concurrent with new permits</b>	Policy/regulation review: <b>Spring 2016</b>
<b>Funding</b>	<b>Identified funds:</b> <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> <li>• Ongoing DOGAMI funds</li> <li>• \$300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>96</sup></li> <li>• \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>97</sup></li> <li>• Mine claimants (for reclamation and monitoring activities)</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds:</i> Ongoing ODFW district funds for consultations with biologists</p>	

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<sup>96</sup> Agency package: DLCD-108.

<sup>97</sup> Agency package: ODFW-130.

## Other Threats Metrics

Sagebrush Elimination: Action SBE-1	
<b>Action Description</b>	<p><b>Action SBE-1:</b> Encourage landowners to enroll in habitat management assistance programs (e.g., CCAAs, SGI, and others) to ensure that technical expertise through ODFW, NRCS, SWCDs, and/or the OSU Extension Service is available to landowners prior to implementing vegetation treatments.</p> <p><b>Action SBE-1-2:</b> Direct funding to ensure that adequate funds and staff capacity are available for development and implementation of conservation measures identified in site-specific habitat management plans.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Enroll a minimum of 80% of eligible acres into CCAAs by enrollment deadline.</li> <li>• Enroll a minimum of TBD % of eligible landowners in SGI.</li> <li>• Secure TBD funds for CCAAs and other habitat management assistance programs</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of the number of recruitment activities completed annually by each SWCD and other partner organizations</li> <li>• Documentation of the number of landowners/acres recruited/enrolled to participate in SGI and CCAA summarized annually</li> <li>• Funds identified and allocated to habitat management assistance programs</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Landowner outreach: <b>Ongoing</b></p> <p>Summary of recruitment: <b>Annually</b></p>
<b>Funding</b>	<p><b>Identified funds:</b> (shared with SBE-1, -2, -3, and -4)</p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>98</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>99</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>100</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>101</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Pending funds:</b></p>

<sup>98</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>99</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>100</sup> Agency package: ODFW-132.

<sup>101</sup> Agency package: ODFW-105.

Sagebrush Elimination: Action SBE-1	
	<ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Sagebrush Elimination: Action SBE-2	
<b>Action Description</b>	<b>Action SBE-2:</b> Strategically use chemical or mechanical treatments to remove sagebrush in areas where warranted with the highest potential to achieve treatment objectives, while minimizing the risk of annual-grass invasion and the fragmentation and loss of habitat (see Appendix 4 for additional implementation guidance related to spot treatments and the creation of mosaics of sagebrush density to benefit sage-grouse).
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	<p>(Note: Specific objectives will be developed/refined in LIT regional work plans and/or CCAA/CCA site-specific plans. Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Ensure and document that 100% of sagebrush treatments are undertaken and designed to benefit sage-grouse.</li> <li>• Treatment prescriptions and objectives will vary per project. Document understory perennial grass and shrub recovery in all treatment areas (using metrics TBD).</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of: <ul style="list-style-type: none"> <li>○ Justification for sagebrush removal and anticipated benefits to sage-grouse</li> <li>○ Number of acres in which sagebrush treatments are conducted</li> <li>○ Sagebrush and understory perennial grass recovery within sagebrush treatment areas</li> <li>○ Monitoring and adaptive management of restoration projects</li> </ul> </li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Documentation completed: As projects are proposed (e.g., during National Environmental Policy Act [NEPA] analyses)</p> <p>Summary of projects: Annually</p>
<b>Funding</b>	<p><b>Identified funds:</b> (shared with SBE-1, -2, -3, and -4)</p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>102</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>103</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>104</sup></li> </ul>

<sup>102</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>103</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>104</sup> Agency package: ODFW-132.

Sagebrush Elimination: Action SBE-2	
	<ul style="list-style-type: none"> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>105</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Pending funds:</b> NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</p>

Sagebrush Elimination: Action SBE-3	
<b>Action Description</b>	<b>Action SBE-3</b> Avoid sagebrush conversion or maintenance of conversion projects on public lands for the sole purpose of increasing livestock forage (e.g., conversion to or maintenance of existing crested wheat seedings).
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	Ensure and document that no sagebrush elimination is undertaken for the sole purpose of increasing livestock forage.
<b>Performance Measures</b>	Documentation of any activities (and acreage amounts) that eliminate sagebrush for any other purpose than to benefit sage-grouse
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Documentation completed: As projects are proposed (e.g., during National Environmental Policy Act [NEPA] analyses)</p> <p>Summary of projects: Annually</p>
<b>Funding</b>	<p><b>Identified funds:</b> (shared with SBE-1, -2, -3, and -4)</p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>106</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>107</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>108</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>109</sup></li> </ul>

<sup>105</sup> Agency package: ODFW-105.

<sup>106</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>107</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>108</sup> Agency package: ODFW-132.

<sup>109</sup> Agency package: ODFW-105.

Sagebrush Elimination: Action SBE-3	
	<p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Pending funds:</b> NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</p>

Sagebrush Elimination: Action SBE-4	
<b>Action Description</b>	<b>Action SBE-4:</b> Balance the intent, position, and extent of fuel breaks with the direct habitat loss caused by such fire prevention measures (see <b>Action WF-1-6c</b> and associated <b>IRG-WF-1-6c</b> ).
<b>Strategy Level</b>	II (Site- Level Management)
<b>Objectives</b>	Note: Also see objectives for <b>Action WF-1-6c</b> . Complete cost-benefit analyses for all proposed fuel breaks to weigh the fire prevention benefit against the potential negative sage-grouse impacts.
<b>Performance Measures</b>	Note: Also see performance measures for <b>Action WF-1-6c</b> . Documentation of the amount (acreage), location (with respect to PACs), and justification for fuel breaks and anticipated benefits to sage-grouse
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Documentation completed: As projects are proposed (e.g., during National Environmental Policy Act [NEPA] analyses)</p> <p>Summary of projects: Annually</p>
<b>Funding</b>	<p><b>Identified funds:</b> (shared with SBE-1, -2, -3, and -4)</p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>110</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>111</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>112</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>113</sup></li> </ul>

<sup>110</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>111</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>112</sup> Agency package: ODFW-132.

<sup>113</sup> Agency package: ODFW-105.



Sagebrush Elimination: Action SBE-4	
	<p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Pending funds:</b> NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</p>

Improper Grazing Management: Action GRZ-1	
<b>Action Description</b>	<p><b>Action GRZ-1:</b> Encourage landowners to enroll in habitat management assistance programs (e.g., CCAAs, SGI, and others) to ensure that technical expertise through ODFW, NRCS, SWCDs, and/or the OSU Extension Service is available to landowners to develop grazing management plans that promote sage-grouse habitat and sustainable grazing operations.</p> <p><b>Action GRZ-1-2</b> Direct funding to ensure that adequate funds and staff capacity are available for development and implementation of conservation measures identified in site-specific habitat management plans.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Enroll a minimum of 80% of eligible acres into CCAAs by enrollment deadline.</li> <li>• Enroll a minimum of TBD % of eligible landowners in SGI.</li> <li>• Secure TBD funds for CCAAs and other habitat management assistance programs.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of the number of recruitment activities completed annually by each SWCD and other partner organizations</li> <li>• Documentation of the number of landowners/acres recruited/enrolled to participate in SGI and CCAAs summarized annually</li> <li>• Funds identified and allocated to habitat management assistance programs</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Landowner outreach: <b>Ongoing</b></p> <p>Summary of recruitment: <b>Annually</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>114</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>115</sup></li> </ul>

<sup>114</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>115</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

Improper Grazing Management: Action GRZ-1	
	<p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; DSL ongoing funding for state lands CCAA.</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Improper Grazing Management: Action GRZ-2	
<b>Action Description</b>	<p><b>Action GRZ-2:</b> Implement grazing management plans that contribute to the health of sage-grouse habitat. Grazing management conservation measures have been developed for Greater Sage-Grouse Programmatic Candidate Conservation Agreements with Assurances (CCAAs) for private and state rangelands, as well as Candidate Conservation Agreements (CCAs) for public lands. That list is represented in part below. However, additional conservation measures may be required for specific site conditions.</p> <p><b>Action GRZ-2-1</b> Inventory private lands and allotments to determine the current state of plant communities and use available ecological site descriptions to set realistic habitat goals. Utilize appropriate state-and-transition models (see Section III, “Strategy Level II”) to develop grazing management strategies that will transition inventoried habitat from less degraded states to more desirable states.</p> <p><b>Action GRZ-2-2</b> Prioritize inventories and processing of grazing permits within allotments that have the best opportunities for conserving, enhancing, or restoring sage-grouse habitat within PAC areas. Once completed, prioritize grazing allotments adjacent to PAC areas.</p> <p><b>Action GRZ-2-3</b> On BLM land, when incorporating desired habitat indicators (as described in Table 2-4 of BLM RMP, BLM 2015) and conditions consistent with the Sage-Grouse Habitat Assessment Framework (HAF) (Stiver et al. 2015) into grazing management plans, ensure that limitations of these approaches and potential benefits from state and transition model work are addressed. In particular, recognize that the conditions stipulated in the HAF may need to be adjusted for regional/local conditions and may not be realistic objectives given the initial vegetation state or underlying ecological site characteristics (e.g., soil and moisture regimes). Objectives must also be adjusted for factors unrelated to grazing (e.g., wildfire, drought, etc.) as well as for inter-annual variability.</p> <p><b>Action GRZ-2-4</b> Follow recommended grazing guidelines to meet seasonal sage-grouse habitat requirements. Consider (1) season or timing of use; (2) numbers of livestock (including temporary nonuse or livestock removal); (3) distribution of livestock use; (4) intensity of use; and (5) type of livestock.</p> <p><b>Action GRZ-2-5</b> Adjust grazing to respond to environmental conditions, such as wildfire, catastrophic flooding, or drought, in order to prevent overuse of vegetation and to facilitate habitat recovery. Grazing adjustments may include deferment, rotation, rest, seasonal use, timing, intensity, etc.</p>

Improper Grazing Management: Action GRZ-2	
	<p><b>Action GRZ-2-6</b> Manage grazing in riparian areas to ensure bank stability, survival of deep-rooted riparian vegetation, floodplain connectivity, and stream functionality.</p> <p><b>Action GRZ-2-7</b> Monitor grazed lands upon which conservation measures are implemented and adaptively manage to achieve positive trends and desirable states for sage-grouse.</p> <p><b>Action GRZ-2-7a</b> Assess grazing impacts on the portion of the pasture/allotment known to be sage-grouse habitat rather than on “average use” throughout the entire pasture/allotment.</p> <p><b>Action GRZ-2-7b</b> When monitoring demonstrates that grazing has contributed to forage use levels that are detrimental to habitat quality, make timely adjustments to minimize the impact to sage-grouse.</p> <p><b>Action GRZ-2-7c</b> Conduct adjustments to grazing management in accordance with regulations of the responsible land management agency.</p> <p><b>Action GRZ-2-8</b> Where practicable, coordinate grazing management strategies across public and private lands so operations with deeded and BLM allotments can be planned as single units.</p>
<b>Strategy Level</b>	I (Large-Scale Planning) and II (Site-Specific Management)
<b>Objectives</b>	<p>(Note: Specific objectives will be developed/refined in CCAA/CCA site-specific plans.)</p> <ul style="list-style-type: none"> <li>• Develop grazing management plans for 100% of acres enrolled in CCAAs/CCAs (or other Farm Bill programs) to reduce spread of invasive annual grasses as enrollment occurs.</li> <li>• Assess TBD % of prioritized allotments annually. <ul style="list-style-type: none"> <li>○ Revise TBD % of grazing plans (on BLM allotments) annually to include HAF and/or other sage- grouse appropriate habitat indicators.</li> </ul> </li> <li>• Include flexible measures in 100% of grazing management plans to allow for response to localized or emerging environmental conditions.</li> <li>• Monitor and adaptively manage all areas to which CCAA/CCA and BLM grazing management plans apply.</li> <li>• Achieve TBD % increase in the health of sage-grouse habitat, per criteria specified in site-specific plans or BLM monitoring plans. <ul style="list-style-type: none"> <li>○ Document invasive annual-grass reduction and understory perennial grass and shrub recovery in all treatment areas (using metrics TBD).</li> </ul> </li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Annual documentation of: <ul style="list-style-type: none"> <li>○ Conservation measures implemented by private landowners and public land permittees (as specified in site-specific plans)</li> <li>○ The number of BLM grazing management plans reflecting HAF and/or other habitat indicators (note: BLM has prioritized completion of these plans in PACs, SFAs, and late-summer brood rearing habitat)</li> <li>○ Flexible measures in grazing management plans to allow for response to emerging environmental conditions, and</li> </ul> </li> </ul>

Improper Grazing Management: Action GRZ-2	
	<p>implementation of these measures as required</p> <ul style="list-style-type: none"> <li>○ Progress toward improvements in sage-grouse habitat indicators</li> <li>○ Monitoring and adaptive management measures undertaken</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Development and implementation of grazing management plans: Ongoing, as CCAA/CCA enrollment and SSPs occur</p> <p>Habitat monitoring: As described in site-specific plans</p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>116</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>117</sup></li> <li>• Ongoing BLM district funds</li> <li>• Ongoing DSL funding for state lands CCAA</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Improper Grazing Management: Action GRZ-3	
<b>Action Description</b>	<p><b>Action GRZ-3:</b> In consultation with permittees and/or private landowners, modify infrastructure to minimize impacts to sage-grouse.</p> <p><b>Action GRZ-3-1</b> Reduce physical disturbance to sage-grouse leks from livestock by placing salt, water, or mineral supplements beyond 0.6 mi. away on private lands (consistent with CCAA specifications, Harney SWCD and USFWS 2014) and 1.2 mi away on BLM lands (consistent with BLM RMP, BLM 2015) from occupied or pending leks.</p> <p><b>Action GRZ-3-2</b> Assess water developments for livestock and modify features according to Implementation Recommendations</p>

<sup>116</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>117</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

Improper Grazing Management: Action GRZ-3	
	<p>and Guidelines (Appendix 4) to minimize threats to sage-grouse.</p> <p><b>Action GRZ-3-3</b> Where necessary, develop new water sources for livestock in order to reduce the impact to riparian, wetland, playas, and wet meadow areas important to sage-grouse.</p> <p><b>Action GRZ-3-4</b> Use fencing where helpful in excluding livestock to promote trends toward proper functioning condition of springs, seeps, wet meadows, and/or riparian areas. Engage other techniques if equally effective in promoting such trends. Install antistrike markers on wetland fences to reduce sage-grouse collisions (see Section IV for more detail on fences).</p> <p><b>Action GRZ-3-5</b> Assess salting locations and alter the placement of salt to improve livestock distribution to the benefit of sage-grouse habitat.</p> <p><b>Action GRZ-3-6</b> Conduct range management activities using Implementation Recommendations and Guidelines to avoid disruption to lekking and nesting behaviors (see Appendix 4).</p> <p><b>Action GRZ-3-7</b> When practical, avoid supplemental winter feeding of livestock in PACs and low-density habitat, unless it is part of a plan to improve ecological health or create a mosaic of habitat in dense sagebrush stands, or is required for emergency care of livestock.</p> <p><b>Action GRZ-3-7a</b> Develop grazing management plans that ensure that, if required, supplemental feeding is designed to minimize adverse impacts to sage-grouse.</p> <p><b>Action GRZ-3-8</b> Design and locate range management infrastructure according to Implementation Recommendations and Guidelines (Appendix 4) so that there is a neutral effect or benefit to sage-grouse.</p> <p><b>Action GRZ-3-9</b> Remove predator (corvid, coyote, raptor) attractants; remove and bury dead animals.</p>
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	<p>(Note: Specific objectives will be developed/refined in CCAA/CCA site-specific plans. See also objectives related to grazing management plans in <b>Action GRZ-2</b>.)</p> <ul style="list-style-type: none"> <li>• Maintain or improve sage-grouse attendance at all leks by reducing disturbance associated with livestock infrastructure.</li> <li>• Assess TBD % of infrastructure annually within 0.6 mi and 1.2 mi of leks on private and BLM lands, respectively.</li> <li>• Assess TBD % of salting and water development locations annually.</li> <li>• Improve all infrastructure and salt and water locations within TBD timeframe of identifying need to do so.</li> <li>• See objectives related to development of grazing management plans.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• See performance measures for <b>Action MON-1</b>, related to monitoring lek attendance, and <b>GRZ-2</b>, related to grazing management plans.</li> <li>• Documentation of the number of infrastructure improvements/modifications made to reduce risk to sage-grouse</li> </ul>

Improper Grazing Management: Action GRZ-3	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
Timeline	Development and implementation of infrastructure modifications: Ongoing, as CCAA/CCA enrollment and SSPs occur and as BLM allotment reviews occur
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>118</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>119</sup></li> <li>• Ongoing BLM district funds</li> <li>• Ongoing DSL funding for state lands CCAA</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Improper Grazing Management: Action GRZ-4	
Action Description	<b>Action GRZ-4:</b> Develop and implement invasive plant management plans to prioritize areas for prevention, restoration, and containment of invasive annual grasses (see conservation strategies in "Invasive Annual Grass" section above).
Strategy Level	I (Large-Scale Planning) and II (Site-Specific Management)
Objectives	See objectives identified for "Invasive Annual Grass" and "Noxious Weed" conservation actions.
Performance Measures	See performance measures identified for "Invasive Annual Grass" and "Noxious Weed" conservation actions.
Responsible Parties	See responsible parties identified for invasive annual grass and noxious weeds.
Timeline	See timelines identified in IAG and NXW sections.
Funding	See funds identified for "Invasive Annual Grass" and "Noxious Weeds" sections.

<sup>118</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>119</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

Improper Grazing Management: Action GRZ-5	
<b>Action Description</b>	<p><b>Action GRZ-5:</b> Minimize direct impacts (mortality) and indirect impacts (reduction of forage) to sage-grouse when applying insecticides within sage-grouse habitat.</p> <p><b>Action GRZ-5-1</b> Consult with SWCDs, Oregon Department of Agriculture (ODA), and/or the Animal and Plant Health Inspection Service (APHIS) to determine the appropriate application of insecticides (products, timing, methods) to avoid harming sage-grouse.</p>
<b>Strategy Level</b>	II (Site Specific Management)
<b>Objectives</b>	See objectives identified for “Insecticides” conservation actions.
<b>Performance Measures</b>	See performance measures identified for “Insecticides” conservation actions.
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	See timelines identified in “Insecticides” section.
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>120</sup></li> <li>• Ongoing BLM district funds</li> <li>• Ongoing ODA funding (Noxious Weed Program and SWCD Program)</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president’s budget</li> </ul>

Improper Grazing Management: Action GRZ-6	
<b>Action Description</b>	<b>Action GRZ-6:</b> Support infrastructure, resources, and research that will contribute to rangeland health.

<sup>120</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

Improper Grazing Management: Action GRZ-6		
	<p><b>Action GRZ-6-1</b> Provide educational opportunities for permittees and private landowners to learn about sage-grouse habitat requirements and conservation measures they can implement to improve rangeland conditions for livestock and sage-grouse.</p> <p><b>Action GRZ-6-2</b> Advance additional funding and capacity support for USDA Burns Agricultural Research Station and related institutional research efforts related to sage-grouse habitat health and rangeland management.</p> <p><b>Action GRZ-6-3</b> Create “grass banks” or reserve forage areas as alternative grazing opportunities to provide rest for overutilized rangelands or allotments, or to be utilized during drought conditions, post-fire or after restoration work. Do so in a manner compatible with livestock operations locally.</p> <p><b>Action GRZ-6-4</b> Create new and incorporate existing incentive-based programs to develop/improve important seasonal habitat (lek, nesting, brood rearing, wintering).</p> <p><b>Action GRZ-6-5</b> Assist Local Implementation Teams (LITs) in developing a process to evaluate management options and set priorities for funding habitat improvement projects.</p> <p><b>Action GRZ-6-6</b> Identify opportunities to compensate landowners for the cost of implementing conservation measures and facilitating practices to benefit sage-grouse and their habitat.</p>	
Strategy Level	I (Large-Scale Planning)	
Objectives	<ul style="list-style-type: none"> <li>• Conduct a minimum of 2 educational events for permittees annually per county.</li> <li>• Develop policies to facilitate converting relinquished allotments (or other opportunities) to grass banks/reserve forage allotments in a manner that supports and does not undermine livestock economies and conservation benefits.</li> <li>• Designate a minimum of TBD (number of) acres as available grass banks by 20XX (date TBD).</li> <li>• Conduct routine maintenance on infrastructure in grass bank allotments.</li> <li>• Maintain and increase funding by a minimum of TBD % for landowner incentive programs.</li> </ul>	
Performance Measures	<ul style="list-style-type: none"> <li>• Documentation of education events or other learning opportunities</li> <li>• Development of new conservation incentives, compensation programs, and mitigation opportunities to develop/improve seasonal habitats</li> <li>• Documentation of the number of allotments reserved for grass banks and the quantity of cattle that can be accommodated during restoration activities elsewhere</li> <li>• Administrative policy developed to facilitate grass bank establishment consistent with related objectives.</li> <li>• Allocation of funds for expansion of landowner incentive programs</li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• GNO</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• SWCDs</li> </ul>	
Timeline	Landowner outreach: _____ Grass bank(s) established: _____	



Improper Grazing Management: Action GRZ-6		
	<p><b>Ongoing</b></p> <p>Grass bank/reserve forage policy completion: <b>Spring 2016</b></p>	<p><b>Opportunistically</b> as grazing permits are relinquished or other opportunities identified.</p> <p>New incentive programs: <b>TBD</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>121</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>122</sup></li> <li>• Ongoing BLM district funds</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p>For policy work:</p> <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> <li>• Ongoing Governor’s Natural Resource Office funds</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>	

Agricultural Conversion: Action AGC-1		
<b>Action Description</b>	<p><b>Action AGC-1</b> Encourage private landowners to participate in long-term or permanent sagebrush habitat protection or enhancement programs.</p> <p><b>Action AGC-1-1</b> Encourage private landowner participation in Candidate Conservation Agreements with Assurances offered through county SWCDs. Once enrolled, landowners must agree to “maintain contiguous habitat by avoiding further fragmentation” and are required to maintain their land with no net loss in habitat quantity or quality.</p> <p><b>Action AGC-1-1a</b> Conduct outreach and education to promote private landowner enrollment in CCAAs.</p> <p><b>Action AGC-1-1-b</b> Ensure that technical expertise through SWCDs and the USFWS is available to develop and implement</p>	

<sup>121</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>122</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

Agricultural Conversion: Action AGC-1	
	<p>site-specific plans (SSPs) designed to enhance habitat quality or quantity on private lands enrolled in CCAAs.</p> <p><b>Action AGC-1-2</b> Encourage private landowner participation in working lands conservation easements that protect their ranching interests and preclude additional agricultural conversion/tillage of sagebrush habitat, with particular focus on land within PAC habitat.</p> <p><b>Action AGC-1-3</b> Encourage private landowner participation in cost-share habitat improvement programs (Farm Bill, Crop Reserve Program, Sage-Grouse Initiative) offered by the NRCS, ODFW, and SWCDs, particularly those with landownership within PAC habitat.</p> <p><b>Action AGC-1-4</b> Where lands are at risk of conversion to non-sagebrush habitat (through sale, development, generational change, etc.), identify opportunities to compensate, incentivize, and/or transfer lands (from willing property owners to conservation-focused land management organizations, agencies, or private owners/entities) in order to ensure that lands will remain as functioning sage-brush habitat, with particular focus on land within PACs.</p>
Strategy Level	I (Large-Scale Planning)
Objectives	<ul style="list-style-type: none"> <li>• Enroll a minimum of 80% of eligible acres in CCAAs by enrollment deadline.</li> <li>• Enroll a minimum of TBD % of eligible landowners in SGI.</li> <li>• Secure TBD funds for CCAA s and other habitat management assistance programs.</li> <li>• Work with the Land Trust Alliance and others to identify at least one land trust to expand service to eastern Oregon sage-grouse country.</li> <li>• Identify a priority private acreage and opportunities (including incentives) for enrollment in a working land easements or other conservation-focused land management options.</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• Documentation of the number of recruitment activities completed annually by each SWCD and other partner organizations</li> <li>• Funds identified and allocated to habitat management assistance programs</li> <li>• Documentation of the number of land trusts developed or with expanded service areas</li> <li>• Documentation of the number of private landowners/acres engaged in conservation-focused land management programs (SGI, CCAA's, working lands easements, conservation-based ownership).</li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODFW</li> <li>• SWCDs</li> </ul>
Timeline	<p>Landowner outreach: Ongoing</p> <p>Summary of recruitment: Annually</p>
Funding	<p>Identified funds:</p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>123</sup></li> </ul>

<sup>123</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

Agricultural Conversion: Action AGC-1	
	<ul style="list-style-type: none"> <li>• OWEB (minimum \$10M 2015-2025)<sup>124</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Pending funds:</b> NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</p>

Agricultural Conversion: Action AGC-2	
<b>Action Description</b>	<p><b>Action AGC-2:</b> Review and, where warranted, revise government programs that incentivize sagebrush elimination.</p> <p><b>Action AGC-2-1</b> Discourage the use of Farm Bill policies and commodity programs that facilitate ongoing conversion of native habitats to marginal cropland.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	Revise all programs that incentivize sagebrush elimination.
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Identification of government programs that incentivize sagebrush elimination</li> <li>• Documentation of use of any Farm Bill programs that result in sagebrush elimination</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• GNRO</li> </ul>
<b>Timeline</b>	<p>Review of Farm Bill programs: <b>December 2015</b></p> <p>Documentation of Farm Bill program utilization: <b>Annually</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing NRCS state office funds</li> <li>• ODFW funds (new and ongoing) ; Governor’s Natural Resource Office funds</li> </ul>

### Agricultural Conversion: Action AGC-3

<sup>124</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

Agricultural Conversion: Action AGC-3	
<b>Action Description</b>	<p><b>Action AGC-3:</b> Develop new policies that reduce the potential for agricultural conversion from sagebrush habitats.</p> <p><b>Action AGC-3-1</b> Continue and expand incentive programs that support conservation of sagebrush habitat on private lands</p> <p><b>Action AGC-3-2</b> Develop and/or enforce state restrictions on agricultural conversion of state-owned lands.</p> <p><b>Action AGC-3-3</b> Work with counties and the state to restrict or reduce agricultural conversion through planning and zoning efforts.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	<p>(Note: Also see objectives for <b>Action DEV-5</b>.)</p> <ul style="list-style-type: none"> <li>• Maintain and increase funding by a minimum of TBD % for existing and new landowner incentive programs.</li> <li>• Issue a Governor’s Executive Order and develop an MOU guiding state agencies to follow the sage-grouse Action Plan.</li> </ul>
<b>Performance Measures</b>	<p>(Note: Also see performance measures for <b>Action DEV-5</b>.)</p> <ul style="list-style-type: none"> <li>• Development of new conservation incentives</li> <li>• Implementation of Governor’s Executive Order and MOU requiring DSL to implement conservation actions identified in this Plan, including restrictions on agricultural conversion</li> <li>• Development of county zoning/ordinances that result in greater protections against agricultural conversion</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• Counties</li> <li>• DLCD</li> <li>• DSL</li> <li>• GNRO</li> <li>• NRCS</li> <li>• OWRD</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Development of new conservation incentives: <b>Date TBD</b></p> <p>Completion of executive order and MOU: <b>September 2015</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>125</sup></li> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>126</sup></li> <li>• Ongoing NRCS state office funds</li> <li>• Ongoing DSL funds</li> <li>• Ongoing Governor’s Natural Resource Office funds</li> </ul>

## Agricultural Conversion: Action AGC-4

<sup>125</sup> Agency package: DLCD-108.

<sup>126</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

Agricultural Conversion: Action AGC-4	
<b>Action Description</b>	<p><b>Action AGC-4:</b> Avoid agricultural conversion of sagebrush (see Appendix 4, “Implementation Recommendations and Guidelines”).</p> <p><b>Action AGC-4-1</b> Avoid sagebrush removal or manipulation in sage-grouse breeding or wintering habitats.</p> <p><b>Action AGC-4-2</b> Avoid conversion of native rangeland to monotypic perennial grass seedings, cropland, and/or irrigated pasture.</p> <p><b>Action AGC-4-3</b> For lands enrolled in CCAAs, per CCAA Conservation Measure 1 (Harney SWCD and USFWS 2014), mitigate internally for any loss of quality or quantity in sage-grouse habitat (short-term losses related to long-term conservation gains excluded).</p> <p><b>Action AGC-4-4</b> Evaluate the extent to which vegetation restoration within previously converted agricultural lands serves as suitable habitat.</p>
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	Maintain the extent of sagebrush according to habitat objectives defined in the 2011 Strategy and the BLM RMP FEIS (i.e., 70% sagebrush; 30% other habitat types with restoration potential).
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of any actions that result in agricultural conversion of sagebrush</li> <li>• Documentation of restoration activities on lands previously converted from sagebrush habitat to agricultural purposes</li> <li>• Documentation of mitigation actions implemented for conversion that occurs on lands enrolled in CCAAs</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• OWRD</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	Documentation completed: <b>Annually</b>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>127</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>128</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>129</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>130</sup></li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

<sup>127</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>128</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>129</sup> Agency package: ODFW-132.

<sup>130</sup> Agency package: ODFW-105.

Agricultural Conversion: Action AGC-4	
	<ul style="list-style-type: none"> <li>• BLM \$15M (FY16) Greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Recreation: Action REC-1	
<b>Action Description</b>	<b>Action REC-1:</b> Avoid development of recreational facilities (e.g., roads, trails, kiosks, and campgrounds) in sage-grouse habitats, particularly within PAC habitat and within 4 miles of leks to preserve key lekking and nesting habitat.
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Allow no new recreational facilities to be developed within 4 miles of leks or within PACs.</li> <li>• Maintain or improve sage-grouse attendance at all leks by avoiding disturbance associated with recreation.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of recreation development designed to avoid leks</li> <li>• See performance measures for <b>Action MON-1</b> (related to lek attendance) <b>and MON-3</b> (related to development).</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• Counties</li> <li>• DLCD</li> <li>• DSL</li> <li>• ODFW</li> <li>• WP</li> </ul>
<b>Timeline</b>	Ongoing, commencing August 2015
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$300K funded to DLCD (2015-2017) for SageCon administration of the All-Lands Disturbance Framework (funds support 1 FTE position)<sup>131</sup></li> <li>• \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>132</sup></li> <li>• Ongoing BLM state office funds for assessment of development in relation to BLM adaptive management thresholds</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds:</i> Ongoing permitting agencies and counties reviewing applications against LCDC rule</p> <p><i>Related funds:</i> Ongoing ODFW district funds for pre-consultations with biologists</p> <p><b>Funds to be identified:</b></p> <p>Funds TBD (awarded or requested for Willamette Partnership to finalize and scenario-test Habitat Quantification Tool)</p>

<sup>131</sup> Agency package: DLCD-108.

<sup>132</sup> Agency package: ODFW-130.

Recreation: Action REC-2	
<b>Action Description</b>	<p><b>Action REC-2:</b> Implement usage regulations for existing OHV recreational activities that will benefit sage-grouse habitat.</p> <p><b>Action REC-2-1</b> Apply seasonal closures to recreation sites during lekking and nesting periods.</p> <p><b>Action REC-2-2</b> Limit OHV travel to existing trails and restrict cross-country travel to reduce the negative impacts to sage-grouse habitats. Where habitat has already been highly degraded and is not proximal to sage-grouse leks or nesting habitat, cross-country travel may be considered.</p> <p><b>Action REC-2-3</b> Identify additional resources to support monitoring and enforcement of usage regulations.</p> <p><b>Action REC-2-4</b> Restrict OHV use in rangelands at risk of wildfire during fire season.</p> <p><b>Action REC-2-5</b> Monitor the extent and intensity of OHV use. Quantify daily and seasonal use in order to have adequate information to mitigate potential conflicts between sage-grouse habitat needs and recreational pursuits.</p> <p><b>Action REC-2-6</b> Eliminate refuse and food subsidies for predators of sage-grouse associated with OHV recreational areas.</p>
<b>Strategy Level</b>	I (Large-Scale Planning) and II (Site-Specific Management)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Maintain or improve sage-grouse attendance at all leks by avoiding disturbance associated with recreation.</li> <li>• Develop and implement OHV regulations, seasonal closures, or other restrictions and/or closures in significant sage-grouse habitat.</li> <li>• Secure funding for monitoring of OHV use and enforcement of OHV usage regulations.</li> <li>• Eliminate all predator subsidies associated with OHV areas.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• See performance measures for <b>Action MON-1</b> (related to lek attendance).</li> <li>• Development and implementation of OHV regulations and restrictions in areas where recreation poses a threat to sage-grouse</li> <li>• Allocation of funds for monitoring and enforcement</li> <li>• Documentation of predator subsidy removal efforts</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• ODFW</li> <li>• OHV orgs./user groups</li> <li>• OPRD</li> </ul>
<b>Timeline</b>	OHV usage regulations implemented: <b>Spring 2016</b>
<b>Funding</b>	<p><b>Identified funds:</b></p> <p>For policy work:</p> <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> <li>• Ongoing BLM district funds</li> <li>• Ongoing OPRD funds</li> </ul>

Recreation: Action REC-2	
	<i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator and district-level staff.

Recreation: Action REC-3	
<b>Action Description</b>	<p><b>Action REC-3:</b> Provide education to OHV users and recreationalists (including lek viewers) about how to avoid detrimental impacts to sage-grouse habitat or sage-grouse populations.</p> <p><b>Action REC-3-1</b> Educate the public and commercial bird watching guides about ethical viewing and photography of sage-grouse.</p> <p><b>Action REC-3-2</b> Educate OHV users on the impacts of noise to sage-grouse, as well as strategies to avoid erosion, spread of invasive annual grasses, and negative impacts to native plant health.</p>
<b>Strategy Level</b>	I (Large-scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Conduct a minimum of 4 educational strategies implemented per year (targeted to recreationalists in sage-grouse habitat).</li> <li>• Install educational/interpretive signs at all recreational areas where recreation is negatively impacting sage-grouse.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of: <ul style="list-style-type: none"> <li>○ Educational strategies (targeted to recreationalists in sage-grouse habitat) and participation</li> <li>○ New educational/interpretive signs</li> </ul> </li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• ODFW</li> <li>• OHV orgs./user groups</li> <li>• OPRD</li> </ul>
<b>Timeline</b>	<p>Education: Annually</p> <p>Sign installment: Spring 2016</p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing OPRD funds</li> <li>• Ongoing BLM district funds</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p>

Recreation: Action REC-4	
<b>Action Description</b>	<p><b>Action REC-4</b> Prioritize lek persistence over providing lek viewing opportunities for the public.</p> <p><b>Action REC-4-1</b> Develop and implement a protocol for guidance in managing lek viewing activities, such that impacts to sage-grouse are minimized.</p>



Recreation: Action REC-4	
	<b>Action REC-4-2</b> Develop a volunteer base to monitor and provide education at designated public lek viewing areas.
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Maintain or improve sage-grouse attendance at all leks by avoiding disturbance associated with recreational lek viewing.</li> <li>• Reduce non-biologist lek visits by TBD % at leks known to and visited by the general public.</li> <li>• Develop a volunteer lek monitoring program to aid in regulation of public visits.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• See performance measures for <b>Action MON-1</b> (related to lek attendance).</li> <li>• Development and implementation of lek viewing protocol</li> <li>• Documentation of non-biologist lek visitation</li> <li>• Development of volunteer lek monitoring program</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• ODFW</li> <li>• Birding organizations</li> </ul>
<b>Timeline</b>	<div>Protocol:</div> <div> <div>Spring 2016</div> <div>Lek Monitoring Program: Spring 2016</div> </div> <div>Documentation at leks: <b>Annually</b></div>
<b>Funding</b>	<b>Identified funds:</b> <ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> </ul>

Fences: Actions FNC-1, 2, 3, and 4	
<b>Action Description</b>	<p><b>Action FNC-1:</b>    Use the Fence Collision Risk Tool to identify fence segments that pose the highest risk to sage-grouse, based on proximity to occupied leks and topography (flat to gentle rolling terrain). Consider additional geographic features when prioritizing fence segments for risk reduction, such as the proximity to water sources, other infrastructure, and surrounding vegetation that may impact sage-grouse concentrations, predator presence, or sage-grouse flight trajectories.</p> <p><b>Action FNC-2:</b>    In consultation with the BLM, grazing permittees, and private landowners, identify and remove high-risk fences that are no longer necessary or are abandoned.</p> <p><b>Action FNC-3:</b>    Prioritize installing antistrike devices and perch deterrent devices on fence segments that pose the highest risk to sage-grouse (as identified by the Fence Collision Risk Tool) within 1.2 mi (2 km) of leks within PAC habitat. Utilize Implementation Recommendations and Guidelines outlined in Appendix 4.</p>

Fences: Actions FNC-1, 2, 3, and 4	
	<b>Action FNC-4:</b> Avoid constructing new fences within 1.2 mi (2 km) of leks.
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	(Note: specific objectives will also be developed/refined in CCAA/CCA site-specific plans.) <ul style="list-style-type: none"> <li>• Install antistrike makers on TBD % of identified high-risk fence segments annually.</li> <li>• Remove TBD % of unnecessary high-risk fence segments annually.</li> <li>• Install all new fencing more than 1.2 miles beyond leks.</li> </ul>
<b>Performance Measures</b>	(Note: performance measures will also be developed/refined in CCAA/CCA site-specific plans.) <ul style="list-style-type: none"> <li>• Documentation of: <ul style="list-style-type: none"> <li>○ Miles of high-risk fence segments marked with antistrike markers</li> <li>○ Miles of high-risk fencing removed</li> <li>○ Miles of fencing installed within 1.2 mi of leks</li> </ul> </li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• Private landowners</li> <li>• NRCS</li> <li>• SWCDs</li> <li>• ODFW</li> </ul>
<b>Timeline</b>	Fence marking completed: <b>Ongoing; TBD</b>
<b>Funding</b>	<b>Identified funds:</b> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>133</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>134</sup></li> <li>• DSL funding for state lands CCAA</li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>135</sup></li> </ul> <b>Pending funds:</b> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Isolated/Small Size; Connectivity: Action CON-1	
<b>Action Description</b>	<b>Action CON-1:</b> Identify and protect existing areas of habitat between PAC areas and >75% breeding bird density areas that provide good

<sup>133</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>134</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>135</sup> Agency package: ODFW-105.

Isolated/Small Size; Connectivity: Action CON-1	
	lek-to-lek connectivity.  <b>Action CON-1-1</b> Utilize connectivity mapping and telemetry data to identify connectivity corridors that currently function as linkage pathways between portions of the sage-grouse population.
Strategy Level	I (Large-Scale Planning)
Objectives	Maintain or improve connectivity between PACs and areas of population richness.
Performance Measures	<ul style="list-style-type: none"> <li>• Incorporation of connectivity GIS layers into ORDSS</li> <li>• Updates to connectivity mapping as new telemetry data becomes available</li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>• TNC</li> <li>• ODFW</li> </ul>
Timeline	ORDSS completion: December 2015 ORDSS updates: As new information becomes available
Funding	Funds to be identified: <ul style="list-style-type: none"> <li>• Funds TBD (awarded or requested from TNC to maintain the ORDSS)</li> </ul>

Isolated/Small Size; Connectivity: Action CON-2	
Action Description	<p><b>Action CON-2:</b> Identify isolated leks and enhance habitat in areas with the most potential to improve connectivity with the goal to improve linkages between these leks and the remaining sage-grouse population.</p> <p><b>Action CON-2-1</b> Utilize TNC connectivity maps to identify linkages that currently have low “quality” and “robustness,” that likely limit sage-grouse movement between small or isolated populations.</p> <p><b>Action CON-2-2</b> Utilize TNC connectivity maps to identify areas functioning as barriers to movement (“pinch points”) and prioritize these portions of linkages for habitat enhancement activities.</p> <p><b>Action CON-2-3</b> Identify and implement strategies to reduce barriers to movement in linkages prioritized for enhancement.</p> <p><b>Action CON-2-4</b> Include projects to improve connective habitat for consideration by credit producers engaged in sage-grouse mitigation activities.</p>
Strategy Level	I (Large-Scale Planning) and II (Site-Specific Management)
Objectives	<ul style="list-style-type: none"> <li>• Maintain or improve connectivity between isolated leks and PACs and/or areas of population richness.</li> <li>• Reduce linkages with low “quality” or “robustness” by TBD % annually.</li> <li>• Incorporate important connectivity areas into mitigation priorities and Habitat Quantification Tool (HQT) to promote restoration work</li> </ul>

Isolated/Small Size; Connectivity: Action CON-2	
	in these areas and deter creation of further barriers in important linkages.
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Finalization of Habitat Quantification Tool (HQT) for use in determining mitigation requirements for new development</li> <li>• Inclusion of connectivity areas as mitigation crediting priority</li> <li>• Documentation of: <ul style="list-style-type: none"> <li>○ Number of linkages with low “quality” or “robustness” restored</li> <li>○ Progress toward achieving objectives set out in site-specific plans for mitigation projects in annual report</li> <li>○ Conservation measures as identified in site-specific plans (e.g., for lands enrolled in CCAAs or other incentive programs) that restore connectivity</li> </ul> </li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• TNC</li> <li>• ODFW</li> </ul>
<b>Timeline</b>	<div>Finalization of HQT: December 2015</div> <div>Implementation of conservation measures: As described in SSPs</div> <div>Development of mitigation priorities: December 2015</div>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> </ul> <p><i>Related funds for conveying priority habitat improvement areas to mitigation creditors: \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>136</sup></i></p> <p><b>Funds to be identified:</b></p> <ul style="list-style-type: none"> <li>• Funds TBD (awarded or requested from TNC to maintain the ORDSS and refine connectivity mapping as required)</li> </ul>

Isolated/Small Size; Connectivity: Action CON-3	
<b>Action Description</b>	<p><b>Action CON-3:</b> Prevent loss of connectivity corridors by encouraging private landowners to participate in long-term or permanent sagebrush habitat protection or enhancement programs. Protect connectivity corridors on private and public land from future development, as well as habitat projects that reduce or eliminate sagebrush.</p> <p><b>Action CON-3-1</b> Encourage private landowner participation in Candidate Conservation Agreements with Assurances offered</p>

<sup>136</sup> Agency package: ODFW-130.

Isolated/Small Size; Connectivity: Action CON-3	
	<p>through county SWCDs. Once enrolled, landowners must agree to “maintain contiguous habitat by avoiding further fragmentation” and are required to maintain their land with no net loss in habitat quantity or quality.</p> <p><b>Action CON-3-1a</b> Conduct outreach and education to promote private landowner enrollment in CCAAs.</p> <p><b>Action CON-3-1b</b> Ensure that technical expertise through SWCDs and the USFWS is available to develop and implement site-specific plans (SSPs) designed to enhance habitat quality or quantity on private lands enrolled in CCAAs.</p> <p><b>Action CON-3-2</b> Encourage private landowner participation in working lands conservation easements that protect their ranching interests and preclude additional agricultural conversion of sagebrush habitat, with particular focus on land within PAC habitat and connectivity corridors.</p> <p><b>Action CON-3-3</b> Encourage private landowner participation in cost-share habitat improvement programs (Farm Bill, Crop Reserve Program, Sage-Grouse Initiative) offered by the NRCS, ODFW, and SWCDs, particularly those with landownership that overlaps with connectivity corridors and within PAC habitat.</p> <p><b>Action CON-3-4</b> Where lands providing existing or potential connectivity benefits are at risk of conversion to non-sagebrush habitat (through sale, development, generational change, etc.), identify opportunities to compensate, incent, and/or transfer lands (from willing property owners to conservation-focused land management organizations, agencies, or private owners/entities) in order to ensure lands will remain as functioning sage-brush habitat, with particular focus on land within PACs.</p> <p><b>Action CON-3-5</b> In accordance with OAR-635-140-0025 and OAR 660-023-0115, new development and related rights-of-way should avoid sage-grouse habitat, including important connectivity corridors and PAC areas.</p>
Strategy Level	I (Large-Scale Planning)
Objectives	<ul style="list-style-type: none"> <li>• Enroll a minimum of 80% of eligible acres in CCAAs by enrollment deadline.</li> <li>• Enroll a minimum of TBD % of eligible landowners in SGI.</li> <li>• Secure TBD funds for CCAA s and other habitat management assistance programs. <ul style="list-style-type: none"> <li>○ Work with the Land Trust Alliance and others to identify at least one land trust to expand service to eastern Oregon sage-grouse country.</li> <li>○ Identify a priority private acreage and opportunities (including incentives) for enrollment in working land easements or other conservation-focused land management options.</li> </ul> </li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• Documentation of the number of recruitment activities completed annually by each SWCD and other partner organizations</li> <li>• Funds identified and allocated to habitat management assistance programs</li> <li>• Documentation of the number of land trusts developed or with expanded service areas</li> <li>• Documentation of the number of private landowners/acres engaged in conservation-focused land management programs (SGI, CCAA’s, working lands easements, conservation-based ownership).</li> </ul>

Isolated/Small Size; Connectivity: Action CON-3		
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>Counties</li> <li>DLCD</li> </ul>	<ul style="list-style-type: none"> <li>NRCS</li> <li>ODFW</li> <li>Private landowners</li> <li>SWCDs</li> </ul>
<b>Timeline</b>	Landowner outreach: <b>Ongoing</b>	Summary of recruitment: <b>Annually</b>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>\$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>137</sup></li> <li>OWEB (minimum of \$10M 2015-2025)<sup>138</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>	

Isolated/Small Size; Connectivity: Action CON-4		
<b>Action Description</b>	<p><b>Action CON-4:</b> Where appropriate, consider augmenting small or isolated populations and use best management techniques for translocations (see Appendix 4).</p> <p><b>Action CON-4-1</b> Monitor translocated sage-grouse to determine efficacy.</p>	
<b>Strategy Level</b>	I (Large-Scale Planning) and II (Site-Specific Management)	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>See objectives for population monitoring (<b>Action MON-1</b>).</li> <li>Develop ODFW policy detailing thresholds for when population augmentation would be indicated.</li> </ul>	
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>See population monitoring performance measures (<b>Action MON-1</b>).</li> <li>Development of policy relating to sage-grouse translocations</li> </ul>	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>ODFW</li> </ul>	
<b>Timeline</b>	Policy development: <b>December 2015</b>	Translocations: <b>As need is identified</b>
<b>Funding</b>	<b>Identified funds:</b>	

<sup>137</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>138</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

Isolated/Small Size; Connectivity: Action CON-4	
	<ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> </ul> <p><b>Funds to be identified:</b></p> <ul style="list-style-type: none"> <li>• Funds for potential translocation efforts will be identified upon emergent need.</li> </ul>

Free-Roaming Equids: Action FRE-1	
<b>Action Description</b>	<p><b>Action FRE-1:</b> Develop, implement, and enforce adequate regulatory mechanisms that ensure that free-roaming horse and burro populations do not exceed AMLs in HMAs, particularly those that overlap with PACs.</p> <p><b>Action FRE-1-1</b> Incorporate desired habitat conditions consistent with the Sage-Grouse Habitat Assessment Framework (HAF) (Stiver et al. 2015) into HMA management plans and adjust AMLs as necessary to maintain suitable sage-grouse habitat parameters (this action is consistent with BLM RMPFEIS) (BLM 2015).</p> <p><b>Action FRE-1-1a</b> If habitat indicators demonstrate grazing overuse in HMAs with free-roaming equid populations in excess of AMLs, prioritize free-roaming equid gathers over livestock grazing reductions.</p> <p><b>Action FRE-1-2</b> Prioritize funding for free-roaming equid gathers in PACs that exceed AML unless removals are necessary in other areas to prevent catastrophic environmental impacts.</p> <p><b>Action FRE-1-3</b> Exclude free-roaming equids from habitat restoration sites until perennial grasses are re-established and can sustain disturbance.</p> <p><b>Action FRE-1-4</b> Use permanent sterilization as a method to suppress population growth rates.</p> <p><b>Action FRE-1-5</b> Conduct range improvements to reduce the impacts of free-roaming horse and burro use in areas of critical sage-grouse habitat.</p>
<b>Strategy Level</b>	I (Large-Scale Planning) and II (Site-Specific Management)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Incorporate HAF into all HMA plans.</li> <li>• Maintain free-roaming equid populations at or below AMLs, including reductions in population numbers prioritized by where the greatest exceedances of AML and/or habitat impacts are occurring.</li> <li>• Exclude free-roaming equids from 100% of restoration sites, where they pose a threat to achieving restoration objectives.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Incorporation of HAF into HMA plans</li> <li>• Documentation of: <ul style="list-style-type: none"> <li>○ Free-roaming equid populations at or below AMLs within HMAs in PACs</li> <li>○ Range improvements to reduce free-roaming equid impacts</li> </ul> </li> </ul>

Free-Roaming Equids: Action FRE-1		
	<ul style="list-style-type: none"> <li>○ Effective horse exclusion from restoration sites</li> </ul>	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• GNRO</li> </ul>	<ul style="list-style-type: none"> <li>• WGA</li> </ul>
Timeline	HAF incorporation into HMA plans: <b>December 2015</b>  AML objectives reached (and maintained):	<b>TBD</b>  Exclusion of free-roaming equids from restoration sites: <b>Ongoing (as restoration work occurs)</b>
Funding	<b>Identified funds:</b> For policy work: <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> <li>• Ongoing BLM Wild Horse and Burro Program funds</li> <li>• Ongoing GNRO funds</li> <li>• Ongoing WGA funds</li> </ul> For habitat monitoring, gathers, and research: <ul style="list-style-type: none"> <li>• Ongoing BLM district funds</li> <li>• Ongoing BLM Wild Horse and Burro Program funds</li> </ul>	

Free-Roaming Equids: Action FRE-2	
Action Description	<p><b>Action FRE-2:</b> Develop sound research methods to assess free-roaming equid populations and their environmental impacts.</p> <p><b>Action FRE-2-1</b> Establish a consistent statistically based methodology for free-roaming equid surveys to obtain population estimates across all HMAs.</p> <p><b>Action FRE-2-2</b> Develop and implement a monitoring plan to assess the impacts of free-roaming equids on sage-grouse habitat including measures of vegetation, soil, and invertebrates.</p> <p><b>Action FRE-2-3</b> Develop management triggers for free-roaming horse and burro populations so that, when population levels or habitat impacts are met, an appropriate set of actions to ameliorate the situation may be implemented.</p>
Strategy Level	I (Large-Scale Planning)
Objectives	TBD



Free-Roaming Equids: Action FRE-2	
Performance Measures	TBD
Responsible Parties	BLM
Timeline	TBD
Funding	<p><b>Identified funds:</b></p> <p>For policy work:</p> <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> <li>• Ongoing BLM Wild Horse and Burro Program funds</li> <li>• Ongoing GNRO funds</li> <li>• Ongoing WGA funds</li> </ul> <p>For habitat monitoring, gathers, and research:</p> <ul style="list-style-type: none"> <li>• Ongoing BLM district funds</li> <li>• Ongoing BLM Wild Horse and Burro Program funds</li> </ul>

## Other Circumstances Metrics

Climate Change: Action CC-1	
Action Description	<p><b>Action CC-1:</b> Use climate change models to identify zones of sage-grouse habitat that are predicted to tolerate future climate patterns.</p> <p><b>Action CC-1-2</b> Incorporate connectivity mapping with climate change modeling to ensure that opportunities exist for sage-grouse to adapt (to the extent their biological site fidelity allows) to changing habitat availability.</p>
Strategy Level	I (Large-Scale Planning)
Objectives	TBD
Performance Measures	TBD
Responsible Parties	TNC
Timeline	TBD
Funding	<p><b>Funds to be identified:</b></p> <ul style="list-style-type: none"> <li>Funds TBD (awarded or requested from TNC to maintain the ORDSS and refine connectivity mapping as required)</li> </ul>

Climate Change: Action CC-2	
Action Description	<p><b>Action CC-2:</b> Identify and protect sagebrush habitat within PACs that is most likely to persist into the future under new climatic conditions associated with climate change.</p> <p><b>Action CC-2-1</b> Utilize the conservation measures identified throughout this Action Plan to protect these areas from primary and secondary threats that result in habitat fragmentation or loss.</p>
Strategy Level	I (Large-Scale Planning) and II (Site-Specific Management)
Objectives	TBD
Performance Measures	TBD
Responsible Parties	<ul style="list-style-type: none"> <li>BLM</li> <li>ODFW</li> </ul>
Timeline	TBD

Climate Change: Action CC-2	
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> <li>• Ongoing BLM state office funds</li> <li>• Ongoing BLM district office funds</li> </ul> <p><i>Related funds for conveying priority habitat improvement areas to mitigation creditors: \$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>139</sup></i></p>

Drought: Action DRT-1	
<b>Action Description</b>	<p><b>Action DRT-1:</b> Adaptively manage livestock grazing during drought conditions to meet rangeland health standards that support sage-grouse habitat needs.</p> <p><b>Action DRT-1-1</b> Implement grazing management plans that contribute to the health of sage-grouse habitat and include conservation measures for drought conditions.</p> <p><b>Action DRT-1-2</b> Follow recommended grazing guidelines during drought conditions to meet seasonal sage-grouse habitat requirements (see Appendix 4). Consider (1) season or timing of use; (2) numbers of livestock (including temporary nonuse or livestock removal); (3) distribution of livestock use; (4) intensity of use; and (5) type of livestock.</p> <p><b>Action DRT-1-3</b> Increase monitoring during drought conditions to ensure that adaptive management is implemented in a timely manner.</p> <p><b>Action DRT-1-4</b> Remove administrative barriers to enforcing and/or regulating AUM reduction during drought.</p>
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	(Note: specific objectives will be developed/refined in CCAA/CCA site-specific plans.) See objectives for grazing conservation actions.
<b>Performance Measures</b>	(Note: specific performance measures will be developed/refined in CCAA/CCA site-specific plans.) See performance measures for grazing conservation actions.
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• NRCS</li> <li>• OWEB</li> <li>• SWCDs</li> </ul>

<sup>139</sup> Agency package: ODFW-130.

Drought: Action DRT-1	
<b>Timeline</b>	See timelines for grazing conservation actions and those identified in CCAA/CCA site-specific plans.
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>140</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>141</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>142</sup></li> <li>• Ongoing BLM district funds</li> <li>• Ongoing DSL funding (state lands CCAA)</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Drought: Action DRT-2	
<b>Action Description</b>	<p><b>Action DRT-2:</b> Prioritize free-roaming equid gathers during drought conditions in Herd Management Areas (HMAs) in PACs that exceed Appropriate Management Levels (AMLs) to meet rangeland health standards that support sage-grouse habitat needs.</p> <p><b>Action DRT-2-1</b> During drought conditions, maintain free-roaming equid AMLs at the low end of specified range for HMAs, particularly for HMAs that overlap with PACs.</p>
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	See objectives for free-roaming equids.
<b>Performance Measures</b>	See performance measures for free-roaming equids.
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• GNRO</li> <li>• WGA</li> </ul>
<b>Timeline</b>	See timelines for free-roaming equids.

<sup>140</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>141</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>142</sup> Agency package: ODFW-105.

Drought: Action DRT-2	
Funding	<p><b>Identified funds:</b></p> <p>For policy work:</p> <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> <li>• Ongoing BLM Wild Horse and Burro Program funds</li> <li>• Ongoing GNRO funds</li> <li>• Ongoing WGA funds</li> </ul> <p>For habitat monitoring, gathers, and research:</p> <ul style="list-style-type: none"> <li>• Ongoing BLM district funds</li> <li>• Ongoing BLM Wild Horse and Burro Program funds</li> </ul>

Drought: Action DRT-3	
Action Description	<p><b>Action DRT-3:</b> Support infrastructure and resources in advance of drought or other environmental conditions so that livestock producers are able to adjust grazing as required.</p> <p><b>Action DRT-3-1</b> Provide educational opportunities for permittees and private landowners to learn about sage-grouse habitat requirements and conservation measures they can implement to improve rangeland conditions for livestock and sage-grouse.</p> <p><b>Action DRT-3-2</b> Create “grass banks” or reserve forage areas as alternative grazing opportunities to provide rest for over-utilized rangelands or allotments, or to be utilized during drought conditions, post-fire or after restoration work. Do so in a manner compatible with livestock operations locally.</p> <p><b>Action DRT-3-3</b> Identify opportunities to compensate landowners for the cost of implementing conservation measures associated with drought and facilitating practices to benefit sage-grouse and their habitat.</p>
Strategy Level	I (Large-Scale Planning)
Objectives	<ul style="list-style-type: none"> <li>• Conduct a minimum of 2 educational events for permittees annually per county.</li> <li>• Develop policies to facilitate converting relinquished allotments (or other opportunities) to grass banks/reserve forage allotments in a manner that supports and does not undermine livestock economies and conservation benefits.</li> <li>• Designate a minimum of acres TBD as available grass banks/reserve forage by 20XX (date TBD).</li> <li>• Conduct routine maintenance on infrastructure in grass bank allotments.</li> <li>• Maintain and increase funding by a minimum of TBD % for landowner incentive programs.</li> </ul>

Drought: Action DRT-3		
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of education events or other learning opportunities</li> <li>• Development of new conservation incentives, compensation programs, and mitigation opportunities to develop/improve seasonal habitats</li> <li>• Documentation of the number of allotments reserved for grass banks and the quantity of cattle that can be accommodated during restoration activities elsewhere</li> <li>• Administrative policy developed to facilitate grass bank establishment consistent with related objectives.</li> <li>• Allocation of funds for expansion of landowner incentive programs.</li> </ul>	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• GNRO</li> </ul>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Landowner outreach: <b>Ongoing</b></p> <p>Grass bank policy completion: <b>Spring 2016</b></p>	<p>Grass bank(s)/reserve forage established: <b>Opportunistically, as grazing permits are relinquished</b></p> <p>New incentive programs: <b>TBD</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <p>For education and on-the-ground actions:</p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>143</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>144</sup></li> <li>• DSL ongoing funding (state lands CCAA)</li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>145</sup></li> </ul> <p>For policy work:</p> <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> <li>• Ongoing Governor's Natural Resource Office funds</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Pending funds:</b></p> <p>For education:</p>	

<sup>143</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>144</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>145</sup> Agency package: ODFW-105.

Drought: Action DRT-3	
	<ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

West Nile Virus: Action WNV-1	
<b>Action Description</b>	<b>Action WNV-1:</b> Reduce, eliminate, or augment artificial water developments that may contribute to mosquito prevalence.
<b>Strategy Level</b>	II Site-Specific Management)
<b>Objectives</b>	Maintain Oregon's low incidence of sage-grouse die-offs attributable to WNV by identifying and addressing all artificial water sources that may contribute to mosquito prevalence.
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Identification of artificial water sources that may contribute to mosquito prevalence</li> <li>• Documentation of actions to reduce mosquito prevalence</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	Ongoing, as CCAA/CCA enrollment and SSPs occur and as BLM allotment reviews occur
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>146</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>147</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>148</sup></li> <li>• DSL ongoing funding (state lands)</li> <li>• Ongoing BLM district funds</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

<sup>146</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>147</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>148</sup> Agency package: ODFW-105.

West Nile Virus: Action WNV-2	
<b>Action Description</b>	<p><b>Action WNV-2:</b> Monitor sage-grouse and other species for the presence of WNV.</p> <p><b>Action WNV-2-1</b> Coordinate monitoring efforts with the Oregon Department of Agriculture and Oregon Public Health Authority, as well as other research and management activities.</p> <p><b>Action WNV-2-2</b> Report observations of dead or sick sage-grouse or other bird deaths that could be attributed to disease or parasites to responsible agencies within 48 hours.</p>
<b>Strategy Level</b>	I (Large-Scale Planning) and II (Site-Specific Management)
<b>Objectives</b>	Detect 100% of sage-grouse mortalities potentially attributable to WNV.
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of WNV presence by county</li> <li>• Documentation and investigation of sage-grouse mortalities caused by WNV</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• ODA</li> <li>• ODFW</li> <li>• OPHA</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	Ongoing
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>149</sup></li> <li>• Ongoing funds ODA</li> <li>• Ongoing funds OPHA</li> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> </ul>

West Nile Virus: Action WNV-3	
<b>Action Description</b>	<b>Action WNV-3:</b> When planning or modifying water developments, use Implementation Recommendations and Guidelines to mitigate potential impacts from WNV and encourage the design of water development structures to minimize WNV risk to sage-grouse (see Appendix 4).
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	Maintain Oregon's low incidence of sage-grouse die-offs attributable to WNV by designing water developments to prevent mosquito prevalence.
<b>Performance Measures</b>	Documentation of water developments modified or planned with WNV risk-reduction features

<sup>149</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.



West Nile Virus: Action WNV-3	
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
Timeline	Ongoing, as CCAA/CCA enrollment and SSPs occur and as BLM allotment reviews occur
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAs (3 FTE positions)<sup>150</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>151</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>152</sup></li> <li>• DSL ongoing funding (state lands)</li> <li>• Ongoing BLM district funds</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

West Nile Virus: Action WNV-4	
Action Description	<p><b>Action WNV-4:</b> Cooperate with responsible agencies to implement feasible recommended mosquito control guidelines (see Appendix 4).</p> <ul style="list-style-type: none"> <li>• Use appropriate Environmental Protection Agency (EPA)-regulated larvicides and/or adulticides in areas proximal to key sage-grouse habitat where mosquito habitat cannot be reduced.</li> <li>• Evaluate the effectiveness of spraying adult mosquitoes and consider using mosquito-specific control measures.</li> <li>• Balance the benefits of mosquito control to sage-grouse with other environmental considerations (e.g., other species dependent on mosquitoes).</li> </ul>
Strategy Level	I (Large-scale Planning) and II(Site-specific Management)
Objectives	TBD

<sup>150</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>151</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>152</sup> Agency package: ODFW-105.

West Nile Virus: Action WNV-4	
Performance Measures	TBD
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
Timeline	As required
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>153</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>154</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>155</sup></li> <li>• DSL ongoing funding (state lands)</li> <li>• Ongoing BLM district funds</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Catastrophic Flooding: Action FLD-1	
Action Description	<p><b>Action FLD-1:</b> Use the Rangeland Hydrology and Erosion Model (RHEM) to identify areas in sage-grouse habitat with a high susceptibility to erosion risk during catastrophic flooding events and, where appropriate, develop and implement strategies to minimize erosion risk.</p> <p><b>Action FLD-1-1</b> Prioritize erosion mitigation activities (juniper removal, seedings, plantings, etc.) in areas identified by RHEM that are proximal to key sage-grouse habitat, with special focus on areas that have burned.</p> <p><b>Action FLD-1-2</b> Evaluate stream segments to identify areas critically at risk of erosion and identify and implement measures to enhance stream function.</p>

<sup>153</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>154</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>155</sup> Agency package: ODFW-105.

Catastrophic Flooding: Action FLD-1	
Strategy Level	I (Large-Scale Planning) and II (Site-Specific Management_
Objectives	<ul style="list-style-type: none"> <li>• Maintain or enhance riparian health and resilience to high-water events.</li> <li>• Complete TBD % of erosion mitigation activities in prioritized areas annually.</li> </ul>
Performance Measures	Documentation of flood risk reduction activities undertaken as part of site-specific plans
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
Timeline	Ongoing, as CCAA/CCA enrollment and SSPs occur and as BLM allotment reviews occur
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>156</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>157</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>158</sup></li> <li>• DSL ongoing funding (state lands)</li> <li>• Ongoing BLM district funds</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Catastrophic Flooding: Action FLD-2	
Action Description	<p><b>Action FLD-2:</b> Implement grazing management plans that contribute to the health of sage-grouse habitat and include conservation measures for catastrophic flooding conditions.</p> <p><b>Action FLD-2-1</b> Follow recommended grazing guidelines during catastrophic flooding conditions to meet seasonal sage-grouse habitat requirements (see Appendix 4). Consider (1) season or timing of use; (2) numbers of livestock (including temporary nonuse or</p>

<sup>156</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>157</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>158</sup> Agency package: ODFW-105.

Catastrophic Flooding: Action FLD-2	
	livestock removal); (3) distribution of livestock use; (4) intensity of use; and (5) type of livestock.
Strategy Level	II (Site-Specific Management)
Objectives	(Note: specific objectives will be developed/refined in CCAA/CCA site-specific plans.) See objectives for grazing conservation actions.
Performance Measures	(Note: specific performance measures will be developed/refined in CCAA/CCA site-specific plans.) See performance measures for grazing conservation actions.
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
Timeline	See timelines for grazing and those associated with CCAAs/CCAs.
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>159</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>160</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>161</sup></li> <li>• DSL ongoing funding (state lands)</li> <li>• Ongoing BLM district funds</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Catastrophic Flooding: Action FLD-3	
Action Description	<p><b>Action FLD-3:</b> Support infrastructure and resources in advance of catastrophic flooding or other environmental conditions so that livestock producers are able to adjust grazing as required.</p> <p><b>Action FLD-3-1</b> Provide educational opportunities for permittees and private landowners to learn about sage-grouse habitat</p>

<sup>159</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>160</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>161</sup> Agency package: ODFW-105.

Catastrophic Flooding: Action FLD-3		
	<p>requirements and conservation measures they can implement to improve rangeland conditions for livestock and sage-grouse.</p> <p><b>Action FLD-3-2</b> Create “grass banks” or reserve forage areas as alternative grazing opportunities to provide rest for over-utilized rangelands or allotments, or to be utilized during or in response to catastrophic flooding, post-fire or after restoration work. Do so in a manner compatible with livestock operations locally.</p> <p><b>Action FLD-3-3</b> Identify opportunities to compensate landowners for the cost of implementing conservation measures associated with catastrophic flooding and facilitating practices to benefit sage-grouse and their habitat.</p>	
<b>Strategy Level</b>	I (Large-Scale Planning)	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Conduct a minimum of 2 educational events for permittees annually per county.</li> <li>• Develop policies to facilitate converting relinquished allotments (or other opportunities) to grass banks/reserve forage allotments in a manner that supports and does not undermine livestock economies and conservation benefits.</li> <li>• Designate a minimum of acres TBD serve as available grass banks/reserve forage by 20XX (date TBD).</li> <li>• Conduct routine maintenance on infrastructure in grass bank allotments.</li> <li>• Maintain and increase funding by a minimum of TBD % for landowner incentive programs.</li> </ul>	
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of education events or other learning opportunities</li> <li>• Development of new conservation incentives, compensation programs, and mitigation opportunities to develop/improve seasonal habitats</li> <li>• Documentation of the number of allotments reserved for grass banks and the quantity of cattle that can be accommodated during restoration activities elsewhere</li> <li>• Administrative policy developed to facilitate grass bank establishment consistent with related objectives.</li> <li>• Allocation of funds for expansion of landowner incentive programs</li> </ul>	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• GNRO</li> </ul>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Landowner outreach: <b>Ongoing</b></p> <p>Grass bank/reserve forage policy completion: <b>Spring 2016</b></p>	<p>Grass bank(s)/reserve forage established: <b>Opportunistically, as grazing permits are relinquished</b></p> <p>New incentive programs: <b>TBD</b></p>
<b>Funding</b>	Identified funds:	

Catastrophic Flooding: Action FLD-3	
	<p>For education:</p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>162</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>163</sup></li> <li>• DSL ongoing funding (state lands)</li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>164</sup></li> </ul> <p>For policy work:</p> <ul style="list-style-type: none"> <li>• Ongoing BLM state office funds</li> <li>• Ongoing Governor's Natural Resource Office funds</li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><b>Pending funds:</b> For education: NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</p>

Predation: Action PRD-1	
<b>Action Description</b>	<b>Action PRD-1:</b> Use Implementation Recommendations and Guidelines (see Appendix 4) to reduce anthropogenic influences that artificially boost predator populations or provide predators with hunting advantages in PACs and within 4 miles of leks.
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	(Note: specific objectives will be developed/refined in CCAA/CCA and BLM site-specific plans.)
<b>Performance Measures</b>	Documentation of modifications to or elimination of anthropogenic infrastructure known to contribute to increased predator populations
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• Private landowners</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	Ongoing, as CCAA/CCA enrollment and SSPs occur

<sup>162</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>163</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>164</sup> Agency package: ODFW-105.

Predation: Action PRD-1	
	and as BLM allotment reviews occur
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>165</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>166</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>167</sup></li> <li>• DSL ongoing funding (state lands)</li> <li>• Ongoing BLM district funds</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Predation: Action PRD-2 and PRD-3	
Action Description	<p><b>Action PRD-2:</b> Evaluate the localized influence of predators on declining sage-grouse populations. If predators are implicated in population declines, consider predator control programs to provide a short-term conservation benefit while addressing habitat loss, degradation, and fragmentation.</p> <p><b>Action PRD-2-1</b> When predation-based downward population trends and declining nesting success are detected, initiate predator surveys to identify the responsible predator species and relevant control efforts for a given species.</p> <p><b>Action PRD-2-2</b> When determined to be necessary, pursue take permits for corvids from the USFWS as regulated by the Migratory Bird Treaty Act.</p> <p><b>Action PRD-2-3</b> Implement nonlethal methods to reduce predator subsidies in conjunction with lethal predator removal programs.</p> <p><b>Action PRD-2-4</b> Monitor predator control programs to determine any effects on sage-grouse nest success, recruitment, survival,</p>

<sup>165</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>166</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>167</sup> Agency package: ODFW-105.

Predation: Action PRD-2 and PRD-3	
	<p>and population trends. Adapt control strategies accordingly.</p> <p><b>Action PRD-3:</b> Consider implementing predator threat reduction programs to promote the success of translocation efforts. Threat reduction should include removal of predator subsidies and may also include predator removal programs.</p>
Strategy Level	II (Site-Specific Management)
Objectives	<ul style="list-style-type: none"> <li>• See population monitoring objectives (<b>Action MON-1</b>).</li> <li>• Utilize population augmentation/translocation efforts where necessary to (a) re-establish populations in habitat where natural bird establishment is constrained, or (b) to sustain or rebuild populations in response to exigent conditions.</li> <li>• Utilize predator control where supported by evidence of predator-driven localized population declines or where needed to support population augmentation/translocation efforts, while also addressing predator subsidies, habitat declines, or other causes of constraints on population growth.</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• See population monitoring performance measures (<b>Action MON-1</b>).</li> <li>• Development of ODFW policy and criteria related to population augmentation/translocation.</li> <li>• Development of ODFW policy and criteria guiding potential use of predator control and/or removal to augment sage-grouse populations and/or respond to localized population declines.</li> <li>• Development and implementation of predator management plans when indicated</li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>• ODFW</li> <li>• USFWS</li> </ul>
Timeline	<p>See population monitoring timelines.</p> <p>Predator management plans:  <b>As needed or concurrent with translocation efforts</b></p>
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> <li>• Ongoing ODFW funds for Upland Game Bird Coordinator</li> <li>• Ongoing ODFW district funds</li> </ul> <p><b>Funds to be identified:</b></p> <ul style="list-style-type: none"> <li>• Funds for predator removal efforts will be identified as need emerges.</li> </ul>

Hunting: Action HNT-1 and HNT-2
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Hunting: Action HNT-1 and HNT-2	
Action Description	<p><b>Action HNT-1:</b> Maintain ODFW's harvest policy of less than 5% of the fall population.</p> <p><b>Action HNT-2:</b> Do not authorize recreational harvest of sage-grouse in wildlife management units where the estimated spring population is &lt;100 males in consecutive years.</p>
Strategy Level	I (Large-Scale Planning) (HNT-1) and I (Large-Scale Planning) and II (Site-Specific Management) (HNT-2)
Objectives	<ul style="list-style-type: none"> <li>• See population monitoring objectives (<b>Action MON-1</b>).</li> <li>• Maintain harvest rates that will not result in additive mortality or impacts in declining areas of concern.</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• See population monitoring performance measures (<b>Action MON-1</b>).</li> <li>• Documentation of harvest permit calculations and any restrictions in response.</li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>• ODFW</li> </ul>
Timeline	Annually
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> <li>• Ongoing ODFW funds for Upland Game Bird Coordinator</li> <li>• Ongoing ODFW district funds</li> </ul>

Insecticides: Action INS-1, INS-2, and INS-3	
Action Description	<p><b>Action INS-1:</b> Prioritize treatment of insect infestations that could lead to significant loss of sagebrush plant communities in PAC areas, while minimizing direct (mortality) and indirect (reduction of forage) impacts to sage-grouse.</p> <p><b>Action INS-2:</b> Use Implementation Recommendations and Guidelines pertaining to the use of insecticides in sage-grouse habitat (see Appendix 4).</p> <p><b>Action INS-3:</b> Evaluate the use of other nonchemical alternatives that are safe for wildlife to treat or prevent insect infestations.</p>
Strategy Level	I (Large-Scale Planning) (INS-1 and INS-3) and I (Large-Scale Planning) and II (Site-Specific Management) (INS-2)
Objectives	<ul style="list-style-type: none"> <li>• Maintain the extent of sagebrush according to habitat objectives defined in the 2011 Strategy and the BLM RMP FEIS (i.e., 70% sagebrush; 30% other habitat types with restoration potential) by reducing sagebrush loss due to insect infestations.</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• Documentation of insect infestations as they occur</li> <li>• Documentation of justification for use of insecticides</li> </ul>

Insecticides: Action INS-1, INS-2, and INS-3	
Responsible Parties	<ul style="list-style-type: none"> <li>• SWCDs</li> <li>• ODA</li> <li>• APHIS</li> <li>• Private landowners</li> </ul>
Timeline	As required
Funding	<b>Funds to be identified:</b> <ul style="list-style-type: none"> <li>• Funds for treatment of insect infestations will be identified as need emerges.</li> <li>• No funds identified for INS-3</li> </ul>

Sagebrush Defoliator Moth: Action SDM-1 and SDM-2	
Action Description	<p><b>Action SDM-1:</b> Assess areas impacted by Aroga moth to determine the extent of damage to sagebrush and implement recommended guidelines and activities to reduce the risk of annual-grass invasion and wildfire (see Appendix 4).</p> <p><b>Action SDM-2:</b> Monitor sage-grouse habitat for Aroga moth outbreaks. As bio-control methods are developed, consider their use where warranted.</p>
Strategy Level	II (Site-Specific Management) (SDM-1) and I (Large-Scale Planning) and II (Site-Specific Management) (SDM-2)
Objectives	<ul style="list-style-type: none"> <li>• Maintain the extent of sagebrush according to habitat objectives defined in the 2011 Strategy and the BLM RMP FEIS (i.e., 70% sagebrush; 30% other habitat types with restoration potential) by reducing sagebrush loss due to Aroga moth.</li> <li>• See objectives for annual-grass and wildfire prevention.</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• Documentation of areas impacted by Aroga moth infestations as they occur</li> <li>• See performance measures for annual-grass and wildfire prevention.</li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>• SWCDs</li> <li>• OWEB</li> <li>• BLM</li> <li>• ODFW</li> <li>• NRCS</li> <li>• Private landowners</li> <li>• ODA</li> <li>• DSL</li> </ul>
Timeline	As required
Funding	<b>Identified funds:</b> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>168</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>169</sup></li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>170</sup></li> <li>• Ongoing BLM district funds</li> </ul>

<sup>168</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>169</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>170</sup> Agency package: ODFW-105.

### Sagebrush Defoliator Moth: Action SDM-1 and SDM-2

#### Pending funds:

- NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)
- BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)
- TBD additional BLM appropriations from president's budget

### Noxious Weeds: Action NXW-1

<b>Action Description</b>	<p><b>Action NXW-1:</b> Enlist LITs and cooperative weed management areas (CWMAs) in cooperation with state, federal, and private land managers to apply local expert knowledge in conjunction with the spatial decision support tool (currently under development) to develop regional strategic work plans that identify priority areas to address noxious weeds, timelines, and responsible parties. Regional strategic work plans should identify areas for noxious weeds <i>prevention, treatment and restoration, and containment</i>. More detailed actions relating to these three invasive plant management approaches are listed below.</p> <p><b>Action NXW-1-1</b> As part of regional strategic work plans, develop GIS layers with polygons spatially representing priority areas for noxious weed treatment and containment (note: coarse layers have already been created by FIAT, coordinated by the BLM for Focal Habitat and Planning Areas specific to that process).</p>	
<b>Strategy Level</b>	I (Large-Scale Planning)	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Create GIS layers with polygons spatially representing priority areas for noxious weed response (note: coarse layers have already been created by FIAT, coordinated by the BLM for Focal Habitat and Planning Areas specific to that process).</li> <li>• Develop regional LIT work plans identifying priority areas to address noxious weeds, timelines, and responsible parties.</li> </ul>	
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Completed GIS layers</li> <li>• Development of regional LIT work plans</li> </ul>	
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM FIAT</li> <li>• CWMAs</li> <li>• County weed boards</li> </ul>	<ul style="list-style-type: none"> <li>• LITs</li> <li>• SWCDs</li> <li>• ODA</li> <li>• ODFW</li> </ul>
<b>Timeline</b>	GIS layers for fire suppression priorities: <b>June 2016</b>	Regional strategic work plans: <b>Spring 2016</b> (with ongoing updates as noxious weeds are contained)
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</li> </ul>	

Noxious Weeds: Action NXW-1	
	<p><i>Related funds for conveying priority habitat improvement areas to mitigation creditors:</i></p> <p>\$286K funded to ODFW (2015-2017) for SageCon administration of the All-Lands Mitigation Program (1 FTE position)<sup>171</sup></p> <p><b>Funds to be identified:</b></p> <p>Funds TBD (awarded or requested from TNC to maintain the ORDSS)</p>

Noxious Weeds: Action NXW-2	
<b>Action Description</b>	<p><b>Action NXW-2:</b> Encourage landowners to enroll in habitat management assistance programs (e.g., CCAAs, SGI, and others) to ensure that technical expertise through ODFW, NRCS, SWCDs, and/or the OSU Extension Service is available to landowners to address noxious weed issues.</p> <p><b>Action NXW-2-2:</b> Direct funding to ensure that adequate funds and staff capacity are available for development and implementation of conservation measures identified in site-specific habitat management plans.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Enroll a minimum of 80% of eligible acres in CCAAs by enrollment deadline.</li> <li>• Enroll a minimum of TBD % of eligible landowners in SGI.</li> <li>• Secure TBD funds for CCAAs and other habitat management assistance programs.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Documentation of the number of recruitment activities completed annually by each SWCD and other partner organizations</li> <li>• Annual documentation of the number of landowners/acres recruited or enrolled to participate in SGI and CCAAs</li> <li>• Funds identified and allocated to habitat management assistance programs</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• NRCS</li> <li>• ODFW</li> <li>• OWEB</li> <li>• SWCDs</li> </ul>
<b>Timeline</b>	<p>Landowner outreach: <b>Ongoing</b></p> <p>Summary of recruitment: <b>Annually</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>172</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>173</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>174</sup></li> </ul>

<sup>171</sup> Agency package: ODFW-130.

<sup>172</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>173</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>174</sup> Agency package: ODFW-132.

Noxious Weeds: Action NXW-2	
	<ul style="list-style-type: none"> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>175</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator; DSL ongoing funding (state lands CCAA)</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Noxious Weeds: Action NXW-3	
<b>Action Description</b>	<p><b>Action NXW-3:</b> Implement noxious weed management plans for each PAC that identify priority areas for <i>prevention</i>.</p> <p><b>Action NXW-3-1</b> Prioritize proactive herbicide treatments as a prevention strategy in recently burned areas, particularly areas with low resistance and resilience that are proximal to valuable sage-grouse habitat. Prioritize sites within 4 miles of leks (active or pending) and sites &lt;2 miles from "key habitat," defined as areas with 75% breeding bird density and where sagebrush land cover is &gt;65%.</p> <p><b>Action NXW-3-1a</b> Remove administrative and policy barriers that delay herbicide treatments from the most effective implementation timeframe.</p> <p><b>Action NXW-3-2</b> Conduct systematic and strategic surveys to detect areas of expanding noxious weeds and expedite reporting and treatment of new infestations.</p> <p><b>Action NXW-3-3</b> In priority noxious weed prevention sites, limit disturbance within and around all remaining large, intact sagebrush patches, particularly in low-elevation sites with low resistance and resilience, because these sites are highly vulnerable to noxious weed invasion once desirable species are removed or disturbed.</p> <p><b>Action NXW-3-4</b> Require general techniques to prevent human-caused spread of noxious weeds resulting from road maintenance (e.g., blading), construction/development, and OHV activity, as well as during fire suppression activities.</p> <p><b>Action NXW-3-5</b> Suppress fire in areas within or proximal to valuable sage-grouse habitats that are particularly vulnerable to noxious weed invasion.</p> <p><b>Action NXW-3-6</b> Utilize grazing management techniques to increase the resilience of systems to noxious weed establishment.</p>

<sup>175</sup> Agency package: ODFW-105.

Noxious Weeds: Action NXW-3				
	<b>Action NXW-3-7</b> Monitor areas impacted by ground-disturbing activities for a minimum of 3 years and apply herbicide to new invasions of noxious weeds expeditiously.			
<b>Strategy Level</b>	II (Site-Specific Management)			
<b>Objectives</b>	<p>(Note: Specific objectives will be developed/refined in LIT regional work plans. Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Treat a minimum of 80-100% of recently burned acres (depending on the scale and severity of annual fire seasons) as a prevention strategy on private, state, and federal lands (prioritized in areas with low resistance and resilience proximal to valuable sage-grouse habitat).               <ul style="list-style-type: none"> <li>◦ Complete 100% of herbicide treatments during the most effective timeframe.</li> </ul> </li> <li>• Complete systematic surveys annually.               <ul style="list-style-type: none"> <li>◦ Treat 100% of all newly identified infestations during the fall following identification.</li> </ul> </li> <li>• Require and implement prevention plans for 100% of the human activities identified to have the potential to spread noxious weeds.</li> <li>• Suppress 100% of fires in areas proximal to valuable sage-grouse habitat that are at risk of annual-grass invasion.</li> <li>• Develop grazing management plans for 100% of acres enrolled in CCAAs/CCAs to reduce spread of noxious weeds as enrollment occurs.</li> <li>• Develop and implement monitoring and adaptive management plans for 100% of all disturbed areas.</li> </ul>			
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Annual documentation of:               <ul style="list-style-type: none"> <li>◦ Acres treated in recently burned areas on private, state, and federal lands</li> <li>◦ Systematic surveys and follow-up treatments of newly identified infestations</li> <li>◦ Inclusion of Implementation Recommendations and Guidelines (IRGs) for fuels management and fire suppression activities to prevent human-caused spread of annual invasive grasses in fuels/fire suppression protocol</li> <li>◦ Inclusion of IRGs for development and construction projects to prevent human-caused spread of annual invasive grasses as a requirement of permits</li> <li>◦ Suppressed fire ignitions</li> <li>◦ Grazing management plans developed/implemented</li> <li>◦ Monitoring and adaptive management actions undertaken in disturbed areas</li> </ul> </li> </ul>			
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• ARS</li> <li>• BLM</li> <li>• BLM FIAT</li> <li>• County weed depts.</li> <li>• CWMAs</li> </ul>	<ul style="list-style-type: none"> <li>• DSL</li> <li>• Local road districts</li> <li>• NRCS</li> <li>• ODA</li> <li>• ODFW</li> </ul>	<ul style="list-style-type: none"> <li>• ODOT</li> <li>• OSU</li> <li>• OSWB</li> <li>• OWEB</li> <li>• Private landowners</li> </ul>	<ul style="list-style-type: none"> <li>• RFPAs</li> <li>• Sage-Grouse Habitat Program Manager</li> <li>• SWCDs</li> <li>• USFS</li> <li>• Watershed councils</li> </ul>
<b>Timeline</b>	Preventive treatments in burned areas: Incorporation of IRGs as requirement of development/ construction			

Noxious Weeds: Action NXW-3		
	<p><b>Ongoing, as needed</b></p> <p>Systematic surveys for noxious weeds: <b>Annually</b></p> <p>Treatment of new infestations: <b>During the fall following identification</b></p> <p>Incorporation of IRGs in fuels/fire suppression protocol: <b>June 2015</b></p>	<p>permits: <b>Ongoing</b></p> <p>Fire suppression in prioritized areas: <b>As needed</b></p> <p>Development of grazing management plans: <b>Ongoing, as CCAA/CCA enrollment and SSPs occur</b></p> <p>Development of monitoring and adaptive management plans for disturbed areas: <b>Concurrent with new disturbance</b></p>
<b>Funding</b>	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$100K funded to ODA (2015-2017) for Oregon Invasive Species Council (sage-grouse) for overall response to invasive species, including restoration and protection<sup>176</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>177</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>178</sup></li> <li>• ODA ongoing funding (Noxious Weed Program and SWCD Program)</li> <li>• DSL ongoing funding (state lands CCAA)</li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>179</sup></li> <li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>180</sup></li> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs, 3 (FTE positions)<sup>181</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds (for fire suppression in priority areas for invasive annual-grass prevention):</i> \$1.6M funded to ODF (2015-2017) for RFPA support (1.5 FTE positions)<sup>182</sup></p> <p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p>	

<sup>176</sup> Agency package: ODA-320.

<sup>177</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>178</sup> Agency package: ODFW-132.

<sup>179</sup> Agency package: ODFW-105.

<sup>180</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds.

<sup>181</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>182</sup> Agency package: ODF-119 and ODF-120.

Noxious Weeds: Action NXW-3	
	<p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Noxious Weeds: Action NXW-4	
<b>Action Description</b>	<p><b>Action NXW-4:</b> Implement invasive plant management plans for each PAC that identifies priority areas for <i>treatment</i> and <i>restoration</i>.</p> <p><b>Action NXW-4-1</b> Prioritize treatment and restoration of invaded sites with the greatest potential to succeed (e.g., moderate infestations or areas with inadequate perennial species in medium-to-high resistance and resilience areas) that are proximal to valuable sage-grouse habitat.</p> <ul style="list-style-type: none"> <li>• Prioritize sites within 4 miles of leks (active or pending) and sites &lt;2 miles from "key habitat," defined as areas with 75% breeding bird density and where sagebrush land cover is &gt;65%. Over time, expand treatment and restoration activities outward from key habitat patches.</li> </ul> <p><b>Action NXW-4-2</b> Prioritize restoration efforts in recently burned areas, particularly areas that are proximal to valuable sage-grouse habitat.</p> <ul style="list-style-type: none"> <li>• Prioritize sites within 4 miles of leks (active or pending) and sites &lt;2 miles from "key habitat," defined as areas with 75% breeding bird density and where sagebrush land cover is &gt;65%.</li> </ul> <p><b>Action NXW-4-3</b> Implement successful novel techniques, such as "precision restoration" and bio-controls, in areas where they are expected to have demonstrated efficacy.</p> <p><b>Action NXW-4-4</b> Monitor restoration projects for effectiveness and repeat rehabilitation activities as required.</p>
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	<p>(Note: Specific objectives will be developed/refined in LIT regional work plans. Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Treat and restore TBD % of prioritized areas annually.</li> <li>• Implement restoration efforts in a minimum of 80-100% of recently burned areas in priority areas (depending on the scale and severity of annual fire seasons).</li> <li>• Pending resource availability and completion of scientific trials, implement novel restoration techniques in 100% of areas where they</li> </ul>



Noxious Weeds: Action NXW-4															
	are expected to be effective. • Develop and implement monitoring and adaptive management plans for 100% of all restoration areas.														
Performance Measures	• Annual documentation of: <ul style="list-style-type: none"> <li>○ Acres receiving restoration treatments in prioritized areas on private, state, and federal lands</li> <li>○ Efforts that employ “precision restoration techniques”</li> <li>○ Monitoring and adaptive management of restoration projects</li> </ul>														
Responsible Parties	<table> <tr> <td>• BLM</td><td>• DSL</td><td>• ODFW</td><td>• SWCDs</td></tr> <tr> <td>• BLM FIAT</td><td>• NRCS</td><td>• Private landowners</td><td>• USFS</td></tr> <tr> <td>• County weed boards</td><td>• ODA</td><td>• Sage-Grouse Habitat Program Manager</td><td></td></tr> </table>			• BLM	• DSL	• ODFW	• SWCDs	• BLM FIAT	• NRCS	• Private landowners	• USFS	• County weed boards	• ODA	• Sage-Grouse Habitat Program Manager	
• BLM	• DSL	• ODFW	• SWCDs												
• BLM FIAT	• NRCS	• Private landowners	• USFS												
• County weed boards	• ODA	• Sage-Grouse Habitat Program Manager													
Timeline	Restoration treatment in prioritized areas: <b>Date TBD</b>														
Funding	Identified funds: <ul style="list-style-type: none"> <li>• \$100K funded to ODA (2015-2017) for Oregon Invasive Species Council (sage-grouse) for overall response to invasive species, including restoration and protection<sup>183</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>184</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>185</sup></li> <li>• ODA ongoing funding (Noxious Weed Program and SWCD Program)</li> <li>• DSL ongoing funding (state lands CCAA)</li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>186</sup></li> <li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>187</sup></li> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs, 3 (FTE positions)<sup>188</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds (for fire suppression in priority areas for invasive annual-grass prevention):</i> \$1.6M funded to ODF (2015-2017) for RFP support (1.5 FTE positions)<sup>189</sup></p>														

<sup>183</sup> Agency package: ODA-320.

<sup>184</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>185</sup> Agency package: ODFW-132.

<sup>186</sup> Agency package: ODFW-105.

<sup>187</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds.

<sup>188</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>189</sup> Agency package: ODF-119 and ODF-120.

Noxious Weeds: Action NXW-4	
	<p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Noxious Weeds: Action NXW-5	
<b>Action Description</b>	<p><b>Action NXW-5:</b> Implement invasive plant management plans for each PAC that identify priority areas to <i>contain</i> existing patches of noxious weeds.</p> <p><b>Action NXW-5-1</b> Implement and maintain containment programs for large infestations that may include the following techniques: (1) border spraying; (2) establishing a barrier to expansion with aggressive perennial species that are competitive with noxious weeds; (3) biological control agents; and/or (4) targeted grazing.</p> <p><b>Action NXW-5-2</b> Prioritize containment where large infestations of noxious weeds threaten highly valuable sage-grouse habitat. Prioritize sites within 4 miles of leks (active or pending) and sites &lt;2 miles from "key habitat," defined as areas with 75% breeding bird density and where sagebrush land cover is &gt;65%. Also prioritize meadows and riparian areas where noxious weeds impact brood-rearing habitat.</p>
<b>Strategy Level</b>	II (Site-Specific Management)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• (Note: Specific objectives will be developed/refined in LIT regional work plans. Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</li> <li>• Contain TBD % of prioritized areas annually</li> <li>• Repeat containment efforts as required (adaptive management)</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Annual documentation of acres treated as a containment strategy in prioritized areas on private, state, and federal lands</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• BLM FIAT</li> <li>• County weed boards</li> <li>• DSL</li> <li>• NRCS</li> <li>• ODA</li> <li>• ODFW</li> <li>• Private landowners</li> <li>• Sage-Grouse Habitat Program Manager</li> <li>• SWCDs</li> <li>• USFS</li> </ul>
<b>Timeline</b>	Containment treatment in prioritized areas:

Noxious Weeds: Action NXW-5	
	Date TBD
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$100K funded to ODA (2015-2017) for Oregon Invasive Species Council (sage-grouse) for overall response to invasive species, including restoration and protection<sup>190</sup></li> <li>• OWEB (minimum of \$10M 2015-2025)<sup>191</sup></li> <li>• \$500K funded to ODFW (2015-2017) for SageCon pre- and post-wildfire resilience (1 FTE position)<sup>192</sup></li> <li>• ODA ongoing funding (Noxious Weed Program and SWCD Program)</li> <li>• DSL ongoing funding (state lands CCAA)</li> <li>• \$90K funded to ODFW (2015-2017) for support for conservation practices to alleviate threats to sage-grouse (2 FTE positions)<sup>193</sup></li> <li>• \$2.7M appropriated to BLM for habitat improvements in S. Warners (1 FTE position)<sup>194</sup></li> <li>• \$18M (\$9M RCPP award to SWCDs plus match) for implementation of CCAAs, 3 (FTE positions)<sup>195</sup></li> </ul> <p><i>Related funds:</i> Ongoing ODFW funds for Sage-Grouse Conservation Coordinator</p> <p><i>Related funds (for fire suppression in priority areas for invasive annual-grass prevention):</i> \$1.6M funded to ODF (2015-2017) for RFPA support (1.5 FTE positions)<sup>196</sup></p> <p><i>Related funds:</i> See funds identified to monitor conservation actions, landscape-level condition, and site-specific habitat condition.</p> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> </ul>

Noxious Weeds: Action NXW-6	
Action Description	<b>Action NXW-6:</b> Develop grazing management plans for lands and allotments enrolled in CCAAs and CCAs, as well as other Farm Bill programs that employ grazing techniques that maintain or improve the perennial native grass and shrub community, and prevent spread

<sup>190</sup> Agency package: ODA-320.

<sup>191</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

<sup>192</sup> Agency package: ODFW-132.

<sup>193</sup> Agency package: ODFW-105.

<sup>194</sup> Combined DOI Resilient Landscapes project funds (\$1.56M), FIAT funds (\$935K), and district funds.

<sup>195</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>196</sup> Agency package: ODF-119 and ODF-120.

Noxious Weeds: Action NXW-6	
	<p>of noxious weeds.</p> <p><b>Action NXW-6-1</b> Assess pastures/allotments dominated by Wyoming big sagebrush and prioritize implementation of proper grazing management plans for those with documented improper grazing impacts to native perennial grass and forbs, and soil biotic crusts.</p> <p><b>Action NXW-6-2</b> Identify allotments with noxious weeds and implement control measures to prevent the transfer of invasive species via livestock.</p> <p><b>Action NXW-6-3</b> Evaluate and treat heavily used areas (e.g., water sources or transfer areas) for noxious weed invasions and prioritize for treatment and containment actions.</p> <p><b>Action NXW-6-4</b> Utilize targeted livestock grazing to reduce annual invasive plants, increase desirable perennial grasses and forbs, and maintain and increase desired habitat structure.</p>
Strategy Level	II (Site-Specific Management)
Objectives	<p>(Note: Specific objectives will be developed/refined in LIT regional work plans and/or CCAA/CCA site-specific plans. Also see FIAT reports for objectives and timelines for activities in FIAT planning areas.)</p> <ul style="list-style-type: none"> <li>• Develop grazing management plans for 100% of acres enrolled in CCAAs/CCAs (or other Farm Bill programs) to reduce spread of noxious weeds as enrollment occurs.</li> <li>• Assess TBD % of prioritized allotments annually. <ul style="list-style-type: none"> <li>○ Implement control measures in 100% of areas identified as having impacts from improper grazing annually.</li> </ul> </li> <li>• Assess TBD % of heavily used areas annually. <ul style="list-style-type: none"> <li>○ Implement control measures in 100% of heavily used areas with noxious weeds.</li> </ul> </li> <li>• Utilize targeted livestock grazing in 100% of the areas in which such a strategy is expected to successfully reduce noxious weeds.</li> <li>• Document invasive annual-grass reduction and understory perennial grass and shrub recovery in all treatment areas (using metrics TBD).</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• Annual documentation of the following in relation to PAC locations: <ul style="list-style-type: none"> <li>○ Allotments with impacts resulting from improper grazing</li> <li>○ Control measures implemented on allotments with noxious weeds</li> <li>○ Heavily used areas treated to control invasive annual-grass spread</li> <li>○ Allotments where grazing is used for invasive annual-grass control, including effectiveness reporting</li> <li>○ Monitoring and adaptive management of grazing management plans and prevention/treatment/containment projects</li> </ul> </li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• NRCS</li> </ul>

Noxious Weeds: Action NXW-6	
	<ul style="list-style-type: none"> <li>• Permittees enrolled in CCAs with grazing management as part of allotment SSPs</li> <li>• Private landowners enrolled in CCAAs with grazing management as part of SSPs</li> <li>• SWCDs</li> </ul>
Timeline	Containment measures implemented in allotments with noxious weeds: Date TBD
Funding	<p><b>Identified funds:</b></p> <ul style="list-style-type: none"> <li>• \$18M (\$9M funded to SWCDs plus match) for implementation of CCAAs (3 FTE positions)<sup>197</sup></li> <li>• OWEB (\$10M minimum 2015-2025)<sup>198</sup></li> <li>• DSL ongoing funding (state lands CCAA)</li> <li>• ODA ongoing funding (Noxious Weed Program and SWCD Program)</li> </ul> <p><b>Pending funds:</b></p> <ul style="list-style-type: none"> <li>• NRCS \$200M over next 4 years specific to sage-grouse across all western states (Oregon portion to be determined)</li> <li>• BLM \$15M (FY16) greater sage-grouse conservation and management (40% for project implementation; Oregon portion to be determined)</li> <li>• TBD additional BLM appropriations from president's budget</li> </ul>

Noxious Weeds: Action NXW-7	
Action Description	<p><b>Action NXW-7:</b> Support infrastructure, resources, and research that will enhance noxious weed prevention and habitat restoration.</p> <p><b>Action NXW-7-1</b> Support ongoing research and pilot efforts evaluating noxious weed prevention and control techniques and precision restoration technologies, seeking to improve the likelihood of success when actively restoring sagebrush sites. Advance treatments that employ these new techniques and technologies in order to test their effectiveness, and expand to a wider scale where effective.</p>
Strategy Level	I (Large-Scale Planning)
Objectives	<ul style="list-style-type: none"> <li>• Identify funds TDB for prevention and restoration technology research.</li> <li>• Identify funds TDB for local, native seed collection and storage.</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• Documentation of funding identified for prevention and restoration technology research and local, native seed stock</li> <li>• Documentation of the quantity of local, native seed available</li> </ul>

<sup>197</sup> Regional Conservation Partnership Program (RCPP) grant from NRCS.

<sup>198</sup> Funding from state lottery fund dedicated to identified priority sage-grouse conservation actions.

Noxious Weeds: Action NXW-7	
Responsible Parties	<ul style="list-style-type: none"> <li>• ARS</li> <li>• BLM</li> </ul>
Timeline	Funding requests submitted for research: Native seed facility with TBD quantity of seed available established: Ongoing Date TBD
Funding	Identified funds: <ul style="list-style-type: none"> <li>• Funds TBD identified for ARS</li> <li>• Funds TBD identified for local, native seed collection/banks</li> </ul>

Noxious Weeds: Action NXW-8	
Action Description	<p><b>Action NXW-8</b> Designate “grass banks” or reserve areas for grazers to utilize when rest is recommended on existing allotments or pastures, or to be utilized during drought conditions, post-fire or after restoration work in order to ensure restoration treatment success. Do so in a manner compatible with livestock operations locally.</p> <p><b>Action NXW-8-1</b> Remove administrative barriers to establishing “grass banks” on federal land.</p> <p><b>Action NXW-8-2</b> Maintain fencing and other improvements on “grass banks” so they are ready for use as need emerges.</p> <p><b>Action NXW-8-3</b> Assess “grass banks” to determine whether, if ungrazed, they are contributing to fire risk/fuel loads, and use grazing as a management tool to reduce fuel loads if required.</p>
Strategy Level	I (Large-Scale Planning)
Objectives	<ul style="list-style-type: none"> <li>• Develop policies to facilitate converting relinquished allotments to grass banks/reserve forage allotments in a manner that supports and does not undermine livestock economies and conservation benefits.</li> <li>• Designate a minimum of acres TBD as available grass banks by 20XX (date TBD).</li> <li>• Conduct routine maintenance on infrastructure in grass bank allotments.</li> </ul>
Performance Measures	<ul style="list-style-type: none"> <li>• Documentation of the number of allotments reserved for grass banks and the quantity of cattle that can be accommodated during restoration activities elsewhere</li> <li>• Administrative policy developed to facilitate grass bank establishment consistent with related objectives.</li> </ul>
Responsible Parties	<ul style="list-style-type: none"> <li>• BLM</li> <li>• DSL</li> </ul>
Timeline	Policy completion: Spring 2016 Grass bank(s) established: Opportunistically, as grazing permits are relinquished
Funding	Identified funds:

Noxious Weeds: Action NXW-8	
	<ul style="list-style-type: none"> <li>• Ongoing BLM state office funds for policy work</li> <li>• Ongoing BLM district funds</li> </ul>

Noxious Weeds: Action NXW-9	
<b>Action Description</b>	<p><b>Action NXW-9:</b> Remove administrative or procedural barriers to noxious weed management.</p> <p><b>Action NXW-9-1</b> Support policy changes to remove the court-ordered injunction prohibiting the use of herbicides on all federally administered lands in Oregon.</p> <p><b>Action NXW-9-2</b> Support restructuring of the post-fire emergency stabilization and restoration (ESR) funding scheme to ensure that adequate funds are available for long-term post-fire habitat management.</p> <p><b>Action NXW-9-3</b> Support development of a post-fire emergency stabilization and restoration program for private lands.</p> <p><b>Action NXW-9-4</b> Coordinate with state and federal agencies to develop consistent procedures and policies for the treatment of noxious and invasive plants, chemical usage, and timing.</p> <p><b>Action NXW-9-5</b> Support funding infrastructure and resources for federal-, state-, and county-level noxious weed control programs which are key to sage-grouse habitat protection.</p>
<b>Strategy Level</b>	I (Large-Scale Planning)
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Complete all EAs to support removal of court-ordered injunction on herbicide use on federal lands.</li> <li>• Develop private land ESR program.</li> <li>• Restructure federal ESR program.</li> <li>• Align state and federal policies and procedures for noxious weed treatment.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Removal of court-ordered injunction on herbicide use on federal lands</li> <li>• New private land ESR program created</li> <li>• Restructuring of federal ESR completed</li> <li>• Alignment of federal and state policies/procedures completed</li> </ul>
<b>Responsible Parties</b>	<ul style="list-style-type: none"> <li>• BLM</li> <li>• County weed boards</li> <li>• ODA</li> </ul>
<b>Timeline</b>	<div>Removal of court-ordered injunction: January 2016</div> <div>ESR restructuring: June 2015</div>

Noxious Weeds: Action NXW-9	
Funding	<b>Identified funds:</b> <ul style="list-style-type: none"> <li>• Ongoing ODA funds for policy work</li> <li>• Ongoing BLM state office funds for policy work</li> </ul>



## Appendix 4. Implementation Recommendations and Guidelines

Conservation actions and Implementation Recommendations and Guidelines (IRGs) identified in this Action Plan will be implemented in different ways, depending on land ownership.

Implementation of the conservation actions and IRGs on federal lands will be guided by recently revised Bureau of Land Management (BLM) resource management plans (RMPs) (2015) and other regulations specific to federal lands. As such, during the development of this Action Plan, conservation actions and IRGs that are applicable to federal lands were generally aligned with those identified in the BLM's Resource Management Plan Amendment and Final Environmental Impact Statement (hereafter "BLM Oregon Greater Sage-Grouse Proposed RMPA/Final EIS") for Oregon (2015).

The State has authority to ensure that the conservation actions and IRGs in this Plan are implemented on state-owned lands and by relevant State agencies. This authority is granted through new Oregon Land Conservation and Development Commission (LCDC) and Oregon Department of Fish and Wildlife (ODFW) rules governing development in significant sage-grouse habitat (OARs 660-023-0115 and 635-140-0025, respectively; see Section II), and by the Governor's Executive Order directing all impacted state agencies to implement actions in accordance with the Action Plan. Additionally, lands managed by the Department of State Lands (DSL) have been enrolled in a Candidate Conservation Agreement with Assurances (CCAA), and conservation measures detailed in site-specific plans for these lands must be implemented in accordance with the provisions of the CCAA.

Conservation actions and IRGs related to habitat and land management (other than compensatory mitigation) as well as livestock management are anticipated to be implemented voluntarily by landowners who are enrolled in Candidate Conservation Agreements with Assurances or other federal or state incentive programs designed to reduce the threats to sage-grouse. As such, during the development of this Plan, conservation actions and IRGs applicable to private lands were generally aligned with those identified in the Programmatic CCAA (Harney SCD and USFWS 2014). It is recognized that the State of Oregon has no authority to direct habitat management on private lands. Thus, the State relies upon landowners to voluntarily implement conservation actions through incentive-based programs sponsored by Soil and Water Conservation Districts (SWCDs), the Oregon Watershed Enhancement Board, the Natural Resources Conservation Service (NRCS), and others.

In recognition that many materials and resources are available describing the best scientific approaches to implementing conservation actions, the IRGs here are not intended to be exhaustive. Some of these resources that land managers and practitioners can draw upon are identified in the table below. It is also important to note that sage-grouse habitat characteristics vary across the range of the bird (depending on elevation, soil type, and

moisture, for example), making a one-size-fits-all approach impractical. Thus, the implementation guidelines included in this appendix are not intended to be prescriptive across the entire Sage-Grouse Conservation (SageCon) planning landscape. Rather, they provide general guidelines that are supported by science and should be customized and implemented adaptively according to the site-specific characteristics within project boundaries.

## **Literature Cited**

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## Implementation Recommendations and Guidelines

Juniper Encroachment (JPR)		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	
<p>Action JPR-3</p> <p>Reduce Phases I and II juniper encroachment (&lt;10% canopy cover) in sage-grouse priority habitats (PACs) and important areas of connectivity in Oregon to a rate greater than or equal to the rate of encroachment.</p>	IRG-JPR-3-1	Utilize mechanical techniques for juniper removal and slash removal, such as “lop and scatter,” “jackpot burning,” or “hand pile/burn,” with the aim of retaining an intact sagebrush component within treatment areas.
	IRG-JPR-3-2	Complete jackpot burning during the spring, when environmental conditions are favorable for the retention of shrubs; however, avoid disturbance to sage-grouse during critical biological timeframes (e.g., lekking and spring movements).
	IRG-JPR-3-3	Eliminate all limbs from felled trees in excess of 4 feet in height to reduce perching opportunities for avian predators.
	IRG-JPR-3-4	Consider seeding Phases I and II conifer removal areas prior to treatment if the perennial grass community is in poor condition (<2 plants/10ft, <1 plant/10ft) on dry and wet sites, respectively, or if exotic annual grasses are present. Broadcast seeding prior to soil disturbance or under slash may increase the chances of establishment.
	IRG-JPR-3-5	For all juniper treatment areas (regardless of juniper phase), rest treated areas from grazing until understory perennial grasses are re-established and can sustain disturbance. Length of rest will depend on understory composition at the time of treatment and the response of desirable vegetation following treatment. Set quantifiable objectives for post-treatment vegetation recovery based on pre-treatment monitoring data, and return to livestock grazing only when objectives have been met.
	IRG-JPR-3-6	Design juniper treatments to retain a majority of the understory shrub/grass/forb vegetation component. Understory removal should not exceed 50% of the shrub component present prior to treatment.
	IRG-JPR-3-7	Retain pre-settlement juniper because they provide important habitat for other wildlife and may have cultural significance.
	IRG-JPR-3-8	Pretreat the treatment area with herbicides if invasive grasses are present.
	IRG-JPR-3-9	Schedule all juniper slash treatments using fire within 12–18 months after felling for jackpot burning and 12–24 months for hand piles. Timing of slash treatments is important to ensure the presence of fine needles and twigs, which aid in ignition and consumption as well as protecting against establishment of invasive annual grasses in burned spots.
	IRG-JPR-4-1	Because Phase III stands generally lack a desirable understory shrub and grass component, recognize that conifer removal areas will likely require seedings and plantings of shrubs and perennial grasses.

	IRG-JPR-4-2	Recognize that prescribed fire can have immediate short- and/or long-term negative effects on sage-grouse habitat, and that there are limited situations where prescribed fire may be a safe tool to remove Phase III juniper (in light of declining sage-grouse habitat trends due to wildfire and other threats). Careful consideration and documentation of a project-specific rationale for using prescribed fire should precede prescribed fires and must identify the benefits of prescribed fire over alternative methods and address risks to sage-grouse habitat. If prescribed fire is warranted, adhere to IRGs to reduce the risk of habitat loss.
	IRG-JPR-4-3	Limit prescribed fire to higher elevations where there is little risk of invasive plant establishment post-treatment (e.g., high resistance and resilience).
	IRG-JPR-4-4	Limit prescribed fire treatments to a mosaic such that only one-third of treatment areas are burned (not to exceed 160 acres). This will ensure there are proximal seed sources for sagebrush, native grass, and forb regeneration. A mosaic approach should consider the spatial and habitat needs of sage-grouse in order to allow for their continued use of the treatment area.
	IRG-JPR-4-5	Limit prescribed fires to seasonally and environmentally appropriate times to prevent unintentional fire escape but yet achieve desired juniper removal goals.
	IRG-JPR-4-6	Ensure that timing of prescribed burns does not interfere with sage-grouse behaviors such as lekking and seasonal movements.
	IRG-JPR-4-7	Avoid prescribed fire in low-elevation, xeric sagebrush communities (e.g., low resistance and resilience).
Additional information and resources		
<ul style="list-style-type: none"> <li>Decision support tool to identify and prioritize areas for juniper removal (see ORegon Decision Support System for Sagebrush Steppe in Appendix 8).</li> <li>At the site-specific scale, state-and-transition models for mid- and high-elevation zones can assist in identifying the current vegetation state of a site and associated management actions required for restoration (see Figures 3 and 4 in Appendix 8).</li> <li>Prescriptions for juniper removal on any given site should also be based on a field investigation that utilizes Ecological Site information and guidance provided in USGS Circular 1321 (Miller et al. 2007).</li> <li>The Fire and Invasives Assessment Team (FIAT) convened by the BLM has identified priority habitat areas and management strategies to reduce the threats to sage-grouse resulting from juniper reduction.</li> <li>Chambers et al. 2014.</li> </ul>		
Invasive Annual Grasses (IAG)		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	

<p>Action IAG-2</p> <p>Implement invasive annual-grass management plans for each PAC that identifies priority areas for prevention.</p>	IRG-IAG-2-1	Prioritize prevention in sites with low annual-grass occupancy and low resilience and resistance. These sites will generally be low-elevation areas in the most desirable vegetation states (states A and B in the low-elevation state-and-transition model).
	IRG-IAG-2-2	Avoid using fire as a habitat management tool in zones with <12 inches precipitation or lower elevations (e.g., with low resistance and resilience). Note <i>treatment</i> and <i>restoration</i> exception: pre-treatment of infested areas with prescribed fire is often indicated to enhance the success of herbicide treatments.
	IRG-IAG-2-3	Power-wash vehicles involved in development projects, as well as for fuels management or fire suppression activities, prior to and after use.
	IRG-IAG-2-4	Require IRGs for construction projects in and adjacent to sagebrush to prevent invasion.
	IRG-IAG-2-5	Require herbicide treatments to coincide with blading of road shoulders.
<p>Action IAG-3</p> <p>Implement invasive plant management plans for each PAC that identifies priority areas for treatment and restoration.</p>	IRG-IAG-3-1	Prioritize treatment and restoration in sites with high resilience and resistance and low annual-grass occupancy. Considerable interventions will be required to transition low-elevation sites from degraded sagebrush and exotic annual-grass states (state-and-transition model states C and D, respectively) to more desirable states (state A, sagebrush perennial herbaceous state, and state B, perennial herbaceous state), as these sites do not have the potential to restore naturally.
	IRG-IAG-3-2	Tailor restoration strategies (e.g., aerial or broadcast versus drill seeding versus plantings, use of drought-tolerant species, use of experimental techniques like coated seeds) according to site-specific resistance and resilience to ensure greatest likelihood of plant establishment.
	IRG-IAG-3-3	Aggressively treat invasive plants where they threaten the quality of sage-grouse habitat, particularly in the prioritized restoration sites described above.
	IRG-IAG-3-4	Use appropriate certified weed-free seed mixes in habitat restoration with the goal to establish perennial grasses, forbs, and shrubs.
	IRG-IAG-3-5	When supply is limited, use native seed in sites within PACs that have ecological characteristics that are most favorable for plant establishment.
	IRG-IAG-3-6	Utilize locally sourced native plant species when available and consider seed mixes that contain aggressive, fire-resistant, non-native perennial species that are competitive with invasive weeds to initially stabilize plant communities to allow for long-term recovery of sagebrush and other native species.
	IRG-IAG-3-7	Rest restoration areas from grazing until understory perennial grasses are re-established and can sustain disturbance. Length of rest will depend on understory composition at the time of treatment, restoration potential of the site, and the response of desirable vegetation following treatment. Set quantifiable objectives for post-treatment vegetation recovery based on pre-treatment monitoring data; return livestock grazing only when objectives have been met.

<p>Action IAG-4</p> <p>Implement invasive plant management plans for each PAC that identifies priority areas to contain existing patches of invasive weeds.</p>	<p>IRG-IAG-4-1      Utilize approved herbicides known to be most effective to treat the target species and in accordance with the concentration, application method and season, and frequency known to provide the best results.</p>
<p>Additional information and resources</p>	
<ul style="list-style-type: none"> <li>Decision support tool to identify and prioritize areas for invasive annual-grass prevention and treatment (see ORegon Decision Support System for Sagebrush-Steppe in Appendix 8).</li> <li>At the site-specific scale, state-and-transition models for mid- and high-elevation zones can assist in identifying the current vegetation state of a site and associated management actions required for restoration (see Figures 3 and 4 in Appendix 8).</li> <li>Chambers et al. 2014.</li> <li>Decision guides developed through the Agricultural Research Service’s Ecologically-Based Invasive Plant Management (EBIPM) program should be utilized when developing and implementing invasive species management plans (ebipm.org).</li> <li>Fire and Invasives Assessment Team (FIAT) convened by the BLM has identified priority habitat areas and management strategies to reduce the threats to sage-grouse resulting from invasive annual grasses.</li> <li>BLM Handbook H-1740-2.</li> </ul>	
<p><b>Wildfire (WF)</b></p>	
<p>Relevant Action</p>	<p>Implementation Recommendations and Guidelines (IRGs)</p>
<p>Action WF-1-6</p> <p>Conduct fuel management treatments, including those identified below, designed to protect existing high-quality sagebrush habitat, modify fire behavior, restore native plants, and create habitat resilience and landscape patterns that benefit sage-grouse (see Section 7b (iii) in SO 3336 Implementation Plan).</p>	<p>IRG-WF-1-6      If considering use of prescribed fire to reduce fuel loads in Phase III juniper, refer to IRG-JPR-4-2 through IRG-JPR-4-7. Use prescribed fire to reduce fuel loads in a prudent manner. Avoid using fire as a habitat management tool in zones with &lt;12 inches precipitation or at lower elevations (e.g., with low resistance and resilience); use prescribed fire in a manner that limits mortality of understory plants and the risk of invasive annual-grass establishment.</p>
<p>Action WF-1-6b</p> <p>Strategically use livestock grazing to reduce fuel loads in years with high accumulation of fuels to reduce wildfire risk, using grazing management that maintains or improves the native plant community health (e.g., dormant season use). (See related Action WF-3-4b in Section IV.)</p>	<p>IRG-WF-1-6b-1      Assess site-specific conditions (e.g., resistance and resilience) to determine if fuel reduction via livestock grazing is necessary or recommended.</p> <p>IRG-WF-1-6b-2      Ensure that fuel load reduction using livestock is compatible with other wildlife needs besides fire prevention.</p>
<p>Action WF-1-6c</p>	<p>IRG-WF-1-6c      When designing fuel breaks, consider the following:</p>

<p>Monitor and maintain fuel breaks to prevent annual-grass invasion in these disturbed areas and to determine if species planted in green strips spread beyond fuel breaks.</p>		<p>(1) the potential fire containment benefits versus the area of sage-grouse habitat lost in the fuel break footprint</p> <p>(2) existing roads or utility corridors that could be widened with mowing, green-stripping, or black-stripping</p> <p>(3) natural fuel breaks</p> <p>(4) prevailing winds that may influence the placement of fuel breaks (e.g., prioritize east-to-west roads or place on south side of road if only one side is mowed)</p> <p>(5) use of fire-resistant perennial species (e.g., crested wheatgrass or forage kochia) as an effective means to slow the spread of fire while preventing the establishment of non-native annual grasses. Consider the risk of these species spreading beyond seeded fuel breaks.</p>
<p>Action WF-1-6d</p> <p>In areas identified to be at very high risk for wildfire, with dense sagebrush that may contribute to fuel loads and where patch removal of sagebrush has been determined to not have a negative impact on sage-grouse, create a mosaic of sagebrush density to intersperse areas of low fuel continuity (less than 25 acres in size and composing less than 15% of the treatment block) among areas of desired shrub density required by sage-grouse.</p>	<p>IRG-WF-1-6d-1</p> <p>IRG-WF-1-6d-2</p> <p>IRG-WF-1-6d-3</p> <p>IRG-WF-1-6d-4</p> <p>IRG-WF-1-6d-5</p> <p>IRG-WF-1-6d-6</p> <p>IRG-WF-1-6d-7</p>	<p>Create a mixture of sagebrush seral stages and canopy coverages in treatment areas based on the ecological conditions of the project site while maintaining (1) necessary habitat for sage-grouse and (2) habitat objectives outlined in this Plan (see Section III) and in the 2011 Strategy (ODFW 2011). See Table 2-5 in BLM RMP (2015) for additional guidance. See also IRG-SBE-2-1 through IRG-SBE-2-8 related to use of mechanical or chemical means to achieve the desired mosaic of sagebrush density.</p> <p>Achieve mosaics of sagebrush density by using spot treatments (e.g., incomplete burns under strict fire condition requirements, or chemical or mechanical treatments) on areas of less than 25 acres and making up less than 15% of the treatment block.</p> <p>Recognize that prescribed fire can have immediate short- and/or long-term negative effects on sage-grouse habitat, and that there are limited situations where prescribed fire may be a safe tool to diversify sagebrush density (in light of declining sage-grouse habitat trends due to wildfire and other threats). Careful consideration and documentation of a project-specific rationale for using prescribed fire should precede prescribed fires and must identify the benefits of prescribed fire over alternative methods and address risks to sage-grouse habitat. If prescribed fire is warranted, adhere to IRGs to reduce the risk of habitat loss.</p> <p>Limit prescribed fire to higher elevations where there is little risk of invasive plant establishment post-treatment (e.g., high resistance and resilience).</p> <p>Limit prescribed fires to seasonally and environmentally appropriate times to prevent unintentional fire escape but yet achieve desired juniper removal goals.</p> <p>Ensure that timing of prescribed burns does not interfere with sage-grouse behaviors such as lekking and seasonal movements.</p> <p>Avoid prescribed fire in low-elevation, xeric sagebrush communities (e.g., low resistance and resilience).</p>

<p>Action WF-4</p> <p>Coordinate with private and federal land managers to prioritize post-fire rehabilitation and ensure that adequate resources are available for emergency stabilization and ongoing restoration activities to protect, maintain, or restore sage-grouse habitat within PAC areas and to restore connectivity between PAC areas (see sections 7b (v) and 7b (vi) of SO 3336 Implementation Plan).</p>	<p>IRG-WF-4</p> <p>Focus livestock grazing away from burned areas and sites that have undergone rehabilitation or restoration treatments if rest is needed to ensure successful site recovery or restoration. Use “grass banks” or reserve allotments for grazers displaced by fire and rehabilitation treatments.</p>
<p>Additional information and resources</p> <ul style="list-style-type: none"> <li>Decision support tool to identify and prioritize areas for wildfire prevention, containment, and rehabilitation (see OREGON Decision Support System for Sagebrush-Steppe in Appendix 8.</li> <li>BLM Instruction Memorandum 2013-128 provides direction on sage-grouse conservation during fire operations and fuels management activities.</li> <li>Fire and Invasives Assessment Team (FIAT) convened by the BLM has identified priority habitat areas and management strategies to reduce the threats to sage-grouse resulting from wildfires. This information will guide and quantify future fire risk reduction, suppression, and capacity-building activities planned by federal, State, local, and private land management entities and partners.</li> <li>BLM Oregon Greater Sage-Grouse Proposed RMPA/Final EIS, Appendix C (“Required design features and implementation recommendations and guidelines”).</li> <li>BLM Oregon Greater Sage-Grouse Proposed RMPA/Final EIS, Tables 2-4 (“Seasonal habitat indicators and desired conditions”) and 2-5 (“Desired mix of sagebrush classes”).</li> </ul>	
<p><b>Development (DEV), including Urban &amp; Exurban Development, Renewable Energy, Electric and Natural Gas Transmission, Mining, Roads, and Other Infrastructure</b></p>	
<p>Relevant Action</p>	<p>Implementation Recommendations and Guidelines (IRGs)</p>
<p>Action DEV-8</p> <p>Eliminate or minimize risk to sage-grouse by utilizing IRGs in the siting, construction, operation, and maintenance of new or existing infrastructure.</p>	<p>IRG-DEV-8-1</p> <p>Locate construction or project camps outside of priority sage-grouse habitat.</p> <p>IRG-DEV-8-2</p> <p>Consolidate structures and infrastructure associated with development (e.g., co-locate new features with existing infrastructure) where other relevant federal and State regulations allow. Locate new infrastructure in already disturbed locations where habitat restoration has not occurred.</p> <p>IRG-DEV-8-3</p> <p>Minimize the number of tall structures (communication towers, power lines, or other features) and construct such structures to minimize predator subsidies and perching opportunities.</p> <p>IRG-DEV-8-4</p> <p>Identify opportunities to bury distribution power and communication lines in PAC habitat in consideration of engineering and operational factors.</p> <p>IRG-DEV-8-5</p> <p>Avoid tall structures within 2 to 5 miles of leks.</p> <p>IRG-DEV-8-6</p> <p>Evaluate site-specific considerations when considering the requirement and design of perch deterrents on elevated structures (including retrofitting existing structures). Consider the potential risks to protected raptors, facilitation of corvid nesting, and anticipated benefits to sage-grouse.</p> <p>IRG-DEV-8-7</p> <p>Minimize the construction of new roads; avoid new road construction in PACs. Utilize existing roads rather than constructing new roads to access developments.</p>



	IRG-DEV-8-8	Where new roads are required, design them to the minimal standard required for their intended purpose and restrict new access routes to authorized users.
	IRG-DEV-8-9	Limit motorized travel to designated roads.
	IRG-DEV-8-10	Establish speed limits or design roads to be driven at slower speeds to reduce vehicle-wildlife collisions.
	IRG-DEV-8-11	Minimize the construction of fences, particularly within 4 miles of leks. Mark any required fencing with antistrike markers.
	IRG-DEV-8-12	Clean up refuse and eliminate food subsidies for predators of sage-grouse.
	IRG-DEV-8-13	Develop and implement invasive annual-grass management plans to treat disturbed soil associated with development and avoid activities likely to establish and spread invasive annual grasses.
	IRG-DEV-8-14	Conduct systematic surveys within developments to detect areas of expanding invasive annual grasses and expedite reporting and treatment of new infestations.
	IRG-DEV-8-15	Monitor areas impacted by ground-disturbing activities for a minimum of 3 years and apply herbicide to new invasions of annual grass expeditiously.
	IRG-DEV-8-16	Restore disturbed soil with appropriate certified weed-free seed mixes and native plants.
	IRG-DEV-8-17	Power-wash vehicles and equipment involved in development projects prior to entering the project area.
	IRG-DEV-8-18	Avoid developments that produce noise above levels documented to disrupt sage-grouse behavior (10 decibels above ambient noise levels).
	IRG-DEV-8-19	Add design features (e.g., noise shields) to minimize noise associated with developments.
	IRG-DEV-8-20	Limit noise to less than 10 decibels above ambient noise levels during lekking time periods.
	IRG-DEV-8-21	Convert generator- or windmill-powered pumps to solar when economically feasible.
	IRG-DEV-8-22	Avoid installation of compressor stations in PAC areas or other sage-grouse habitat where noise would be disruptive to sage-grouse behaviors.
	IRG-DEV-8-23	Apply seasonal or timing restrictions within 4 miles of leks for construction, operation, and maintenance activities to minimize disturbance to sage-grouse life history behaviors (breeding, nesting, and early brood rearing). <sup>1</sup>
	IRG-DEV-8-24	Use directional and horizontal drilling to reduce surface disturbance.
	IRG-DEV-8-25	If mining operations require pits or water impoundments, include design features to reduce or eliminate the threat from West Nile virus to sage-grouse
Additional information and resources		
<ul style="list-style-type: none"> <li>Manier et al. 2014. Conservation buffer distance estimates for greater sage-grouse.</li> <li>Avian Power Line Interaction Committee 2014. The implementation recommendations and guidelines for electric utilities in sage-grouse habitat .</li> </ul>		
<b>Sagebrush Elimination (SBE)</b>		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	

<sup>1</sup> Seasonal restrictions for development activities (e.g., construction of new buildings, fences, or power lines) on private lands enrolled in CCAAs are indicated (USFWS 2014).

<p>Action SBE-2</p> <p>Where warranted, strategically use chemical or mechanical treatments to remove sagebrush in areas with the highest potential to achieve treatment objectives, while minimizing the risk of annual-grass invasion and habitat fragmentation and loss.</p>	<table> <tr> <td>IRG-SBE-2-1</td><td>Identify and avoid connectivity corridors, winter concentration areas, or key winter habitat for sage-grouse prior to conducting sagebrush elimination treatments.</td></tr> <tr> <td>IRG-SBE-2-2</td><td>Plan chemical or mechanical treatments that remove sagebrush in mosaic patterns within the context of a large landscape plan.</td></tr> <tr> <td>IRG-SBE-2-3</td><td>Conduct treatments in areas with relatively high shrub cover (&gt;25%) and without an understory of annual grasses to improve the herbaceous understory for brood rearing, particularly where such habitats may be limiting.</td></tr> <tr> <td>IRG-SBE-2-4</td><td>Avoid chemical and mechanical treatments in known winter habitat.</td></tr> <tr> <td>IRG-SBE-2-5</td><td>Use “brush beating” only where appropriate as a tool to increase the production and diversity of understory species to benefit sage-grouse habitat.</td></tr> <tr> <td>IRG-SBE-2-6</td><td>Use brush beating in strips or mosaic patterns that are 12 to 50 feet wide, with untreated interspaces 3 times the width of the treated strips.</td></tr> <tr> <td>IRG-SBE-2-7</td><td>Chemical treatments to remove sagebrush should employ all IRGs and use only approved herbicides.</td></tr> <tr> <td>IRG-SBE-2-8</td><td>If vegetation treatments are conducted in plant communities dominated by exotic annual species, herbicides and reseeding will be required to re-establish perennial vegetation and allow for long-term recovery of sagebrush and other native species.</td></tr> </table>	IRG-SBE-2-1	Identify and avoid connectivity corridors, winter concentration areas, or key winter habitat for sage-grouse prior to conducting sagebrush elimination treatments.	IRG-SBE-2-2	Plan chemical or mechanical treatments that remove sagebrush in mosaic patterns within the context of a large landscape plan.	IRG-SBE-2-3	Conduct treatments in areas with relatively high shrub cover (>25%) and without an understory of annual grasses to improve the herbaceous understory for brood rearing, particularly where such habitats may be limiting.	IRG-SBE-2-4	Avoid chemical and mechanical treatments in known winter habitat.	IRG-SBE-2-5	Use “brush beating” only where appropriate as a tool to increase the production and diversity of understory species to benefit sage-grouse habitat.	IRG-SBE-2-6	Use brush beating in strips or mosaic patterns that are 12 to 50 feet wide, with untreated interspaces 3 times the width of the treated strips.	IRG-SBE-2-7	Chemical treatments to remove sagebrush should employ all IRGs and use only approved herbicides.	IRG-SBE-2-8	If vegetation treatments are conducted in plant communities dominated by exotic annual species, herbicides and reseeding will be required to re-establish perennial vegetation and allow for long-term recovery of sagebrush and other native species.
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<p><b>Additional information and resources</b></p> <ul style="list-style-type: none"> <li>Decision support tool to identify and prioritize areas in which to avoid sagebrush treatments (see ORegon Decision Support System for Sagebrush-Steppe in Appendix 8).</li> <li>BLM Oregon Greater Sage-Grouse Proposed RMPA/Final EIS, Appendix C (“Required design features and implementation recommendations and guidelines”).</li> <li>BLM Oregon Greater Sage-Grouse Proposed RMPA/Final EIS, Tables 2-4 (“Seasonal habitat indicators and desired conditions”) and 2-5 (“Desired mix of sagebrush classes”).</li> </ul>																	
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<p>Action GRZ-2-6</p> <p>Conduct range management activities using IRGs to avoid disruption to lekking and nesting behaviors.</p>	IRG-GRZ-2-6a	Avoid disruptive activities (noise; foot, vehicle, or off-highway vehicle (OHV) traffic; etc.) between 1 hour after sunset and 2 hours after sunrise from March 1 through June 30 within 0.6 miles and 1.2 miles of occupied and pending leks on private and BLM lands, respectively. <sup>2</sup> Brief activities essential for routine ranch operations (e.g., herding or trailing livestock into or out of an area, repairing fences, doctoring livestock, locating lost livestock, irrigation work) are excepted.
	IRG-GRZ-2-6b	Reduce OHV traffic in nesting habitat (within 2 miles of leks) from March 1 through June 30.
	IRG-GRZ-2-6c	Schedule livestock turnout and trailing to avoid livestock concentrations on leks during the sage-grouse breeding season (March 1–June 30). <sup>3</sup>
	IRG-GRZ-2-6d	Alter hay-cutting patterns to reduce incidental mortality of sage-grouse.
<p>Action GRZ-3-8</p> <p>Design and locate range management infrastructure according to IRGs so that there is either a neutral effect or a benefit to sage-grouse.</p>	IRG-GRZ-3-8a	Construct new livestock facilities (troughs, corrals, handling facilities, “dusting bags,” etc.) at least 0.6 miles and 1.2 miles from leks (on private and BLM lands, respectively) to avoid livestock concentrations, collision hazards, and avian predator perches. <sup>1</sup> Tall structures in particular should be further away from leks (a minimum of 2 miles) or out of line of sight.
	IRG-GRZ-3-8b	Remove or modify structures that contribute negatively to sage-grouse behavior or their habitat.
	IRG-GRZ-3-8c	Use the Fence Collision Risk Tool to identify high-risk fences, particularly within 1.2 miles of leks in PACs, and mark them with antistrike devices.
	IRG-GRZ-3-8d	Consider impacts to sage-grouse when placing new fences and avoid fences within 1.2 miles of leks.
<p>Action GRZ-3-9</p> <p>Remove predator (corvid, coyote, raptor) attractants; remove and bury dead animals.</p>	IRG-GRZ-3-9	Disposal of dead animals (bone piles) and dumps should not occur within 4 miles of leks.
<p>Action GRZ-5</p> <p>Minimize direct impacts (mortality) and indirect impacts (reduction of forage) to sage-grouse when applying insecticides within sage-grouse habitat.</p>	IRG-GRZ-5-1	Avoid spraying insecticides in May and June to maintain adequate insect populations during the early development of sage-grouse chicks.
	IRG-GRZ-5-2	Use approved chemicals; balance chemical toxicity to sage-grouse with insect control effectiveness.
Additional information and resources		
<ul style="list-style-type: none"> <li>• Programmatic CCAAs.</li> <li>• Technical bulletins and expertise available through SWCDs, NRCS, ARS, and others.</li> </ul>		
<b>Agricultural Conversion (AGC)</b>		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	

<sup>2</sup> A 0.6-mile buffer is consistent with CCAAs (USFWS 2014); a 1.2-mile buffer is consistent with the BLM RMP (BLM 2015). Note that site-specific geographic features that attenuate disturbance may allow for smaller buffers.

<sup>3</sup> This is consistent with Action LG/RM 3 in BLM RMP (BLM 2015).

Action AGC-4	IRG-AGC-4-1	Add shrubs, forbs, and native grasses to monotypic perennial grass stands through active or passive management.
Avoid agricultural conversion of sagebrush.	IRG-AGC-4-2	Restore or enhance habitat for sage-grouse by managing appropriate vegetation composition and structure so there is a balance between nesting, brood-rearing, and winter habitat.
Additional information and resources		
<ul style="list-style-type: none"> <li>BLM Oregon Greater Sage-Grouse Proposed RMPA/Final EIS, Appendix C (“Required design features and implementation recommendations and guidelines”).</li> <li>BLM Oregon Greater Sage-Grouse Proposed RMPA/Final EIS, Tables 2-4 (“Seasonal habitat indicators and desired conditions”) and 2-5 (“Desired mix of sagebrush classes”).</li> </ul>		
<b>Recreation (REC)</b>		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	
Action REC-1	IRG-REC-1-1	When feasible, reroute trails outside of PAC areas and restore vegetation on abandoned trails.
Avoid development of recreational facilities (e.g., roads, trails, kiosks, and campgrounds) in sage-grouse habitats, particularly within PACs and within 4 miles of leks to preserve key lekking and nesting habitat.	IRG-REC-1-2	Designate OHV areas outside of priority sage-grouse habitat.
	IRG-REC-1-3	Ensure that facilities do not provide predator nesting or perching opportunities.
<b>Fences (FNC)</b>		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	
Fences (FNC)	IRG-FNC-3-1	Use permanent fence markers (3-inch length) equipped with reflective tape in order to ensure visibility when terrain is snow covered. When reflective tape is not available, black and white markers may be substituted to improve detection by sage-grouse.
Prioritize installing antistrike devices and perch deterrent devices on fence segments that pose the highest risk to sage-grouse (as identified by the Fence Collision Risk Tool) within 1.2 (2 km) of leks within PAC habitat.	IRG-FNC-3-2	Install markers at 3-foot intervals.
Additional information and resources		
<ul style="list-style-type: none"> <li>Fence Collision Risk Tool.</li> </ul>		
<b>Isolated/Small Size/Connectivity (CON)</b>		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	
Action CON-3	IRG-CON-3-1	Identify and avoid connectivity corridors prior to conducting sagebrush elimination treatments on public lands.

Prevent loss of connectivity corridors by encouraging private landowners to participate in long-term or permanent sagebrush habitat protection or enhancement programs. Protect connectivity corridors on private and public land from future development or habitat projects that reduce or eliminate sagebrush.	IRG-CON-3-2	Within connectivity corridors, balance the intent, position, and extent of fuel breaks with the direct habitat loss caused by such fire prevention measures.
Action CON-4  Where appropriate, consider augmenting small or isolated populations and use best management techniques for translocations.	IRG-CON-4-1 IRG-CON-4-2 IRG-CON-4-3  IRG-CON-4-4 IRG-CON-4-5	Investigate and understand the genetic implications of translocations before implementation. Use translocation as a last resort to bolster small populations. Consult wildlife managers with prior translocation experience to identify and implement IRGs (e.g., methods; gender/age of birds; season) to ensure project success.  Obtain birds for translocations from larger, stable populations. As required, reduce threats to translocated birds to ensure the success of population augmentation efforts (e.g., remove predator subsidies, mark or remove fences, etc.).
Additional information and resources		
<ul style="list-style-type: none"> <li>Decision support tool to identify and prioritize connectivity corridors for enhancement or protection (see ORegon Decision Support System for Sagebrush-Steppe in Appendix 8).</li> </ul>		
<b>Drought (DRT)</b>		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	
Action DRT-1-2  Follow recommended grazing guidelines during drought conditions to meet seasonal sage-grouse habitat requirements. Consider (1) season or timing of use; (2) numbers of livestock (including temporary non-use or livestock removal); (3) distribution of livestock use; (4) intensity of use; and (5) type of livestock.	IRG-DRT-1-2a IRG-DRT-1-2b  IRG-DRT-1-2c IRG-DRT-1-2d  IRG-DRT-1-2e  IRG-DRT-1-2f	Adjust grazing in a timely manner to respond to environmental conditions such as drought. Implement management changes such as grazing rest, deferment, rotation, seasonal use, timing, intensity, etc.  Anticipate the need for, and make provisions to utilize, grass banks. Due to water scarcity during drought, monitor riparian areas and implement conservation measures to ensure bank stability, survival of deep-rooted riparian vegetation, floodplain connectivity, and stream functionality.  Where necessary, develop new water sources for livestock and wildlife in order to provide reliable water and forb/insect production during drought conditions. Incorporate design features in new water developments to reduce the risk of West Nile virus and consider fencing to protect wetlands for sage-grouse use.  When monitoring demonstrates that grazing has contributed to forage use levels that are detrimental to habitat quality, adjust grazing to minimize the impact to sage-grouse.
Additional information and resources		
<ul style="list-style-type: none"> <li>Programmatic CCAAs.</li> <li>Technical bulletins and expertise available through SWCDs, NRCS, ARS, and others.</li> </ul>		

West Nile Virus (WNV)		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	
<b>Action WNV-3</b>  When planning or modifying water developments, use IRGs to mitigate potential impacts from WNV and encourage the design of water development structures to minimize WNV risk to sage-grouse.	IRG-WNV-3-1	Where deemed necessary, change irrigation techniques from flood to sprinkler systems to minimize standing water that serves as mosquito habitat.
	IRG-WNV-3-2	Minimize unnecessary standing water and control water overflow to prevent standing water conditions.
<b>Action WNV-4</b>  Cooperate with responsible agencies to implement feasible recommended mosquito control guidelines.	IRG-WNV-4-1	Use appropriate Environmental Protection Agency (EPA)-regulated larvicides and/or adulticides in areas proximal to key sage-grouse habitat where mosquito habitat cannot be reduced.
	IRG-WNV-4-2	Evaluate the effectiveness of spraying adult mosquitoes and consider using mosquito-specific control measures.
	IRG-WNV-4-3	Balance the benefits of mosquito control to sage-grouse with other environmental considerations (e.g., benefits to other species dependent on mosquitoes).
Catastrophic Flooding (FLD)		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	
<b>Action FLD-2-1</b>  Follow recommended grazing guidelines during catastrophic flooding conditions to meet seasonal sage-grouse habitat requirements. Consider (1) season or timing of use; (2) numbers of livestock (including temporary non-use or livestock removal); (3) distribution of livestock use; (4) intensity of use; and (5) type of livestock.	IRG-FLD-2-1a	Adjust grazing in a timely manner to respond to environmental conditions such as catastrophic flooding.
	IRG-FLD-2-1b	Implement management changes such as grazing rest, deferment, rotation, seasonal use, timing, intensity, etc.
	IRG-FLD-2-1c	Anticipate the need for, and make provisions to utilize, grass banks.
Additional information and resources		
<ul style="list-style-type: none"> <li>• Programmatic CCAAs.</li> <li>• Technical bulletins and expertise available through SWCDs, NRCS, ARS, and others.</li> </ul>		
Predation (PRD)		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	
<b>Action PRD-1</b>  Use IRGs to reduce anthropogenic influences that artificially boost predator populations or	IRG-PRD-1-1	Prioritize installing perch deterrent devices on fence segments that pose the highest risk to sage-grouse (as identified by the Fence Collision Risk Tool) within 1.2 (2 km) of leks within PAC habitat.
	IRG-PRD-1-2	Clean up refuse and eliminate food subsidies for predators of sage-grouse (e.g., bone piles, dumps, etc.).

provide predator hunting advantages in PACs and within 4 miles of leks.	IRG-PRD-1-3	Avoid development of recreational facilities (e.g., roads, trails, kiosks, and campgrounds) within 4 miles of leks. Ensure that recreational facilities do not provide nesting or perching opportunities.
	IRG-PRD-1-4	Avoid development projects (energy, mining, infrastructure, etc.) in PACs.
	IRG-PRD-1-5	Construct new livestock facilities (troughs, corrals, handling facilities, “dusting bags,” etc.) at least 0.6 miles and 1.2 miles from leks (on private and BLM lands, respectively) to avoid avian predator perches. Tall structures in particular should be further away from leks (a minimum of 2 miles) or out of line of sight.
	IRG-PRD-1-6	Minimize the number of tall structures (communication towers, power/transmission lines, or other features) constructed so as to minimize predator subsidies and perching opportunities.
	IRG-PRD-1-7	Identify opportunities to bury distribution power and communication lines in PACs.
	IRG-PRD-1-8	Avoid tall structures within 2-5 miles of leks.
	IRG-PRD-1-9	Evaluate site-specific conditions when considering the requirement and design of perch deterrents on elevated structures (including retrofitting existing structures). Consider the potential risks to protected raptors, the facilitation of corvid nesting, and the anticipated benefits to sage-grouse.
	IRG-PRD-1-10	Protect intact habitat that affords adequate hiding cover for sage-grouse. Reduce environmental conditions that provide predator hunting advantages.
	IRG-PRD-1-11	Protect intact sagebrush habitat from habitat loss, degradation, and fragmentation, using conservation measures described in this Action Plan to address conifer expansion, invasive annual grasses, wildfires, sagebrush elimination, agricultural conversion, development, recreation, and grazing.
	IRG-PRD-1-12	Prioritize juniper removal within 1 mile of known leks (with an active or pending status) and then expand juniper removal to within 4 miles of known leks to reduce predator perching and nesting opportunities.
	IRG-PRD-1-13	Restore fragmented and degraded habitat in which predators have increased hunting efficacy.
<b>Sagebrush Defoliator Moth (SDM)</b>		
Relevant Action	Implementation Recommendations and Guidelines (IRGs)	
Action SDM-1  Assess areas impacted by Aroga moth to determine the extent of damage to sagebrush, and implement recommended guidelines and activities to reduce the risk of annual-grass invasion and wildfire.	IRG-SDM-1-1	Use state-and-transition models to determine the existing ecological state of areas damaged by Aroga moths, and apply resistance and resilience to guide actions to prevent annual-grass establishment or to restore moth-impacted sites (see conservation actions relating to invasive annual-grass prevention and restoration).
	IRG-SDM-1-2	Assess large areas of sagebrush killed by Aroga moths to determine how their configuration within the greater landscape and potential additive fuel loads may contribute to wildfire severity.
Additional information and resources		
<ul style="list-style-type: none"> <li>State-and-transition models.</li> <li>Chambers et al. 2014.</li> </ul>		





## Appendix 5. County Sage-Grouse Regional Report

This appendix presents the full text of the *Central and Eastern Oregon Land Use Planning Assessment for Sage-Grouse Habitat*, otherwise known as the “County Report.” The report was produced in 2013 through a grant from the Department of Land Conservation and Development. Its goal was to assist state and local decision makers in their efforts to arrest the decline of the sage-grouse. Baker, Crook, Deschutes, Lake, Harney, Malheur, and Union counties have agreed to move forward in a collaborative fashion to address the presence of sage-grouse and sage-grouse habitat.

# Central & Eastern Oregon Land Use Planning Assessment

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## Sage-Grouse Habitat

Harney County Grant Project

6/28/2013

*This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon. Harney County thanks the Oregon Department of Land Conservation and Development for providing a technical assistance grant to fund this project.*

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# Executive Summary

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This report considers the existing presence of habitat fragmentation activities in Oregon's Sage-grouse habitat and describes state and local land use programs that apply to development proposals. The review is generally limited to nonfederal lands where local governments have direct jurisdiction.

## **Habitat Fragmentation Threats**

According to the Conservation Objectives Team (COT) Report multiple habitat fragmentation threats are found in the various management zones identified across the range. The following threats have been identified for the management zones (IV. & V.) and Sage-grouse populations located in Oregon:

- Conversion to Agriculture
- Energy Development
- Mining
- Infrastructure
- Urbanization

## **Land Use Planning Programs**

Each of the seven counties implements a local land use planning program consistent with state law. Most habitat fragmentation threats (Mining, Energy Development, Infrastructure, Urbanization) are regulated by county comprehensive plans and zoning ordinances. Conversion to Agriculture is the only identified habitat fragmentation threat not regulated by local planning programs.

Almost all of the lands (98%) identified as Sage-grouse habitat are designated as resource land devoted to farm, ranch or forest uses and also receive protection for wildlife. The regulatory environment for these lands is characterized by very large minimum parcel size requirements (80 to 320 acres or more), limited land division opportunities and limited provisions for uses not related to farm, ranch or forest management. Wildlife protection programs that apply in addition to resource land zoning commonly require coordination with ODFW, clustering new uses in areas of existing conflicts or simply not allowing certain new uses to become established.

The applicable programs have done an outstanding job limiting rural residential and urban development and maintaining large parcel sizes. Demand for large scale development has historically been very low. To the extent it has occurred, it has generally been located along existing transportation corridors.

## **Governance**

Oregon's Sage-grouse territory is simply dominated by federal land. As stated in the Harney County element of this report, lands under county jurisdiction are like:

“...an island of privately-owned tracts in a sea of publically managed land.”

However, even with the amount of nonfederal lands making up less than 24% of the state's total habitat area these areas remain important as a higher level of scrutiny on public land could create an increased demand on private lands. Furthermore, much of the private or nonfederal land in central and eastern Oregon is managed in conjunction with public land for commercial livestock grazing. In order to secure a promising future for Oregon's Sage-grouse population all lands, federal or nonfederal should be included in Oregon's strategy for Sage-grouse.

### **Settlement Pattern**

Oregon's Sage-grouse habitat exhibits a very sparse settlement pattern. An estimated 900 dwellings are present across nearly 11.5 million acres of federal and non federal land. Assuming an average household size of 2.5, just 2,250 citizens are estimated to reside in these areas. This amount of population would result in a density of one person per eight square miles (about 5,100 acres) and is just less than one percent of the total population of all seven counties combined (269,805 in 2012).

Large scale infrastructure in the form of existing state highways, county roads and transmission lines are present. Mining in the form of existing aggregate quarries is also present. No new infrastructure was approved between 2003 and 2013. No new state or local infrastructure is planned for the future. Only a single new aggregate quarry was approved between 2003 and 2013. With no new road projects on the horizon it is unlikely that there will be a demand for new or expanded aggregate quarries.

Urban activities are concentrated within urban growth boundaries at local and regional population centers. Population centers are located outside of Sage-grouse habitat. Based on information from ODF, no development of any substance occurred in these areas between 1974 and 2009.

### **Other Threats**

Invasive species, wildfire and conifer infestation are the primary threats to Sage-grouse habitat in Oregon. Although these threats are not regulated by state or local land use laws, attaching mitigation requirements as conditions of development approvals could assist in generating important habitat improvements.

Local governments should use the state's mitigation framework to determine appropriate thresholds of exaction for large scale development proposed in Sage-grouse habitat.

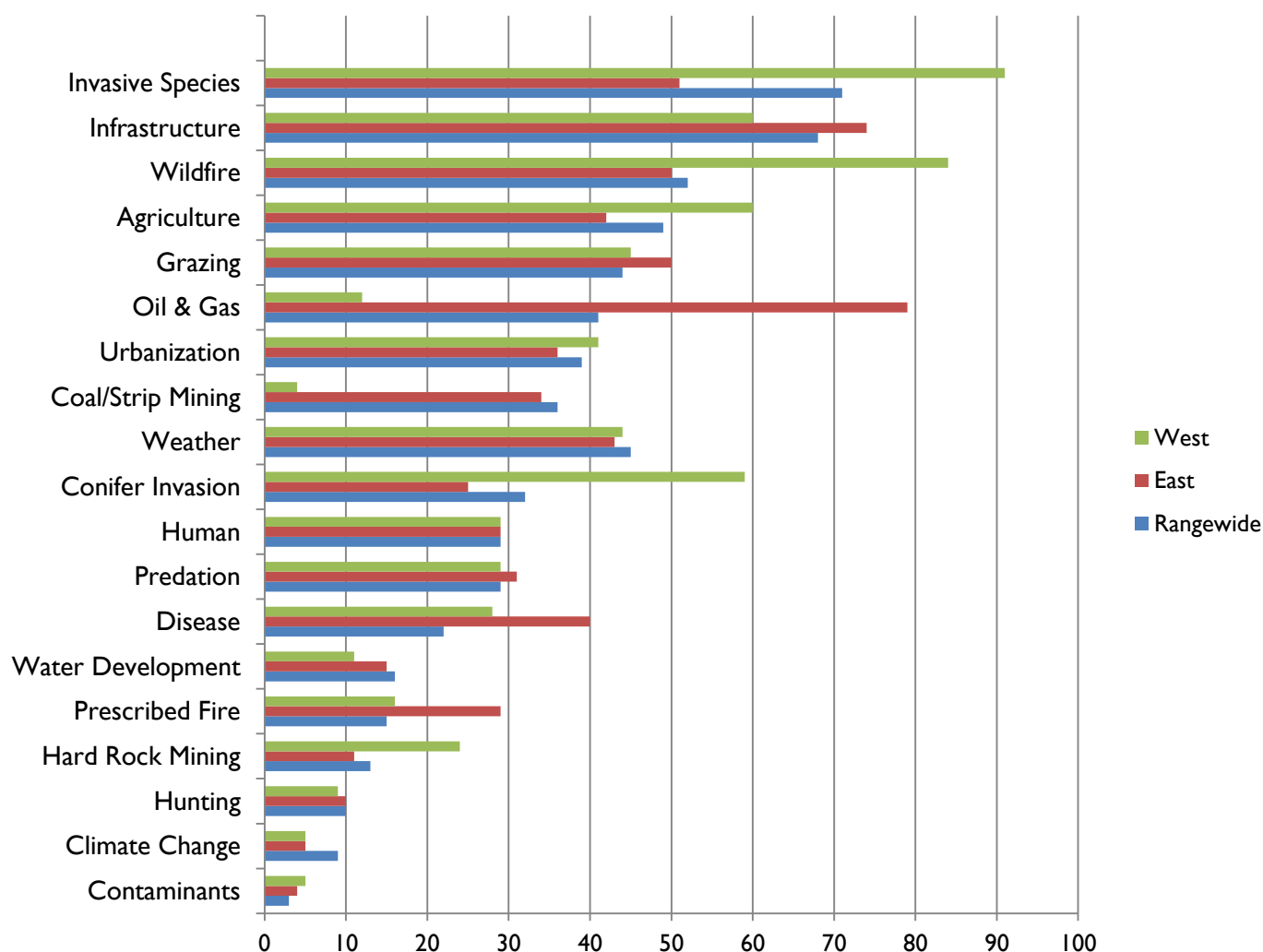
### **Final Conclusion**

Oregon's statewide land use planning program as implemented by local comprehensive plans and zoning ordinances has succeeded in discouraging habitat fragmentation in central and eastern Oregon. The existing framework of state and local laws are ideally equipped to guarantee the adequate regulatory mechanisms necessary to provide continued protection of Sage-grouse and Sage-grouse habitat from anthropogenic threats associated with energy development, mining, infrastructure and urbanization. Furthermore, local land use approvals may serve as the primary factors to require mitigation relative to Oregon's primary Sage-grouse threats such as invasive species, conifer infestation and wildfire.

# Purpose of the Report

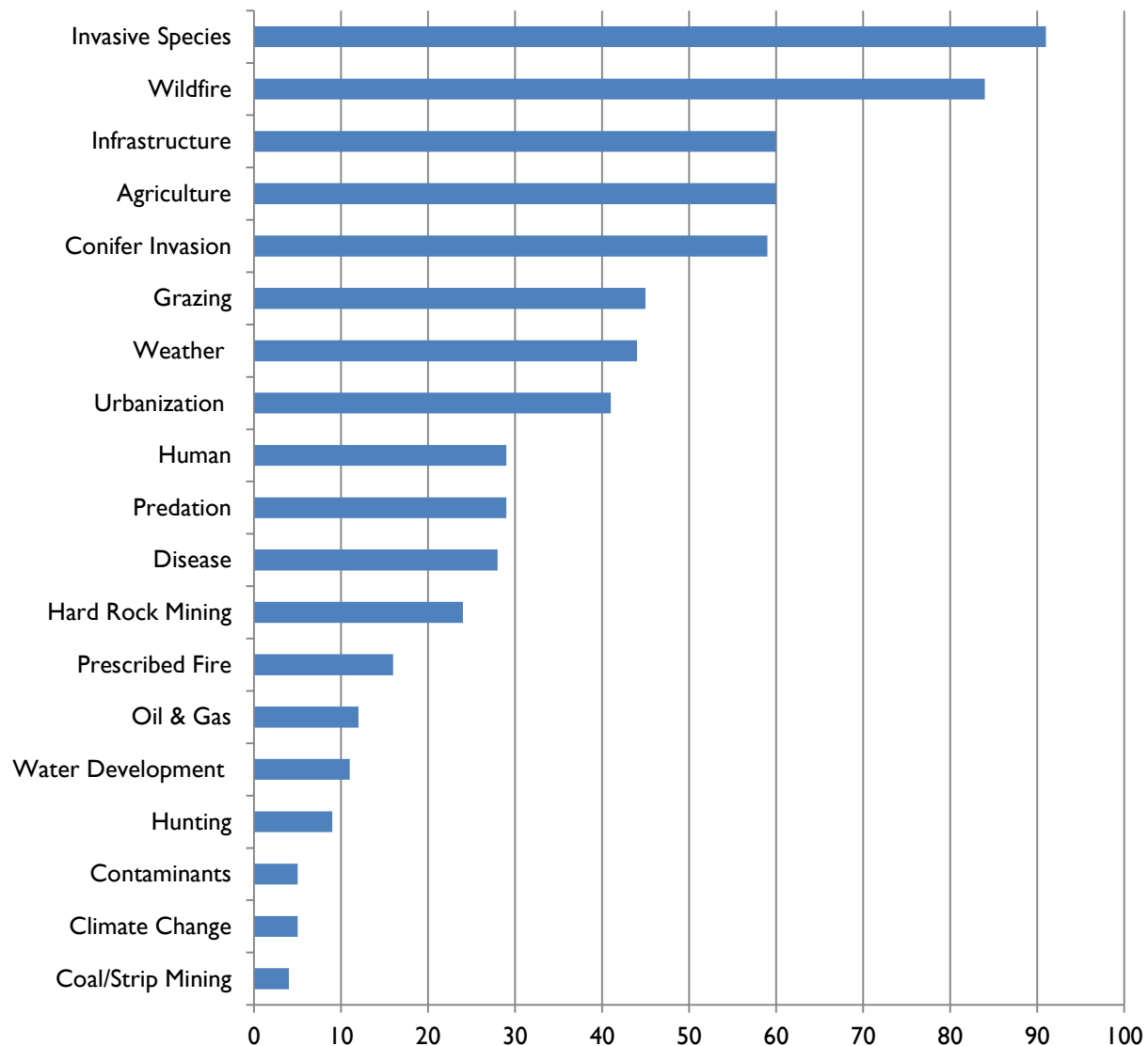
The purpose of this report is to assist state and local decision makers in their efforts to arrest the decline of the Greater Sage-grouse. Success in Oregon will ultimately mean restoring the species to a breeding population of about 30,000 up from a 2010 population of about 24,000. Meeting objectives to distribute the species across five Bureau of Land Management (BLM) management areas is also central to the state's goal. In order to promote the desired amount of recovery, strategies will be established that adequately consider threats to the species. In 2005 a U.S. Fish and Wildlife Service (USFWS) review of the species identified a variety of threats to Sage-grouse and Sage-grouse habitat. Findings prepared in 2010 were nearly the same.

**Table I: Threats to Sage-grouse Range Wide<sup>1</sup>**



<sup>1</sup> USFWS (2013). Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report. Denver, CO.

**Table 2: Threats to Sage-grouse in the West<sup>1</sup>**



The U.S. Fish and Wildlife Service's (USFWS) "Identified Threats"<sup>1</sup> register slightly different for the western portion of Sage-grouse habitat. This area includes Oregon but is not specific to Oregon. Wildfire presents a greater threat to Sage-grouse in the western portion of their range compared to oil & gas development, which presents the leading threat in the eastern portion of the range. After reviewing Tables 1 & 2 it is apparent Sage-grouse populations are threatened in two basic ways: activities that directly inflict mortalities (i.e. predation, hunting, disease) and activities that damage or otherwise fragment Sage-grouse habitat. Both types of threats place the future of the species in jeopardy.

Habitat fragmentation constitutes a threat to the Greater Sage-grouse and can come from many different sources. Activities that severely threaten Sage-grouse in some areas of their range are not present in Oregon. Other threats are naturally occurring or not otherwise subject to regulation. In March of 2013 the Conservation Objective Team assembled by the USFWS released a report assessing threats to Sage-grouse. The "COT Report" identifies five broad categories of large scale land disturbances that could have the potential to cause habitat fragmentation in Oregon. These categories are as follows:



- Conversion to Agriculture
- Urban Sprawl
- Infrastructure
- Mining
- Energy Development

Aside from conversions to agriculture, the identified threats are accounted for by Oregon's Statewide Land Use Planning program and regulated through local comprehensive plans and zoning ordinances. Conversion to agriculture in central and eastern Oregon most often involves introducing irrigation to rangeland in order to support hay production. Adjusting farm and ranch management practices is not ordinarily regulated by land use planning programs. However, establishing new irrigation water rights does require a permit from the Oregon Water Resources Department.

This report provides a description of the Oregon Planning Program and how it is carried out at the local level. Specifically, the report looks at the central and eastern Oregon regions including all or portions of Baker, Crook, Deschutes, Lake, Harney, Malheur, and Union counties. These seven (7) counties have agreed to move forward in a collaborative fashion to address the presence of Sage-grouse and Sage-grouse habitat.

This report does not attempt to inventory or describe the actual condition of Oregon's Sage-grouse habitat as that is the purview of biological experts in partnership with local officials or public and private land managers. Instead, the report documents existing conditions in two ways. First, land use regulations that apply to large scale development are identified and discussed. Second, existing development is also described to the extent possible. Other components of the report attempt to reasonably forecast future development pressure in the affected areas and suggest possible policy alternatives. Appropriate strategies will consider the existing regulatory environment and adaptive management strategies that promote long lasting, collaborative partnerships.

# Background

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## U.S. Fish and Wildlife

In April 2010, the U.S. Fish and Wildlife Service (USFWS) determined that protection of the Greater Sage-grouse under the federal Endangered Species Act (ESA) was warranted but precluded. Listing the Sage-grouse was precluded at this time by the need to address other listings facing greater risk of extinction and hence for now is just a candidate species for listing. More than any native species since the spotted owl, the Sage-grouse sparks direct conflict with traditional industries and emerging large-scale renewable energy projects from livestock grazing to the construction of wind turbines and power lines. The status of the Sage-grouse, both biologically and legally, is significant to the state of Oregon because so much of Central and Eastern Oregon consists of Sage-grouse habitat. If Sage-grouse become protected as a threatened or endangered species, federal agencies will be required to consult with USFWS on projects and approvals that affect its habitat. “Taking” a Sage-grouse will be illegal, and the USFWS will be required to designate “critical habitat” resulting in further restrictions upon activities within those areas. The USFWS will begin reviewing the status of Sage-grouse in 2014 in order to make a final determination of whether to list the species in 2015.

## ODFW Sage-Grouse Population Management

The Oregon Department of Fish and Wildlife (ODFW) is Oregon’s lead state agency managing Sage-grouse. In 2005 a multi-stakeholder group (including federal, state and private agencies) developed *The Greater Sage-Grouse Conservation Assessment and Strategy for Oregon* (Strategy)<sup>2</sup> to help manage Sage-grouse populations in Oregon. The strategy was adopted by the Oregon Fish and Wildlife Commission in April 2011. It describes ODFW’s management of greater Sage-grouse and provides guidance to public land management agencies and land managers for Sage-grouse conservation. Conservation actions are encouraged on private lands while ODFW’s overall goal is to maintain or enhance Sage-grouse abundance and distribution at the 2003 spring breeding population level of approximately 30,000 birds over the next 50 years.<sup>2</sup>

## Sage-Grouse Core Area and Low Density Habitat

ODFW’s strategy identifies and maps Core Areas of habitat that are essential to Sage-grouse conservation.<sup>2</sup> According to ODFW, the maps and data provide a tool for planning and identifying appropriate mitigation in the event of human development within Sage-grouse habitats. Core Areas represent a proactive attempt to identify a set of conservation targets to maintain a viable and connected set of populations before the opportunity to do so is lost. These areas should be targeted for conservation actions or protections when large scale disturbances are proposed. Alternatively, the Low Density habitats may assist in identifying areas where impacts to Sage-grouse populations can be less of a risk or opportunities exist to mitigate for lost habitat.

## Overview of the Territory

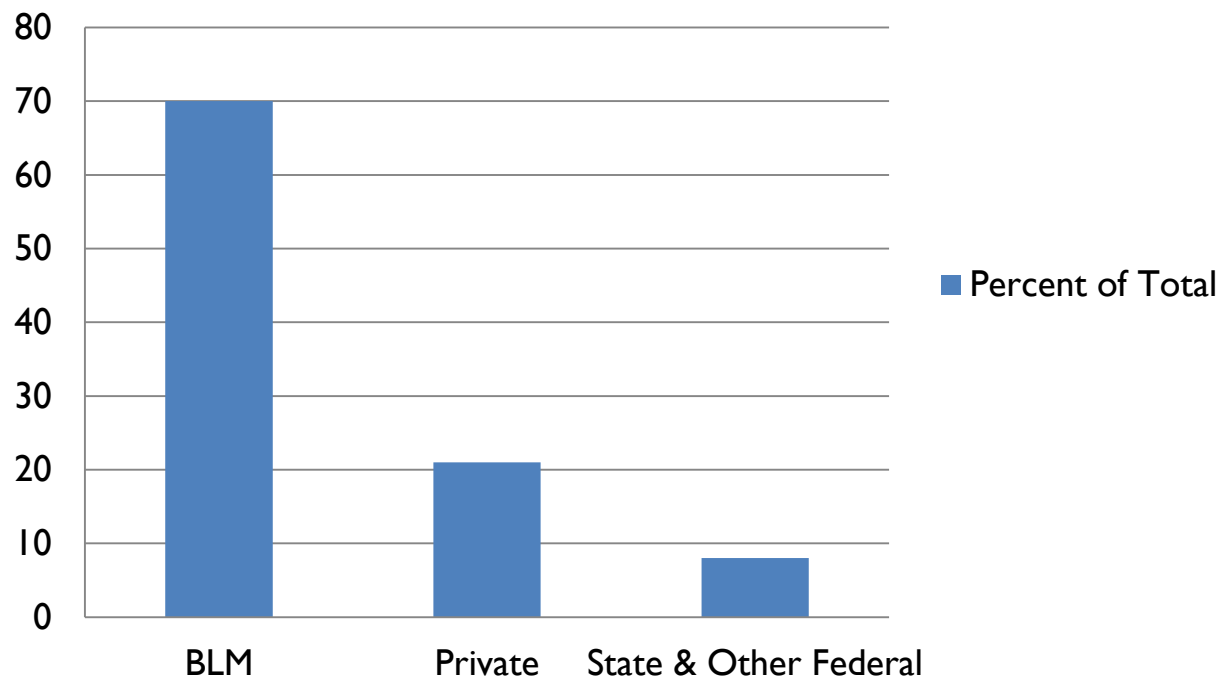
Sage-grouse habitat in Oregon includes approximately 11 million acres. The vast majority of this of this territory is owned and managed by the Federal Government and nearly all the Federal land is managed by the Bureau of

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<sup>2</sup> Source Document. ODFW, Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain Populations and Habitat. April 22, 2011.

Land Management (BLM). Private lands comprise scarcely 20 percent of this territory while other nonfederal lands account for less than 10 percent of the total.

**Table 1: Land Ownership Pattern in Oregon**



The following table compares Sage-grouse population estimates from 2003 and 2010 and shows how that population is expected to be distributed across the Burns, Lakeview, Prineville and Vale BLM Districts, and the Baker Resource Area which is a portion of the Vale BLM District. The table shows that in 2010, Oregon's Sage Grouse population was about 82% of the target identified by ODFW and that some BLM management areas have more robust populations than others.

**Table 2: Estimated Percent of Target Population<sup>2</sup>**

BLM District	County(ies)	2003 Population	2010 Population	Percent of Target
Baker RA	Baker, Union	1,566-2,546	872-1,650	61%
Burns	Harney	3,722-4,941	3,877-5,195	105%
Lakeview	Lake	8,613-10,134	5,523-6,445	64%
Prineville	Crook, Deschutes	2,072-2,440	1,775-2,084	86%
Vale	Malheur	8,474-13,921	9,016-11,740	93%
<b>Statewide</b>		<b>24,447-33,982</b>	<b>21,064-27,115</b>	<b>82%</b>

The population numbers and percent of target expressed in Table 2 do not account for the severe wildfires encountered in southeast Oregon during the summer of 2012. Nearly 1 million acres of rangeland was burned and much of it within Sage Grouse habitat. As of the drafting of this document, it is unknown what effects the wildfire season of 2012 might have had on Oregon's Sage-grouse population, or what it could mean for the future.

# Land Use Planning in Oregon

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## Importance of Comprehensive Plans

The purpose of a comprehensive plan is to provide a blueprint for land use conservation and development. This is accomplished through goals and policies that tell a cohesive story of where and how development should occur. A comprehensive plan provides a consistent policy framework for more specific land use actions and regulations such as zoning. Goals and policies are based on existing conditions and trends, population projections, and community values. In Oregon, comprehensive plans must comply with the statewide planning system, which as noted above, was adopted in 1973 to ensure consistent and proactive land use policies state wide. While compliance with the statewide system is required, it is also important for a comprehensive plan to reflect local issues and interests.

## Legal Framework

In 1973 the Oregon Legislature adopted a statewide planning system that draws a bright line between urban and rural land uses, channeling growth and infrastructure into urban areas while protecting farm and forest lands. Public outreach around the state led to the adoption of 19 Statewide Planning Goals (Statewide Goals). These Statewide Goals are implemented through local governments' adopted comprehensive plans. Local comprehensive plans are reviewed for compliance with the Statewide Goals by the Oregon Land Conservation and Development Commission (LCDC), a seven-member committee appointed by the Governor and staffed by the Department of Land Conservation and Development (DLCD). The comprehensive plans are in turn implemented through zoning, land division ordinances, and other planning techniques. The majority of the Statewide Goals are written broadly with specific regulations cited either in Oregon Revised Statute (ORS) or Oregon Administrative Rule (OAR). The LCDC adopts OARs which clarify and implement the Statewide Goals.

## Hallmarks of Oregon's Planning Program

Oregon's Statewide Planning Program has attracted national and international acclaim. As mentioned above, maintaining rural lands for rural uses and preparing urban areas for development are the principle underpinnings of state land use policy. Additional features include integrating transportation and land use and protecting sensitive areas like wetlands and wildlife habitat. More recently, the state has been working to develop an additional strategy for climate change.

Oregon's commitment to its working rural landscapes led early policy makers to place an unmistakable emphasis on protecting lands devoted to commercial farming, ranching, or timber production, from conflicting activities. Statewide Planning Goals 3 and 4 implemented by OAR Chapter 660, Divisions 6 and 33, direct counties to identify and protect valuable agriculture and forest lands. A detailed legal structure including state statute, Oregon administrative rules, and local planning programs has emerged to guide preservation and development. Longstanding protective measures include, but are not limited to:

- Very large minimum parcel sizes required for farm, ranch, or forest related land divisions originating in state statute. ORS 215.780 prescribes a range of parcel sizes from 80 to 320 acres.
- Very narrow opportunities to create new parcels for uses other than farm, ranching or forest activities.
- Authorizing other uses only under certain circumstances.
- Not allowing certain land use activities on lands devoted to farming, ranching or timber production.

Oregon pioneered the use of Urban Growth Boundaries to contain urban development in and around incorporated cities. Statewide Goal 14 and its implementing rule OAR 660, Division 24, require each city to establish an Urban Growth Boundary (UGB). Every UGB should furnish a supply of land capable of supporting

growth and development over a 20-year planning horizon. Urban growth management promotes efficient, vibrant communities with a strong sense of place. Cities must coordinate with the respective counties to establish their UGB. A hierarchy established at ORS 197.298 acts in addition to Statewide Planning Goals to direct urban planning efforts away from productive lands in favor of areas with less value for farming or timber production.

Special safeguards designed to protect wildlife are commonly employed by Oregon's cities and counties. Statewide Planning Goal 5 and its implementing administrative rule, OAR Chapter 660, Division 23, call for local governments to adopt programs that will protect natural resources and conserve scenic, historic, and open space resources for present and future generations. Big game habitat and winter range are commonly protected resources on rural lands governed by counties. Protection is implemented in a number of ways ranging from requiring uses to be located in proximity to existing disturbance to an outright prohibition of conflicting uses. Most county programs involve some sort of balancing assessment between private property rights and protection of the identified resource.

Oregon's land use policies act collectively to maintain large areas for commercial agriculture and forestry while containing urban sprawl and offering special consideration for distinct places and sensitive lands. Minimizing sprawl is considered better for the maximization of agriculture and forestry production while a strong natural resource sector benefits local economies. Currently in Oregon about 15.5 million acres are inventoried as farm or ranch land in local comprehensive plans and an additional nine million acres are inventoried as forest land. When combined, these figures represent nearly 25 million acres that are inventoried and protected for resource uses. A rural landscape is generally better for other values like open space and natural areas. Much of this land, millions of acres, also receives additional protection to ensure their function as wildlife habitat. Even species that are not targeted benefit from land use provisions regulating types and intensity of future development.

### Comparison with Other States

Greater Sage-grouse habitat spans a vast area that is a part of up to eleven (11) western states where land use policy and guidelines vary. Whereas it is common for all states to grant land use planning authority to local jurisdictions, the role of individual states and their locally imposed guidelines can differ. Some states require local planning while others consider it optional. A lack of required planning at the local level could lead to poor implementation of policies that affect the environment at a broad scale, possibly due to the jurisdictions inability to deal with issues cohesively. Alternatively, greater influence at a state level may lead to regulation that does not adequately reflect local values. A combination of these strategies like Oregon incorporates can help to adequately address broad scale concerns such as Sage-grouse conservation, while allowing local counties and municipalities to continue addressing local individual needs.

Notably, the eight western states with the largest area of Sage-grouse habitat demonstrate subtle differences among their influence upon a county's ability to use land use planning as a tool for conservation of the Greater Sage-grouse. Table 1 demonstrates a comparison of general differences between each state's land use planning guidelines. This table helps to exhibit how Oregon's land use planning program stands out by providing structured consistency among each county's individual plans while allowing for individualistic authority to address specific needs. While other states such as Washington and Nevada have developed similar attributes, they are influenced by the groundbreaking work laid down by Oregon's pioneering land use program. The following is a brief summary of each Western state's approach to land use planning.

- **Oregon:** Oregon requires cities and counties to develop their own individual land use planning through adoption of comprehensive plans and zoning, land-division, and ordinances. Each comprehensive plan is required to be consistent with statewide planning goals which are the foundation of Oregon's Statewide Planning system. The Department of Land Conservation and Development oversees local implementation of state land use goals.
- **Washington:** The 1990 Growth Management Act established state land use goals that are required as a part of city and county comprehensive plans. One caveat to these guidelines is that cities and counties only have

to comply when they reach certain population or growth boundaries, so small or low growth counties are not required to participate. Land use is still determined at city and county levels to meet the specific needs of individual counties, and is overseen by the Environmental and Land Use Hearings Office.

- **Nevada:** State law mandated counties to adopt a comprehensive (master) plan when populations reach specified threshold. Planning is done primarily at the local level with cities and counties making decisions for their district with technical assistance provided by regional planning commissions and the state.
- **Wyoming:** State law requires use of a comprehensive plan at a local county level that incorporates the needs of cities within that county. Each plan is specific to the individual county needs regarding planning regulations and processes under state law.
- **Idaho:** Land use planning is done at the local level with less influence or oversight from a state agency that monitors compliance. Cities and counties are required to develop comprehensive land use plans based upon 13 duties, but implementation is strictly at the local level with little or no technical assistance from the state.
- **Montana:** Land use planning is done at a local level. Local governing bodies can develop growth policy should they choose. There is little to no state involvement in development of land use policy.
- **Colorado:** No formal state land use plan. All planning decisions are done at the local level with minimal guidelines provided by the state.
- **Utah:** Utilizes a state land use plan that addresses broad issues at a state level, but the majority of decisions are done at a county or municipal level, granting land use planning authority to local jurisdictions. Comprehensive plans are required, but little oversight or assistance provided by the state on how local plans are developed or implemented.

**Table I - State Land Use Planning Comparison<sup>3</sup>**

State	Local Planning Authority Granted by State	Local Planning Required by State	Specification of Plan Elements	Zoning Regulations Conform with Comprehensive Plan	Local Plans Consistent with higher Jurisdiction	Local Plans Consistent with Neighboring Jurisdictions
Oregon	X	X	X	X	X	X
Washington	X	*X	X	X	X	X
Nevada	X	*X	X	X	X	X
Wyoming	X	X	X	X	X	
Idaho	X	X	X	X		
Montana	X		X	X	X	
Colorado	X		X			
Utah	X	X				

\* Local planning requirement based on population of counties. Under a specified population threshold, no planning is required.

<sup>3</sup> Source. Schwab 2010. Summary of State Land Use Planning Laws. Presentation. American Planning Association.

# Oregon Land Use Change 1974-2009

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## Forests, Farms and People

In January 2011 the Oregon Department of Forestry released a report examining changes in land use on non-Federal land in Oregon between 1974 and 2009<sup>4</sup> (hereafter ODF Report). This period effectively represents the existence of Oregon's Statewide Planning Program.

The following is an excerpt from the ODF Report introduction:

### Introduction

This report examines changes in land use on non-Federal land in Oregon between 1974 and 2009.

We collected consistent, sample-based data to address two key topics: 1) changes in the distribution of private and public non-Federal land by land use class and 2) development patterns on private land by land use class and by planned, county-level land use zone. Data collected for this report may also be used to analyze the effects that land use change has on forest resources and forest management practices on non-Federal owner- ships in a later report. Highlighted in this report are trends in land use before and after the implementation of comprehensive land use plans in the mid-1980s. An Appendix provides detailed statistics in tabular formats for Oregon and by region and county.

The report updates 3 previous publications: Forests, Farms and People: Land Use Change on Non-Federal Land in Western Oregon 1973-2000 (Lettman and others 2002), Forests, Farms and People: Land Use Change on Non- Federal Land in Eastern Oregon 1975-2001 (Lettman and others 2004), and Forests, Farms and People: Land Use Change on Non-Federal Land in Oregon 1974-2005 (Lettman and others 2009).

The Oregon Progress Board and the Oregon Board of Forestry requested this information and will use it to evaluate several Oregon Benchmarks and Indicators of Sustainable Forest Management.

### Approach

Using 2009 digital imagery with one-meter resolution, we updated previously collected land use information on a sample of 37,003 points distributed across non- Federal land in Oregon. We interpreted each sample point for land use class, number of structures, and nearest distances to adjacent land use classes. These attributes had been evaluated in earlier inventories with aerial imagery using the same sample points; for eastern Oregon, the images were taken in 1975, 1986, 1994, 2001, 2005, and 2009 and for western Oregon, in 1973, 1982, 1994, 2000, 2005, and 2009. Definitions associated with these attributes are the same for 2009 and these earlier years. We also determined owner class and land use zone at each sample point.

A major strength of this report is that it is based on data that are sampled and defined consistently back to 1973.

**Land use class:** We interpreted the land use present at each sample point. Eight land use classes are recognized:

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<sup>4</sup> Source Document. Forests, Farms & People, Land Use Change on Non-Federal Land in Oregon 1974-2009 (Lettman et al. 2011)



**Wildland forest** – A polygon of land in forest use of at least 640 acres. The polygon has fewer than 5 structures per 640 acres, and these structures are scattered generally across the polygon. Forest land occupies more than 80-percent of the polygon and the remainder is agricultural or “other” land except for the structures. In eastern Oregon, the remainder can also include range land.

**Wildland range** – A polygon of undeveloped land in range use (non-forest or non-agricultural land) of at least 640 acres. The polygon has fewer than 5 structures per 640 acres, and these structures are scattered generally across the polygon. Forest land comprises less than 51 percent of the polygon, and agricultural land less than 20 percent. This class may include grassland, non-irrigated pastures or hayfields, marshes or sagebrush land. This land use classification is used only in eastern Oregon.

**Intensive agriculture** – A polygon of land in agricultural use of at least 640 acres. The polygon has fewer than 9 non-farm-related structures per 640 acres, and these structures are scattered generally across the polygon. Agricultural land occupies more than 80-percent of the polygon. Agricultural land is land used for growing row crops, seed crops, orchards, vineyards, hay fields, nursery stock, Christmas trees, and for improved pasture and grazing land.

As discussed above, the ODF report measures changes in land use based not on zoning but on actual development trends revealed by digital imagery. Several other land use classes were identified and mapped in this effort. Only those most relevant to Sage Grouse habitat have been included above.

The figures below compare ODFW’s Sage Grouse Core Areas map with the mapped distributions of land use classes across Oregon. The land use class map is identified as Table 1 located on page 5 of the ODF report.

**Figure 1: Oregon Land Use 2009<sup>4</sup>**

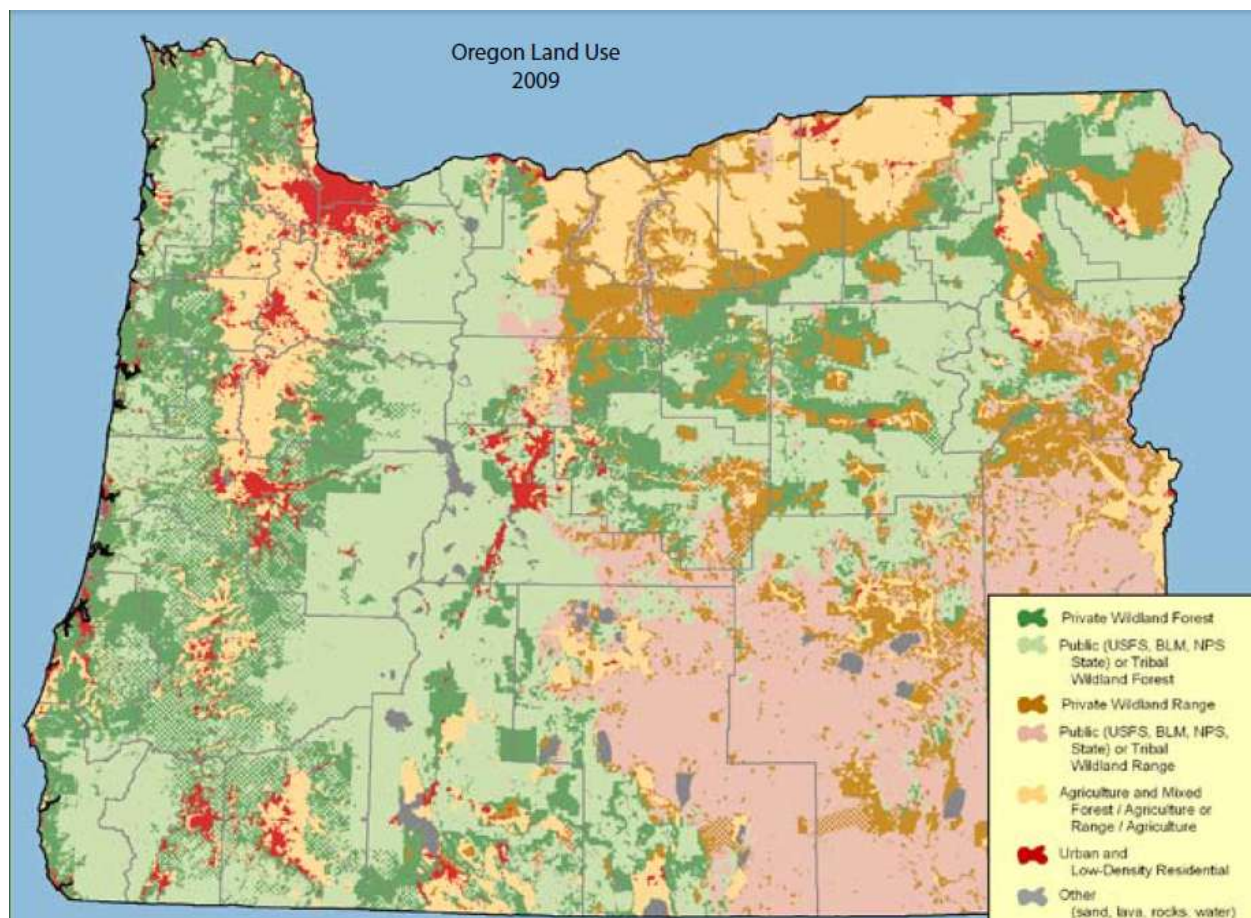
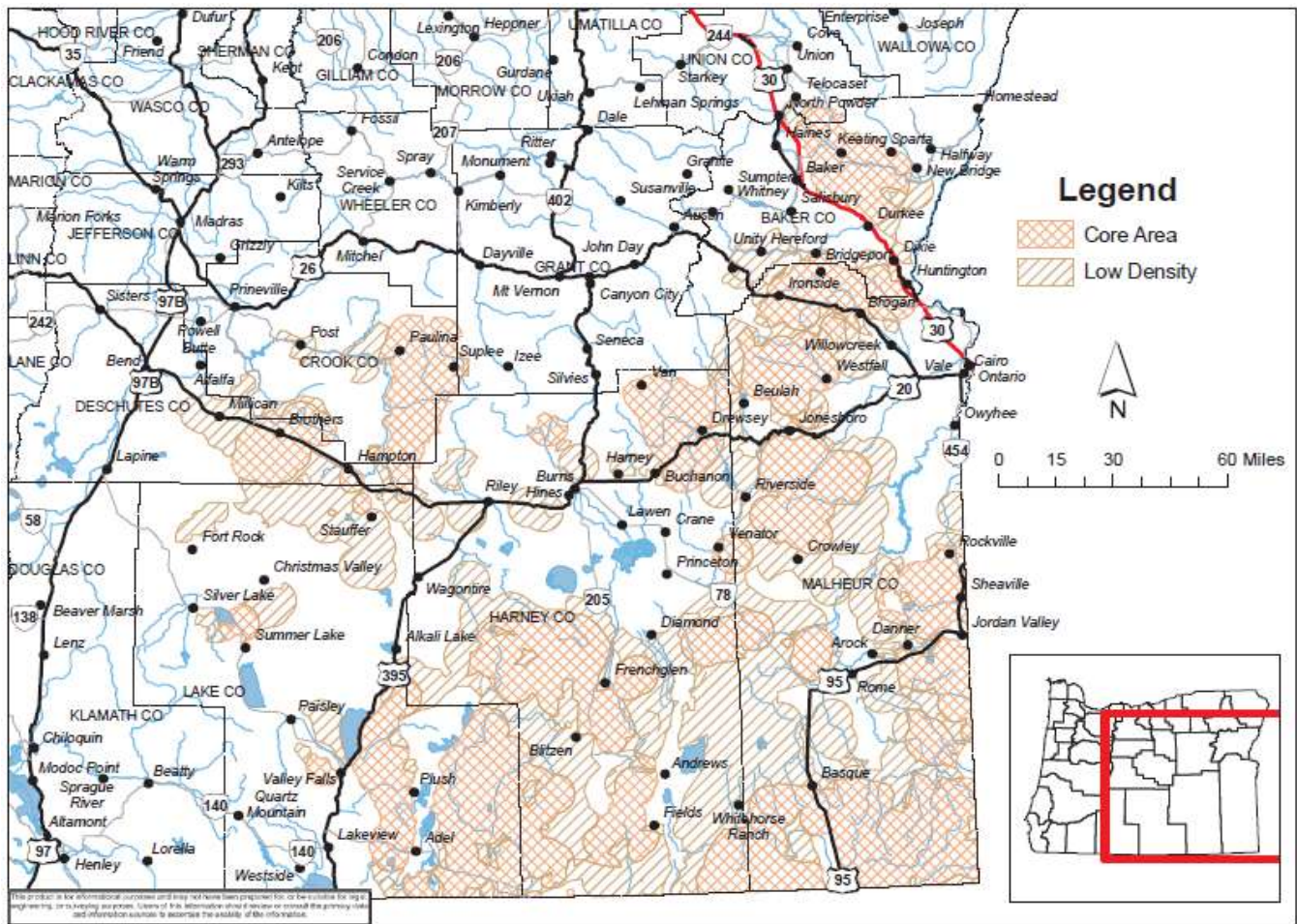




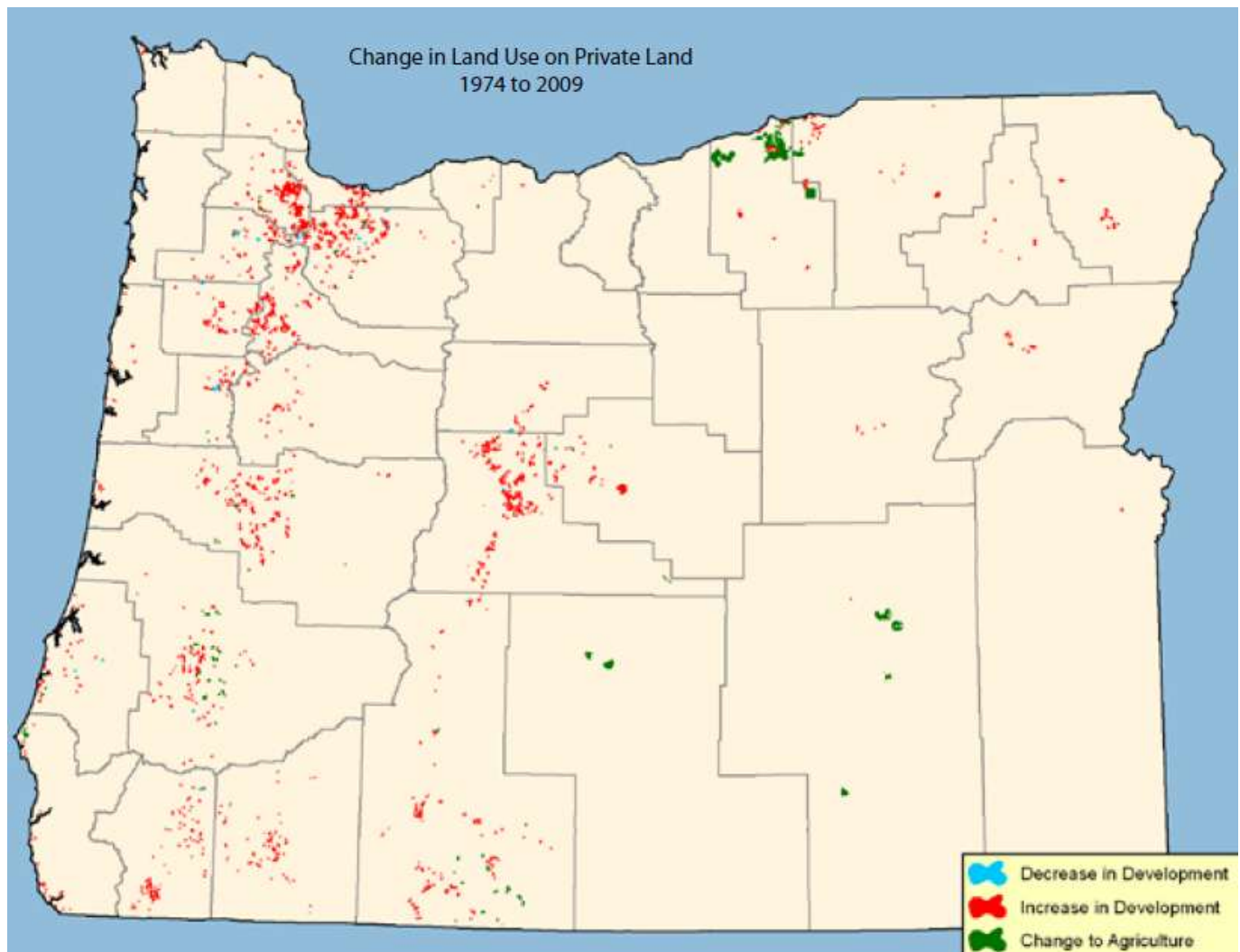
Figure 2: ODFW Sage-grouse Core Areas<sup>5</sup>



A close look at Figures 1 and 2 above clearly shows two things. First, public lands managed by BLM make up the vast majority Sage grouse Habitat in Oregon. This is not an unknown feature and has been identified previously in Section II of this Report. However, seeing the ODF map helps to emphasize just how much land is controlled by BLM across the landscape and how little of it is privately held. Second, nearly all of the privately held land is classified as Wildland range.

<sup>5</sup> ODFW GIS; Aug 24, 2011.

**Figure 3: Change in Land Use on Private Land**



The basic question asked by the ODF report is whether or not there have been changes to Oregon's land use patterns during the period between 1974 and 2009. The answer for most of Oregon is that some areas have been affected by development but by and large the land use pattern remains intact. The answer for Sage grouse habitat is that other than some limited changes to irrigated agriculture there has been no substantive increase in development for 35 years.

### **Summary of Important Points**

The ODF Report offers key findings and other statistics regarding land use changes on private land in Oregon. Most of the findings are of a statewide nature. However, some are particularly relevant to lands identified as Sage Grouse habitat. For instance:

- Ninety-eight percent of all non-federal land and 98 percent of private land that was in forest, agricultural, and range land uses in Oregon in 1974 remained in these uses in 2009.
- One percent of Oregon's Wildland range outside of the Bend Area and Klamath County was converted to other uses between 1974 and 2009.
- Number of structures per square mile of Wildland range increased from 0.4 to 0.8 between 1974 and 2009.

- Most all of the Wildland range converted to a different land use category between 1974 and 2009 was planned and zoned for development activity.
- The rate at which private land in range land uses shifted to low-density residential or urban land uses is related to the distance between land in these resource uses and land in more developed uses.

The picture provided by the ODF Report shows very little of Oregon's landscape has been converted by development during the 35 year history of the Statewide Planning Program. An even smaller percentage of lands identified as Wildland range changed during this period. Furthermore, most of the Wildland range that did convert to a different land use class was planned for development activities rather than farm or ranch use. Although the number of structures on Wildland range did increase, the amount of development grew at the rate of only one new structure per 1,600 acres, hardly a startling amount.

Based on the identified trends it is also unlikely that Sage Grouse habitat will convert to other land use classes in the future. This is because all or nearly all of it is classified as Wildland range and, as Section IV. of this report will demonstrate, virtually all Sage Grouse habitat in Oregon is planned for farm and ranch activities rather than development and is located a great distance from population centers.

# County Land Use Planning Programs

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Working under a regional memorandum of understanding county planners along with DLCD collaborated to produce a stand-alone development report for each county. There are 7 counties in central and eastern Oregon which have land use planning jurisdiction (development permitting) over non-federal lands which contain Sage Grouse habitat areas. Each report was created to provide an understanding of the county-specific land use programs and show development trends on non-federal lands within habitat areas. The findings for each county will show existing developments such as housing, mining sites, and infrastructure within habitat and list county permitting decisions over a ten year period from 2003 through 2013. Each report lists area specific development designations and in some instances special programs for habitat protection. In addition to the development studies listed in the report, 3 counties (Deschutes, Harney, Lake) produced a series of overview maps showing existing development, ownership, and zoning designations or districts

## Baker County

### Baker County Planning Overview

Baker County's planning program formally began in 1970 with the adoption of the County's first zoning ordinance. In the early 1980's, Baker County's first Comprehensive Land Use Plan was written, and the implementing Zoning Ordinance was revised based on the goals and policies set forth in the Comprehensive Land Use Plan and the statewide planning goals and regulations in place at that time. The Comprehensive Land Use Plan has been amended as needed over time. Two of the most notable changes relating to sage grouse habitat are the 1994 Aggregate Inventory update and Big Game Habitat update.

The Comprehensive Land Use Plan and the Zoning Ordinances in place from 1970 to present, covers all lands in Baker County that are outside incorporated city limits and not managed by the federal government. The planning program aims to protect lands appropriate for agriculture, timber production and mining as well as identify lands appropriate for development. Zones for farm use, timber production, mineral extraction, rural development, commercial, and industrial lands are all implemented within the framework of the Comprehensive Land Use Plan. The vast majority of lands in Baker County are within a zone designed to protect agriculture or timber resource uses and have specific protections in place to prevent intensive development. These protections also have benefits for wildlife habitat, leaving large areas of open space. Baker County's Comprehensive Land Use Plan includes a protection program specific to elk, deer and antelope habitat in areas of the County designated as important habitat for each species. The land use program provides additional habitat protection for other wildlife species.

### Land Base

Over half of Baker County's land base is managed by federal agencies such as Bureau of Land Management and USDA Forest Service. Table 1 Total Acreage in Baker County identifies over a million acres in federal land management and 934,755 acres in non-federal ownership (including private & state owned land).

**Table 1: Total Acreage in Baker County**

	Federal Lands	Non-federal Lands	Total
<b>Acreage</b>			
<b>Number</b>	1,003,306.89	934,755	1,938,062.47
<b>Percent</b>	51.7%	48.3%	100%

\*This data does not include acreages for public right-of-ways

Table 2 identifies the total acres and total Baker County Assessor's Tax Lots within Core Area and Low Density sage grouse habitat divided between federal and non-federal lands. About 38.6 percent of Baker County is in designated sage grouse habitat (69% Core Area & 31% Low Density) and about 75 percent of that habitat is in non-federal land ownership.

**Table 2: Sage Grouse Habitat Acreage & Tax Lots in Baker County**

	Core Area		Low Density		Total	Percent Habitat (Core and Low Density)	
	Federal Lands	Non-federal Lands	Federal Lands	Non-federal Lands		Federal Lands	Non-federal Lands
Acres	131,659.32	385,140.38	56,223.25	175,885.32	748,908.27	25%	75%
Tax Lots	193	965	118	655	1931		

## Comprehensive Plan and Zoning

### Overview

The Baker County Comprehensive Land Use Plan was adopted in 1984 and acknowledged to be in compliance with statewide planning goals in 1986. The Plan identifies general land use classifications, land use policies, recommendations and provides the foundation for land use regulations in the unincorporated county.

The Baker County Zoning and Subdivision Ordinance #83-3 includes the county-wide zoning map, zoning designations, uses and minimum parcel sizes authorized, development standards and procedural requirements. Table 3 Baker County Zoning Designations identifies those zones that include sage grouse habitat.



**Table 3 – Baker County Zoning Designations**

<b>Zone Designations</b>	<b>Ordinance Section(S)</b>
Exclusive Farm Use	BCZPO Section 301,301.05: 80 ac. irr. 160 ac. non irr.
Timber Grazing	BCZPO Section 302.01 - .10: 5 – 80 ac.
Mineral Extraction	BCZPO Section 307, 308.03; 5ac.
Rural Service Area	BCZPO Section 305.01, 305.04, 7500sqft.
Primary Forest (PF)	Federal Land
Cemetery	
Commercial Industrial	BCZPO Section 311, DEQ
Big Game Habitat (EFU & TG)	BCZPO Section 301.05(2)(D) – 40 ac. for non-farm or lot of record dwellings

### **Base Zoning within Sage Grouse Designated Areas**

The majority (85%) of sage grouse habitat in Baker County and on non-federal is in an Exclusive Farm Use Zone that conforms to state law (ORS Chapter 215). This EFU Zone includes private crop and rangeland (see Table 4). About 70 percent in this zone is Core Area and 30 percent is in Low Density Habitat.

There are some private properties in both EFU and TG Zones. Table 4 does not include these properties in a separate category. Each property was assigned to the most dominant zone.

About 6.81 percent of non-federal land in sage grouse habitat is in a Primary Forest (PF) Zone that applies to all federal lands (forest and range). The County does not regulate land uses on federal lands, however, if there are private land inclusions or federal ownership converted to state or private ownership the County will apply an EFU or Timber Grazing Zone, whichever is applicable.

The Timber Grazing Zone includes about 58,546.22 acres in sage grouse habitat which represents only about 3 percent of sage grouse Core Area and 4.8 percent of Low Density Habitat. This zone also conforms to state law.

Other minor inclusions are in the County's Mineral Extraction Zone (3344.16 acres), Rural Service Area (82.90 acres), Commercial – Industrial (370.60 acres) and Cemetery (5.75 acres).

### **Combining or Overlay Zone within Sage Grouse Designated Areas**

Baker County has three wildlife overlay zones for elk, deer and antelope. The Big Game Habitat Overlay Zone limits new non-farm parcels with non-farm dwellings and lot-of-record dwellings to no smaller than 40 acres. Otherwise, new parcels with dwellings must meet the statutory 160 acre minimum for cropland, 240 acre minimum for forestland and 320 acre minimum for rangeland.

**Table 4 – Baker County Zoning Designations**

	Core Area		Low Density		Total Acres	Percent in Sage-Grouse Habitat
	Federal Lands	Non-federal Lands	Federal Lands	Non-federal lands		
Exclusive Farm Use						
Acres	80059.29	363805.88	52071.90	139554.72	635491.79	84.89%
Timber Grazing						
Acres	2563.48	20019.11	1858.14	34105.49	58546.22	7.81%
Mineral Extraction						
Acres	256.16	1000.65	0	2087.35	3344.16	0.44%
Rural Service Area						
Acres	0	6.91	18.65	57.34	82.90	0.01%
Primary Forest						
Acres	48780.39	0	2274.56	0	51054.95	6.81%
Cemetery						
Acres	0	5.75	0	0	5.75	0.00076%
Commercial Industrial						
Acres	0	295.17	0	75.43	370.60	0.04%
Rural Residential 2						
Acres	0	0	0	4.99	4.99	0.00066%
Rural Service Area						
Acres	0	6.91	0	0	6.91	0.00092%
Total					748908.27	100%

## Built Environment and Development Activity

### Housing Units

Existing dwelling units based on the County's rural addressing system include 158 dwellings in Core Areas and 88 dwellings in Low Density sage grouse habitat. Table 5 lists a nine (9) year history for residential single family dwelling approvals. A total of nine (9) dwellings over 9 years were built in Core Areas and four(4) dwellings over 9 years in Low Density Habitat. For perspective, the average is 1.4 dwellings per year over 604,000 acres of sage grouse habitat or 46,461 acres per dwelling over the 9 years.

## Roads and Utilities

No major highways in Baker County bisect sage grouse habitat. Several existing secondary highways and county roads extend through sage grouse habitat and have existed for many years. No new State highway or County Road are anticipated or planned through sage grouse habitat.

I-84 borders sage grouse habitat on one side or another south of Baker City. An Idaho Power existing 230 kilovolt high voltage transmission line parallels I-84 through the County and a new 500 kilovolt transmission line that parallels the existing line is proposed. Idaho Power Corp. is currently pursuing BLM/USFS federal approval through the NEPA process and Oregon EFSC approval for the proposed 500 kV route. Sage grouse habitat has been a major consideration during route selection.

## Surface Mining Sites

Table 6 identifies 29 aggregate sites in Core Areas and 20 aggregate sites in Low Density Habitat. The general locations are broadly distributed throughout sage grouse habitat. Each site is only used periodically for road improvement or maintenance work in each site's general vicinity. No permanent continually operated sites exist within sage grouse habitat.

**Table 5: Land Use Approvals in Sage Grouse Habitat**

Year	Dwellings in Core	Dwellings in Low Density	Other in Core	Other in Low Density	Note
2012	0	0	0	0	
2011	0	1	0	0	LOR
2010	1	1	0	0	
2009	0	0	0	0	
2008	2	1	1	0	C: SFmd, LD: FmD, Other: Agr Site
2007	1	0	0	0	Secondary Farm Dwelling
2006	1	1	0	0	C: LOR, LD: SFmd
2005	4	0	0	0	Farm Dwellings
2004	0	0	0	0	
Total	9	4	1	0	

**Table 6: Aggregate Sites within Sage Grouse Habitat**

Area	Aggregate Sites
Core	29
Low Density	20
Total	49



## Impact Analysis

### Risk Assessment

Risks identified for sage grouse habitat in Oregon counties include the following activities:

**Table 7: Sage-Grouse Habitat Risk levels**

Land Use Related Risk Levels	Threat Rating
Agriculture Conversion	Present, but localized (rangeland to cropland)
Energy	Present, but localized (wind and solar farms)
Mining	Present, but localized
Infrastructure	Present, but localized (power lines and roads)
Recreation	Unknown
Urbanization	Not known to be present (increased residential density)

### Findings

Rangeland conversion to cropland in Baker County only occurs where irrigation water is available. Over the last 10 years no new water sources such as irrigation reservoirs have been developed and no known conversions within sage grouse habitat have occurred.

One small wind farm (3MW) has been developed above the Old Lime Plant on BLM land. The County has approved two new wind farms, one 20 MW and the other 30 MW in the same general vicinity. No solar projects currently exist or are proposed.

Recreation in sage grouse habitat is limited to big game and upland bird hunting in the fall. Other form of recreation on private lands is undeveloped and minimal. No destination resorts currently exist or are planned within sage grouse habitat.

Urbanization of sage grouse habitat has not occurred as witnessed by the 13 new dwellings over 9 years and 604,000 acres. Urbanization on non-federal land is not expected to be a future risk to sage grouse habitat because 93 percent is in large lot resource zoning (EFU or TG) and 6.81 percent is in federal ownership in a Primary Forest Zone.

## **Conclusion**

Historical development within Baker County sage grouse habitat has been incidental at best. An average of 1.4 new dwellings per year per 46,461 acres over the last 9 years is not even noteworthy. Future development (residential or otherwise) is severely limited by statewide resource zoning (EFU and TG) and federal land ownership.

Conversion of rangeland to cropland has not occurred over the last 10 years and is not anticipated unless new water sources developed.

Very limited opportunities exist for renewable energy development.

The proposed 500 kV Idaho Power Corp. transmission line will parallel the existing 230 kV transmission line consolidating impacts to a transmission corridor.

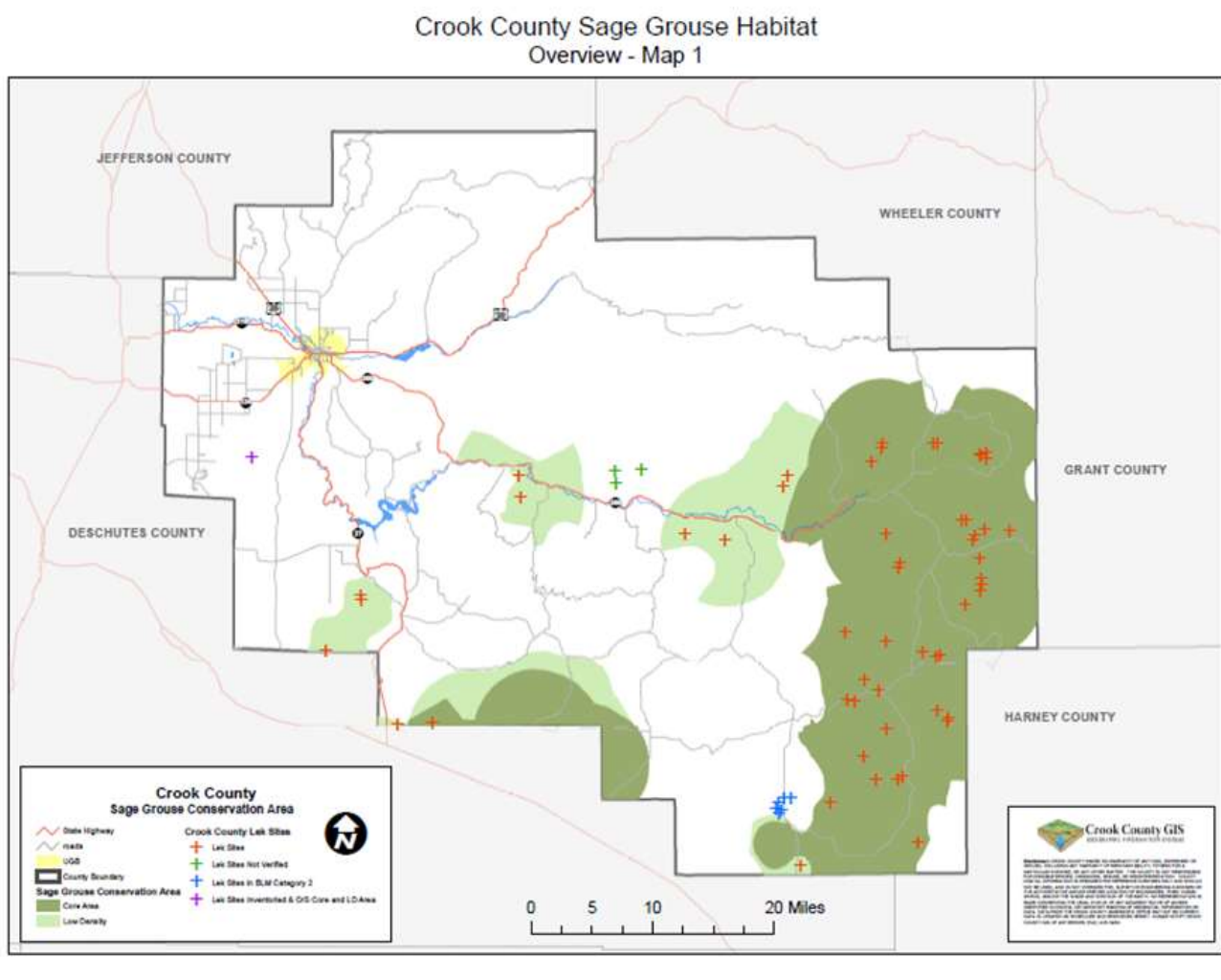
In conclusion, historical impacts to sage grouse habitat have been insignificant and future impacts are not anticipated to be significant.

# Crook County

## Overview of Sage Grouse Habitat in Crook County, Oregon

In Crook County, Sage Grouse habitat is found in the southeast two thirds of the county as shown on Map 1 below. There are:

- 423,726 acres of Sage Grouse Core Habitat in Crook County that covers 23% of the county;
- 140,134 acres of Sage Grouse Low Density Habitat in Crook County that covers 7% of the county;
- 563,860 acres of Core and Low Density Sage Grouse Habitat (when combined) in Crook County that covers 30% of the county.



## Zoning Statistics for Sage Grouse Habitat

Exclusive Farm Use Zone, EFU-1 Total Acres within Sage Grouse Habitat - 546,054 Acres

#### Core Area

- Federal parcels (acres, number of parcels) – 138,585 Acres, 101 Parcels
- Non-federal parcels (acres, number of parcels) – 269,639 Acres, 362 Parcels

#### Low Density

- Federal parcels (acres, number of parcels) – 44,924 Acres, 68 Parcels
- Non-federal parcels (acres, number of parcels) – 91,432 Acres, 346 Parcels

### **Forest Zone, F-1 Total Acres within Sage Grouse Habitat – 19,070 Acres**

#### Core Area

- Federal parcels (acres, number of parcels) – 14125 Acres, 5 Parcels
- Non-federal parcels (acres, number of parcels) – 1233 Acres, 11 Parcels

#### Low Density

- Federal parcels (acres, number of parcels) – 2606 Acres, 5 Parcels
- Non-federal parcels (acres, number of parcels) – 1105 Acres, 11 Parcels

### **Rural Service Center Zone, RSC Total Acres within Sage Grouse Habitat – 52 Acres,**

#### Core Area

- Federal parcels (acres, number of parcels) – 0 Acres, 0 Parcels
- Non-federal parcels (acres, number of parcels) – 19 Acres, 43 Parcels

#### Low Density

- Federal parcels (acres, number of parcels) – 0 Acres, 0 Parcels
- Non-federal parcels (acres, number of parcels) – 19 Acres, 6 Parcels

### **Highway and Road Statistics within Sage Grouse Habitat**

#### Core Habitat

- State Highway or County Roads in Core Area - 103 Miles, 15 Roads

#### Low Density Habitat

- State Highway or County Roads in Low Density Area - 22 Miles, 8 Roads

### **Ownership of Land within Sage Grouse Habitat**

#### Core Habitat

Ownership of the land within the Core Habitat, when divided into two groups of federal and non-federal lands, indicates:

- Federal ownership is 152,709 acres (102 parcels) acres; and
- Non-Federal ownership is 271,017 acres (394 parcels).

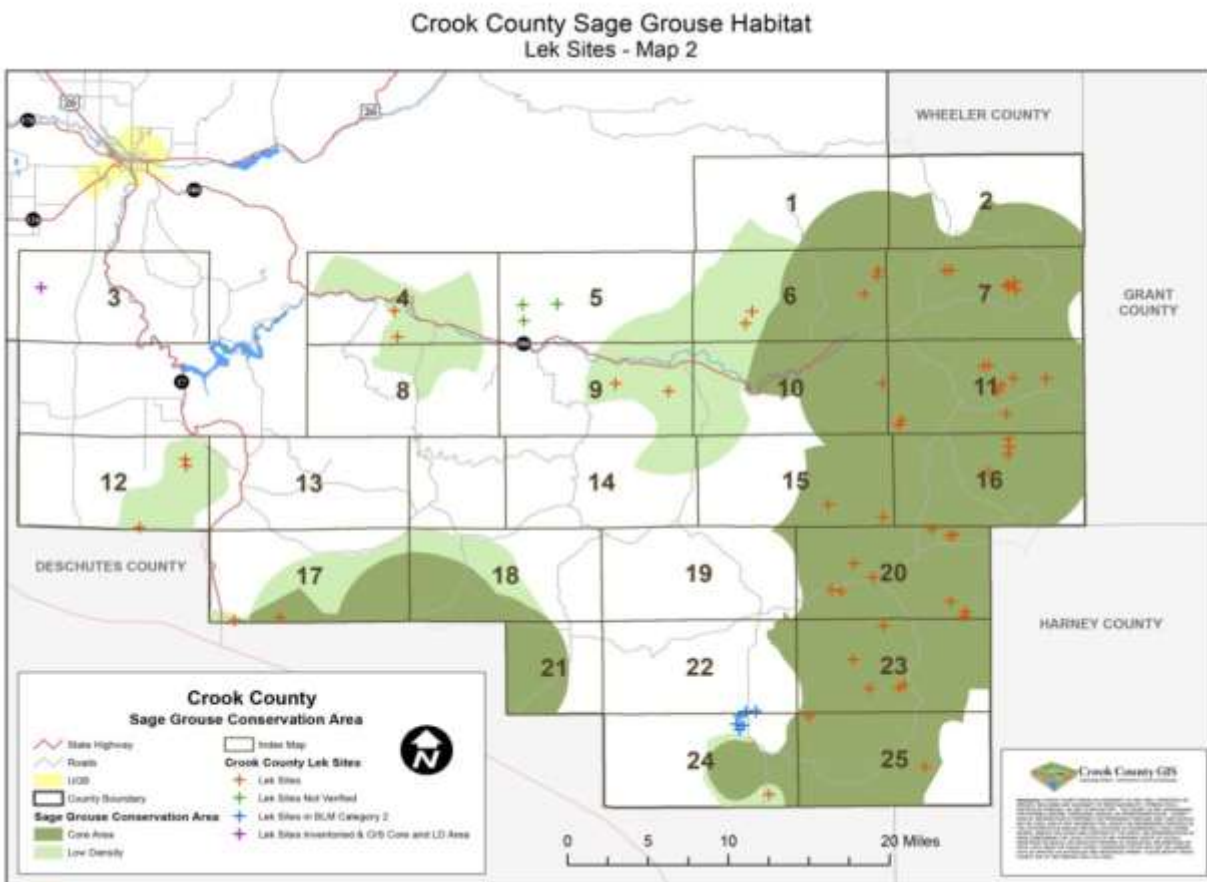
#### Low Density Habitat

Ownership of the land within the Low Density Habitat, when divided into two groups of federal and non-federal lands, indicates:

- Federal ownership is 47,530 acres (70 parcels); and
- Non-Federal ownership is 92,604 acres (349 parcels).

## Sage Grouse Lek Sites in Crook County

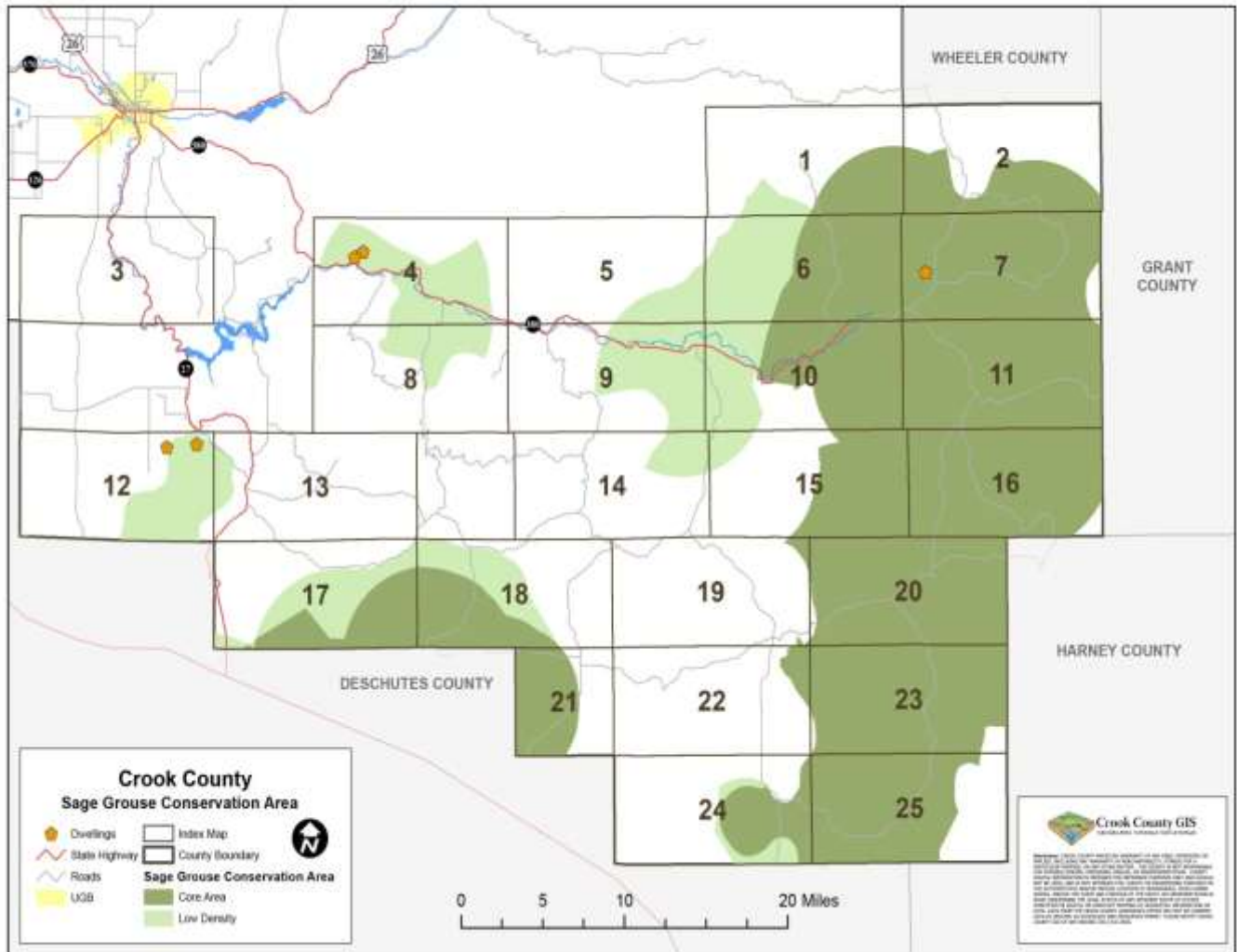
- In 1993, there were 24 Lek Sites in Crook County.
- There are currently 64 Lek Sites in Crook County as of 2012.
- 43 of the Lek Sites (67%) are within Sage Grouse Core Habitat found in area 6, 7, 10, 11, 15, 16, 17, 20, 23 and 25 on Map 2 below.
- 11 (18%) of the Lek Sites are within Sage Grouse Low Density Habitat found in area 4, 6, 9, 12, 17 and 24 on Map 2 below.
- 10 (15%) Lek Sites are outside the Core and Low Density Habitat and are:
  - not verified (3 sites) found in area 5 on Map 2 below; or
  - in BLM Category 2 Habitat (6 sites) found in area 22 and 24 on Map 2 below; or
  - inventoried and outside the identified Core and Low Density Habitat (1 site) found in area 3 on Map 2 below.



## Non-Farm Dwellings approved and built in Core and Low Density Sage Grouse Habitat

Non-Farm Dwellings in Core and Low Density Sage Grouse Habitat are an uncommon occurrence in Crook County. Crook County has seen only five Non-Farm Dwellings be approved and built in Core or Low Density Sage Grouse Habitat in the last ten years. One Non-Farm Dwelling was approved and built in the Core Habitat (found in area 7 on Map 3 below), with the remaining four Non-Farm Dwellings being approved and built near the very westerly edge of the Low Density Habitat (found in area 4 and 8 on the Map 3 below).

### Crook County Sage Grouse Habitat Non-Resource Dwellings - Map 3

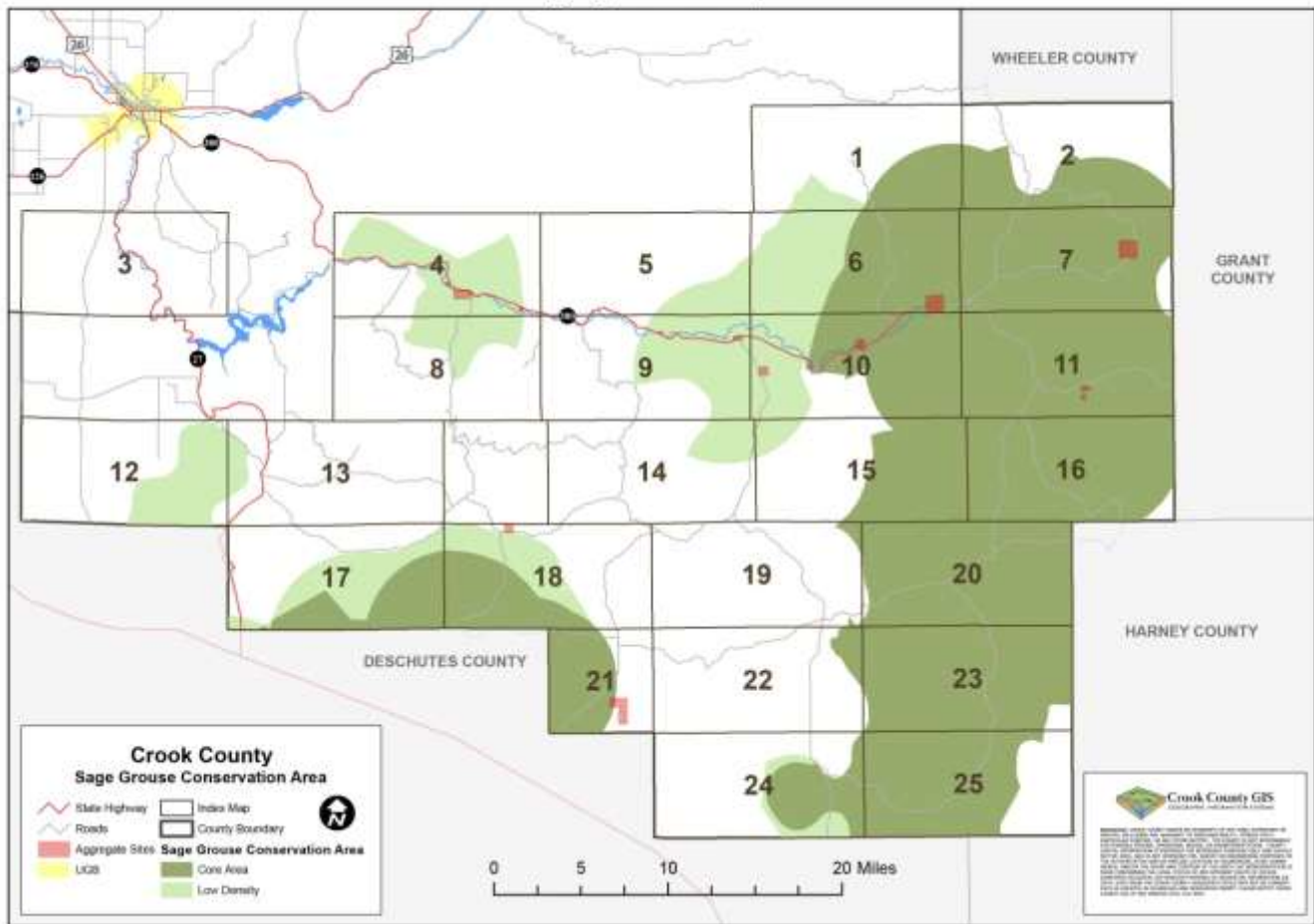


### Aggregate Sites in Core and Low Density Sage Grouse Habitat

In Crook County there are thirteen Aggregate Sites within Core and Low Density Sage Grouse Habitat.

- Six of the thirteen Aggregate Sites are in Core Sage Grouse Habitat, one (8% of the Aggregate Sites) of which is adjacent to SE Paulina Highway which runs east to west in Crook County (found in area 6 and 10 on Map 4 below); and
- Seven Aggregate Sites are in Low Density Sage Grouse Habitat, all of which (100% of the Aggregate Sites) are adjacent to a State Highway or a County Road (found in area 4, 9 and 10 on Map 4 below).

### Crook County Sage Grouse Habitat Aggregate Sites - Map 4



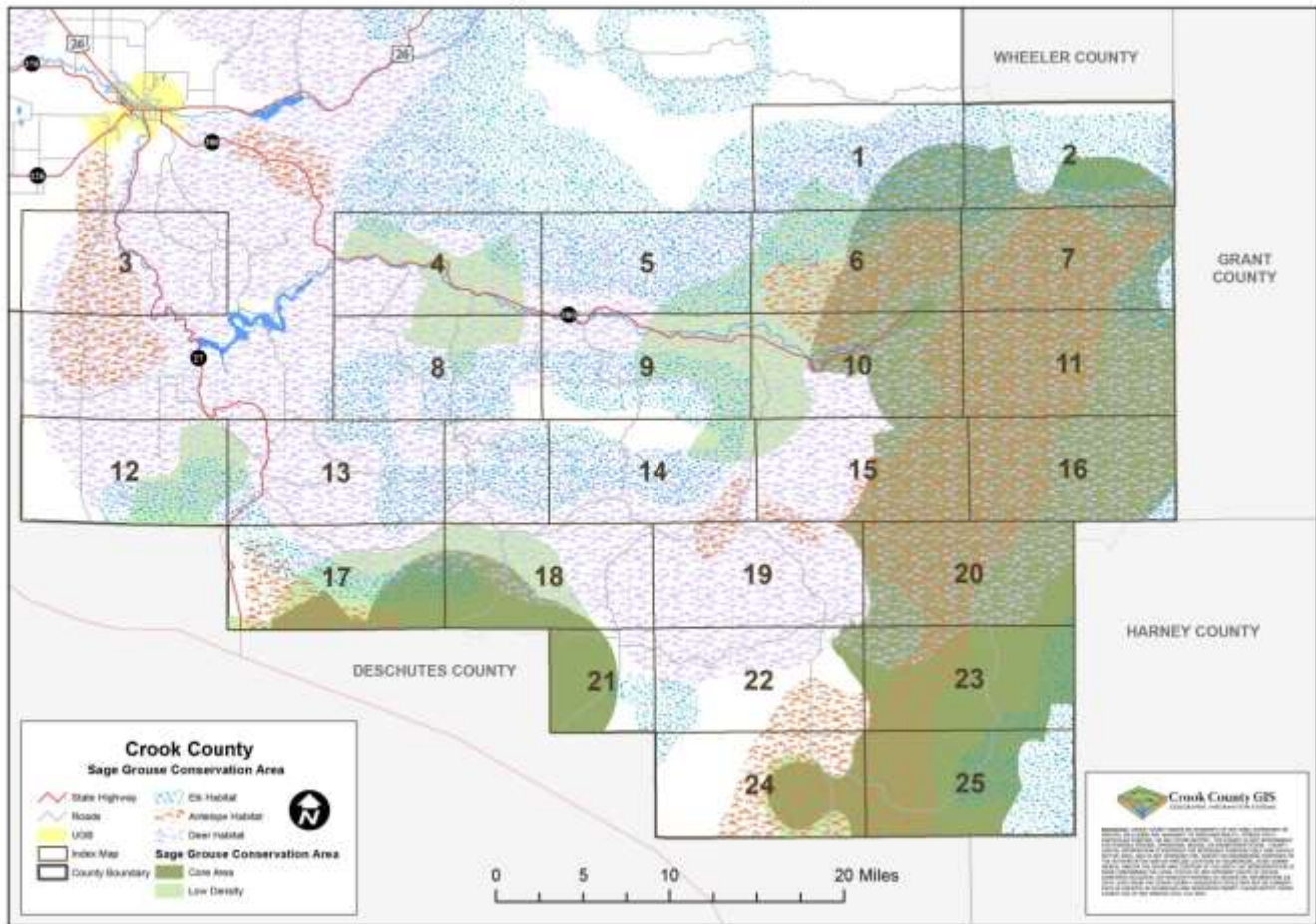
### Core and Low Density Sage Grouse Habitat and Big Game (Antelope, Elk and Deer) Habitat in Crook County

The map below shows the Core and Low Density Sage Grouse Habitat along with Crook County's Antelope, Deer and Elk Habitat Protection Overlay. The map indicates that approximately 90% of the Sage Grouse Core Habitat and 95% of the Sage Grouse Low Density Habitat is within Crook County's Habitat Protection Overlay for Antelope, Deer, and Elk.

- 90% of the Core Sage Grouse Habitat is within Crook County's Habitat Protection Overlay for Antelope, Deer, and Elk.
- 95% of the Low Density Sage Grouse Habitat is within Crook County's Habitat Protection Overlay for Antelope, Deer, and Elk.



## Crook County Sage Grouse Habitat Big Game Habitat Areas - Map 5



## Summary

### Background

The Crook County Comprehensive Land Use Plan was adopted on February 2, 1978 and has been in use by the County since that time. Over the years, there have been amendments to the maps and text of the Comprehensive Plan. The Plan provides guidance on land use throughout Crook County with the exception of the City of Prineville.

In 1992, Crook County went through Periodic Review which included inventory and policy updates for Goal 5. This Goal 5 Periodic Review included inventorying Sage Grouse Leaks. This 1992 Goal 5 Periodic Review data for Sage Grouse Leaks is used in this report in addition to 2012 data from the BLM and ODFW.

Crook County's Comprehensive Plan also has inventory and policy guidance for Exclusive Farm Use, Forest and Rural Service Center Zoned land as well as Antelope, Deer and Elk habitat Protection Overlay's. The Comprehensive Plan works in concert with Crook County Land Use Code and Ordinances which have been adopted over the years to keep Crook County's Land Use Program contemporary.



## **Land Use Activity**

Crook County's Land Use Program provides for a number of land use activities based on what is allowed by Oregon Revised Statutes, Oregon Administrative Rule, the Oregon Statewide Planning Goals and a host of other laws and regulations.

When considering land use in Crook County it is important to understand Crook County's land use history. There are approximately 21,000 people who call Crook County home. Approximately 90% (18,900) of Crook County residents live in the western most 15% of the County. The western 30% of the County is home to approximately 95% (19,950) of the population. This means approximately 1,050 people live on farms and ranches in the eastern 70% of the County (1,319,276 acres), or approximately 1 person per 1,256 acres. This sparse settlement pattern is characteristic of what Crook County anticipates for its future, and is codified in its Comprehensive Plan and Land Use Zoning Code.

This report includes information and a map (on page 27) showing non-resource dwelling approvals for the last ten years. Non-Farm Dwellings in Core and Low Density Sage Grouse Habitat are an uncommon occurrence in Crook County. Crook County has seen only five Non-Farm Dwellings be approved and built in Core or Low Density Sage Grouse Habitat in the last ten years. One Non-Farm Dwelling was approved and built in the Core Habitat, with the remaining four Non-Farm Dwellings being approved and built near the very westerly edge of the Low Density Habitat.

Six of the thirteen Aggregate Sites in Crook County (on page 28) are in Core Sage Grouse Habitat, one of the sites is adjacent to SE Paulina Highway which runs east to west in Crook County; and seven Aggregate Sites are in Low Density Sage Grouse Habitat all of which are adjacent to a State Highway or a County Road.

Core and Low Density Sage Grouse Habitat in Crook County is also typically within a Habitat Protection Overlay for Crook County's Antelope, Deer and Elk. Approximately 90% of the Sage Grouse Core Habitat and 95% of the Sage Grouse Low Density Habitat are within Crook County's Habitat Protection Overlay for Antelope, Deer, and Elk. The Antelope, Deer and Elk Habitat Protection Overlay is designed to reduce development opportunities for dwellings with an allowable density of no more than one dwelling per 160 acres or 320 acres in most instances. This Antelope, Deer and Elk Habitat Protection Overlay combined with the fact the Sage Grouse Core and Low Density Habitat lands are also zoned Exclusive Farm Use of Forest, reduces development and protects Sage Grouse Habitat.

## **Conclusion**

Crook County has established a strong land use program in 1978, and has continued to implement the program throughout the years. The background mentioned above and the land use activity mentioned above describe Crook County's actions which have provided solid protection for animal habitat over the years. In conclusion, one only look to on page 27 of this report to see evidence that Crook County has been and is continuing to do a great job protecting identified Sage Grouse Habitat in Crook County. If one looks closely at the 1992 Lek Site numbers (24) from ODFW and compares them with the 2012 Lek Site numbers (64) found on on page 27, it becomes quite clear that Sage Grouse Core and Low Density Habitat has been successfully protected by the Crook County Land Use program. The Lek Site numbers show a 166% increase in Lek Sites over the past twenty years. This is average an annual increase of approximately 8.3% over the last twenty years. This significant and steady increase indicates that Crook County's Sage Grouse Core and Low Density Habitat have been well protected by Crook County's Land Use program.

# Deschutes County

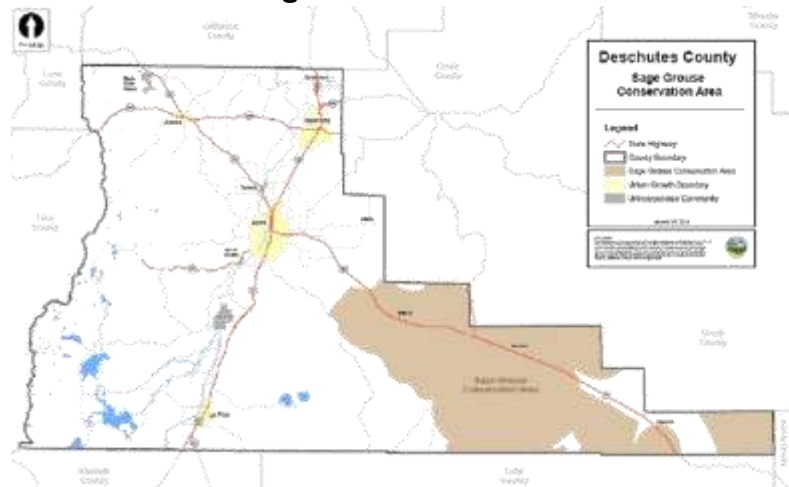
## Deschutes County Sage-Grouse Habitat

As shown in Figures 1 and 2, sage-grouse habitat in Deschutes County is located in the southeast, near Millican, Brothers, and Hampton.

**Figure 1**



**Figure 2**



ODFW's management recommendations for the U.S. Bureau of Land Management (BLM) Prineville District, which include the affected portions of Deschutes County shown in Figure 2, are:

*Restore greater sage-grouse abundance and distribution near the 1980 spring breeding population level, approximately 3,000 birds.<sup>6</sup>*

According to the Strategy, because the Prineville District is at the northern edge of sage-grouse range, connectivity in this region is important. The primary habitat block where sage -grouse occur is contiguous with the area shared by the Lakeview and Burns districts. Table 1 lists the total number of federal and non-federal parcels and their respective acreages in Deschutes County. Seventy-six percent of Deschutes County's land base is managed by the federal government. As shown in Table 2, 437,987 acres are designed Core Area and Low Density habitat. This constitutes 23% of the total acreage in Deschutes County.

**Table 1 - Total Acreage and Parcels in Deschutes County**

	Federal Lands	Non-Federal Lands	Total
<b>Acreage</b>			
<b>Number</b>	<b>1,446,395</b>	<b>466,506</b>	<b>1,912,901</b>
<b>Percent</b>	<b>76%</b>	<b>24%</b>	<b>100%</b>
<b>Parcels</b>			
<b>Number</b>	<b>615</b>	<b>95,569</b>	<b>96,184</b>
<b>Percent</b>	<b>1%</b>	<b>99%</b>	<b>100%</b>

<sup>6</sup> Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat. April 22, 2011. Page 39

**Table 2 - Acreage and Parcels in Deschutes County Containing Sage-Grouse Habitat**

	Core Area		Low Density		Total	Percent Habitat (Core and Low D.)	
	Federal Lands	Non-Federal Lands	Federal Lands	Non-Federal Lands		Federal Lands	Non-Federal Lands
Acres	182,482	66,723	132,946	55,836	437,987	72%	28%
Parcels	114	402	125	464	1,105	22%	78%

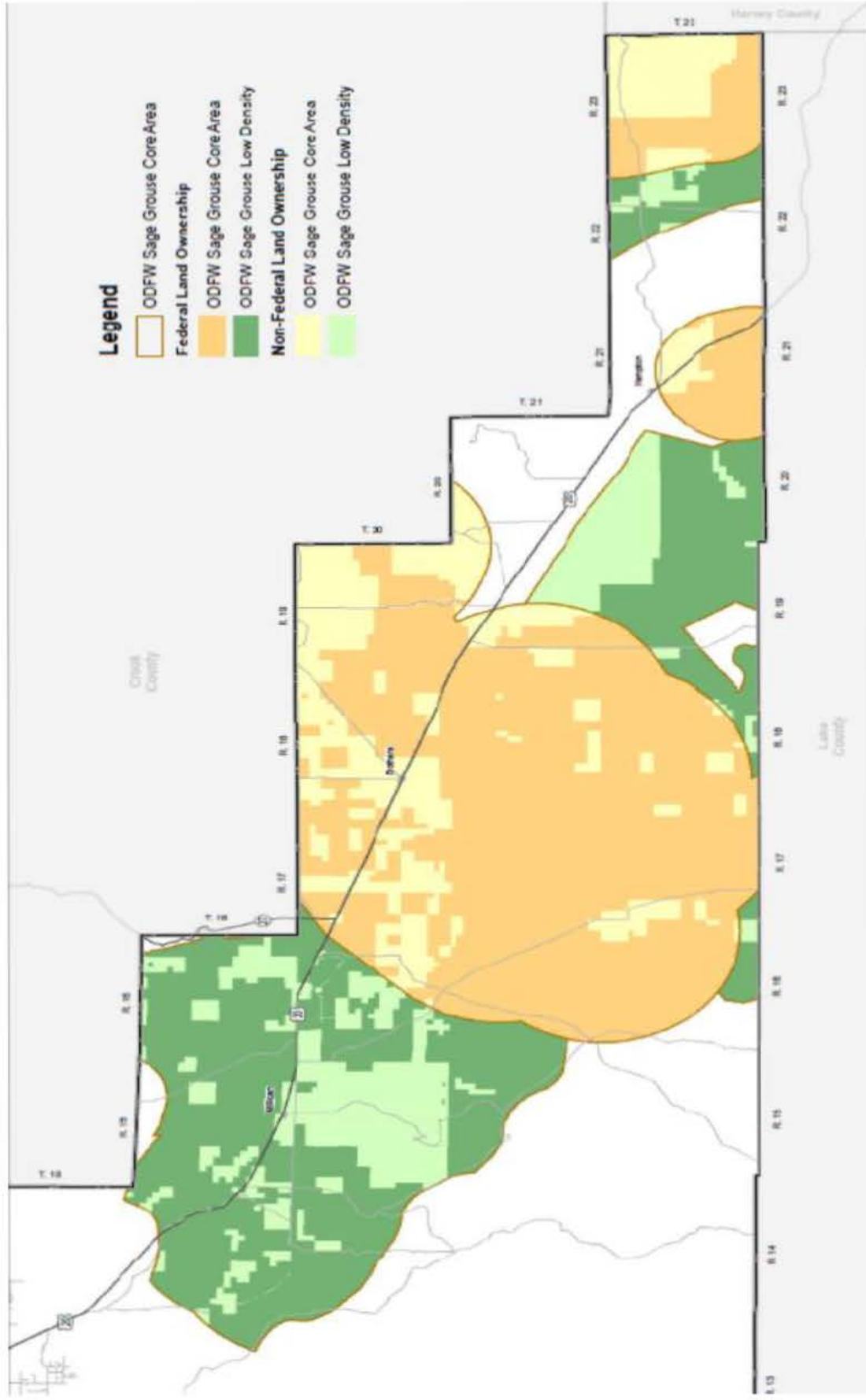
Disaggregating the acreage further, 22% of the federal lands and 26% of non-federal lands in Deschutes County are designated in sage-grouse habitat. Seventy-two percent of the habitat is located on federal lands and 28% on non-federal lands. Parcel data shows that the federal government is also the most affected. Thirty-nine percent of the federal government's total parcels in Deschutes County are designated in sage-grouse habitat, compared to 1% of non-federal lands. Figure 3 shows the region in greater detail by depicting federal and non-federal lands within Core Area and Low Density habitat.

### Land Use Planning History

In Deschutes County, the Comprehensive Plan provides a policy framework for the rural, unincorporated areas. The cities of Bend, La Pine, Redmond and Sisters each maintain their own comprehensive plans within their respective Urban Growth Boundaries (UGB). Intergovernmental agreements between the cities and Deschutes County coordinate land use within urban unincorporated boundaries.

Deschutes County's first comprehensive plan, Comprehensive Plan to 1990, was adopted in 1970. To comply with newly adopted statewide planning regulations a new plan was adopted in 1979, titled, Year 2000 Comprehensive Plan (Plan 2000). In 1981, Plan 2000 was acknowledged as being in compliance with the Statewide Goals. Along with Plan 2000, the County adopted a Resource Element. It contained valuable background information, including maps depicting the long-term general land use categories for all lands in the county. Over time the County amended Plan 2000 to comply with changes initiated by LCDC, the Board of County Commissioners and property owners through Post Acknowledgement Plan Amendments (PAPAs). Periodic Review, a mandatory plan update process required by DLCD was initiated in 1988 and completed in 2003. Periodic Review included major additions and amendments to Plan 2000 to keep the plan and its policies current with evolving land use law and local conditions. Plan 2000 was codified into Title 23 of the Deschutes County Code (DCC). Responding to rapid growth and changing demographics, in 2011, the Board of County Commissioners completed a multi-year effort to establish the 2030 Comprehensive Plan Update (Plan 2030). This new plan incorporates updated goals and policies, community plans for Tumalo and Terrebonne, and new projects like the South County Plan, destination resort remapping, a 2030 Transportation System Plan, and a South County Local Wetland Inventory. Plan 2030 continues to balance statewide requirements and local land use values.

**Figure 3 - Federal and Non-federal Lands Affected by ODFW Sage-Grouse Core and Low Density Habitat**



## Comprehensive Plan and Zoning

Local comprehensive plans govern land use regulations. On rural lands, growth is significantly restricted to protect farms, forests and natural resources. Deschutes County is required to plan in compliance with the Statewide Goals in order to promote orderly and efficient growth and protect resources important to Oregonians. The comprehensive Plan Map (Plan Map) illustrates the County's goals and policies. The Plan Map describes land use categories that provide for various types of conservation and development for the rural area during a 20-year planning period. Each Comprehensive Plan designation provides the land use framework for establishing zoning districts.<sup>7</sup> The Plan map designations are defined below.

*Agriculture:* Preserves and maintains agricultural lands for farm use.

*Airport Development:* Allows development compatible with airport uses while mitigating impacts on surrounding lands.

*Bend Urban Area Reserve:* Define lands outside of Bend's Urban Growth Boundary but within its General Plan area that are expected to be brought into its UGB.

*Destination Resort Eligibility Areas:* Shows lands eligible for siting a destination resort.

*Forest:* Conserves forest lands for multiple forest uses.

*Open Space and Conservation:* Protects natural and scenic open spaces, including areas with fragile, unusual or unique qualities.

*Redmond Urban Reserve Area:* Defines Redmond's additional 30-year growth boundary for lands expected to be brought into its UGB.

*Resort Community:* Defines rural areas with existing resort development that are not classified as a destination resort, based on OAR 660, Division 22.

*Rural Commercial:* Defines existing areas of isolated rural commercial development that do not fit under OAR 660, Division 22.

*Rural Community:* Defines rural areas with limited existing urban-style development, based on OAR 660, Division 22.

*Rural Industrial:* Defines existing areas of isolated rural industrial development that do not fit under OAR 660, Division 22.

*Rural Service Center:* Defines rural areas with minimal commercial development as well as some residential uses, based on OAR 660, Division 22.

*Surface Mining:* Balances protection of surface mines while minimizing adverse impacts on the natural environment.

*Urban Growth Boundaries:* Defines land that provides for urban development needs and identifies and separates urban and urbanizable land from rural land.

*Urban Unincorporated Community:* Defines rural areas with existing urban development, based on OAR 660, Division 22.

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<sup>7</sup> The Deschutes County zoning map exists in official replica form as an electronic map layer with the County's geographic information system.

Table 3 lists Deschutes County's Comprehensive Plan designations and related zoning districts in DCC, Titles 18, 19, 20, and 21. Some Plan designations apply county-wide, others only to designated areas of existing development.

**Table 3 - Deschutes County Comprehensive Plan and Zoning Designations<sup>8</sup>**

<b>Comprehensive Plan Designation</b>	<b>Associated Zoning Districts</b>
<b>County-wide designations</b>	
Agriculture	Title 18, Chapter 18.16 - Exclusive Farm Use Zones
Airport Development	Title 18, Chapters 18.76 and 18.80 - Airport Development and Airport Safety Combining Zones
Destination Resort Eligibility Areas	Title 18, Chapter 18.113 - Destination Resorts Zone
Forest	Title 18, Chapters 18.36 and 40 - Forest Use 1 and Forest Use 2 Zones
Open Space and Conservation	Title 18, Chapters 18.48 and 18.84 - Open Space and Conservation and Landscape Management Zones
Rural Residential Exception Area	Title 18, Chapter 18.60 and 18.332 - Rural Residential and Multiple Use Agriculture Zones
Surface Mining (SM)	Title 18, Chapters 18.52 and 18.56 - Surface Mining and Surface Mining Impact Area Combining Zones
<b>Area specific designations</b>	
Bend Urban Growth Area	Title 19, Bend Urban Growth Boundary Ordinance
Redmond Urban Growth Area	Title 20, Redmond Urban Area Zoning Ordinance
Redmond Urban Reserve Area (URA)	Chapter 18.24 - Redmond Urban Reserve Area Combining Zone
Resort Community	Chapter 18.110 - Resort Community Zone (Black Butte Ranch and Inn of the 7 <sup>th</sup> Mountain/Widgi Creek)
Rural Commercial	Chapter 18.74 - Rural Commercial Zone
Rural Community	Chapters 18.66 and 18.67 - Tumalo and Terrebonne Rural Community Zoning Districts
Rural Industrial	Chapter 18.100 - Rural Industrial Zone
Rural Service Center (RSC)	Chapter 18.65 - Rural Service Center, Unincorporated Community Zone (Alfalfa, Brothers, Hampton, Millican, Whistlestop, Wildhunt)
Sisters Urban Growth Area	Title 21, Sisters Urban Area Zoning Ordinance
Urban Unincorporated Community	Chapter 18.108 - Urban Unincorporated Community Zone, Sunriver

<sup>8</sup> Deschutes County Geographical Information System and Deschutes County Code

## Base Zoning within Sage-Grouse Designated Areas

To systematically assess Core Area and Low Density habitats in Deschutes County, staff developed a map series consisting of the following:

- An overview map of Deschutes County;
- An index map dividing the sage-grouse designated areas into 13 sub-areas; and
- Customized sub-area maps displaying federal and non-federal lands, base zoning, and combining zones.<sup>9</sup>

Table 4 summarizes in acres and parcels, County zoning within ODFW's Core Area and Low Density habitat on federal and non-federal land. It is important to note that some parcels overlap both habitat designations.

**Table 4 - Deschutes County Base Zoning within ODFW's Core and Low Density Habitat**

	Core Area		Low Density		Total Acres	Percent in Sage-Grouse Habitat
	Federal Lands	Non-federal Lands	Federal Lands	Non-federal lands		
Exclusive Farm Use, Horse-Ridge Subzone						
Acres	165,974	64,412	113,551	43,659	387,596	88%
Parcels	113	397	121	462		
Flood Plain Zone						
Acres	1,124	329	646	380	2,479	0.6%
Parcels	20	11	25	48		
Forest Use I Zone						
Acres	13,174	40	16,418	9,568	39,200	9%
Parcels	2	1	20	7		
Open Space and Conservation Zone						
Acres	2,202	1,735	2,278	0	6,215	1%
Parcels	13	12	4	0		
Rural Service Center, Commercial/Mixed Use District (Brothers and Millican)						
Acres	0	38	0	26	64	0.015%
Parcels	0	6	0	3		
Rural Service Center, Open Space District (Brothers and Millican)						
Acres	0	10	0	0	10	0.002%
Parcels	0	1	0	0		
Surface Mining						
Acres	0	167	53	2,203	2,423	0.6%
Parcels	0	17	2	26		
Total					437,987	100%

<sup>9</sup> Deschutes County Sage-Grouse Conservation Area Index Map. February 28, 2013.



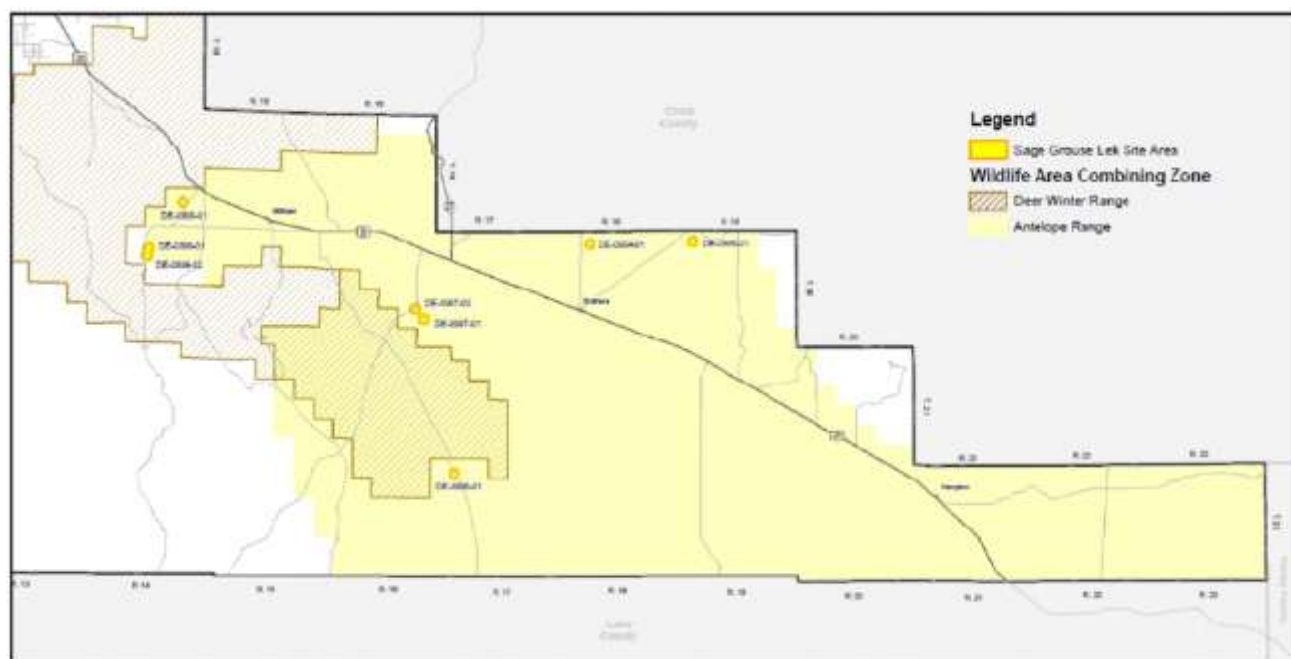
## Combining Zones within Sage-Grouse Designated Areas

In 1992, during Periodic Review, the County was required to review and update its Comprehensive Plan and implementing ordinances to address fish and wildlife resources. Deschutes County updated its inventories, policies and land use regulations within its Sensitive Bird and Mammal Habitat and Wildlife Area combining zones to protect sage-grouse, antelope, and deer winter ranges, among others.<sup>10</sup> These three habitat types encompass 96% (117,914 acres) of ODFW's Core Area and Low Density designations on non-federal lands. The remaining 4% (4,645 acres) is zoned Exclusive Farm Use. Table 5 summarizes in acres and parcels how the County's two combining zones intersect them. Figure 4 shows sage -grouse, antelope, and deer winter ranges recognized in its Comprehensive Plan specifically for the southeast portion of the county.

**Table 5 - Deschutes County Combining Zones within ODFW's Core and Low Density Habitat**

	Core Area		Low Density		Total
	Federal	Non-federal	Federal	Non-federal	
Sensitive Bird and Mammal Habitat Combining Zone (Sage-Grouse Leaks)					
Acres	12	139	862	225	1,238
Parcels	3	3	6	6	
Wildlife Area Combining Zone (North Paulina Antelope Range)					
Acres	181,535	62,155	89,837	39,360	372,887
Parcels	114	388	98	426	
Wildlife Area Combining Zone (North Paulina Deer Winter Range)					
Acres	32,376	992	59,767	22,914	116,049
Parcels	12	10	60	149	

**Figure 4 - Sensitive Bird and Mammal Habitat and Wildlife Area Combining Zones in Southeastern Deschutes County**



<sup>10</sup> Ordinance Nos. 92-040, 92-041, 92-042, 92-046, 93-043, 94-004, 94-005, and 94-021 pertain specifically to sage-grouse.



## Existing Habitat Conservation Measures

### Exclusive Farm Use: Horse-Ridge East Subzone

As demonstrated on Table 4, the Exclusive Farm Use (EFU) Horse Ridge Subzone intersects ODFW's Core Area and Low Density habitats. In 1992 a commercial farm study was completed as part of the Periodic Review process. The study concluded that irrigation is the controlling variable for defining farm lands in Deschutes County. Soil classifications improve when water is available. Seven new agricultural subzones were identified based on the factual data provided in the 1992 study. Minimum acreages were defined based on the typical number of irrigated acres used by commercial farms in that particular subzone with one exception. The Horse-Ridge East Subzone contained 20 ownership tracts with the median consisting of 2,100 acres. The report noted the following:

*"Since there is virtually no demand for land partitions or dwelling units in this subzone, it would achieve the overall objectives of the farmland plan to leave the minimum parcel size at the current 320-acre size."*<sup>11</sup>

DCC, Chapter 18.16 implements the EFU zone. There are 859 parcels, consisting of 108,071 acres of non-federal land in the Horse-Ridge East Subzone affected by sage-grouse habitat. Three hundred and ninety-seven EFU parcels are located in Core Area and 462 in Low Density. The minimum parcel size for a land division is 320 acres (DCC 18.16.065).

### Non-Farm Dwelling Policy

Creating new lots in the EFU Horse-Ridge Subzone as noted above is significantly limited by the 320 acre minimum parcel size. The potential for new dwellings in this subzone are predominantly non-farm dwellings on existing lots stemming from several pre1970 unplatted subdivisions sold to uninformed buyers. Approval for a non-farm dwelling usually turns on three key factors:

1. Legal Lot of Record. There are many small, unrecorded subdivisions in the EFU-Horse Ridge Subzone that are undeveloped. Some, but not all are legal lots of record based on historic deeds.
2. Access. Many parcels do not have legal access.
3. Wildlife Area Combining Zone. Most of these properties are subject to a Wildlife Area Combining Zone that limits new dwellings to within 300 feet of a historic road. Many do not adjoin one.

These requirements currently curtail non-farm dwelling development. Additionally, a 1992 finding by the Board of County Commissioners (Board) denying a conditional use permit has effectively prohibited new non-farm dwellings in this region. The Board found in Conditional Use Permit 92-169:

*"That the overall land use pattern of the area of review is resource lands, primarily as antelope range, sage grouse range and open grazing for cattle. For this reason, the Board finds that the proposed non-farm dwelling would constitute the introduction of an incompatible use to an area where now none exist. Approval of the proposed dwelling could serve to set a precedent for future non-farm dwellings and, thus, tip the balance from resource to nonresource use. Therefore, the Board finds that approval of this nonfarm dwelling would alter the stability of the overall land use pattern of the area by increasing density and causing compatibility problems, as well as set a precedent for similarly situated parcels."*<sup>12</sup>

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<sup>11</sup> Deschutes County Agricultural Resource Lands Project, Oregon State University Extension Service. June 1992. Page 51.

<sup>12</sup> Deschutes County Conditional Use Permit 92-169. Pages 6 and 7.

In 2007, a Hearings Officer summarized its effect by finding the County established a policy that any nonfarm dwelling application in the Millican area will not meet the approval criteria because such approval would force a significant change or significantly increase the cost of accepted farming practices in the area because of the precedent such an approval is perceived to set for the area.<sup>13</sup> To date, the Board has not issued a decision reversing it.

### **Flood Plain Zone**

Special flood hazard are identified by the Federal Insurance Administration in a scientific and engineering report titled, "Flood Insurance Study for Deschutes County, Oregon and Incorporated Areas." Its effective date is September 28, 2007. Within the Core Area and Low Density habitats, the Federal Emergency Management Agency (FEMA) has mapped floodplains associated with features such as portions of the Dry River, Fehrenbacker Reservoir, as well as approximately 20 other unnamed depressions. FEMA designates them as a Special Flood Hazard Area subject to inundation by a 1% annual chance of a flood. Deschutes County's Flood Plain Zone includes all areas designated as Special Flood Hazard Areas.<sup>14</sup> Structures in these locations require a conditional use permit. In this region, there are 59 parcels, consisting of 709 acres of non-federal land in the flood plain. Of these, 11 parcels are located in Core Area and 48 in Low Density.

### **Forest Use Zone**

In 1990, LCDC initiated the Forest Rule, OAR 660-006, defining allowed uses, siting conditions, and minimum lot sizes in forest zones. As part of Periodic Review, in 1992 Deschutes County adopted Ordinance No. 92-025 and revised its forest designations and associated regulations to Forest Use 1 (F1) and Forest Use 2 zones. The F1 zone intersects ODFW's Core Area and Low Density habitats. DCC, Chapter 18.36 implements the F1 zone. There are 8 parcels, consisting of 9,608 acres of non-federal land in the F1 zone within these designations. One F1 parcel is located in Core Area and 7 in Low Density. The minimum parcel size for a land division is 80 acres (DCC 18.36.090).

### **Open Space and Conservation Zone**

Deschutes County Year 2000 Comprehensive Plan (Plan 2000) contained a list of open spaces and areas of special concern, the majority of which were in federal or state control. As part of Periodic Review, in 1992 Deschutes adopted Ordinance No. 92-052 and updated this inventory. The Open Space and Conservation Zone (OSC) intersect ODFW's Core Area and Low Density habitats. DCC Chapter 18.48 implements the OSC zone. There are 12 parcels, consisting of 1,735 acres of non-federal land in the OSC zone within these designations. All twelve OSC parcels are located in Core Area. The minimum parcel size for a land division is 80 acres (DCC 18.48.040).

### **Sensitive Bird and Mammal Habitat Combining Zone**

In 1993, state biologists released, The Oregon Department of Fish and Wildlife Research Report, Sage Grouse in Oregon. It listed the population of adult sage -grouse in Deschutes County at 775. It also cited BLM estimates of 275 adult birds. ODFW conducted field work to obtain accurate inventory information on the precise location of sage-grouse leks. A total of 22 leks were identified, 14 on federal lands and 8 on non-federal lands.<sup>15</sup> They identified a radius of 1,320 feet (1/4 mile) around a lek as a sensitive habitat area where conflicting uses with the habitat or strutting birds should be regulated.<sup>16</sup> Based on these recommendations, Deschutes County adopted Ordinance No. 94-004 on June 17, 1994. This ordinance revised a Sensitive Bird and Mammal Habitat Combining Zone and inventory, first adopted in 1992, by containing inventories of sage-grouse leks on federal and non-federal land. The ordinance contained site specific economic, social, environmental and energy consequence analysis (ESEE) for the sage-grouse inventoried sites on non-federal land. According to ODFW:

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<sup>13</sup> CU-97-93. Page 14.

<sup>14</sup> DCC 19.96.020, Flood Plain Zone. Designated Areas.

<sup>15</sup> Deschutes County Ordinance No. 94-004. Exhibit 4. Pages 5 and 6.

<sup>16</sup> Ibid. Exhibit 4. Page 4

*Conflicts with sage grouse habitat are reduced by the limitations on uses in exclusive farm use and flood plain zone, by the 320 acre minimum lot size, and by the predominance of Bureau of Land Management land throughout their range. However, because of their sensitivity and importance, the sage grouse leks or strutting grounds need additional protection. Uses conflicting with the leks are activities or development which would disturb birds during the breeding season, disturb or occupy the ground in the lek area which could displace the birds, or destroy the vegetation within the sensitive habitat area the birds use for roosting and cover. These activities could include road construction activity, structural development and associated use of structures within 1,320 feet of the lek.*

For each of the 8 leks located on non-federal lands, the ESEE analysis discusses site characteristics, affected tax lot, zoning, area the birds use for display, and conflicting uses. Table 6 lists the conflicting uses for each lek site. Figure 5 shows the lek location and its 1,320 foot radius in relation to non-federal lands. There are 9 parcels, consisting of 364 acres of non-federal lands in sage-grouse habitat designated by Ordinance No. 94 -004. Of these, 3 parcels are located in Core Area and 6 in Low Density.

**Table 6 - Conflicting Uses with Goal 5 Sage-Grouse Lek Habitat Sites**

ODFW Site #	Zone	Permitted Use	Conditional Use
DE 0994-01 (Circle Reservoir)	Exclusive Farm Use	Farm Use Exploration for Minerals Some road Construction	Single Family Dwelling; Residential homes; Private Park, Campground; Personal Airstrip; Home Occupation; Process Forest Products; Solid Waste Disposal Site; Storage, Crushing, Processing of Aggregate; Church or School; Certain Road Projects; Bed and Breakfast
	Floodplain	Farm Use (no structure) Forest Management Open Space	Road or Bridge; Single Family Dwelling; Agricultural Accessory Buildings; Recreation Uses
DE 0995-01 (Merril Road) DE 0996-01 (Dickerson Well) DE 0997-01 (Moffit Ranch) DE 0997-02 (Moffit Ranch Satellite) DE 0998-01 (Evans Well) DE 0998-02 (Evans Well Satellite)	Exclusive Farm Use	Farm Use Exploration for Minerals Some road Construction	Single Family Dwelling; Residential homes; Private Park, Campground; Personal Airstrip; Home Occupation; Process Forest Products; Solid Waste Disposal Site; Storage, Crushing, Processing of Aggregate; Church or School; Certain Road Projects; Bed and Breakfast
DE 0999-01 (Millican Pit)	Exclusive Farm Use	Farm Use Exploration for Minerals Some road Construction	Single Family Dwelling; Residential homes; Private Park, Campground; Personal Airstrip; Home Occupation; Process Forest Products; Solid Waste Disposal Site; Storage, Crushing, Processing of Aggregate; Church or School; Certain Road Projects; Bed and Breakfast
	Floodplain	Farm Use (no structure) Forest Management Open Space	Road or Bridge; Single Family Dwelling; Agricultural Accessory Buildings; Recreation Uses
	Surface Mining	Subject to Site Plan Extraction of Minerals Storage of Minerals Screening, Washing, Structures Necessary for Extraction, Storage	Geothermal Exploration; Crushing Batching, Asphalt, Concrete

**Figure 5 - Deschutes County Goal 5 Sage-Grouse Range**

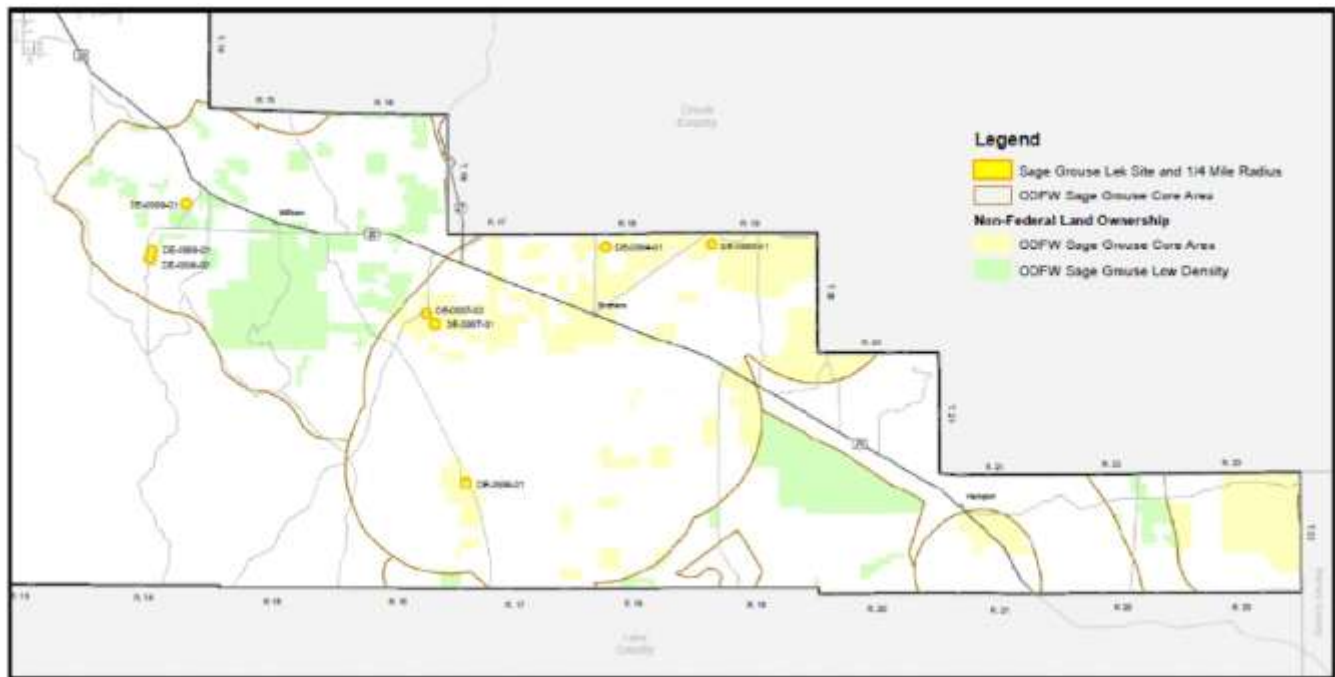


Table 7 describes Deschutes County’s restrictions for protecting leks and their sensitive habitat areas, while allowing limited conflicting uses. DCC Chapter 18.90, Sensitive Bird and Mammal Habitat Combining Zone implements the provisions in Table 7. It defines the Sensitive Habitat Area as 1,320 feet (DCC 18.90.20), site plan review requirements (DCC 18.90.050), and Site Plan Review Criteria (DCC 18.90.060).<sup>17</sup> Table 8 summarizes the code in more detail.

**Table 7 - Program to Meet Goal 5 Sage-Grouse Lek Habitat Sites**

ODFW Site #	Program
DE 0994-01 (Circle Reservoir) DE 0995-01 (Merril Road) DE 0996-01 (Dickerson Well) DE 0997-01 (Moffit Ranch) DE 0997-02 (Moffit Ranch Satellite)	<p>In order to protect both the lek and the sensitive habitat area and allow limited conflicting uses, the following restrictions shall apply:</p> <ol style="list-style-type: none"> <li>1. Site plan review under the Sensitive Bird and Mammal Habitat Combining Zone shall be required for all land use within the sensitive habitat area requiring a conditional use permit.</li> <li>2. Structural development within the quarter mile sensitive habitat area shall be prohibited because there are alternative locations for structures outside of the sensitive area.</li> <li>3. Partitions creating a residential building site within the sensitive habitat area shall be prohibited.</li> </ol> <p>*In addition, the BLM is working with private property owners to develop grazing management to minimize grazing conflict with the lek site.</p>
DE 0998-01 (Evans Well) DE 0998-02 (Evans Well Satellite)	<p>Includes the program elements listed above, plus:</p> <ol style="list-style-type: none"> <li>4. Existing structures may be repaired and maintained.</li> </ol>
DE 0999-01 (Millican Pit)	<p>Includes the program elements listed above, plus:</p> <ol style="list-style-type: none"> <li>5. The amended ESEE analysis for the surface mine (Site #494) identifies the lek as a conflicting use and requires consultation with ODFW prior to operation or expansion of the site to determine what specific requirements are necessary to protect the lek from surface mining conflicts.</li> </ol>

<sup>17</sup> DCC Chapter 18.90, Sensitive Bird and Mammal Habitat Combining Zone

**Table 8 - Summary of Sensitive Bird and Mammal Habitat Combining Zone for Sage-Grouse**

Code	Sage-Grouse Habitat Overview
DCC 18.90.020 (Definition of Sensitive Habitat Area)	<p>A. The sensitive habitat area is the area identified in the Deschutes County Comprehensive Plan Resource Element inventory and site specific ESEE for each sensitive bird or mammal site.</p> <p>1. Within a radius of 1,320 feet of a sage-grouse lek.</p>
DCC 18.90.030 (Limitations and Uses Permitted)	<p>B. When there is a conflict between the site specific ESSE analysis and the provisions of DCC Title 18 (County Zoning), the site-specific ESEE analysis shall control.</p>
DCC 18.90.040 (Applicability)	<p>Review under DCC 18.90 shall be triggered by the following proposals occurring within a sensitive habitat area, as defined in DCC 18.90.020:</p> <p>A. An application for a building permit for a new structure or addition to an existing structure;</p> <p>B. Land divisions creating new lots or parcels within the sensitive habitat area;</p> <p>C. An application for a conditional use permit; or</p> <p>D. An application for site plan approval.</p>
DCC 18.90.050 (Site Plan Review Requirement)	<p>A. For those proposals identified in DCC 18.90.040 to be sited within an inventoried sensitive habitat area, as defined under DCC 18.90.020, a site plan shall be prepared in accordance with the requirements of DCC 18.90.050.</p> <p>B. The County shall submit a copy of the site plan to the Oregon Department of Fish and Wildlife for comment. ODFW shall have 20 days from the date the site plan is mailed to submit written comments to the County.</p> <p>C. Based upon the record, and evaluation of the proposal based on the criteria in DCC 18.90.060, and conformance with the ESEE analysis for the site contained in the Resource Element of the Comprehensive Plan, the County shall approve or reject the site plan.</p>
DCC 18.90.060 (Site Plan Review Criteria)	<p>Approval of site plan shall be based on the following criteria:</p> <p>A. The site plan shall consider the biology of the identified sensitive species, nesting trees, critical nesting periods, roosting sites and buffer areas. Based on the biology of the species and the characteristics of the site, the site plan shall provide protection that will prevent destruction of the subject nesting site, lek, hibernation site or rookery and will, to a reasonable certainty, avoid causing the site to be abandoned.</p> <p>B. Development activities, including grading and fill, mining, construction, or activities generating noise or dust within the sensitive habitat area shall be prohibited during the nesting, strutting or hibernation season identified in the site specific ESEE analysis and decision for each habitat site. An exception to this standard may be made if ODFW determines in writing that the nest, lek or rookery is not active and will not become active during the proposed construction period or if the sensitive birds have fledged.</p> <p>C. New roads, driveways or public trails shall be located at the greatest distance possible from the nest, lek, rookery or hibernation site unless topographic or vegetation or structural features will provide greater visual and/or noise buffer.</p> <p>D. Existing vegetation or other landscape features which are located on the subject property and which obscure the view of the nest, rookery, lek or hibernation site from the proposed development, shall be preserved and maintained. A restrictive covenant to preserve vegetation shall be required when specified in the ESEE for the site.</p> <p>E. No partitions or subdivisions shall be permitted which would force location of a dwelling or other structure, not otherwise permitted by the site specific ESEE, within the designated sensitive habitat area.</p> <p>F. All exterior lighting, including security lighting shall be sited and shielded so that the light is directed downward and does not shine on the subject nest, rookery, lek or hibernation site.</p> <p>G. The site plan shall conform to the requirements of the ESEE decision for the sage- grouse habitat contained in the Resource Element of the Comprehensive plan.</p>

## Wildlife Area Combining Zone

During Periodic Review, Deschutes County worked with ODFW to obtain the most recent inventory information on wildlife resources in the county. In 1998, the Board adopted Ordinance Nos. 92-040, 92 -041, and 92-046. These ordinances updated the Wildlife Area Combining Zone, inventory and ESEE Analysis. Two wildlife resources, North Paulina antelope and deer winter ranges overlap the Core Area and Low Density habitats. There are 814 parcels, consisting of 101,515 acres of non-federal land in antelope range. Of these, 388 parcels are located in Core Area and 426 in Low Density. There are 159 parcels, consisting of 23,906 acres of non-federal land in deer winter range. Of these, 10 parcels are located in Core Area and 149 in Low Density. Table 9 summarizes the Wildlife Area Combining Zone requirements for both habitat types.<sup>18</sup>

**Table 9 - Summary of Wildlife Area Combining Zone for Antelope and Deer Winter Range**

Code	Overview
DCC 18.88.040 (Use Permitted Outright)	<ul style="list-style-type: none"> <li>A. All “permitted uses” require a conditional use permit.</li> <li>B. Following uses are not permitted in WA Zone designated as antelope and deer winter ranges: golf course, commercial dog kennel, church, school, bed and breakfast inn, dude ranch, playground recreational facility, timeshare, and veterinary clinic.</li> </ul>
DCC 18.88.050 (Dimensional Standards)	<ul style="list-style-type: none"> <li>A. In deer winter range, minimum lot size shall be 40 acres.</li> <li>B. In antelope range, minimum lot size shall be 320 acres.</li> </ul>
DCC 18.88.060 (Siting Standards)	<ul style="list-style-type: none"> <li>A. The footprint, including decks and porches, for new dwellings shall be located entirely within 300 feet of public roads, private roads or recorded easements for vehicular access existing as of August 5, 1992.</li> </ul>
DCC 18.88.070 (Fence Standards)	<ul style="list-style-type: none"> <li>A. New fences in the Wildlife Area Combining Zone shall be designed to permit wildlife passage. The following standards and guidelines shall apply unless an alternative fence design which provides equivalent wildlife is approved by the County after consultation with ODFW: <ul style="list-style-type: none"> <li>1. The distance between the ground and the bottom strand or board of the fence shall be at least 15 inches.</li> <li>2. The height of the fence shall not exceed 48 inches above ground level.</li> <li>3. Smooth wire and wooden fences that allow passage of wildlife are preferred. Woven wire fences are discouraged.</li> </ul> </li> </ul>

<sup>18</sup> DCC Chapter 18.88, Wildlife Area Combining Zone.



## Built Environment and Development Activity

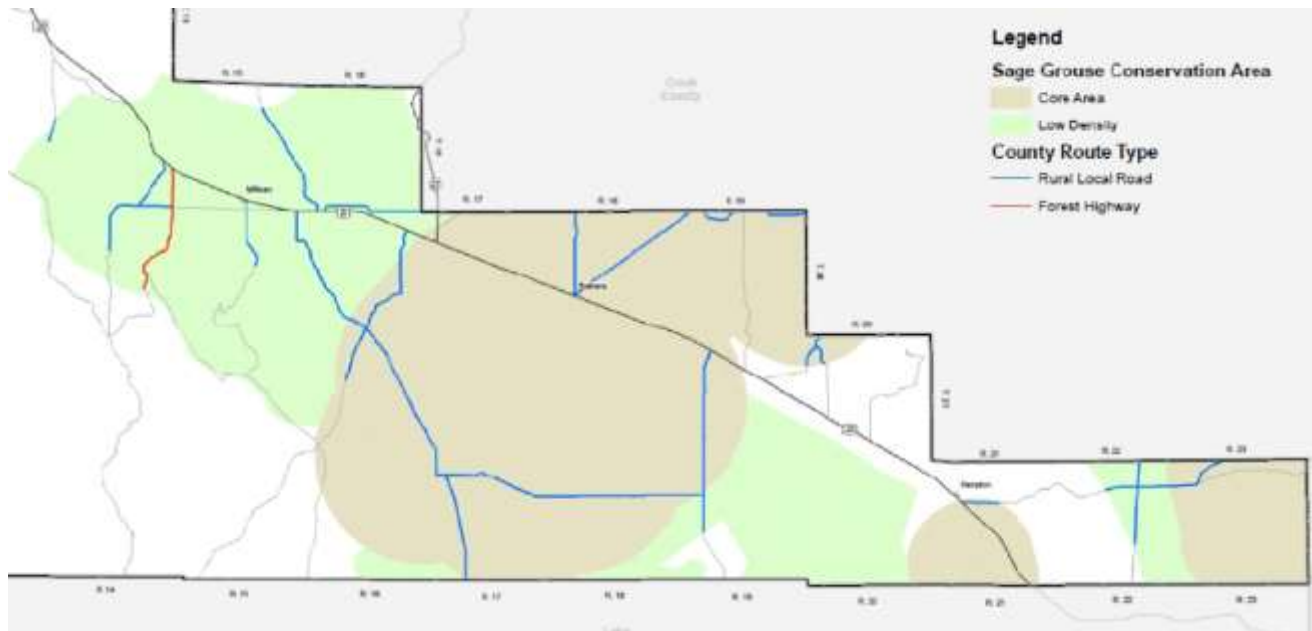
### Housing Units

According to 2010 Census, there are 42 housing units occupying 63 residents within the 122,575 acres of non-federal lands designated Core Area and Low Density habitat. Twenty-seven residents in 13 homes live in the Core Area. Thirty-six residents in 29 homes live in Low Density habitat.

### Roads and Utilities

Excluding U.S. 20, there are 19 county designated roads, spanning approximately 115 miles within the Core Area and Low Density habitat. Eighteen are classified as a Rural Local Road. The other is designated a Forest Highway. Figure 6 shows their location. Three Bonneville Power Administration overhead transmission lines transect the region as well. Deschutes County Sage-Grouse Conservation Area Index Maps show their location.<sup>19</sup> There are no regional gas lines (TransCanada) in the region.

**Figure 6 - County Roads in ODFW Sage-Grouse Core and Low Density Habitat**



### Surface Mining Sites

There are a total of 21 surface mines within Core Area and Low Density habitat. With the exception of two federal parcels affiliated with Sites 404 and 505, all the mines are located on non-federal lands. Table 10 summarizes them. Figure 7 shows their location.

<sup>19</sup> ODFW. Greater Sage-Grouse Conservation Assessment and strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat. April 22, 2011. Pages x and 34.

**Table 10 - Surface Mining Sites in Sage-Grouse Habitat**

Surface Mining Site (ESEE) #	Sage-Grouse Designation	Description
<b>Site No. 404:</b> Moon Mining Claim. Quantity is 193,000 cubic yards of sand and gravel and 800,000 to 2M cubic yards of rock; (Ord. 90-025 and 95-041)	Low Density	This site is part of a working ranch. Access to the site is along a dirt road which leaves the highway at the base of the Horse Ridge grade, 1 mile NE of the highway.
<b>Site No. 408:</b> RL Coats. Quantity is 3 million cubic yards of sand and gravel; (Ord. 90-025)	Low Density	Site is located north of Highway 20 near the intersection with Highway 27
<b>Site No. 413:</b> Deschutes County. Quantity is 30,000 cubic yards of sand and gravel; (Ord. 90-025) <b>Site No. 414:</b> Deschutes County. Part of same 35 acres of 413 (Ord. 90-025)	Low Density	These two sites are located partway up the base of Pine Mountain.
<b>Site No. 415:</b> Deschutes County. Quantity, 30,000 cubic yards of sand and gravel; (Ord. 90-025) <b>Site No. 416:</b> Deschutes County. Quantity, 30,000 cubic yards of sand and gravel; (Ord. 90-025) <b>Site No. 417:</b> Deschutes County. Quantity, 20,000 cubic yards of sand and gravel; (Ord. 90-025) <b>Site No. 418:</b> Deschutes County. Quantity, 30,000 cubic yards of sand and gravel; (Ord. 90-025)	Core Area	Sites Nos. 415, 416, 417, 418 and 419 run along the north side of Highway 20 East. Sites are located roughly 1.5 miles east of Route 27, the Prineville cutoff at mile marker 38.
<b>Site No. 419:</b> Deschutes County. Quantity, 30,000 cubic yards of sand and gravel; (Ord. 90-025)	Core Area	Sites Nos. 415, 416, 417, 418 and 419 run along the north side of Highway 20. Sites are located roughly 1.5 miles east of Route 27, the Prineville cutoff at mile marker 38.
<b>Site No. 496:</b> Taylor. Quantity is 1,800,000 cubic yards of sand and gravel; (Ord. 94-050, 94-051, 94-052)	Low Density	Site is located on the Old Bend-Burns Highway, roughly 2 miles west of the east end of the road, just to the east of Horse Ridge grade.
<b>Site No. 498:</b> State of Oregon. Quantity is 200,000 cubic yards of sand and gravel; (Ord. 90-025)	Low Density	Site is located approximately one mile south of Highway 20 and four miles west of Millican.
<b>Site No. 499:</b> Oregon State Highway. Quantity is 50,000 cubic yards of sand and gravel; (Ord. 90-025)	Low Density	Site is located approximately one-half mile west of Millican on both sides of the highway.
<b>Site No. 500:</b> Oregon State Highway. Quantity is 130,000 cubic yards of sand and gravel; (Ord. 90-025)	Low Density	Site is located approximately one mile of Millican on the north side of the highway.
<b>Site No. 501:</b> Deschutes County. Quantity is 50,000 cubic yards of sand and gravel; (Ord. 90-025)	Low Density	Site is located approximately one and one-half mile east of Millican.
<b>Site No. 503:</b> State Highway. Quantity is 200,000 cubic yards of sand and gravel; (Ord. 90-025)	Low Density	Site is located north of Highway 20, roughly 4.5 miles east of Millican.
<b>Site No. 505:</b> Oregon State Highway. Quantity is 275,000 cubic yards of sand and gravel; (Ord. 90-025) <b>Site No. 506:</b> State Highway. Quantity is 36,000 cubic yards of sand and gravel; (Ord. 90-025)	Low Density	These two sites are located near one another and are roughly 1.6 miles west of the Prineville cutoff on east Highway 20. Both sites are along the highway.
<b>Site No. 508:</b> Oregon State Highway. Quantity is 100,000 cubic yards of sand and gravel; (Ord. 90-025)	Core Area	Site is located approximately 2.5 miles north of the site, roughly 4 miles NW of Brothers.



**Table 10 - Surface Mining Sites in Sage-Grouse Habitat (continued)**

Surface Mining Site (ESEE) #	Sage-Grouse Designation	Description
<b>Site No. 515:</b> Oregon State Highway. Quantity is 100,000 cubic yards of sand and gravel; (Ord. 90-025)	Core Area	This site is a cinder pit which is located on Camp Creek Road, roughly 6 miles NE of Brothers.
<b>Site No. 533:</b> Oregon State Highway. Quantity is 1 Million cubic yards of sand and gravel; (Ord. 90-025)	Core Area	Site is least of Hampton, approximately 1 mile off the highway
<b>Site No. 600:</b> Robinson Site. Quantity is 3.8 million cubic yards of sand and gravel; (Ord. 96-076)	Low Density	Site 600 adjoins Site 496. It is located approximately one-half mile off of Highway 20 along the Old Bend-Burns Highway.

**Figure 7 - Deschutes County Goal 5 Surface Mines Affected by ODFW Sage-Grouse Core and Low Density Habitat**



## Land Use and Building Permit Activity (2003-2013)

Tables 11 and 12 list the land use planning and building permits issued from 2003 to 2013. As shown in Table 11, taking into account the projects requiring multiple land use permits, there were a total of seventeen site specific proposals.<sup>20</sup> Building permits followed a similar pattern. Deschutes County issued 26 permits. Only 12 pertained to non-federal lands, with 5 of those applying to a particular Oregon Department of Transportation (ODOT) site.

**Table 11 - Land Use Planning Permits (2003-2013)**

4 Administrative Determinations for a Farm Dwelling (AD-05-10, AD-06-6, AD-07-18, AD-12-10)
9 Conditional Use Permits CU-03-9: Farm Dwelling CU-03-19: Manufactured Home Park and RV Park <sup>21</sup> CU-07-43: Type 3 Home Occupation for Auto Sales CU-07-63: Private Shotgun Only Trap Shooting Facility CU-07-79: Paintball Facility CU-07-94: Hunting Preserve CU-09-12: Commercial Wind Farm Accessory Operations and Maintenance Building CU-11-26: Lot of Record Dwelling CU-11-27: Lot of Record Dwelling
1 Landscape Management Permit for an Accessory Building (LM-07-138)
2 Non-conforming Use Alternation Request to Replace a Total of Four Manufactured Homes at ODOT Maintenance Station in Brothers
1 Partition Creating Two Parcels Associated with CU-03-9 (MP-03-3)
6 Site Plan Permits SP-03-13: Addition to Existing Toilet Building at ODOT Rest Area  SP-03-14: Manufactured Home Park and RV Park Approved under CU- 03-19 SP 07-32: Private Shotgun Only Trap Shooting Facility Approved under CU-07-63 SP-08-6: Paintball Park Approved Under CU-07-79  SP-09-9: Wind Project Operations and Maintenance Building Approved under CU-09-12 SP-09-30: Expansion of Trap Club Approved Under CU-07-63
1 Variance Altering the Survey Requirement for Partition Approved under CU-03-9 (V-03-6)

<sup>20</sup> See CU-03-09, MP-03-3, V-03-6; CU-03-19 and SP-03-14; CU-07-63 and SP-07-32; CU-07-79 and SP-08-6; CU-09-12 and SP-09-9; CU-07-63 and SP-09-30.

<sup>21</sup> As of February 28, 2013, the manufactured home park and RV park have not been developed.

**Table 12 - Building Permits (2003-2013)**

Permittee	Building Permit	Multiple Permits Issued for One Site (Y/N)
<b>Bend Trap Club</b>	1. Club House 2. Range Building 3. Storage / Warming Hut	Yes
<b>Century Tel</b>	4. Foundation	No
<b>Federal Government (leases with ATT and Deschutes County)</b>	5. Cell Tower 6. Cell Tower Antennae Co-location 7. Co-locate on Existing Tower 8. Equipment Shelter 9. Foundation for Radio Equipment 10. Gold Label Equipment Shelter	Yes
<b>Federal Government (lease with Central Oregon Shooting Association)</b>	11. Pole Barn 12. Pole Barn	Yes
<b>Federal Government (leases with Pine Mountain Observatory and Technology Associates)</b>	13. Cell Tower Co-locate 14. Demolition of Existing Residence 15. Microwave Dish Installation 16. Replace Microwave Dish 17. Residence	Yes
<b>Homeowners</b>	18. Detached Storage 19. Ramada for Manufactured Home 20. Residence / Attached Garage 21. Residence / Garage	No
<b>State of Oregon</b>	22. Additional Bathrooms 23. Break Room 24. Detached Garage 25. Replacement Dwelling 26. Replacement Dwelling	Yes

## Impact Analysis

### Risk Assessment

In December 2011, Wyoming Governor Matt Mead and Secretary of the Interior Ken Salazar cohosted a meeting to address coordinated conservation of the Greater sage-grouse across its range. Ten states within the range of the sage-grouse were represented, as were the FS, NRCS, and the Department of the Interior and its BLM and FWS. The primary outcome of the meeting was the creation of a Sage-Grouse Task Force. The Task Force was directed to develop recommendations on how to best move forward with a coordinated, multi-state, range-wide effort to conserve the sage-grouse, including the identification of conservation objectives to ensure the long-term persistence of the species. The FWS was tasked by its Director with the development of conservation objectives for the sage-grouse. Recognizing that state wildlife agencies have management expertise and retain management authority for this species, the FWS created a Conservation Objectives Team (COT) of state and FWS representatives to accomplish this task.<sup>22</sup> The Sage-Grouse Conservation Objectives Draft Report, created by the COT identifies risk levels and priority areas for Central Oregon. Approximately 700,000 acres of habitat for the Central Oregon sage-grouse population has been identified as priority areas for conservation. The COT assigns the Central Oregon management zone a rating of C2/C3 (At Risk, Potential Risk).<sup>23</sup> Those risk levels pertaining to land use are summarized below in Table 13. According to the COT, this population faces a wide suite of threats.

<sup>22</sup> Sage-Grouse Conservation Objectives Draft Report, Submitted August 1, 2012. Page 1.

<sup>23</sup> Ibid., Page 16, C2 means the population is at risk because of very limited and/or declining numbers, range, and/or habitat, making sage-grouse in this area vulnerable to extirpation. C3 means the population is potentially at risk because of limited and/or declining numbers, range, and/or habitat, even though sage-grouse may be local abundant in some portion of the area.

**Table 13 - Central Oregon Sage-Grouse Risk Levels<sup>24</sup>**

Risk Levels (Land Use Related)	Rating
Agriculture Conversion Energy Infrastructure Recreation Urbanization	Localized, Substantial
Mining	Slight Threat

According to ODFW, there is also the potential for renewable energy developments (i.e., geo-thermal, solar, and wind) in most sage-grouse regions in Oregon.<sup>25</sup> Recently, the Oregon Department of Geology and Mineral Industries (DOGAMI) upgraded its online geothermal data with in-depth information about wells, hot springs and other resources across the state.<sup>26</sup> Data obtained from DOGAMI identifies 17 geothermal wells along the Brothers fault zone and Glass Butte within Core Area and Low Density habitat. Eleven wells are located on non-federal lands. Of those, 6 are in Core Area and 5 in Low Density.

### Findings

From a land use perspective, the COT's threat analysis as it pertains to Deschutes County does not take into account its land use planning program. The Periodic Review process required by DLCD from 1988-2003, positioned Deschutes County to adopt significant measures for the protection of farm lands and wildlife resources. The analysis contained in this report demonstrates that Deschutes County is effective in minimizing land use conflicts within Core Area and Low Density habitat on non-federal lands. A sparse residential population, coupled with farm and forest zoning and Sensitive Bird and Mammal Habitat and Wildlife Area combining zones have enabled non-federal lands to remain rural. Deschutes County's land use program does not pose a risk to sage-grouse populations. Presently, there are regulatory safeguards in place to prevent urbanization, recreation, renewable energy, and infrastructure projects on non-federal lands from disrupting sage-grouse habitat.

Deschutes County retains land use authority on 122,559 acres of non-federal lands designated Core Area and Low Density habitat. This constitutes 28% of the affected area designated by ODFW. A majority of the land is zoned for farm and forest uses. Eighty-eight percent (108,071 acres) of the area is zoned EFU and 8% (9,608 acres), F1. The remaining 6% is zoned open space, surface mining, or rural service center. Due to Periodic Review, Deschutes County also applies Sensitive Bird and Mammal Habitat and Wildlife combining zones on 96% (117,914 acres) of the area designated Core Area and Low Density. The remaining 4% (4,646 acres) is zoned EFU. Table 14 recaps Deschutes County's base and combining zones for this particular region as well as its non-farm dwelling policy. As demonstrated by the land use and building permit activity occurring from 2003 to 2013, Deschutes County's land use program, when applied cumulatively to the region, is effective in limiting rural development. Just 63 residents, living in 42 houses, occupy the area, amounting to a population density of one person for every 3 square miles. Land use and building permits issued from 2003 to 2013 reveal limited activity and disturbance on non-federal lands. Deschutes County issued a total of 24 land use permits for 17 properties and just 12 building permits during this ten-year period. Five of the building permits applied to a specific site managed by ODOT near Brothers. The most intensive building permits pertained to the Bend Trap Club for a clubhouse, range building, and storage/warming hut.

<sup>24</sup> Id. Pages 25 and 63.

<sup>25</sup> See note 1. Pages x and 66.

<sup>26</sup> Rachel Ross, "Oregon Doubles its Geothermal Info Online", The Bulletin, February 18, 2013.

**Table 14 - Recap of Deschutes County's Conservation Zoning**

<b>Base Zones</b>	<b>Description</b>
Exclusive Farm Use (EFU) Horse Ridge Subzone; and * Non-farm dwelling policy	<ul style="list-style-type: none"> <li>• 320 acre minimum parcel size</li> <li>• Policy: Limits non-farm dwellings, deeming them incompatible with resource lands, antelope range, sage-grouse range, and open grazing for cattle.</li> <li>• Non-farm dwellings required to take access within 300 feet of a historic road</li> </ul>
Forest Use Zone (FI)	<ul style="list-style-type: none"> <li>• 80 acre minimum parcel size</li> </ul>
Flood Plain Zone	<ul style="list-style-type: none"> <li>• New structures require conditional use permit in Special Flood Hazard Areas</li> </ul>
Open Space Zone	<ul style="list-style-type: none"> <li>• 80 acre minimum parcel size</li> </ul>
<b>Sensitive Bird and Mammal Combining Zone</b>	<b>Description</b>
Sage-Grouse Range	Activity proposed within ¼ mile of a designated sage-grouse lek requires site plan review, specific conditions noted in each ESEE analysis, and coordination with ODFW
<b>Wildlife Area Combining Zone</b>	<b>Description</b>
Antelope and Deer Winter Range	<p>All permitted uses require a conditional use permit.</p> <p>Minimum parcel size is 40 acres in deer winter range and 320 in antelope range</p> <p>Access for new dwellings limited to 300 feet of a historic road</p>

## Conclusion

Land use represents just one of the many tools that need to be in place to prevent sage-grouse from being listed on the federal ESA. As the Governor's Sage Con efforts develops and refines its "all lands, all threats" approach, it must be paired with BLM's resource management plan amendments and the efforts underway by the Oregon Cattlemen Association to develop a programmatic Candidate Conservation Agreement (CCA) for sage-grouse on BLM lands within the state. In 1992, Deschutes County recognized that conserving sage-grouse leks depends in part on BLM working with private property owners to develop grazing management plans. This collaborative partnership is more important than ever. The BLM controls 72% of Core Area and Low Density habitat in Deschutes County.

# Harney County

## Harney County Land Use Planning Program

### Land Use Planning History

Harney County's land use planning program, as it is practiced and recognized today in relation to the Oregon Statewide Planning Program, began in the early 1980s. Although the county adopted a comprehensive plan on June 26, 1980, the plan was not issued a Land Conservation and Development Commission (LCDC) compliance acknowledgement order until April 17, 1984, which was subsequently adopted by the county in October 10, 1984. Planning Staff refer to 1984 as the very first Harney County Comprehensive Plan (HCCP) and refer to this date as the beginning of the local program for purposes of administration. With exception to the incorporated cities of Burns and Hines, the HCCP provides the overarching development goals, policies, and related implementation measures for all lands within the county boundary. While the HCCP has been through a number of minor/major revisions, the plan itself is considered a living document in the sense that it will continually be updated, within the plan's specified framework, to reflect the needs and desires of the local community. In fact this is one objective of the plan. Amendments have been made to ensure the plan continues to reflect community interests. Yet, the basic intent of the plan has not changed significantly. <sup>27</sup> In 2009, the latest revision, the plan was modified to improve organization of the document with the aim to provide better administration and usability. The plan contains tools (not all contained within the singular document) that provide guidance for the local program. Examples include the plan's maps which graphically depict primary or underlying zoning/plan designations such as the Exclusive Farm and Range Use zone, or other zoning overlays such as Urban Growth Boundaries or the Airport Approach Vicinity Area. Another example can be found within the related and adopted inventories such as local aggregate mining sites, or even commercial energy development areas as listed under the Harney County Renewable Energy Plan. The HCCP is implemented primarily through specific regulations contained within the Harney County Zoning Ordinance. Other local plans and/or ordinances also contribute to implementing the goals and policies of the HCCP, such as the Harney County Transportation System Plan, Urban Growth Boundary agreements with the incorporated cities, etc...

## Comprehensive Plan and Zoning

### Overview

The majority of lands within Harney County (not inclusive of the incorporated cities) fall under a county zoning designation meant to protect and preserve resources for agriculture and forest use. These zoning designations are illustrated in the HCCP maps along with other specific zoning designations aimed at providing for area-specific appropriate development. As an example, chapter 3 of the HCCP defines the county's agriculture designation, related goals, and policies. Policy 3 is implemented by the creation of the Exclusive Farm and Range Use Zoning underlying zoning district. Table 1 below lists the HCCP land use and zoning designations as found and described within the plan.

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<sup>27</sup> Source Document 1. Harney County Comprehensive Plan, October 2009.

**Table 1 – Harney County Comprehensive Plan and Zoning Designations**

<b>Plan Designation</b>	<b>Zoning Districts (Harney County Zoning Ord - HCZO)</b>
Agriculture	HCZO, 3.010/3.020, Exclusive Farm and Range Use Zones: EFRU-1, EFRU-2
Airport Development	HCZO, 3.070, Airport Development Zone: AD-1
Commercial & Industrial	HCZO, 3.130, Commercial & Industrial Zone: C-1
Forest Use	HCZO, 3.0060, Forest Use Zone: FU
Rural Community	HCZO, 3.120.3,.5, Rural Community Zone (Crane, Drewsey), RC HCZO, 3.120.2,.8,.9,.10,.11, Rural Commercial Zone (Buchanan, Lawen, Princeton, Riley, Wagontire), RCA HCZO, 3.120.1,.4,.6,.7, Rural Service Center (Andrews, Diamond, Fields, Frenchglen), RSC
Rural Recreational	HCZO, 3.110, Rural Recreational, R-2
Rural Residential	HCZO, 3.090, Rural Residential, R-1
<b>Zoning Map Overlays</b>	<b>Zoning Districts (Harney County Zoning Ord - HCZO)</b>
Airport Vicinity	HCZO, 3.080, Airport Overlay Zone, AVO
Flood Hazard	HCZO, 4.080, HCCP Map No. 2 (*FEMA Flood mapping)
Mineral & Aggregate Resource	HCZO, 3.150, Mineral & Aggregate Resource Overlay Zone, MARO (*Applied to proposed aggregate sites)
Urban Growth Boundaries	HCCP Map No. 11 (*UGB agreement contained in separate local ord. Revisions)

### **Zoning and Overlays within Sage-Grouse Designated Areas**

To assess Core Area and Low Density habitats in Harney County, staff developed 3 maps dividing the county into 30 sub areas. Each map depicts the following:

- **Development:** Existing homes, land use permits, and building permits within habitat areas
- **Ownership:** Land ownership, rural communities, and Core/Low Density habitat areas
- **Zoning:** County base zoning districts and DOGAMI surface mining permit locations

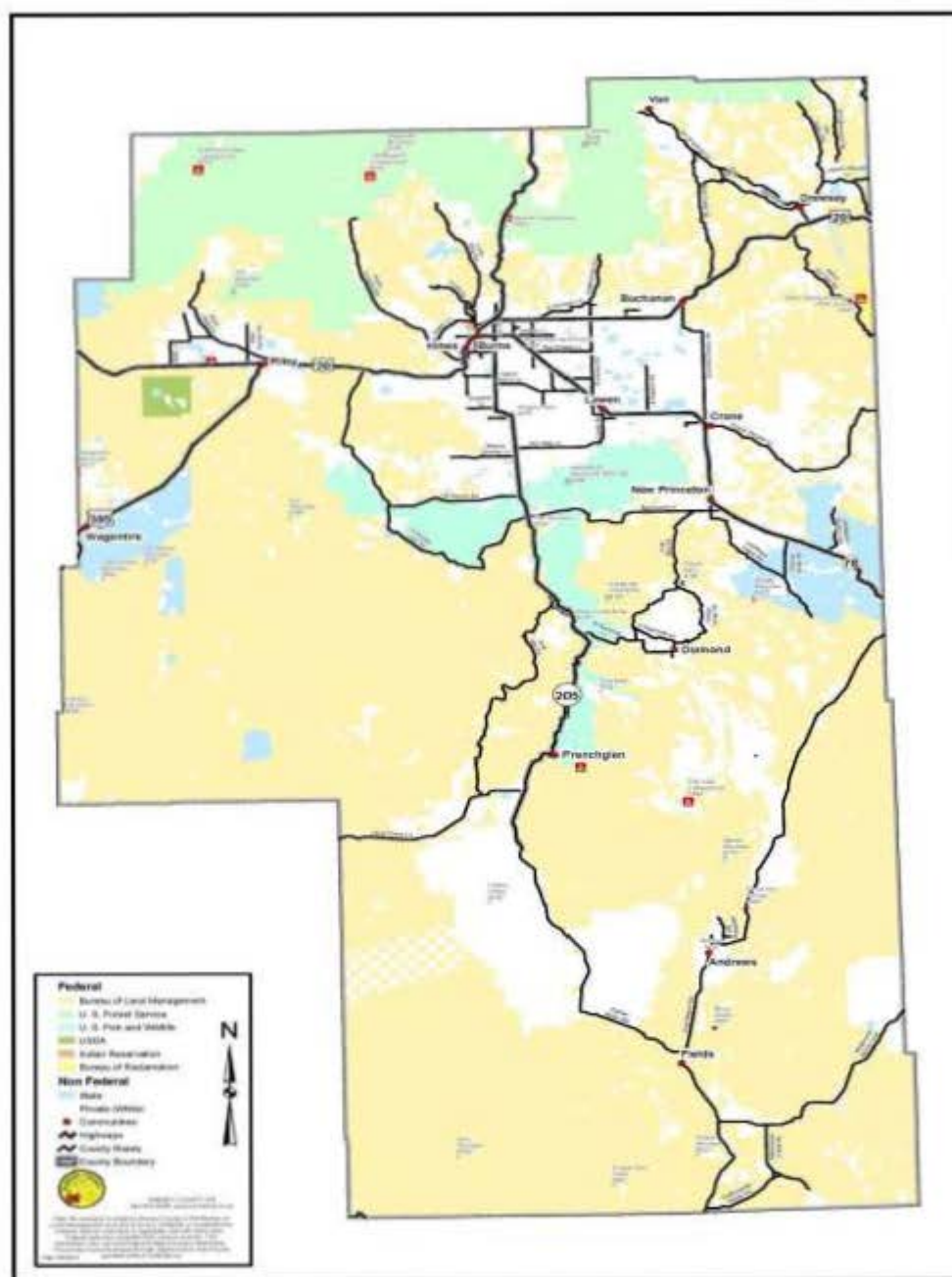
Table 2 summarizes in acres and parcels, County zoning within ODFW’s Core Area and Low Density habitat on federal and non-federal (private) lands. It should be noted, as in other county reports, that some parcels overlap both habitat designations and gaps between habitat designations in the GIS layers exist. So, for the purposes of this report these instances have been reported conservatively as Core Area.

**Table 2 – Harney County Zoning Designations within ODFW's Core and Low Density Habitat**

	Core Area		Low Density		Total Acres	Percent in Sage-Grouse Habitat
	Federal Lands	Non-federal lands	Federal Lands	Non-federal lands		
Exclusive Farm and Range Use , EFRU-1						
Acres	1,372,702	353,041	1,556,706	415,148	3,697,597	67.0%
Parcels	271	928	236	1,046		
Exclusive Farm and Range Use - 2, EFRU-2						
Acres	0	0	16,587	12,886	29,474	5.9%
Parcels	0	0	5	45		
Forest Use, FU Zone						
Acres	30,519	890	7,984	0	39,394	7.4%
Parcels	19	13	8	0		
Commercial & Industrial, C-1						
Acres	0	0	0	0	0	0.0%
Parcels	0	0	0	0		
Rural Community (RC), Rural Commercial (RCA), Rural Service Center (RSC)						
Acres	0	0.2	0	133	133	25.0%
Parcels	0	RCA –Drewsey(1)	0	RSC-Fields(11) RSC-French Glen(1)		
Rural Recreational, R-2						
Acres	0	0	0	0	0	0.0%
Parcels	0	0	0	0		
Rural Residential, R-1						
Acres	0	0	0	8	8	0.6%
Parcels	0	0	0	3		
Special Flood Hazard Areas (100-Year Flooding)						
Acres	9,557		11,359		20,916	6.0%
Parcels						



Figure I – Harney County Ownership

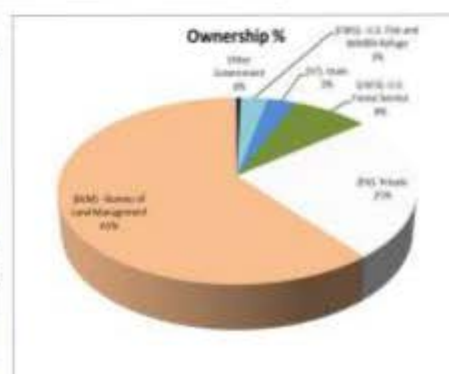


OWNERSHIP	ACRES	SQ MILES
Other Government	25,737.28	40.21
(FWS)- U.S. Fish and Wildlife Refuge	188,069.68	293.86
(ST)- State	197,815.83	309.09
(USFS)- U.S. Forest Service	523,043.64	817.26
(PV)- Private	1,630,185.03	2,547.16
(BLM) - Bureau of Land Management	3,968,469.28	6,200.73
<b>Total</b>	<b>6,533,320.74</b>	<b>10,208.31</b>

Federal

Non-Federal

\* Data Used: BLM County Boundry & BLM Ownership



## Existing Habitat Conservation Measures and Zoning Designations

### **“Goal 5” and Wildlife Mapping and Protection within Habitat Areas**

When the HCCP was first acknowledged in 1984 official maps were made a part of the document that outlined or depicted particular areas of sensitivity or importance. In 2009 Harney County organizationally formatted its plan to correspond with the related Oregon State Planning Goals. An example of this is within Chapter 5 of the HCCP. It has goals and policies relating to the county’s natural resources. The county has these resources inventoried in either tabular or mapping form. In many county goal 5 inventories, a protection element or program is established for each singular site or region. Harney County’s wildlife inventory is composed of a broad group listing of resource site name/description (such as “big game winter range” or “Upland Game Birds”) and a corresponding area listed within the Plan map depicting coverage ranges.

Harney County’s policy is to provide notice and an opportunity to comment on land use applications to ODFW. In practice, County Planning Staff will perform site plan reviews of proposed developments within ODFW habitat and critical species areas. If the development intersects one of these mapped areas, the local ODFW office will be provided an adjacent landowner notification of the development proposal from Staff.

This policy is aimed at providing ODFW an opportunity to aid the county in review of a land use proposal and landowner’s development objectives by commenting and/or producing recommendations on how to either avoid or mitigate for impacts to big game winter range and/or other sensitive species habitat areas. The conditional use provisions of Article 6 of the HCZO provide the county opportunities to impose conditions of approval which can directly execute the recommendations from ODFW.

To that end, Harney County has regularly provided notice to or communicated with ODFW relating to proposed developments within areas of either big game habitat/winter range, or sensitive species habitat.

### **Flood Plain Zone Overlay**

Special flood hazard areas are identified by the Federal Insurance Administration in a scientific and engineering reported titled, “Flood Insurance Study for Harney County, Oregon unincorporated Areas.” Its effective date is March 28, 1984. Within the Core Area and Low Density habitats, the Federal Emergency Management Agency (FEMA) has mapped floodplains. FEMA designated these floodplains as areas of Special Flood Hazard (SFHA) subject to inundation by a 1% annual chance of flood. Harney County’s floodplain SFHA or “A” zones are immense covering roughly 351,385 acres of land. These and other areas of the county are generally flat with little to no drainage. Harney County actively discourages new development in the SFHA. 9,557 acres of the SFHA is located in Core Area, and 11,359 acres in Low Density.

### **EFRU-1 & EFRU-2 Zones**

The lands designated for agriculture use within Harney County are zoned Exclusive Farm and Range Use (EFRU-1 & EFRU-2). These designations are nearly identical, with the only difference being the minimum size parcel that can partitioned or created (EFRU-1 = 160 minimum & EFRU-2 = 80 minimum). Harney County applied this designation to both private and federally-managed lands within its boundary lines. As a matter of perspective, Harney County has more lands designated EFRU (6,008,914 acres or roughly 9,389 square miles) than Vermont, New Hampshire, Massachusetts, New Jersey, Hawaii, Connecticut, Delaware, and Rhode Island have total land area within their State borders.<sup>28</sup> In fact 84.25% of the county is zoned EFRU, 1,827,907 acres of that non-federal.

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<sup>28</sup> U.S. Geological Survey Weblink: [http://nationalatlas.gov/articles/mapping/a\\_general.html](http://nationalatlas.gov/articles/mapping/a_general.html)

The EFRU zoning designations follow closely to Oregon Statutory standards and related Oregon Administrative Rules, which are guided by the principles established under 3rd goal of the Oregon Statewide Planning system (protection of agriculture lands). In Harney County the most prevalent development type aside from agriculture is housing related to farm use (see Table 3). Two types of housing are allowed in the zone: Dwellings on parcels 160 acres in size or larger (most common), or dwellings provided to families that have owned specific tracts of land prior to 1/1/1985. Only one dwelling per tract is permitted through these provisions. Farm-related dwellings may also be allowed on tracts below 160 acres in size if the corresponding farm operation on the tract has produced a certain amount of revenue over time (uncommon in Harney County). Otherwise, dwellings are conditionally permitted on tracts of land smaller than 160 acres, however they move through a more stringent set of standards and must be found to not inhibit the expansion of existing farming operations in the area. Newly created or adjusted property boundaries must conform to a minimum dimension or lot size of either 160 or 80 acres (EFRU-1, EFRU-2 respectively). This standard has lessened the possibility for high dwelling density or urban sprawl based on the limited opportunities for dwelling per ownership tract.

## **Forest Use Zone**

The forest land in Harney County, which is zoned FU-80, is in the northern part of Harney County. Of the total 409,290 acres (or 93%), 382,770 acres of land is in federal ownership. The remaining 7 % is scattered throughout the forest zone. The minimum parcel size in the FU-80 zone is 80 acres, however very few land divisions have occurred since the early 1980's. There are 3 possible ways to permit a single-family dwelling in the FU-80 zone: (A) Large Tract (240 contiguous acres or 320 throughout the county), (B) dwellings provided to families that have owned specific tracts of land prior to 1/1/1985, and (C) on a tract of land that is capable of producing a certain range of cubic feet per acre of wood fiber, etc. In addition, new dwellings proposed within the Forest Use Zone must also comply with strict siting standards relating to access from public roads, water supply needs, and meet stocking requirements of the Department of Forestry.

The FU-80 zone is the most restrictive zoning district for new developments. Due to a low amount of privately-owned land and large lot size requirement for new dwellings, very few new dwelling approvals are located within the Forest Use Zone. Many of the privately-owned lands in this area are around the edges of the Forest Service boundary. In fact only two (2) of the approvals over last decade in Sage Grouse habitat are in the FU-80 zone. (\*see Table 4, files: 11-17, 11-18))

## **Built Environment and Development Activity**

### **Housing Units**

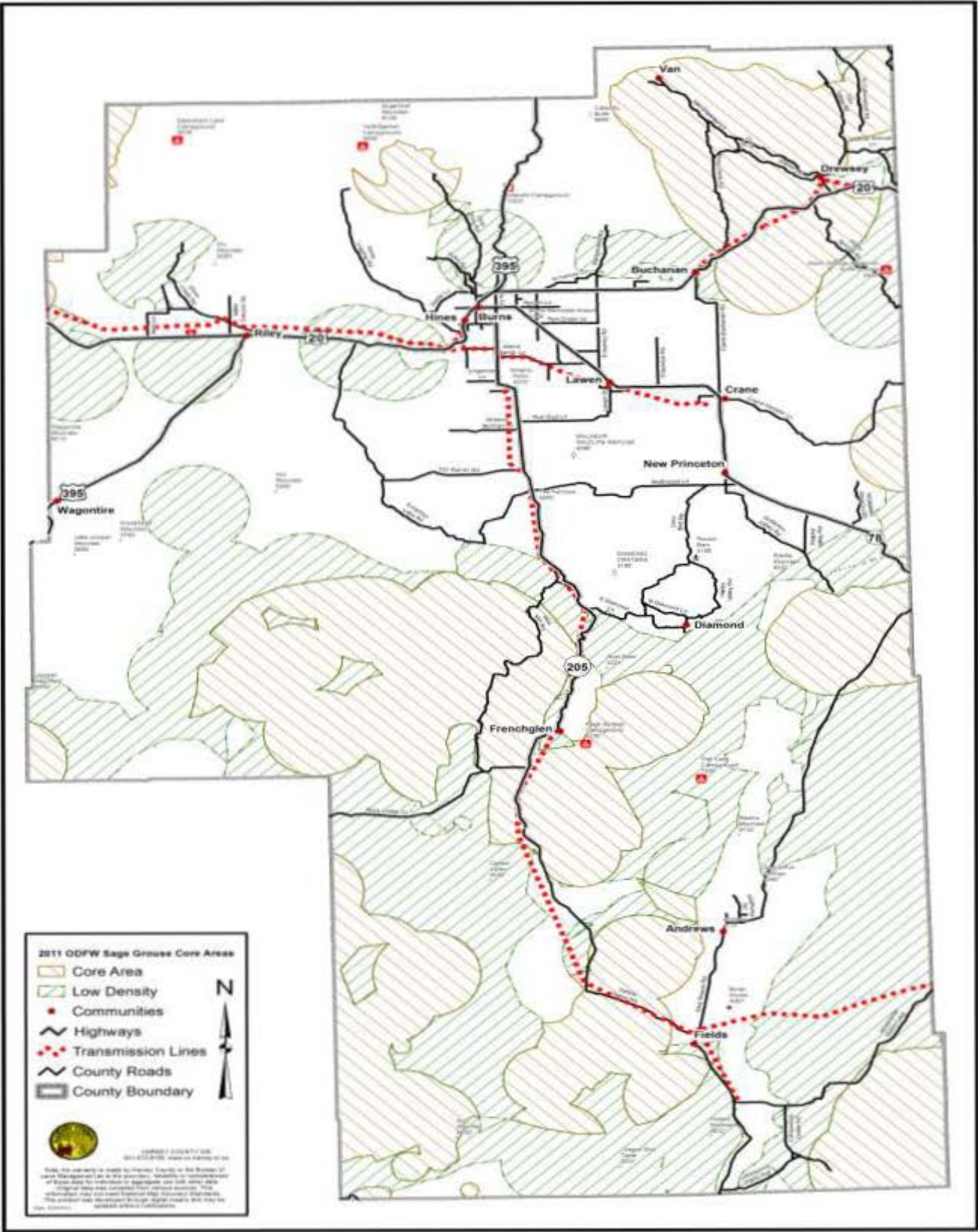
According to local addressing records there are a total 282 housing units or single-family dwellings within 782,107 acres of non-federal lands designated Core Area and Low Density habitat. 134 of those dwellings are within Core Area, 132 are within Low Density, 11 are within the Paiute Indian Reservation (Low Density), and 5 are within the Rural Community of Fields (Low Density).

### **Roads and Utilities**

Excluding U.S. HWY 20, U.S. HWY 395, State Highway 78, and State Highway 205, there are 121 county designated roads spanning approximately 781 miles within Harney County. 174 and 158 miles of those roads are in Core Area and Low Density habitat respectively. While minor alterations have been made to existing roads, no new county roads have been created from 2003-2013. In fact, no new local roads have been constructed since the loss of timber receipts. Figure 1 shows their locations. Bonneville Power Administration, Idaho Power, and the Harney County Electrical Cooperative maintain overhead transmission lines totaling approximately 246 miles through the region. 105 of those miles are within sage grouse habitat. There are no gas utility lines within Harney County. These general locations are also depicted in figure 1.



Figure 2 – County Roads and Transmission Lines



## Surface Mining Sites

There are a total of 16 surface mines within Core Area and Low Density habitat on non-federal lands, 13 are closed and 3 active/permited.<sup>29</sup> DOGAMI GIS (Oregon Department of Geology and Mineral Industries) reports that 387.1 acres of land are disturbed by surface mines in Harney County, and of those sites, 3.4 acres are disturbed within Core Area and 12.8 acres are disturbed in Low Density habitat.<sup>30</sup> Harney County has not permitted a surface mine within Core Area or Low Density habitat from 2003 – 2013. Table 3 lists the 3 surface mines within ODFW sage grouse habitat that are active or permitted. Figure 3 shows the locations of these mine throughout the entire county and also shows an example how the bulk of the mines are located close to the two incorporated towns of Burns and Hines.

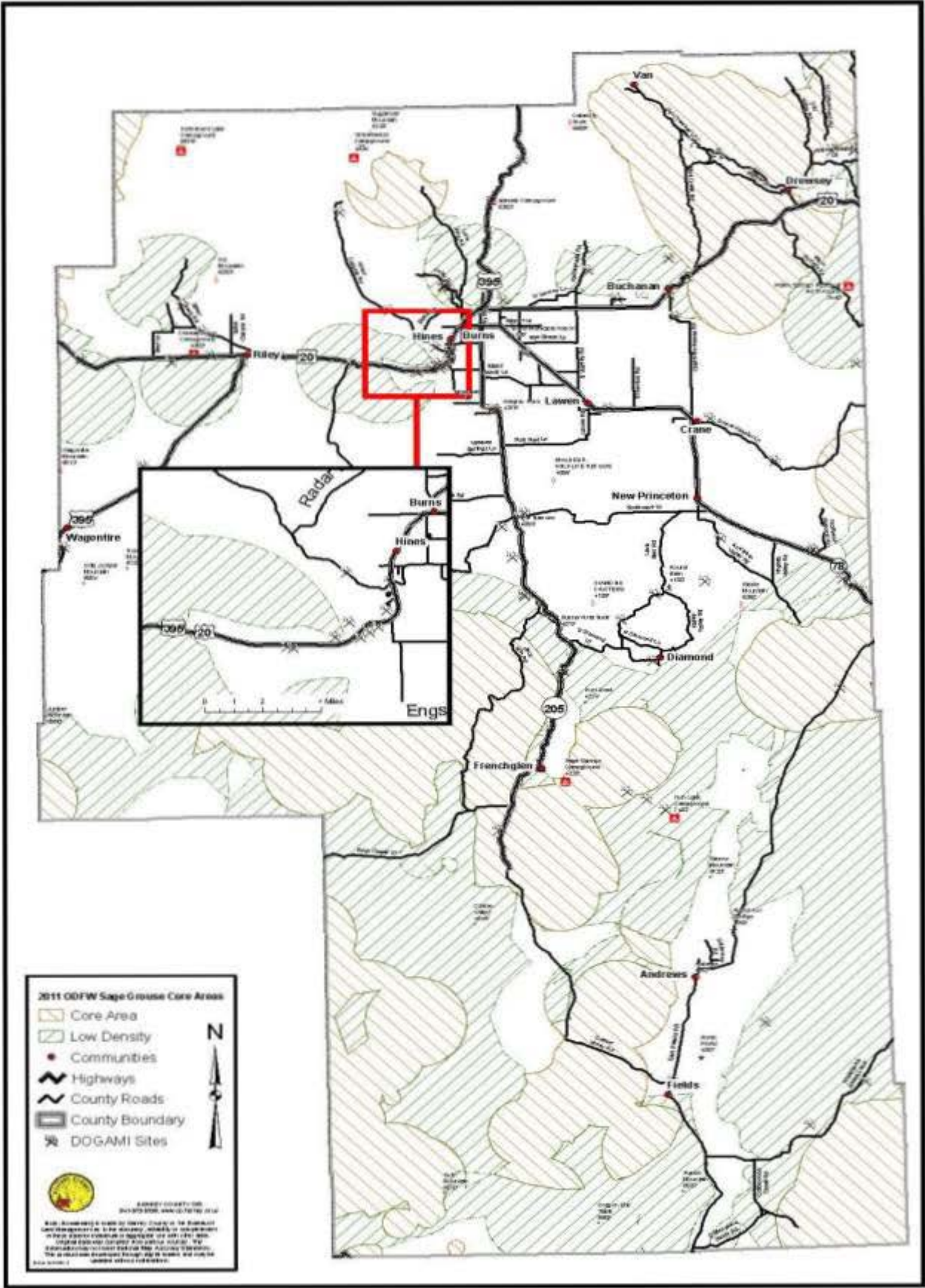
**Table 3 – DOGAMI Permits within Sage Grouse Habitat**

<b>Surface Mining Site (DOGAMI Permit # &amp; Permittee) (Non-Federal)</b>	<b>Habitat Designation</b>	<b>Status</b>
I3-0085 - Hammond Ranches, Inc.	Low Density	Permitted
I3-0057 - ODOT LaGrande	Low Density	Permitted
I3-0041 - ODOT LaGrande	Low Density	Permitted

<sup>29</sup> DOGAMI Online Permit Inventory Weblink: <http://www.oregongeology.org/mlrr/surfacemining-report.htm>

<sup>30</sup> DOGAMI GIS, Ed Buchner - Analysis Results for Harney County 4/17/2013

Figure 3 – Mapped DOGAMI Permits for Surface Mines within Sage Grouse Habitat on Non-Federal Lands





## Land Use and Building Permit Activity (2003-2013)

Tables 4 and 5 list the land use planning and building permits issued from 2003 to 2013 within Core Area and Low Density habitat. As shown in Table 4, there were a total of 36 approved land use permits for development. 13 of the approvals were within Core Area, 20 within Low Density, and 2 with both Core Area and Low Density. Table 5 shows that 27 building permits have been taken out as well. Of that number, 16 are structural and 11 are manufactured dwelling placements. 4 of the structural permits are on federally-managed lands for either new or existing cell towers, or remodeling an existing rest area. 6 of the 11 manufactured dwelling permits were for replacement of existing homes (structures).

**Table 4 – Land Use Planning Permits (2003-2013)**

### **30 Administrative Decisions:**

*Farm Dwellings - FD (160 acre or greater), Accessory Farm Dwelling - AFD, Lot of Record Dwelling - LORD*  
-> (Blue = No dwelling has been developed on the subject parcel)

03-10: (FD - 12.6 miles west of Drewsey)  
03-29: (AFD - 8.9 miles north west of Riley)  
03-32: (FD - 10.7 miles south west of French Glen)  
03-33: (FD - 11.8 miles south west of French Glen)  
03-36: (FD - 6 miles south west of French Glen)  
03-45: (FD - 3.7 miles north west of Drewsey)  
04-11: (AFD - 9.8 miles north east of Burns)  
05-23: (AFD - 18 miles south of Fields (near Denio, NV))  
06-23\*: (LORD - 7.7 miles north of Andrews)  
06-24\*: (LORD - 7.7 miles north of Andrews)  
06-51\*: (LORD - 20.8 miles south east of Princeton)  
07-01: (AFD - 13.2 miles south east of Princeton)  
07-25: (FD - 4.8 miles south west of Hines)  
07-69: (AFD - 4.9 miles north west of Drewsey)

07-76: (LORD - 5 miles south west of Andrews)  
07-83\*: (LORD - 9.6 miles south east of French Glen)  
07-84\*: (LORD - 10.9 miles south east of French Glen)  
08-01\*: (LORD - 8 miles east of Diamond)  
08-02: (AFD - 9.1 miles south east of French Glen)  
08-43\*: (LORD - 5 miles north west of Andrews)  
08-47: (FD - 7.5 miles south north/north east of Burns)  
08-55: (AFD - 2.4 miles north west of Drewsey)  
10-22: (FD - 3.3 miles north of Burns)  
10-24: (FD - 0.8 miles south of Diamond)  
10-25: (FD - 17.7 miles south east of Fields)  
10-29\*: (LORD - 14.7 miles east/south east of French Glen)  
11-06\*: (FD - 14.2 miles east of French Glen)  
11-17\*: (LORD - Forest Use Zone, 27 miles north/north east of Burns)  
11-18\*: (LORD - Forest Use Zone, 27 miles north/north east of Burns )  
12-04: (AFD - .5 Miles from Drewsey)

**Table 4 (continued) – Land Use Planning Permits (2003-2013)**

<b>6 Conditional Use Permits:</b>
03-01: Non-Farm Dwelling (.45 Miles from Drewsey Rural Community)
05-36: Single-Wide MFH (Within Fields Rural Commercial Area)
07-04: Non-Farm Dwelling (North of USHWY 20, 2.4 Miles west from Hines)
07-13: Partition & Non-Farm Dwelling (5 Miles from Drewsey Rural Community)
07-56: Partition & Non-Farm Dwelling (North of USHWY 20, 4.5 Miles west from Hines)
08-35: Non-Farm Dwelling (1.5 miles SW of Fields Rural Service Center )

**Table 5 – Building Permits (2003-2013)**

<b>Permit Type</b>	<b>Permit Number</b>	<b>Habitat Designation</b>	<b>Permittee</b>	<b>Work – Private/Federal</b>
<b>Structural</b>	BLD03-00094	Core Area	Private Landowner	Pole Barn Storage Building, Private
	BLD04-00040	Core Area	Private Landowner	New single Family Dwelling, Private
	BLD04-00227	Low Density	Utility	Replacing <b>existing</b> \foundation Only (MFH), Fields Service Yard (Home Site 1), Private
	BLD07-00132	Low Density	Private Landowner	Home Addition ( <b>existing</b> ), Private
	BLD08-00049	Low Density	Private Landowner	New single Family Dwelling, Private
	BLD10-00179	Low Density	Private Landowner	New single Family Dwelling, Private
	ST11-HAR0017	Core Area	Private Landowner	Home Addition ( <b>existing</b> ), Private
	ST11-HAR0032	Core Area	American Tower Corp.	New Cell Tower, Federal Lands
	ST11-HAR0038	Core Area	Verizon	Updates to <b>existing</b> Cell Tower, Federal Lands
	ST12-HAR0041	Low Density	BLM	Replacing restrooms at Sage Hen Rest Area ( <b>existing</b> ), Federal Lands
	ST12-HAR0056	Core Area	Private Landowner	New Garage, Private
	ST12-HAR0057	Core Area	Private Landowner	New single Family Dwelling, Private
	ST12-HAR0059	Low Density	BLM/Verizon	New antennas mounted to <b>existing</b> cell tower, Federal Lands
<b>Manufactured Home</b>	MA11-HAR0014	Core Area	Private Landowner	New MFH Placement, Private
	MA12-HAR0001	Low Density	Private Landowner	Replacing <b>existing</b> MFH, Private
	MA12-HAR0010	Core Area	Private Landowner	Replacing <b>existing</b> MFH, Private (ST12-HAR0042 – Daylight Basement Portion)
	MFH03-00043	Low Density	Private Landowner	Replacing <b>existing</b> MFH, Private
	MFH05-00012	Low Density	Private Landowner	Replacing <b>existing</b> MFH (Fields Rural Community), Private (BLD05-00037 – Stem Wall)
	MFH05-00038	Low Density	Private Landowner	Replacing <b>existing</b> MFH (Field Rural Community), Private
	MFH05-00057	Low Density	Private Landowner	New MFH (Fields Rural Community), Private
	MFH06-00012	Low Density	Utility	Replacing, <b>existing</b> MFH (Placement Fields service yard *Home Site 2), Private
	MFH06-00035	Core Area	Private Landowner	New MFH Placement, Private
	MFH07-0053	Core Area	Private Landowner	New MFH Placement, Private (BLD07-00254– Stem Wall)
	MFH09-00030	Low Density	Private Landowner	New MFH Placement, Private



## Impact Analysis

### Risk Assessment

According to the COT (Conservation Objectives Team) report, Harney County falls within an area designated as Management Zone V (5), the Northern Great Basin, or more pointedly the Western Great Basin Subarea (31). According to the report, this area contains one of the few remaining large intact expanses of sagebrush habitat, with most of the sagebrush-dominated landscape in Oregon. Oregon's portion of the (bird) population has some of the best habitat and highest sage-grouse densities in the state, including Hart Mountain National Antelope Refuge and Trout Creek Mountains, though habitat in the Trout Creeks was likely compromised by 2012 fires. The delineation of the Western Great Basin population doesn't correspond well to any existing assessment for Oregon, but does include almost all of the Lakeview administrative unit, as well as portions of the Burns and Vale administrative units. Invasive weeds, fire, and juniper encroachment (particularly on the western edge) represent the greatest risks to this population. Renewable energy development (wind and geothermal) and wild horses have been identified as a threat to sage-grouse habitat in portions of Oregon's (e.g., Steens, Dry Valley/Jack Mountain Action Areas) Western Great Basin population. 31 Table 6 depicts habitat fragmentation threats and their corresponding levels for Harney County (COT report).

**Table 6 – Southeastern Oregon Sage-Grouse Risk Levels**

Land Use Related Risk Levels	Threat Rating
Agriculture Conversion	Present, but localized
Energy	Present, but localized
Mining	Present, but localized
Infrastructure	Present, but localized
Recreation	Unknown
Urbanization	Not known to be present

### Findings and Conclusion

As listed in the other county development reports, the COT does not provide a consideration of county land use programs. Harney County has zoning jurisdiction over a vast area principally reserved for natural resource production (agriculture and forest use). This development report shows that Harney County is effective in minimizing land use impacts or conflicts within its large regulatory jurisdiction (1,839,624 acres). As reflected in the other county reports, sparse residential population across a vast open landscape, coupled with agriculture and forest zoning have preserved non-federal lands as rural.

Harney County's land use program does not pose a risk to sage-grouse populations. As listed earlier, agriculture-designated lands cover the large majority of non-federally managed parcels within the county. This zoning designation is important to the ecological values of the county and has largely been intact over the last decade. Oregon's land use program has in place procedural steps for counties to change the land use designation of agriculture lands to residential or other uses by taking what is defined as a "goal exception." From 2003 – 2013 only two exceptions (or re-zones) have occurred totaling 268 acres in area, both residential and in the same year (2006). Over a decade's time only ½ of 1% of agriculture lands have been re-designated to a different land use

<sup>31</sup> Sage-Grouse Conservation Objectives Report

purpose. This means that the large tract requirements of local agriculture lands have remained intact throughout the development study period. In Harney County, the large majority of these lands are utilized as range use, further highlighting the important correlation between local agriculture planning designation and the preservation of large tract (non-converted) sage brush lands.

Looking specifically at the development of these lands, the local land use planning and building programs show that over a ten year period, thirty six (36) land use permits have been approved within designated Core and Low Density habitat (of those, 11 have yet to be developed, all Lot of Record Dwelling approvals). All of these approvals are for single-family dwellings. 13 of the approvals were within Core Area, 20 within Low Density, and 2 with both Core Area and Low Density. Based on the current number of dwellings inside habitat on non-federal lands within Harney County (section IV), and conservatively proposing for the sake of this study that all existing dwellings (282) were there prior to said land use approvals and considered by ODFW when both Core and Low Density habitat ranges were developed, and considering that on average 3.6 dwelling permits are approved per year over a habitat area covering 782,107 acres, it is apparent that urban sprawl is not a habitat fragmentation threat in Harney County based on local land use regulatory controls. Building permit activity from 2003-2013 also show a limited amount of activity within habitat.

Development Activity within Core and Low Density Habitat on Privately-owned lands within Harney County (Data from Tables 4 and 5):

- Over the last ten years, an average of 3.6 new homes were approved for land use permits
- Only single-family dwellings approved, no other land use permit approvals were granted within habitat areas
- (9) building permits for new home sites (new residence)
- (11) building permits for existing homes being replaced, added on to, or updated (existing residence)
- (1) storage pole barn

It is clear that development trends in local land use decisions over the last decade have proven to be a strong tool for limiting potential developments not related to rural residential developments. Over the study's 10 year period, no new county roads, transmission lines, or surface mining permits have been issued within Core or Low Density habitat ranges.

**Table 7 – Harney County Habitat Risk Levels Revisited**

Land Use Related Risk Levels	Threat Rating	Harney County Results
Agriculture Conversion	Present, but localized	Protected by land use laws, not a significant threat
Energy	Present, but localized	Regulated, limited opportunities, not a significant threat
Mining	Present, but localized	Regulated, limited acreage for sites, not a significant threat
Infrastructure	Present, but localized	Regulated, limited opportunities for growth, not a significant threat
Recreation	Unknown	Not regulated, limited travel/vehicle counts across state & county roadways, unknown threat level
Urbanization	Not known to be present	Regulated, not occurring

This report indicates that over a very large portion of non-federal lands, local development standards and policies have allowed for considerably low habitat fragmentation activity; however, one should also consider the total size Harney County's landscape. The lands discussed within the report should be considered conceptually as an island of privately-owned tracts within a sea of publicly-managed lands. As depicted in Figure 1, public lands account for roughly 3 quarters of the landscape of Harney County, the largest county in Oregon, and the 9th largest in the continental United States. This is significant, considering the latest sage grouse population counts within the Burns BLM district compared to that of the surrounding regions as shown below. This indicates that county development policies do not pose a significant habitat fragmentation threat to Federally-managed lands, or comprehensively, the county as a whole.

**Table 7 – Current BLM District Sage Grouse Populations**

<b>BLM District</b>	<b>County(ies)</b>	<b>2003 Population</b>	<b>2010 Population</b>	<b>Percent of Target</b>
Baker RA	Baker, Union	1,566-2,546	872-1,650	61%
Burns	Harney	3,722-4,941	3,877-5,195	105%
Lakeview	Lake	8,613-10,134	5,523-6,445	64%
Prineville	Crook, Deschutes	2,072-2,440	1,775-2,084	86%
Vale	Malheur	8,474-13,921	9,016-11,740	93%
<b>Statewide</b>		<b>24,447-33,982</b>	<b>21,064-27,115</b>	<b>82%</b>

# Lake County

## Lake County Land Use Planning Program

### Land Use Planning History

Lake County's land use planning program, as it is practiced and recognized today in relation to the Oregon Statewide Planning Program, began in the early 1980s. Although the county adopted a Comprehensive Plan on May, 1980, the plan was not issued a Land Conservation and Development Commission (LCDC) compliance acknowledgement order until July 8, 1982. The Plan has been amended a number of times with significant changes in July 1981, April 1982, February 1985, and also in June 1989. Minor adoptions including Plan Designation Amendments to allow for further development in areas approved for Goal 3 exceptions have been approve over the years although not included as a major topic of history in this report. None of those Amendments were in area of Wildlife concern. Planning Staff refer to Amended 1989 version of the Plan as the Amended Lake County Comprehensive Plan of 1989 (LCCP) and refer to this version of purposes of administration and to the Zoning Ordinance for implementation. With exception to the incorporated communities of Lakeview and Paisley, the LCCP provides the overarching development goals, policies, and recommendations for all lands within the county boundary. While the LCCP has been through a number of minor/major revisions, the plan its self is considered a living document in the sense that it will continually be updated, within the plan's specified framework, to reflect the needs and desires of the local community. Amendments have been made to ensure the plan continues to reflect community interests; however, the basic intent of the plan has not changed significantly.<sup>32</sup> In 2013, Lake County will be applying for a Technical Assistant Grant through the Department of Land Conservation and Development (DLCD) to update the Comprehensive Plan and Implementing Ordinances. If awarded the Grant the plan will be modified to improve organization of the document with the aim to provide better administration and usability. The updating of references to Oregon Revised Statutes and Oregon Administrative Rules and the direct inclusion of the criteria that must be met by certain uses as well as the inclusion of those uses are all updates that will be reviewed and applied as appropriate, to see that the County is in compliance with the ORS and OAR requirements.

The plan contains tools (not all contained within the singular document) that provide guidance for the local program. Examples include the plan's maps which graphically depict primary or underlying zoning/plan designations such as the Exclusive Farm Use Zones, or other zoning overlays such as Urban Growth Boundaries or the Airport Approach Combining Zone. Another example can be found within the related and adopted inventories such as local aggregate mining sites, and envisioned commercial energy development areas as listed under the Lake County Renewable Energy Plan of October, 1984. The LCCP is implemented primarily through specific regulations contained within the Amended Lake County Zoning Ordinance of September 6, 1989. Other local plans and/or ordinances also contribute to implementing the goals and policies of the LCCP, such as the Lake County Transportation System Plan, Urban Growth Boundary agreements with the incorporated cities, Lake County Development Ordinance etc., all of which have been periodically updated.

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<sup>32</sup> Source Document 1: Lake County Comprehensive Plan, June 1989.

# Comprehensive Plan and Zoning

## Overview

The majority of lands within Lake County (not inclusive of the incorporated communities) fall under the county zoning designation of either A-1: Exclusive Farm Use which purpose “is intended to preserve productive agricultural land for the continued agricultural use in compliance with Comprehensive Plan provisions and in compliance with State Statute as a ‘qualified’ farm use zone”<sup>33</sup> or the A-2: Agriculture Use, which purpose is “to preserve grazing and other agricultural land, except in those areas designated by the Plan as Rural or Farm Residential, and to allow rural home sites, hobby farms and similar ‘not for profit’ farm residences in accord with Comprehensive Plan policies and provisions for such uses.”<sup>34</sup> These zoning designations are illustrated in the LCCP maps along with other specific zoning designations aimed at providing for area-specific appropriate development. Table 1 below lists the LCCP land use and zoning designations as found and described within the plan.

**Table 1 – Lake County Comprehensive Plan and Zoning Designations**

<b>Comprehensive Plan and Zoning Designations</b>	
<b>Plan Designation (LCCP)</b>	<b>Zoning (Lake County Zoning Ordinance – LCZO)</b>
A – Agriculture	Article 2: Exclusive Farm Use: A-1 Article 3: Agriculture Use: A-2
R – Range	Article 2: Exclusive Farm Use: A-1 Article 3: Agriculture Use: A-2 Article 5: Forest Use: F-1
F – Forest	Article 5: Forest Use: F-1 Article 2: Exclusive Farm Use: A-1 Article 3: Agriculture Use: A-2
RR – Rural Residential	Article 6: Rural Residential: R-1 Article 8: Suburban Residential: R-3
C – Commercial	Article 9: Commercial: C-1
FR – Farm Residential	Article 7: Farm Residential: R-2
RC – Rural/Recreation Center	Article 4: Rural Center: A-3 (Adel, Alkali Lake, Christmas Valley, Five Corners, Fort Rock, New Pine Creek, Plush, Quartz Mountain, Silver Lake and Summer Lake)
I – Industrial	Article 10: Light Industrial: M-1 Article 11: Heavy Industrial: M-2
P – Public	Public 12: Public Facility: P-F
<b>Zoning Map Overlays</b>	<b>Zoning (Lake County Zoning Ordinance – LCZO)</b>
Airport Approach	Article 13: Airport Approach Combining Zone: A-A
High Groundwater	Article 14: High Groundwater Combining Zone: H-G
Mobile Home Exclusion	Article 15: Mobile Home Exclusion Zone: R-A
Waste Disposal, Inactive Uranium Mill Tailings	Article 16: Waste Disposal, Inactive Uranium Mill Tailings Zone: WD
Geological Hazard	Article 17: Geological Hazard Combining Zone: G-H
Significant Resource	Article 18: Significant Resource Combining Zone: S-R
Limited Use	Article 19: Limited Use Combining Zone: L-U

<sup>33</sup> Source Document 2: Lake County Zoning Ordinance, September 1989, Article 2, Section 2.01.

<sup>34</sup> Source Document 3: Lake County Zoning Ordinance, September 1989, Article 3, Section 3.01.

## Zoning and Overlays within Sage-Grouse Designated Areas

To assess Core Area and Low Density habitats in Lake County, the county was divided into 21 sub areas. Each map depicts the following over the period of 2003 to current:

- Development: Existing homes permitted since 2003 and additional land use permits within habitat areas
- Ownership: Land ownership, rural communities, and Core/Low Density habitat areas
- Zoning: County base zoning districts and DOGAMI surface mining permit locations

Table 2 summarizes in acres and parcels, County zoning within ODFW's Core Area and Low Density habitat on federal and non-federal (private) lands. It should be noted, as in other county reports, that some parcels overlap both habitat designations and that there are gaps between habitat designations in the GIS layers exist, and so for the purposes of this report these instances have been reported conservatively as Core Area.

**Table 2 – Lake County Zoning Designations within ODFW's Core and Low Density Habitat**

	Core Area		Low Density		Total Acres	Percent in Sage-Grouse Habitat
	Federal Lands	Non-Federal Lands	Federal Lands	Non-Federal Lands		
Exclusive Farm Use: A-1						
Acres	0.22	2,342.79	478.87	6,183.61	9,005.49	0.17%
Parcels						
Agriculture Use: A-2						
Acres	884,293.32	135,938.87	677,390.63	78,899.12	1,776,521.94	33.20%
Parcels						
Forest Use: F-1						
Acres	2,900.40	18.11	9,271.97	305.71	12,496.19	0.23%
Parcels						
Rural Residential: R-1						
Acres	0.00	0.00	0.00	66.72	66.72	0.0012%
Parcels						
Farm Residential: R-2						
Acres	8,877.43	488.16	208.45	0.00	9,574.04	0.18%
Parcels						
Total Acres in Sage Grouse Habitat						
	Core Area		Low Density		Total Acres	Percent in Sage-Grouse Habitat
	Federal Lands	Non-Federal Lands	Federal Lands	Non-Federal Lands		
	896,071.36	138,787.93	687,349.93	85,455.16	1,807,664.38	33.78%
	16.75%	2.59%	12.85%	1.60%		
Total County Acres					5,350,660.45	

## Existing Habitat Conservation Measures and Zoning Designations

### Wildlife Mapping and Protection within Sage Grouse Designated Areas

When the LCCP was first acknowledged in 1982 official maps were made a part of the document that outlined or depicted particular areas of sensitivity or importance. Lake County organizationally formatted its plan to correspond with the related Oregon State Planning Goals. An example of this is within Chapter 5 of the LCCP. It has goals and policies relating to the county's natural resources. The county has these resources inventoried in either tabular or mapping form. In many county goal 5 inventories, a protection element or program is established for each singular site or region. Lake County's wildlife inventory is composed of a tabular listing of resource site name/description (such as "big game winter range") and a corresponding area listed within the Plan map depicting coverage ranges.

Lake County has taken a broad range approach regarding programs for resource protection relating to wildlife habitat. As an example, under big game resource areas (including Mule Deer and Rock Mt. Elk habitat ranges) the program for protection listed states as a Plan Policy "That the Oregon Department of Fish & Wildlife's 'Fish & Wildlife Habitat Protection Plan of Lake County' will be recognized as a guideline for Plan implementation.<sup>35</sup> An additional Comprehensive Plan Policy states, "That new uses within the Hart Mountain Nation Antelope Refuge Boundary will be limited to wildlife management, livestock grazing, and incidental recreation. No new residential, commercial or industrial uses will be allowed."<sup>36</sup> However, two other County Policies state the need to "determine support...only after consideration of economic and environmental consequences of both protection and non-protection."<sup>37</sup>

It is fairly apparent that while Lake County has goals to conserve and protect existing fish and wildlife areas, its related preservation policies are intended to provide for broad flexibility of habitat protection measures (not site specific). Lake County's implementation strategy for these policies is to provide notice and an opportunity to comment on land use applications to ODFW.

The original inventory data and mapping is still officially utilized since the plan was acknowledged in 1982. Over the years Lake County staff has worked with ODFW to attain more updated and accessible mapping data to be utilized in administering the plan's wildlife preservation implementation strategy. Said strategy is aimed at providing ODFW an opportunity to aid the county in review of a development and landowner's development objectives by commenting and even producing recommendations on how to either avoid or mitigate for impacts to big game winter range and/or other sensitive species habitat areas. The conditional use provisions of Article 24 of the LCZO provide the county opportunities to impose conditions of approval which can directly execute the recommendations from ODFW. To that end, Lake County has regularly provided notice to or communicated with ODFW relating to proposed developments within areas of either big game habitat/winter range, or sensitive species habitat.

### Exclusive Farm Use (A-1) & Agriculture Use (A-2) Zones

The lands designated for exclusive farm use within Lake County are zoned Exclusive Farm and Agriculture Use (A-1 & A-2). These designations are nearly identical, with the minimal difference being the wording of the purpose of the zone, as well as lands zoned A-2 may have a plan designation of RR – Rural Residential or FR – Farm Residential. Either lot has the possibility of being designated as either A- Agriculture or R – Range by the Comprehensive Plan, thus the minimum size that a parcel can be partitioned to would be 80 acre minimum – Agriculture and 160 acre minimum - Range. Lake County applied this designation to both private and federally-managed lands within its boundary lines. As a matter of perspective, Lake County's has a total of more than 5 million acres of which only 250,000 acres, which is less than 5% of the total County acres are privately owned and

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<sup>35</sup> Lake County Comprehensive Plan, June 1989, Planning Guidelines (V)(B)(3).

<sup>36</sup> Lake County Comprehensive Plan, June 1989, Planning Guidelines (V)(B)(2).

<sup>37</sup> Lake County Comprehensive Plan, June 1989, Planning Guidelines (V)(B)(13 & 14).



thus regulated through a County Land Use Process if not outright permitted by the underlining zone. A number of land uses are outright permitted as they have significant value to preserving the historical use of the land (i.e. grazing and agricultural uses). In fact, 74.53% of the county is zoned, 3,986,224.98 acres are federally owned, and another 112,562.65 (2.10%) acres are State owned. The majority of these lands are designated either Farm or Forest lands including Range land.

The EFU zoning designations follow closely to Oregon Statutory standards and related Oregon Administrative Rules, which are guided by the principles established under Goal 3 of the Oregon Statewide Planning system (protection of agriculture lands). In Lake County the most prevalent development type aside from agriculture is housing related to farm use. Two types of housing are allowed in the zone: Dwellings on parcels 80 acres in size or larger (most common), or dwellings provided to families that have owned specific tracts of land prior to 1/1/1985 (although never applied for in Lake County), where only one dwelling per tract is permitted through this process. Farm-related dwellings may also be allowed on tracts below 80 acres in size if the corresponding farm operation on the tract has produced a certain amount of revenue over time (uncommon in Lake County). Otherwise, dwellings are conditionally permitted on tracts of land smaller than 160 acres, however they move through a more stringent set of standards and must be found to not inhibit the expansion of existing farming operations in the area. Proposed partitions of parcels above the minimum standards that will continue to be used for agriculture are reviewed administratively. All proposed partitions that are below the minimum acreage must be review by the Planning Commission to see that the property is not able to be farmed, and a finding that the partitioning will not negatively impact the farming/ranching in the area. This standard has lessened the possibility for high dwelling density or urban sprawl based on the limited opportunities for dwelling as per the stringent Conditional Use Permit criteria.<sup>38</sup>

### **Forest Use (F-1) Zone**

The forest land in Lake County, zoned F-1, is primarily on the west side. However, the Warner Range, located in the South Central part of Lake County, is also zoned and designated Forest. The majority of the land zoned Forest is in federal ownership, with the remaining acres scattered throughout the forest zone by multiple owners. The minimum parcel size in the F-1 zone is 80 acres, however very few land divisions have occurred since the early 1980s. There are 3 possible ways to permit a single-family dwelling in the F-1 zone: (A) Large Tract (240 contiguous acres or 320 throughout the county), (B) dwellings provided to families that have owned specific tracts of land prior to 1/1/1985 (although never used in Lake County), and (C) on a tract of land that is capable of producing a certain range of cubic feet per acre of wood fiber, etc. In addition, new dwellings proposed within the Forest Use Zone must also comply with strict siting standards relating to access from public roads, water supply needs, and meet stocking requirements of the Department of Forestry. Lands zoned Forest also have the possibility of being within the Big Game Habitat inventoried areas, thus addition siting standards shall be met, which are required by the Significant Resource Combining Zone.

The F-1 zone is the most restrictive zoning district for new developments. Due to a low amount of privately-owned land and large lot size requirement for new dwellings, very few new dwelling approvals are located within the Forest Use Zone. In fact, no new approvals over last decade have occurred in the F-1 zone or in Sage Grouse habitat are in the F-1 zone.

## **Built Environment and Development Activity**

### **Roads and Utilities**

Lake County is located in the south-central portion of Oregon and encompasses 8,359 square miles. Lake County has two north-south trending highways and one highway for east-west travel. The Fremont Highway (OR 31/US 395) and the Lakeview-Burns Highway (US 395) provide for north-south travel and the Klamath Falls-Lakeview

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<sup>38</sup> Source Document 7: Lake County Zoning Ordinance, September 1989, Article 24, Section 24.19.



Highway (OR 140) and the Warner Highway (OR 140) traverse the southern portion of the county and provide for east-west travel. Central Oregon Highway (US 20) also provides an east-west link at Lake County's northern boundary.<sup>39</sup> These State Highways as well as many County Roads have been designated as within Core and Low Density areas. The jurisdiction of roads within the County include: BLM, Forest Service, State and County, along with many private roads. County designated roads span approximately 757 miles within Lake County, many of which have sections of road that fall within Core Area and Low Density habitat respectively. BLM roads totaling approximately 2,500 miles all of which are made of gravel or natural surfaces, are also within Sage Grouse habitat. US Forest Service roads are also of gravel and natural surfaces with paved roads totaling 240-250 miles of the approximate 7,000 miles. There are nearly 305 miles of state highway in Lake County, with areas in which Core and Low Density covers. While minor alterations have been made to existing roads, no new county roads have been created from 2003-2013. Highway 31 is registered as a National Scenic Byway. Figure 1 shows the locations of major overhead transmission lines (including lines owned by Bonneville Power Administration, Surprise Valley Electric, Pacific Corp and Harney County Electrical Cooperative) totaling approximately 300 miles through the region, with about half of those miles within sage grouse habitat. The Ruby Pipeline, a natural gas utility line, lies within Lake County on the southern boundary extending on into Klamath County. This pipeline was permitted through a Federal Government process in the mid 2000's. The Ruby Pipeline is not depicted in figure 1.

### Surface Mining Sites

There are a total of 15 surface mines within Core Area and Low Density habitat on non-federal lands, 9 are closed and 6 active/permitted/exempt.<sup>40</sup> DOGAMI GIS (Oregon Department of Geology and Mineral Industries) reports that of the 15 sites that are disturbed by surface mines in Lake County, 9 are in Core Habitat 6 sites are disturbed in Low Density habitat. Each site is not more than 5 acres in size and located near an existing road way. Lake County has not permitted a surface mine within Core Area or Low Density habitat from 2003 – 2013. Table 3 lists the 15 surface mines within ODFW sage grouse habitat. All permits on Federal and Non-Federal lands are included on the list.

**Table 3 – DOGAMI Permits within Sage Grouse Habitat**

Surface Mining Site - DOGAMI Permit # & Permittee (Federal or Non-Federal Lands)	Habitat Designation	Status
I9-0034 – Robert E. Mitchell (Federal)	Core Area	Closed
I9-0045 – Gordon & Don Tracey (Federal)	Core Area	Closed
I9-0071 – ODOT – Bend (Federal)	Core Area	Closed
I9-0036 – ODOT – Bend (Federal)	Core Area	Permitted
I9-0046 – ODOT – Bend (Federal)	Core Area	Permitted
I9-0108 – Collins Timber Company, LLC (Non-Federal)	Core Area	Closed
I9-0017 – Lake County (Non-Federal)	Core Area	Exempt
I9-0041 – ODOT – Bend (Non-Federal)	Core Area	Permitted
I9-0109 – Jay & Gloria Counts (Non-Federal)	Core Area	Permitted
I9-0031 – Robert E. Mitchell (Federal)	Low Density	Closed
I9-0032 – Robert E. Mitchell (Federal)	Low Density	Closed
I9-0072 – U.S. Minerals Exploration (Federal)	Low Density	Closed
I9-0084 – Glenn D. Plato (Federal)	Low Density	Closed
I9-0073 – Cornerstone Industrial Minerals Corp. (Federal)	Low Density	Permitted
I9-0114 – Sierra Cascade LLC (Non-Federal)	Low Density	Closed

<sup>39</sup> Lake County Transportation System Plan, 2002.

<sup>40</sup> DOGAMI Online Permit Inventory Weblink: <http://www.oregongeology.org/mlrr/surfacemining-report.htm>

Figure I – County Roads and Transmission Lines

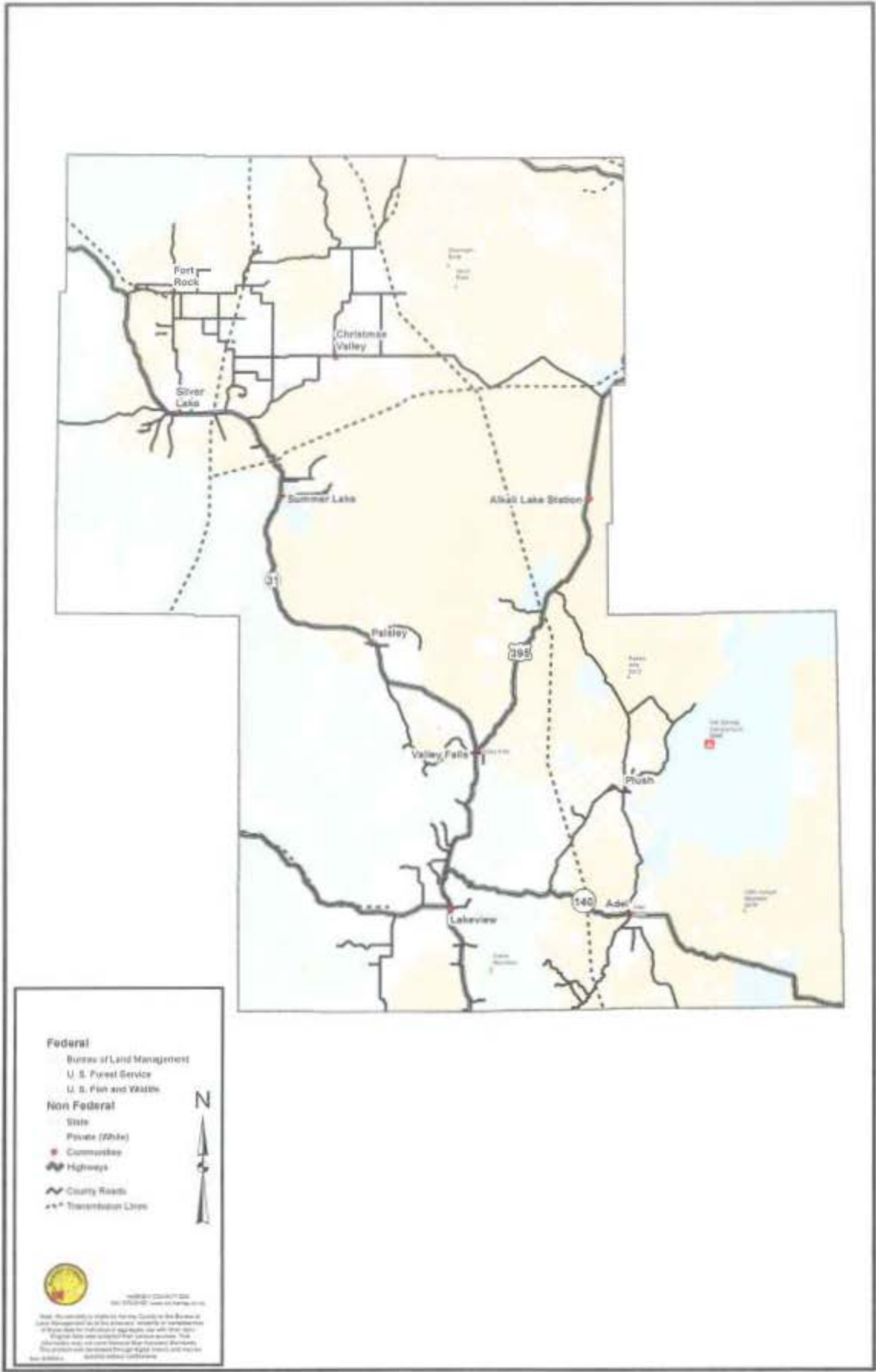
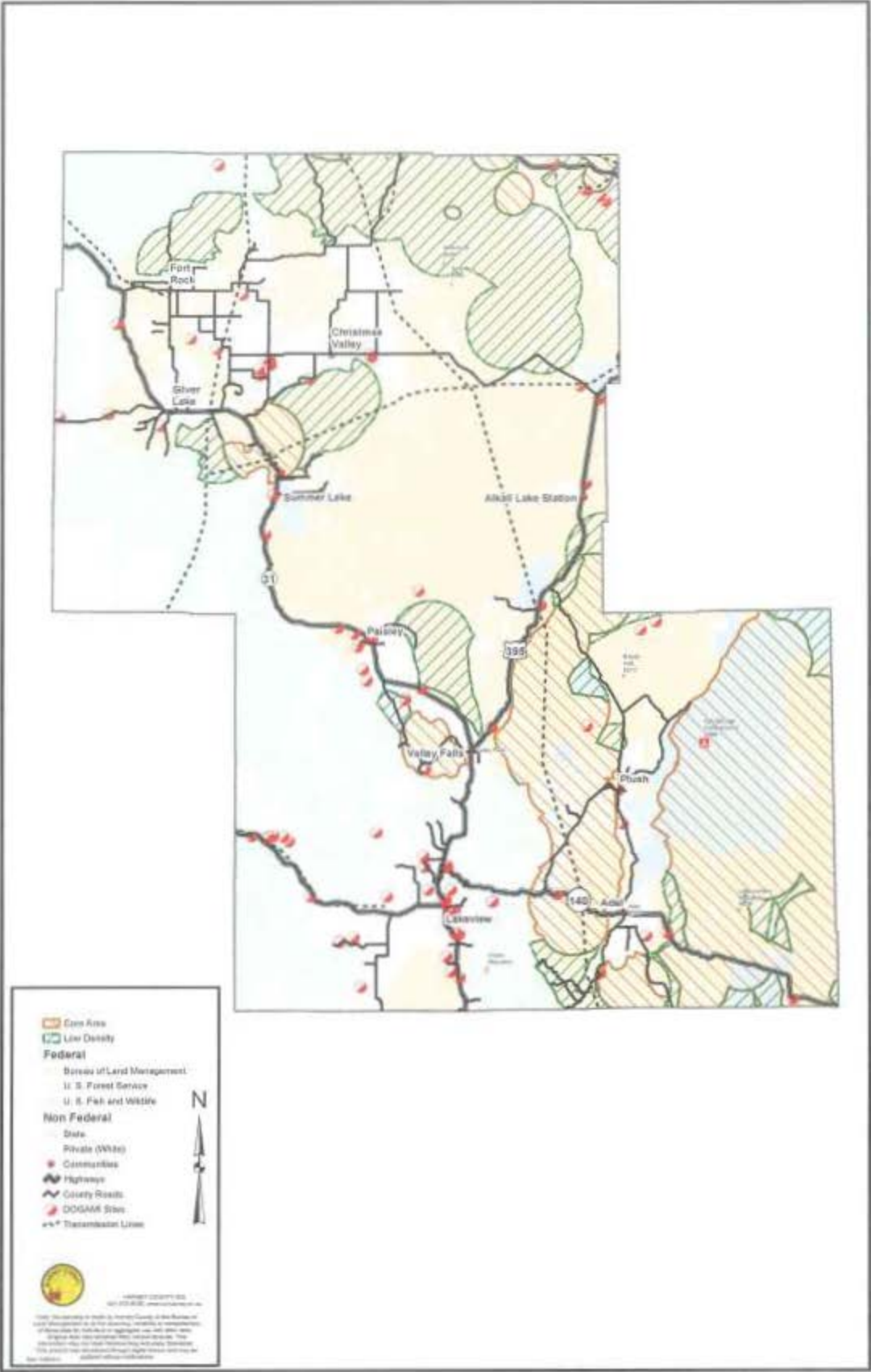


Figure 2 – Mapped DOGAMI Permits for Surface Mines within Sage Grouse Habitat on Non-Federal Lands including Transmission Lines



## Land Use and Building Permit Activity (2003-2013)

Table 4 lists the land use planning decisions and assessed real market building values issued from 2003 to 2013 within Core and Low Density habitat. As shown in Table 4, there were a total of 19 land use files of which 16 were approved for development, 2 denied and 1 withdrawn by the applicant. Of the 16 approvals 11 were within Core Area, 5 were within Low Density. Of the 16 approvals 4 of the approvals are on 2 lots, and 1 was a partition with no development. There was a total of 10 Non-Farm Dwellings of which 3 are built, 2 are partially built and the remaining 5 are not built.

**Table 4 – Land Use Planning Permits (2003-2013)**

Year	Land Use File #	Use	Decision	Acct	T	R	Sec	TL	Acres	Real Market Building	Habitat
2003	927-CUP	School	Denied	8348	28	16	-	202	20.00	\$0	Low D.
2004	940-CUP	Non-Farm Dwelling	Approved	10279	36	23	31	2400	40.00	\$1,410	Core
2004	955-CUP	Non-Farm Dwelling	Approved	10367	36	24	-	900	20.00	\$4,800	Core
2004	128-FD	Farm Dwelling	Approved	9853	36	23	-	3500	280.00	\$0	Core
2005	985-CUP	Non-Farm Dwelling	Approved	18264	33	24	-	102	20.44	\$10,031	Low D.
2005	1028-CUP	Non-Farm Dwelling	Approved	15328	39	22	-	1100	39.61	\$0	Core
2005	1401-AP	Admin Partition	Approved	10516	37	23	-	1400	266.90	-	Core
2006	1096-CUP	Non-Farm Dwelling	Approved	17870	29	17	-	1601	32.40	\$0	Low D.
2006	1097-CUP	Non-Farm Dwelling	Approved	8155	29	17	-	400	15.48	\$0	Low D.
2006	1098-CUP	Non-Farm Dwelling	Approved	8155	29	17	-	400	15.48	\$0	Low D.
2006	148-ZP	Farm Dwelling	Approved	18458, 18459	29	16	-	801, 802	200.00	\$0	Core
2006	149-ZP	Farm Dwelling	Approved	18460	29	16	-	803	490.00	\$69,380	Core
2007	1117-CUP	RV Campground	Approved	81	24	18	-	200	630.50	\$94,180	Low D.
2007	1123-CUP	Temporary Storage	Approved	7876	28	16	20	2100	17.27	\$83,405	Core
2007	1127-CUP	Non-Farm Dwelling	Approved	7876	28	16	20	2100	17.27	\$83,405	Core
2009	1478-TP	Partition	Denied	6812	27	18	-	7300	20.00	-	Low D.
2009	1481-TP	Partition	Withdrawn	7899, 7895	28	16	21	1100, 900	25.03	-	Core
2010	1245-CUP	Non-Farm Dwelling	Approved	15732	40	27	5	100	98.15	\$0	Core
2010	10-0179-ZP	Non-Farm Dwelling	Approved	8388	30	16	01B	100	2.33	\$106,580	Core

## Impact Analysis

### Risk Assessment

According to the COT (Conservation Objectives Team) report, Lake County falls within an area designated as Management Zone V (5), more pointedly the Western Great Basin. According to the report, this area contains one of the few remaining large intact expanses of sagebrush habitat, with most of the sagebrush-dominated landscape in Oregon. Oregon's portion of the (bird) population has some of the best habitat and highest sage-grouse densities in the state, including Hart Mountain National Antelope Refuge and Trout Creek Mountains, though habitat in the Trout Creeks was likely compromised by 2012 fires. The delineation of the Western Great Basin population doesn't correspond well to any existing assessment for Oregon, but does include almost all of the Lakeview administrative unit, as well as portions of the Burns and Vale administrative units. Invasive weeds, fire, and juniper encroachment (particularly on the western edge) represent the greatest risks to this population. Renewable energy development (wind and geothermal) and wild horses have been identified as a threat to sage-grouse habitat in portions of Oregon's (e.g., Steens, Dry Valley/Jack Mountain Action Areas) Western Great Basin population.<sup>41</sup> Table 5 depicts habitat fragmentation threats and their corresponding levels for Lake County (COT report).

**Table 5 – Southeastern Oregon Sage-Grouse Risk Levels**

<b>Risk Levels (Land Use Related)</b>	<b>Threat Rating</b>
Agriculture Conversion	Present, but localized
Energy	Present, but localized
Mining	Present, but localized
Infrastructure	Present, but localized
Recreation	Unknown
Urbanization	Not known to be present

### Findings and Conclusion

As listed in other county reports, the COT does not provide a consideration of county land use programs. Lake County has zoning jurisdiction over a vast area principally reserved for natural resource production (agriculture and forest use). This development report shows that Lake County is effective in minimizing land use impacts or conflicts within its large regulatory jurisdiction (1,362,312 acres). As reflected in the other county reports, sparse residential population across a vast open landscape, coupled with agriculture and forest zoning have preserved non-federal lands as rural.

Lake County's land use program does not pose a risk to sage-grouse populations. As listed earlier, agriculture-designated lands cover the large majority of non-federally managed parcels within the county. This zoning designation is important to the ecological values of the county and has largely been intact over the last decade. Oregon's land use program has in place procedural steps for counties to change the land use designation of agriculture lands to residential or other uses by taking what is defined as a "goal exception." From 2003 – 2013 no exceptions (or re-zones) have occurred within Habitat areas.

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<sup>41</sup> Sage-Grouse Conservation Objectives Report

Over a ten year period, sixteen (16) land use permits have been approved within designated Core and Low Density habitat (of those, 8 have yet to be developed). Of the total land use approval 3 were for Farm Dwellings which are a use that is found to be in conjunction with the purposes of the State Land Use goals and system. The remaining were for Non-Farm related uses that have a place in the County and State as a whole and are conditionally allowed. Of these, the majority were within 1 mile of being out of habitat area and located on existing major roadways. The total land use approvals averages out to less than 1.5 permits a year over a 10 year period. The majority of these approvals are for single-family dwellings with one RV-campground approved on a ranch that likely is looking for a bit of supplemental income for the improvement of their ranch. Based on the number of new dwellings and uses inside habitat on non-federal lands within Lake County (Table 4), it is apparent that urban sprawl is not a habitat fragmentation threat based on local land use regulatory controls. Building permit activity from 2003-2013 also show a limited amount of activity within core and low density habitat. Only 8 total sites developed within the time period studied, with two of those related to the same site (e.g., temporary storage became a permanent non-farm dwelling).

It is clear that development trends in local land use decisions over the last decade have proven to be a strong tool for limiting potential developments not related to rural residential developments. Over the study's 10 year period, no new county roads, transmission lines, or surface mining permits have been issued.

# Malheur County

## Malheur County Land Use Planning Program

### Land Use Planning History

Comprehensive planning in Malheur County began in 1966. At that time, Oregon counties were authorized (but not required) to adopt planning and zoning regulations for all or part of their lands. In cooperation with the Bureau of Municipal Research and Service, the Malheur County Planning Commission developed a comprehensive plan for the Ontario-Nyssa-Vale area. However, the plan was never officially adopted by the county.

In 1969 the Oregon State Legislature mandated that all Oregon counties adopt comprehensive plans and zone their lands. In accordance with the provisions of ORS 215.050 and 215.055, the county adopted its first official comprehensive plan and zoning ordinance in 1973.

In 1976 Malheur County and its cities established the Comprehensive Planning Office funded by a combination of LCDC and local moneys. The comprehensive planning staff began by preparing a series of background reports to provide detailed information on which to base the plans. The staff then worked with each of the cities and their citizens advisory committees to develop comprehensive plans for Ontario; Nyssa, Vale, Adrian and Jordan Valley. At the same time, the staff developed a draft comprehensive plan for Malheur County.

After countless work sessions with citizen's advisory committees, major revisions to the plan, at least four series of public hearings, and extensive review sessions with the Planning Commission and County Court, this document has evolved as Malheur County's comprehensive plan.

The plan includes zoning/plan designations for example Exclusive Farm and Range Use, Urban Growth Boundaries and other overlays.

### Comprehensive Plan and Zoning

#### Zoning and Overlays within Sage-Grouse Designated Areas

The majority of lands within Malheur County (not including incorporated areas) are designated as resource or agriculture and forest preservation. These zoning designations are aimed at providing for area-specific appropriate development.

Table 1 summarizes in acres and parcels, County zoning within ODFW's Core Area and Low Density habitat on federal and non-federal (private) lands. It should be noted, as in other county reports, that some parcels overlap both habitat designations and gaps between habitat designations in the GIS layers exist. So, for the purposes of this report these instances have been reported conservatively as Core Area.

**Table 1: Malheur County Zoning Within ODFW Core and Low Density Habitat**

	Core Area		Low Density		Total Acres	Percent of Sage-Grouse Habitat
	Federal Lands	Non-federal lands	Federal Lands	Non-federal lands		
Exclusive Farm Use, (C-A1)						
Acres	5.08	1,183.65	8.81	347.6	1,545.00	0.03%
Parcels	1	49	1	20		
Exclusive Range Use, (C-A2)						
Acres	2,120,713.12	574,747.00	1,493,908.76	382,551.32	4,571,920.20	99.59%
Parcels	621	1299	513	1076		
Exclusive Farm Forest Use (C-A3)						
Acres	1,442.00	4,240.94	1,121.92	9,983.94	16,788.80	0.37%
Parcels	7	18	6	33		
Rural Service Center (C-RSC)						
Acres	0.00	266.48	0.00	6.79	273.27	0.01%
Parcels	0	117	0	7		
Total	2,122,160.20	580,438.07	1,495,039.49	392,889.51	4,590,527.27	100.00%



## **Existing Habitat Conservation Measures and Zoning Designations**

### **“Goal 5” and Wildlife Mapping and Protection within Habitat Areas**

When Malheur County adopted the Comprehensive Plan and Zoning Ordinance in 1988, official plan maps were approved by Malheur County to outline particular areas of importance. Once such map (map 8) depicts the county’s fish and wildlife habitat areas. Inventories of Malheur County’s fish and wildlife habitats are presented in the “Fish and Wildlife Protection Plan” prepared by ODFW (basis for mapped areas).

Malheur County’s policy is to provide notice and an opportunity to comment on land use applications to ODFW. Adjacent landowner will also be on pending land use actions and allowed and opportunity to comment.

This policy will provide the opportunity for ODFW to assist the county in review of a land use action by comment and/or recommendations on how to either avoid or mitigate impacts on sensitive species habitat areas.

### **Flood Plain Zone Overlay**

Flood Plains in Malheur County consist of a very small area mainly along the Snake, Malheur and Owyhee River. Development is generally discouraged in the 100 year flood plan and not allowed in the flood way. A very small area is located in the low density area.

### **EFU & ERU Zones**

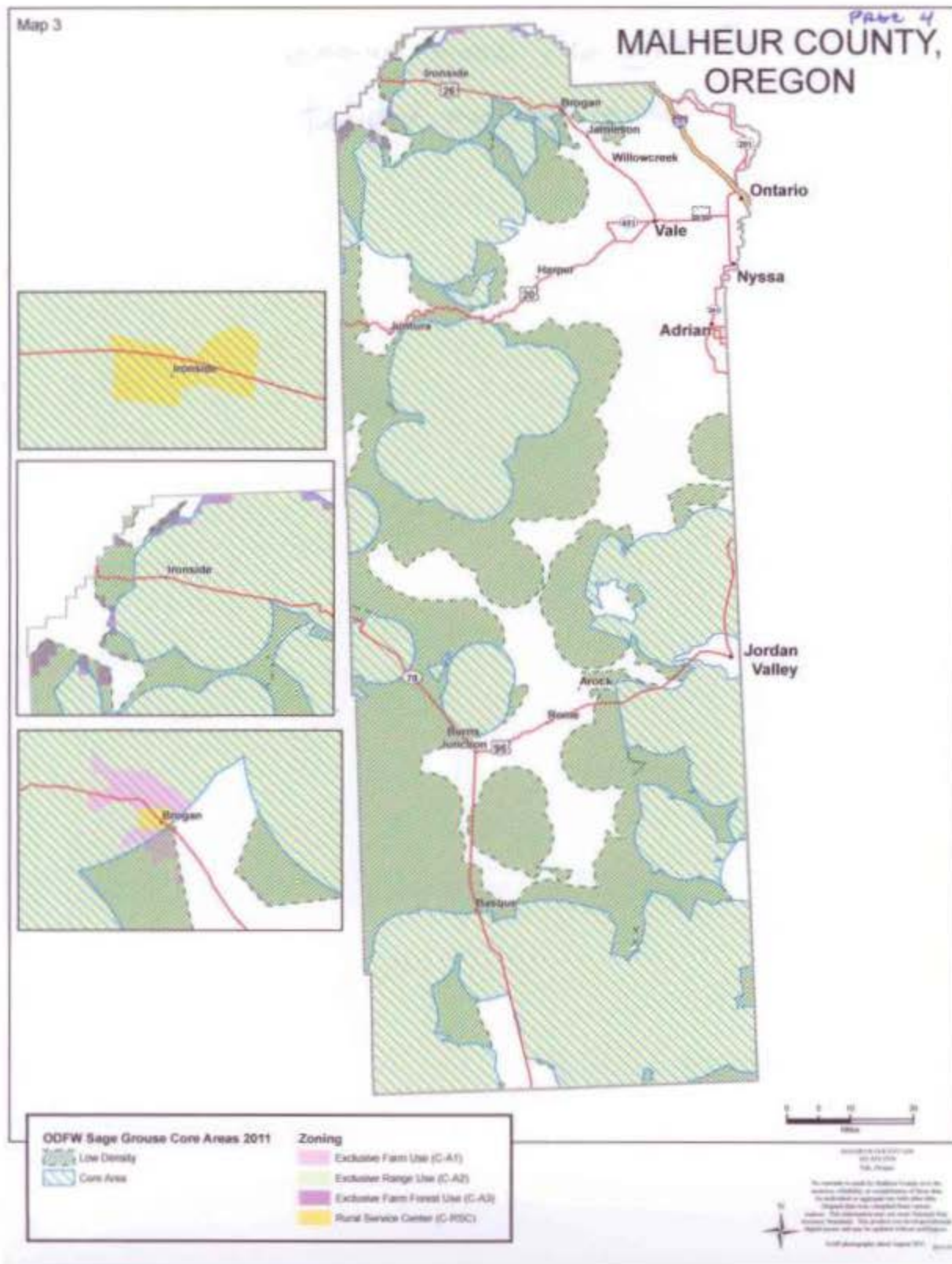
The designated agricultural lands in Malheur County fall under two zoning classifications: Exclusive Farm Use (EFU) and Exclusive Range Use (ERU). The only difference is the size of the parcel that can be partitioned. These designations apply to both private and federal lands.

The EFU and ERU zoning designations follow closely to Oregon Statutory standards and related Oregon Administrative Rules, which are guided by the principles established under the 3<sup>rd</sup> goal of the Oregon Statewide Planning system (protection of agriculture lands). There are 22 dwelling sites split evenly between the Core Area and Low Density Existing housing in these large areas is predominantly related to farm/range use (dwellings permitted on large private tracts). Non-Farm dwellings are allowed as a Conditional Use, however they must meet a more stringent set of standards and must be found to not inhibit the expansion of existing farming operations in the area. This standard has lessened the possibility for high dwelling density or urban sprawl based on the limited opportunities for dwelling per ownership tract.

### **EFFU Zone**

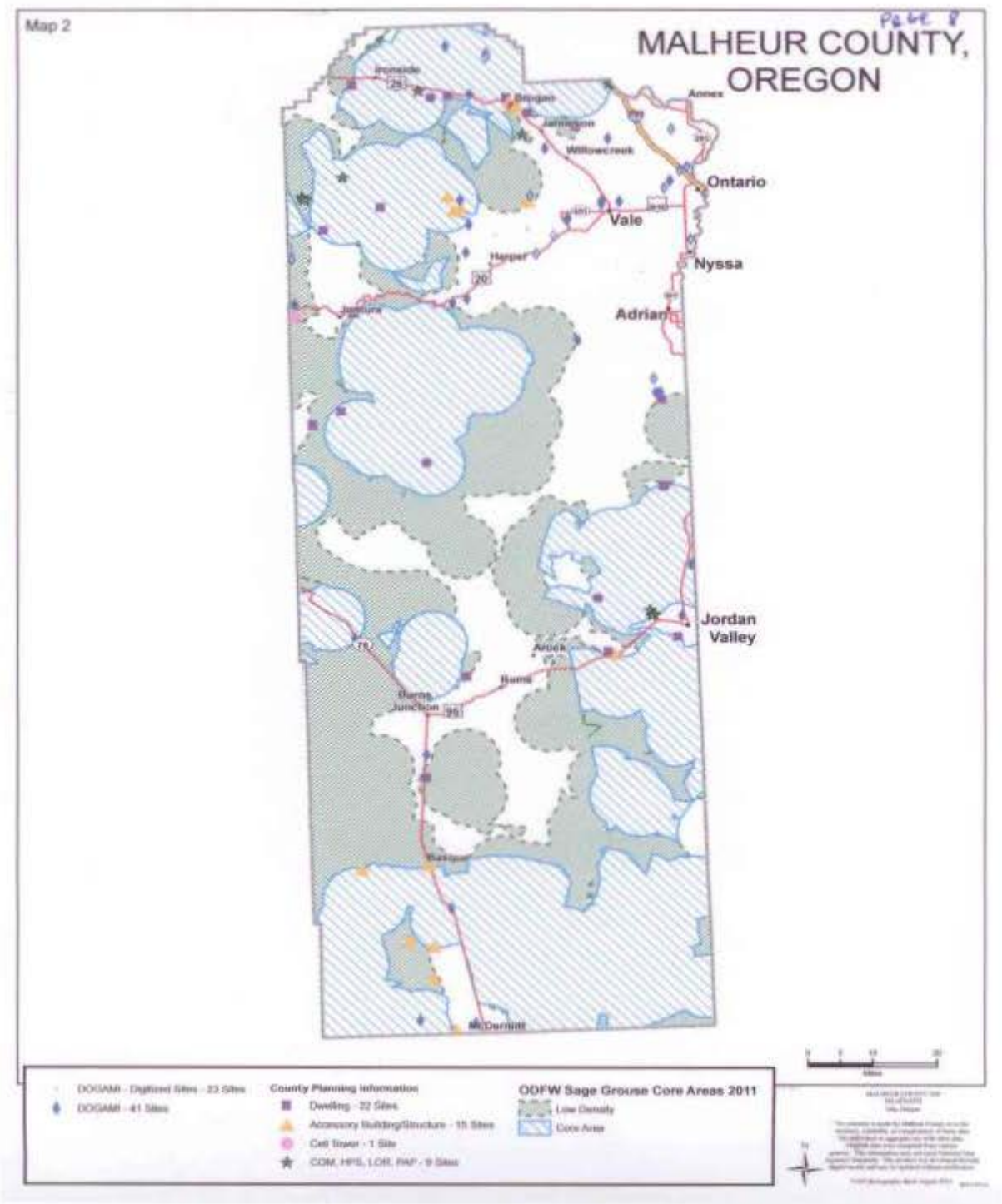
Malheur County has a small amount of what is designated as mixed Farm and Forest Use. Only 0.37% of the EFFU Zone is located in the Sage-Grouse habitat.

Map 1: Malheur County Sage-grouse Core & Low Density



Built Environment and Development Activity

Map 2: Malheur County Permitted Sites in Sage-grouse Habitat



## **Housing Units/Structural Developments**

Malheur County is the most populous of the Southeastern counties within the region, having a population of 30,630 (2012 US Census Bureau). The County's population centers consist mostly of its incorporated cities: Adrian, Jordan Valley, Nyssa, Vale, with its largest being Ontario. A number of unincorporated communities are also located within the county. With the exception of Brogan (unincorporated community) none of Malheur County's population centers is within Core Area or Low Density Sage Grouse habitat ranges. The community of Brogan is within Core Area habitat and has a total of 24 dwelling units within its designated zoning district (see map 1).

With Brogan aside, local addressing records indicate that there are a total 22 housing units or single-family dwellings within 973,327.72 acres of non-federal lands designated Core Area and Low Density habitat. 14 of those dwellings are within Core Area and 8 are within Low Density. Malheur County also tracks accessory 'agriculture buildings' (e.g., barns, machinery sheds, etc...). A total of 15 such buildings are located in both Core and Low Density. See Map 2 "*Malheur County Permitted Sites in Sage-grouse Habitat.*"

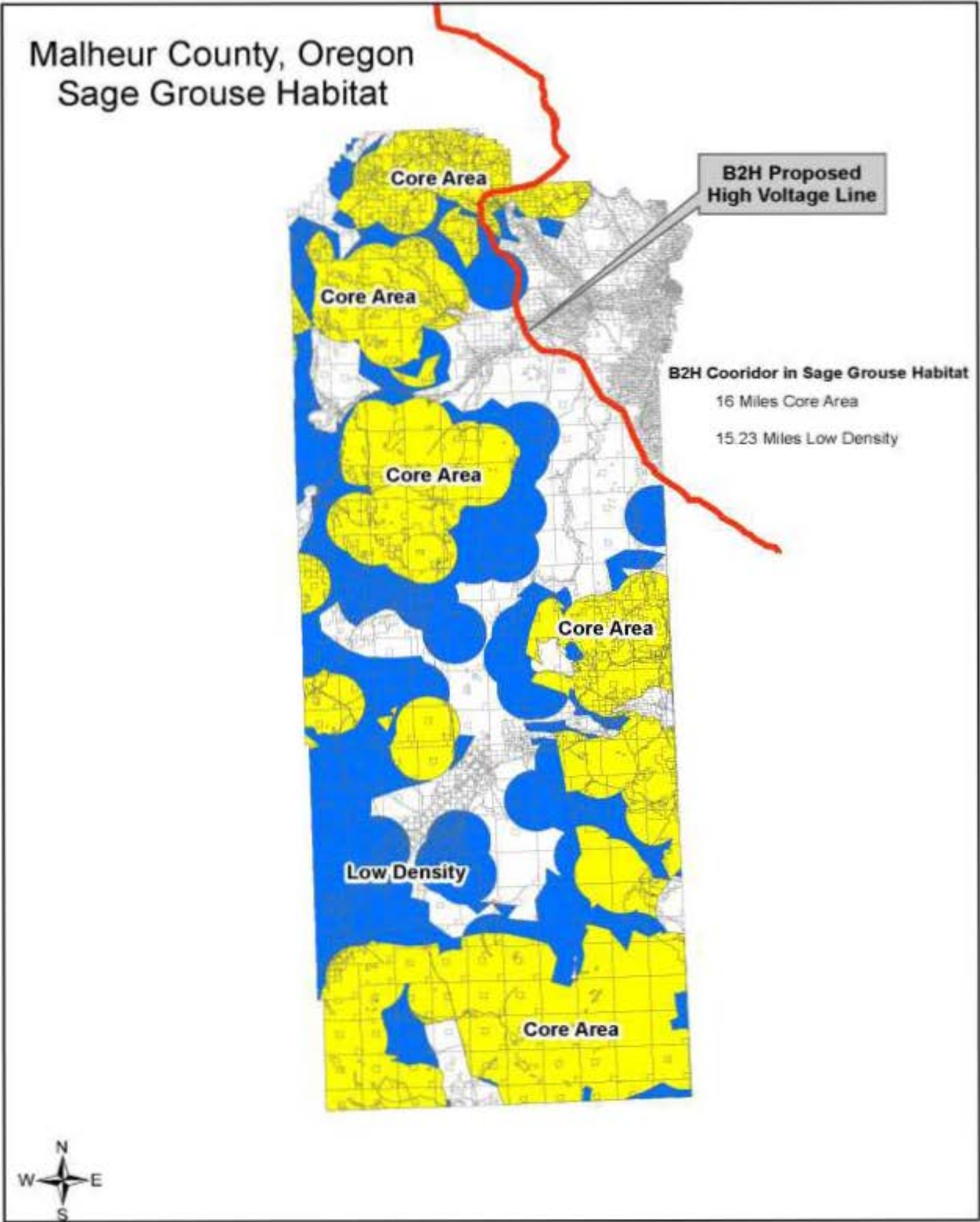
## **Roads and Utilities**

Malheur County's county road system has been constructed principally for the purposes of life safety. These roads are critical for emergency access to federal and private lands throughout the county. Excluding the Federal and State Highway system (*U.S. HWY 20, 26, 95, and interstate 84*) there are 518 county designated roads spanning approximately 2,920 miles within Malheur County. 127 of these roads intersect BLM lands. 1,071 and 604 road miles are in Core Area and Low Density habitat respectively. While alterations have been made to existing roads, no new county roads have been created from 2003-2013.

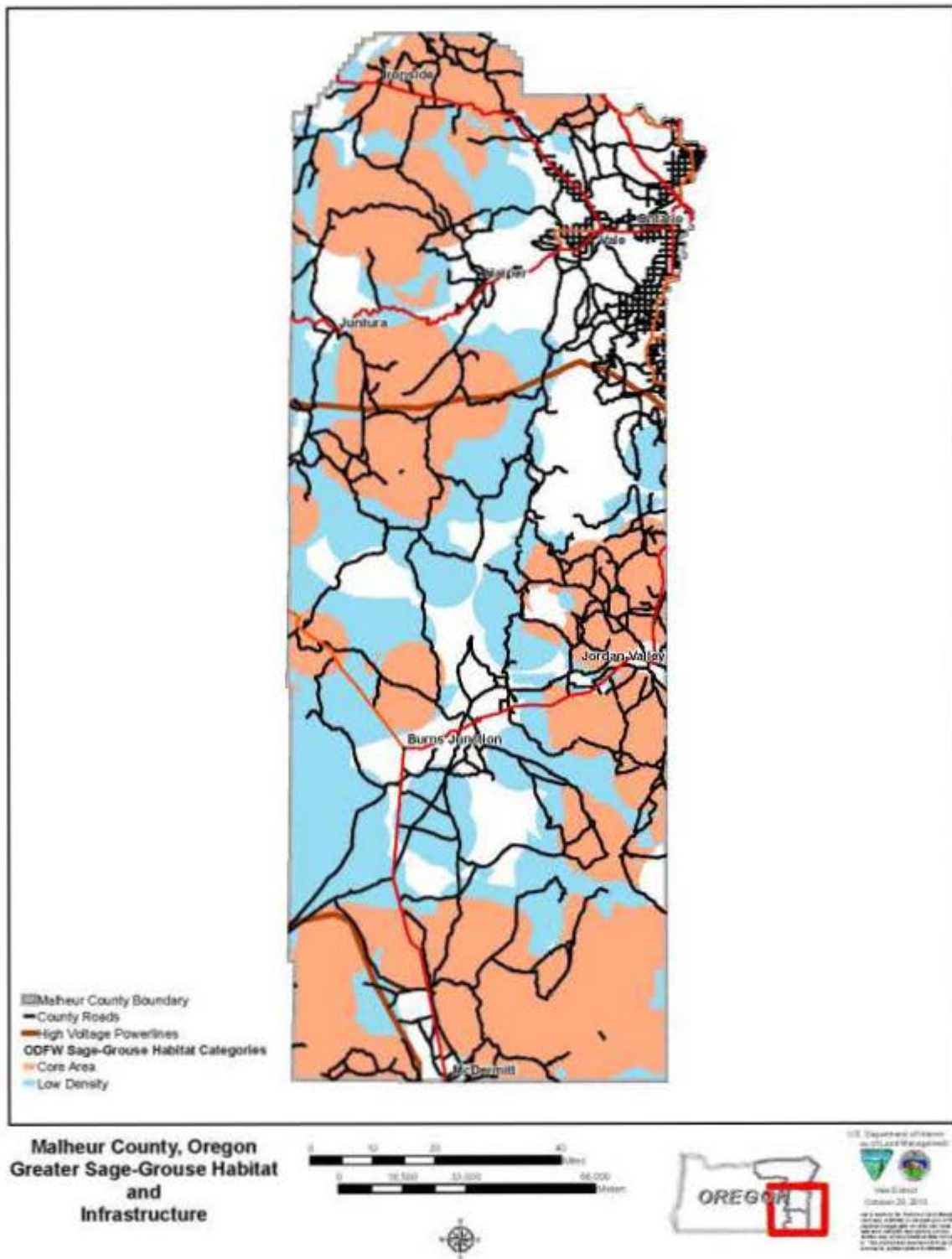
Existing overhead high voltage transmission lines in Malheur County total 46 miles within Core Area and 32 miles within Low Density. Although not constructed, Idaho Power has proposed a new high voltage power line through habitat areas (see map 3 below) known as the "Boardman to Hemingway" or "B2H" line. The B2H line will cross through 16 miles of Core Area and 15.23 miles of Low Density habitat ranges.



Map 3: Malheur County – B2H line (Proposed Location)



**Map 4: Malheur County – County Roads and Transmission Lines**



## Surface Mining Sites

Table 2 below lists 14 existing surface mining/exploration sites within Core Area and Low Density habitat. Of these sites, only 3 are currently active at this time. Malheur County has approved just one surface mining site within Core Area over the last ten years, however said approval was not acted upon within the timeframe allotted under local standards for a conditional use permit, and therefore is no longer permitted.

**Table 2: Surface Mining Sites within Sage Grouse Habitat**

Permit Number	Permittee → Type - Status	Habitat Designation
23-0005	ODOT – Aggregate – Not Active	Core Area
23-0050	Paul Vaden – Aggregate – (last active 12/13) – Not Active	Core Area
23-0125	ODOT – Aggregate – Not Active	Core Area
23-0126	ODOT - Aggregate – Not Active	Core Area
23-0140	Oregon Energy LLC – Uranium – Not Active	Core Area
23-0159	ODOT - Aggregate – Not Active	Core Area
23-0176	ODOT - Aggregate – Not Active	Low Density
23-0187	Eldorado Resources LLC – Exploration Only – Not Active	Core Area
23-0224	Seabridge Gold Corp. – Exploration Only – Not Active	Core Area
23-0234	White Mountain Natural Products Inc. – Zeolite – Not Active	Core Area
23-0267	Mineral Valley LLC – Exploration – Not Active	Core Area
23-0269	Three Valleys Ranch LLC – Gold Mine - Active	Core Area
23-0272	Industrial Builders Inc. – Aggregate - Active	Low Density
N/A	Blackburn Family Trust – Aggregate – Active	Low Density

## Land Use and Building Permit Activity (2003-2013)

Table 3 shows the land use planning permits & authorizations issued from 2003 to 2013 within Core Area and Low Density habitat. As listed below, there were a total of 8 approved land use permits for new development, all within Core Area. 9 of the authorizations were for replacement of legally existing dwellings, of which 6 are in Core Area and 3 within Low Density. Although not considered a land use decision, Malheur County shows 7 buildings related to existing agriculture operations or “agriculture buildings.” Such buildings are allowed as an out-right use within the C-A1 zoning designation and do not require a permit for development beyond a site plan review for consistency with local siting standards. Building permits follow a nearly identical pattern. All new dwelling sites (newly approved and replacement) received structural permits. One existing telecommunication facility received a structural permit to locate new antennas (not exceeding the previous height). Agricultural buildings do not require structural permits.

**Table 3: Land Use Decisions (2003-2013)**

Land Use Decisions (2003-2013)	Core Area		Low Density	
	Federal Lands	Non-federal Lands	Federal Lands	Non-federal Lands
<i>All Land Use Approvals Within Exclusive Range Use (C-AI)</i>				
New Dwellings	0	8	0	0
Replacement Dwellings	0	6	0	3
Accessory Building (*not Land Use Decisions)	0	7	0	0

## Impact Analysis

### Risk Assessment

According to the COT (Conservation Objectives Team) report, Malheur County falls within two areas designated as Management Zones IV (4) and V (5), more specifically the “Northern Great Basin” and “Western Great Basin” Subareas. The Northern Great Basin Subarea which contains large parts of Harney/Malheur County is described as representing one of the largest bird populations of the subarea. *“Within Oregon, this represents one of the largest populations. The delineation of the Northern Great Basin population doesn’t correspond well to any existing assessment for Oregon, but does include almost all of the Vale administrative unit, as well as portions of the Burns administrative unit. In Oregon alone, the spring population in the Northern Great Basin is likely several thousand birds, with 2011 spring lek counts approaching 3,000 males (in the Beulah, Malheur River, Owyhee, and eastern portion of Whitehorse Wildlife Management Units).”* The report goes on to describe wildfire and the proliferation of invasive weed species as the primary and most recent risks to habitat. *“Loss of sagebrush habitat has been and continues to be threat to the population in Oregon. Between 1963 and 1974, 500,000 acres of sagebrush habitat was seeded to crested wheatgrass or sprayed with herbicide, and 1,600 water developments and 463 miles of pipeline were installed in the Vale District BLM’s area for the Vale project. More recently, wildfire is the most significant threat to landscape scale losses of sagebrush habitat as indicated by the previously mentioned 582,000 acre Long Draw fire of 2012. In conjunction with fire, invasive weeds are also one of the greatest risks the 4+ million acres of sagebrush habitat for this population in Oregon.”*

Table 4 lists habitat fragmentation threats and their corresponding levels for the subareas Malheur County falls within (COT report).



**Table 4: Southeastern Oregon Sage-Grouse Risk Levels**

<b>Land Use Related Risk Levels</b>	<b>Threat Rating</b>
Agriculture Conversion	Present, but localized
Energy	Present, but localized
Mining	Present, but localized
Infrastructure	Present and widespread
Recreation	Unknown
Urbanization	Present and widespread

### Findings and Conclusion

As listed in the other county development reports, the COT does not provide a consideration of county land use programs. Malheur County has zoning jurisdiction over a vast area principally reserved for natural resource production (agriculture and forest use). This development report shows that Malheur County is effective in minimizing land use impacts or conflicts within its large regulatory jurisdiction (1,541,299 acres or 24.4% of the County). As reflected in the other county reports, sparse residential population across a vast open landscape, coupled with agriculture and mixed farm and forest zoning have preserved non-federal lands as rural.

While conversion of agriculture lands is not regulated by the county land use program, it is found that on-the-ground changes to actual intense agricultural practices (as found in the ODF report cited earlier in the report) has not occurred and is not projected to expand due to future restrictions in water availability.

Malheur County's land use program does not pose a risk to sage-grouse populations. Agriculture-designated lands cover the large majority of non-federally managed parcels within the county. This designation is important to the ecological values of the county, and as listed earlier, is the principle factor in the preservation of large tracts with little to no urban developments outside of the county's population centers.

Looking specifically at the improvement of these lands, the most common structural development is single-family dwellings. This development type is not a significant impact however, as only 22 total dwellings currently exist within Sage Grouse habitat. This translates into 1 single-family dwelling per 44,242.2 acres of Non-Federal Sage Grouse habitat within Malheur County.

The local land use and building programs show that 14 of the 22 dwellings existed prior to 2003. Over a ten year period only eight (8) land use permits/authorizations for new home sites have been approved within designated Core Area, with no approvals within Low Density.

14 total surface mines (or exploratory activities) exist within Sage Grouse Habitat areas in Malheur County. 11 are within Core Area, and 3 within Low Density, however only 3 of those sites are active according to local and state information (see table 2). It is clear that land use approvals over the last decade have proven to be a strong tool for limiting potential developments not related to rural residential developments (see map 2 "Malheur County

Permitted Sites in Sage-grouse Habitat). Over the study's 10 year period, no new county roads or surface mining permits have been issued within Core or Low Density habitat ranges.

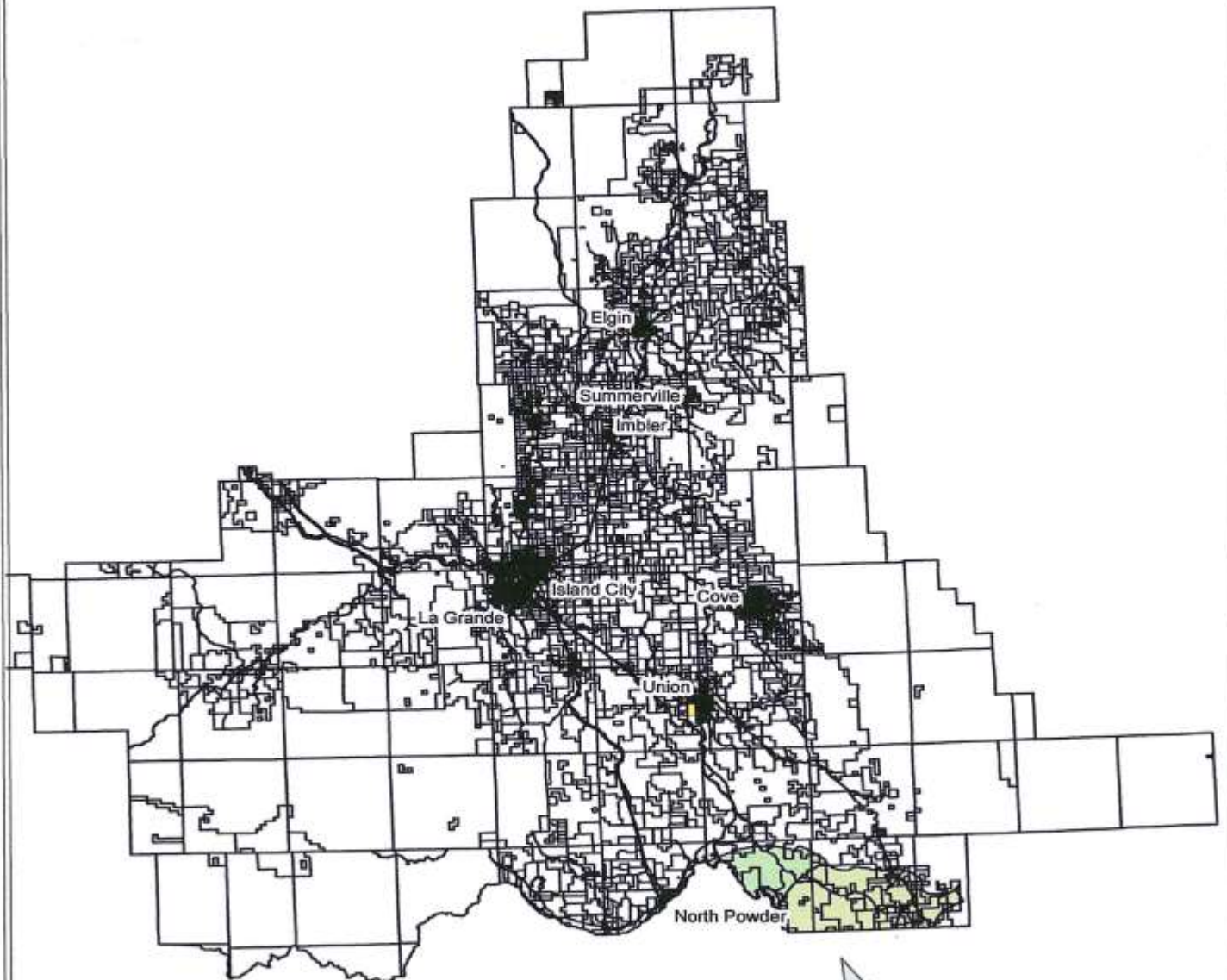
The COT report categorized Malheur County within two sub areas, one of which (26a) accounts for parts of southern Idaho, NE Nevada, and NW Utah. Malheur County stands apart from this area because of its utilization of local land use controls which have effectively preserved valuable agriculture lands in large tracts while controlling urban sprawl (22 total dwellings over hundreds of thousands of acres). This is in stark contrast to the adjacent area of Southern Idaho. Another important distinction is the disparity of actual jurisdiction area within Malheur County. Only 21.2% (973,327.58 acres) of Sage Grouse habitat is under the County Jurisdiction. The remaining 78.8% (3,617,199.6 acres) is located on Federal lands.

**Table 5 – Malheur County Habitat Risk Levels Revisited**

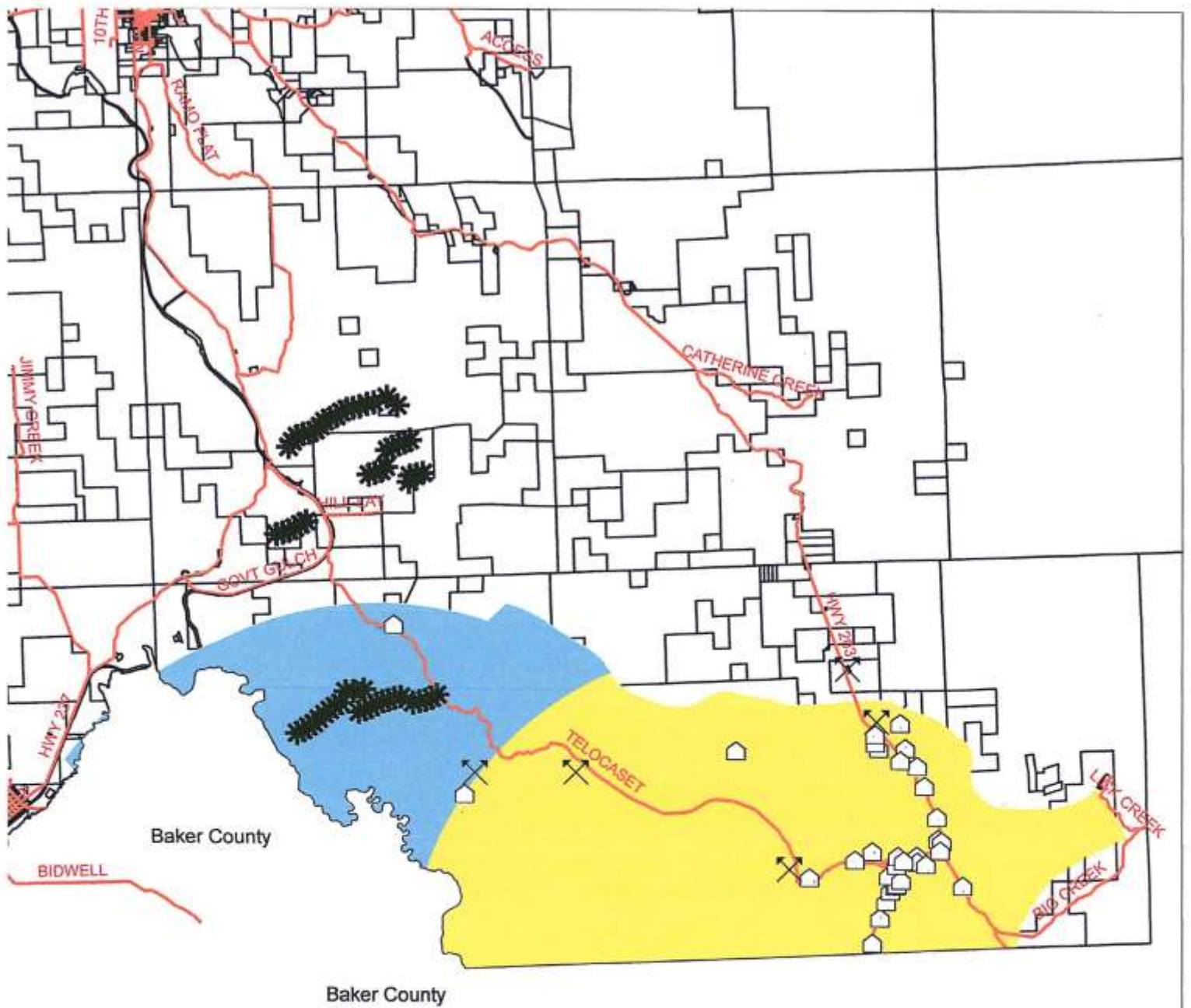
<b>Land Use Related Risk Levels</b>	<b>Threat Rating</b>	<b>Harney County Results</b>
Agriculture Conversion	Present, but localized	Unregulated, limited water expansion opportunities, not a significant threat
Energy	Present, but localized	Regulated, limited opportunities, not a significant threat
Mining	Present, but localized	Regulated, not a significant threat
Infrastructure	Present and widespread	Regulated, limited opportunities for growth, not a significant threat
Recreation	Unknown	Not regulated, unknown threat level
Urbanization	Present and widespread	Regulated, not occurring

# Union County

## UNION COUNTY, OREGON



Sage Grouse Habitat



## Land Use Impacts

- ✕ Agg\_Sites
- Dwellings
- \* Elkhorn Windfarm

Core Area

Low Density



## Land Use History

Union County adopted its first comprehensive land use plan on April 11, 1979 which was intended to be in compliance with statewide planning goals. However, a number of inconsistencies were identified by the Oregon Land Conservation & Development Commission (LCDC) so the County was required to pursue several revisions. Ultimately, the County received acknowledgement from LCDC that its land Use Plan and land use regulations were in compliance with statewide planning goals on June 20, 1985.

The land use regulation amendments developed over that 6 years to bring the County into compliance with statewide planning goals significantly reduced or limited development opportunities in currently identified Union County sage grouse Core Areas and Low Density Areas (Union County sage grouse habitat). The 1979 Land Use Plan had identified the currently inventoried Union County sage grouse habitat in an Agriculture-Timber-Grazing Zone that had a 40 acre minimum parcel size, except for about 160 acres in the Pondosa-Medical Springs Rural Center. By the time of the 1985 acknowledgement this area was changed to a new Agriculture-Grazing Plan/Zone42 that had a 160 acre/80 acre minimum parcel size. Where properties were being actively farmed, parcels as small as 80 acres could be created, otherwise the minimum was 160 acres.

The other major change by 1985 was the identification of Big Game Winter Range for all of the area in Union County sage grouse habitat. For these areas new dwellings were and are required to be sited based on a cooperative wildlife management plan signed by Oregon Department of Fish & Wildlife and the landowner. Usually, this meant siting a new dwelling within 280 feet of an open, maintained public use road.

As Oregon's land use program has evolved since 1985 restrictions on resource zones has increased. Statutory minimum parcel sizes for resource zones were adopted by the Oregon Legislature in 1993 (House Bill 3661). Union County applied these statutory minimum parcel sizes directly and in 1996 the County revised its resource zones to be in compliance with the statutes. The new A-2 Agriculture-Grazing Zone minimum parcel size was increased to 160 acres for predominantly cropland parcels and 320 acres for predominantly rangeland parcels. These minimum parcel sizes exist until today. There are no predominantly cropland parcels in Union County sage grouse habitat, therefore the majority of the Union County sage grouse habitat has a 320 acre minimum parcel size for the creation of new parcels.

Also worth noting is that Oregon's exclusive farm use zone statutes do not allow the creation of four or more lots from a parent parcel in a calendar year (defined as a subdivision). Therefore, only partitions are allowed that create up to two new parcels (at least 320 acres in size) and a remainder (also, at least 320 acres in size).

Oregon land use statutes allow the creation of non-farm parcels (parcels less than the minimum parcel size) with non-farm dwellings in exclusive farm use zones. Because this opportunity was optional, counties had to specifically authorize these opportunities. Union County chose not to allow the creation of new non-farm parcels until March 21, 2007. This opportunity is limited to a maximum of two new non-farm parcels as long as the remainder is greater than 320 acres. The County has not processed any non-farm parcel requests in Union County sage grouse habitat.

In conclusion, Union County sage grouse habitat (about 30,000 acres) is in an A-2 Agriculture-Grazing Zone that effectively has a 320 acre minimum parcel size, except for about 160 acres that is in the Pondosa-Medical Springs Rural Cluster Development Zone that has a specific development plan for a maximum of 17 lots or parcels. All new residential development in the A-2 Agriculture-Grazing Zone (nonfarm & farm) must be sited subject to a wildlife management plan, which generally means within 280 feet of an open, public use road. While non-farm parcels and non-farm dwellings have been allowed in the A-2 Agriculture-Grazing Zone since 2007, none have been requested or authorized in Union County sage grouse habitat.

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<sup>42</sup> The Agriculture-Grazing Zone is a qualifying ORS 215.283 Exclusive Farm Use Zone.



## Comprehensive Plan and Zoning

### Base Zoning within Sage Grouse Designated Areas

The Union County sage grouse Core Area and Low Density habitat include about 30,000 acres in four zoning districts (see Table 1 and Maps 1 and 2). Approximately 93% of this area is in an A-2 Agriculture-Grazing Zone. Incidental acres are included in a County A-1 Exclusive Farm Use Zone (45 acres), A-4 Timber-Grazing Zone (1,307 acres or 4%), and Pondsosa-Medical Spring Rural Cluster Development Zone (154 acres).

Table 1 identifies the acres in each zone divided between sage grouse Core Area and Low Density habitat and whether those acres are in federal ownership (5%) or non-federal ownership (95%). The 45 acres in the A-1 Exclusive Farm Use Zone are river bottom used for pasture and are designated Low Density habitat. This area is just east of the City of North Powder, includes small segments west of the Powder River and is adjacent to Baker County which is on the other side of the Powder River.

**Table 1 - Union County Base Zoning within ODFW's Core and Low Density Habitat**

	Core Area		Low Density		Total Acres	Percent of Sage-Grouse Habitat
	Federal Lands	Non-federal Lands	Federal Lands	Non-federal lands		
Exclusive Farm Use Zone						
Acres	0	0	0	45.43	45.43	0.15%
Tax Lots	0	0	0	2		
Agriculture Grazing Zone						
Acres	661.81	19,265.48	0	7807.56	27,734.85	94.85%
Tax Lots	17	96	0	17		
Timber Grazing Zone						
Acres	340.02	865.54	0	101.0	1306.56	4.46%
Tax Lots	1	9	0	1		
Rural Cluster Development Zone						
Acres	0	153.50	0	0	153.50	0.54%
Tax Lots	0	16	0	0		
Rural Cluster Development Zone						
Acres	0	153.50	0	0	153.50	0.54%
Tax Lots	0	16	0	0		
Total	1001.83	20,284.52	0	7,953.99	29,240.34	100%

The A-2 Agriculture-Grazing Zone is predominantly rangeland, except for about 438 acres in wild hay production and 30 acres in crop production.

The 1306.56 acres in the A-4 Timber-Grazing Zone are primarily along the north boundary of the Core Area. About 74% of this area is in non-federal ownership and in a mix of timber and grazing uses. Forestlands have a 240 acre minimum parcel size and rangeland has a 320 acre minimum parcel size requirement.

The 154 acres in the Pondosa-Medical Springs Rural Cluster Development Zone is entirely in non-federal ownership and includes, or has nearby, most of the residential development in the sage-grouse habitat. This zone has a maximum development capacity of 17 lots or parcels.

### Combining or Overlay Zones within Sage Grouse Designated Areas

All of the Union County sage grouse Core Area and Low Density habitat is in a Big Game Winter Range Overlay Zone.

Sage grouse habitat was not identified by ODFW as a significant Statewide Planning Goal 5 resource in 1985 at the time of LCDC acknowledgement. However, because big game winter range was inventoried and identified as a significant Statewide Planning Goal 5 resource, the County evaluated big game winter range through the Goal 5 process. The County decided to balance big game winter range and conflicting uses (such as dwellings) through a cooperative wildlife management plan process. The result is conflicting uses (such as homes in elk winter range) can't be denied but they can be sited to have the least amount of impact on big game winter range use. Essentially this has resulted in dwellings being sited within 280 feet of an open, maintained public use road.

While the County's Land Use Plan has not specifically inventoried or evaluated sage grouse habitat, the big game winter range mitigation measures will generally limit new residential development to within 280 feet of open, maintained public use roads and afford sage grouse habitat similar indirect protections.

### Built Environment and Development Activity

**Table 2: Union County Sage Grouse Habitat Area Land Use Assessment and Impact Analysis**

- 33 Total Dwellings
- Non-Active Aggregate Removal Sites
- 30 Acres of Cultivated Cropland
- 438 Acres of Wild Hay Production
- 29,701.56 Total Acres in Core Area and Low Density Habitat
- Miles ODOT Secondary Highway (Hwy. 203)
- 10.06 Miles of County Local Roads

#### Development Activity 2003 – 2013

Core Area	
R-1 Rural Center Zone	1 – Rural Fire Protection Building 3 – Dwellings
A-2 Agriculture Grazing Zone	1 – Lot-of-record dwelling/Replacement dwelling 1 – Farm dwelling/office 3 – Measure 37 Dwellings
A-4 Timber Grazing Zone	No Activity
Low Density	
A-1 Exclusive Farm Use Zone	No Activity
A-2 Agriculture Grazing Zone	1- Farm dwelling 25 wind turbines
A-4 Timber Grazing Zone	No Activity

## **Housing Units**

There are 33 dwellings in the Union County sage grouse habitat areas. Thirty-one (31) of them are in the Core Area sited in the vicinity of the Pondosa-Medical Springs Rural Cluster Development Zone and adjacent to an existing State Highway or County Roads. Two dwellings are located in sage grouse Low Density habitat. Only two dwellings, one in Core Area and one in Low Density, are set back from open public use roads.

## **Roads and Utilities**

There is one state highway, Oregon Highway 203, about 5.06 miles long extending from north to south through the eastern portion of the Core Area. Two County Roads about 10.06 miles long, Telocaset Lane and Big Creek Road, extend from Ore. Hwy 203, are gravel surfaced roads and are open and maintained by the County. Telocaset Lane extends east to west through the center of the Core Area and Low Density habitat (see Map 2).

Above ground electrical distribution lines are in the road right-of-way along Ore. Hwy 203, Big Creek County Road and only the eastern 2 miles along Telocaset Lane.

Idaho Power LLC has a 230kv transmission line extending from south to north through the very western edge of the Low Density habitat area.

## **Surface Mining Sites**

There are four (4) non-active surface mining sites within sage grouse habitat (see Map 2). These sites are small and used periodically for nearby road projects and neighboring farms and ranches.

## **Elkhorn Wind Farm**

The Elkhorn Wind Farm was constructed in 2007 and is partially located in Low Density habitat (see Map 2). There are 25 turbines in Low Density habitat on ridgelines out of the 61 turbines in the whole project. The turbines are in a string connected by one gravel private access road from Telocaset Lane.

A second, larger wind farm has been proposed in Union County. The proposed site is northwest of the existing wind farm and outside of sage grouse Low Density habitat and Core Area. An ODFW evaluation in 2011 of this proposal found no significant anticipated conflicts between sage grouse habitat and the proposed project.

## **Local Land Use and Building Permit Activity**

Table 3: Building Permit Activity in the Last 10 Years identifies structural improvements over the last 10 years within the Union County sage grouse habitat areas.

As discussed above, the Elkhorn Wind Farm is partially (25 turbines out of a total of 62 turbines) located in sage grouse Low Density habitat. During construction a temporary rock crusher, concrete batch plant and lay-down yard were established. All of these structures and improvements were removed once the wind farm was operational. A separate application was approved for a permanent microwave tower outside of sage grouse habitat.

One single-family farm dwelling just west of the 25 turbines received land use and building permit approval in 2003. In 2008 this residence was sold to the Elkhorn Wind Farm and converted to their office and operations building.

Another single-family farm dwelling east of Thief Valley Reservoir was constructed in 2011 and received land use approval but no building permit. This dwelling is on the line between the Core Area and Low Density habitat.



A property about one mile north of Pondosa-Medical Springs Rural Cluster Development Zone was subdivided into five (5) lots through the voter approved Oregon Measure 37 process. Each lot is about 80 acres in size, one includes the existing dwelling, three (3) were built on and “vested” under Measure 37 and the last 80 acre parcel no longer has dwelling approval.

**Table 3: Local Land Use & Building Permit Activity in the Last 10 Years**

<b>Structural Type</b>	<b>Local Approvals</b>	<b>Multiple Permits Issued for One Site (Y/N)</b>
Elkhorn Wind Farm (2007)	Temporary rock crusher Temporary batch plant Temporary lay down yard 25 turbines & met towers	Yes
Dwelling converted to office & operating building	Farm dwelling CUP - office	Yes
Dwelling	Farm dwelling	No
Dwelling	Lot-of-record dwelling Replacement dwelling	Yes
3 Dwellings & Rural Fire District building	Rural Cluster Development Zone – exception area	Yes
3 Dwellings	Measure 37 claims	Yes

**No State or Federal development within sage grouse habitat in Union County.**

One property immediately west of Medical Springs received Lot-of-Record dwelling approval in 2000 and the approved dwelling was later replaced in 2008.

The Pondosa-Medical Springs Rural Cluster Development Zone was originally (1985) identified as a Rural Center Zone with a one acre minimum parcel size. This zoning was later changed (1998) to the Rural Cluster Development Zone that limited residential development to 17 lots. Three (3) of those lots have been built on and one was dedicated to a new Medical Springs Rural Fire District building in the last 10 years.

## Impact Analysis

### Risk Assessment

The Deschutes County Sage-Grouse Conservation Land Use Assessment and Impact Analysis includes Table 13- Central Oregon Sage-Grouse Risk levels obtained from the Sage-Grouse Conservation Objectives Draft Report prepared by the Conservation Objectives Team:

**Table 4 – Central Oregon Sage-Grouse Risk Levels**

<b>Risk Levels (Land Use Related)</b>	<b>Rating</b>
Agriculture Conversion Energy Infrastructure Recreation Urbanization	Localized, Substantial
Mining	Slight Threat

### Findings

The Union County risk levels and threats to sage grouse habitat from the uses listed in Table 13 are minimal.

Rangeland conversion to cropland has not occurred in the last 10 years for the 30,000 acres identified in sage grouse habitat. Rangeland conversion to other non-agricultural uses has been limited to those uses identified in Table 3. The 25 wind turbines that are part of the Elkhorn Wind Farm only eliminate livestock grazing on the quarter acre for each turbine footprint and the private gravel access road. Infrastructure is limited to the State Highway and County Roads described above. No additional roads or road improvements are planned.

Thief Valley Reservoir is partially in Union County and in sage grouse Core Area and Low Density habitat. The dam was constructed in 1933 for irrigation purposes. No minimum pool is required for fisheries. Therefore, the reservoir is periodically drained on dry summers which results in reduced recreational fishing, boating and camping. Land under and around the reservoir was purchased by the Bureau of Reclamation and is currently managed by the Bureau of Land Management. There is a small County park on the east side of the reservoir that allows overnight camping, has a vaulted toilet, hand pump potable water and a boat ramp. No park expansion has occurred in the last 10 years and no park expansion is anticipated.

No urbanization has occurred in sage grouse habitat and none is planned or allowed within sage grouse habitat. Rural residential development has occurred in the Pondosa-Medical Springs Cluster Development Zone but it is limited to a maximum of 17 buildable lots within 154 acres.

Four small-scale family aggregate sites have periodically operated in sage grouse Core Area habitat. No permanent processing facilities exist at any of the sites and they are primarily used for local road projects and as needed by neighbors. No expansion plans are known.

## Conclusion

Sage grouse Core Area and Low Density habitat in Union County totals about 30,000 acres or about 2% of the County. About 93% of the sage grouse habitat areas is in a County A-2 Agriculture-Grazing Zone that has a 320 acre minimum parcel size for the creation of new predominantly rangeland parcels. All new residential development in this area will be sited within 280 feet of an open public use road. There are 33 existing dwellings in the sage grouse habitat and 8 of them were located in the last 10 years. Except for 3 dwellings, all of the rest are adjacent to Oregon Highway 203, Big Creek and Telocaset County Road or in the Pondosa-Medical Springs Rural Cluster Development Zone.

Other development includes 25 of 64 wind turbines in the Elkhorn Wind Farm and its office and operations building. A new wind farm is proposed west of the identified sage grouse habitat area and ODFW does not anticipate any sage grouse impacts from this proposal.

There has been no conversion from rangeland to cropland, and no increased infrastructure, recreation or urbanization over the last 10 years. Development in the Pondosa-Medical Springs Rural Cluster Development Zone is limited to a maximum of 17 lots in 154 acres.

In conclusion, recent (last 10 years) impacts to sage grouse habitat have been minimal and future impacts are severely limited by the A-2 Agriculture-Grazing Zone and Big Game Winter Range Overly Zone.

# Regional Summary

## The Territory

Oregon's affected territory encompasses seven counties. All together, these jurisdictions make up over 25 million acres of which nearly 12 million acres are identified as either low density or core Sage-grouse habitat by ODFW. The affected territory is also characterized by vast expanses of rangeland managed by federal agencies and not subject to state or local governance.

Harney, Lake and Malheur counties comprise the majority of the region's land base (72%). These three counties also include most of Oregon's Sage-grouse habitat and have the highest proportion of federal lands (74% federal, 26% nonfederal).

Baker, Deschutes, Crook and Union counties have lesser amounts of total land area and Sage-grouse habitat. Union County in particular has a very low amount of identified habitat when compared to other jurisdictions. Although the overall amount of Sage-grouse habitat is less significant when compared to Harney, Lake and Malheur; Baker, Crook and Union counties have a much higher ratio of private lands included in the ODFW inventory.

**Table 1: Region-wide Acreage by County**

County	Size	Core Habitat	Low Density Habitat	Total Habitat By County
Baker	1,938,062	265,095	82,996	348,091
Crook	1,920,000	423,726	140,134	563,860
Deschutes	1,912,901	249,205	188,782	437,987
Lake	5,350,660	1,034,859	772,805	1,807,664
Harney	6,533,320	1,757,152	2,009,444	3,766,596
Malheur	6,353,930	2,702,598	1,887,928	4,590,526
Union	1,304,960	21,286	8,374	29,660
<b>Overall Totals</b>	<b>25,310,143</b>	<b>6,453,921</b>	<b>5,090,463</b>	<b>11,544,384</b>

Each county has one or more population centers where the majority of their citizens reside and where most commercial and employment opportunities are available. Each population center is characterized by one or more incorporated city and associated urban growth boundary. In every case, local and regional population centers are located outside of identified Sage-grouse habitat. The city of Unity, in Baker County, is located within Low Density Sage-grouse habitat. However, with a 2012 population of 70 residents it is not considered a population center for purposes of this report.

**Table 2: County Population and Primary Population Centers (2012)**

County	County Population	Primary Population Centers
Baker	16,210	City of Baker City – Pop 9,890
Crook	20,650	City of Prineville – Pop 9,245
Deschutes	160,140	City of Bend – Pop 77,455 City of Redmond – Pop 26,345
Harney	7,315	City of Burns – Pop 2,835 City of Hines – Pop 1,565
Lake	7,290	Town of Lakeview – Pop 2,300
Malheur	31,395	City of Ontario – Pop 11,415 City of Nyssa – Pop 3,270 City of Vale – Pop 1,890
Union	26,175	City of La Grande – Pop 13,110

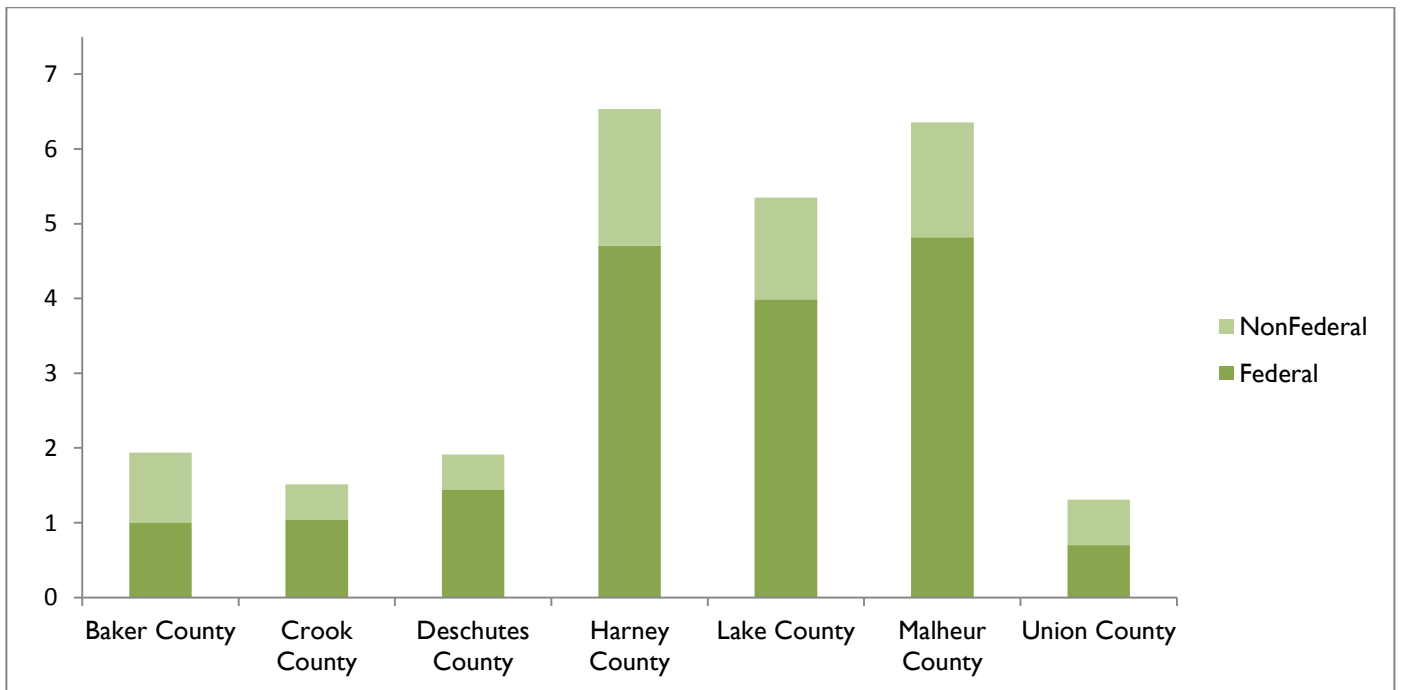
All population numbers are taken from the Certified Population Estimates for 2012 prepared by Portland State University.

As indicated above, lands that are used by the species are usually very remote, sparsely inhabited and lacking in infrastructure to support community development. For instance, there are no commercial airports located in Sage-grouse habitat and most of these lands are distant from major transportation systems. Although state highways are present across the range, most serve district levels of traffic and are not expected to support interstate travel. Rail service is generally unavailable south of Interstate 84.

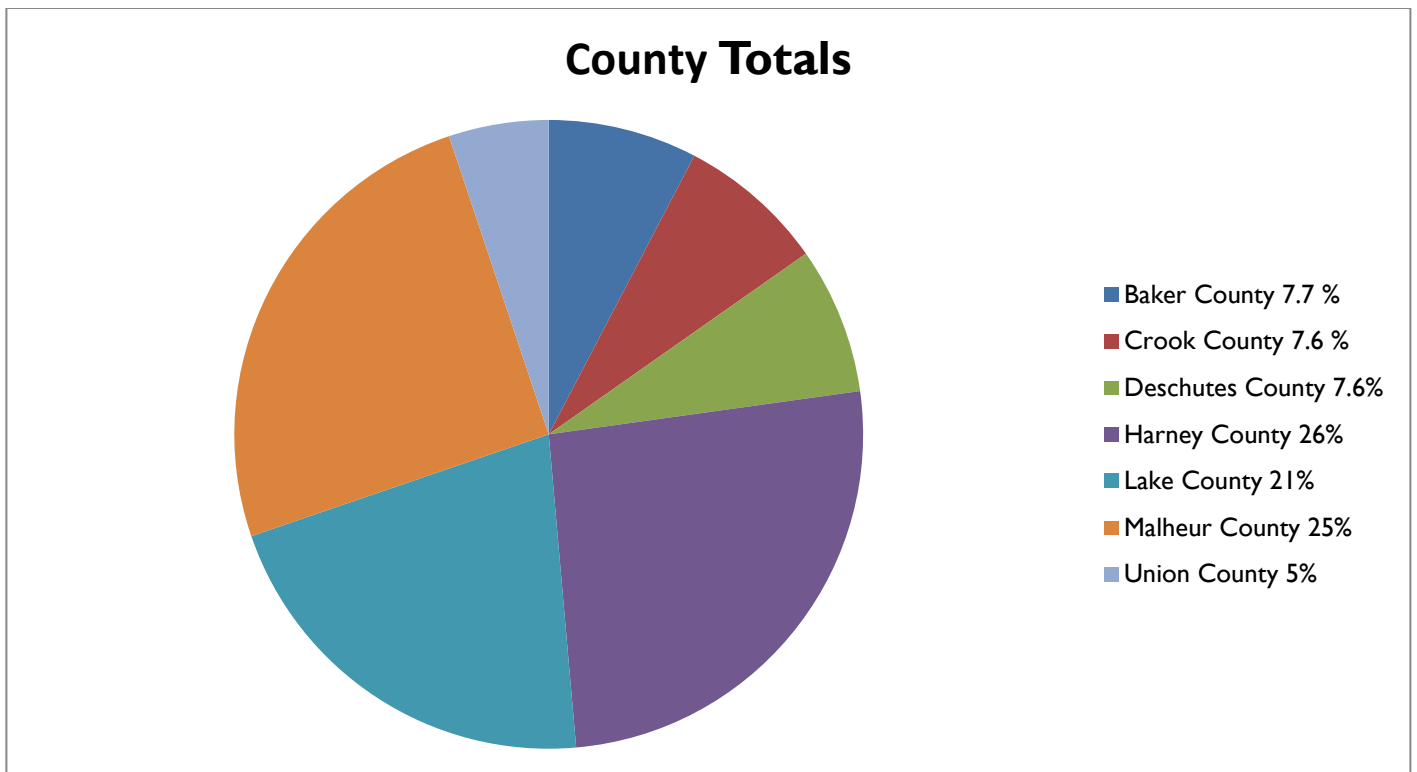
**Table 3: Region-wide Acreage Containing Sage-grouse Habitat**

	Core Area		Low Density		Total	% Habitat (Core and Low D.	
	Federal Land	Non-Federal Land	Federal Land	Non-Federal Land		Federal Lands	Non-Federal Lands
Deschutes	182,482	66,723	132,946	55,836	437,987	72.02%	27.98%
Baker	78,279	186,816	12,605	70,391	348,090	26.11%	73.89%
Crook	152,709	271,017	47,530	92,604	563,860	35.51%	64.49%
Harney	1,403,221	353,931	1,581,277	428,175	3,766,604	79.24%	20.76%
Lake	896,071	138,788	687,350	85,455	1,807,664	87.59%	12.41%
Malheur	2,122,160	580,438	1,495,039	392,890	4,590,527	78.80%	21.20%
Union	1,002	20,285	0	7,954	29,240	3.43%	96.57%
<b>Total</b>	<b>4,835,924</b>	<b>1,617,997</b>	<b>3,956,748</b>	<b>1,133,304</b>	<b>11,543,973</b>	<b>76.17%</b>	<b>23.83%</b>

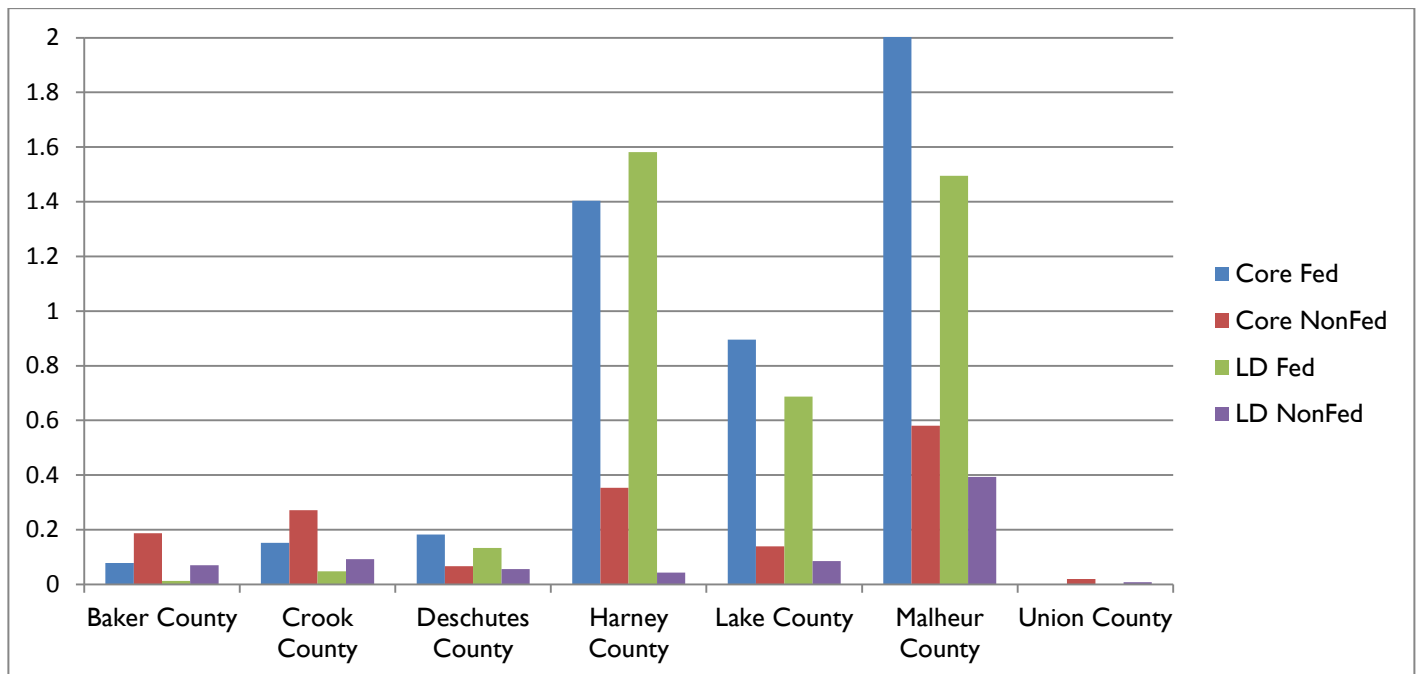
**Figure 1: Total County Size by Federal and Non-Federal Land  
(In Millions of Acres)**



**Figure 2: Total County Size as Portion of the Region**



**Figure 3: Sage Grouse Habitat by Type and Land Ownership**



## County Land Use Planning Programs

### Land Use Planning History

All seven of Oregon's affected counties have land use planning programs that consist of comprehensive plans and implementing ordinances. In several cases, these programs originated as far back as the 1960's or early 1970's. Each local land use planning program has been acknowledged to be in compliance with Oregon's Statewide Planning Goals since the late 1970s or early-mid 1980s. Changes to local land use programs have occurred through Post Acknowledgment Plan Amendments (PAPAs) or through an official Periodic Review process required by the State of Oregon. Any amendment to an acknowledged plan must be found to be consistent with the applicable Statewide Planning Goals, as well as any applicable state statutes or administrative rules. Counties have a legal obligation to amend their local programs to reflect changes or updates to state law (Goals, statutes or rules). In most instances new laws are directly applicable until local programs have been updated. In other instances the new law includes prescribed time frames for compliance.

## Comprehensive Plan and Zoning

### Land Use Designations within Sage-grouse Habitat

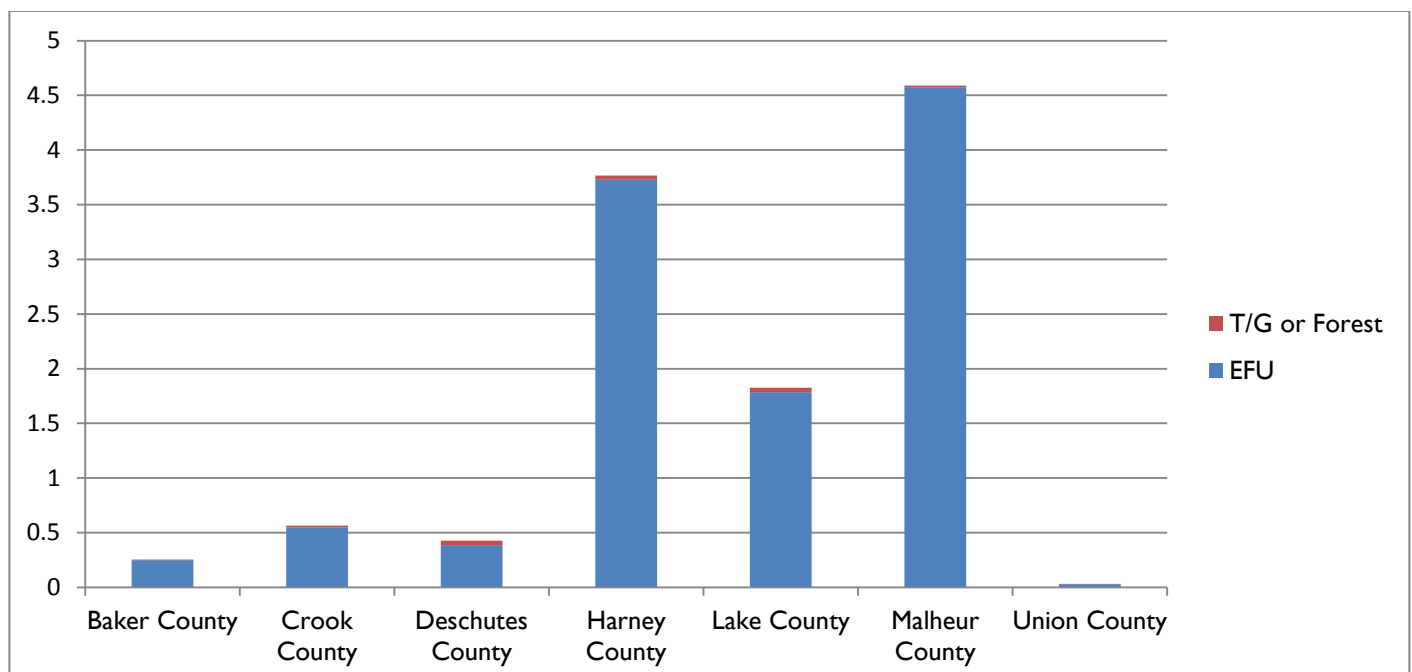
The preceding elements of this report identify that local comprehensive plans designate most all of the region, nearly the entire territory, for protection of farming, ranching and forestry activities under Statewide Planning Goals 3 (*Agricultural Lands*) and 4 (*Forestlands*). The comprehensive plan designations are carried out by a variety of Exclusive Farm Use or Forestland zoning districts.

Exclusive Farm Use and Forest Use zoning districts are collectively known as “resource” zones. They implement the policy objectives of Statewide Planning Goals 3 and 4, as well as a host of legal provisions included in ORS Chapter 215 and OAR Chapter 660, Divisions 6 & 33. Over time, many of the state’s legal requirements have been interpreted by the Oregon Courts. The resulting case law is also applicable and binding upon local decision makers. As mentioned before, resource zoning requirements are characterized by very large minimum parcel size requirements and strict limitations on activities that are not farm, ranch or forest related.

**Table 4: Local Resource Zoning Districts Implementing Statewide Goals 3 and 4**

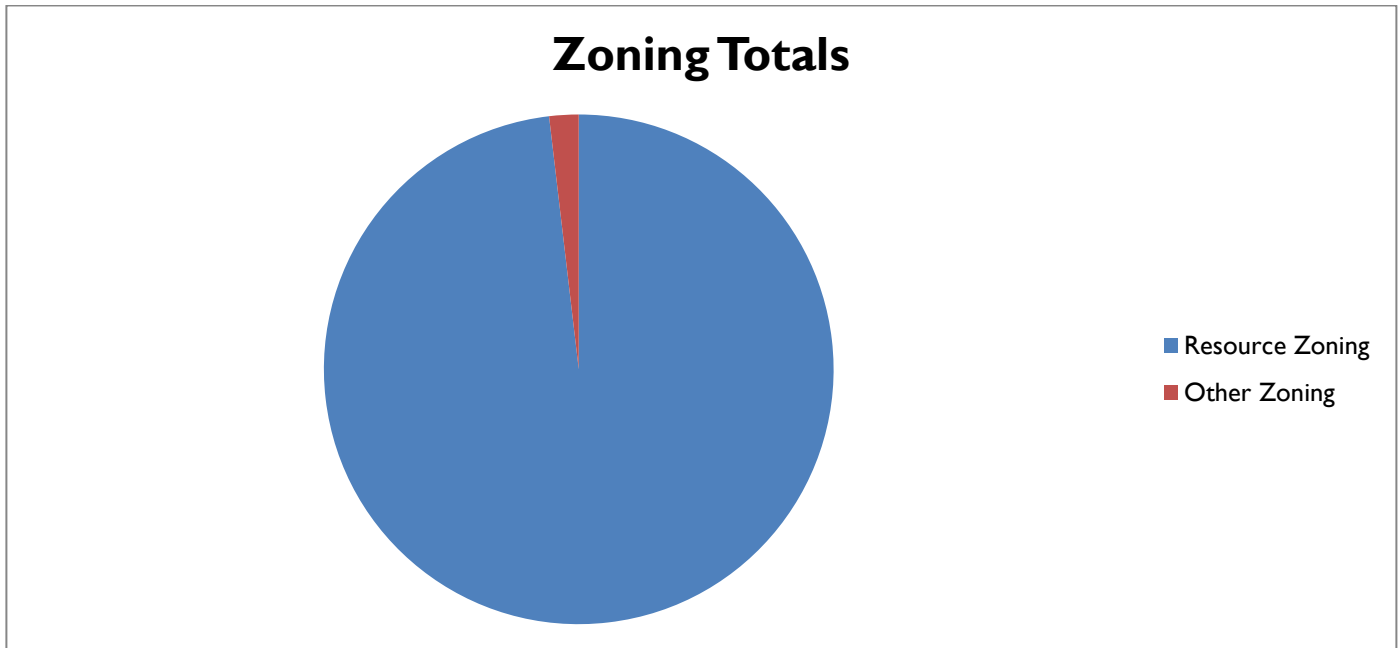
County	Exclusive Farm Use or Forest Use Zoning Districts
<b>Baker</b>	Exclusive Farm Use Timber Grazing
<b>Crook</b>	Exclusive Farm Use 1 Forest Use – F1
<b>Deschutes</b>	Exclusive Farm Use – Horse Ridge Subzone Forest Use 1
<b>Harney</b>	Exclusive Farm & Range Use – EFRU-1 Exclusive Farm & Range Use – EFRU-2 Forest Use - FU
<b>Lake</b>	Exclusive Farm Use – A-1 Agricultural Use – A-2 Forest Use – F-1
<b>Malheur</b>	Exclusive farm Use – C-A1 Exclusive Range Use – C-A2 Exclusive Forest Use – C-A3
<b>Union</b>	Exclusive Farm Use – A-1 Agriculture Grazing- A-2 Timber Grazing – A-4

**Figure 4: Resource Zoning of Sage Grouse Habitat**





**Figure 5: Resource Zoning**



Zoning categories other than Exclusive Farm Use or Forest Use (“Resource Zoning”) make up less than 2% of lands mapped by ODFW as Sage-grouse habitat. The majority of these areas are unincorporated communities. These areas resemble small towns in that they include a combination of residential, commercial or employment uses but have no municipal government structure. Examples of unincorporated communities include Fields in Harney County and Brogan in Malheur County. It is very possible that closer examination of unincorporated communities would reveal that their longstanding settlement pattern makes them unavailable to serve as valuable wildlife habitat for Sage-grouse or any other species.

## **Existing Habitat Conservation Measures and Zoning Designations**

### **“Goal 5” and Wildlife Mapping and Protection within Habitat Areas**

Statewide Planning Goal 5 (*Open Space, Scenic, Historic and Natural Areas*) directs local government to inventory, among other things, significant wildlife habitat. With assistance from ODFW counties are to consider the location, quality and quantity of a potential resource and determine if it is “significant.” If a resource is determined to be significant the jurisdiction is to identify possible uses that require land use approval and could be in conflict with the resource. From there a process to consider the Economic, Social, Environmental and Energy Consequences (ESEE) of fully allowing, partially allowing or not allowing conflicting uses is conducted, which finally results in a program to achieve the goal by protecting the resource or not.

All seven counties have acknowledged programs to protect wildlife habitat. In most cases these local programs focus on the value of mule deer, rocky mountain elk or pronghorn antelope. Two counties – Crook and Deschutes have adopted programs specific to Sage-grouse. The Deschutes County Sage-grouse program furnishes special protections to lekking areas on private property. The exact components of the Crook County Sage Grouse program are less clear.

**Table 5: Region-wide Zoning and Protection Programs**

	Resource Zoning	Big Game Protection Program	Sage Grouse Protection Program
Baker	X	X	
Crook	X	X	X
Deschutes	X	X	X
Lake	X	X	
Harney	X	X	
Malheur	X	X	
Union	X	X	

### Flood Plain Zone Overlay

All counties in Oregon employ some type of flood plain program to discourage investment and human habitation from areas prone to flooding. Special flood hazard areas are identified by the Federal Insurance Administration. Although Sage-grouse habitat is primarily a desert landscape flood plain areas do exist. For example, in Harney County a Special Flood Hazard Area is present on 9,557 acres of Core Habitat and 11,359 acres of Low Density Habitat.

Public policy steering development from flood hazard area contributes to maintaining an open landscape and provides benefits to wildlife habitat, including Sage-grouse.

### Built Environment and Development Activity

#### Housing Units

The number of residential housing units in Oregon's Sage-grouse habitat reflects the wide open landscape and is reminiscent of a frontier settlement pattern. An estimated 900 existing homes (exact information for Crook and Malheur Counties not available) are present across over 11.5 million acres in portions of seven counties. The dramatic absence of residential activity is well illustrated by the population distribution of Deschutes County, which is consistently been among Oregon's fastest growing jurisdictions. Anchored by the region's largest population centers of Bend (pop.77,455) and Redmond (pop. 26,345) and with a total population of over 160,000 citizens in 2012 Deschutes County is far and away the most populous county in central and eastern Oregon. However, despite strong growth levels along the Hwy 97 corridor, just 63 citizens make their home in the county's nearly 438,000 acres of Sage-grouse habitat.

#### Roads and Utilities

State highways and county roads are present in each county, as are overhead transmission lines. Local electrical distribution lines are generally placed in existing road right-of-ways and have not been considered for the purposes of this report. Not all counties have reported the exact amount of either type of feature. Harney

County has reported 105 miles of transmission lines in Core and Low Density habitat areas. Lake County estimates about 150 miles of transmission lines traversing Sage-grouse habitat. Overhead transmission lines in Crook County exist primarily in the western portion of the county outside of most Sage-grouse habitat. Figures for roads appear proportional with Deschutes County reporting 115 miles of county facilities in Sage-grouse habitat and Baker County reporting about 125 miles. Union County, with the least amount of habitat has reported about five miles of state highway and about 10 miles of county roads. No new roads or transmission lines have been developed in the period between 2003 and 2013. No new roads are called for in local Transportation Systems Plans (TSPs) and none are expected to be constructed, especially in light of severe funding constraints.

Idaho Power is planning a major transmission line that would run from Hemingway, Idaho to Boardman, Oregon. The B2H line, as it is commonly called could run through Sage-grouse habitat in Malheur and Baker Counties. BLM and ODFW are working with Idaho Power to identify wildlife issues with regard to potential routes. The Captain Jack line, which is under consideration by PacifiCorp would extend through southeastern Oregon from Malin, Oregon to Hemingway, Idaho has not advanced to any detailed planning stages and is not expected to move forward during the next 10 years. The Ruby Pipeline is a 42 inch natural gas line that will run from Malin, Oregon to Opal, Wyoming as an interstate transporter. The project route runs through about 86 miles in Oregon, including a portion of southern Lake County. The Oregon portion of the project has been completed. The Ruby Pipeline was approved by the Federal Energy Regulatory Commission in 2010. Natural gas is not generally available to areas of identified Sage-grouse habitat, nor is rail service.

### **Surface Mining Sites**

Permitted mining appears limited to aggregate extraction and processing activities. Although gold mining was common in portions of the region during the two preceding centuries no large commercial mines are currently in operation. The Grassy Mountain project has been proposed by the Calico Company on a site in northern Malheur County. The applicants have been working in coordination with ODFW and several other state agencies as they work through the permitting process required by Oregon's Department of Geologic and Mineral Industries (DOGAMI).

There are about 120 existing aggregate quarries present in Oregon Sage-grouse habitat. Many of the quarries are in ODOT or local government ownership and almost all of them are in close proximity to a state highway or county road. Most quarries operate only during road maintenance projects and often go unused for years at a time. Only a single new quarry received local land use approval between 2003 and 2013 (Baker County).

**Table 6: Land Use Decisions in Sage Grouse Habitat**

	Dwellings		Quarries		Energy Project		Roads		Misc. Other	
	Core	LD	Core	LD	Core	LD	Core	LD	Core	LD
Baker	9	4	1	0	0	0	0	0	0	0
Crook	1	4	0	0	0	1	0	0	0	0
Deschutes	7		0	0	0	1	0	0	5	
Harney	21	14	0	0	0	0	0	0	0	0
Lake	9	4	0	0	0	0	0	0	1	2
Malheur	8 (6 RD)	0 (3 RD)	0	0	0	0	0	0	7	0
Union	6	1	0	0	0	1	0	0	1	0
<b>Totals</b>	<b>88</b>		<b>1</b>		<b>3</b>		<b>0</b>		<b>16</b>	

## Impact Analysis

### Risk Assessment

The FWS was tasked by its Director with the development of conservation objectives for the sage-grouse. Recognizing that state wildlife agencies have management expertise and retain management authority for this species, the FWS created a Conservation Objectives Team (COT) of state and FWS representatives to accomplish this task. The Sage-Grouse Conservation Objectives Draft Report, created by the COT identifies risk levels and priority areas throughout the range. The final COT report was released in February 2013.

Oregon is included in two of the seven Management Zones identified in the COT Report. Management Zone IV Snake River Plain includes Baker and Union Counties in its Baker subarea (17) and portions of Harney and Malheur Counties in its Northern Great Basin subarea (26a). Management Zone Northern Great Basin includes Crook and Deschutes Counties in its Central Oregon subarea (28) and portions of Harney and Malheur Counties in its Western Great Basin subarea (31). Lake County appears to be substantially located in the Western Great Basin subarea as well.

The Baker subarea (17) and the Central Oregon (28) subarea includes lands in Oregon only. The Northern Great Basin subarea (26a, as opposed to Management Area V Northern Great Basin) includes lands in Oregon, Idaho, Nevada and Utah. The Western Great Basin subarea (31) includes lands in Oregon, California and Nevada.

**Table 7: Populations**

COT Management Zone	Sage Grouse Population	Counties
IV. Snake River Plain	Baker (17) Northern Great Basin(26a)	Baker & Union Harney & Malheur
V. Northern Great Basin	Central Oregon (28) Western Great Basin (31)	Crook & Deschutes Harney, Lake & Malheur

**Table 8: Ratings**

Land Use Related Risk Levels	Threat Rating
Agriculture Conversion	Present but localized (26a)(28)(31) Present and widespread(17)
Energy	Present but localized (17)(26a)(28)(31)
Mining	Present but localized (26a)(31) Present and widespread (17)(28)
Infrastructure	Present, but localized(17)(28)(31) Present and widespread (26a)
Urbanization	Not known to be present (31) Present but localized (17)(28) Present and widespread (26a)

## Findings

It is clear that the COT report did not take into account Oregon’s local planning programs required by state law. For example, on page 76, the COT Report makes the following statement with regard to the Baker population:

“Most (68%) of the sage-grouse habitat for the Baker population is in private ownership and 31% is administered by BLM (Hagen 2011b). This is the largest proportion of privately managed sage grouse habitat for any population in Oregon. Consequently, there are limited regulatory mechanisms in place, making it uncertain as to whether state-recommended conservation measures and practices will be applied on the majority of lands within this population.”

The statement is correct regarding the proportion of private lands identified as Sage-grouse habitat in Baker and Union County. However, it misses the mark with respect to the extent and applicability of regulatory mechanisms residing in local comprehensive plans. Oregon is unique among other states with regard to its land use planning programs. We do things different here. This report has identified the overarching protections and land use safeguards that currently apply in all seven of Oregon’s Sage-grouse counties – Urban Growth Boundaries to contain urban development, resource zoning that requires very large parcel sizes and limits development that is not related to farm, ranch or forest activities, and wildlife protection programs, some specific to Sage-grouse. The COT report also understandably overlooks the fact that changes to statewide planning law is directly applicable to the subject jurisdictions in most instances.

The following assessments have been done with the benefit of data and local knowledge that was not available to the authors of the COT Report. Areas outside of Oregon and activities on federal lands have not been identified or considered. Naturally, the combination of greater, more detailed information and a smaller area of inquiry have led to some different findings in some cases. This is not a criticism of the COT Report, it is instead an attempt to provide a more complete picture with regard to Oregon's Sage-grouse habitat on nonfederal lands.

### Conversion to Agriculture

Converting rural land to cultivated agriculture is not generally regulated by state or local planning programs. According to the COT report this activity is present but localized in Sage Grouse Populations including Crook, Deschutes, Harney, Lake and Malheur Counties. More surprising, the COT Report indicates that conversion to agriculture is widespread in Baker and Union Counties. This report reaches a different finding.

The Forests, Farms and People Report completed by the Oregon Department of Forestry (ODF) identified on pages 11-14 tracked actual, on the ground changes in land use activities from 1974 to 2009 by viewing and interpreting tens of thousands of photographic points. Over this 35 year period only a very small amount of the region was observed to convert from a wildland range category to intensive agriculture. Furthermore, lands that did convert were located in Harney County not Baker and Union Counties.

While there is no doubt that lands have been converted to agriculture, most all of those conversions would have happened in the distant past and not since 1974. The ODF data specific to this issue shows that there has been no significant conversion to agriculture in any of Oregon's Sage-grouse habitat. Information obtained from the Oregon Water Resource Department (OWRD) indicates that new water rights in the foreseeable future will not result in any significant conversions of Sage-grouse habitat to cultivated agriculture.

#### **Key Findings:**

- 1. Conversion to Agriculture is not generally regulated by state and local land use regulations.**
- 2. There has been no substantial conversion to agriculture in Oregon's identified Sage-grouse habitat since at least 1974.**
- 3. Future conversions to agriculture appear unlikely based on water rights information and availability. New sources of irrigation must be permitted by OWRD.**

### Energy Development

State and local land use laws apply to the siting of new energy facilities, particularly as they occur on lands zoned for resource uses. Projects that would occupy more than 12 acres of high-value farmland or 20 acres of non-high-value farmland, including rangeland, are subject to a detailed land use process known as an "exception". Among other things, the exceptions process requires an alternatives analysis and a demonstration of need. An exception also requires an amendment to the local comprehensive plan, which requires giving notice to the state of Oregon. This process is referred to as a Post Acknowledgement Plan Amendment (PAPA).

More specific rules have been established regarding wind and solar power projects. Wind projects on farm or ranchlands are excused from the ordinary size thresholds but any other requirements, including wildlife protection standards remain intact. Commercial solar projects proposed for dry rangeland areas operate under a 250 acre threshold. Solar projects on these lands are also subject to a specific rule provision that ensures any important wildlife issues will be recognized and accounted for during the review process. The policy objective

behind the solar rules is to encourage solar projects to site on lands with the poorest capacity for farm and ranch activities and with the lowest value for wildlife.

Small and medium sized energy facilities are reviewed by local government. A project may not be approved unless it is found to comply with the applicable provisions of law. Large energy projects are reviewed by the state's Energy Facility Siting Council (EFSC) who apply state and local land use provisions in addition to their own legal tests. The COT Report indicates that Energy Development is a present but localized threat throughout the four subareas that include Oregon's identified Sage-grouse habitat. This report reaches a different finding.

Oregon's energy portfolio includes multiple energy sources. Base load plants – plants that generate a consistent supply of power day in and day out, are often dependent on the presence of natural gas, transportation facilities such as rail road spurs or developed truck routes, or both. Consequently, most of Oregon's base load plants are located inside urban growth boundaries or other areas identified for industrial development where such services are available.

Between the years of 2001 and 2011 some areas of Oregon experienced high levels of renewable energy development. State policy requirements, favorable tax conditions and subsidies and access to strong outside markets combined created a rewarding environment for energy developers. Wind energy development received nearly all of the focus and occurred almost exclusively at locations with access to high voltage transmission facilities near the Columbia River and along the Interstate 84 freeway.

Oregon's Sage-grouse habitat has experienced almost zero energy development. As of this writing, the Elkhorn Valley project in Union County is the only developed wind energy generation facility in any of the seven counties. With 25 of 61 turbines located in Low Density habitat it represents the only form of energy development in any of Oregon's Sage-grouse areas. Possible future projects include the West Butte Wind project permitted by Crook and Deschutes County, and the Echanis Wind Project permitted in southern Harney County. Both wind projects encountered difficulties in gaining access to transmission. Neither project would impact core sage grouse habitat. Baker County has recently approved two small wind projects near Huntington, Oregon that if constructed would place a limited amount of towers within Core habitat.

Currently, many of the factors spurring renewable energy growth in Oregon in the last decade are no longer in place. Incentives like the Business Energy Tax Credit (BETC) have been retired or substantially revised, Oregon's investor owned utilities have largely satisfied their obligations under the state's Renewable Portfolio Standard (RPS) and access to the California market has been severely constrained by energy policy in that State. An absence of rail and natural gas to most all of this area effectively precludes traditional, nonrenewable forms of energy generation.

### **Key Findings:**

- 1. Developing new energy facilities is subject to state and local land use requirements.**
- 2. There is virtually no energy development existing in Oregon's identified Sage-grouse habitat.**
- 3. Limited potential exists for three permitted wind projects to be developed.**
- 4. Future energy development is unlikely because either the necessary infrastructure, government policy or market conditions are not available.**

### **Mining**

State and local land use laws apply to the siting of new Mining activities, particularly as they occur on lands zoned for resource uses. The COT Report indicates that Mining is present but localized in the Northern Great Basin (26a)

and Western Great Basin (31) Sage Grouse Populations. These Sage Grouse Populations include Harney, Lake and Malheur Counties. The data collected by Oregon's seven counties to describe existing circumstances appears to support this assessment. There are, in fact, aggregate quarries present throughout the region. No new quarries have been established in the period from 2003 to 2013. In other words, what is there is there.

However, the COT Report also indicates that Mining threats are present and widespread in the Baker (17) and Central Oregon (31) Sage Grouse Populations that include the identified Sage-grouse habitat of Baker, Crook, Deschutes and Union Counties. This report reaches a different finding

Aggregate quarries are present in these four counties. Although other materials have been mined in the past (precious metals in Baker County and Mercury in Crook County) such activities have been abandoned. To the extent that they may have ever operated in Sage-grouse habitat they are no longer being conducted. A total of 87 aggregate quarries, 49 of which are in Baker County, are identified by the preceding county elements of this report. Only a single new quarry was permitted during the period between 2003 and 2013 (Baker County). Many of the quarries are in ODOT or local government ownership and almost all of them are in close proximity to a state highway or county road. In fact, nearly all quarries are located within close proximity to a state highway or county road. The economics of hauling aggregate tends to discourage quarry development in areas distant from transportation facilities.

Most quarries operate only during road maintenance projects and often go unused for years at a time. With no significant state or local road projects planned for the future it is unlikely that there will be a demand for additional quarry expansion or development.

#### **Key Findings:**

- 1. Mining activity is subject to state and local land use requirements.**
- 2. Aggregate quarries existing prior to 2003 represent most current mining activities in the region. Only one new quarry was approved between 2003 and 2013.**
- 3. Aggregate quarries are almost always located within close proximity to state highways or county roads and may not be used for extended periods of time due to scheduling of road projects.**
- 4. With no significant state or local road projects planned for the future it is unlikely that there will be a demand for additional quarry expansion or development.**

#### **Infrastructure**

State and local land use laws apply to the siting of new infrastructure facilities, particularly as they occur on lands zoned for resource uses. For purposes of this report, Infrastructure is identified as road systems and transmission lines. New roads that accommodate only local traffic may be considered through a conditional use process at the local level. Larger transportation facilities are subject to a detailed land use process known as an "exception". Among other things, the exceptions process requires an alternatives analysis and a demonstration of need. An exception also requires an amendment to the local comprehensive plan, which requires giving notice to the state of Oregon. This process is referred to as a Post Acknowledgement Plan Amendment (PAPA). Transmission facilities are subject to the provisions of ORS 215.275, which are similar to the exceptions requirements but do not require a PAPA.

The COT Report indicates that Infrastructure is present but localized in the Baker (17), Central Oregon (28) and Western Great Basin (31) Sage Grouse Populations. These Sage Grouse Populations include Baker, Crook,



Deschutes, Lake and Union Counties, as well as portions of Harney and Malheur Counties. The data collected by Oregon's seven counties to describe existing circumstances appears to support this assessment. There is, in fact, large scale infrastructure present in the form of state highways, county roads and overhead transmission lines throughout the region. No new facilities have been constructed in the period from 2003 to 2013. In other words, what is there is there. Furthermore, no new local facilities are planned for the future.

However, the COT Report also indicates that Infrastructure threats are present and widespread in the Northern Great Basin (26a) Sage Grouse Population. This report reaches a different finding. The Northern Great Basin Sage Grouse Population includes portions of Harney and Malheur Counties. The majority of this Sage Grouse Population is located outside of Oregon and takes in portions of Idaho, Nevada and Utah. Harney and Malheur counties contain some of Oregon's most remote areas. Development activities in other states have not been assessed. However, the reported Oregon conditions are no different than those present in Oregon's other Sage-grouse areas. Road and overhead transmission lines are present. The amount of overhead transmission lines reported by Harney County is consistent with the amount estimated for Lake County (Western Great Basin Sage Grouse Population). No new facilities have been developed in the period from 2003-2013. The Idaho Power B2H transmission line, should it be built, would traverse the northern portion of Malheur County. An exact route has not been determined.

### **Key Findings:**

- 1. Developing new facilities is subject to state and local land use laws requirements.**
- 2. Large scale infrastructure is present in all seven counties and does traverse Sage-grouse habitat.**
- 3. No new state or local facilities are planned.**

### **Urbanization**

State and local land use laws regulate urban development proposals. In Oregon, urban development is directed into the urban growth boundaries of incorporated cities. The COT report indicates that Urbanization is not known to be present in the Western Great Basin Sage Grouse Population (31) of Management Zone V. This area includes lands in Lake County and the southwest portions of Harney and Malheur Counties. Everything in this report supports the COT assessment with regard to Urbanization in Oregon's portion of the Western Great Basin Sage Grouse Population.

However, the COT Report also indicates that Urbanization is present but localized in the Central Oregon (28) and Baker (17) Sage Grouse Populations and is present and widespread in the Northern Great Basin Sage Grouse Population (26a). This report reaches a different finding.

The Central Oregon and Baker Sage Grouse Populations are located entirely in Oregon and include the Sage-grouse habitat in Baker, Crook, Deschutes and Union Counties. The available information regarding settlement pattern, new land use approvals and monitoring conditions indicate that urbanization has not occurred on these lands.

Identified Sage-grouse habitat is located 20 miles or more from the population centers in Deschutes and Crook Counties (Bend, Redmond, Prineville) and it is located a greater distance and an entire watershed away from Union County's population center at the City of La Grande and the communities of the Grande Ronde Valley. In Baker County, the population center at Baker City is in closer proximity to identified Sage-grouse habitat but largely remains within the confines of the Baker Valley and has not encroached into the sagebrush landscape used by Sage-grouse. All of these cities have acknowledged urban growth boundaries to contain urban development over a 20 year planning horizon.

As mentioned above, while Deschutes County has the highest population in all of central and eastern Oregon, just 63 of its residents make their home on lands identified as Sage-grouse habitat. Across the four identified counties (Baker, Crook, Deschutes, Union) a total of about 350 dwellings are present, suggesting a resident human population of about 700 citizens over a total of 1,379,598 acres (average of one dwelling per 3,942 acres). A local planning frame work characterized by a variety of resource zoning and wildlife habitat protection does not provide for new rural residential development. No Sage-grouse habitat within these Sage Grouse Populations have been identified by ODF as having converted to more highly developed land use classification between 1974-2009.

The Northern Great Basin Sage Grouse Population (26a) includes portions of Harney and Malheur Counties. The majority of this Sage Grouse Population is located outside of Oregon and takes in portions of Idaho, Nevada and Utah. Harney and Malheur counties contain some of Oregon's most remote areas. Development activities in other states have not been assessed. However, the available information regarding settlement pattern, new land use approvals and monitoring conditions indicate that no form of urbanization has occurred on Oregon's portion of this Sage Grouse Population.

Malheur County's primary population centers of Ontario (pop. 11,415), Nyssa (pop. 3,270) and Vale (pop. 1,890) are located in Oregon's portion of the Treasure Valley and well outside of identified Sage-grouse habitat. Most of Harney County's 7,315 citizens reside in and around the Burns/Hines population center (pop. 2,835 and 1,565 respectively), which is also outside of identified Sage-grouse habitat. All of these cities have acknowledged urban growth boundaries designed to contain urban development over a 20 year planning horizon.

Because the Sage Grouse Population includes portions of two counties it is difficult to identify the exact number of existing dwellings. It may be suffice to say that it is a small number. A local planning frame work characterized by a variety of resource zoning and wildlife habitat protection does not provide for new rural residential development. No Sage-grouse habitat within this Sage Grouse Population was identified by ODF as having converted to more highly developed land use classification between 1974 and 2009.

Across the seven county region a total of just 88 new dwellings have been reported between 2003 and 2013. This is roughly equivalent to a new dwelling for each 124,000 acres or one additional resident per 77 square miles of federal and nonfederal land. These numbers do not account for vacant or abandoned home sites within existing inventories.

### **Key Findings:**

- 1. New development is subject to state and local land use requirements.**
- 2. There has been no new urbanization activity in Oregon's identified Sage-grouse habitat since at least 1974.**
- 3. Future urbanization opportunities are not available because urban uses are directed to occur inside of urban growth boundaries and existing zoning arrangements do not provide for rural residential development.**

## **Final Conclusion**

Oregon's statewide land use planning program as implemented by local comprehensive plans and zoning ordinances has succeeded in discouraging habitat fragmentation in central and eastern Oregon. The existing framework of state and local laws are ideally equipped to guarantee the adequate regulatory mechanisms necessary to provide continued protection of Sage-grouse and Sage-grouse habitat from anthropogenic threats associated with energy development, mining, infrastructure and urbanization. Furthermore, local land use approvals may serve as the primary factors to require mitigation relative to Oregon's primary Sage-grouse threats such as invasive species, conifer infestation and wildfire.

## Appendix 6. State of Oregon Greater Sage-Grouse Habitat Mitigation Manual

This appendix presents the full text of the State of Oregon Greater Sage-Grouse Habitat Mitigation Manual Version 1.1, otherwise known as the Mitigation Manual. The Mitigation Manual was developed through the SageCon Mitigation Technical Team in 2014.



# STATE OF OREGON

## Greater Sage-Grouse Habitat Mitigation Manual

Version 1.1  
Last updated September 21, 2015



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## Contents of this Manual

The Greater Sage-Grouse Mitigation Manual (“Manual”) defines the processes and information necessary for understanding and participating in Oregon’s Sage-Grouse Mitigation Program. This program is expected to provide a consistent and integrated approach to fulfilling mitigation requirements for impacts to sage-grouse habitat on all public and private lands in Oregon.

Mitigation Manual Contents		
<b>Section 1:</b>	Introduction	Introduces the purpose and need for an integrated approach to sage-grouse mitigation, defines the goals of the mitigation program and objectives of the Manual, and summarizes the processes for generating and acquiring credits under the Manual
<b>Section 2:</b>	For Credit Producers	Defines the detailed processes and requirements for generating mitigation credits for sage-grouse habitat
<b>Section 3:</b>	For Permittees	Defines the detailed processes and requirements for acquiring credits to offset impacts to sage-grouse habitat
<b>Section 4:</b>	Governance and Adaptive Management	Outlines the processes and requirements for governance, administration, and adaptive management of the sage-grouse mitigation program
<b>Section 5</b>	Glossary	

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## APPENDIX A

## APPENDIX B

# 1. INTRODUCTION

Sagebrush country in central and eastern Oregon is home to close-knit rural communities and an economy centered on agriculture and natural resources. It is also home to the greater sage-grouse, a species at risk and an important indicator of the overall health of sagebrush ecosystems. Those ecosystems are increasingly threatened by large-scale drivers that affect not only wildlife, but also the human communities and economic systems that depend on healthy and productive lands.

With the U.S. Fish and Wildlife Service considering whether to list the sage-grouse as threatened or endangered,<sup>1</sup> the State of Oregon is working with a diverse set of partners to build a strategy for balancing conservation and economic development in sagebrush country. The sage-grouse is very sensitive to the direct and *indirect effects*<sup>2</sup> of human development, including roads, fences, agricultural conversion, increased predation around human-impacted areas, and energy and infrastructure development, so steering those activities away from the most important and sensitive areas is critical.<sup>3</sup> However, the greatest current threats to most sage-grouse populations in Oregon are large-scale ecological trends that cannot be managed through regulatory means, such as wildfire, invasive species, and encroachment by native

conifers.<sup>4</sup> Sage-grouse are dependent on sagebrush and are declining along with the overall health of sagebrush habitats.<sup>5</sup>

A systematic, science-based mitigation program can help address both of these challenges. It can create incentives for future development to avoid the most important areas of sage grouse habitat, while providing funding for on-the-ground conservation efforts to manage the greatest current threats. Paired with other policies and local, state, and federal investments in conservation, a mitigation program can support rural economies and ensure that human impacts are compensated for in a way that provides a net benefit for sage-grouse, their habitat, and rangeland health in general.

As part of the development of the State's broader Greater Sage-Grouse Action Plan ("GSG Action Plan"), it is working closely with the Bureau of Land Management, the U.S. Fish and Wildlife Service, local governments, and other interested stakeholders to develop a shared approach to mitigation for impacts to sage-grouse across public and private lands. As used in this document, the term *mitigation* encompasses the full suite of activities to avoid, minimize, and compensate for adverse impacts to sage-grouse and *sage-grouse habitat*.<sup>6</sup> The term *compensatory mitigation* is

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<sup>1</sup> See U.S. Fish & Wildlife Service, Species Profile: Greater sage-grouse (*Centrocercus urophasianus*), <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06W> (2014).

<sup>2</sup> See Glossary for definitions of italicized terms.

<sup>3</sup> U.S. Fish & Wildlife Service, Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report, pp. 38-52 (February 2013) (hereafter "COT Report"), available at <http://www.fws.gov/mountain-prairie/species/birds/sagegrouse/COT/COT-Report-with-Dear-Interested-Reader-Letter.pdf>.

<sup>4</sup> Boyd, Chad S., Johnson, Dustin D., Kerby, Jay D., Svejcar, Tony J., & Davies, Kirk W., Of Grouse and Golden Eggs: Can Ecosystems Be Managed Within a Species-Based Regulatory Framework?, *RANGELAND ECOLOGY & MANAGEMENT* 67: 358-368 (2014).

<sup>5</sup> Davies, Kirk W., Boyd, Chad S., Beck, Jeffrey L., Bates, Jon D., Svejcar, Tony J., & Gregg, Michael A., Saving the Sagebrush Sea: An Ecosystem Conservation Plan for Big Sagebrush Plant Communities, *BIOLOGICAL CONSERVATION* 144: 2573-2584 (2011).

<sup>6</sup> See Clement, J. P. et al., A Strategy for Improving the Mitigation Policies and Practices of the Department of the Interior: A Report to the Secretary of the Interior from the Energy and Climate Change Task Force, p. 2 (2014) (hereafter "Interior Mitigation

used when describing actions designed to provide compensation for unavoidable impacts within a broader *mitigation hierarchy*.<sup>7</sup>

Effective mitigation for impacts to sage-grouse habitat must be integrated and coordinated with Oregon's broader approach to sage-grouse conservation and overall ecosystem health under the GSG Action Plan. The State's vision is to use mitigation as a tool for advancing sage-grouse habitat conservation within a larger science-based framework for conserving healthy sagebrush ecosystems and tracking and accounting for the outcomes of conservation investments. Because recovery of the sage-grouse depends on the maintenance and restoration of large areas of healthy, intact sagebrush habitat across public and private lands, implementing this vision will require an approach that is fundamentally **collaborative, strategic, and adaptive** (see Box 1.1).

The development of a Candidate Conservation Agreement with Assurances (CCAA) in Harney County, Oregon, helped lay the foundations for a collaborative, strategic, and adaptive approach to sage-grouse recovery.<sup>8</sup>

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Strategy"), available at [http://www.doi.gov/news/upload/Mitigation-Report-to-the-Secretary\\_FINAL\\_04\\_08\\_14.pdf](http://www.doi.gov/news/upload/Mitigation-Report-to-the-Secretary_FINAL_04_08_14.pdf).

<sup>7</sup> See id. at p. 3.

<sup>8</sup> A Candidate Conservation Agreement (CCA) based on the same principles also exists, called the Greater Sage-Grouse Programmatic Candidate Conservation Agreement for Rangeland Management on Bureau of Land Management Lands in Oregon and signed on May 30, 2013 by the Bureau of Land Management (BLM), the U.S. Fish & Wildlife Service, and the Oregon Cattlemen's Association (OCA) (see <http://www.fws.gov/news/ShowNews.cfm?ID=2144375259>).

## Box 1.1

A **collaborative** approach to sage-grouse recovery is required to support healthy sagebrush ecosystems on the scale needed to manage *landscape-scale* threats such as wildfire and invasive species and to support large and interconnected sage-grouse populations. Managing these issues across large areas of public and private land requires an approach that builds local and regional support for conservation-oriented land management by integrating natural resource management and economic viability into a social structure that values natural resource conservation as part of its business model and way of life. With rural communities facing increasing social and economic threats, significant federal, state, and private investment will be needed to help fund and provide technical support for the conservation of sagebrush and sage-grouse. The mitigation approach described in this document can provide one source of investment to help ensure that conservation supports the social and economic health of rural communities by generating financial support for sage-grouse conservation practices within rural communities.

Coordinating multiple sources of investment across large landscapes requires a **strategic** approach. To make the most effective and efficient use of the funds available, they must be targeted based on best available science and information about landscape context and large-scale processes such as drought, fire and vegetation change, as well as on local knowledge about priorities at finer scale. The State's mitigation approach builds on multiple sources of information about conservation and development priorities, including landscape-scale decision support tools, work by the Eastern Oregon Agricultural Research Center and others on drivers of large-scale vegetation change, and the experience of the *State Sage-Grouse Technical Team* and *Local Implementation Teams* in identifying state- and local-level conservation priorities.

CONTINUED ON NEXT PAGE

A key outcome of the CCAA is a process for easily assessing the condition of vegetation, its potential value as sage-grouse habitat, and the management practices and disturbances that might result in a change to a less or more desirable vegetation state. This approach is used to determine appropriate conservation actions to provide improved sage-grouse habitat quantity and quality. The CCAA also includes adaptive management through periodic trend monitoring and adjustment of conservation actions as needed. The scientific basis for this approach and its ability to provide site-specific management recommendations informed by ongoing monitoring information make it uniquely suited to guiding management decisions in the highly spatially variable and rapidly changing ecosystems that make up Oregon's sage-grouse habitat.

The approach to sage-grouse habitat mitigation described in this document provides a framework for further refinement and broader adoption of the approach used in the Harney County CCAA and other similar efforts throughout the sage-grouse range. A quantitative and repeatable approach to mitigation decisions can integrate closely with CCAAs, other existing agreements, and other sources of public and private investment, including conservation banks, while ensuring that careful accounting of mitigation *debts* and *credits* results in a net benefit for sage-grouse and their habitat. Compensatory mitigation can provide one source of funding – among the many needed to meet social, economic, and conservation goals – for conservation actions that improve sage-grouse habitat and support the social and economic vitality of rural communities in sagebrush country.

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<sup>9</sup> This is anticipated to be a separate but complementary system to the Conservation Efforts Database developed by the U.S. Fish & Wildlife Service. See <https://conservationefforts.org/welcome/about/> and <http://www.fws.gov/greatersagegrouse/documents/20140730%20GRSG%20data%20call%20letter.pdf>.

### Box 1.1 Continued

Finally, an **adaptive** approach to sage-grouse recovery uses information about the results of past and current conservation efforts to guide future decision-making. This information feedback loop is critical for making management decisions in a highly complex, variable, and unpredictable ecosystem. Quantifying, tracking, and effectively communicating the results of conservation actions can help identify the most effective management approaches, monitor long-term trends in ecosystem health, guide prioritization efforts, and increase and sustain investment by demonstrating real results. The approach to mitigation described in this document requires development of a system to track and account for impacts and improvements to sage-grouse habitat in Oregon. In order to better support collaborative, strategic, and *adaptive management*, this “conservation accounting system” should be integrated across public and private ownerships and should be used to track and communicate outcomes not only from development and mitigation actions, but also from the full diversity of public and private investments in sage-grouse habitat State-wide.<sup>9</sup> Such an accounting system can greatly improve the effectiveness of conservation efforts over time, and it can help demonstrate and communicate the actual, on-the-ground impacts of *mitigation projects* and other conservation efforts.

This Manual's approach for mitigation for impacts to sage-grouse habitat is based on science outlined primarily in U.S. Fish and Wildlife Service's Conservation Objectives Report (COT)<sup>10</sup> and the 2011 ODFW GSG Conservation Strategy.<sup>11</sup> These documents describe the key threats to sage-grouse and their habitat and offer biologically-based strategies for management and conservation.

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<sup>10</sup> COT Report, *supra* note 3.

<sup>11</sup> Hagen, Christian, Oregon Department of Fish and Wildlife, Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat (2011) (hereafter “2011 ODFW GSG Conservation Strategy”), available at [http://www.dfw.state.or.us/wildlife/sagegrouse/docs/20110422\\_GRSG\\_April\\_Final%2052511.pdf](http://www.dfw.state.or.us/wildlife/sagegrouse/docs/20110422_GRSG_April_Final%2052511.pdf).

The principles and elements of the mitigation program “conservation accounting system” that this Manual defines are derived from the U.S. Fish and Wildlife Service’s *Greater Sage-Grouse Range-Wide Mitigation Framework*,<sup>12</sup> the U.S. Fish and Wildlife Service’s *Policy for Evaluation of Conservation Efforts When Making Listing Decisions*,<sup>13</sup> and the Department of the Interior’s 2014 mitigation strategy.<sup>14</sup>

## 1.1 Goals and Objectives

This Manual is part of the GSG Action Plan approach to avoiding, minimizing, and compensating for development impacts to all sage-grouse habitat in Oregon. The Manual represents the combined efforts of the State of Oregon, the Bureau of Land Management, and the U.S. Fish and Wildlife Service, and their partners and stakeholders, and it is the intent and expectation that those federal entities will work with the State to the extent practicable to use this approach to implement their existing and pending mitigation policies.

The Manual and associated tools and documents form part of the Oregon’s GSG Action Plan for conserving sage-grouse habitat, which also includes the following elements:

- State, federal, and private investments in strategies to reduce threats posed by wildfire and invasive species;

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<sup>12</sup> U.S. Fish & Wildlife Service, *Greater Sage-Grouse Range-Wide Mitigation Framework* (2014), available at [http://www.fws.gov/greatersagegrouse/documents/Landowners/USFWS\\_GRSG%20RangeWide\\_Mitigation\\_Framework20140903.pdf](http://www.fws.gov/greatersagegrouse/documents/Landowners/USFWS_GRSG%20RangeWide_Mitigation_Framework20140903.pdf).

<sup>13</sup> U.S. Fish & Wildlife Service, *Announcement of final policy: Policy for Evaluation of Conservation Efforts When Making Listing Decisions*, 68 Fed. Reg. 15100 (2003), available at <http://www.fws.gov/policy/library/2003/03-7364.pdf>.

<sup>14</sup> Interior Mitigation Strategy, *supra* note 6.

- Methods to quantify impacts and benefits from actions taken on the ground;
- Landscape-level plans to guide where best to target conservation; and
- The various program and policy documents needed by individual organizations to guide their own actions.

The intent of this Manual is to guide and coordinate permitting decisions for state and federal agencies and local governments related to activities in sage-grouse habitat, regardless of the future status of the species under the federal Endangered Species Act. This Manual describes the guidelines, processes, and decisions for quantifying debits and credits and will provide certainty and transparency that approved actions on the ground are contributing to the recovery of the species. It will be the foundation for sage-grouse mitigation for all major permitting agencies in Oregon.

The mitigation program expressed in this Manual has three overarching goals.

1. Provide a *net conservation benefit* for sage-grouse and sage-grouse habitat at both the individual project scale and at across the entire mitigation program.
2. Support responsible economic development and the long-term social and economic vitality of rural communities and rangeland health; and
3. Provide an approach to permitting and mitigation decision-making that is:
  - Coordinated across public and private land ownerships and permitting processes; and
  - Predictable, transparent, equitable, and science-based.

This Manual is designed to achieve the following objectives:

1. Incentivize conservation of sage-grouse habitat and target compensatory mitigation credits and other sources of conservation funding to the sites and conservation actions with the highest



probability of aiding species recovery and supporting healthy sagebrush ecosystems (**Section 2**);

2. Use timely and predictable permitting processes and avoidance and minimization criteria to steer development away from the areas most important for supporting current sage-grouse populations and concentrate review on development actions with the greatest likely impacts to the species (**Section 3**);
3. Develop methods for tracking and accounting of development and conservation actions in sage-grouse habitat (**Sections 1.2.1 & 2.2**);
4. Identify tools for managing risk or *uncertainty* that collaboratively engage landowners in conservation and to ensure an adequate reserve of credits to guard against unforeseen losses of habitat or failed mitigation sites (**Section 2.2**);
5. Define ongoing requirements for verification, tracking, performance, and reporting for mitigation to ensure net benefit to the species and its habitat is achieved and sustained over time, and to help provide transparent information on activity (**Sections 2.3 - 2.5**); and
6. Establish adaptive management and effectiveness monitoring frameworks to improve project and program performance over time, potentially including adding additional sagebrush species (**Section 4**).

### Box 1.2

For the purposes of this Manual, “*sage-grouse habitat*” refers to current or potential sage-grouse habitat. Information on the actual presence of sage-grouse on a site is not necessary to determine whether sagebrush habitat is or is not sage-grouse habitat. Current sage-grouse habitat is defined as land areas within the current range of the species (as defined and mapped in the 2011 ODFW GSG Conservation Strategy)<sup>15</sup>, that can support the greater sage-grouse. These are lands that have greater than 5% sage-grouse cover and less than 5% juniper or tree cover and some native grasses and/or forbs or other seasonal natural habitats such as wet meadows.

Potential habitat is defined as land areas within the current range of the species that have the potential, based on environmental conditions such as mean annual precipitation, topographic position, etc., to support sagebrush-dominated plant communities or other seasonal natural habitats such as wet meadows. Potential habitat may not currently support sage-grouse at any time during the year.

**Figure 1.1** below provides a coarse-scale map of likely areas of current and potential habitat. However, a site-level assessment will be required to identify areas of habitat and non-habitat within the the project area of a particular debiting or crediting action.

Where questions, conflicts, or uncertainties arise in the application of this Manual, these goals and objectives should be used to guide case-by-case decisions by the responsible parties.

Following a brief overview of the program, the Manual sections are organized to provide the information needed for particular audiences:

- **Credit Producers:** individuals, entities, or groups generating credits as mitigation for

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<sup>15</sup> 2011 ODFW GSG Conservation Strategy, *supra* note 11, at pp. 7-10, Section III, & Section IV.

unavoidable sagebrush impacts (**Section 2**);

- *Permittees and Permitting Agencies*: county governments, the State of Oregon and its agencies, the Bureau of Land Management, other permitting agencies, and permit applicants to those agencies (**Section 3**); and
- *Program Administrators*: those operating the mitigation program (**Section 4**).

**Figure 1.1 – Maps of Current and Potential Sage-Grouse Habitat in Oregon**





## 1.2 Program Overview

This section provides a brief overview of the steps used to generate and acquire credits for sage-grouse mitigation, and for the administrator to manage the program. These steps are also depicted in **Figure 1.2**. Blue chevrons signify the steps undertaken to generate credits, green chevrons represent the steps to acquire credits, and the grey connector represents the role of the program administrator (see **Section 4** for details on organizational structure and roles). These processes are defined in greater detail in **Sections 2 and 3** of this document.

### 1.2.1 Generating Credits

The following steps outline the process to generate, verify, and *register* credits from a conservation project:

1. **Propose crediting project:**

Crediting projects may be proposed through a periodic request for proposals (RFP) under the state's *in-lieu fee* program by the program administrator. Proposals under the in-lieu fee program will be evaluated based on scientific and management priorities, criteria, and guidelines developed by the State Technical Team and input from the Local Implementation Teams, and approved by the governance board. Selected projects will receive grants from the in-lieu fee program to implement conservation practices.

Projects may also be proposed by permittees intending to conduct their own compensatory mitigation projects to *offset* development impacts, by mitigation

bankers, or through recommendation of the program administrator, State Technical Team, Local Implementation Teams, governance board (see **Section 4.1** for detailed descriptions of implementation roles), landowners, or other interested federal, State, and local partners. Credits that are not used by the credit developer to offset their own development impacts may be sold to the in-lieu fee program.

Permitting agencies will require all permittees developing *permittee-responsible compensatory mitigation* (PRM) projects to meet the same standards and requirements as in-lieu fee projects. Permitting agencies will also require permittees developing PRM projects to meet the same standards and requirements as all other permittees, including attending a pre-planning meeting with a mitigation review team and submitting a detailed draft mitigation plan as described in **Section 3**.

2. **Calculate credits:**

Credit producers develop a draft site-specific management plan and use the *quantification method* to estimate the expected number of credits, with or without the assistance an ODFW mitigation biologist or other technical support provider. A full proposal with management plan, quantification method results, and credit estimate are submitted to the program administrator for review. The program administrator makes final decisions about which proposed projects are funded by the State's in-lieu fee fund and ensures all projects, including PRM projects, are consistent with the ODFW Sage-Grouse Habitat Mitigation Policy and this Manual. The governance board helps identify in-lieu fee funding priorities by reviewing and ranking proposed projects, based on priorities recommended by the State

**Figure 1.2 - Overview of Steps in the Mitigation Program Process**

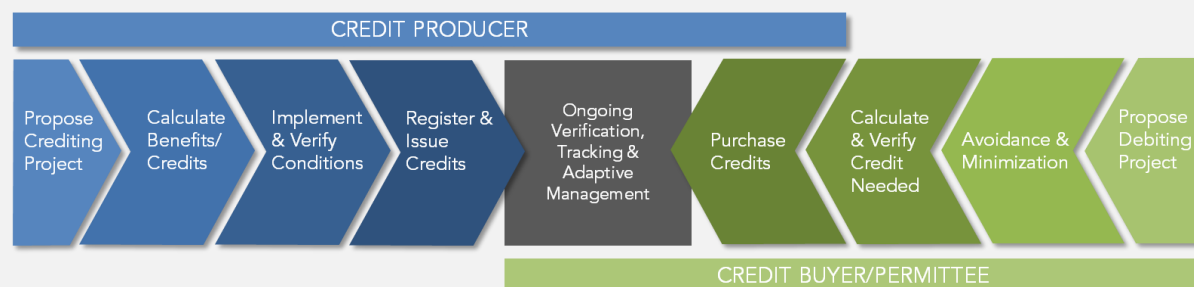


Table 1.1 - Documents Supporting this Manual

Document	Anticipated Complete Date
1. GSG Action Plan	07/15/15
2. Memorandum of Agreement by cooperating agencies	07/15/15
3. ODFW sage-grouse habitat mitigation policy	07/15/15
4. Document templates	12/31/15
5. Guidelines for in-lieu fee fund management	09/30/15
6. Table of conservation measures	12/31/15
7. Draft quantification tool and manual	09/30/15
8. Oregon Rangelands Decision Support System	complete

Technical Team and Local Implementation Teams.<sup>16</sup>

reports whether performance standards are met. If performance standards are met or partially met, this would allow the release of credits, as described in **Section 2**.

3. **Implement actions and verify conditions:**

Credit producers implement conservation practices and refine calculations based on post-project conditions on the ground. All projects undergo verification by ODFW or an ODFW-accredited third-party verifier to confirm that the Manual and associated policies and agreements were followed correctly and estimated credits have been appropriately calculated and match actual on-the-ground conditions.

4. **Register and issue credits:**

Once a project has been verified, supporting documentation is submitted to the program administrator, who reviews it for completeness before credits are registered and issued to the credit producer's account on a state-wide *registry*. Upon issuance, credits from a project are given a serial number so they can be tracked over time. Credit producers confirm through *monitoring*

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<sup>16</sup> If sage-grouse is listed under the federal Endangered Species Act (ESA), the State will seek approval from the U.S. Fish and Wildlife Service, either through a 4(d) exemption or through other means, to meet ESA requirements through the continued use of this system and through the same program administrator. The Fish and Wildlife Service will also sit on the State governance board (see Section 2).

## 1.2.2 Acquiring Credits

The following steps outline the process to determine and meet mitigation responsibilities consistent with the ODFW Sage-Grouse Habitat Mitigation Policy. Permittees are encouraged to consult with their permitting agency to set up a pre-planning meeting with ODFW and all relevant permitting agencies at least 45 days prior to submitting a permit application or proposing an action that may impact sage-grouse habitat.

**1. Propose debiting project:**

A permitting agency receives a permit request or proposes an action with potential impact to sage-grouse habitat. The agency determines whether the development activity requires consistency with the ODFW Sage-Grouse Mitigation Policy and convenes a *mitigation review team* composed of a staff lead from ODFW and all relevant permitting agencies, including county staff for projects that require local land use review.

**2. Avoidance and minimization review:**

The Permittee submits a draft mitigation plan to the permitting agency, which the mitigation review team evaluates to determine whether avoidance and minimization measures are sufficient to ensure consistency with the ODFW Sage-Grouse Habitat Mitigation Policy. Impacts that can be feasibly avoided or minimized, as defined in that policy, must be. The permitting agencies will disapprove the permit application if avoidance and minimization requirements are not met.

**3. Calculate and verify credits needed for compensatory mitigation:**

If the mitigation review team determines that compensatory mitigation for impacts to sage-grouse habitat is required, the permittee (or designee) uses the quantification method to calculate the number of credits needed to meet the State of Oregon's net conservation

benefit standard<sup>17</sup> by determining *baseline* and post-project conditions of the debit site. The mitigation review team ensures that protocols are followed correctly and projected debits are appropriately calculated. The project may then be permitted, pending other permit requirements.

**4. Purchase or create credits:**

A Permittee may purchase needed credits by paying a fee in lieu to the fund manager, or may propose their own crediting projects to meet compensatory mitigation requirements. All credits are tracked using unique serial numbers that identify the source of each credit. Once credits are transferred, permittees can use that information for internal and external reporting. All permitted projects are also added to the State's registry of impacts to sage-grouse habitat. ■

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<sup>17</sup> ORS 498.500

## 2. FOR CREDIT PRODUCERS: GENERATING CREDITS FOR COMPENSATORY MITIGATION

Mitigation credits may be produced through funding provided by the state's in-lieu fee program, or may be created and used by permittees conducting their own compensatory mitigation projects to offset development impacts.<sup>18</sup> Projects may be proposed through a specific, periodic request for proposals (RFP) by the program administrator, or at any time by permittees or mitigation bankers, or through recommendations made to the program administrator by the State Technical Team, Local Implementation Teams, governance board, or other interested federal, state, and local partners. This section describes the process for developing sage-grouse habitat credits—for compensatory mitigation or for targeting and tracking other conservation investments – including the review and approval process for a compensatory mitigation site or bank.

The overall management goal of crediting projects is to achieve a more desired *ecological state* that can serve the habitat needs of sage-grouse or to maintain such a state in the face of current and future threats. Researchers on sagebrush ecosystem health and sage-grouse habitat have developed ecological models that describe factors that impact plant community composition and structure over time. These models, provided in Appendix A, have been used to identify management actions to address specific threats and improve habitat quality for sage-

grouse.<sup>19</sup> They also form the basis for identifying *conservation measures* that may be appropriate at a site given its ecological context and current and likely future threats. A draft table of eligible conservation measures is provided in Appendix B<sup>20</sup>, and both models and measures will be updated and refined as new information becomes available, as part of the annual adaptive management cycle for the mitigation program to reflect new science and restoration techniques (see **Section 4**).

In general, credits are generated by projects that:

- Transition an area of sage-grouse habitat from a less to a more desirable ecological state (*enhancement*);<sup>21</sup> and/or
- Prevent undesirable state changes in areas that are at risk of degradation from threats such as fire, invasive species, conifer encroachment, or loss of habitat due to development (*avoided loss*).

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<sup>18</sup> The in-lieu fee program will be managed by a State agency as described in Section 3.1 according to guidelines to be developed in 2015 (see Table 1.1). Permittee-responsible mitigation (PRM) and in-lieu fee (ILF) projects must meet the same standards and follow the same processes to ensure consistency with the Mitigation Manual and associated policies and agreements, including the ODFW Sage-Grouse Habitat Mitigation Policy.

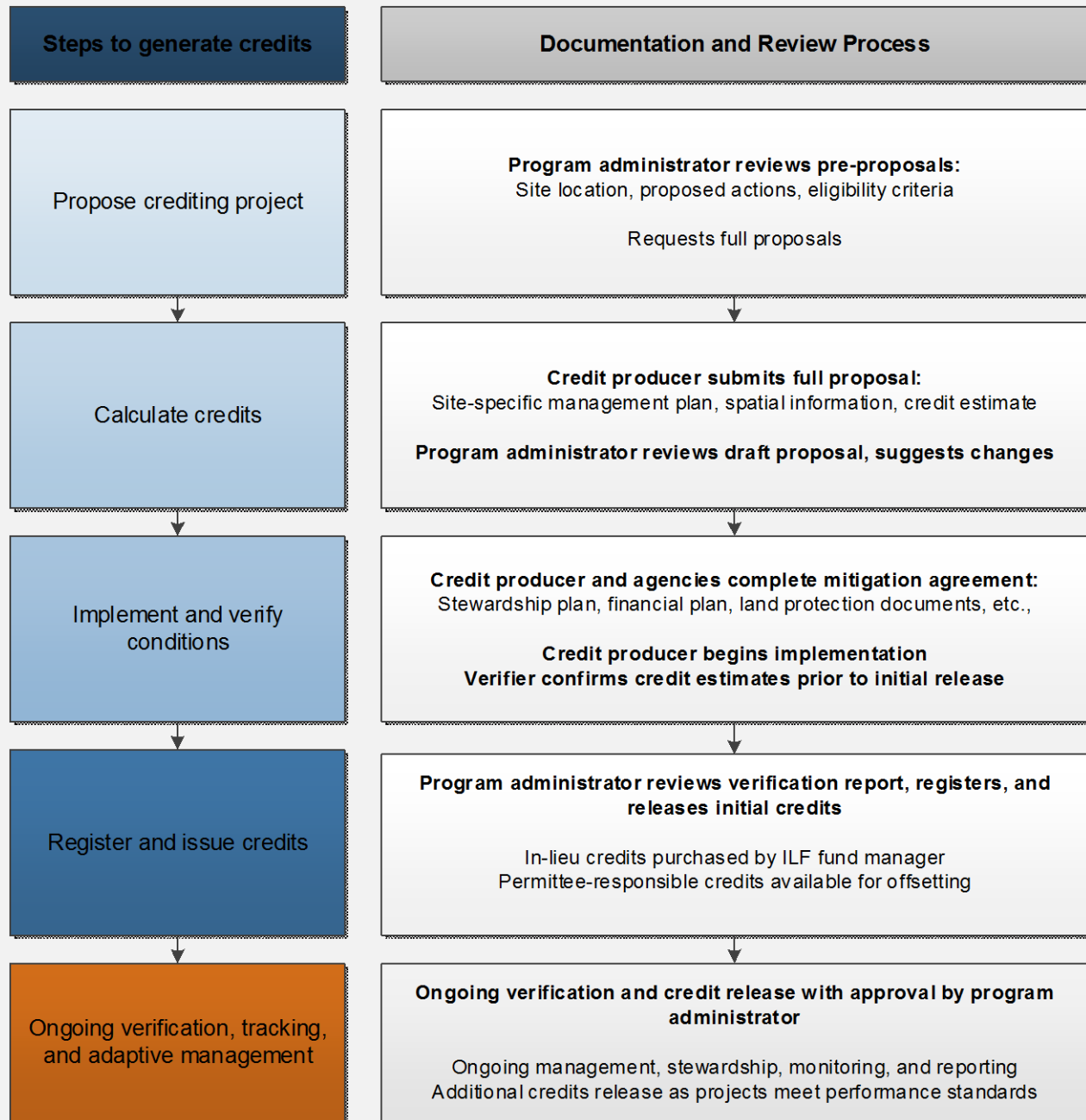
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<sup>19</sup> Boyd et al., *supra* note 4

<sup>20</sup> Information provided in Appendix B is a working draft developed by the SageSHARE project team.

<sup>21</sup> This term is intended to encompass the traditional categories of habitat creation and restoration, although it is anticipated that habitat creation activities with a high likelihood of failure would be significantly discounted by the quantification tool, or discouraged or excluded by the program administrator.

**Figure 2.1 - Overview of Credit Generation Process**



## 2.1 Proposing a Crediting Project

Eligibility criteria help to ensure that crediting projects will provide a net conservation benefit to sage-grouse habitat and support the long-term function of sagebrush ecosystems. The program administrator determines whether proposed projects meet all eligibility requirements.

To generate credits on public or private lands, a mitigation site will need to occur in current or potential sage-grouse habitat and meet the detailed eligibility criteria in **Table 2.1**. The proposal review process will include a pre-proposal step to screen for project eligibility and provide a rough estimate of credit potential based on remotely sensed information in the Oregon Rangelands Decision Support System. For large scale or complex projects, the State Technical Team will review and comment on proposals. Final decisions

on approving and/or funding proposed crediting projects will be made by the program administrator, with input from the State Technical Team and governance board on general funding priorities.

### 2.1.1 Project additionality

*Additionality* refers to the requirement that credit-generating benefits from a project must be in addition to what would have happened without participation in the program and what is required by existing law and legal commitments.<sup>22</sup> Each crediting project will receive credit only for actions that are considered additional, in order for the State to meet its commitment to providing a net conservation benefit for the species.

To meet the mitigation program goal of providing a net benefit for sage-grouse and

**Table 2.1 - Eligibility Requirements for Crediting Projects**

Eligibility Requirement	Criteria
Conservation measures are additional	<ul style="list-style-type: none"><li>■ Exceeds pre-existing legal obligations</li><li>■ Avoidance or minimization of existing impacts</li><li>■ Use of public conservation funds prohibited from generating credits</li></ul>
Project benefits are durable	<ul style="list-style-type: none"><li>■ No imminent threat</li><li>■ Benefits expected to meet or exceed duration of impact</li><li>■ Legal protection of site</li><li>■ Plan and funding for long-term stewardship</li></ul>
Appropriate site selection and conservation measures	<ul style="list-style-type: none"><li>■ Projects integrated with state-wide strategic conservation plan</li><li>■ All projects include enhancement actions</li></ul>
Conservation measures are additional	<ul style="list-style-type: none"><li>■ Exceeds pre-existing legal obligations</li><li>■ Avoidance or minimization of existing impacts</li><li>■ Use of public conservation funds prohibited from generating credits</li></ul>

<sup>22</sup> See Interior Mitigation Strategy, *supra* note 6, at p. 6.



their habitat, credit-producing conservation measures must exceed all existing affirmative obligations (including land use restrictions) relevant to the *project site* and comply with all applicable federal, state, and local laws. Only actions in excess of existing affirmative legal obligations will be creditable.

Credit producers must demonstrate that existing (pre-project) land uses have a neutral or positive effect on sage-grouse habitat function. In other words, existing adverse land-use impacts to sage-grouse must be addressed before crediting can occur. This may be demonstrated through enrollment in a Candidate Conservation Agreement (with or without Assurances) or through development and implementation of a similar management plan approved by the program administrator or its designee.

Public funds specifically dedicated to conservation actions are prohibited from funding generation of compensatory mitigation credits. Projects that are partially funded by these public conservation funds may generate credits in proportion to the amount of private investment and non-conservation public funds. That is, the amount of credit generated by a project should be reduced by the proportion of public conservation funds used for the project.<sup>23</sup> Transportation, utility, county, and many other types of funds that are not restricted to providing conservation benefit may be used to generate credits. Public conservation funds may, however, be used to establish a revolving fund to generate credits in advance of impacts, provided those funds are repaid in full by credit purchasers. Public funds may be used

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<sup>23</sup> U.S. Fish & Wildlife Service, National Marine Fisheries Service, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, Oregon Department of State Lands, Oregon Watershed Enhancement Board, Oregon Department of Fish & Wildlife, *Oregon Interagency Recommendations: Public Funds to Restore, Enhance, and Protect Wetland and At-Risk, Threatened and Endangered Species Habitats: Appropriate Uses of These Funds in Species and Wetland Mitigation Projects* (January 2008), available at <http://www.fws.gov/oregonfwo/LandAndWater/Documents/PublicFunding-final.pdf>.

to meet eligibility requirements (i.e., to meet existing obligations that are not eligible for crediting under the description of additionality above).<sup>24</sup>

## 2.1.2 Project durability

Crediting projects must be *durable* – that is, the period of time that mitigation is effective must be equal or greater in duration to the impacts being offset.<sup>25</sup> Demonstrating project durability requires both legal protection and financial assurances to ensure appropriate management throughout the life of the credits.

Legal protection may be demonstrated through term or permanent conservation easements or through other tools that meet the above definition of durability, including deed restrictions, transfers of title, multiparty agreements, contractual documents such as conservation land use agreements, and regulatory mechanisms.<sup>26</sup> Because of the threat wildfire and invasive species pose to crediting projects, the State's approach to demonstrating durability will allow *dynamic permanent mitigation* projects developed under the in-lieu fee program to offset up to 50% of permanent impacts (see **Section 3.3.3**). Crediting projects may not be located on sites that are under imminent threat of direct or indirect disturbance likely to prevent the project from meeting performance standards. Recently acquired subsurface rights, split-estate rights, development plans, or development designations would constitute evidence of an imminent threat that may disqualify a site.

Funding for long-term management may be demonstrated through a non-wasting endowment, but the State will also explore

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<sup>24</sup> *Id.*

<sup>25</sup> See Interior Mitigation Strategy, *supra* note 6, at p. 6.

<sup>26</sup> See Greater Sage-Grouse Range-Wide Mitigation Framework, *supra* note 12.

alternative approaches to long-term stewardship funding, such as establishing state-wide or local funds for on-going management rather than requiring individual endowments for each project.

Crediting projects on public lands must meet the same durability standards as projects on private lands. Land use planning designations are reversible and therefore insufficient to establish durable site protection, so demonstrating durability is likely to require a “layering” of protection tools sufficient to meet that standard. These may include, but are not limited to, planning designations, conservation rights-of-way, resource withdrawals, conservation easements, cooperative agreements, and Recreation and Public Purposes Act leases.

To ensure appropriate management for the life of the credits, each proposed crediting project must include a *stewardship plan* that identifies a long-term steward, stewardship goals and activities, the amount and source of funds needed for an endowment to maintain the site, and documentation of the time needed to implement the full stewardship plan. The stewardship plan is one set of documents the program administrator will require before releasing credits.

### 2.1.3 Selecting a mitigation site and site-appropriate conservation measures

Appropriate compensatory mitigation site selection is paramount to ensuring the mitigation program provides the greatest possible net conservation benefit for sage-grouse. Small, isolated sites are less likely to contribute to sustainable sagebrush ecosystems, and certain sites may be at higher risk of damage by wildfire or invasive species. Crediting projects should occur on current or potential sage-grouse habitat and should be targeted to the locations where the greatest benefit to sage-grouse habitat and populations can be provided.

Prior to release of a request for crediting proposals for the in-lieu fee fund, the State

Technical Team and Local Implementation Teams will recommend state- and local-level funding priorities to the State governance board. These priorities may identify regions, *priority areas for conservation* (PACs), habitat states, threat types, or specific conservation measures that will receive preference for funding. The governance board and State Technical Team should coordinate these priorities closely with BLM Regional Mitigation Strategies and Regional Mitigation Teams.

The state’s Oregon Rangelands Decision Support System will help the State Technical Team and governing board conduct site selection and prioritization. Specifically, the tool will identify areas likely to provide the greatest potential for protection and restoration/enhancement actions, as well as areas that are expected to show greater or lesser resistance and resilience to fire and invasive species. Information used to inform prioritization within the decision support system may include fragmentation, *connectivity corridors*, historical occupancy, and soil and vegetation characteristics of sage-grouse habitats. Permittees conducting permittee-responsible compensatory mitigation will be required by their permitting agency to consult with the program administrator for assistance in identifying appropriate compensatory mitigation sites to ensure consistency with ODFW’s Sage-Grouse Mitigation Policy.

Credits are generated by the following types of conservation measures:

- **Enhancement:** Measures that increase the quantity and/or quality of sage-grouse habitat and are aimed at transitioning an area of sage-grouse habitat from a less to a more desirable ecological state. Appropriate enhancement measures may vary among sites, depending on the initial and desired future ecological states of a site (see **Table of Conservation Measures, Appendix B**).
- **Avoided loss:** Measures that prevent undesirable state changes in areas that are at a demonstrated risk of degradation from threats such as development, wildfire, and invasive species. Depending on the current and anticipated future threats at a given site, appropriate avoided loss activities may



include legal protection, fire prevention, and management of invasive species. Credit may only be provided for avoided loss in proportion to the estimated likelihood of loss and when a project also includes enhancement activities. That is, credits for avoiding loss are discounted according to the probability that a given threat would have led to loss of the habitat over the life of the project.

Multiple conservation measures will likely occur on a single site. An assessment of the ecological states present on a crediting project site and of desired future states provides the basis for identifying and prioritizing conservation measures. Appendix B provides an overview of potential enhancement and avoided loss measures that may be considered, the current and desired states that those measures would be most appropriate for, and a relative assessment of the potential benefit, risk, time delay, duration, and cost associated with each.<sup>27</sup> Not all possible conservation measures will be appropriate for generating credits on every site.

Other conservation measures may be considered by the project administrator on a case-by-case basis if the gain in sage-grouse habitat function can be adequately quantified and clear and approved best practices exist for how to plan, implement, and maintain those conservation measures over time. Credit producers would need to provide the program administrator with a detailed scientific rationale and estimate of benefit for proposed creditable activities outside of those in Appendix B.

Each credit producer must develop and submit a *site-specific plan* (SSP), which identifies the extent, type, and description of all proposed conservation measures. Individual SSPs will describe:

- The type and location of ecological states present on the project site;
- Current and future threats to sage-grouse habitat function for the site; and
- Specific conservation practices that will be implemented on the site to maintain or improve habitat for the species.

A SSP may be developed by any credit producer or their designee, with or without assistance by the program administrator or a local mitigation biologist, soil and water conservation district, or other technical support provider. Those entities may assess fees for providing assistance. The program administrator will determine whether a SSP is appropriate and adequate and will consult with the State Technical Team as needed to ensure consistency with ODFW policy.

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<sup>27</sup> The information on conservation measures is the best available at the time of Manual development. Appendices A and B should be updated annually to reflect new information, as described in the adaptive management process in Section 4 of this document.

## 2.2 Calculating Credits

Determining the amount of compensatory mitigation needed to ensure a net conservation benefit for a proposed development action requires a method for measuring the impact of the debiting project and the benefit of the crediting project.<sup>28</sup>

Oregon's Sage-Grouse Habitat Quantification Tool (HQT), currently under development, is used to measure the results of both debiting and crediting projects. It will measure not only the quantity of habitat affected by an action, but also its quality in terms of functional value to sage-grouse.

The quantification tool will be:

- Sensitive to the landscape context of the site (e.g., location in a PAC, potential threats, connectivity, patch size, etc.);
- Repeatable, sensitive, accurate, and transparent;
- Practical, economical, and easy to use by both this mitigation program and other incentive programs; and
- Capable of assessing projects of different scales.

The HQT quantifies impacts and benefits in terms of functional habitat acres, by measuring specific habitat characteristics that reflect both the quantity and functional quality of habitat at a particular site. The HQT draws on both landscape-scale data incorporated into the Oregon Rangelands Decision Support System and site-level information collected at the location of a particular debiting or credit project. Individual indicators are combined into themes, described below, which are then summarized into a single functional acre score.

The HQT is being designed to address all major indicators of sage-grouse habitat quality

and suitability at the four spatial orders.<sup>29</sup> Some indicators will be addressed indirectly, or by proxy, when sampling or other issues make direct measurement impractical. A detailed list of indicators, a description of the methodology used to combine them into a single score, and scientific rationale and documentation are provided in a separate HQT Methods document, also under development.

### 1<sup>st</sup> and 2<sup>nd</sup> Order (Range-Wide Distribution and Population/Sub-Population Scale)

These orders are addressed within the eligibility requirements described in Section 2.1 of this manual, rather than in the quantification tool itself. All mitigation projects must be in current or potential habitat (i.e., within the species range), and debiting and crediting projects must be within the same WAFWA management zone (for in-lieu fee projects) or PAC or population area (for permittee-sponsored mitigation projects).

### 3<sup>rd</sup> Order (Local Scale)

Themes addressed by the HQT at the 3<sup>rd</sup> order scale include:

- **Habitat Importance:** Priority status of the site and proximity to important features such as leks and PACs;
- **Habitat Viability:** Ability of a site to meet year-round habitat needs of sage-grouse, based in part of current populations densities and distribution of limiting seasonal habitat types;
- **Fire and Invasive Species:** Proximity to invasive species, assessments of resistance/resilience, and likelihood of fire; and

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<sup>28</sup> This method is under development. The quantification method must be completed and approved before credits can be generated.

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<sup>29</sup> Connelly, J.W., K.P. Reese, and M.A. Schroeder. 2003. Monitoring of greater sage-grouse habitats and populations. University of Idaho, College of Natural Resources Experiment Station Bulletin 80. Moscow, ID. Stiver, S.J., E.T. Rinkes, and D.E. Naugle. 2010. Sage-grouse Habitat Assessment Framework. U.S. Bureau of Land Management. Unpublished Report. U.S. Bureau of Land Management, Idaho State Office, Boise, Idaho.

- **Human Modification:** Level of impact from human developments on and near the project site.

#### 4<sup>th</sup> Order (Site Scale)

Themes addressed by the HQT at the 4<sup>th</sup> order scale include:

- **Vegetation Condition:** Assessment of ecological state, based on indicators such as cover or density of sagebrush, juniper, and non-native grasses, and the relative predominance of each of these;
- **Development Potential:** Likelihood of future human development, based on ownership, zoning, land use exclusion, and site potential for energy development; and
- **Biodiversity Co-Benefit:** Presence or absence of priority areas or crucial or critical habitat for species other than sage-grouse.

To apply the quantification method to a proposed project, a user will need to delineate the *assessment area* and collect information from geospatial information system (GIS) data sources and from the field. Most GIS information will be available through the state's Oregon Rangelands Decision Support System. The method must be run twice, first on the current condition and then to estimate the results of conservation measures 15-30 years in the future, depending on the anticipated time-to-benefit for a given measure (see Appendix B).<sup>30</sup> Credits for enhancement actions are estimated based on the difference in the projected future number of functional habitat acres and the assessment area from the current number of

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<sup>30</sup> Time horizon for credit estimates will vary by site and practice and should be based on information regarding time to benefit as summarized in Appendix B.

functional habitat acres within that area.<sup>31</sup> Credits for avoided loss are discounted in proportion to the likelihood that a given loss would have occurred.<sup>32</sup> All other factors being equal, crediting projects that are most likely to be successful (e.g., because they occur in relatively intact habitat and use site-appropriate conservation measures are applied) will receive more credit.

### 2.2.1 Adjusting quantification method values based on risk and uncertainty

One of the most persistent sources of uncertainty in mitigation is the ability to accurately estimate the benefits provided by crediting projects. Unlike debiting projects, in which the results of development or conversion tend to be relatively certain and persistent, the long-term benefits of crediting projects tend to be difficult to measure or estimate. Benefits provided can vary as a result of extreme weather and other *force majeure* events, effectiveness of conservation measures, time lag between implementation of a measure and full performance, soils, and the effects of landscape-scale threats such as wildfire and invasive species. Additional areas of uncertainty specific to sage-grouse include the effects of climate change, lack of robust information on population connectivity, and lack of understanding of the processes necessary to restore sagebrush communities.<sup>33</sup> These sources of uncertainty must be addressed within the mitigation

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<sup>31</sup> For example, a site that is providing 10 functional acres of sage-grouse habitat before project initiation and 100 functional acres at the end of the project receives credit for 90 functional acres.

<sup>32</sup> For example, if a site provides 100 functional acres of habitat in pre-project condition and is estimated to be at a 30% risk of loss to development over the project life, 30 functional acres of credit are available for avoided loss through legal protection from development.

<sup>33</sup> COT Report, *supra* note 3, at p. 14.

program and associated planning tools in order to ensure net benefit to the species.

The sage-grouse habitat quantification method addresses many elements of uncertainty (e.g., connectivity, patch size, habitat importance, likelihood of project success, etc.). Conservative eligibility requirements in the mitigation program, including long-term protection and stewardship requirements, also partially address the risk of project failure.

The primary remaining uncertainties relate to the risk of project failure or loss of habitat function due to fire, extreme weather, invasion by exotic species, or other unforeseen events. Significant uncertainty also exists around the quantification of avoided loss. In order to address the probability that a given site project will be affected by these adverse events in the course of a thirty-year *project life*, the program administrator will require permittees to purchase an additional 50% *reserve pool* contribution, beyond the credit amount needed to meet the net conservation benefit standard.<sup>34</sup> Those credits will help insure the mitigation program against the potential failure of projects. The program administrator and State Technical team will revisit the estimated probability of project failure as part of regular adaptive management reviews and adjust the reserve pool contribution requirement accordingly.

## 2.3 Implementing and Verifying Conditions

This section describes the process that all mitigation projects, whether through the in-lieu

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<sup>34</sup> The reserve pool contribution is a rough estimate of the likelihood of project failure due to unforeseen events. Following development of the habitat quantification tool in 2015, the amount of the reserve pool contribution will likely be revised through the program's adaptive management process to more accurately reflect a conservative estimate of the risk of fire and other unforeseen events that are not adequately addressed within the quantification tool.

fee program or permittee-responsible compensatory mitigation, will use to verify the number of credits their project is projected to generate, as well as the number of credits actually generated over time through implementation.

### 2.3.1 Who does the verification?

The program administrator will either conduct site visits and other forms of verification in coordination with permitting agencies, or may designate one or more parties as third-party verifiers. Third parties could include consultants, conservation district staff, FWS or BLM staff or contractors, restoration professionals, or others. Verifiers should be formally trained by the program administrator, use standardized forms and processes, and have the expertise needed to use the quantification tool and identify problems with project implementation and outcomes. If third-party verifiers are used, they will be accredited by the program administrator or a designated entity based on evaluation of qualifications and training by ODFW or other species experts.

### 2.3.2 What is verified?

An initial verification will occur in year “zero” of a project. That includes a site visit and review of documentation. The initial verification confirms mitigation site eligibility, estimates of credits, and adequacy of stewardship/monitoring plans.

Verification of a site's ecological performance will occur regularly throughout the life of a project. Verification frequency should be outlined in the site-specific plan and may vary based on an individual mitigation site's characteristics and ongoing performance. The verification cycle below is a suggested default option, unless the credit producer proposes and the program administrator approves a modification based on relevant factors:

- **Year 0:** Full verification prior to signing a mitigation site agreement/instrument;

- **Years 1-5:** Annual review of monitoring reports and site visits as needed to confirm progress toward agreed-to performance standards;
- **Years 5 until 5 years after the last credit is sold (*project closure date*):** Review of at least 2 consecutive years of monitoring data prior to a new credit release (e.g., a project developer submits 2 consecutive years of monitoring reports leading up to a request for credits to show the site is meeting performance standards); and
- **Project closure date to Year 30:** As a site moves into stewardship, the project steward submits a monitoring report no less frequently than every 5 years until Year 30 of the project for the purposes of monitoring program effectiveness. The long-term protection and stewardship requirements described in **Section 2.1** are expected to result in perpetual maintenance of benefits after Year 30, and the program administrator or designee may conduct audits as needed to ensure expected benefits are being provided. The program administrator will identify a standard set of criteria, including but not limited to changes in land ownership, that would trigger an automatic audit.

If third-party verifiers are used, the program administrator will provide verifier training and a template document that defines the elements of a mitigation project that need to be verified.

credits if they believe the estimates are outside an acceptable margin of error;

- Specifically identifies (if possible) what measures worked and did not and other information important to adaptive management and increasing the knowledge base about mitigation success; and
- Identifies potential sources of future concern to track over time.

A draft version of the report is discussed with the credit producer, giving them an opportunity to address any identified problems or issues before formal submission of the report. A final report is then submitted to the program administrator within 30 days of conducting verification activities. If the sage-grouse is listed, monitoring reports will be made available to the US Fish and Wildlife Service.

### 2.3.3 Review and submit verification report

As part of verification, the verifier will produce a report that summarizes the results of verification. The report:

- Confirms eligibility and summarizes what was verified and on what dates;
- Either confirms the initial credit estimates or the increases or decreases



### 2.3.4 Differences in opinion and dispute resolution

Differences in opinion may occur between a verifier and a credit producer. These disagreements might involve the adequacy of documentation, whether the project was installed correctly, whether credits are estimated accurately, or whether a credit producer is planning well enough for ongoing performance costs. The resolution of these disputes depends on which entity acts as the verifier. When an agency conducts verification, disputes will likely be handled through the administrative and dispute resolution processes at that agency. When a third party conducts verification, dispute resolution processes should be determined ahead of time and incorporated into the contract for third party services. The program administrator may choose to set up internal processes to deal with disputes involving decisions made by the administrator. The program administrator may develop separate processes for minor and significant, or material, disputes. All dispute resolution processes will be consistent with applicable Oregon law and any other relevant laws.

## 2.4 Registering and Issuing Credits

With a verification report that confirms eligibility and credit quantification, the program administrator is ready to certify credits.

### 2.4.1 Approving a mitigation instrument

The program administrator will review the following documentation for completeness and accuracy. **Table 2.2** lists the documents needed to gain final approval of a *mitigation instrument* and release the initial phase of credits for sale.

### 2.4.2 Registering credits

The State of Oregon will identify or develop a database to track debiting (development) and crediting actions affecting sage-grouse habitat, including all permittee-responsible compensatory mitigation projects. All credits

**Table 2.2 - Documents Needed for Final Approval**

Document Title	Description
Eligibility checklist	Documentation of site eligibility
Credit estimate	Baseline and post-project estimates of sage-grouse habitat benefits generated by the quantification tool
Site-specific plan	Description of the location, extent, type, and design of conservation measures
Stewardship plan	Identification of stewardship costs, plans and timeline for demonstrating the availability of funding for stewardship (endowment or other tool) who will be the steward, how maintenance will be conducted, and contingency plans for events such as drought, wildfire, etc.
Financial management plan	Detailed <i>financial management plan</i> including initial costs (acquisition, field surveys, habitat restoration, capital equipment, etc.), on-going annual costs (monitoring, maintenance, management, reporting, contingency allocation, etc.), and stewardship funding requirements accounting for inflation and investment strategy
Land protection documents	Recorded easements and/or other legal instruments protecting the land for the duration of the credit life
Verification Report	Produced by a verifier and confirms the appropriateness of the documents listed above

and their accompanying documents must be recorded in that database for ODFW, U.S. FWS<sup>35</sup>, and permitting agencies to determine compliance with applicable rules and laws, and for the program administrator to analyze whether the programmatic net conservation benefit goal is being met. The database will

include geographic locations, site-specific plans, verification documents, credit quantities, and credit purchases. Information on the general location of impacts and mitigation sites and the quantity of credits being generated and sold should be easily accessible to the public.

### 2.4.3 Credit release

Prior to selling or using any credits, a credit producer, whether providing credits to the in-lieu fee program or developing their own credits, must have an approved site-specific plan in place described in the sections above. The program administrator should conduct a final, pre-sale check-in with all relevant regulatory and permitting agencies to ensure full agreement on debit and credit amounts.

For projects under the in-lieu fee program, released credits will be automatically purchased by the in-lieu fee fund manager and payment issued to the credit producer. Credits developed by private mitigation bankers may also be sold to the in-lieu fee program, and unused credits from permittee-responsible mitigation projects may be sold to the program administrator at the program administrator's discretion. For permittee-responsible compensatory mitigation projects, credits that are released are available for offsetting impacts.

The governance board may recommend future development of a credit exchange, where mitigation credits may be freely bought

and sold. Regardless of project type, all credit sales need to be reported to the program administrator, who will use geospatial and other information provided in the proposal to record them in the State's registry database. For credit producers participating in the State's in-lieu fee program, the in-lieu fee fund manager disburses funds as described in the guidelines for in-lieu fee management.

Not all credits are released immediately on approval of a site-specific plan, recording of a land protection agreement, or project implementation. Similarly, some credits can be released as a project is implemented, but before it is achieving its full habitat function. *Phased release of credits* (releasing a limited number of credits from a project in stages prior to its completion) is a common way of balancing the need to demonstrate ecological benefits of a project with the need for up-front funds to finance implementation measures. For the in-lieu fee program, the timing of payments to credit producers will not necessarily match the timing of credit release in order to better match expenses with reimbursements.

A default credit release schedule is included below, although the schedule included in a specific mitigation proposal may have additional phases and requirements necessary for credit release. If performance standards are not being met (i.e., the project is not on a path to provide the projected number of credits), credit release may be halted as described in **Section 2.5.4** below.

Default Credit Release Schedule:

- **Phase 1:** 20% of projected credits are released on approval of site-specific plan and recording of a land protection agreement;
- **Phase 2:** Up to 20% of credits are released at the end of years 1 and 5 (up to 40% total) if site-specific plan measures have been implemented and appropriate progress toward performance standards is documented and verified;
- **Phase 3:** Up to 20% of credits are released when the stewardship

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<sup>35</sup> U.S. FWS may require this in the case that the species is listed under the federal Endangered Species Act.

endowment is fully funded, provided appropriate progress toward performance standards is documented and verified; and

- **Phase 4:** All remaining credits are released when a site has met all of its final performance standards, based on verification of the final total number of credits produced at the site. If a site exceeds its final performance standards and generates additional credits, these credits will be released.

## 2.5 Ongoing Verification, Tracking, and Adaptive Management

For any mitigation site, the credit producer is responsible for conducting ongoing monitoring and demonstrating progress toward meeting the performance standards outlined in their site-specific plan. A credit producer needs to submit monitoring reports (before December 31 of each year in which a report is required) on the verification schedule agreed to in the site-specific plan to the program administrator for review. The program administrator or its designated verifier will review those reports.

### 2.5.1 Site-specific performance standards

Credit-generating sites will need to maintain a certain level of performance over time to sustain the habitat functions on which their credits are based. Every site will have an agreed-to set of measurable performance standards that need to be met at agreed-to time intervals. Performance standards for each mitigation site will be customized in the site-specific plan but should, at a minimum, require the credit producer to increase the functional sage-grouse habitat provided by the site above and beyond the level of the initial assessment. Performance standards should be built around the assessments of initial and desired future condition from the quantification tool, and should be based on the State's past experience with sagebrush ecosystem restoration and stewardship, available data on the needs of sage-grouse and other relevant species, and any reference/historic conditions that are applicable.

### 2.5.2 Requirements for monitoring and verification

The submitted monitoring reports need to demonstrate progress toward meeting and sustaining agreed-to performance standards and should include:

- A summary paragraph of overall site conditions, challenges (including unanticipated costs), and progress;
- A table demonstrating whether performance standards are being met, and what data/findings were used to support that demonstration;
- Documentation of circumstances in which site conditions improved beyond what was anticipated, and discussion of potential reasons why as input into the adaptive management aspect of the program;
- Recommendations for rectifying the site if performance standards are not being



met and an action plan for implementing such measures;

- A summary of credits sold, retired, or used; and
- Any suggested improvements in the mitigation program for the program administrator, ODFW, or the permitting agencies.

### 2.5.3 What happens if performance standards are not being met

Projects can fail to meet performance standards for three reasons: A) a force majeure event, such as wildfire, flooding, or extreme drought, that is beyond the credit producer's control; B) avoidable implementation failure, or actions that a credit producer has the ability to foresee and correct; and C) an unavoidable land use conflict. As program administrator, the State holds responsibility for the performance of crediting projects unless liability is transferred to credit producers through a contract.

**Force majeure:** When a project fails to meet performance standards as a result of a force majeure event, the credit producer should notify the program administrator as soon as possible, and both parties should work together to identify an acceptable time-frame and actions needed to correct the issue and return to a positive trajectory, if at all possible. At the end of that set time, the program administrator should re-evaluate the conservation outcomes. If the project is still failing to move toward performance standards, the program administrator should suspend the release of credits from the project and determine whether to allow access to any reserve pool of credits. **Credit producers are not required to replace credits already sold** but cannot sell more credits from the site unless it returns to meeting performance

standards. Permittee-responsible mitigation projects may access the reserve pool (at the program administrator's discretion) or may create their own pool of reserve credits to access in case of project failure.

**Avoidable implementation failure:** When a project fails because of actions or circumstances that the credit producer has the ability to foresee and correct, the credit producer should similarly notify the program administrator as soon as possible and work to identify an acceptable timeframe and actions needed to correct the issue and return to a positive trajectory. If the project remains deficient at the end of that time-frame, the program administrator will suspend the release of credits. The credit producer may then fix the practice to restart the credit release process, purchase replacement credits from the in-lieu fee program or reserve pool (at the discretion of the program administrator and at full cost plus a penalty), or begin a contract cancellation process. If a contract is cancelled due to implementation failure, the credit producer will be liable for the cost of all credits that were released for the site. Performance bonds may be required to ensure this responsibility is met.

**Land use conflict:** Land use conflict should generally be avoided through the durability requirements for eligibility described in **Section 2.1**. However, in rare cases, it may be not be possible to legally preclude all incompatible uses on mitigation lands (for example, mining rights on some public lands or loss of land due to eminent domain). In general, when a project fails to meet performance standards because of a legally unavoidable land use conflict, the party creating the new impact is responsible for replacing the credits, either through purchasing credits through the in-lieu fee program or reserve pool (at the discretion of the program administrator) or by implementing a crediting project at another site. The program administrator and credit producer should work together to establish an acceptable time-line and means for replacing all lost credits. ■

### 3. FOR PERMITTEES: MEETING MITIGATION REQUIREMENTS AND ACQUIRING CREDITS

The following section outlines the steps permit applicants would take to determine the requirements for avoiding, minimizing, and compensating for impacts to sagebrush habitat by a proposed project. Permit applicants may include private landowners and businesses, local and state governments and agencies, and federal land management agencies seeking permits or approval for any of the *affected development activities* described below, as well as local, state, and federal agencies seeking to fund or implement those activities.

#### 3.1 Proposing a Debiting Project

This section addresses development activities that are subject to avoidance, minimization, and compensatory mitigation requirements under new and existing statutes, regulations, ordinances, and/or formal agreements outlined in the GSG Action Plan. Affected development activities include those which:

- Negatively impact sage-grouse habitat and create spatially discrete and measurable impacts that are not defined as *de minimis* in referring policies and agreements;
- Are identified as threats to sage-grouse habitat, including those identified in the U.S. Fish and Wildlife Service's Conservation Objectives Report (COT)<sup>36</sup> and the 2011 ODFW GSG Conservation Strategy<sup>37</sup>; and

- Are authorized<sup>38</sup>, funded, or carried out by federal or state agencies or are defined as conflicting uses under Oregon's administrative rules related to local government approval of development actions in sage-grouse habitat (OAR 660-023-0115).

Actions that meet these criteria, including existing development activities that require re-permitting and that cause new impacts, are generally subject to avoidance, minimization, and compensatory mitigation requirements.

**Table 3.1** provides an example list of such activities. Dispersed impacts resulting from activities such as undeveloped recreation and grazing, management of agricultural lands, and impacts from wildfire and invasive species are not subject to these requirements and will be addressed through other approaches outlined in the GSG Action Plan.

Permittees proposing affected development activities should consult with their permitting agency to set up a pre-planning meeting with a staff representative of ODFW and all other relevant permitting agencies at least 45 days prior to submitting a permit application or proposing an action that may impact sage-grouse habitat. Permitting agencies will refer the permittee to a mitigation biologist or other technical support provider, who may provide guidance and information to the permittee in developing a draft *mitigation plan* that is consistent with all relevant policies and agreements.

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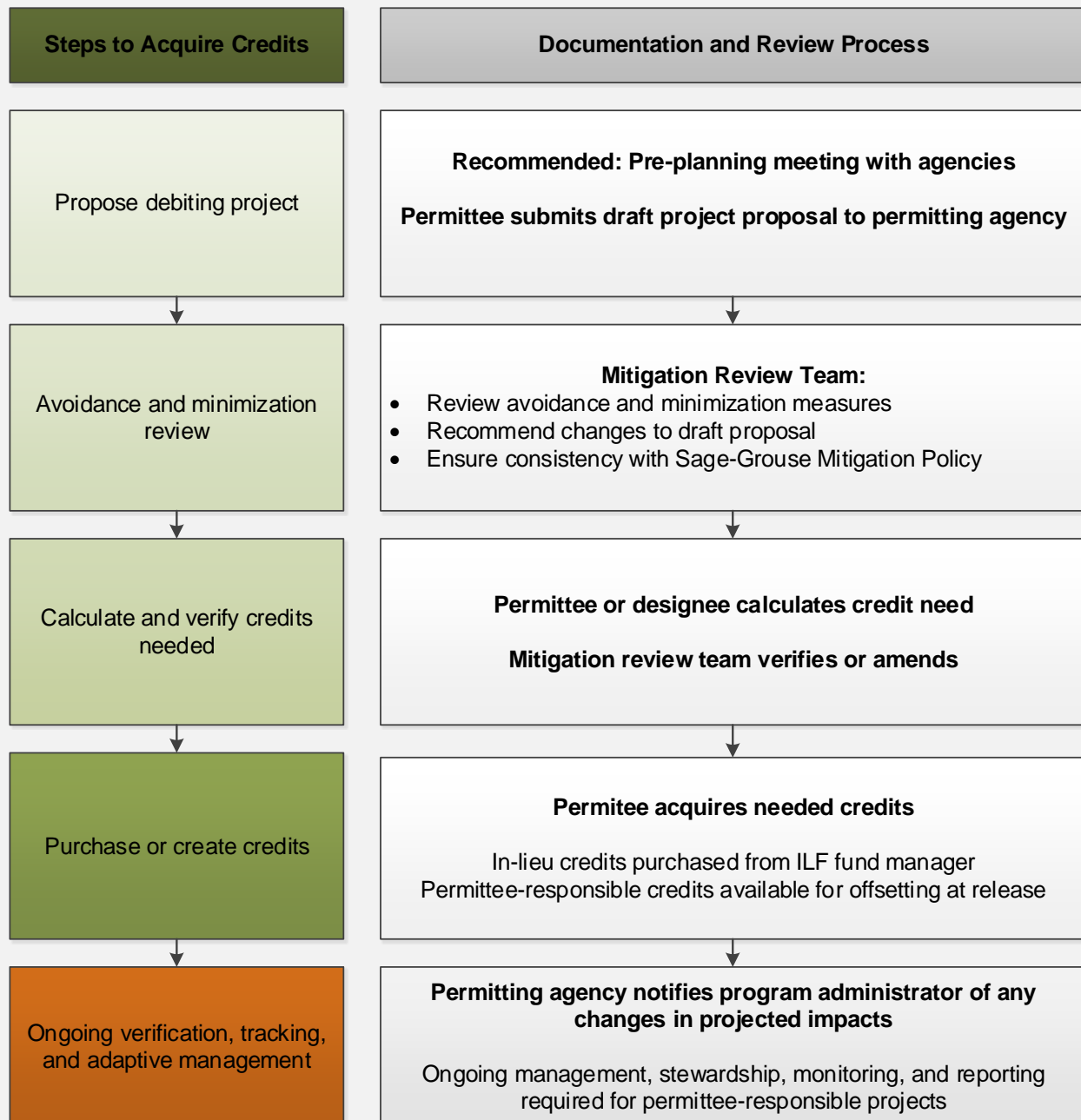
<sup>36</sup> COT Report, *supra* note 3, at pp. 38-52.

<sup>37</sup> 2011 ODFW GSG Conservation Strategy, *supra* note 11, at pp. 98-119. These threats are mentioned in the *Greater Sage-Grouse Conservation Strategy for Oregon*, OAR 635-140-0015(2)(b).

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<sup>38</sup> The concept of authorization includes permits, licenses, and other forms of permission required by law. See HB 3086 § 2(1)(a).

**Figure 3.1 - Overview of Permitting and Credit Acquisition Process**



**Table 3.1 - Examples of Development Activities Likely to Be Affected**

Energy development and infrastructure
Locatable mining
Roads, railroads
Power lines
Communication towers

A methodology is currently under development for quantifying the impacts of these development activities on the functional value of sage-grouse habitat. Development activities not in **Table 3.1** should be reviewed by the permitting agency for impacts to sage-grouse, in coordination with the program administrator, on a case-by-case basis to determine whether they are subject to mitigation requirements.

### 3.2 Avoidance and Minimization Review

To initiate a review of sage-grouse impacts and mitigation requirements, a permittee provides the permitting agency with a draft mitigation plan that outlines avoidance and minimization measures, as well as an estimate of mitigation credits needed in order to provide a net benefit to sage-grouse and their habitat (see **Section 3.3** below).<sup>39</sup>

The permitting agency will convene a mitigation review team, composed of staff members from ODFW and all permitting agencies relevant to the proposed project. The mitigation review team is convened on an ad hoc, project-by-project basis to review and evaluate the draft mitigation proposal and

ensure consistency with the mitigation approach outlined in ODFW's Greater Sage-Grouse Conservation Strategy for Oregon<sup>40</sup>, the state's threshold for disturbance in core sage-grouse habitat<sup>41</sup>, this Manual, and all other relevant policies and agreements. Permittees proposing affected development activities should continue to communicate with the mitigation review team as needed to finalize an approved final mitigation plan. Guidelines for convening and operating a mitigation review team, including a process for timely dispute resolution, will be outlined in an interagency agreement.

The remainder of this section describes in detail the process of reviewing potential impacts to sage-grouse habitat, determining what impacts will be allowed, and determining the type and amount of mitigation. Details of avoidance, minimization, and compensatory mitigation requirements are based on anticipated policies and agreements currently under development, and may require updating as part of the Manual's annual adaptive management process (see **Section 4.2**).

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<sup>39</sup> As described at OAR 635-140-0015 and 635-140-0025.

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<sup>40</sup> OAR 635-140-0025

<sup>41</sup> OAR 660-023-0115

**Table 3.2 - ODFW and U.S. FWS Mitigation Hierarchies**

<b>ODFW (Oregon Administrative Rule 635-415-0005(16))</b>	<b>U.S. FWS (46 Fed. Reg. 7656)</b>
1. Avoiding the impact altogether by not taking a certain development action or parts of that action;	1. Avoid the impact;
2. Minimizing impacts by limiting the degree or magnitude of the development action or parts of that action;	2. Minimize the impact;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;	3. Rectify the impact;
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the development action and by monitoring and taking appropriate corrective measures;	4. Reduce or eliminate the impact over time;
5. Compensating for the impact by replacing or providing comparable substitute resources or environments.	5. Compensate for impacts.

### 3.2.1 Avoidance, minimization, and compensatory mitigation

Impacts to sage-grouse habitat must first be avoided and minimized in accordance with the ODFW Sage-Grouse Habitat Mitigation Policy<sup>42</sup> and the U.S. Fish and Wildlife Service Mitigation Policy.<sup>43</sup> Before compensatory mitigation becomes an option, avoidance and minimization consistent with ODFW and U.S. FWS guidance on mitigation sequencing (see **Table 3.2**) are required for direct and indirect impacts to all sage-grouse habitat.

#### **Avoidance**

Avoidance refers to the process that ensures that if a proposed can occur in another location that avoids or reduces impacts to sage-grouse habitat, it must not be authorized, funded, or carried out at the originally proposed site.

<sup>42</sup> In development. The general ODFW Habitat Mitigation Policy is stated at OAR Chapter 635, Division 415 and the Greater Sage-Grouse Strategy for Oregon at OAR Chapter 635, Division 140

<sup>43</sup> U.S. Fish and Wildlife Service. *Notice of Final Policy: U.S. Fish and Wildlife Service Mitigation Policy*, 46 Fed. Reg. 7656 (1981) (reaffirmed in U.S. Fish and Wildlife Service. 501 FW 2 (1993)).

For impacts subject to county land use permitting, the avoidance process to be followed is outlined in Oregon Administrative Rules (660-023-0115). Generally, large-scale developments in core and low-density habitat may proceed only if they can demonstrate that it is not technically feasible to locate the proposed development at a less impactful site and that the proposed development is dependent on unique geographic or other physical features that cannot be found on other lands. Impacts subject to other state or federal permitting processes may be required to meet other avoidance standards.

#### **Minimization**

Minimization refers to the process that ensures that, if impacts to sage-grouse habitat are unavoidable, the applicant attempts to revise the development activity in order to minimize impacts. Minimization can include changes in the siting, timing, design, and construction of a project and may also include rectifying or reducing the duration of the impact, when feasible. Impacts that may be subject to minimization requirements include direct impacts, indirect impacts, and fragmentation. The habitat quantification tool can support an analysis of minimization options by running multiple scenarios (e.g., development with different densities, locations, or configurations). On a case-by-case basis, the permitting agency in coordination with ODFW may request from the permittee an alternative development scenario not already presented to test for the feasibility of minimization.

For developments which create impacts and are subject to county land use permitting, the minimization process to be followed is outlined in Oregon Administrative Rules (660-023-0115). Generally, large-scale developments in core and low-density habitat may proceed only if they can demonstrate that the proposed use minimizes the amount of habitat directly or indirectly disturbed and the resulting fragmentation of habitat through micro-siting, limitations on the timing of construction and/or use, and methods of construction. Some other uses, and uses in other sage-grouse habitat, may be required to demonstrate minimization, depending on the proximity to sage-grouse lek sites and/or the permitting agency or agencies involved. Impacts subject to other state or federal permitting processes may be required to meet other minimization standards.

### **Compensatory Mitigation**

If avoidance and minimization options have been exhausted, compensatory mitigation will be required for all remaining large-scale development proposed in core and low-density habitat. Some other uses, and uses in other sage-grouse habitat, may also require compensatory mitigation, depending on the proximity to sage-grouse lek sites and/or the permitting agency or agencies involved.

For impacts subject to county land use permitting, the compensatory mitigation process to be followed is outlined in Oregon Administrative Rules (660-023-0115 and 635-140). Generally, development actions will be required to fully offset the direct and indirect adverse effects on sage-grouse. The state's standard for compensatory mitigation of impacts in sage-grouse habitat is to achieve net conservation benefit for sage-grouse by replacing the lost functionality of the impacted habitat to a level capable of supporting greater sage-grouse numbers than that of the habitat which was impacted. Impacts subject to other state or federal permitting processes may be required to meet other compensatory mitigation standards.

To determine the amount of compensatory mitigation needed to meet that standard, the permittee will use the approved version of the habitat quantification tool to determine the number and duration of credits needed to

meet the net conservation benefit standard as part of a draft mitigation plan. The staff review team will review the estimate and will approve or amend the credit requirement. The applicant may then either pay the in-lieu fee fund the value of the required credits or submit a proposal and SSP for a permittee-responsible project. Additional requirements for compensatory mitigation are explained in **Sections 3.3.2 – 3.3.3** below.

### **Development Threshold in Core Sage-Grouse Habitat**

In addition to application of the mitigation hierarchy, the state and/or counties will adopt new land use policies to provide additional regulatory certainty and protection for sage-grouse habitat by setting a threshold limiting development in core sage-grouse habitat and by strengthening the State's habitat mitigation program. The new regulations will establish a threshold level of acceptable impacts to core sage-grouse habitat in each core area. This approach is described in the GSG Action Plan.



### 3.3 Calculating and Verifying Credits Needed

The process of quantifying debits using approved quantification methods is nearly identical to the process for quantifying credits described in **Section 2.2**. Permittees for affected development activities need to similarly define an assessment area, run the method on current conditions, and anticipate future conditions after project implementation. The primary difference is that future conditions need to be projected using an estimate of the direct and indirect impacts of the proposed development activity.

The sage-grouse quantification method currently under development that is described in **Section 2.2** will also be used for determining the credit needs of development projects.

To apply the quantification method to a proposed development action, a user will need to delineate the *assessment area* and collect information from geospatial information system (GIS) data sources and from the field. The method must be run twice, first on the current condition and then to estimate future condition based on impacts of the proposed development action. Impacts are quantified based on the projected future number of functional habitat acres within the assessment area, subtracted from the current number of functional habitat acres within that area. The State of Oregon will develop a database to track debiting (development) and crediting actions affecting sage-grouse habitat, including all permittee-responsible compensatory mitigation projects.

The mitigation review team is responsible for reviewing and approving the estimate of credit need proposed by the permittee. The program administrator or a designated third-party verifier will conduct site visits and other forms of verification in coordination with the mitigation review team and according to standards set by the program administrator in coordination. The number of credits needed is based on the quantification of credit need described in **Section 3.3** and must meet the State's net conservation benefit standard for

mitigation of impacts to sage-grouse and their habitat.<sup>44</sup>

In order to address the probability that a given mitigation project will be affected by unforeseen adverse events in the course of its project life, the permittees will be required to purchase additional credits to provide 50% *reserve pool* contribution, beyond the credit amount needed to meet the net conservation benefit standard.<sup>45</sup> Reserve pool credits will help ensure the mitigation program against the potential failure of projects. The program administrator and State Technical team will revisit the rate of project failure as part of regular adaptive management reviews and adjust the reserve pool contribution requirement or adopt other tools for managing uncertainty and risk. The program administrator and governance board may also determine, as part of the program's adaptive management process, to require use of a *retirement ratio* or other tool to ensure the net conservation benefit standard is met.

#### 3.3.1 Service areas

When compensatory mitigation is required for permitted impacts, that mitigation must occur

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<sup>44</sup> ORS 498.500 states that "a mitigation bank or other mitigation framework...[must] not result in a net loss of either the quality or quantity of sage grouse habitat and [must provide] a net benefit to the quality or quantity of sage grouse habitat." OAR 635-140-0025 states that, "The standard for compensatory mitigation of habitat impacts in sage grouse habitat (core, low density, and general areas) is to achieve net conservation benefit for sage-grouse by replacing the lost functionality of the impacted habitat to a level capable of supporting greater sage-grouse numbers than that of the habitat which was impacted."

<sup>45</sup> The reserve pool contribution is a rough estimate of the likelihood of project failure due to unforeseen events. Following development of the habitat quantification tool in 2015, the amount of the reserve pool contribution will likely be revised through the program's adaptive management process to more accurately reflect a conservative estimate of the risk of fire and other unforeseen events that are not adequately addressed within the quantification tool.

on sage-grouse habitat (see **Box 1.2**) and create a net conservation benefit for sage-grouse within the Western Association of Fish and Wildlife Agencies (WAFWA) Management Zone impacted by the development activity being offset (see **Table 3.2**). Impacts to sage-grouse habitat in Oregon must be offset by compensatory mitigation projects within the State boundaries and within the same WAFWA Management Zone.

Because the program administrator and State governance board are less able to target compensatory mitigation projects outside of the in-lieu fee program to ensure that net conservation benefit is provided at the appropriate spatial scale, further *service area* restrictions apply to permittee-responsible compensatory mitigation projects. For those projects, when appropriate and sufficient crediting opportunities are available:

- Impacts to *core area habitat* must be offset by crediting projects within the same PAC area;
- Impacts to *low-density habitat* must be offset by crediting projects within the most proximate PAC;
- Impacts to *general habitat* and core and low-density impacts for which PAC-specific credits are not available, must be offset by crediting projects within the same population area (see **Table 3.2**).

### 3.3.2 Duration and offsite and in-kind preference

Compensatory mitigation for impacts to sage-grouse habitat must be *durable* – that is, the period of time that mitigation is effective must be equal or greater in duration to the impacts being offset.<sup>46</sup> Because of the threat wildfire and invasive species pose to crediting projects, the State's approach to demonstrating

durability will allow *dynamic permanent mitigation* projects developed under the in-lieu fee program to offset up to 50% of permanent impacts. These projects may be created by renewable term contracts of no less than 30 years. This approach creates more opportunities for the in-lieu fee program to respond to emerging threats and target mitigation funds to the areas in which they can be most effective, while ensuring that projects remain long enough in duration to provide expected benefits to the species. Permittees using dynamic permanent credits will be responsible for demonstrating durability for the life of the impact by purchasing or creating additional credits as needed when term credits expire. The ratio of term and permanent credits will be evaluated through the adaptive management process and may need to be adapted in the future.

As a default, compensatory mitigation is strongly preferred on sites that are not part of the site impacted by the development action (i.e., *offsite*) and are large enough to support high-quality sage-grouse habitat. Compensatory mitigation *onsite* (i.e., proximate to impacts) may be considered when habitat at the proposed compensatory mitigation site is identified as a priority area for protection or restoration/enhancement by the state's Oregon Rangelands Decision Support System, and the area proposed for a compensatory mitigation project will not negatively affected by the impact.

*In-kind mitigation* is the replacement or substitution of resources or values that are of the same type and kind as those replaced. To be considered in-kind, crediting actions should be for the same species (greater sage-grouse) and should occur in or result in ecological states of the same or higher value to sage-grouse (see state and transition models provided in Appendix A) as the area impacted. For example, impacts to a site in the perennial herbaceous state (state B) may be offset by crediting projects in the same state (B) or in a sagebrush-perennial herbaceous state (state A).

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<sup>46</sup> See Interior Mitigation Strategy; *supra* note 6, at p. 6.



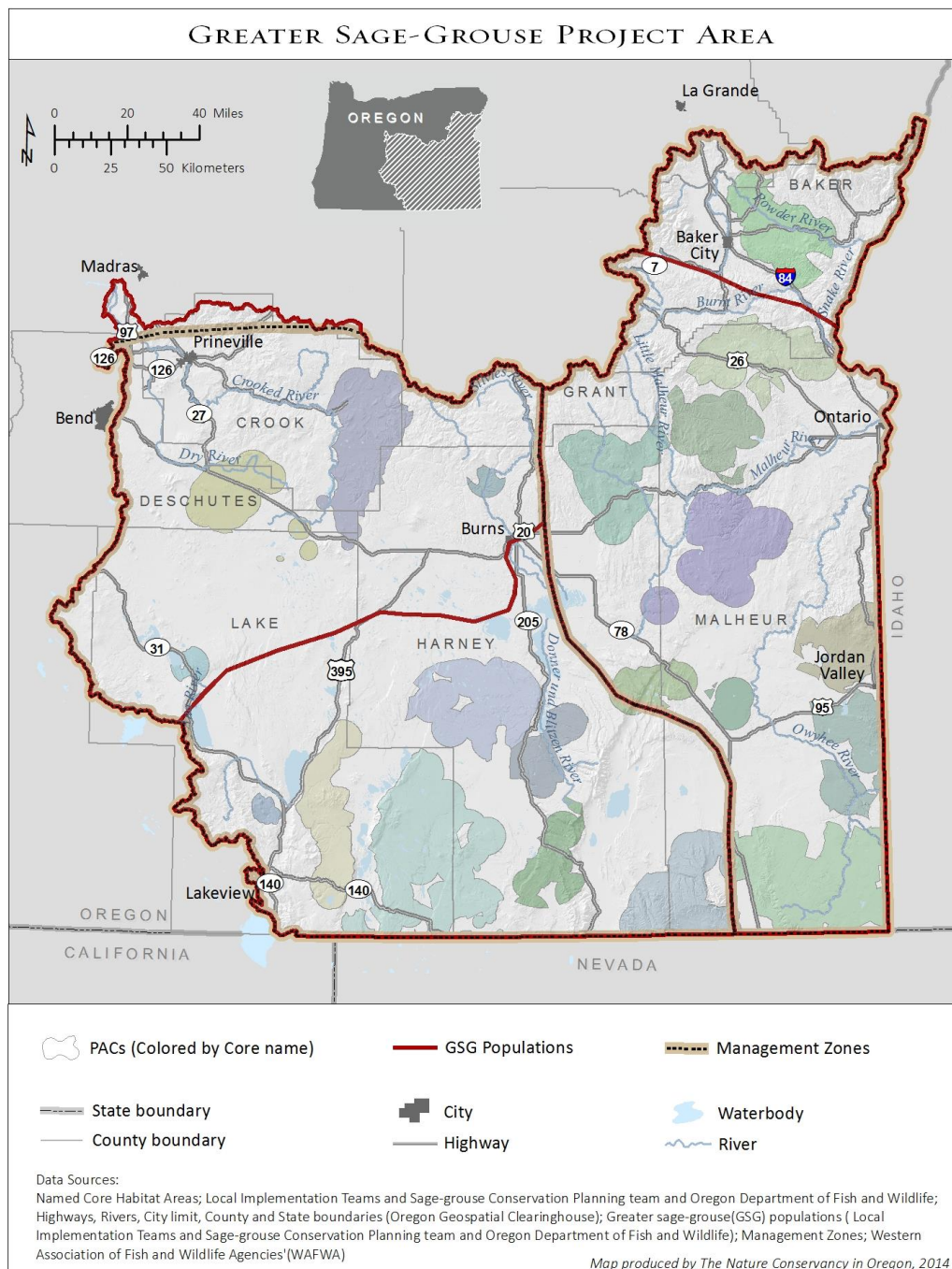
### 3.4 Purchasing or Creating Credits

The mitigation review team notifies permitting agencies and program administrator when mitigation plan has been finalized and determined consistent (but may be subject to other non-sage-grouse-related agency-specific permitting requirements). The permittee must then purchase the needed credits through the in-lieu fee program or create credits through implementation of permittee-responsible mitigation projects within the designated timeframe. When a permit is issued, or an affected development activity is otherwise approved or funded, the permitting agency reports the proposed development footprint to the program administrator to be entered in the State's development database, to be updated with the actual development footprint when a project is implemented and finalized.

### 3.5 Ongoing Verification, Tracking, and Adaptive Management

The permittee is responsible for notifying the permitting agency of any changes in projected impacts. Credits that are bought or created but are not required to meet the State's net conservation benefit due to an actual impact being less than anticipated may be purchased by the in-lieu fee fund at the discretion of the program administrator and as funding allows. Permittee-responsible mitigation projects must meet the standards and requirements outlined in Section 4 for all crediting projects, including ongoing protection, stewardship, monitoring, and verification. ■

**Figure 3.2 - Map of Service Area Boundaries**



## 4. GOVERNANCE AND ADAPTIVE MANAGEMENT

### 4.1 Organizational Structure

The organizational structure and interactions between the participants in the mitigation debiting and crediting system are described below. Many participants have additional roles in implementing the GSG Action Plan, outside of the mitigation realm, which are described in the body of the plan document:

#### Statewide Sage-Grouse Governance Board:

The over-arching statewide governance board, comprised of representatives from key state and federal agencies, local governments, Local Implementation Teams, private landowners, and non-profit organizations, is responsible for directing implementation and adaptive management of the entire GSG Action Plan. Their roles include identifying and addressing statutory, administrative, or regulatory barriers to plan implementation; programmatic recommendations on allocation and coordination of resources (funds and personnel); and coordination with other regional sage-grouse efforts, including BLM and neighboring states. As part of its resource allocation and coordination role, the governance board approves mitigation crediting projects and the allocation of in-lieu fee funds, based on recommendations by the State Technical Team and program administrator. The board also approves changes to the mitigation program identified through the adaptive management process.

State Technical Team: The State Technical Team's role is to provide technical and scientific advice and support for implementation of the entire GSG Action Plan. Within the mitigation program, the State Technical Team provides the following technical support to the board:

- Identifies, synthesizes, and makes recommendations to the governance board regarding siting and management priorities at the state level to help inform funding and implementation of crediting projects;

- Identifies, synthesizes, and updates information on the benefits and risks associated with different management practices and on the results of project- and program-level monitoring to inform changes in eligible practices and crediting protocols;
- Recommends research needed to develop new management practices or improve implementation of existing practices eligible for crediting;
- Reviews and provides the program administrator with technical comments on mitigation proposals associated with complex or large-scale permits or crediting projects to help evaluate consistency with the ODFW Sage-Grouse Habitat Mitigation Policy; and
- Assists with evaluation of program effectiveness and provides recommendations for adaptive management.

Local Implementation Teams: *Local Implementation Teams*, established under the 2011 ODFW GSG Conservation Strategy, identify local-level siting and management opportunities for crediting projects and advise the State Technical Team and governance board on local priorities, issues, and concerns.

Permittees: Permittees are entities that request permission from permitting agencies to conduct development activities that impact sage-grouse habitat and therefore may be required to demonstrate compliance with the ODFW Sage-Grouse Habitat Mitigation Policy as a result of new or existing statutes, regulations, ordinances, and/or formal agreements.

Permitting Agencies: Permitting agencies under this program are agencies that hold the authority to approve or deny permits or project requests, including county governments, Bureau of Land Management, U.S. Fish and Wildlife Service, Oregon Department of Land Conservation and Development, Oregon

Department of Energy (and Oregon Energy Facility Siting Council), Oregon Department of Fish and Wildlife, Oregon Department of State Lands, Oregon Department of Geology and Mineral Industries, Oregon Department of Transportation, Oregon Water Resources Department, Oregon Department of Environmental Quality, and any other government or agency with authority over a permit or project affecting sage-grouse habitat. During the permit review process, these agencies must ensure that permits or projects anticipated to impact sage-grouse habitat are consistent with the ODFW Sage-Grouse Habitat Mitigation Policy. Permitting agencies are given this responsibility by statutes, regulations, ordinances, or formal agreements. Permitting agencies may also incur mitigation responsibilities for development activities that they fund or directly implement, in which case they would also be considered permittees.

Program Administrator (State of Oregon): The State of Oregon serves as the primary administrator of the mitigation program and is responsible for the operation of the debiting and crediting system, including facilitating and overseeing all credit generation and transaction activities.<sup>47</sup> The mitigation program administrator:

- Ensures consistent application of program processes and rules;
- Requests and reviews proposals for crediting projects based on spatial and management priorities identified by the State Technical Team and Local Implementation Teams;
- Verifies, issues, and registers credits;

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<sup>47</sup> The State of Oregon will assign a lead agency to fill this role. The State of Oregon also anticipates development of an agreement with BLM and U.S. FWS to confirm their participation in the debiting and crediting system in order to appropriately manage sage-grouse populations and habitat across the State. However, the federal agencies will retain discretion in fulfilling their legal mandates and authorities.

- Assesses the accuracy of credit and debit calculations;
- Tracks program outcomes and reports results of the mitigation program to the governance board; and
- Adaptively manages the program.

Some program administration roles may also be assigned to specific State agencies, to private/non-profit entities, or to trained and certified contractors.

Mitigation Review Team: The review team ensures mitigation proposals from debiting projects are consistent with relevant agreements and policies, including the ODFW Sage-Grouse Mitigation Policy. The team consists of a staff lead from the Oregon Department of Fish and Wildlife and all permitting agencies (including local governments) for the project.

In-Lieu Fee Fund Manager (State of Oregon): The State of Oregon will designate a State agency or other qualified entity to function as fund manager for the in-lieu fee program, including collecting compensatory mitigation payments from permittees and providing grants (both advance implementation funds and reimbursement payments) for credits under the program.

Credit Producers: Credit producers include landowners or land managers, organizations, agencies, or other entities that produce, register, and receive payment for credits in the mitigation program, or that conduct permittee-responsible compensatory mitigation.<sup>48</sup> Credit

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<sup>48</sup> Proposals for permittee-responsible compensatory mitigation projects are submitted to the program administrator and follow the same requirements (including consistency with the ODFW Sage-Grouse Habitat Mitigation Policy) and processes as in-lieu fee program projects, including the processes for review by ODFW, quantification, monitoring, tracking, and other elements outlined in **Section 2**. The State is exploring mechanisms to leverage an appropriate fee on permittee-responsible compensatory mitigation

producers may also be mitigation bank sponsors, such as conservation banking companies, or other types of aggregators, who work with multiple landowners to implement conservation projects, secure performance assurances, and register credits.

Technical Support Providers: The mitigation program creates additional business opportunities for individuals and entities with technical expertise in conservation planning and project design, who understand how to use the program's tools and forms. Technical support providers may be hired by credit producers to help design credit projects, use the credit quantification method to estimate credits or debits, and submit all required materials to the program administrator. If mitigation program responsibilities are delegated to technical support providers, the State of Oregon will develop a formal process and training program to designate or certify a technical support provider as qualified.

## 4.2 Program Adaptive Management

This Section describes a process for transparent, science-based, and inclusive adaptive management of the Manual, quantification methods, conservation measures information, and other elements of the sage-grouse mitigation program.

In order to ensure the sage-grouse mitigation program is meeting the goals outlined in **Section 1.1** of this document:

- Within 1 year of the beginning of program implementation, the program administrator should work with the State Technical Team and governance board to **identify measurable objectives and adaptive management “trigger points”** that would indicate changes to the program are needed;

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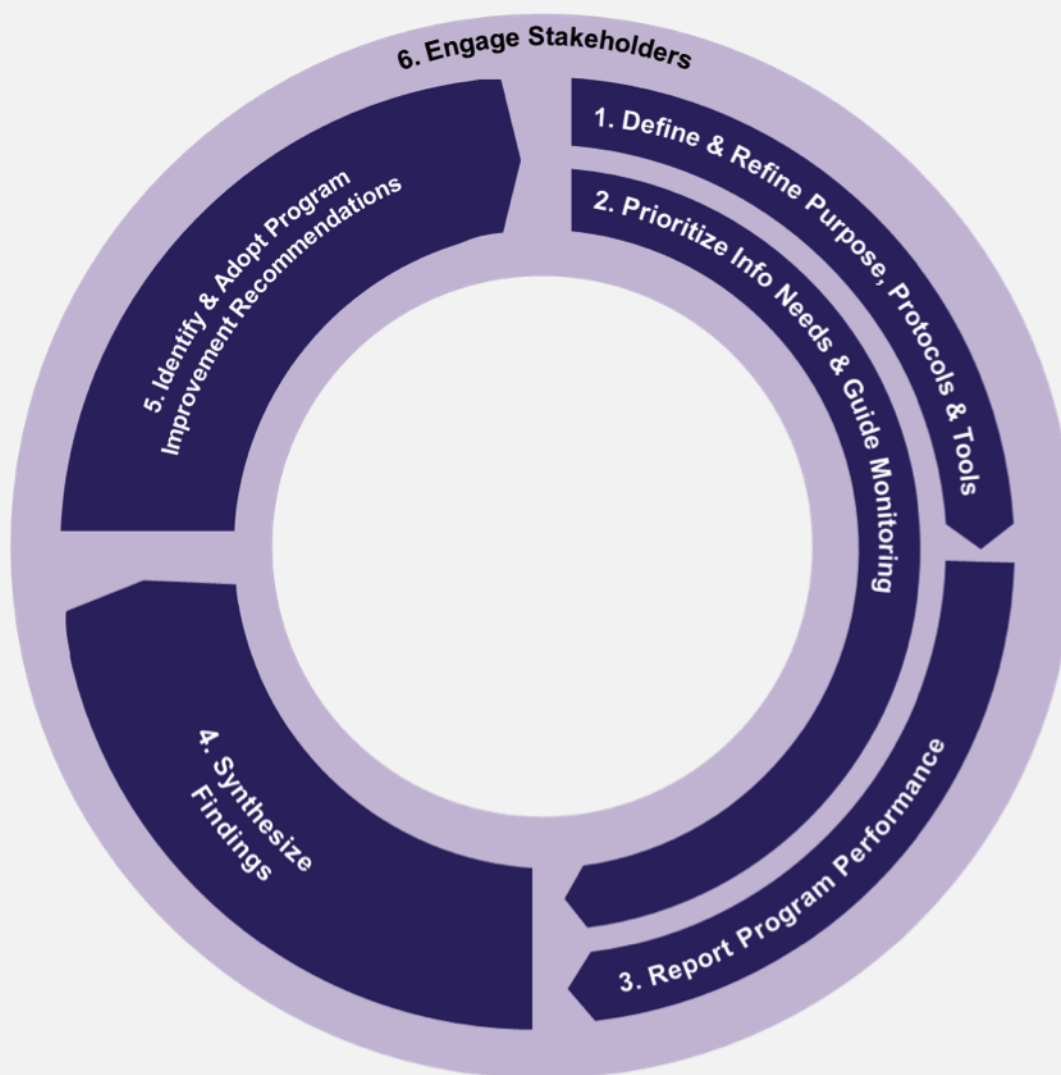
projects to cover their participation in the program and all associated administrative costs.

- On an annual basis, the program administrator (with support of the State Technical Team) will **conduct an adaptive management review**, assessing whether the program is meeting goals and objectives, including:
  - A report of program performance, including a synthesis of monitoring and tracking of pre-project and post-project conditions for both crediting and debiting projects;
  - A quantification of the net conservation benefit provided by the program in terms of functional habitat acres;
  - A list of recommended changes to the Manual and associated documents, processes, and tools needed to meet (or continue to meet) program goals and objectives; and
  - A prioritized list of monitoring and research needs for better guiding mitigation efforts, developed in collaboration with the State Technical Team, Local Implementation Team, and other stakeholders.
- On an annual basis, the governance board will **evaluate the adaptive management review** and assess whether trigger points or other indicators suggest major changes to the approach are needed; and



- The governance board will **host an annual adaptive management meeting**, open to the public, to share the results of the adaptive management review, share suggested changes to the program, processes, or tools, and receive stakeholder feedback. Changes deemed to be necessary or beneficial should be adopted at that meeting and released as part of a publicly-available report.

**Figure 4.1 - Overview of Annual Program Adaptive Management Cycle**



## 5. GLOSSARY

**Adaptive Management:** A systematic approach for improving natural resource management, with an emphasis on learning from management outcomes and incorporating what is learned into ongoing management.<sup>49</sup>

**Additionality:** The requirement that credit-generating benefits from a project must be in addition to what would have happened without participation in the mitigation program and what is required by existing law and legal commitments. Habitat functionality improvements that represent an overall increase in, or avoided reduction of, habitat functionality, relative to the habitat functionality that would occur in the absence of a credit-generating project performed in accordance with this Manual.

**Affected Development Activity:** Actions that are subject to avoidance, minimization, and compensatory mitigation requirements for impacts to sage-grouse habitat under new and existing statutes, regulations, ordinances, and/or formal agreements, because they; negatively impact sage-grouse habitat and create spatially discrete and measurable impacts; are identified as threats in the U.S. Fish and Wildlife Service's Conservation Opportunities Report (COT)<sup>50</sup>; and are authorized, funded, or carried out by federal, state, and local agencies.<sup>51</sup>

**Assessment Area:** The area associated with a project's potential impact/uplift. This defines the boundaries of the calculation of debits or credits.

**Baseline:** A minimum level of management that must be in place before additional practices may be eligible to earn credits. Typically, BMPs required by applicable federal, state, local, or tribal regulations, CCAAs, or other contracts or binding agreements.

**Certification:** The formal application and approval process of the credits generated from a conservation measure. Certification occurs after verification.

**Compensatory Mitigation:** The preservation, enhancement, or restoration of habitat to compensate for unavoidable adverse impacts to the same type of habitat elsewhere.

**Connectivity Corridor:** "Estimated seasonal use and migratory connections between lek density strata as estimated using a kernel density function. Local corridors were delineated by 75% utilization and seasonal corridors were identified as 90% utilization."<sup>52</sup>

**Conservation Measures:** Actions that preserve, enhance, restore, and/or avoid the likely future loss of GSG habitat functionality by reducing or eliminating threats to that habitat.

**Core Area Habitat:** Habitats "necessary to conserve 90% of Oregon's greater sage-grouse population with emphasis on highest density and important use areas which provide for breeding, wintering and connectivity corridors."<sup>53</sup> Criteria to determine core area habitat include lek density, connectivity corridors, and winter habitat-use polygons.

**Credit:** Quantified, verified, and tradable unit of environmental benefit from a conservation or restoration action above and beyond

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<sup>49</sup> See U.S. Dep't of Interior, Adaptive Management: The U.S. Department of the Interior Technical Guide, 1 (2007, updated 2009), available at <http://www.usgs.gov/sdc/doc/DOI-%20Adaptive%20ManagementTechGuide.pdf>.

<sup>50</sup> COT Report, *supra* note 3.

<sup>51</sup> Local agencies include government bodies or entities.

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<sup>52</sup> 2011 ODFW GSG Conservation Strategy, *supra* note 11, at p. 141.

<sup>53</sup> OAR 635-140-0015(1)(a).

baseline requirements. Described as functional acres of habitat provided at a specified location, as adjusted by any trading ratios or reserve requirements.

**Credit Producer:** An individual, entity, or group generating credits as mitigation for impacts to sage-grouse habitat, whether that entity is the permittee, a contractor of the permittee that develops or aggregates credits, or a landowner or other entity creating credits to sell to the in lieu fee program.

**Debits:** Quantified and verified units of environmental impact, calculated as the difference between the functional scores of the pre-project and anticipated post-project conditions; based on the same quantification tool used to calculate credits.

**Disturbance Threshold:** A threshold set in state policy to limit development in core sage-grouse habitat implemented through land use planning and inter-agency agreements.

**Durable:** See Project Durability.

**Dynamic Permanent Mitigation:** Mitigation achieved by the use of Credits produced in a series of term agreements, such that the quantity and quality of the mitigation is permanent in duration.

**Effectiveness Monitoring:** Systematic data collection and analysis to determine progress of a natural resource management program toward the achievement of conservation goals. Effectiveness monitoring provides the basis for adaptive management.

**Eligible Conservation Measures:** Actions that preserve, enhance, restore, or avoid the likely future loss of habitat functionality and that meet requirements for offsetting impacts to sage-grouse habitat created by affected development activities.

**Financial Management Plan:** Prepared for each mitigation project and includes initial costs (acquisition, field surveys, habitat restoration, capital equipment, etc.), on-going annual costs (monitoring, maintenance, management, reporting, contingency allocation, etc.), and endowment requirements, accounting for inflation and investment strategy.

**Force Majeure:** Extraordinary events or circumstances beyond the control of the individuals or entities in the credit transaction, including acts of God such as natural disasters.

**Functional Acre:** The single unit of value that expresses the assessment of quantity (acreage) and quality (function) of habitat or projected habitat through the quantification of a set of local and landscape conditions.

**General Habitat:** Occupied (seasonal or year-round) sage-grouse habitat outside of core area or priority habitat<sup>54</sup>

**In-Kind Mitigation:** Designed to replace lost resources with identical or very similar resources.

**In-Lieu Fee:** A site established as part of an in-lieu fee program that provides ecological functions and services expressed as credits that are conserved and managed for specific species and are used to offset impacts occurring elsewhere to the same species. In-lieu fee programs are sponsored by government agencies or environmental not-for-profit organizations that collect funds that are used to establish in-lieu fee sites. The establishment, operation, and use of an in-lieu fee program requires an agreement between the regulating agency and the in-lieu fee sponsor.

**Indirect Effects (Impacts):** Effects that are caused by or will ultimately result from an affected development activity. Indirect effects usually occur later in time or are removed in distance compared to direct effects.

**Landscape Scale:** A large area encompassing an interacting mosaic of ecosystems and human systems that is characterized by a set of common management concerns. The landscape is not

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<sup>54</sup> Bureau of Land Management, *Oregon Sub-Region Greater Sage-Grouse Draft Resource Management Plan Amendment and Environmental Impact Statement, Volume II*, p. 8-16 (November 2013) (hereafter "BLM Draft RMP").



defined by the size of the area, but rather by the interacting elements that are meaningful to the management objectives.<sup>55</sup>

**Lek:** An open area in which male sage-grouse perform courtship displays. Leks are commonly areas of bare soil, short grass steppe, windswept ridges, and exposed knolls that are surrounded by denser shrub steppe cover. Leks are indicative of nesting habitat.<sup>56</sup>

**Local Implementation Teams:** Guide the implementation of sage-grouse and sagebrush conservation actions at the local level; comprised of land managers, county governments, ODFW, and landowners. The teams are organized by BLM district boundaries.<sup>57</sup>

**Low Density Habitat:** A term used in the 2011 ODFW GSG Conservation Strategy that generally refers to sage-grouse habitats outside of core area habitats that provide breeding, summer, and migratory habitats for Oregon sage-grouse populations<sup>58</sup>

**Mitigation:** “Includes specific means, measures, or practices that could reduce, avoid, or eliminate adverse impacts. Mitigation can include avoiding the impact altogether by not taking a certain action or parts of an action, minimizing the impact by limiting the degree of magnitude of the action and its implementation, rectifying the impact by repairing, rehabilitation, or restoring the affected environment, reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and compensating for the impact by replacing or providing substitute resources or

environments.”<sup>59</sup> Thus, mitigation encompasses the full suite of activities to avoid, minimize, and compensate for adverse impacts to sage-grouse and sage-grouse habitat.

**Mitigation Hierarchy:** Refers to the analysis and actions required by ODFW (Oregon Administrative Rule 635-415-0005) and USFWS (46 Federal Register 7656).<sup>60</sup> See Mitigation Sequencing.

**Mitigation Agreement:** A formal agreement between credit producers and the mitigation program administrator establishing liability, performance standards, management and monitoring requirements, and the terms of credit approval. The agreement includes the required attachments, including the site-specific plan, financial management plan, stewardship plan, permanent legal protection documents, and verification report.

**Mitigation Plan:** A written plan or statement that thoroughly describes a development action, the affected environment, expected impacts to sage-grouse habitat, and the manner in which the impacts of a development action will be avoided, minimized, reduced or eliminated over time, and/or compensated for.<sup>61</sup>

**Mitigation Project:** Conservation measures taken by an entity on a project site.

**Mitigation Review Team:** A team of staff members from ODFW and each of the relevant permitting agencies, convened on an ad hoc basis to review and evaluate the mitigation proposal associated with a specific development action impacting sage-grouse habitat. Guidelines for convening and operating a mitigation review team, including a

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<sup>55</sup> Interior Mitigation Strategy, *supra* note 6, at p. 9.

<sup>56</sup> GSG *Species Assessment*. For a description of types and categories of leks, see 2011 ODFW GSG Conservation Strategy, *supra* note 11, at pp. 142-143.

<sup>57</sup> 2011 ODFW GSG Conservation Strategy, *supra* note 11, at p. 98, 126-131.

<sup>58</sup> 2011 ODFW GSG Conservation Strategy, *supra* note 11, at p. 82-83.

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<sup>59</sup> BLM Draft RMP, *supra* note 53, at p. 8-23.

<sup>60</sup> See also Interior Mitigation Strategy, *supra* note 6, at p. 2-3.

<sup>61</sup> See OAR 635-415-0005(18), 0020(5), & 0020(8)-(10).

process for timely dispute resolution, will be outlined in an interagency agreement.

**Mitigation Sequencing:** The process of first avoiding impacts to ecosystems, then minimizing, and finally allowing for compensatory mitigation in the case of unavoidable impacts. The purpose of sequencing is to analyze all reasonable options to first avoid and minimize impacts before allowing impacts that require compensatory mitigation – especially for important ecological areas and functions. See Mitigation Hierarchy.

**Monitoring:** The process of observing and recording environmental conditions and changes in environmental conditions over space and time.

**Net Conservation Benefit:** The actual benefit or gain above baseline conditions, after deductions for impacts, in habitat function or value to species covered by a mitigation program.

**Offset:** The act of fully compensating for environmental impacts; accomplished through compensatory mitigation.

**Offsite:** Outside the development project site or area; refers to mitigation.

**Onsite:** On or proximate to the development project site; refers to mitigation.

**Permanent Legal Protection:** The enforceable agreements to protect conservation benefits provided at a mitigation project site, which may include leases, contracts, easements, or other agreements. Project protection agreements must cover the credit life and should run with the land to ensure the project will not be affected if ownership changes. Ideally, these protections will also mitigate against proximate disturbing land use activities.

**Permittee:** An individual, entity, or group seeking to implement an affected development activity.

**Permittee-Responsible Compensatory Mitigation:** A compensatory mitigation site that provides ecological functions and services established as part of the

conservation measures associated with a permittee's action. The permittee retains responsibility for ensuring that the required compensatory mitigation activities are completed and successful. Each permittee-responsible compensatory mitigation site is linked to the specific activity that required the offset. Permittee-responsible compensatory mitigation approved for a specific action is not transferable and cannot be used for other mitigation needs.

**Permitting Agencies:** Agencies that fund or issue permits for development projects that may impact sage-grouse habitat, including county governments, the State of Oregon, the Bureau of Land Management, or other permitting agencies.

**Phased Release of Credits:** Releasing a limited number of credits from a project in stages prior to its completion for the purpose of balancing the time delay in realizing the ecological benefits of a project with the need for up-front funds to finance implementation measures.

**Priority Areas for Conservation (PACs):** Key habitats identified by state sage-grouse conservation plans or through other sage-grouse conservation efforts (e.g., BLM planning). In Oregon, core area habitats are PACs. According to the COT Report, maintenance of the integrity of PACs is the essential foundation for sage-grouse conservation.<sup>62</sup>

**Priority Sage-Grouse Habitat:** Areas identified by BLM as having the highest conservation value to maintaining sustainable sage-grouse populations. Include breeding, late brood-rearing, and winter concentration areas<sup>63</sup>

**Program Administrator:** The agency or other entity responsible for the operation of the debiting and crediting system, including

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<sup>62</sup> COT Report, *supra* note 3, at p. 36.

<sup>63</sup> BLM Draft RMP, *supra* note 53, at p. 8-28.

facilitating and overseeing all credit generation and transaction activities.

**Project Closure Date:** Five years after the last credit from a mitigation agreement has been sold.

**Project Durability:** Refers to the requirement that mitigation must be effective for as long as the impacts being mitigated for last. Because impacts to sage-grouse habitat by debiting projects are assumed to be permanent unless demonstrated to be temporary by the permittee (see Section 2), it is anticipated that most crediting projects will need to include permanent legal protection and a non-wasting endowment to manage the site into the future.

**Project Life:** The period of time over which a conservation measure is expected to generate credits. Typically, the project life is also the minimum project protection period.

**Project Site (Project or Site):** The location at which conservation measures or affected development activities are undertaken or installed.

**Quantification Method:** Scientifically-based method for determining the conservation benefit associated with a given credit-generating activity.

**Registering of Credits:** The process of placing a verified and certified credit into the registry; includes the required documentation.

**Registry:** A service or software that provides a ledger function for tracking credit quantities and ownership. Credit registries may also act as a mechanism for public disclosure of trading project documentation.

**Regulatory Requirements:** See Baseline.

**Reserve Pool:** A pool of credits, funded by a percentage of the credits transferred in each transaction, that are used to cover shortfalls when credits that have been generated and sold are invalidated due to fire, extreme weather, invasion by exotic species, breach of a project contract, or other unforeseen events. The reserve pool helps to ensure that a net positive amount of credits exist.

**Retirement ratio:** A ratio applied to the estimated credits which sets aside a portion of credits for net environmental benefit.

**Sage-Grouse Habitat:** Sagebrush or potential sagebrush habitat within the distribution of current occupied habitat as defined and mapped in the 2011 ODFW GSG Conservation Strategy

**Service Area:** (1) The geographic region relevant for tracking debits and credits to sage-grouse habitat. (2) The geographic region within which a developer must conduct permittee-responsible compensatory mitigation.

**Site-Specific Plan (SSP):** Identifies the extent, type, and description of all proposed conservation measures. Individual SSPs will describe:

- The type and location of ecological states present on the project site;
- Current and future threats to sage-grouse habitat function for the site; and
- Specific conservation practices that will be implemented on the site to maintain or improve habitat for the species.

**Stewardship Plan:** Identifies a long-term steward of a development project, stewardship goals and activities, the amount and source of funds needed for an endowment to maintain the site for the duration of the project life, and documentation of the time needed to implement the full stewardship plan.

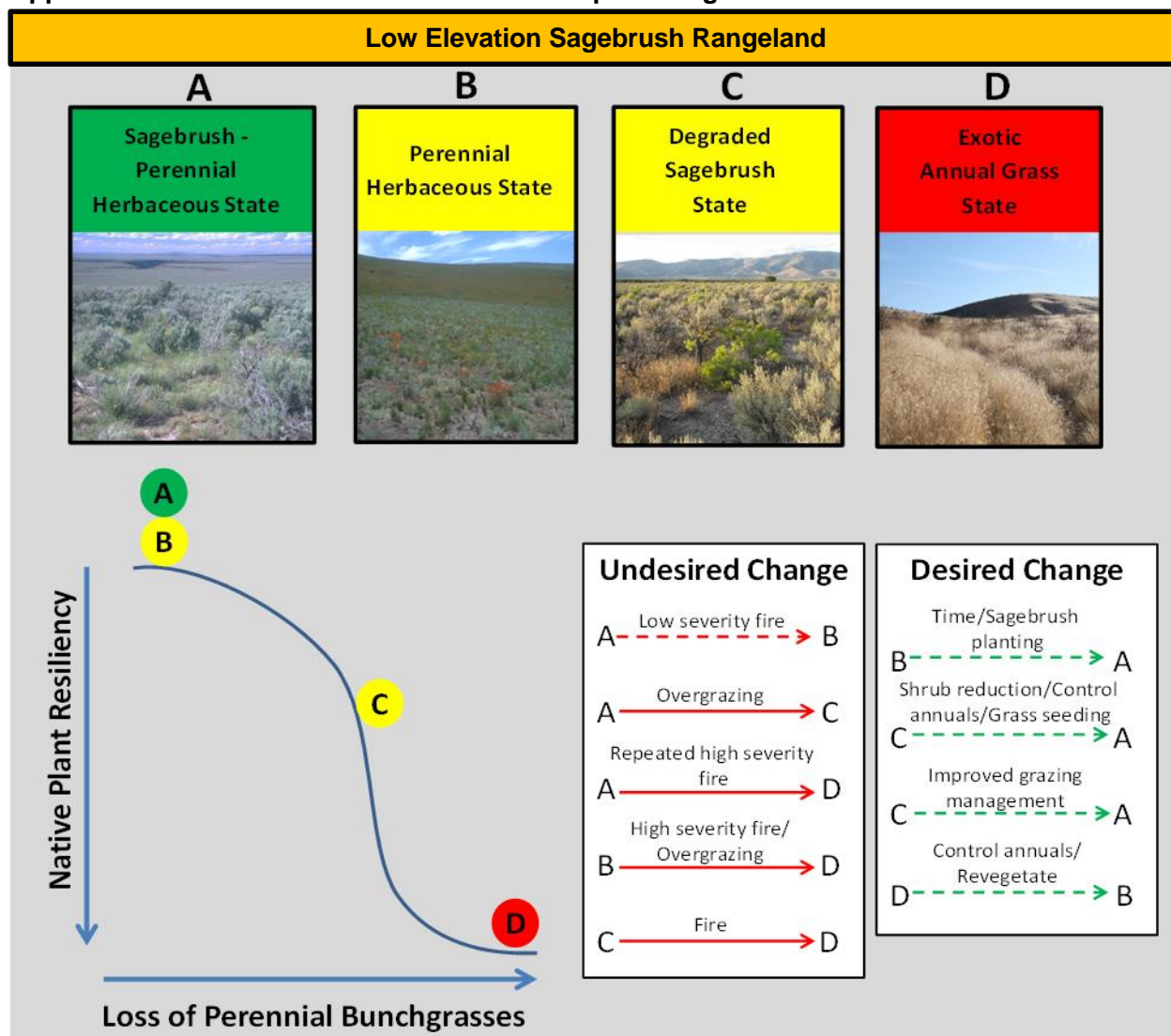
**Uncertainty:** Refers to the inability to obtain knowledge about factors that may negatively impact mitigation projects. Types of uncertainty include ecological risk (e.g., wildfires and invasive species), management risk (e.g., bankruptcy and project implementation or maintenance failure), and regulatory risk (e.g., revised laws or regulations).

**Verification:** An independent, expert check on the credit estimate, processes, services, or documents provided by a project developer. The purpose of verification is to provide confidence to all program participants that

credit calculations and project documentation  
are a faithful, true, and fair account – free of

material misstatement and conforming to  
credit generation and accounting standards

## Appendix A. State-and-Transition Models for Upland Sage-Grouse Habitat<sup>64</sup>



Conceptual ecological framework for managing sage-grouse habitat using a generalized state-and-transition model for **low elevation sagebrush plant communities in Oregon with warm and dry or cool and dry soil temperature/moisture regimes** (Miller et al. 2013). Resiliency will be lower for communities on warm and dry sites. States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States in shaded yellow and red indicate potential seasonal habitat and non-habitat, respectively. “Native plant resiliency” (lower left) indicates the relative likelihood of a plant community to recover to a native plant-dominated state following disturbance and decreases with loss of large perennial bunchgrasses. Persistent transitions (lower right) between states are depicted with solid arrows, while non-persistent transitions are arrows with dotted lines.

<sup>64</sup> Models provided by the authors of Boyd, Chad S., Johnson, Dustin D., Kerby, Jay D., Svejcar, Tony J., & Davies, Kirk W., Of Grouse and Golden Eggs: Can Ecosystems Be Managed Within a Species-Based Regulatory Framework?, RANGELAND ECOLOGY & MANAGEMENT 67: 358-368 (2014).



## Low Elevation Sagebrush Rangeland

### Ecological State A

Site dominated by sagebrush, large perennial bunchgrasses, and perennial forbs. Sagebrush cover >10%. Capable of providing year around habitat for sage-grouse.



### Ecological State B

Site dominated by large perennial bunchgrasses and perennial forbs. Sagebrush cover <10%. Capable of providing seasonal habitat for sage-grouse.



### Ecological State C

Site dominated by decadent sagebrush and Sandberg bluegrass and/or annual grasses. Sagebrush cover > 10%. Capable of providing seasonal habitat.



### Ecological State D

Site dominated by exotic species. Often results in exotic annual grass-fire cycle. Not capable of providing habitat for sage-grouse in current state.



### Conservation Objectives

Prevent conversion to exotic annual grasses by maintaining dominance of large, deep-rooted perennial bunchgrasses and sagebrush. Manage for stable or improving trend.

### Conservation Objectives

Prevent conversion to exotic annual grasses by maintaining dominance of large, deep-rooted perennial bunchgrass and provide conditions for reestablishment of sagebrush. Manage for transition toward State A.

### Conservation Objectives

Maintain a dominant overstory layer of sagebrush and reestablish deep-rooted perennial vegetation. Experimentation with various methods for reestablishment might be necessary to cause desirable shift in vegetation.

### Conservation Objectives

Despite being in a non- habitat state currently, conservation objectives are suggested because of the inherent risks posed by exotic plant presence on the landscape. Man-age fire risk and/or re-vegetate areas of exotic plants to veg dominated by deep-

### Threats

Wildfire  
Improper grazing  
Exotic Invasives

### Threats

Wildfire  
Improper Grazing  
Exotic Invasives  
Vegetative Treatment

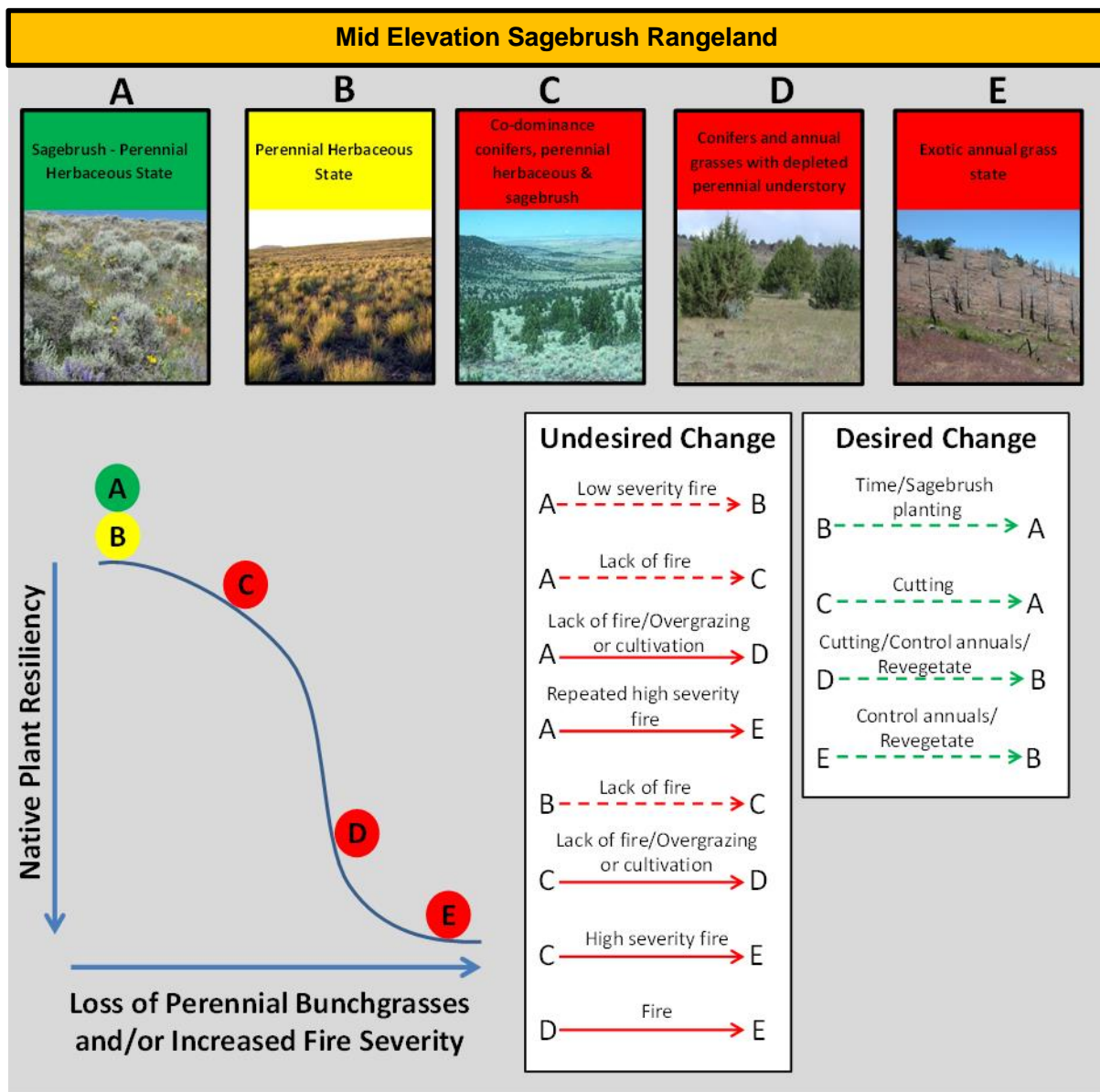
### Threats

Wildfire  
Improper Grazing  
Exotic Invasives






### Threats

Wildfire  
Exotic Invasives  
Vegetative Treatment

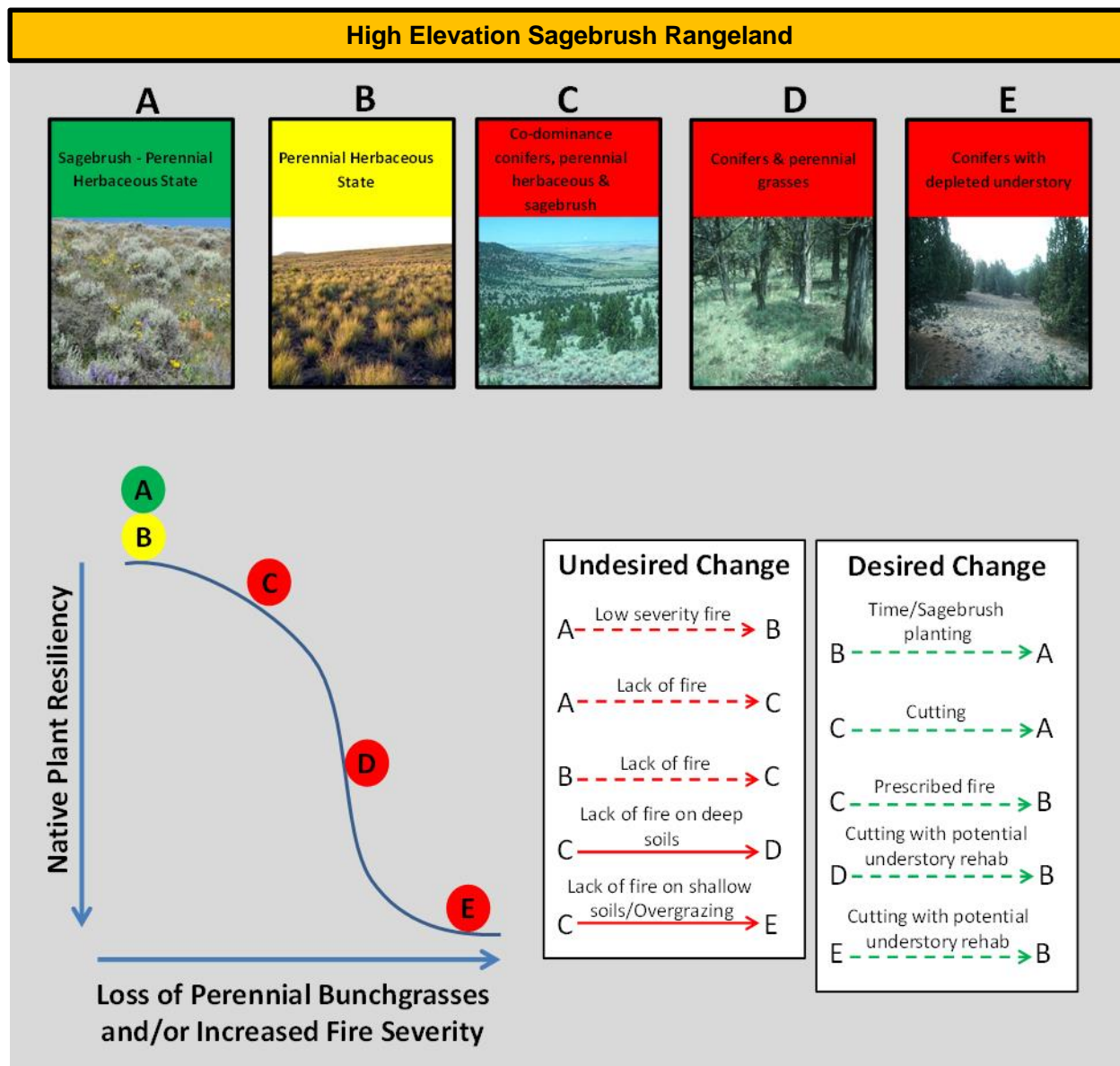
See Appendix B for applicable conservation measures



Conceptual ecological framework for managing sage-grouse habitat using a generalized state-and-transition model for **mid to high elevation sagebrush plant communities in Oregon with a warm and moist soil temperature/moisture regime** (Miller et al. 2013) in Oregon. States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States in shaded yellow and red indicate potential seasonal habitat and non-habitat, respectively. “Native plant resiliency” (lower left) indicates the relative likelihood of a plant community to recover to a native plant-dominated state following disturbance and decreases with loss of large perennial bunchgrasses and increasing fire severity. States with increased woody plant fuel loading (e.g. D) can be less likely to burn due to decreased fine fuel loading, but more likely to experience higher severity fire when they do burn (Miller et al. 2008). Persistent transitions (lower right) between states are depicted with solid arrows, while non-persistent transitions are arrows with dotted lines. Warm and dry sites often occur at the same elevation as cool and moist conditions, with differences being driving largely by aspect or other abiotic factors. Prescribed fire is depicted as a management option for reducing conifers on cool and moist sites, but not warm and dry sites, due to the potential for transition to annual grass dominance with fire in the latter.






Mid Elevation Sagebrush Rangeland				
<b>Ecological State A</b>  Site dominated by sagebrush, large perennial bunchgrasses, and perennial forbs. Sagebrush cover >10%. Capable of providing year around habitat. 	<b>Ecological State B</b>  Site dominated by large perennial bunchgrasses and perennial forbs. Sagebrush cover <10%. Capable of providing seasonal habitat. 	<b>Ecological State C</b>  Co-dominance of conifers, perennial grasses and sagebrush. Areas of conifer cover >5% not capable of providing seasonal habitat. 	<b>Ecological State D</b>  Site dominated by conifers. Depleted perennial understory. Exotica annuals present. Not capable of providing habitat in current state. 	<b>Ecological State E</b>  Site dominated by exotic species. Often results in exotic annual grass-fire cycle. Not capable of providing habitat for sage-grouse in current state. 
<b>Conservation Objectives</b>  Maintain sagebrush and large perennial bunchgrasses and perennial forbs. Maintain sagebrush cover >10%.	<b>Conservation Objectives</b>  Provide conditions for an increase in the cover of sagebrush. Manage for transition toward State A.	<b>Conservation Objectives</b>  Restore shrubs and perennial herbaceous vegetation by removing conifers and post treatment restoration of desired species.	<b>Conservation Objectives</b>  Restore dominance of shrub and perennial grasses and forbs through removal of dominant conifer overstory and reveg.	<b>Conservation Objectives</b>  Manage fire risk and/or revegetate areas of exotic plants to vegetation dominated by deep-rooted perennial
<b>Threats</b>  Lack of fire High severity fire Improper grazing Conifer encroachment	<b>Threats</b>  High severity fire Improper grazing Conifer encroachment	<b>Threats</b>  High severity fire Improper grazing Exotic Invasives Conifer encroachment	<b>Threats</b>  Wildfire Exotic Invasives	<b>Threats</b>  Wildfire Exotic Invasives
See Appendix B for applicable conservation measures				





Conceptual ecological framework for managing sage-grouse habitat using a generalized state-and-transition model for **high elevation sagebrush plant communities in Oregon with a warm/cool and moist soil temperature/moisture regime** (Miller et al. 2013) in Oregon. States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States in shaded yellow and red indicate potential seasonal habitat and non-habitat, respectively. “Native plant resiliency” (lower left) indicates the relative likelihood of a plant community to recover to a native plant-dominated state following disturbance and decreases with loss of large perennial bunchgrasses and increasing fire severity. States with increased woody plant fuel loading (e.g. D and E) can be less likely to burn due to decreased fine fuel loading, but more likely to experience higher severity fire when they do burn (Miller et al. 2008). Persistent transitions (lower right) between states are depicted with solid arrows, while non-persistent transitions are arrows with dotted lines.

## High Elevation Sagebrush Rangeland

Ecological State A	Ecological State B	Ecological State C	Ecological State D	Ecological State E
<p>Site dominated by sagebrush, large perennial bunch-grasses, and perennial forbs. Sagebrush cover &gt;10%. Capable of providing year around habitat.</p> 	<p>Site dominated by large perennial bunchgrasses and perennial forbs. Sagebrush cover &lt;10%. Capable of providing seasonal habitat.</p> 	<p>Co-dominance of conifers, perennial grasses and sagebrush. Areas of conifer cover &gt;5% not capable of providing seasonal habitat.</p> 	<p>Site over shallow soils dominated by conifers. Shrubs and herbaceous understory largely absent. Not capable of providing habitat in current state.</p> 	<p>Site over deep soils dominated by conifers. Understory shrubs largely absent. Perennial herbaceous plant present. Not capable of providing habitat in current state.</p> 
<p><b>Conservation Objectives</b></p> <p>Maintain sagebrush and large perennial bunchgrasses and perennial forbs. Maintain sagebrush cover &gt;10%.</p>	<p><b>Conservation Objectives</b></p> <p>Provide conditions for an increase in the cover of sagebrush. Manage for transition toward State A.</p>	<p><b>Conservation Objectives</b></p> <p>Remove conifers and prevent further encroachment and maintain cover of perennial grass and sagebrush</p>	<p><b>Conservation Objectives</b></p> <p>Restore dominance of shrub and perennial grasses and forbs through removal of dominant conifer overstory.</p>	<p><b>Conservation Objectives</b></p> <p>Restore shrubs and perennial herbaceous vegetation by removing of conifers and post treatment restoration of desired species.</p>
<p><b>Threats</b></p> <p>Lack of fire Improper grazing Conifer encroachment</p>	<p><b>Threats</b></p> <p>Lack of fire Improper grazing Conifer encroachment</p>	<p><b>Threats</b></p> <p>Lack of fire Improper grazing Conifer encroachment Exotic Invasives</p>	<p><b>Threats</b></p> <p>Lack of fire Exotic Invasives</p>	<p><b>Threats</b></p> <p>Lack of fire Exotic Invasives</p>
<p style="text-align: center;">See Appendix B for applicable conservation measures</p>				

## Appendix B: Eligible Conservation Measures (WORKING DRAFT)<sup>65</sup>

**Table B.1: Enhancement measures**

Practices to Change to Desirable States												
STM	Initial State	Desired state outcome	Practices to Implement	Uncertainty	Risk	Likelihood of state change	Time to state change	Duration of benefit/treatment	Avoided loss (sage-grouse habitat)	Measure of Success	Cost	Comments
Low elevation sagebrush rangeland	B	A	Time/ Sagebrush transplanting	M	Wildfire	M	Long	Long	N/A	Increase shrub cover	\$\$	Poorest success of three types of sites
	C	A	Shrub reduction/Control annuals/Revegetate	H	Moving to state D	M	Moderate	Long	H	Increase perennial bunchgrass density	\$	High uncertainty, difficult to protect from fire
	C	A	Improve grazing management of desired plants	M	Wildfire	M	Moderate-Long	Long	H	Increase perennial bunchgrass density	\$	Reducing grazing pressure may mean more fuel
	D	B	Control annuals/ Revegetate with natives	L		L	Moderate	Long	N/A, D is non-habitat	Increase perennial bunchgrass density	\$\$\$	High uncertainty, native seeding success is reliably poor, may include prescribed fire for site prep; drill seeding improves probability
	D	B	Control annuals/Revegetate using introduced species such as Crested Wheatgrass	L	Wildfire	M	Moderate	Long	N/A, D is non-habitat	Increase perennial bunchgrass density	\$\$	Crested wheatgrass seeding success is more reliable, may include prescribed fire for site prep
	B	A	Protect from high severity wildfire (fuel breaks)	H	Wildfire	M	Long	Long	M	Increase shrub cover	\$	High uncertainty, difficult to protect from fire

<sup>65</sup> Subject to ongoing revision and developed and provided by the SageSHARE project team.

Practices to Change to Desirable States												
STM	Initial State	Desired state outcome	Practices to Implement	Uncertainty	Risk	Likelihood of state change	Time to state change	Duration of benefit/treatment	Avoided loss (sage-grouse habitat)	Measure of success	Cost	Comments
Mid elevation Sagebrush Rangeland	B	A	Time, Sagebrush planting	M		H	Moderate	Long	N/A	Increase shrub cover	\$\$	Intermediate success of sagebrush seeding
	B	A	Time, Protect from wildfire	L	Conversion to C	H	Moderate	Long	M	Increase shrub cover	\$	
	C	A	Cutting/ Mechanical juniper removal	L		H	Immediate	Moderate	N/A, non-habitat as C	Decrease Juniper density/cover	\$\$	Sagebrush usually responds quickly to release from juniper competition
	D	B	Cutting/Mechanical juniper removal/ Revegetate understory	M	Conversion to E	M	Moderate	Moderate	N/A, non-habitat as D	Decrease Juniper density/cover & Increase perennial bunchgrass cover	\$\$\$	Consider partial juniper removal initially to gauge understory response
	E or D	B	Cutting/ Mechanical juniper removal/ Control annuals/ Revegetate with native perennial species	H	No perennial grass recovery	L-M	Moderate	Moderate	N/A, non-habitat as D	Increase perennial bunchgrass density	\$\$\$	Lengthy process with multiple steps
	E or D	B	Cutting/Mechanical juniper removal/ Control annuals/ Revegetate with introduced perennial species such as crested wheatgrass	L	No perennial grass recovery	M-H	Moderate	Moderate	N/A, non-habitat as D	Increase perennial bunchgrass density	\$\$	Fire risk reduction strategy

Practices to Change to Desirable States												
STM	Initial State	Desired state outcome	Practices to Implement	Uncertainty	Risk	Likelihood of state change	Time to state change	Duration of benefit/treatment	Avoided loss (sage-grouse habitat)	Measure of Success	Cost	Comments
High elevation Sagebrush Rangeland	B	A	Sagebrush seeding	L		M	Moderate	Long	N/A	Increase shrub cover	\$\$	Success much higher here than in mid and especially low elevation sites
	B	A	Time/ Potect from fire	L	Increase in Juniper cover	H	Moderate - long	Long	N/A	Increase shrub cover	\$	Success depends on seed bank and proximity to seed sources
	C	A	Prescribed fire with mosaic effects	L	Decrease shrub cover	H	Immediate	Moderate	avoided loss (sage-grouse habitat)	Decreased juniper, increase mosaic habitats	\$\$	Mosaic burn maintains seed source for sagebrush in unburned islands
	C	B	Prescribed fire with homogenous effects	L	Decrease shrub cover	H	Immediate	Long	N/A, non-habitat as C	Decreased juniper	\$\$	
	C	A	Cutting/ Mechanical juniper removal	L		H	Immediate	Short - moderate	N/A, non-habitat as C	Decreased juniper	\$\$	Moderate cost, but if understory is intact this is a low risk treatment
	D	B	Prescribed fire	M		M	Immediate	Long	N/A, non-habitat as D	Decreased juniper	\$\$	Depends on percent juniper kill and burn coverage
	D	B	Cutting/ Mechanical juniper removal / Understory restoration	L		H	Immediate	Short-moderate	N/A, non-habitat as D	Decreased juniper	\$\$\$	
	E	B	Cutting/ Mechanical juniper removal / Understory restoration	M		M	Moderate - long	Short-moderate	N/A, non-habitat as E	Decreased juniper	\$\$\$	depends on pretreat BG density

**Table B.2: Avoided Loss Measures**

Practices to Maintain Desired Plant Community - State A						
Practices List	Uncertainty	Risk	Avoided Loss	Measure Success	Cost	Comments
Limit intense and/ or frequent disturbances and/ or stress to desired plants, this can include prescribed grazing practices; low intensity fire; limited equipment use	L	L		Maintenance of desired vegetation, shrub cover, perennial bunchgrass density &/ or cover	\$	Disturbances generally favor undesirable community changes any practice to minimize the intensity or frequency of disturbances will favor desired plants
Create prevention program: Map and delineate priority zones; Identify corridors of spread; action plan for early detection & rapid response and for eradicating infestations Create fuel break if weed infestations are adjacent to desired community	M	L		Maintenance of desired vegetation, shrub cover, perennial bunchgrass density &/ or cover	\$ to \$\$\$	Comprehensive prevention program ideas are available in the user guide: Establishing a Weed Prevention Area
Increase seed production and dispersal of desired plants	M	L		Maintenance of desired vegetation, shrub cover, perennial bunchgrass density &/ or cover	\$	
Limit resource availability by keeping nutrients conserved in desired plants	M	M		Maintenance of desired vegetation, shrub cover, perennial bunchgrass density &/ or cover	\$	
Maintain or increase perennial bunchgrass to reduce invasion potential	M	L		Maintenance of desired	\$\$	

## Appendix 7. Calculation of Developed Land Area

### i. Purpose

This document describes methods for calculating existing (baseline) levels of developed land area and percentages in Oregon Priority Areas for Conservation (PACs). Methods were adapted from those described in the *Final Greater Sage-Grouse Monitoring Framework* (BLM and USFS 2014) and the *BLM Proposed Greater Sage-Grouse Resource Management Plan and Final Environmental Impact Assessment for the Oregon Sub-Region*, Appendix I (2015).

### ii. Background

The United States Fish and Wildlife Service (USFWS) identified 13 threats that have contributed to the destruction and degradation of sage-grouse habitat within its range (USFWS 2010, 2013). Human-caused threats to sage-grouse included urbanization, vegetation treatments, energy development, mining, transportation infrastructure, power line infrastructure, and vertical structures such as communications towers.

To address human threats using a regulatory framework that offers fairness, predictability, and certainty for all involved parties, Oregon modified its administrative rules governing land-use permitting (OAR 660-023-0115); these changes were approved by the Land Conservation and Development Commission in July 2015. The rulemaking process relied on a consensus approach within a Rulemaking Advisory Committee consisting of stakeholders from local and State agencies; tribal governments; and conservation, agriculture, energy, and other interests. The Rulemaking Advisory Committee developed language for the proposed rule and identified a preferred methodology for identifying and calculating existing (baseline) developed land area and percentages from a finite set of methods. The new LCDC rules (OAR 660-023-0115) are described in Section IV and contained in Appendix 17.

Oregon will assess acreages and percentages of developed land for each of the State's PACs, both in total and by county, to facilitate coordination at the local level. Baseline development levels will be calculated using spatial data that represents the large-scale development land uses defined in the new LCDC rules (OAR 660-023-0115). Large-scale development uses are

either over 50 feet in height, have a direct impact in excess of five acres, generate more than 50 vehicle trips per day, or create noise levels of at least 70 dB at zero meters for sustained periods of time. Uses that constitute large-scale development also require review by county decision makers and are listed in one of the following categories identified in the table attached to OAR 660-033-0120.

The land-use categories are: commercial uses; mineral, aggregate, oil, and gas uses; transportation uses; utility/solid waste disposal facilities; and public/quasi-public uses and parks.

### **iii. Methods**

Oregon will acquire geospatial datasets consistent with, but not identical to, those identified in the BLM Direct Area of Influence definitions (Table 1).<sup>1</sup> The datasets consisting of point and line features (e.g., wells and power lines) will be buffered according to the BLM Direct Area of Influence recommendations in Table 1 for each development type and subtype. Areas of overlap among direct areas of influence will be processed (dissolved) to remove any double counting of land area. For example, if more than one project is located entirely within the direct impact zone of a second, larger-impact project, only the larger direct impact zone will be counted. Because overlapping developed land areas will be processed to ensure that land area will not be double counted, the sum of individual development type and subtype footprints may differ from the total developed land area values. Ownership and areas where development is prohibited will not be accounted for in these calculations.

The following formulas will be used to calculate the baseline amount of total developed land area percentages:

In Oregon PACs:

- Baseline total developed land area percentage per PAC = total developed land area<sup>2</sup> divided by the total area of each respective PAC times 100%.

In Oregon PACs within counties:

- Baseline total developed land area percentage per PAC = total developed land area<sup>1</sup> divided by the total area of each respective PAC within each county times 100%.

### **iv. Metering of Development**

In addition to the baseline for the overall development threshold above, development permitting will be allowed, using a metering approach in Oregon PACs with less than 3% developed land area. The metering approach provides a maximum of 1% development in Oregon PACs for a 10-year period, beginning with the effective date of the new LCDC rules (OAR 660-023-0115) and repeating for each successive 10-year period.

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<sup>1</sup> The State is in the process of determining the specific datasets to include but has already considered and tested a variety of datasets, ranging from broad-scale land-cover/land-use data to fine-scale, locally available datasets.

<sup>2</sup> See Table 1



## v. Data and Methods Refinement

The new administrative rule allows counties to establish more refined, project-specific data to replace the baseline figures, under the condition that the methodology is the same. The State of Oregon and local agencies are coordinating with BLM to establish these datasets.

## vi. Central Registry and Reporting

The Department of Land Conservation and Development (DLCD) will work with the affected sage-grouse counties, the Oregon Department of Fish and Wildlife, BLM, and the U.S. Fish and Wildlife Service to maintain a central registry to track baseline and all new development in PACs. The DLCD will report the amount of new direct impacts in each PAC annually to the Land Conservation and Development Commission, in coordination with all affected counties, using the formulas above.

**Table 1. BLM recommendations for determining the direct impacts of development types and subtypes, referred to by BLM as degradation types and subcategories. BLM included this table as Table 6 in the *Final Greater Sage-Grouse Monitoring Framework* (2014) to describe geospatial data sources and standards for examining habitat degradation (development) at the broad spatial scale. The “Area Source” column found in the original BLM documentation has been removed to simplify the table.**

Degradation Type	Subcategory	Data Source	Direct Area of Influence
Energy (oil & gas)	Wells	IHS; BLM (AFMSS)	5.0ac (2.0ha)
	Power Plants	Platts (power plants)	5.0ac (2.0ha)
Energy (coal)	Mines	BLM; USFS; Office of Surface Mining Reclamation and Enforcement; USGS Mineral Resources Data System	Polygon area (digitized)
	Power Plants	Platts (power plants)	Polygon area (digitized)
Energy (wind)	Wind Turbines	Federal Aviation Administration	3.0ac (1.2ha)
	Power Plants	Platts (power plants)	3.0ac (1.2ha)
Energy (solar)	Fields/Power Plants	Platts (power plants)	7.3ac (3.0ha)/MW
Energy (geothermal)	Wells	IHS	3.0ac (1.2ha)
	Power Plants	Platts (power plants)	Polygon area (digitized)
Mining	Locatable Developments	InfoMine	Polygon area (digitized)
Infrastructure (roads)	Surface Streets (minor roads)	Esri StreetMap Premium	40.7ft (12.4m)
	Major Roads	Esri StreetMap Premium	84.0ft (25.6m)
	Interstate Highways	Esri StreetMap Premium	240.2ft (73.2m)
Infrastructure (railroads)	Active Lines	Federal Railroad Administration	30.8ft (9.4m)
Infrastructure (power lines)	1-199 kV Lines	Platts (transmission lines)	100ft (30.5m)
	200-399 kV Lines	Platts (transmission lines)	150ft (45.7m)
	400-699 kV Lines	Platts (transmission lines)	200ft (61.0m)
	700+ kV Lines	Platts (transmission lines)	250ft (76.2m)
Infrastructure (communication)	Towers	Federal Communications Commission	2.5ac (1.0ha)

## **vii. Literature Cited**

Bureau of Land Management (BLM). 2015. Oregon greater sage-grouse proposed Resource Management Plan amendment and Final Environmental Impact Statement. U.S. Department of the Interior, Portland, Oregon, USA.

Bureau of Land Management and Forest Service (2014). The Greater Sage-Grouse Monitoring Framework. U.S. Department of the Interior and U.S. Department of Agriculture.

U.S. Fish and Wildlife Service (USFWS). 2010. Endangered and threatened wildlife and plants; 12-month findings for petitions to list the greater sage-grouse (*Centrocercus urophasianus*) as threatened or endangered. Federal Register 75, 13910-14014, U.S. Department of the Interior, Washington, D.C., USA.

U.S. Fish and Wildlife Service (USFWS). 2013. Greater sage-grouse (*Centrocercus urophasianus*) conservation objectives: final report. U.S. Fish and Wildlife Service, U.S. Department of the Interior, Denver, Colorado, USA.

## Appendix 8. Strategic Framework Tools and Details for the Resistance and Resilience Matrix and the State-and-Transition Model Approach

This appendix provides greater detail on tools available to support the Action Plan's strategic framework and actions outlined in Sections III and IV, respectively. These include conceptual approaches and models that help support decision-making, as well as technical tools that improve the State's ability to guide development and conservation actions to ensure the best outcomes for sage-grouse and sage-steppe habitats.

### i. Resistance and Resilience Matrix

As discussed in this Action Plan, the sagebrush-steppe habitats that support the greater sage-grouse are threatened by the expanding number of large and hot wildfires, which are influenced by the distribution and expansion of invasive, non-native annual grasses. However, all sagebrush-steppe habitats are not equally sensitive to disturbance. Those that are able to better retain their structure and dynamics in spite of stresses like wildfires, invasive plant species, occasional heavy grazing, and drought events are described as more *resistant* to change. Those that are able to more quickly recover after disturbance to the original state are described as more *resilient* (Holling 1973; Folke et al. 2004). Patterns of resistance and resilience within the sage-grouse planning area have implications for management planning and can be used to help allocate management efforts across the range of the sage-grouse in Oregon.

The Resistance and Resilience Matrix concept was developed by Chambers and others (2014) and based on considerable research (Chambers et al. 2013). It was developed to fill a gap in the available management tools by providing a tool to managers that matched the very large scale of the invasive species-wildfire feedback loop threatening sage-grouse. The basic assumption for this tool is that management and treatments for invasive annual grasses and altered fire regimes can be guided by the resistance and resilience of the sagebrush-steppe plant communities.

The Resistance and Resilience Matrix is a simplified framework to identify high, moderate, and low resistance and resilience, based on broad-scale soil moisture and temperature regimes (Table 1). It is well matched to the primary threats to sage-grouse in terms of spatial extent and strategic level. For this plan, we have interpreted the matrix to represent areas at low, moderate, and high risk of invasion by annual grasses (Figure 1). These risk categories provide baseline information considered important in prioritizing areas where management and conservation actions should be implemented within the sage-grouse planning area in relation to plant invasion. Ultimately, these relationships can be used to prioritize management actions in a scientifically defensible manner within Oregon's sage-grouse habitat.

**Table 1. Generalized categories of resilience and resistance used with soil temperature and moisture regimes.**

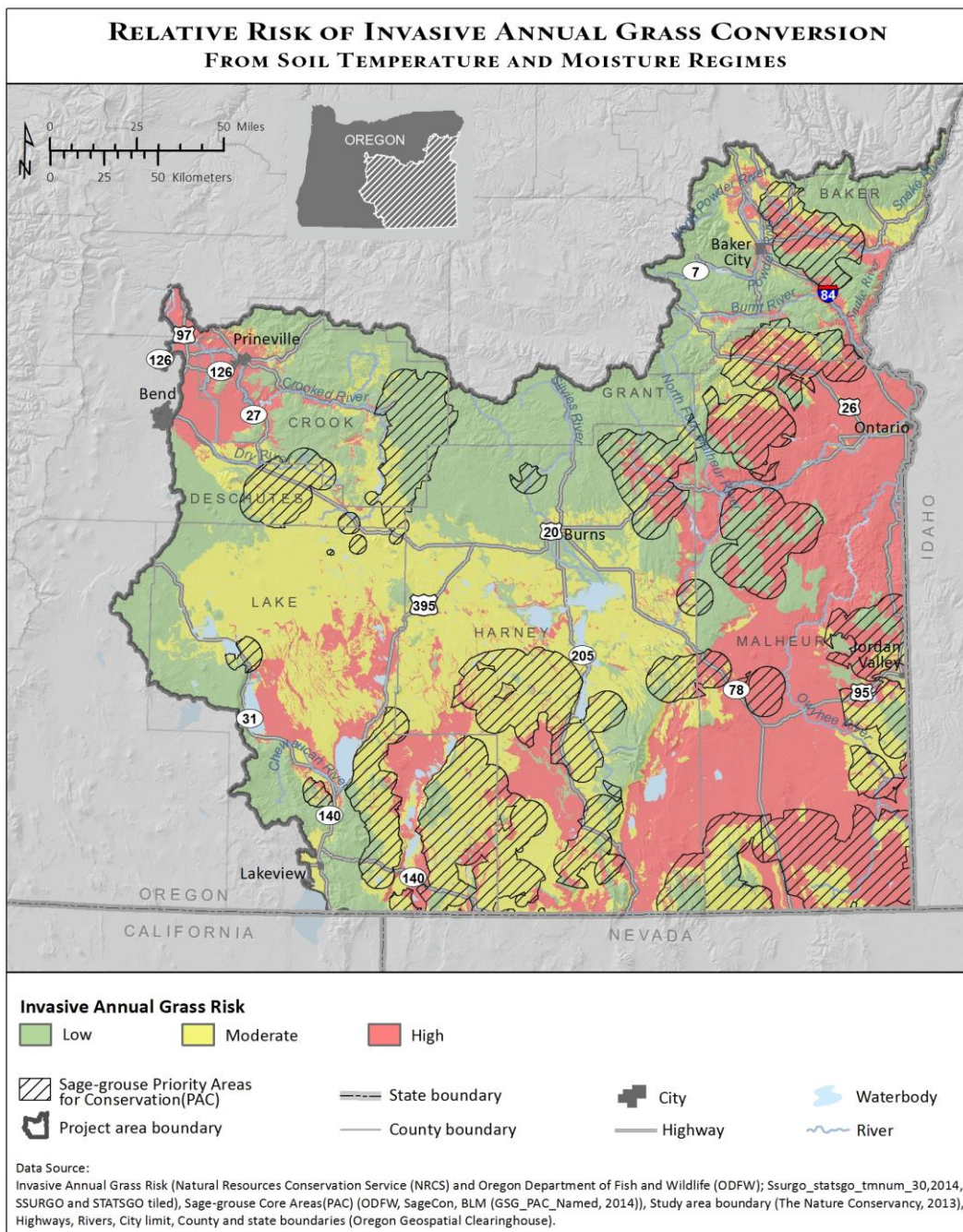
Resilience and resistance	Soil temperature and moisture regime	Risk of annual grass invasion
High	Cold & Moist (Cryic)	Low
	Cool & Moist (Frigid/Xeric)	
Moderate	Warm & Moist (Mesic/Xeric)	Moderate
	Cool & Dry (Frigid/Aridic)	
Low	Warm & Dry (Mesic/Aridic)	High

Resistance and resilience information can be used to guide the selection of management goals under Strategy Level I. For example, some locations will respond well to restoration efforts, whereas others are more likely to benefit from preventative measures. In areas of low resistance and resilience and high risk of invasion, restoration of degraded areas (such as those dominated by invasive annual grasses) is either unlikely to succeed or would be extremely expensive. In such cases, management emphasis should be on preventive measures, such as controlling invasive annual grasses or establishing fuel breaks to reduce the spread of wildfire.

Likewise, the Resistance and Resilience Matrix can be used to address the threat of invasive annual grasses, by prioritizing management of areas with low resistance and resilience where annual grasses do not yet dominate the plant communities (e.g., >65% sagebrush land cover with a desirable perennial grass understory). An emphasis on prevention within high-quality sites with low resistance and resilience is consistent with the low probability of success for restoration efforts should wildfire or invasive plants spread into them. At Strategy Level II, additional site-level information will be used to verify site conditions and refine specific management treatments, locations, schedules, and so forth.

With respect to the threat of conifer encroachment, for sites with high resistance and resilience, priority can be given at Strategy Level 1 to areas that are in the early stages of conifer invasion (i.e., conifers are present but do not dominate the site and sagebrush land cover remains greater than 25%). Restoration priority will be assigned to early stages of conifer encroachment due to these sites' increased level of conservation contribution and the higher risk associated with restoration of conifer-dominated sites where depleted understory vegetation already exists (see state-and-transition model in next section). As with invasive grasses, Strategy Level II information will be used to verify and refine the specific actions, locations, and schedules for management.

In moderate resistance and resilience areas, multiple threats may be present or possible, and both prevention and restoration may be management possibilities; local conditions will dictate the selection of the appropriate management and conservation goals. For example, restoration efforts may be more successful on relatively mesic and cool northerly aspects as opposed to warmer and drier southerly aspects.



**Figure 1. Relative risk of invasive annual grass conversion from soil temperature and moisture regimes.** Risk was determined using empirical research that described the relationship between soil temperature regimes, soil moisture regimes, plant communities' capacity to recover after fire or other disturbance (resilience), and plant communities' capacity to remain intact (resistance) in light of a disturbance such as the introduction of cheatgrass (Chambers et al. 2014; Folke et al. 2004; Redford et al. 2011). Soil temperature and moisture regimes that coincided with shrub-steppe habitats were placed into resilience and resistance categories to indicate risk of invasion (areas that are more or less likely to be invaded by invasive annual grasses). Soil data was obtained and combined from two USDA-NRCS spatial databases: SSURGO and STATSGO.

## ii. The State-and-Transition Model Approach

As described in Section III, state-and-transition models (STMs) are used to address site-specific management issues by the State of Oregon in this plan. It is important to note that there are other methods that can be used to assess site conditions, such as the Habitat Assessment Framework (HAF) used by the Bureau of Land Management (BLM) in its Resource Management Plan (RMP) Amendment,<sup>1</sup> but several advantages of STMs are that they can be used to describe site conditions, have been linked to management practices, help describe how habitats change based on different actions over time, and can be used with modeling software to predict change over time. This appendix provides additional information about the suite of STMs that will be used in the Action Plan.

The basic building blocks for the STM approach are vegetation “states,” which represent a gradient ranging from desired to undesired states or conditions, “transitions,” which represent drivers of change between states such as management actions, wildfire, invasion by exotic plant species, and inappropriate grazing (Figure 2, Figure 3, Figure 4). The most desirable vegetation states in each of the STMs provide potential year-round habitat for sage-grouse (green), followed by vegetation that is sufficient for seasonal use by sage-grouse (yellow), and an undesirable state in which vegetation is unusable by sage-grouse and is considered nonhabitat (red).

It is important to remember that the states within these models should not be taken as exact matches for the compositional and structural characteristics of plant communities on the ground. Different STMs have been created for each of the major sagebrush vegetation types: the low-elevation sagebrush communities (Figure 2), the mid-elevation sagebrush communities (Figure 3), and the high-elevation sagebrush communities (Figure 4). States within these models are meant to characterize common management or habitat problems within an elevation range and topographic setting. Matched to each state are management practices necessary to maintain a desired state or to “transition” the plant community toward a desired state. Movement between states can represent either desired or undesired change, depending on a site’s initial conditions and the direction of change.

By focusing on restoring or maintaining habitat for sage-grouse based on generalized vegetation community structure and dynamics, conservation success using the STMs is measured by shifting—or transitioning—acreage from undesirable or less desirable states to preferable states (red to yellow, or yellow to green), or ensuring that sites in more desirable states (yellow or green sites) do not shift to undesirable or nonhabitat states (red). It is

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<sup>1</sup> See BLM RMP Amendment Final Environmental Impact Statement (FEIS), Table 2-4, on page 46 (in the online PDF) and on page 2-39 (in the document), entitled “Fine and Site Scale Seasonal Habitat Indicators and Desired Condition Values for Greater Sage-Grouse Habitat on Oregon BLM Lands in the Planning Area.” Available online: [http://www.blm.gov/or/energy/opportunity/files/final/ORGRSG\\_Ch2\\_508.pdf](http://www.blm.gov/or/energy/opportunity/files/final/ORGRSG_Ch2_508.pdf)



important to note that vegetation structure and dynamics provide only a generalized model of sagebrush vegetation and, as such, only provide a generalized representation of sage-grouse habitat and utilization potential by sage-grouse. Additional assessment methods would be required to provide detailed site-specific habitat quality data such as sagebrush height and proximity to human disturbances. Each STM has a corresponding table that summarizes the

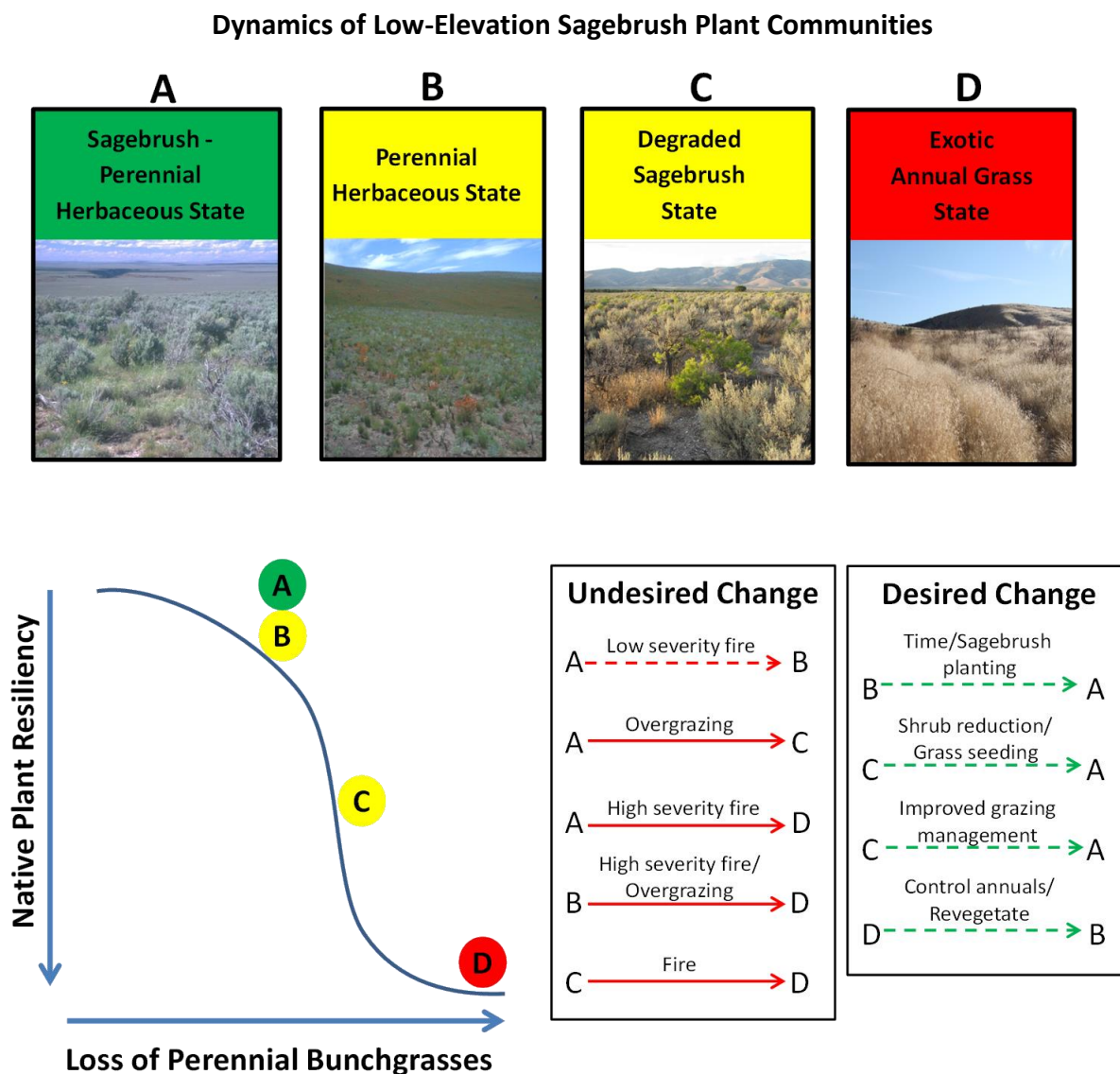


Figure 2. Dynamics of low-elevation sagebrush plant communities. At Strategy Level III (Site-Specific Management), a generalized state-and-transition model (STM) can be used for managing Oregon's sage-grouse habitat in low-elevation sagebrush plant communities with warm and dry or cool and dry soil temperature/moisture regimes (Miller et al. 2013). Resiliency is lower for communities on warm and dry sites. States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States shaded in yellow and red indicate potential seasonal habitat and nonhabitat, respectively. "Native plant resiliency" (lower left) indicates the relative likelihood that a plant community will recover to a native plant-dominated state following disturbance; the likelihood decreases with loss of large perennial bunchgrasses. Movements between states (lower right), or transitions, are depicted with solid arrows for persistent transitions, while nonpersistent transitions are arrows with dotted lines.

ecological states and also lists conservation objectives, threats, and applicable conservation measures associated with transitions for each state (see Harney County CCAA for this detail).

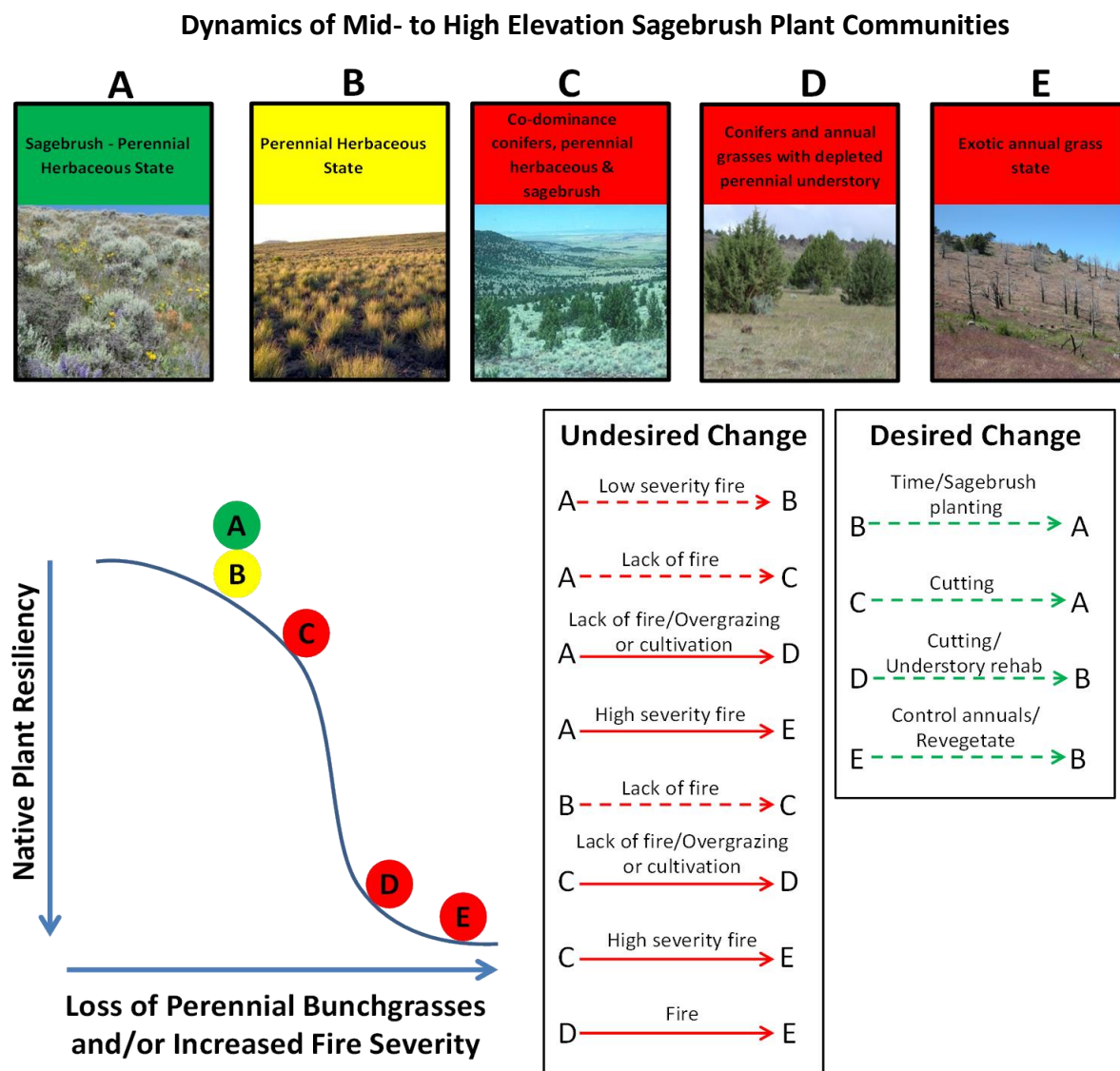


Figure 3. Dynamics of mid-to-high elevation sagebrush plant communities. At Strategy Level III (Site-Specific Management), a generalized state-and-transition model (STM) can be used for managing Oregon’s sage-grouse habitat in mid-to-high elevation sagebrush plant communities in Oregon with a warm and moist soil temperature/moisture regime (Miller et al. 2013). States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States shaded in yellow and red indicate potential seasonal habitat and nonhabitat, respectively. “Native plant resiliency” (lower left) indicates the relative likelihood that a plant community will recover to a native plant-dominated state following disturbance; the likelihood decreases with loss of large perennial bunchgrasses and increasing fire severity. States with increased woody plant fuel loading (C and D) can be less likely to burn due to decreased fine fuel loading, but are more likely to experience higher-severity fire when they do burn (Miller et al. 2008). Movements between states (lower right), or transitions, are depicted with solid arrows for persistent transitions, while nonpersistent transitions are arrows with dotted lines. Warm and dry sites often occur at the same elevation as cool and moist conditions, with differences being driven largely by aspect or other abiotic factors. Prescribed fire is depicted as a management option for reducing conifers on cool and moist sites, but not on warm and dry sites, due to the potential for fire to cause transition to annual-grass dominance in the latter.



## Dynamics of High Elevation Sagebrush Plant Communities

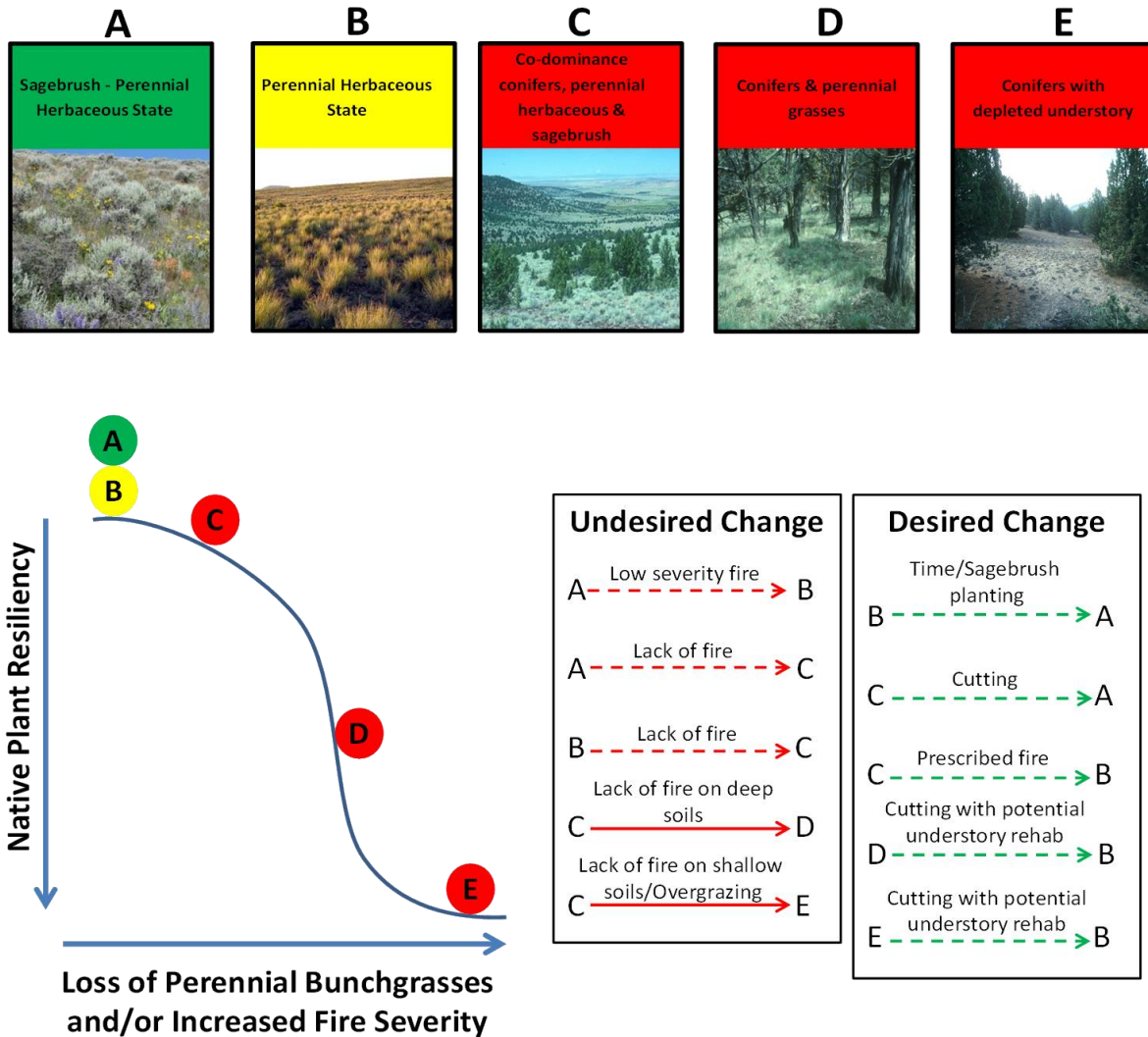


Figure 4. Dynamics of high-elevation sagebrush plant communities. At Strategy Level III (Site-Specific Management), a generalized state-and-transition model (STM) can be used for managing Oregon's sage-grouse habitat in high-elevation sagebrush plant communities with a warm/cool and moist soil temperature/moisture regime (Miller et al. 2013). States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States shaded in yellow and red indicate potential seasonal habitat and nonhabitat, respectively. "Native plant resiliency" (lower left) indicates the relative likelihood that a plant community will recover to a native plant-dominated state following disturbance; the likelihood decreases with loss of large perennial bunchgrasses and increasing fire severity. States with increased woody plant fuel loading (C, D, and E) can be less likely to burn due to decreased fine fuel loading, but are more likely to experience higher-severity fire when they do burn (Miller et al. 2008). Movements between states (lower right), or transitions, are depicted with solid arrows for persistent transitions, while nonpersistent transitions are arrows with dotted lines.

### **iii. Technical Tools for Conservation**

Oregon's sage-grouse habitat covers a vast landscape and is dependent on a complex sagebrush-steppe ecosystem. This area also contains a diverse set of threats, habitat conditions, land ownerships, and management jurisdictions. As a result, it is critical to not only develop and maintain detailed spatial data related to these issues but to also provide the tools and systems needed to access, assimilate, and use these data, whether from the position of land managers, researchers, project planners, or the general public. While this plan utilizes a variety of data-rich tools, two decision support tools in particular are highlighted in this Action Plan, due to their utility for performing complex queries across Oregon's sage-grouse habitat and answering important questions about many of the issues discussed in this plan. These issues include (1) where potential impacts may have the most or least effect on sage-grouse, (2) where to focus which specific conservation actions (e.g., treatments of invasive plant species), and (3) where investment of resources would have the most impact on species recovery and habitat benefit. These two tools are OREGON Decision Support System for Sagebrush-Steppe (ORDSS) and ODFW's Compass.

#### **a. OREGON Decision Support System for Sagebrush-Steppe**

The OREGON Decision Support System for Sagebrush-Steppe (ORDSS) was developed concurrently with this Action Plan to assist decision makers, planners, and managers across all levels to assess threats to sage-grouse, strategically target actions, and reduce conflicts with economic development. It was also developed with the intention of providing a system for storing, managing, querying, and providing access to the large amount of spatial datasets that have been compiled and/or developed for the Action Plan as well as to provide a structure for querying the spatial datasets into the future and thus the continued support of planning for sage-grouse and other wildlife.

The ORDSS was designed to guide planning and adaptive management of public and private conservation investments and to inform mitigation processes where complex information is needed, especially at Strategy Level I. The primary intended user of the ORDSS is Oregon's statewide governance board, described in Section II.

More than 40 different GIS datasets were compiled within the ORDSS, including the resistance and resilience layer. All of the included data were the best available, most accurate, and most up-to-date data at the time of this plan's drafting, and were vetted by state and federal agency experts working on sage-grouse management. The datasets were organized into broad themes reflecting important aspects of sage-grouse ecology, landscape condition, land-use/land cover characteristics, and land management. All data layers were summarized in hexagons equivalent to one square mile in area. The hexagons allow users to query the data in a common assessment unit and provide results that are statistically sound and fit within regional mapping efforts. The originating datasets were all documented and retained, and can be used to refine

answers to key questions and to further inform conservation management and land-use decisions and actions. Over time, these datasets and the ORDSS itself will be updated as new information becomes available.

The ORDSS was designed to handle a variety of questions from decision makers, managers, and planners that are expected to focus on the following topics: biology, ecology, resources, land use, and threats. Datasets have been organized accordingly, and a number of questions have been tested within this framework, including but not limited to:

- Where should we focus wildfire prevention efforts to protect the most important habitat for sage-grouse, while minimizing conversion to annual grasses?
- How should energy development projects be guided and directed across the landscape, to result in the least impact on sage-grouse?
- Where will investments in juniper control provide the most significant benefits to sage-grouse?

The ORDSS is designed to be flexible, and it includes simple tools that allow users with moderate GIS and database skills to customize or update data, adjust data weighting schemes within the themes, and add new themes and data. Future enhancements for the ORDSS include expanding the development potential theme to include other development types, adding a new theme to track ongoing conservation actions and inform monitoring of aspects of ecosystem recovery, and supporting planning activities relevant to Strategy Level II. It was designed to be adaptable to online mapping tools and may be made more widely available. Currently, all the primary datasets (Table 2) can be downloaded from the SageCon website (<http://oregonexplorer.info/content/sagecon>) or may be requested from ODFW.

**Table 2. The ORegon Decision Support System for Sagebrush Steppe (ORDSS) contains a wide variety of datasets.**

ORDSS Datasets
<ul style="list-style-type: none"> <li>• Breeding bird densities</li> <li>• Habitat categories (odfw sage-grouse core area/priority area for conservation (pac), low density, occupied habitat)</li> <li>• Proximity to habitat categories</li> <li>• Probability of habitat use by sage-grouse</li> <li>• Proximity to leks by lek status</li> <li>• Sagebrush vegetation types</li> <li>• Proximity to summer habitat</li> <li>• Connectivity potential</li> <li>• Sagebrush land cover</li> <li>• Tree canopy cover</li> <li>• Dominant invasive annual grasses cover fire perimeters</li> <li>• Ecological integrity scores</li> <li>• Proximity to stands dominated by invasive annual grasses</li> <li>• Proximity to juniper</li> <li>• Resistance and resilience scores</li> <li>• Fire threat index</li> <li>• Wildland fire potential</li> <li>• Suitability for cheatgrass (<i>bromus tectorum</i>)</li> <li>• Suitability for medusahead (<i>taeniatherum caput-medusae</i> (L.) Nevski)</li> <li>• Roads</li> <li>• Housing density</li> <li>• Communication towers</li> <li>• Mines</li> <li>• Pipelines</li> <li>• Transmission lines by voltage class</li> <li>• Power plants</li> <li>• Pipelines</li> <li>• Railways</li> <li>• Agriculture</li> <li>• Avoidance buffers</li> <li>• Areas excluded from energy development by state and federal regulations</li> <li>• Distribution of geothermal solar and wind energy resources</li> <li>• Distance to transmission lines</li> <li>• ODFW crucial habitat score</li> <li>• Critical habitat under the federal ESA</li> <li>• Oregon's Conservation Opportunity Areas</li> <li>• The Nature Conservancy's ecoregional portfolio</li> <li>• Conservation Utility Score</li> </ul>

## **b. ODFW Compass**

ODFW's Compass (Centralized Oregon Mapping Products and Analysis Support System) is an online mapping application. It provides access to ODFW's spatial data library, requiring only a web browser to access datasets, including ODFW Sage-Grouse Core Areas, ODFW Conservation Opportunity Areas, ODFW Winter Big Game Ranges, and many others. Compass also contains layers produced by ODFW for the Western Governor's Association's Westwide Crucial Habitat Assessment Tool (CHAT) effort, which maps crucial habitat for high-priority fish and wildlife species across the entire western United States. Compass allows users to work with data within Oregon, and then expand their view beyond the Oregon borders using the CHAT interactive mapping application.

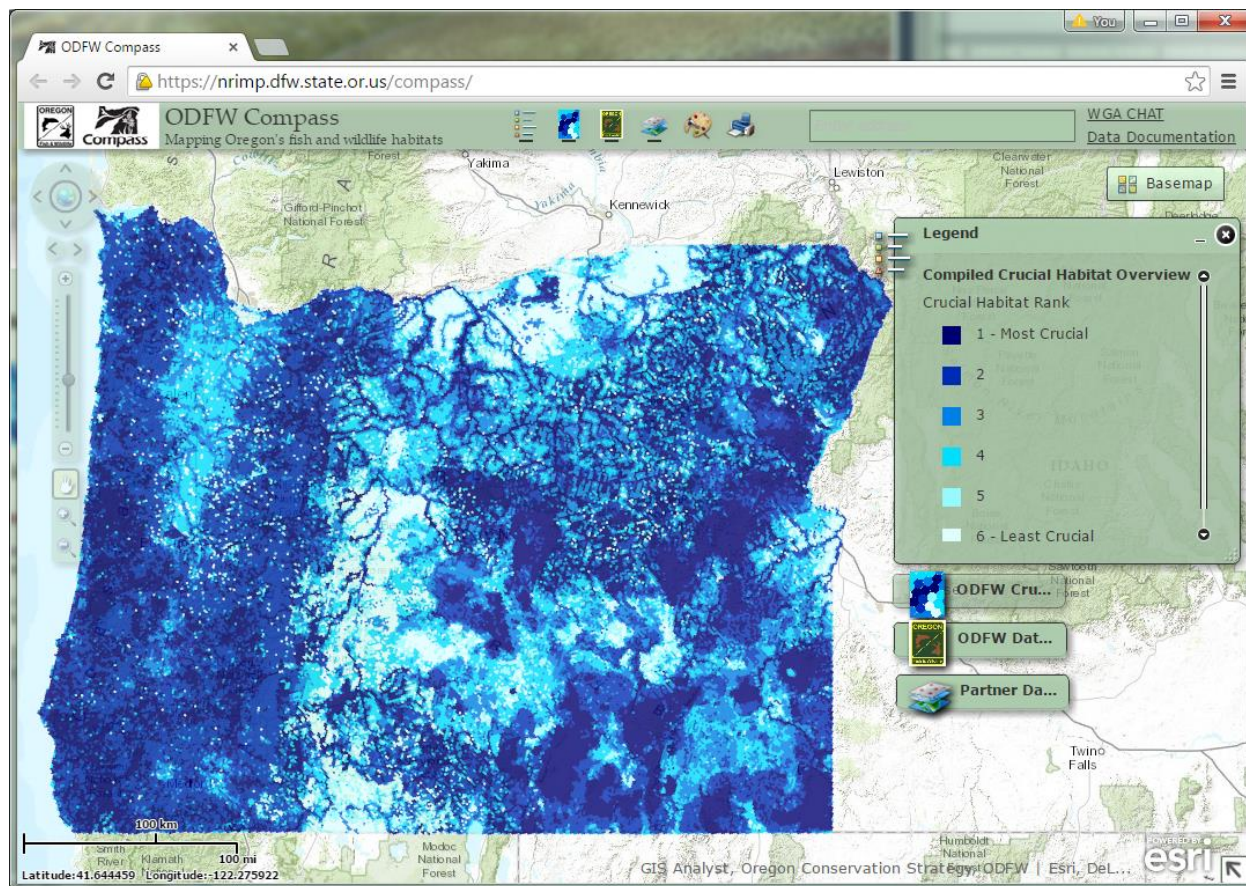
Publicly available through the ODFW website (<http://dfw.state.or.us/maps/compass/>), Compass provides easy access to spatial data and information on potential impacts and other considerations related to greater sage-grouse conservation (Figure 5). Compass contains an online system of maps, data layers, and data documentation that assists users to make informed land-use decisions related to the sage-grouse and its habitat. In particular, it assists users with planning for large-scale, landscape-level projects such as projects related to energy, transportation, or conservation. These nonregulatory maps and data layers highlight potential impacts, and help identify potential opportunities within land-use project pre-planning phases.

Compass includes a series of ODFW habitat assessment layers, which use best available data in combination with ODFW priorities to highlight areas containing crucial habitat for fish and wildlife species, with a particular emphasis on high-priority species such as sage-grouse. The Compiled Crucial Habitat layer provides information on all species and habitats (aquatic and terrestrial), and a user can "drill down" into more detailed layers to get information on more specific aspects of the crucial habitat analysis. For example, the Terrestrial Species of Concern layer incorporates ODFW sage-grouse data and information, including ODFW Sage-Grouse Core Areas, sage-grouse lek locations, and other sage-grouse observation data to prioritize the landscape into six priority ranks. These six ranks range from Priority Rank 1 (most crucial habitat)—including Core Areas and documented identification of sage-grouse leks or observations—to Priority Rank 6 (least crucial habitat), which includes the parts of the landscape with no documented observations of high-priority species (but does include some overlap of species distribution models). All crucial habitat layers and priority rank definitions are provided, in detail, within the Compass data documentation page (<http://dfw.state.or.us/maps/compass/data.asp>).

In addition to the crucial habitat analysis layers, Compass includes many other ODFW data layers, as well as partner agency data that can be especially useful when looking at potential project impacts to sage-grouse habitat and habitat important to other species. Compass provides users with the ability to overlay sage-grouse Core Area and low-density boundaries with other ODFW datasets to get a more complete picture of what is occurring in a given area.



Users can also overlay partner data, such as roads and transportation infrastructure maintained by the Oregon Department of Transportation, the Protected Areas database maintained by the U.S. Geological Survey (USGS), and real-time and historic fire and fire perimeter data maintained and updated by GeoMAC, a partnership that includes USGS, the National Oceanic and Atmospheric Administration, the USFS, and others.



**Figure 5. ODFW Compass (Centralized Oregon Mapping Products and Analysis Support System).** Compass provides a wide variety of ODFW and partner data layers to users through an online mapping interface. Compass was developed as part of the Western Governors' Association Crucial Habitat Assessment Tool effort, designed to fill a multistate need for continuous, regional spatial data.

Compass and the ODFW crucial habitat analysis layers also provide additional connections to help guide users to data developed by ODFW partners, stakeholders, and neighboring state fish and wildlife agencies. The assessment units used within the crucial habitat analysis (one-square-mile hexagons) are the same units used in the ORDSS. This allows the two separate tools to be used in coordination with each other, and the specific data developed within each tool can be used within complex queries to highlight parts of the landscape that include specific habitat elements of concern. Additionally, because the crucial habitat layers were developed within the WGA CHAT effort ([www.WestGovCHAT.org](http://www.WestGovCHAT.org)), these data layers can be viewed on a regional scale across state boundaries. This is especially helpful with respect to sage-grouse planning and habitat management, as some states (such as Oregon and Idaho) are

incorporating high-priority datasets, such as sage-grouse Core Areas, at a similar level within their analysis, thereby providing seamless coverage of this data across the Oregon/Idaho boundary.

#### **iv. Summary**

Multiple tools are available to support the myriad of often complex decisions related to the implementation of conservation measures throughout the range of the greater sage-grouse in Oregon. They are in many ways interrelated and can work together to meet a diversity of decision-making needs. For example, the Resilience and Resistance Matrix supports the development of the state-and-transition models as well as ORDSS. The state-and-transition models describe the processes that need to be addressed, and have been used as the basis of spatial models that allow the state to monitor how different habitats within the greater-sage grouse areas change over time.

The two decision support tools described here allow decision makers to access and interpret the many different GIS datasets available, in Oregon and nationally, that support sage-grouse habitat recovery and protection. These tools also have been specifically designed to work together and complement each other. The tools use the same base assessment units, hexagons of one square mile in area, and cover Oregon's entire planning area for sage-grouse, in some cases extending beyond Oregon and into neighboring states. As a result, users can easily cross-query between these applications and utilize additional information for prioritizing areas of the landscape important to (a) sage-grouse, (b) other high-priority values (e.g., crucial habitat identified by ODFW), or (c) other Oregon resource values. For example, a user could use one or both tools to identify areas that contain important sage-grouse habitat but low values for ODFW crucial habitat in one or both tools. Users can highlight areas where the two tools show different results from similarly structured queries using maps, which is a function that may also highlight potential areas of resource conflict.

In addition, because they use the same assessment units, there is potential to grow the interactive capabilities of these tools over time. For example, enhancements to the Compass online interface could pave the way for integrating the ORDSS data layers and providing the public with customized reporting capabilities to answer common questions. The ORDSS layers can also be incorporated into future ODFW habitat updates, improving the crucial habitat assessment process, providing project planners with more consistent information, and producing even more collaboration between these two tools.

Two additional tools being developed to support plan implementation are the Habitat Quantification Tool and the Development Layer and Registry. The ORDSS is being used in the development of the Habitat Quantification Tool, which is designed to assess the impact of development and conservation actions under the mitigation approach outlined in Appendix 6. It

will evaluate habitat and site conditions to determine project debits or offsets needed to compensate for impacts to important sage-grouse habitat and to determine available mitigation credits derived from credit-producing sites and projects. The Habitat Quantification Tool is on track for field testing in late 2015 and 2016.

The Development Layer and Registry is another tool that will be available to decision makers for mapping and quantifying the area of developed land in the sage-grouse range expected in winter 2015. The Development Layer portion of the tool has been developed as a prototype and used to determine baseline levels of developed land tied to land-use policy amendments approved by the Land Conservation and Development Commission. It will also be used by the Habitat Quantification Tool to estimate the direct and indirect impacts of proposed development projects. The Development Layer and Registry is being designed to integrate fully with the ORDSS and Compass.

Other tools exist that may be useful for planning and assessments related to sage-grouse monitoring, habitat restoration, and so forth. The tools identified here have direct ties to the Action Plan. All of the tools discussed above are envisioned to fit into a robust information system that can be used to support decision making at all levels, from statewide planning to site-scale planning and implementation, in tandem with the Action Plan.



## Appendix 9. Calculation of Acres of Exotic Annual Grasses, Conifers, and Wildfire Occurrence

### i. Data Inputs

Data Set	Description	Source	Date
<b>Ownership</b>	Identifies ownership classes based on classes in the Protected Areas Database	US Geological Survey, Gap Analysis Program (GAP). November 2012. Protected Areas Database of the United States (PADUS), version 1.3 Combined Feature Class.	2013
<b>Oregon Priority Areas for Conservation (PAC)</b>	Habitat identified using the Core Area Approach for the ODFW Oregon Department of Fish and Wildlife's (ODFW's) <i>Greater Sage-Grouse Conservation Assessment and Strategy for Oregon</i> and labeled with rational names	SageCon. Oregon Priority Areas for Conservation (PAC). December 2014. Feature Class.	December 2014
<b>Exotic Annual Grasses (2013)</b> two IAG classes	Pixels where exotic grass species were the most abundant or second most abundant plant species present.	Integrated Landscape Assessment Project (ILAP). 2013 Current Vegetation. Raster.	November 2014
<b>Tree Canopy Cover</b> (version 2.0)	Tree canopy cover for trees >7 ft in height. Of the two versions available, we used the masked version in which cover predictions along roads, within non-natural land cover types (developed, residential, agriculture), wetlands and water were eliminated.	The Nature Conservancy/Institute for Natural Resources. Tree Canopy Cover over 7 feet in height, version 2.0. Raster.	July 2014
<b>Wildfire Perimeters</b>	Wildfire perimeters for fires > 1000-ac are derived from satellite imagery.	Monitoring Trends in Burn Severity Burned Areas Boundaries. Shapefile.	October 2014

### ii. GIS Processing

Acre percentages were calculated in ArcGIS 10.2. This was completed for conifers, exotic grasses and burned areas. We processed raster and polygon data with the Combine and Overlay commands in ArcGIS and cross-tabulated the results to calculate spatial overlap.

The ownership and PAC data were compiled from polygon coverages and converted into a single raster with the attributes for the PAC and ownership for each grid cell. This data was

combined in the GIS to create a new raster with the ownership, PAC and combined with separately with the exotic grasses, tree canopy cover, and wildfire perimeters data sets.

### iii. Invasive Grasses

Locations of invasive annual grass were determined using the Exotic Annual Grasses (2013) dataset. In this layer, exotic annual grass presence was determined by identifying cells where cheatgrass, medusahead, or ventenata grass were the dominant (SP1) or subdominant (SP2) species, and assigning a value of '1' to the cells. All other cells were assigned a value of '0' (zero). The exotic grasses raster dataset was combined with a raster of the ownership/PAC information. The area of spatial correspondence was cross-tabulated using a pivot table summarizing the acres by ownership, in each PAC for invasive grasses.

### iv. Conifers

Conifers were identified using a predictive model that relies primarily on an array of texture metrics generated from National Agriculture Imagery Program imagery (Nielsen and Noone 2012) and other imagery. Overall, this layer identifies a smaller area of juniper and other conifers than some existing data sets for juniper/conifers and other data sets such as ReGAP (<https://data.doi.gov/dataset/rea-ngb-northwest-regap-for-oregon>) and ILAP. The rules used to generate the tree cover data were focused on capturing trees over 7 feet in height as opposed to land cover types or imputed plot data.

Tree canopy cover was combined with the ownership/PAC raster for tabulation. The acres were cross-tabulated using a pivot table to summarize overlap in the study area. We explored using a separate mask that indicated only juniper vegetation but rejected it as the resulting cross-tabulation was inconsistent with other data sources, including the amount of acres treated by Sage-Grouse Initiative.

### v. Wildfire Occurrence

The wildfire occurrence was calculated by overlaying the ownership and PAC coverage with polygon data for wildfire perimeters from the Monitoring Trends and Burn Severity data (<http://www.mtbs.gov/>). The area of spatial correspondence was cross-tabulated using a pivot table summarizing the acres by ownership, in each PAC. In addition, the number of years each pixel burned was tabulated for the last 10 years to map the return rate of fires over 1000-ac. The maximum number of fires that occurred in the same location in the study area was 3 times for the 10-yr period. The maximum occurrences were located primarily in the Crowley PAC as well as in some sliver and edge locations adjacent to fires near Folly Farm/Saddle Butte

PAC. We also calculated return fire intervals for 25 years; the maximum return interval for this longer period was 7 years.

#### vi. Literature Cited

Nielsen, E. and M. Noone. 2014. Tree cover mapping for assessing greater sage-grouse habitat in eastern Oregon. Institute for Natural Resources and The Nature Conservancy. Final Report. 10 pages.

[http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/oregon/deserts/Pages/Tree\\_Cover.aspx](http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/oregon/deserts/Pages/Tree_Cover.aspx).

## Appendix 10. Potential for Agriculture Conversion

### REPORT

Prepared for the Oregon Sage-Grouse Action Plan

#### Potential Conversion to Agriculture Calculation

The purpose of this project is to identify, quantify and map areas of sage-grouse habitat that could be tilled/converted to agriculture. To accomplish this The Nature Conservancy created a “tillage risk model” (Evans 2014) that uses SSURGO soil, climate and topographic variables to estimate whether a certain piece of untilled ground could be or has the potential to be tilled. It does not look at water availability or current and potential infrastructure and thus does not estimate the *probability* or *likelihood* of tillage. The model was applied to the SageCon project area but restricted to those portions that contain SSURGO (Soil Survey Geographic database) data. The model requires the detailed information contained in SSURGO soil data. See map below labeled ***Spatial Extent of Soils Data (SSURGO)***.

#### The Model

The “tillage risk model” created by Jeffery Evans (Senior Landscape Ecologist with the Conservancy’s North American Science Program) uses a Random Forest modeling approach (Breiman 2001) to identify, among the variables tested, those that have the greatest predictor value for what you are testing for. In this case we tested for tillage risk or agricultural potential and evaluated the following variables:

#### Topographic Variables

- Wetness Index [Compound Topographic Index which indicates both water availability and soil chemical and depositional characteristics.]
- Slope
- Aspect
- Relative Slope Position
- Elevation
- Topographic Solar-Radiation Index
- Topographic texture [Roughness]

#### Climate Variables

- Annual Dryness Index
- Number of degree days >5C
- Mean Annual Temperature
- Mean annual Precipitation

#### SSURGO Soil Variables

- Available Water Storage (4 depths – 0-25 cm, 0-50 cm, 0-100 cm, 0 – 150 cm)
- Bedrock Depth
- Drainage Class (2 characteristics – dominant condition and wettest condition)
- Flooding Frequency (2 characteristics - dominant condition and maximum flooding frequency)
- Hydric Classification Presence
- Hydrologic Group - Dominant Condition
- Irrigated Capability Class (2 Irrigated Capability Class - dominant condition and aggregate percent)
- Non-Irrigated Capability Class (2 Non-Irrigated Capability Class – dominant condition and aggregate percent)
- Ponding Frequency – (Presence)
- Slope Gradient (2 Slope Gradient - Dominant Component and weighted average)
- Water Table Depth (2 Annual – Minimum and April - June – Minimum)

We used NASS Cropland Data Layer (CDL) from 2007 – 2013 (US Department of Agriculture 2012, <http://nassgeodata.gmu.edu/CropScape/>) to identify existing agricultural land. An area weighted random sample of points was created for each SSURGO polygon within a county. Each sample point is identified as agriculture (based on NASS CDL) or not. Each variable's value is recorded at each sample point. These data are used to build a Random Forests model, and to extrapolate the model results to areas where tilled agriculture does not currently exist. Random Forest also identifies the variables that are most important for predicting where tilled agriculture could occur.

Within the SageCon planning area the variables that the model identified as most important for predicting where tillage could occur included, in order of importance:

1. Mean annual temperature
2. Number of degree days >5C
3. Mean annual precipitation
4. Annual dryness index
5. Surface roughness within a 27x27 pixel (30m) window
6. Available water storage (AWS) 0-50 cm, AWS 0-25 cm, AWS 0-100 cm, AWS 0-150 cm
7. Aspect
8. Slope
9. Relative slope position

Based on these variables **the model assigns to each 30 m pixel the probability of that pixel supporting agricultural development/tillage.**

### **Results**

Again, the intent of the model is to identify risk associated with tillage on private land where tilled agriculture does not currently exist. The results were applied to all of the project area where SSURGO soil data are available (see map on page 4 labeled ***Spatial Extent of Soils Data (SSURGO)***).

A map of tillage potential was developed and summaries prepared that show for various geographies the number of untilled acres on **private land** based on their tillage potential. However, with the data available it is a challenge to identify currently tilled vs. untilled private agricultural land. We defined currently 'tilled' areas using two methods for combining agriculture classes derived by Johnson (2014) from NASS data. Johnson's classification includes:

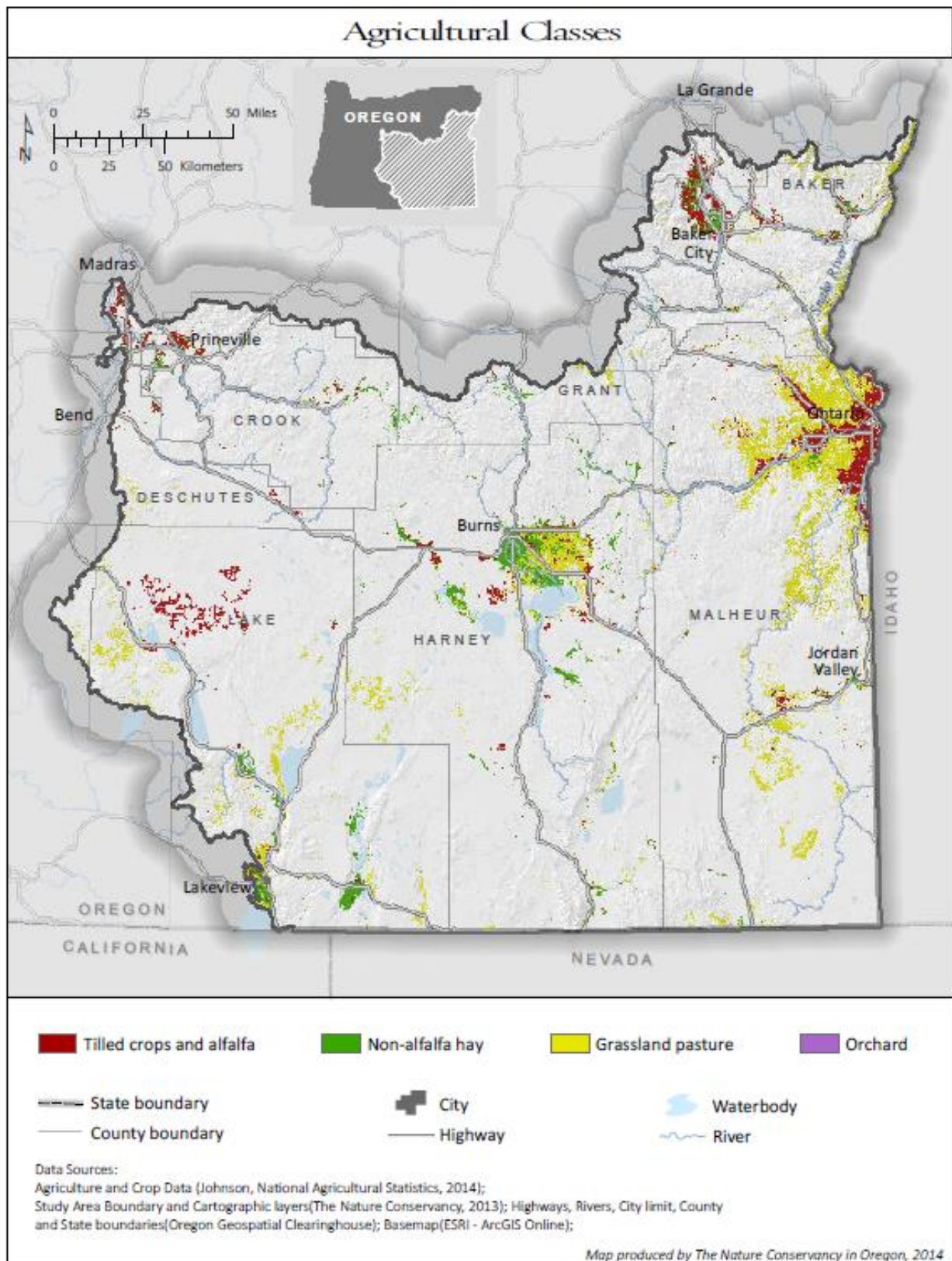
- tilled crops – *these crops are always tilled*
- alfalfa – *these crops are usually tilled*
- non-alfalfa hay – *this class includes tilled and untilled pastures*
- orchard – *these crops are untilled*
- grassland pasture – *this class is untilled*
- non-agriculture – *all untilled*

These classes are mapped for the project area on the next page.

Our first definition of 'tilled' included the 'tilled crops' and 'alfalfa' classes (hereafter referred to as **Tilled Def. 1**). Our second definition included 'tilled crops', 'alfalfa', and 'non-alfalfa hay' (hereafter referred to as **Tilled Def. 2**).

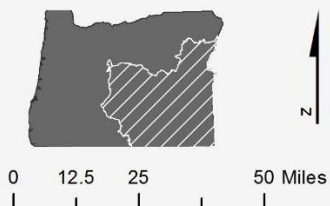
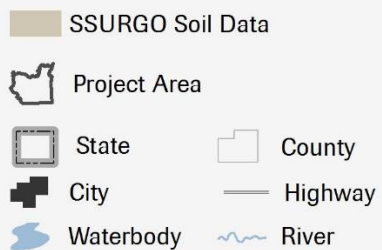
For more information please contact:

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503-802-8100





## Spatial Extent of Soils Data (SSURGO)



Data Sources:  
Soil Data (USDA Natural Resources Conservation Service, Gridded Soil Survey Geographic Database for Oregon, 2014); Study Area Boundary and Cartographic layers (The Nature Conservancy, 2013); Highways, Rivers, City limit, County and State boundaries (Oregon Geospatial Clearinghouse);

Map created by The Nature Conservancy, September 2014





Tillage potential is classified into 4 categories (Table 1) based on the probabilities of tillage risk (probability ranges from 0 to 1) as modeled by Jeffrey Evans using topographic, soil, and climate variables (Evans 2014).

Following are tables summarizing the tillage potential related to sage grouse habitat and core areas in Southeast Oregon. **Tillage potential was defined for areas of private land which are currently untilled. All results are based on data only from Oregon, including the core area extents.**

Summaries are provided for:

Tillage potential on private untilled land in the project area (table 1)

Tillage potential on private untilled land within sage grouse cores (tables 2a, b, c),

Tillage potential on private untilled land in habitat<sup>1</sup> types within cores (tables 3a, b, and 4a, b),

Tillage potential on private untilled land in core areas compared to low density areas (tables 5a, b)

Tillage potential on private untilled land by county (within the project area) (tables 6 a, b, c)

Table 1 Tillage potential acres, as defined in the two methods described above, on private non-tilled land within the project area. Tillage potential is classified into 4 categories based on the probabilities of tillage risk (probability ranges from 0 to 1) as modeled by Jeffrey Evans using topographic, soil, and climate variables (Evans 2014).

Tillage potential	Probability of tillage risk	Acres <i>Tilled Def. 1</i>	Acres <i>Tilled Def. 2</i>	Additional acres when non-alfalfa hay is not included (Def. 1) as tilled area (Acres Def. 1 – Acres Def. 2)
4 - High	0.75 to 1.0	260,014	156,476	103,538
3 - Moderate	0.50 to 0.75	395,602	300,440	95,162
2 - Moderately low	0.25 to 0.50	480,543	413,097	67,445
1 - Low	0 to 0.25	2,453,744	2,397,669	56,075
Total		3,589,903	3,267,683	322,220

<sup>1</sup> Habitat types include areas of sage brush, and areas that have a high potential of being mesic summer habitat. Mesic summer habitat is estimated using areas identified as having an intermediate or high probability of mesic conditions during summer (NRCS Sage Grouse Initiative). Sagebrush habitat is defined using the Sage attribute in the LF\_120\_EVT (Land Fire Existing Vegetation Type).

See map **Sage Grouse Core and Low Density Areas** on page 8 to locate named cores and to see the extent of low density habitat (Tables 5a, b).

Tables 2a, b, c **Core** area summary, acres of each core area by tillage potential class, and percent of acres of each core area by tillage potential class. Areas of already tilled lands are defined using two methods: 1) **Tilled Def. 1:** tilled areas included tilled crops and alfalfa; 2) **Tilled Def. 2:** tilled areas include tilled crops, alfalfa, and not alfalfa hay.

Core Name	Acres in Core <sup>2</sup>	Acres of Core that are on private land that is not tilled		Acres of Core that has Tillage Potential info <sup>3</sup> , and are on private land that is not tilled		% of Core that has Tillage Potential info, and are on private land that is not tilled	
		Acre, Tilled Def. 1	Acre, Tilled Def. 2	Acre, Tilled Def. 1	Acre, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2
12 Mile	441,739	252,331	239,766	3,534	3,534	0.8	0.8
Baker	336,406	209,091	202,481	208,506	202,014	62.0	60.1
Beatys	841,387	47,722	47,121	47,524	46,924	5.6	5.6
Brothers/N Wagontire	293,342	74,904	74,882	46,391	46,384	15.8	15.8
Bully Creek	279,718	67,261	66,329				
Burns	35,758	9,358	8,792	9,346	8,780	26.1	24.6
Cow Lakes	249,699	57,647	55,577				
Cow Valley	368,450	266,471	265,391	37,356	37,228	10.1	10.1
Crowley	490,888	79,983	79,675	19,044	18,912	3.9	3.9
Drewsey	368,568	136,600	125,488	128,505	117,690	34.9	31.9
Dry Valley/Jack Mountain	449,413	17,413	17,400	17,399	17,389	3.9	3.9
Folly Farm	165,333	23,126	22,930	18,323	18,128	11.1	11.0
Louse Canyon	672,441	10,536	10,270				
Picture Rock	42,591	4,037	4,033	3,871	3,867	9.1	9.1
Pueblos/S Steens	208,941	39,850	39,795	39,587	39,532	18.9	18.9
Saddle Butte	86,230						
Soldier Creek	295,477	20,587	19,848				
Steens	185,772	26,752	26,373	26,683	26,304	14.4	14.2
Trout Creeks	393,841	29,060	28,482	14,453	14,334	3.7	3.6
Tucker Hill	31,544	14,886	14,339	14,605	14,091	46.3	44.7
Warners	330,247	71,658	71,595	71,601	71,539	21.7	21.7

<sup>2</sup> Acres in Core = All acres within the core regardless of ownership and management status (all public land, all private land, all land in agriculture, etc.)

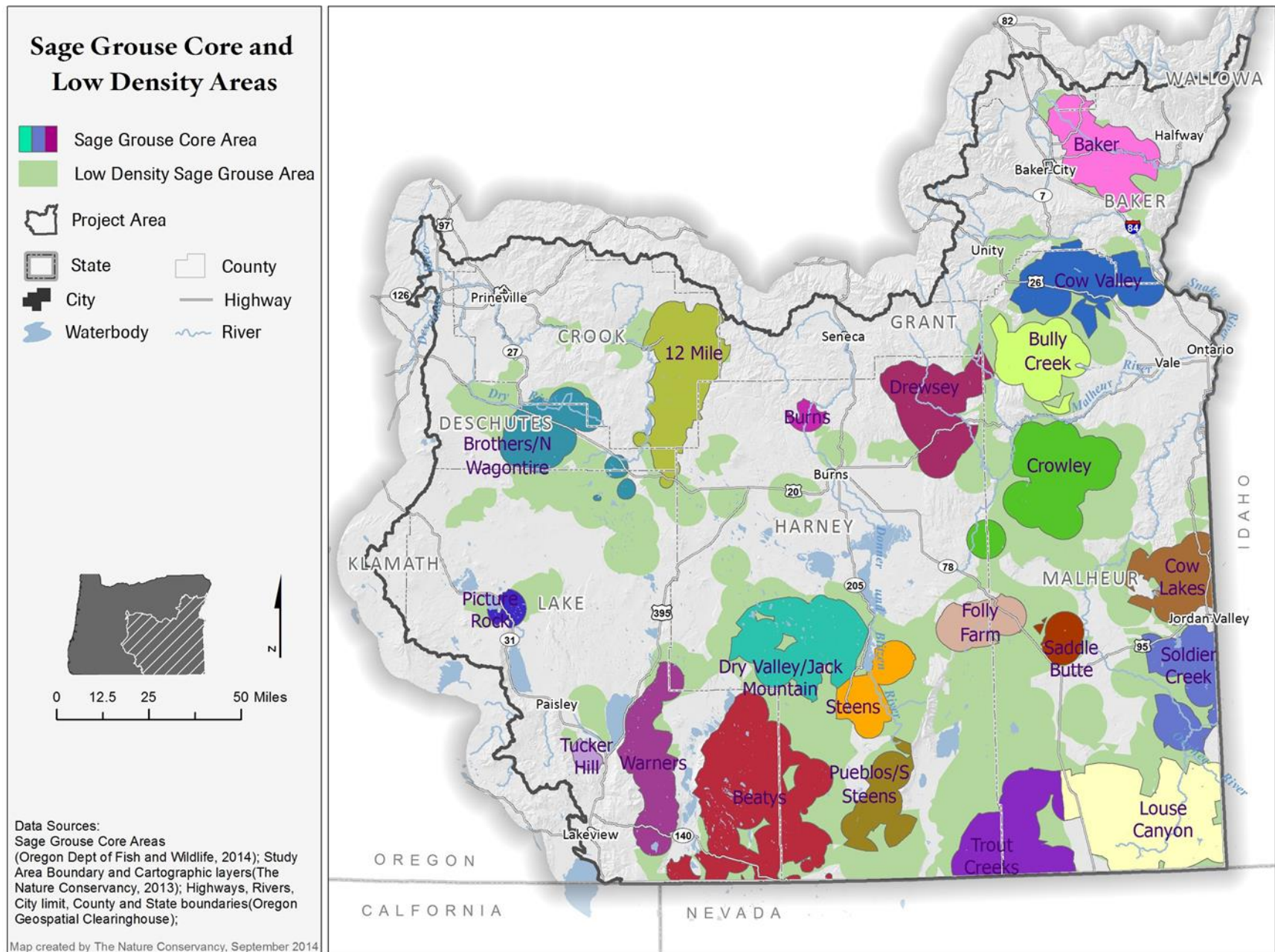
<sup>3</sup> Acres that have SSURG soil data.

Table 2b. Acres of each Core that are on private land and not tilled, by Tillage Potential class

Core Name	Acres in Core	Acres of each Core that are on private land and not tilled, by Tillage Potential class							
		4 - High		3 - Moderate		2 - Moderately Low		1 - Low	
		Acres Tilled Def. 1	Acres Tilled Def. 2	Acres Tilled Def. 1	Acres Tilled Def. 2	Acres Tilled Def. 1	Acres Tilled Def. 2	Acres Tilled Def. 1	Acres Tilled Def. 2
12 Mile	441,739	365.8	365.8	802.2	802.2	1,320.1	1,320.1	1,046.1	1,046.1
Baker	336,406	3,909.3	672.3	4,742.8	3,267.0	14,696.3	13,727.6	185,158.1	184,347.2
Beatys	841,387			112.3	110.1	4,977.2	4,863.1	42,434.3	41,951.0
Brothers/N Wagontire	293,342	3,877.0	3,877.0	26,323.8	26,317.6	15,099.1	15,098.2	1,090.8	1,090.8
Burns	35,758			8.9	7.8	731.0	565.3	8,606.0	8,207.3
Cow Valley	368,450	135.2	133.4	270.9	232.0	637.8	602.0	36,311.8	36,260.8
Crowley	490,888	6.7	2.2	104.1	69.6	488.4	414.3	18,444.8	18,425.4
Drewsey	368,568	439.5	103.4	4,667.8	1,543.6	9,365.9	4,109.2	114,031.9	111,933.4
Dry Valley/Jack Mountain	449,413			1.3	1.3	48.0	48.0	17,349.7	17,339.2
Folly Farm	165,333	10.5	4.2	304.7	193.7	350.3	292.4	17,657.5	17,637.3
Picture Rock	42,591	89.2	89.2	1,031.7	1,029.5	2,263.1	2,261.8	487.0	487.0
Pueblos/S Steens	208,941	0.9	0.4	22.5	11.3	137.7	130.3	39,425.7	39,389.7
Steens	185,772	5.6	3.6	172.8	120.5	604.0	552.2	25,900.1	25,627.9
Trout Creeks	393,841	0.2	0.2	3.8	2.9	133.4	93.6	14,316.0	14,237.5
Tucker Hill	31,544	19.6	14.5	1,528.3	1,331.9	7,368.8	7,102.6	5,688.0	5,642.4
Warners	330,247	0.4	0.4	176.6	176.6	4,848.0	4,846.2	66,576.2	66,516.1

Table 2c. Percent of Acres of each Core on private land and not tilled, by Tillage Potential class

Core Name	Acres in Core	Percent of Acres of each Core on private land and not tilled, by Tillage Potential class							
		4 - High		3 - Moderate		2 - Moderately Low		1 - Low	
		% Tilled Def. 1	% Tilled Def. 2	% Tilled Def. 1	% Tilled Def. 2	% Tilled Def. 1	% Tilled Def. 2	% Tilled Def. 1	% Tilled Def. 2
12 Mile	441,739	10.4	10.4	22.7	22.7	37.4	37.4	29.6	29.6
Baker	336,406	1.9	0.3	2.3	1.6	7.0	6.8	88.8	91.3
Beatys	841,387			0.2	0.2	10.5	10.4	89.3	89.4
Brothers/N Wagon tire	293,342	8.4	8.4	56.7	56.7	32.5	32.6	2.4	2.4
Burns	35,758			0.1	0.1	7.8	6.4	92.1	93.5
Cow Valley	368,450	0.4	0.4	0.7	0.6	1.7	1.6	97.2	97.4
Crowley	490,888	0.0	0.0	0.5	0.4	2.6	2.2	96.9	97.4
Drewsey	368,568	0.3	0.1	3.6	1.3	7.3	3.5	88.7	95.1
Dry Valley/Jack Mountain	449,413			0.0	0.0	0.3	0.3	99.7	99.7
Folly Farm	165,333	0.1	0.0	1.7	1.1	1.9	1.6	96.4	97.3
Picture Rock	42,591	2.3	2.3	26.7	26.6	58.5	58.5	12.6	12.6
Pueblos/S Steens	208,941	0.0	0.0	0.1	0.0	0.3	0.3	99.6	99.6
Steens	185,772	0.0	0.0	0.6	0.5	2.3	2.1	97.1	97.4
Trout Creeks	393,841	0.0	0.0	0.0	0.0	0.9	0.7	99.0	99.3
Tucker Hill	31,544	0.1	0.1	10.5	9.5	50.5	50.4	38.9	40.0
Warners	330,247	0.0	0.0	0.2	0.2	6.8	6.8	93.0	93.0





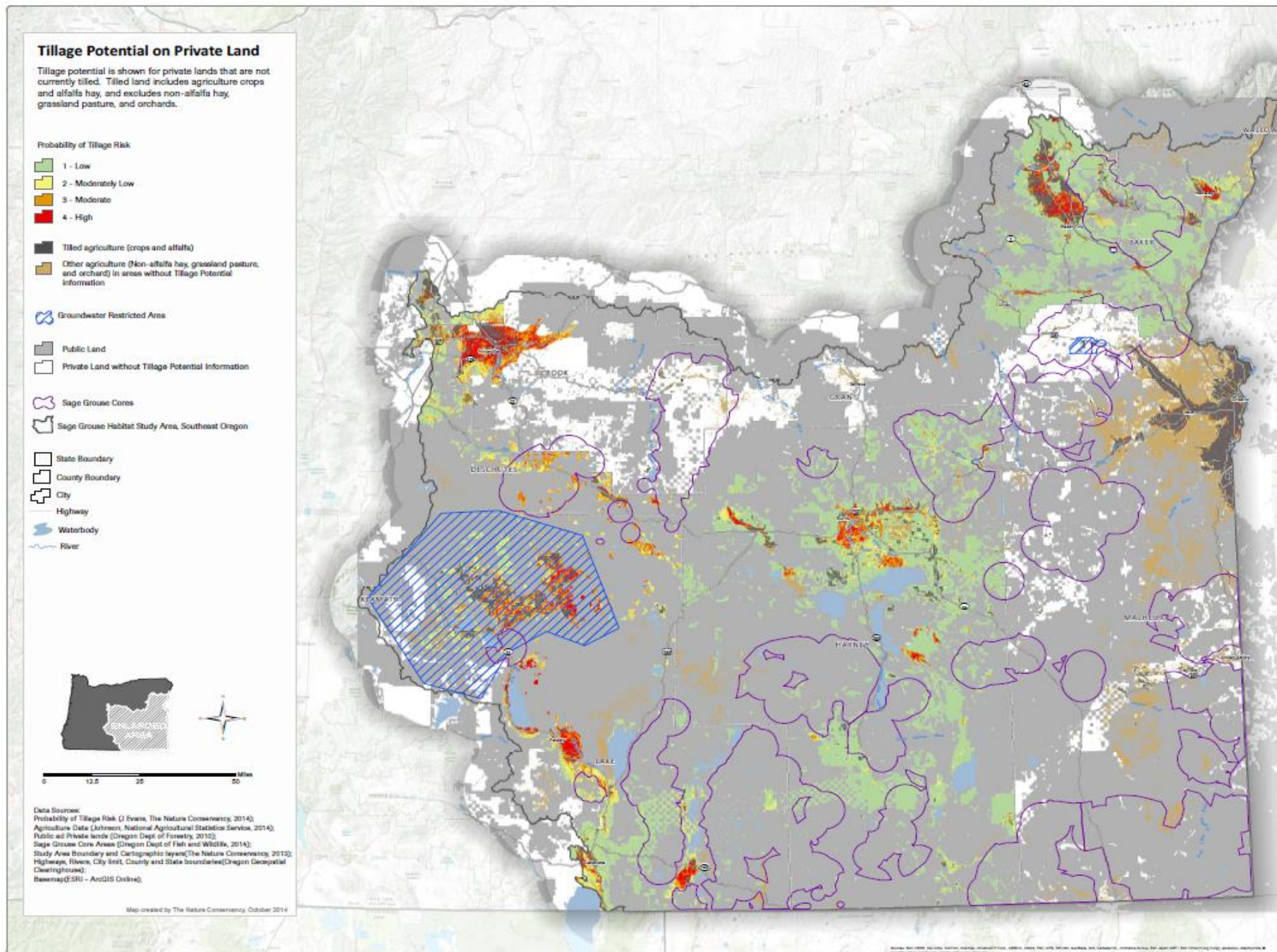


Table 3a & b Summary of **habitat** (sage and mesic summer habitat combined) and **habitat type** summaries. Areas of already tilled lands are defined using two methods: 1) **Tilled Def. 1:** tilled areas included tilled crops and alfalfa; 2) **Tilled Def. 2:** tilled areas include tilled crops, alfalfa, and not alfalfa hay.

Core Name	Acres of Core	Acres of habitat (combined) in the Core	Habitat Type	Acres of habitat type in the Core	Acres of habitat (combined) in the core, on private non-tilled land		Acres of habitat type in the Core, on private non-tilled land	
					Acre, Tilled Defn 1	Acre, Tilled Defn 2	Acre, Tilled Defn 1	Acre, Tilled Defn 2
12 Mile	441,739	356,523	1 - Sagebrush	346,248	2,886	2,886	2,879	2,879
			2 - Mesic	10,049			7	7
			3 - Both	226				
Baker	336,406	199,981	1 - Sagebrush	177,547	113,726	107,650	102,936	102,878
			2 - Mesic	21,568			10,228	4,249
			3 - Both	866			562	523
Beatys	841,387	766,122	1 - Sagebrush	756,896	721,936	722,424	714,147	714,190
			2 - Mesic	6,638			5,445	5,866
			3 - Both	2,589			2,344	2,367
Brothers/N Wagontire	293,342	265,482	1 - Sagebrush	265,415	44,485	44,479	44,479	44,478
			2 - Mesic	63			41	46
			3 - Both	4			0	0
Bully Creek	279,718	190,305	1 - Sagebrush	184,588				
			2 - Mesic	5,392				
			3 - Both	325				
Burns	35,758	20,337	1 - Sagebrush	18,606	5,569	5,023	4,226	4,218
			2 - Mesic	1,434			322	829
			3 - Both	297			231	200
Cow Lakes	249,699	172,737	1 - Sagebrush	170,472				
			2 - Mesic	2,254				
			3 - Both	11				
Cow Valley	368,450	242,773	1 - Sagebrush	232,085	18,791	18,700	18,391	18,372
			2 - Mesic	10,168			390	318
			3 - Both	520			10	10
Crowley	490,888	374,115	1 - Sagebrush	370,904	15,857	15,727	14,928	14,926
			2 - Mesic	2,832			805	678
			3 - Both	379			124	123
Drewsey	368,568	209,775	1 - Sagebrush	193,231	82,630	72,854	68,652	68,403
			2 - Mesic	14,719			12,423	10,684
			3 - Both	1,825			1,555	1,047
Dry Valley/Jack Mountain	449,413	401,799	1 - Sagebrush	401,470	388,624	388,625	388,455	388,456



Core Name	Acres of Core	Acres of habitat (combined)	Habitat Type	Acres of habitat type in the Core	Acres of habitat (combined) in the core, on private non-tilled land		Acres of habitat type in the Core, on private non-tilled land	
			2 - Mesic	329			169	169
Folly Farm	165,333	73,881	1 - Sagebrush	69,726	43,656	43,824	41,341	41,350
			2 - Mesic	3,736			2,131	2,291
			3 - Both	419			183	183
Louse Canyon	672,441	622,738	1 - Sagebrush	622,642				
			2 - Mesic	94				
			3 - Both	2				
Picture Rock	42,591	28,325	1 - Sagebrush	27,898	2,241	2,239	1,867	1,866
			2 - Mesic	427			374	373
			3 - Both	0			0	0
Pueblos/S Steens	208,941	118,234	1 - Sagebrush	114,984	97,318	97,366	96,529	96,533
			2 - Mesic	2,468			1,734	1,696
			3 - Both	781			599	592
Saddle Butte	86,230	38,800	1 - Sagebrush	38,800				
Soldier Creek	295,477	224,403	1 - Sagebrush	224,245				
			2 - Mesic	159				
Steens	185,772	95,958	1 - Sagebrush	91,018	82,148	82,480	79,612	79,640
			2 - Mesic	4,213			2,385	2,657
			3 - Both	728			151	182
Trout Creeks	393,841	304,633	1 - Sagebrush	302,404	8,463	8,348	7,803	7,801
			2 - Mesic	1,855			485	381
			3 - Both	374			175	166
Tucker Hill	31,544	22,576	1 - Sagebrush	21,613	9,912	9,540	9,134	9,108
			2 - Mesic	885			715	376
			3 - Both	78			63	56
Warners	330,247	278,686	1 - Sagebrush	271,663	223,868	223,923	222,124	222,126
			2 - Mesic	5,928			1,451	1,501
			3 - Both	1,096			292	295

Table 3b. Percent of Habitat and Habitat Types on private land in Cores with tillage potential data.

Core Name	Habitat Type	Habitat (Combined)			Habitat Type		
		% of Core that is Habitat (combined)	% of Habitat in Core that has Tillage Potential Info and that is on private non-tilled land, that is Habitat Type. Tilled Defn 1	% of Habitat in Core that has Tillage Potential Info and that is on private non-tilled land that is Habitat Type. Tilled Defn 2	% of Habitat (combined) in Core that is Habitat Type	% of Habitat in Core that has Tillage Potential Info and that is on private non-tilled land, that is Habitat Type. Tilled Defn 1	% of Habitat in Core that has Tillage Potential Info and that is on private non-tilled land that is Habitat Type. Tilled Defn 2
12 Mile	1 - Sagebrush	80.7	0.8	0.8	97.1	99.8	99.8
	2 - Mesic				2.8	0.2	0.2
	3 - Both				0.1		
Baker	1 - Sagebrush	59.4	56.9	51.4	88.8	90.5	95.6
	2 - Mesic				10.8	9.0	3.9
	3 - Both				0.4	0.5	0.5
Beatys	1 - Sagebrush	91.1	94.2	93.2	98.8	98.9	98.9
	2 - Mesic				0.9	0.8	0.8
	3 - Both				0.3	0.3	0.3
Brothers/N Wagontire	1 - Sagebrush	90.5	16.8	16.8	100.0	100.0	100.0
	2 - Mesic				0.0	0.1	0.1
	3 - Both				0.0	0.0	0.0
Bully Creek	1 - Sagebrush	68.0			97.0		
	2 - Mesic				2.8		
	3 - Both				0.2		
Burns	1 - Sagebrush	56.9	27.4	20.7	91.5	75.9	84.0
	2 - Mesic				7.1	5.8	16.5
	3 - Both				1.5	4.2	4.0
Cow Lakes	1 - Sagebrush	69.2			98.7		
	2 - Mesic				1.3		
	3 - Both				0.0		
Cow Valley	1 - Sagebrush	65.9	7.7	7.6	95.6	97.9	98.2
	2 - Mesic				4.2	2.1	1.7
	3 - Both				0.2	0.1	0.1
Crowley	1 - Sagebrush	76.2	4.2	4.0	99.1	94.1	94.9
	2 - Mesic				0.8	5.1	4.3
	3 - Both				0.1	0.8	0.8
Drewsey	1 - Sagebrush	56.9	39.4	32.6	92.1	83.1	93.9
	2 - Mesic				7.0	15.0	14.7
	3 - Both				0.9	1.9	1.4
Dry Valley/Jack	1 - Sagebrush	89.4	96.7	96.7	99.9	100.0	100.0

		Habitat (Combined)			Habitat Type		
Core Name	Habitat Type	% of Core that is Habitat (combined)	% of Habitat in Core that has Tillage Potential Info and that is on private non-tilled land, that is Habitat Type. Tilled Defn 1	% of Habitat in Core that has Tillage Potential Info and that is on private non-tilled land that is Habitat Type. Tilled Defn 2	% of Habitat (combined) in Core that is Habitat Type	% of Habitat in Core that has Tillage Potential Info and that is on private non-tilled land, that is Habitat Type. Tilled Defn 1	% of Habitat in Core that has Tillage Potential Info and that is on private non-tilled land that is Habitat Type. Tilled Defn 2
Mountain	2 - Mesic				0.1	0.0	0.0
Folly Farm	1 - Sagebrush	44.7	59.1	56.0	94.4	94.7	94.4
	2 - Mesic				5.1	4.9	5.2
	3 - Both				0.6	0.4	0.4
Louse Canyon	1 - Sagebrush	92.6			100.0		
	2 - Mesic				0.0		
	3 - Both				0.0		
Picture Rock	1 - Sagebrush	66.5	7.9	6.6	98.5	83.3	83.3
	2 - Mesic				1.5	16.7	16.6
	3 - Both				0.0	0.0	0.0
Pueblos/S Steens	1 - Sagebrush	56.6	82.3	81.6	97.3	99.2	99.1
	2 - Mesic				2.1	1.8	1.7
	3 - Both				0.7	0.6	0.6
Saddle Butte	1 - Sagebrush	45.0			100.0		
Soldier Creek	1 - Sagebrush	75.9			99.9		
	2 - Mesic				0.1		
Steens	1 - Sagebrush	51.7	85.6	83.0	94.9	96.9	96.6
	2 - Mesic				4.4	2.9	3.2
	3 - Both				0.8	0.2	0.2
Trout Creeks	1 - Sagebrush	77.3	2.8	2.6	99.3	92.2	93.4
	2 - Mesic				0.6	5.7	4.6
	3 - Both				0.1	2.1	2.0
Tucker Hill	1 - Sagebrush	71.6	43.9	40.3	95.7	92.2	95.5
	2 - Mesic				3.9	7.2	3.9
	3 - Both				0.3	0.6	0.6
Warners	1 - Sagebrush	84.4	80.3	79.7	97.5	99.2	99.2
	2 - Mesic				2.1	0.6	0.7
	3 - Both				0.4	0.1	0.1

Table 4a & b Summary of **habitat** (sage and mesic summer habitat combined) and **habitat type** by tillage potential. Areas of already tilled lands are defined using two methods: 1) **Tilled Def. 1:** tilled areas included tilled crops and alfalfa; 2) **Tilled Def. 2:** tilled areas include tilled crops, alfalfa, and not alfalfa hay.

Core Name	Habitat Type	Acres by Tillage Potential, by Habitat Type in Core on private untilled land								Total Acres, all Tillage Potential class combined	
		4 - High		3 - Moderate		2 - Moderately Low		1 - Low			
		Acre, Tilled Def. 1	Acre, Tilled Def. 2	Acre, Tilled Def. 1	Acre, Tilled Def. 2	Acre, Tilled Def. 1	Acre, Tilled Def. 2	Acre, Tilled Def. 1	Acre, Tilled Def. 2	Acre, Tilled Def. 1	Acre, Tilled Def. 2
12 Mile	1 - Sagebrush	314	314	647	647	1,161	1,161	757	757	2,879	2,879
	2 - Mesic							7	7	7	7
12 Mile Total		314	314	647	647	1,161	1,161	764	764	2,886	2,886
Baker	1 - Sagebrush	103	102	1,325	1,323	6,618	6,605	94,891	94,849	102,936	102,878
	2 - Mesic	3,605	397	2,039	623	1,883	1,051	2,701	2,178	10,228	4,249
	3 - Both	7	4	47	41	153	141	355	336	562	523
Baker Total		3,715	503	3,412	1,987	8,653	7,798	97,947	97,363	113,726	107,650
Beatys	1 - Sagebrush			44	44	4,262	4,260	37,492	37,451	41,798	41,754
	2 - Mesic			6	4	126	34	953	627	1,085	665
	3 - Both			1	1	15	11	225	207	242	218
Beatys Total				50	48	4,404	4,304	38,670	38,285	43,124	42,637
Brothers/N Wagontire	1 - Sagebrush	3,782	3,782	25,405	25,404	14,227	14,227	1,065	1,065	44,479	44,478
	2 - Mesic			5	0	1	0	0	0	6	1
	3 - Both					0	0			0	0
Brothers/N Wagontire Total		3,782	3,782	25,410	25,405	14,228	14,228	1,065	1,065	44,485	44,479
Burns	1 - Sagebrush					95	92	4,131	4,126	4,226	4,218
	2 - Mesic			7	6	461	317	644	283	1,112	605
	3 - Both			0	0	70	57	161	143	231	200
Burns Total				7	6	626	465	4,936	4,552	5,569	5,023
Cow Valley	1 - Sagebrush	18	18	47	47	169	169	18,156	18,137	18,391	18,372
	2 - Mesic	46	45	87	51	111	84	146	138	390	318
	3 - Both	2	2	3	3	3	3	2	2	10	10
Cow Valley Total		66	64	137	102	284	256	18,304	18,278	18,791	18,700
Crowley	1 - Sagebrush			15	15	113	113	14,799	14,798	14,928	14,926
	2 - Mesic	7	2	76	42	306	233	417	401	805	678
	3 - Both			6	6	32	32	85	85	124	123
Crowley Total		7	2	97	63	451	379	15,302	15,284	15,857	15,727
Drewsey	1 - Sagebrush	34	33	572	556	1,830	1,751	66,215	66,063	68,652	68,403
	2 - Mesic	330	32	3,288	377	5,813	1,083	2,993	1,912	12,423	3,404
	3 - Both	15	2	153	59	576	342	811	644	1,555	1,047
Drewsey Total		380	67	4,012	992	8,219	3,176	70,019	68,619	82,630	72,854

Core Name	Habitat Type	Acres by Tillage Potential, by Habitat Type in Core on private untilled land								Total Acres, all Tillage Potential class combined	
		4 - High		3 - Moderate		2 - Moderately Low		1 - Low			
		Acre, Tilled Def. 1	Acre, Tilled Def. 2	Acre, Tilled Def. 1	Acre, Tilled Def. 2	Acre, Tilled Def. 1	Acre, Tilled Def. 2	Acre, Tilled Def. 1	Acre, Tilled Def. 2	Acre, Tilled Def. 1	Acre, Tilled Def. 2
Dry Valley/Jack Mountain	1 - Sagebrush					21	21	12,719	12,718	12,740	12,739
	2 - Mesic			1	1	4	4	144	144	150	150
Dry Valley/Jack Mountain Total				1	1	25	25	12,864	12,862	12,890	12,889
Folly Farm	1 - Sagebrush			5	5	37	30	4,562	4,560	4,604	4,595
	2 - Mesic	10	4	288	179	218	180	935	928	1,451	1,292
	3 - Both			4	4	18	18	188	188	210	210
Folly Farm Total		10	4	297	188	272	229	5,685	5,676	6,265	6,097
Picture Rock	1 - Sagebrush	53	53	615	614	1,099	1,099	101	101	1,867	1,866
	2 - Mesic	2	2	7	7	216	215	149	149	374	373
	3 - Both					0	0			0	0
Picture Rock Total		54	54	622	622	1,315	1,313	250	250	2,241	2,239
Pueblos/S Steens	1 - Sagebrush			0	0	22	22	18,326	18,323	18,348	18,345
	2 - Mesic	1	0	22	11	95	88	1,616	1,596	1,734	1,696
	3 - Both					6	6	593	587	599	592
Pueblos/S Steens Total		1	0	22	11	123	116	20,535	20,506	20,682	20,634
Steens	1 - Sagebrush			2	2	255	254	10,917	10,890	11,174	11,146
	2 - Mesic	6	4	158	107	234	191	1,425	1,249	1,823	1,551
	3 - Both			9	8	24	21	544	517	577	545
Steens Total		6	4	169	117	514	466	12,886	12,656	13,574	13,243
Trout Creeks	1 - Sagebrush			1	1	12	12	7,790	7,788	7,803	7,801
	2 - Mesic	0	0	3	2	88	50	394	329	485	381
	3 - Both			0	0	18	16	157	149	175	166
Trout Creeks Total		0	0	4	3	118	79	8,341	8,267	8,463	8,348
Tucker Hill	1 - Sagebrush	7	7	837	830	4,558	4,549	3,732	3,721	9,134	9,108
	2 - Mesic	7	3	265	113	362	193	80	68	715	376
	3 - Both	0	0	6	4	28	23	29	28	63	56
Tucker Hill Total		15	10	1,107	947	4,949	4,765	3,841	3,817	9,912	9,540
Warners	1 - Sagebrush	0	0	120	120	3,640	3,639	45,735	45,734	49,496	49,494
	2 - Mesic			8	8	251	251	4,213	4,163	4,472	4,422
	3 - Both			2	2	28	28	774	771	804	801
Warners Total		0	0	129	129	3,919	3,918	50,723	50,669	54,771	54,717

4 b. % Tillage Potential, for Habitat Type in Core on Private Untilled Land

Core Name	Habitat Type	% Tillage Potential, by Habitat Type in Core on private untilled land							
		4 - High		3 - Moderate		2 - Moderately Low		1 - Low	
		%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2
12 Mile	1 - Sagebrush	10.9	10.9	22.5	22.5	40.3	40.3	26.3	26.3
	2 - Mesic							100.0	100.0
12 Mile Total		10.9	10.9	22.4	22.4	40.2	40.2	26.5	26.5
Baker	1 - Sagebrush	0.1	0.1	1.3	1.3	6.4	6.4	92.2	92.1
	2 - Mesic	35.3	3.9	19.9	6.1	18.4	10.3	26.4	21.3
	3 - Both	1.2	0.8	8.4	7.3	27.1	25.1	63.2	59.8
Baker Total		3.3	0.4	3.0	1.7	7.6	6.9	86.1	85.6
Beatys	1 - Sagebrush			0.1	0.1	10.2	10.2	89.7	89.6
	2 - Mesic			0.5	0.3	11.6	3.1	87.8	57.8
	3 - Both			0.5	0.5	6.3	4.4	93.3	85.5
Beatys Total				0.1	0.1	10.2	10.0	89.7	88.8
Brothers/N Wagontire	1 - Sagebrush	8.5	8.5	57.1	57.1	32.0	32.0	2.4	2.4
	2 - Mesic			80.8	7.7	15.4	3.8	3.8	3.8
	3 - Both					100.0	100.0		
Brothers/N Wagontire Total		8.5	8.5	57.1	57.1	32.0	32.0	2.4	2.4
Burns	1 - Sagebrush					2.2	2.2	97.8	97.6
	2 - Mesic			0.6	0.5	41.5	28.5	57.9	25.4
	3 - Both			0.1	0.1	30.5	24.6	69.4	61.7
Burns Total				0.1	0.1	11.2	8.4	88.6	81.7
Cow Valley	1 - Sagebrush	0.1	0.1	0.3	0.3	0.9	0.9	98.7	98.6
	2 - Mesic	11.9	11.5	22.2	13.2	28.5	21.4	37.4	35.4
	3 - Both	15.6	15.6	28.9	28.9	31.1	31.1	24.4	24.4
Cow Valley Total		0.4	0.3	0.7	0.5	1.5	1.4	97.4	97.3

Core Name	Habitat Type	% Tillage Potential, by Habitat Type in Core on private untilled land							
		4 - High		3 - Moderate		2 - Moderately Low		1 - Low	
		%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2
Crowley	1 - Sagebrush			0.1	0.1	0.8	0.8	99.1	99.1
	2 - Mesic	0.8	0.3	9.4	5.2	38.0	29.0	51.8	49.8
	3 - Both			5.2	4.8	26.0	25.7	68.8	68.4
Crowley Total		0.0	0.0	0.6	0.4	2.8	2.4	96.5	96.4
Drewsey	1 - Sagebrush	0.1	0.0	0.8	0.8	2.7	2.6	96.5	96.2
	2 - Mesic	2.7	0.3	26.5	3.0	46.8	8.7	24.1	15.4
	3 - Both	1.0	0.1	9.8	3.8	37.0	22.0	52.2	41.4
Drewsey Total		0.5	0.1	4.9	1.2	9.9	3.8	84.7	83.0
Dry Valley/Jack Mountain	1 - Sagebrush					0.2	0.2	99.8	99.8
	2 - Mesic			0.9	0.9	2.8	2.8	96.3	96.1
Dry Valley/Jack Mountain Total				0.0	0.0	0.2	0.2	99.8	99.8
Folly Farm	1 - Sagebrush			0.1	0.1	0.8	0.7	99.1	99.0
	2 - Mesic	0.7	0.3	19.8	12.3	15.0	12.4	64.4	64.0
	3 - Both			2.0	2.0	8.6	8.6	89.4	89.3
Folly Farm Total		0.2	0.1	4.7	3.0	4.3	3.6	90.7	90.6
Picture Rock	1 - Sagebrush	2.8	2.8	32.9	32.9	58.9	58.9	5.4	5.4
	2 - Mesic	0.5	0.5	2.0	1.9	57.7	57.4	39.9	39.9
	3 - Both					100.0	100.0		
Picture Rock Total		2.4	2.4	27.8	27.7	58.7	58.6	11.1	11.1
Pueblos/S Steens	1 - Sagebrush			0.0	0.0	0.1	0.1	99.9	99.9
	2 - Mesic	0.1	0.0	1.3	0.6	5.5	5.1	93.2	92.0
	3 - Both					1.0	0.9	99.0	98.0
Pueblos/S Steens Total		0.0	0.0	0.1	0.1	0.6	0.6	99.3	99.2



Core Name	Habitat Type	% Tillage Potential, by Habitat Type in Core on private untilled land							
		4 - High		3 - Moderate		2 - Moderately Low		1 - Low	
		%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2
Steens	1 - Sagebrush			0.0	0.0	2.3	2.3	97.7	97.5
	2 - Mesic	0.3	0.2	8.7	5.9	12.8	10.5	78.2	68.6
	3 - Both			1.5	1.3	4.2	3.6	94.3	89.6
Steens Total		0.0	0.0	1.2	0.9	3.8	3.4	94.9	93.2
Trout Creeks	1 - Sagebrush			0.0	0.0	0.2	0.2	99.8	99.8
	2 - Mesic	0.0	0.0	0.6	0.4	18.1	10.4	81.3	67.9
	3 - Both			0.1	0.1	10.0	9.1	89.8	85.4
Trout Creeks Total		0.0	0.0	0.0	0.0	1.4	0.9	98.6	97.7
Tucker Hill	1 - Sagebrush	0.1	0.1	9.2	9.1	49.9	49.8	40.9	40.7
	2 - Mesic	1.0	0.4	37.1	15.8	50.7	27.0	11.2	9.5
	3 - Both	0.4	0.4	8.8	6.3	44.9	36.8	46.0	44.6
Tucker Hill Total		0.2	0.1	11.2	9.6	49.9	48.1	38.8	38.5
Warners	1 - Sagebrush	0.0	0.0	0.2	0.2	7.4	7.4	92.4	92.4
	2 - Mesic			0.2	0.2	5.6	5.6	94.2	93.1
	3 - Both			0.2	0.2	3.5	3.5	96.3	95.9
Warners Total		0.0	0.0	0.2	0.2	7.2	7.2	92.6	92.5

Table 5a & b Acres and Percentage of all **core area, and all low density area**, for the project area and by tillage potential class. Areas of already tilled lands are defined using two methods: 1) **Tilled Def. 1**: tilled areas included tilled crops and alfalfa; 2) **Tilled Def. 2**: tilled areas include tilled crops, alfalfa, and not alfalfa hay.

Area Type	Acre	Acres of Area Type which is on private land and not tilled		Acres of Area Type with Tillage Potential information that is on private land that is not tilled		Percent of Area Type with Tillage Potential information that is on private land that is not tilled	
		Acres, Tilled Def. 1	Acres, Tilled Def. 2	Acres, Tilled Def. 1	Acres, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2
Core Area	7,297	1,459,273	1,420,566	706,727	686,651	48.4	48.3
Low Density	5,825	998,271	977,152	626,433	610,259	62.8	62.5

Table 5b.

Area Type	Acres of Core and Low Density Habitat on Private Land and not Tilled, by Tillage Potential class									
	4 - High		3 - Moderate		2 - Moderately Low		1 - Low		All Classes	All Classes
	Acres, Tilled Def. 1	Acres, Tilled Def. 2	Acres, Tilled Def. 1	Acres, Tilled Def. 2	Acres, Tilled Def. 1	Acres, Tilled Def. 2	Acres, Tilled Def. 1	Acres, Tilled Def. 2	Acres, Tilled Def. 1	Acres, Tilled Def. 2
Core Area	8,860	5,267	40,274	35,218	63,069	56,027	594,524	590,139	706,727	686,651
Low Density	9,250	6,197	37,590	32,919	55,401	51,655	524,191	519,489	626,433	610,259
Total Acres	18,110	11,464	77,865	68,136	118,471	107,682	1,118,715	1,109,628	1,333,161	1,296,910
%Core Area	0.49	0.46	0.52	0.52	0.53	0.52	0.53	0.53	0.53	0.53
% Low Density	0.51	0.54	0.48	0.48	0.47	0.48	0.47	0.47	0.47	0.47

Table 6a, b, and c **County** summary, acres of each county by tillage potential class, and percent of acres of each county by tillage potential class. Areas of already tilled lands are defined using two methods: 1) **Tilled Def. 1**: tilled areas included tilled crops and alfalfa; 2) **Tilled Def. 2**: tilled areas include tilled crops, alfalfa, and not alfalfa hay.

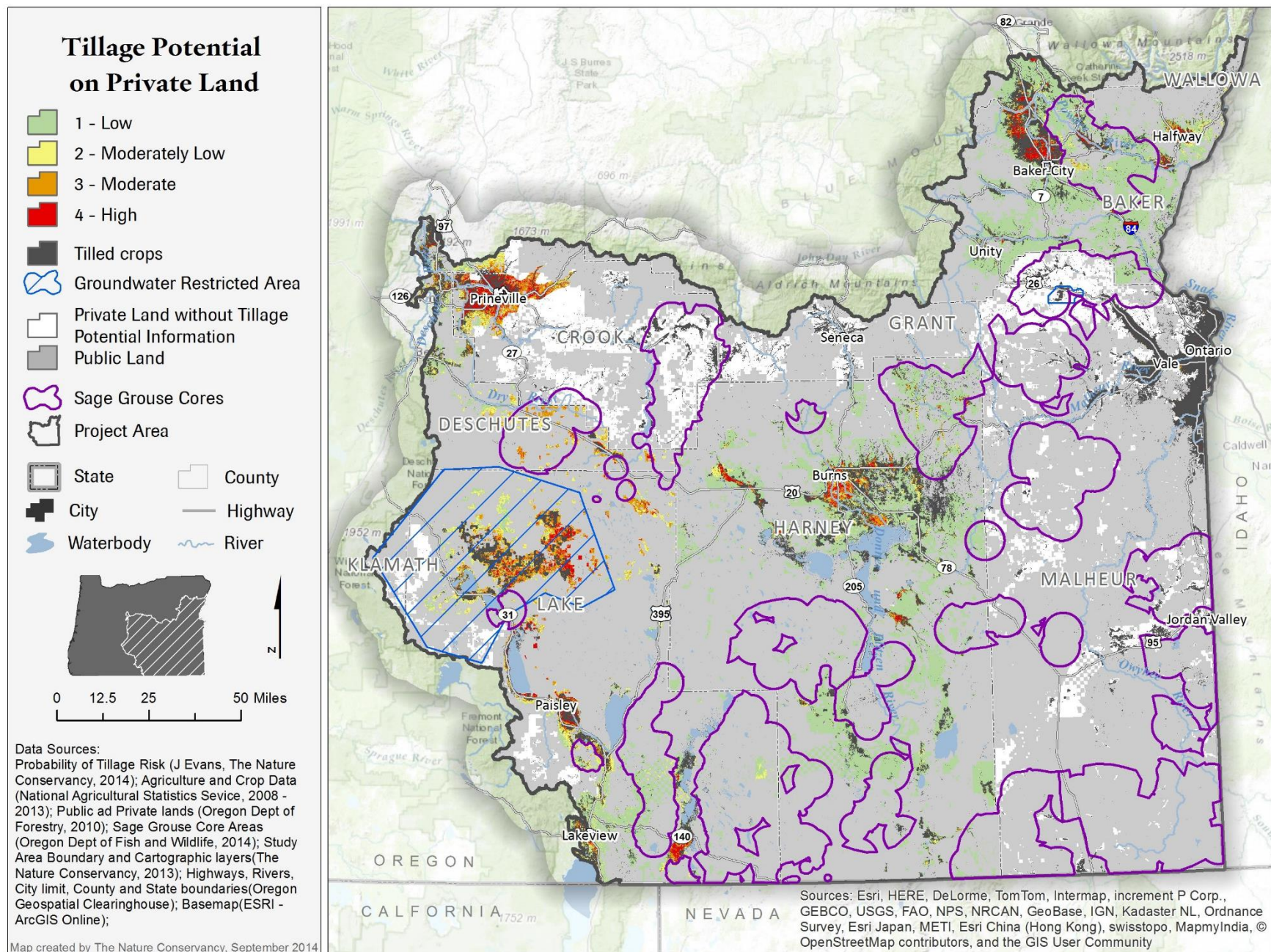
County	Acre	Acres of the county that is private land that is not tilled		Acres of County with Tillage Potential Information	Acres of County with Tillage Potential information that is on private land that is not tilled		% of the county that is private land that is not tilled		% of County with Tillage Potential Information	% of County with Tillage Potential information that is on private land that is not tilled	
		Acres, Tilled Def. 1	Acres, Tilled Def. 2		Acres, Tilled Def. 1	Acres, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2		%, Tilled Def. 1	%, Tilled Def. 2
Baker	1,967,133	879,233	813,715	1,894,957	870,370	805,078	44.7	41.4	96.3	45.9	42.5
Crook	1,854,245	893,544	859,619	231,258	162,807	146,620	48.2	46.4	12.5	70.4	63.4
Deschutes	861,065	162,181	157,239	633,043	161,240	156,307	18.8	18.3	73.5	25.5	24.7
Grant	746,022	223,262	207,240	56	8	8	29.9	27.8	0.0	13.5	13.5
Harney	6,545,177	1,497,011	1,339,464	5,905,262	1,466,003	1,309,851	22.9	20.5	90.2	24.8	22.2
Jefferson	72,649	28,330	26,983	70,320	28,102	26,755	39.0	37.1	96.8	40.0	38.0
Klamath	111,469	26,978	26,978	141			24.2	24.2	0.1		
Lake	4,677,467	933,128	862,572	4,025,921	748,399	678,346	19.9	18.4	86.1	18.6	16.8
Malheur	6,348,253	1,129,455	1,106,396	219,423	32,900	32,613	17.8	17.4	3.5	15.0	14.9
Union	204,627	120,721	112,731	190,746	119,852	111,881	59.0	55.1	93.2	62.8	58.7
Wallowa	35,023	719	719	26,033	209	209	2.1	2.1	74.3	0.8	0.8
Wheeler	56,728	522	522				0.9	0.9			
Total	23,479,858	5,895,084	5,514,177	13,197,160	3,589,889	3,267,669	25.1	23.5	56.2	27.2	24.8

Table 6b. Acres of Each County on Private Untilled Land, by Tillage Potential Class

County	Acres of each County on Private Untilled Land, by Tillage Potential class									
	4 - High		3 - Moderate		2 - Moderately Low		1 - Low		All Classes	All Classes
	Acres, Tilled Def. 1	Acres, Tilled Def. 2	Acres, Tilled Def. 1	Acres, Tilled Def. 2	Acres, Tilled Def. 1	Acres, Tilled Def. 2	Acres, Tilled Def. 1	Acres, Tilled Def. 2	Acres, Tilled Def. 1	Acres, Tilled Def. 2
Baker	46,453	12,557	38,834	20,287	57,194	49,741	727,890	722,493	870,370	805,278
Crook	65,640	51,879	57,579	55,715	31,887	31,428	7,700	7,598	162,807	146,620
Deschutes	8,476	7,930	49,507	47,212	57,652	56,029	45,605	45,136	161,240	156,307
Grant							8	8	8	8
Harney	33,280	4,011	68,129	18,346	98,300	59,853	1,266,294	1,227,642	1,466,003	1,309,852
Jefferson	1,167	774	3,539	2,937	9,015	8,759	14,380	14,285	28,102	26,755
Lake	85,354	63,240	161,705	141,877	209,611	192,195	291,729	281,034	748,399	678,346
Malheur	14,848	14,666	10,885	10,798	5,379	5,362	1,789	1,787	32,900	32,613
Union	4,728	1,351	5,303	3,148	11,473	9,698	98,347	97,684	119,852	111,881
Wallowa	57	57	120	120	32	32	1	1	209	209
Klamath							-	-	-	-

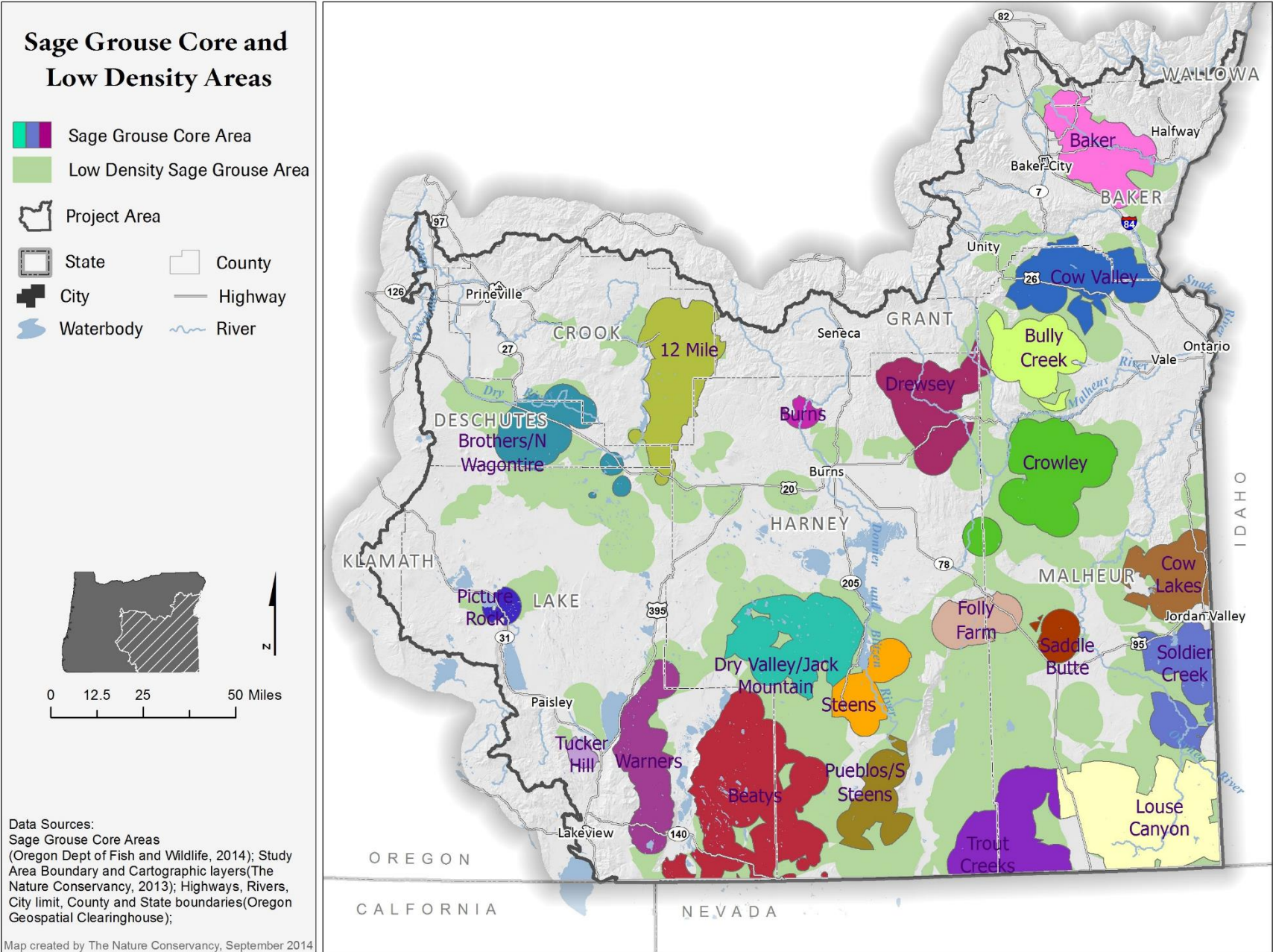
Table 6c. Percent of Acres of Each County on Private Untilled Land, by Tillage Potential Class

County	Percent of acres of each County that is on private land and not tilled, by Tillage Potential class							
	4 - High		3 - Moderate		2 - Moderately Low		1 - Low	
	%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2	%, Tilled Def. 1	%, Tilled Def. 2
Baker	15.76	58.29	30.93	59.21	46.67	53.67	43.97	44.30
Crook	56.03	70.90	72.95	75.39	62.92	63.84	61.52	62.34
Deschutes	22.48	24.03	22.60	23.69	24.82	25.54	27.67	27.96
Grant							13.55	13.55
Harney	9.82	81.44	19.79	73.51	38.58	63.37	21.86	22.55
Jefferson	13.31	20.06	23.00	27.71	44.91	46.23	44.32	44.62
Lake	29.38	39.65	22.64	25.80	15.34	16.73	14.56	15.11
Malheur	8.69	8.80	30.23	30.48	57.81	57.98	31.61	31.64
Union	10.83	37.88	23.77	40.05	49.55	58.61	67.16	67.62
Wallowa	1.58	1.58	1.55	1.55	0.39	0.39	0.01	0.01
Klamath								





See map *Sage Grouse Core and Low Density Areas* on page 8 to locate named cores and to see the extent of low density habitat (Table 5).



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## APPENDIX

### Data Sets Used for Mapping and Modeling

<u>Data Type</u>	<u>Data Source</u>	<u>Associated Variables</u>	<u>Description</u>	<u>Publication Year(s)</u>
Agriculture	NASS CLD (National Agricultural Statistics Service – Crop Data Layer)	Acres in agricultural production	All agricultural crops	2007 - 2013
		Acres in agricultural production but largely untilld	Other Hay/Non Alfalfa agricultural crop type	2013
Climate	PRISM (Parameter-elevation Regressions on Independent Slopes Model) - PRISM Climate Group, Oregon State University	Number of degree days>5C	Degree-days are determined by subtracting the mean temperature (max+min/2). Each degree that a day's mean temperature is below or above a reference temperature is counted a one degree-day.	2014
		Annual Dryness Index	Square root of the number of degree days >5C divided by mean annual precipitation	
		Mean Annual Temperature		
		Mean Annual Precipitation		
Topography	Digital Elevation Model	Compound Topographic Index	Wetness Index which indicates both water availability and soil chemical and depositional characteristics	2012
		Slope		
		Aspect		
		Relative Slope Position	The relative landform position of a given pixel within a hillslope landform.	
		Elevation		



<u>Data Type</u>	<u>Data Source</u>	<u>Associated Variables</u>	<u>Description</u>	<u>Publication Year(s)</u>
		Topographic Solar-Radiation Index	This transformation assigns a value of zero to land oriented in a north-northeast direction, (typically the coolest and wettest orientation), and a value of one on the hotter, dryer south-westerly slopes. The result is a continuous variable between 0 - 1	
		Topographic texture [Roughness]	A metric that indicates complexity of an elevations surface within a 3x3 and 27x27 window.	
Soils	Soil Survey Geographic database	Available Water Storage at four depths (0-25cm, 0-50cm, 0-100cm, 0-150cm)	The volume of water that the soil, to a depth of 25, 50, 100, and 150 cm, can store that is available to plants.	2014
		Bedrock Depth		
		Drainage Class: a) dominant condition, b) wettest condition	The natural drainage condition of the soil refers to the frequency and duration of wet periods. A) the dominant drainage class for the unit is based on composition percentage of each map unit component. B) the wettest drainage class is assigned to an individual component of the map unit whose composition in the map unit is equal to or exceeds 15%	
		Flooding Frequency	A) The dominant flood frequency class for the map unit and B) the highest probability class assigned to an individual component of the map unit.	
		Hydric Classification Presence	An indication of the proportion of the map unit that is in the "hydric" class.	
		Irrigated Capability Class: Dominant Condition, and Aggregate Percent.	The broadest category in the land capability classification system for soils. This attribute displays the dominant capability class, under irrigated conditions, for the map unit based on	

<u>Data Type</u>	<u>Data Source</u>	<u>Associated Variables</u>	<u>Description</u>	<u>Publication Year(s)</u>
			composition percentage of all components in the map unit.	
		Non-Irrigated Capability Class: Dominant Condition, and Aggregate Percent	Same as above except under non-irrigated conditions.	
		Ponding Frequency	Percentage of the map unit that is subject to water being ponded on the soil surface.	
		Slope Gradient	Elevation between two points, expressed as a percentage of the distance between those points.	
		Water Table Depth	Annual minimum and April – June minimum	
Sage-grouse habitat	LANDFIRE 2010	Sage brush habitat	Sage brush mapped as present or absent in a 30 meter grid.	2010
	Donnelly (in review), Sage Grouse Initiative	Mesic habitat	<p>Data estimates annual probability of mesic condition (i.e. likelihood of site to provide food resources to sage-grouse during late brood rearing, August-September) within delineated summer habitat sites. Low probability sites are more sensitive to climate variability, productive during periods of higher soil moisture (wet years). Conversely, high probability wetlands indicate increased resiliency during dryer years. Probabilities are assigned to classes as follows: low &lt;5/10 years productive; intermediate = ≥5 to &lt;8/10 years productive; high = ≥8/10 years productive.”</p> <p>TNC included the high and intermediate probability classes in our habitat mapping.</p>	2014

## Appendix 11. Identifying Trends in Agriculture Conversion in Oregon

### DRAFT REPORT

Prepared for the Oregon Sage-Grouse Action Plan

## Identifying Trends in Agriculture Conversion in Oregon

### Introduction

#### *Background*

The Greater sage-grouse (*Centrocercus urophasianus*) inhabits rangelands throughout the western United States. Populations have been declining throughout the west due to habitat loss, predation, and other factors. In 2010, the US Fish and Wildlife Service decided to include the Greater sage-grouse (*Centrocercus urophasianus*) as a candidate for listing under the federal Endangered Species Act.

The State of Oregon is collaborating with federal agencies, non-profit organizations, private agricultural landowners, and other stakeholders in an effort called SageCon to develop an All-Lands, All-Threats Action Plan to help address contributors to sage grouse declines, recover sage-grouse populations, and avoid the need for a listing. The All-Lands, All Threats Action Plan will be submitted to the USFWS for consideration in 2014. A final decision for placing the species under the Act's protection will take place in September 2015.

Conversion of privately owned rangeland to more intensive agricultural use, such as dryland wheat or irrigated crops, has been identified as a threat to the sage grouse in the western US. Anecdotal information provided by staff from the USDA-Natural Resources Conservation Service (NRCS), Oregon Water Resources Department (OWRD), and Oregon Department of Agriculture (ODA), suggested that:

- There was a low risk of rangeland conversion to dryland wheat throughout the sage grouse's range in Oregon.
- There was a low risk of rangeland conversion to irrigated crops in much of the sage grouse's range in Oregon because no new surface water rights were available and there were little to no groundwater resources in these areas.
- There is a greater risk of rangeland conversion to irrigated crops in a portion of southeast Oregon because groundwater rights are available and may be successfully developed to support irrigated crops.

However, it was unknown whether, and at what rate, this type of conversion was occurring on rangelands in Oregon.

### *Purpose*

The purpose of this analysis was to assess and quantify sage-grouse habitat conversion to agriculture use on public and private lands in the range of Greater sage-grouse (*Centrocercus urophasianus*) in Oregon.

The goals of the project were to:

1. Identify trends in sage grouse habitat conversion to agricultural cropland.
2. Examine the rate of conversion of sage grouse habitat from rangeland to agricultural cropland where water rights were issued.
3. Produce a concise report summarizing the analysis and results.

## Methods

### *Analysis area*

The area for analysis included public and private land throughout the SageCon project area. This includes public and private agricultural land throughout central and eastern Oregon identified as sage grouse habitat.

Project area map (placeholder)

### *Description of data and methods used*

We hypothesized that the main type of agricultural land conversion in sage grouse habitat in Oregon would be irrigated cropland. Therefore, we initially thought that an appropriate method to assess rangeland-to-cropland conversion rates would be to examine surface and groundwater rights issued within the SageCon area between 2002 and 2012 and look at the acreages of rangeland converted to irrigated land during the same time frame.

To accomplish this, we downloaded the Oregon Water Resources Department Water Rights database (OWRD, 2013). OWRD has been mapping water rights in a geographic information system (GIS) since 1990. The first pass through at compiling the water rights layers for the state was completed in 1999. OWRD maps all new permits and certificates as they are issued statewide. Any spare time is devoted to cleaning up older rights.

This database includes Place of Use (POU) data as well as Point of Diversion (POD) data. Place of Use refers to the location where the water is beneficially used. For

example, a 50-acre field may be the Place of Use where irrigation water can be beneficially applied according to the irrigator's water right. There may be more than one Place of Use attached to a single water right.

Point of Diversion is the point at which the water for the right is being appropriated from the source for beneficial use. For example, an irrigator may have a specified location where he or she may withdraw water from a river, stream, well, or pond. There may be more than one Point of Diversion attached to a single water right.

We interviewed Bob Harmon, GIS Coordinator at Oregon Water Resources Department, to understand several key characteristics about the data. Bob Harmon provided the following information.

- Water rights go with the POD because the POU can change.
- In a water right, there can be many PODs connected to one POU or vice versa; for example in different years, a POD could be taken from a stream, well, or pond and could be used at different locations.
- If there were multiple uses listed in the POU use\_code\_description, this means there is more than 1 POD for this POU.
- Irrigation District water rights are not mapped. Irrigation District water rights information is available in tabular form on OWRD's home page.
- OWRD does not have location information from the original water rights certificate for some POU. These POU's are mapped in GIS by a less than 1 acre polygon in the center of a quarter-quarter section to show there is a POU somewhere in this quarter-quarter section. A quarter-quarter section is a 40-acre portion of a 640-acre section under the Public Land Survey System.(this is one of the limitations of the WRD data; that we would see fields that were clearly irrigated not overlain by water rights and this is one possible reason why)
- Water rights issued on public lands are not included in the OWRD database.

We clipped the OWRD Place of Use (POU) and the Point of Diversion (POD) data layer to the Sage Grouse boundary that had been buffered 10 miles. We used this 10-mile buffer to ensure inclusion in the analysis of POUs and PODs that might be on the boundary of the Sage Grouse habitat.

We then created a relationship between POD and POU over the five-year periods of interest (2002-2007, 2008-2012). This ensures that all of the PODs and POUs that were associated with the same water right would be displayed for that five-year period. She selected the time period from the POD, then related it to the POU on snp\_id.

We used the POU and POD data to classify agricultural land within the SageCon area. Because some of the POU data only show that there is a POU somewhere in a given section, Diana Walker and Theresa Burcsu decided to classify land as irrigated based on

the presence of a POU in that section. If a section had a POU, then all of the agricultural land in that section was considered irrigated.

We looked at the types of uses in the use\_code\_description attribute field in the POU data. These uses can include agriculture, municipal, From these we further grouped these to “Agriculture” or “Not Ag”. See the WRD\_POU\_UseCode\_Freq table in the filegeodatabase called DataLib.gdb.

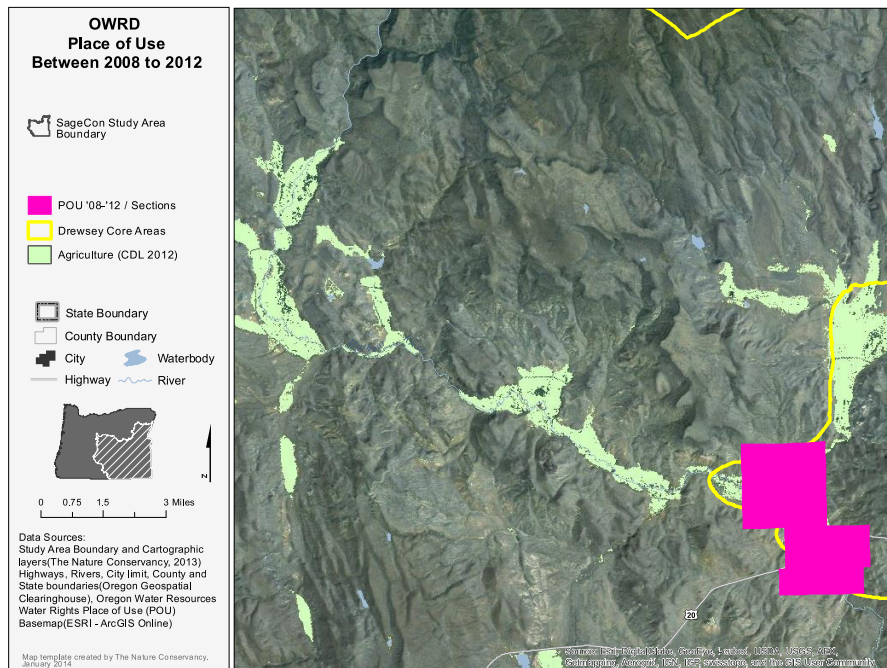
A visual comparison of the sections that were classified “Agriculture” using the POU presence/absence method, with areas that clearly appeared to be in agriculture use in the ESRI World Imagery, showed that the POU presence/absence method missed a lot of land that is being used to grow various crops. In some cases, land not overlain with POU points included fields that appeared to be irrigated with center-pivot sprinklers; in other cases, these lands appeared to be riparian pasture or hayland (Figure 1).

There are several potential reasons that land classified as “Agriculture” using the POU presence/absence method missed land that appeared to be in agricultural use. These include: some riparian pastures and haylands may be naturally wet and do not need supplemental irrigation; some agriculture land is within irrigation districts, and those water rights are not displayed in the POU database; some of the POU data only show that there is a POU somewhere in a given section or quarter-quarter section and does not show where it is actually applied, and because OWRD does not have location information from the original water rights certificate for some POU. In addition, some non-irrigated cropland was observed that would not be reflected in the POU data.

Another challenge was that dates of issuance are not attached to all water rights in the database, so it is difficult to compare land use conversion with water rights that have been recently issued on lands within the SageCon area.

Another challenge was that it is not possible to simply examine the acreages appurtenant to new water rights issued between 2002-2012. This is because the acreages documented in the permit may not be fully developed or may not accurately represent the actual water applied and location.

Figure 1. Close-up example of agricultural land that was not accounted for using the POU presence/absence method.



We then decided to try using the USDA, National Agricultural Statistics Service Oregon Cropland Data Layer (CDL) as an alternative method to more accurately identify and classify agricultural land. The Cropland Data Layer (CDL) is a raster, geo-referenced, crop-specific land cover data layer created annually for the continental United States using moderate resolution satellite imagery and extensive agricultural ground truth. It began as a pilot project in 1997 and was first expanded to Oregon in 2007. 2008 was the first year the CDL was created for the entire continental US.

The purpose of the Cropland Data Layer Program is to use satellite imagery to provide acreage estimates to the Agricultural Statistics Board for the state's major commodities and to produce digital, crop-specific, categorized geo-referenced output products.

The years that are available for Oregon from this site are 2007 to 2012.

This data was downloaded from <http://nassgeodata.gmu.edu/CropScape/>

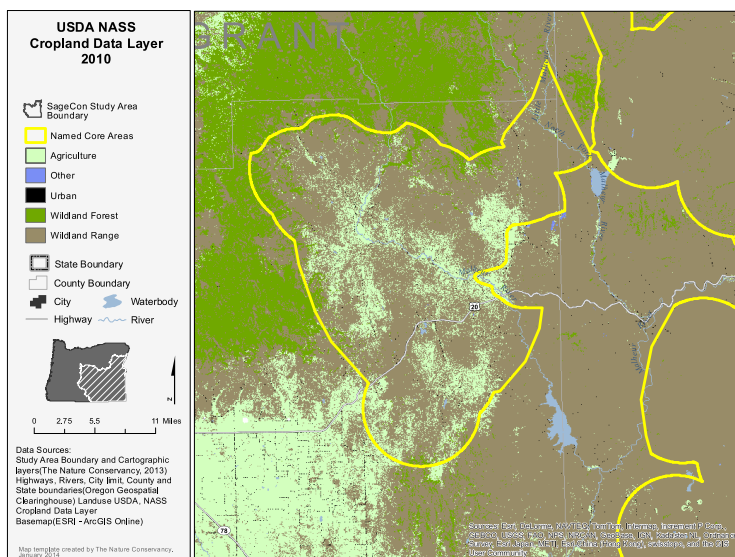
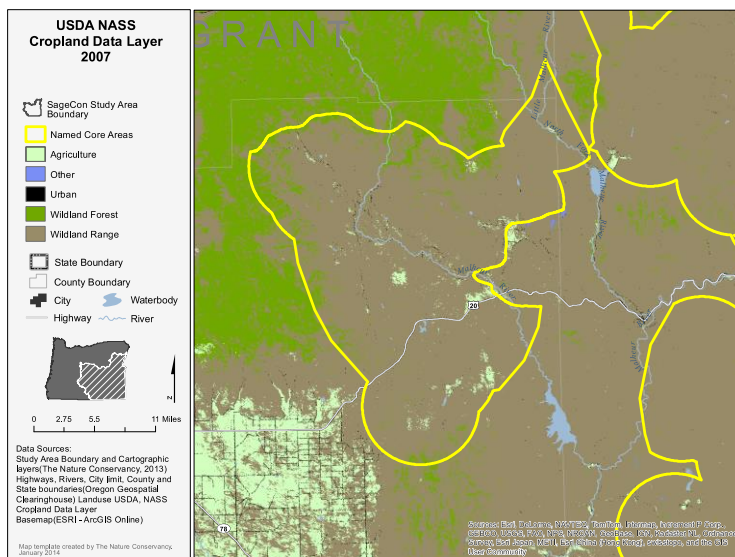
The CDL was clipped down to the SageCon Boundary. The various crops were grouped to the following categories: Agriculture, Other, Urban, Wildland Forest, Wildland Range. Appendix A includes a list of all of the specific land use types that were included in the Agriculture category. These groups are the same groups that the Oregon Department of Forestry used in a GIS land use change analysis called the Forest, Farm and People Analysis. To see how the groups were made, see the document

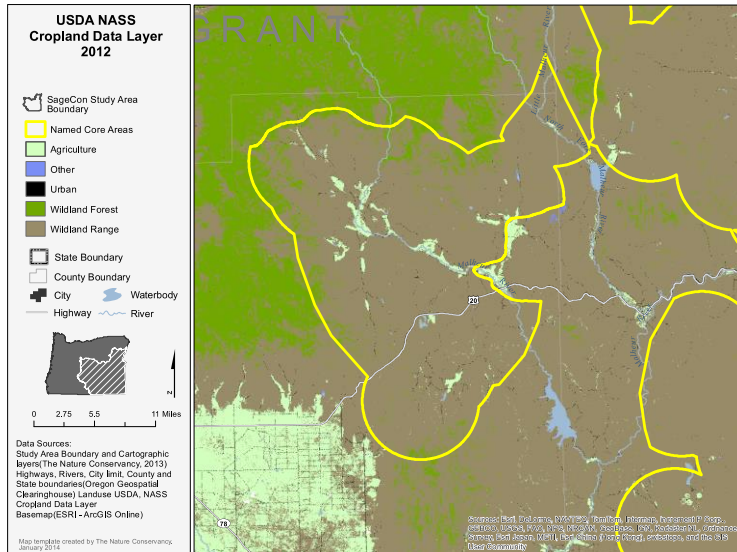


called CDLcategories.xls. There are saved selection expressions in the folder called SelectionExpressions to help do the selections.

Then, the acreages of land classified as “Agriculture” in the SageCon area using the CDL were compared for 2007, 2010, and 2012. This was initially done through visual inspection for the entire SageCon area, to get a general sense of the amount of change that occurred over the 2007-2012 time period and to help verify the results of the quantitative analysis described below. Figures 2, 3, and 4 show examples of an area that was visually inspected for 2007, 2010, and 2012.

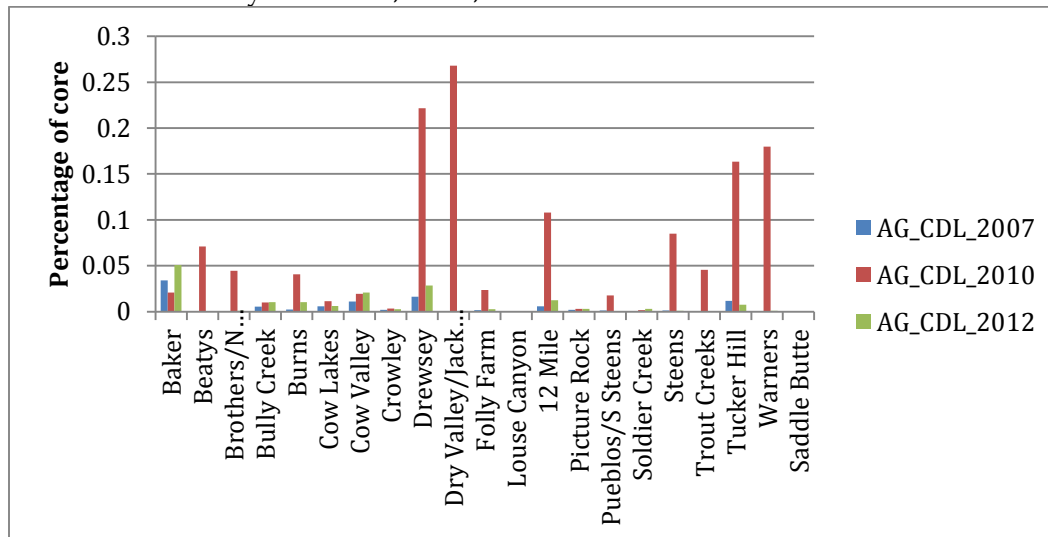
Figures 2, 3, and 4. Examples of the same area displayed in 2007, 2010, and 2012 as viewed by the CDL.





We then used Python scripts to separate out the amount of agricultural land by sage grouse core area for 2007, 2010, and 2012. A graph of the resulting data is shown in Table 1. As the table and figures 2-4 show, the CDL appeared to show much more agricultural land in 2010 than in either 2007 or 2012. This raised concerns about the accuracy of the CDL as a tool for analyzing changes at the core area scale.

Table 1. Graph of CDL data showing the amount of agriculture land in sage grouse core areas in the years 2007, 2010, and 2012.



This layer appeared to be a promising way to analyze changes in agricultural land, but when we attempted to analyze changes in agricultural land at the sage grouse core area level, there were large changes in agricultural land between 2007, 2010 and 2012 that are not supported by other sources of information or staff anecdotal knowledge. We

determined after exploring this option that it would not answer our question regarding rangeland conversion to more intensive agricultural uses.

We also evaluated data layers created by ODF land use classifications as part of its Forest, Farm, and People Analysis. As part of this analysis, ODF studied changes in land use in Oregon over time. The land use classification layers created as part of that analysis were reviewed for possible use in the sage grouse habitat conversion mapping project. However, we were able to observe changes in the USDA-NASS Cropland Data layer over time that were not visible in the ODF land use classification layers.

Finally, we evaluated USDA National Agricultural Statistics Service Census of Agriculture Data. USDA-NASS conducts a census of agriculture every five years and publishes a variety of data at the county level, including acres of land in farms, acres of irrigated land, acres of non-irrigated land, and acreages of a variety of specific crop types.

## Results

The Census of Agriculture data appeared more accurate, and appropriate for use at the county scale. First, we looked at the totals of cropland, irrigated land, and pastureland in each county for the Census years from 1982-2012 (7 Censuses altogether). Figures 5 through 7 show cropland, irrigated land, and pastureland acreage over time.

Figure 5. Total cropland acreage for counties in sage grouse range from 1982-2012 Census of Agriculture data.

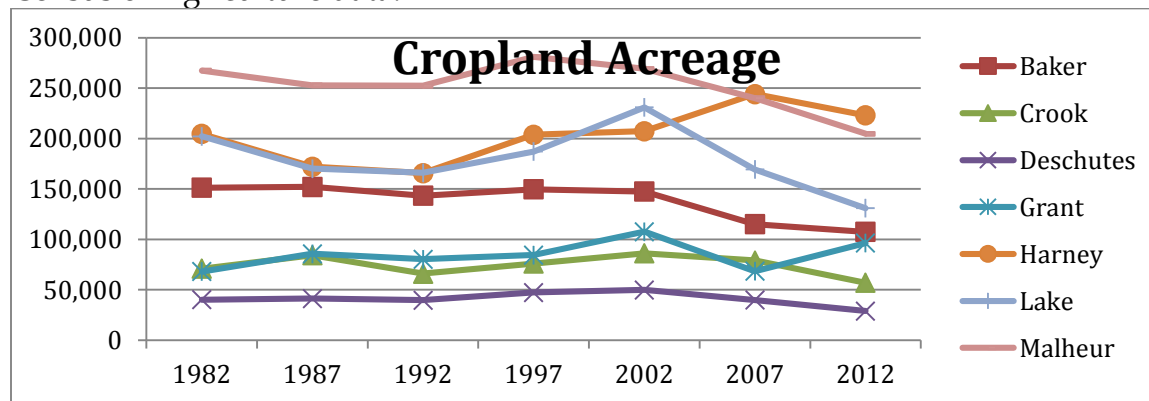


Figure 6. Total irrigated land acreage for counties in sage grouse range from 1982-2012 Census of Agriculture data.

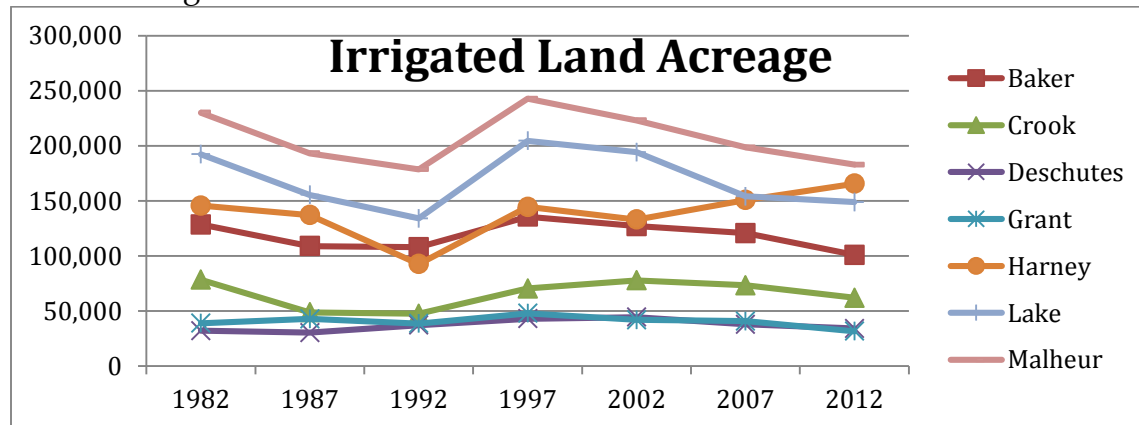
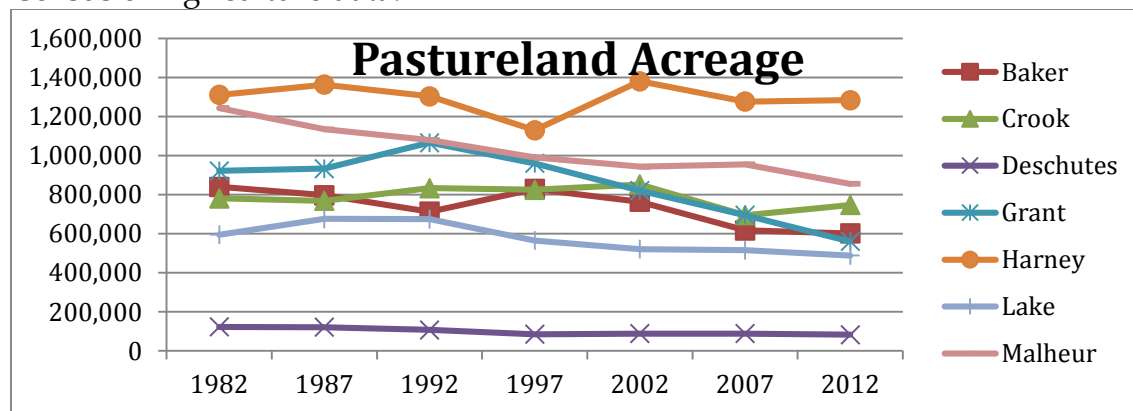


Figure 7. Total pastureland acreage for counties in sage grouse range from 1982-2012 Census of Agriculture data.



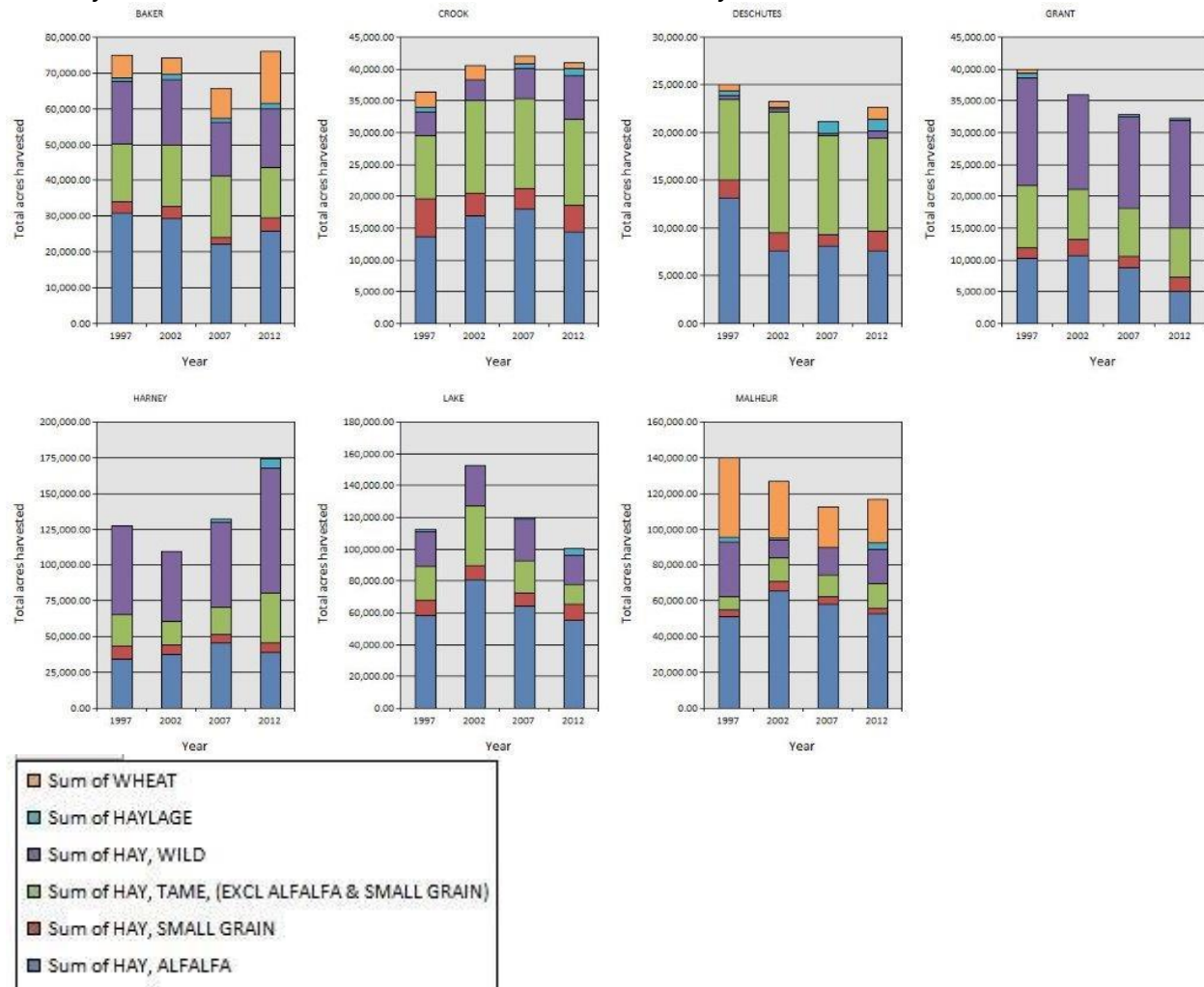
In Harney County between 1982 and 2012, both cropland and irrigated land acreage increased by roughly 20,000 acres. Pastureland acreage in Harney County declined over the same time period by roughly 27,000 acres.

Cropland acreage in Grant County increased by 28,322 acres from the 1982 to 2012 census, while both irrigated land acreage and pastureland acreage declined. Deschutes County had a slight increase in irrigated land acreage over the same time period, while cropland and pastureland acreage both declined significantly.

Significant decreases in cropland, irrigated land, and pastureland acreages were reported over the 1982-2012 time period in Baker, Crook, Lake, and Malheur Counties.

For each county within the sage grouse range, we also graphed the acreages of the dominant crops – wheat, hay grown for haylage, wild hay, tame hay, small grain hay, and alfalfa hay – for the census years 1997, 2002, 2007, and 2012. Results are shown in Figures 8 through 14.

Figures 8 through 14. Graphs of crop acreages in Baker, Crook, Deschutes, Grant, Harney, Lake, and Malheur Counties for the census years 1997, 2002, 2007, and 2012.



## Discussion

Question for reviewers: what do you make of the trends in the Census of Ag graphs? Can we translate any of the results into a level of threat of habitat conversion??

## Potential areas for further work

*POU where land is not being irrigated*

The OWRD POU database shows some water rights that have been issued, but that have not resulted in a conversion of rangeland to irrigated cropland. There are several potential reasons for this. Many of these types of water rights are observed in areas where only groundwater rights, and no surface rights, are available. It is possible that

the landowner attempted to drill a well and was unable to locate water to irrigate the property. It is also possible that the landowner has not attempted to develop the water right. For water rights that have been issued but are obviously not being used, it is very difficult to know how many of these will result in future conversions of rangeland to cropland.

## Conclusions

### *Recommendations for improving the analysis*

Due to time constraints, this analysis looked at change over time in all types of agricultural land across the entire SageCon area. It would be beneficial for future analyses to separate dryland crops from irrigated crops, to verify the general consensus that conversion of rangeland to irrigated cropland is a greater threat to sage grouse than conversion of rangeland to dryland crops. In addition, it would be beneficial to look at changes in agricultural land over time in each of the sage grouse core habitat areas.

### *Limitations of the analysis*

While the analysis shows the amount of conversion of rangeland to agricultural land between 2007-2012, it is difficult to predict the amount of land that will be converted in the future. Many factors will influence the rate of conversion, including availability of surface and groundwater rights, landowners' success or failure to develop wells at groundwater right locations, and prices and demand for crops that can be grown within the SageCon area.

The data available for examining trends in agriculture and their relationship to sage-grouse habitat presented a number of challenges. Water rights, while mapped, are mapped for different purposes and were not conducive to spatial threat analyses in which the desired product is the amount and location of overlap between water rights features, agriculture development, and sage-grouse habitat. Likewise, efforts to spatially map agriculture, such as the CDL, while robust for capturing broader spatial patterns and trends, are sensitive to annual variation in agriculture practices in response to local markets, conditions, weather patterns, economic patterns, etc. Finally, Census of Agriculture Data showed promise for illuminating trends, but was not spatial.

### *Application of the analysis*

This analysis informed stakeholder discussion about the threat of agriculture to sage-grouse by providing a wide array of information about the recent history of agriculture in Oregon. By providing stakeholders with analyses about the types of agriculture data that are commonly available, they were able to decide that they wanted to examine



more complex products. Issues and concerns expressed with the data analyzed included:

- were too broad in scale or scope (the finest resolution data was the Census of Agriculture Data)
- were difficult to interpret due to year-to-year variation
- concerns were voiced by stakeholders about the reliability of the responses received by the NASS.

Further analyses might help to align the data sets used and paint a more complete picture of the agriculture landscape, but were not implemented due to lack of stakeholder support.

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Appendix A. Cropland data layer categories that were classified as “Agriculture” for the purposes of the analyses described in this report.

VALUE	CLASS_NAME	VALUE	CLASS_NAME
0	Background	49	Onions
1	Corn	50	Cucumbers
2	Cotton	51	Chick Peas
3	Rice	52	Lentils
4	Sorghum	53	Peas
5	Soybeans	54	Tomatoes
6	Sunflower	55	Caneberries
10	Peanuts	56	Hops
11	Tobacco	57	Herbs
12	Sweet Corn	58	Clover/Wildflowers
13	Pop or Orn Corn	59	Sod/Grass Seed
14	Mint	60	Switchgrass
21	Barley	61	Fallow/Idle Cropland
22	Durum Wheat	62	Pasture/Grass
23	Spring Wheat	63	Forest
24	Winter Wheat	64	Shrubland
25	Other Small Grains	65	Barren
26	DbI Crop WinWht/Soybeans	66	Cherries
27	Rye	67	Peaches
28	Oats	68	Apples
29	Millet	69	Grapes
30	Speltz	70	Christmas Trees
31	Canola	71	Other Tree Crops
32	Flaxseed	72	Citrus
33	Safflower	74	Pecans
34	Rape Seed	75	Almonds
35	Mustard	76	Walnuts
36	Alfalfa	77	Pears
37	Other Hay/Non Alfalfa	81	Clouds/No Data
38	Camelina	82	Developed
39	Buckwheat	83	Water
41	Sugarbeets	87	Wetlands
42	Dry Beans	88	Nonag/Undefined
43	Potatoes	92	Aquaculture
44	Other Crops	111	Open Water
45	Sugarcane	112	Perennial Ice/Snow
46	Sweet Potatoes	121	Developed/Open Space
47	Misc Veggies & Fruits	122	Developed/Low Intensity
48	Watermelons	123	Developed/Med Intensity

# D R A F T

VALUE	CLASS_NAME	VALUE	CLASS_NAME
124	Developed/High Intensity	236	Dbl Crop WinWht/Sorghum
129		237	Dbl Crop Barley/Corn
130		238	Dbl Crop WinWht/Cotton
131	Barren	239	Dbl Crop Soybeans/Cotton
141	Deciduous Forest	240	Dbl Crop Soybeans/Oats
142	Evergreen Forest	241	Dbl Crop Corn/Soybeans
143	Mixed Forest	242	Blueberries
152	Shrubland	243	Cabbage
171	Grassland Herbaceous	244	Cauliflower
181	Pasture/Hay	245	Celery
190	Woody Wetlands	246	Radishes
195	Herbaceous Wetlands	247	Turnips
204	Pistachios	248	Eggplants
205	Triticale	249	Gourds
206	Carrots	250	Cranberries
207	Asparagus	254	Dbl Crop Barley/Soybeans
208	Garlic		
209	Cantaloupes		
210	Prunes		
211	Olives		
212	Oranges		
213	Honeydew Melons		
214	Broccoli		
216	Peppers		
217	Pomegranates		
218	Nectarines		
219	Greens		
220	Plums		
221	Strawberries		
222	Squash		
223	Apricots		
224	Vetch		
225	Dbl Crop WinWht/Corn		
226	Dbl Crop Oats/Corn		
227	Lettuce		
229	Pumpkins		
230	Dbl Crop Lettuce/Durum Wht		
231	Dbl Crop Lettuce/Cantaloupe		
232	Dbl Crop Lettuce/Cotton		
233	Dbl Crop Lettuce/Barley		
234	Dbl Crop Durum Wht/Sorghum		
235	Dbl Crop Barley/Sorghum		

## Appendix 12. Renewable Energy Potential

### Initial Feasibility Assessment of Renewable Energy Development Within Greater Sage Grouse Habitat in Oregon

January 29, 2014

Revised: August 3, 2015

Analysis version: 20140129\_V2

#### Background

To assist in the decision making process for addressing development in sage-grouse habitat, Oregon Department of Energy with energy –related stakeholders and Oregon Department of Fish and Wildlife, examined the potential for renewable energy development in sage-grouse habitat in Oregon. ODOE worked with the energy-related stakeholders from the SageCon Partnership, including Renewable Northwest Project and others, to identify criteria useful for identifying areas where renewable energy development is *feasible* assuming the current state of technology and static broad-scale regulatory conditions. Spatial data inputs were compiled and analyzed in ArcGIS. The criteria were used to compile spatial layers representing feasible areas for development of wind, solar, and geothermal energy resources (Table 1).

#### Initial Feasibility Inputs

The following data sets and criteria were used to determine the amount of overlap between potential renewable energy development and sage grouse habitat.

**Table 1. Datasets used to develop maps where renewable energy development was considered feasible.**

Dataset	Source	Criteria
Sage Grouse Habitat	ODFW	<ul style="list-style-type: none"><li>▪ BLM Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) for wind analysis.</li><li>▪ Include both core areas and low density areas for solar and geothermal analyses.</li></ul>
Transmission lines	Platts	<ul style="list-style-type: none"><li>▪ Group transmission lines into capacity classes specific to the energy resource type. Please refer to “wind resources” and “solar resources” for more information.</li></ul>
Wind Resources	NREL	<p>1) Low capacity (69 - 115 kv) transmission lines:</p> <ul style="list-style-type: none"><li>▪ Areas with WPC <math>\geq 3</math> at 50 m above ground</li><li>▪ Areas with <math>&lt;30\%</math> slope</li><li>▪ Areas within 5 miles of 69 – 115 kv transmission lines</li></ul> <p>2) Moderate capacity (115 - 138 kv) transmission lines:</p> <ul style="list-style-type: none"><li>▪ Areas with WPC <math>\geq 3</math> at 50 m above ground</li><li>▪ Areas with <math>&lt;30\%</math> slope</li><li>▪ Areas within 10 miles of 115 - 138 kv transmission lines</li></ul>

Dataset	Source	Criteria
		3) High capacity (220 kv) transmission lines: <ul style="list-style-type: none"> <li>Areas with WPC <math>\geq 3</math> at 50 m above ground</li> <li>Areas with <math>&lt;30\%</math> slope</li> <li>Areas within 20 miles of <math>\geq 220</math> kv transmission lines</li> </ul>
Solar Resources	NREL	<ul style="list-style-type: none"> <li>Select transmission line capacity <math>\geq 69</math>kv (incl. potential lines)</li> <li>Eliminate areas with a Direct Normal Irradiance (DNI) of <math>&lt;5</math> kwh /m<sup>2</sup> / day and slopes <math>&gt;3\%</math></li> <li>Distance from transmission lines = 20 and 40 miles</li> </ul>
Geothermal Resources	WREZ geothermal resources, DOGAMI wells	<ul style="list-style-type: none"> <li>Include Western Renewable Energy Zones (WREZ) wells that represent known, quantifiable resources.</li> <li>Include DOGAMI wells <math>&gt;180</math> deg F.</li> <li>Eliminate slopes <math>&gt;5\%</math></li> <li>Transmission line capacity <math>\geq 115</math>kv (incl. potential lines)</li> <li>Distance from transmission lines = 20 and = 40 miles</li> </ul>

## Results

Wind: 488,616 acres of overlap between sage-grouse habitat and feasible wind energy development areas (core = 230,679 acres, low density = 158,114 acres, BLM currently occupied habitat = 99,823 acres; Figure 1). The majority of the potential overlap area is located in the southern half of the Sage Grouse habitat boundary. There are 412,299 acres feasible for wind energy development that fall outside Sage Grouse habitat (within 10 miles of analysis area boundary).

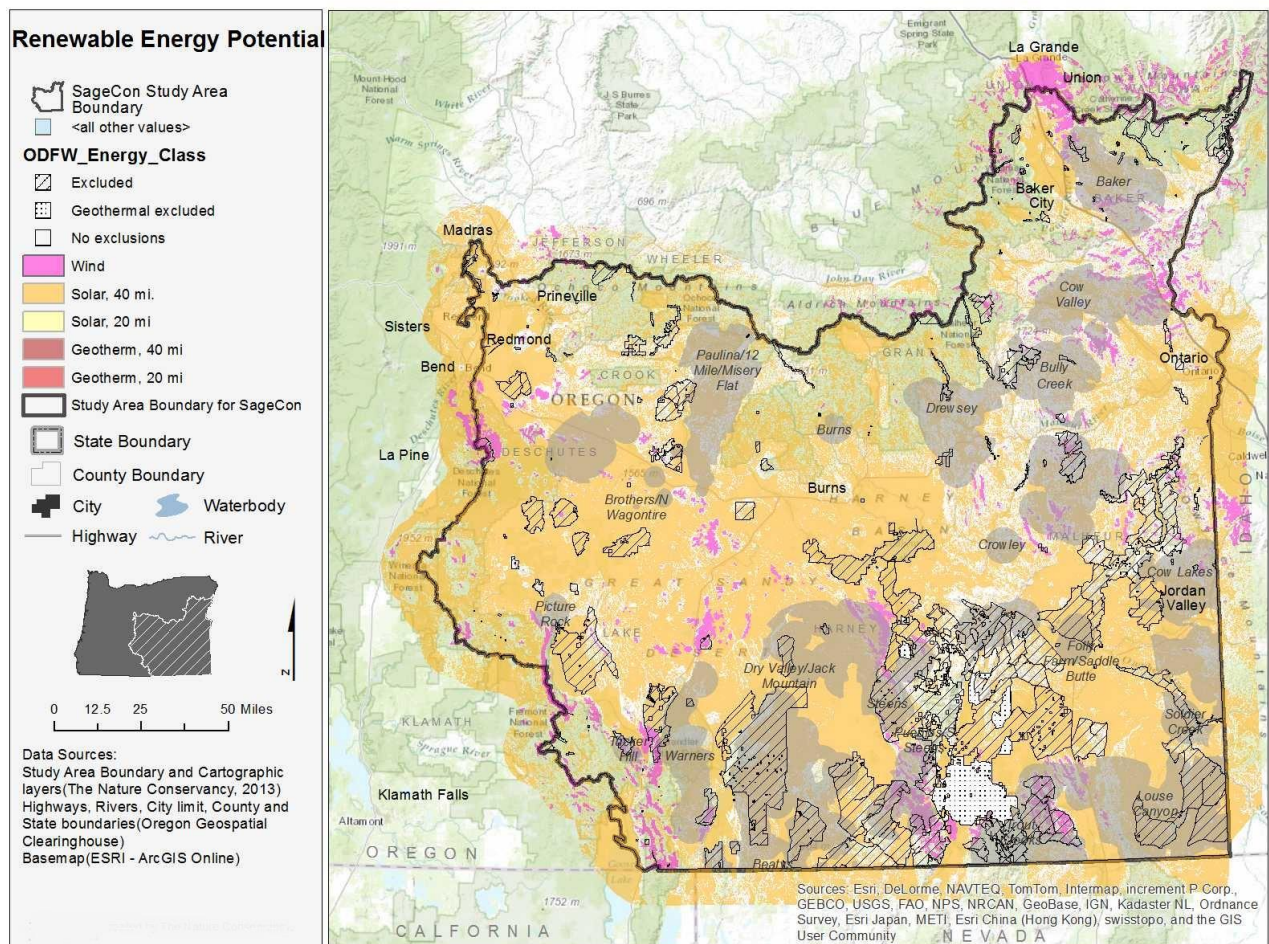
Solar: 3,952,201 acres of potential overlap between sage-grouse habitat and feasible solar energy development areas (Figure 1). The majority of the land within the Sage Grouse habitat boundary was identified as feasible for solar development. This creates both a high potential for overlap as well as the flexibility to avoid habitat.

Geothermal: 59 acres of potential overlap between sage-grouse habitat and feasible geothermal energy development areas (Figures 1 and 2). There were only two identified wells where geothermal development could impact sage grouse habitat.

## Discussion

The analysis suggested that the total land area feasible for solar development is much greater than the total land area feasible for wind and geothermal. Land area considered feasible for geothermal development is very small and likely influenced by the use of datasets representing existing, known, and quantifiable resources. These datasets reflect existing and abandoned developed resources or proposed developments as opposed to overall environmental potential for geothermal energy development. For a broader depiction of land areas with potential for geothermal development, please refer to the BLM Final Programmatic Environmental Impact State for Geothermal Leasing in the Western US (2008; [http://www.blm.gov/wo/st/en/prog/energy/geothermal/geothermal\\_nationwide.html](http://www.blm.gov/wo/st/en/prog/energy/geothermal/geothermal_nationwide.html)). Wind energy development feasibility was largely driven by the somewhat more restrictive combination of topographic and distance-to-transmission-line criteria used relative to the analysis of solar resources. Large expanses of relatively flat and open landscape also contribute to the widespread development feasibility of solar resources.

**Figure 1. Feasible areas for renewable energy development were constructed for the Oregon sage-grouse planning area to support decision making and planning related to sage-grouse.**

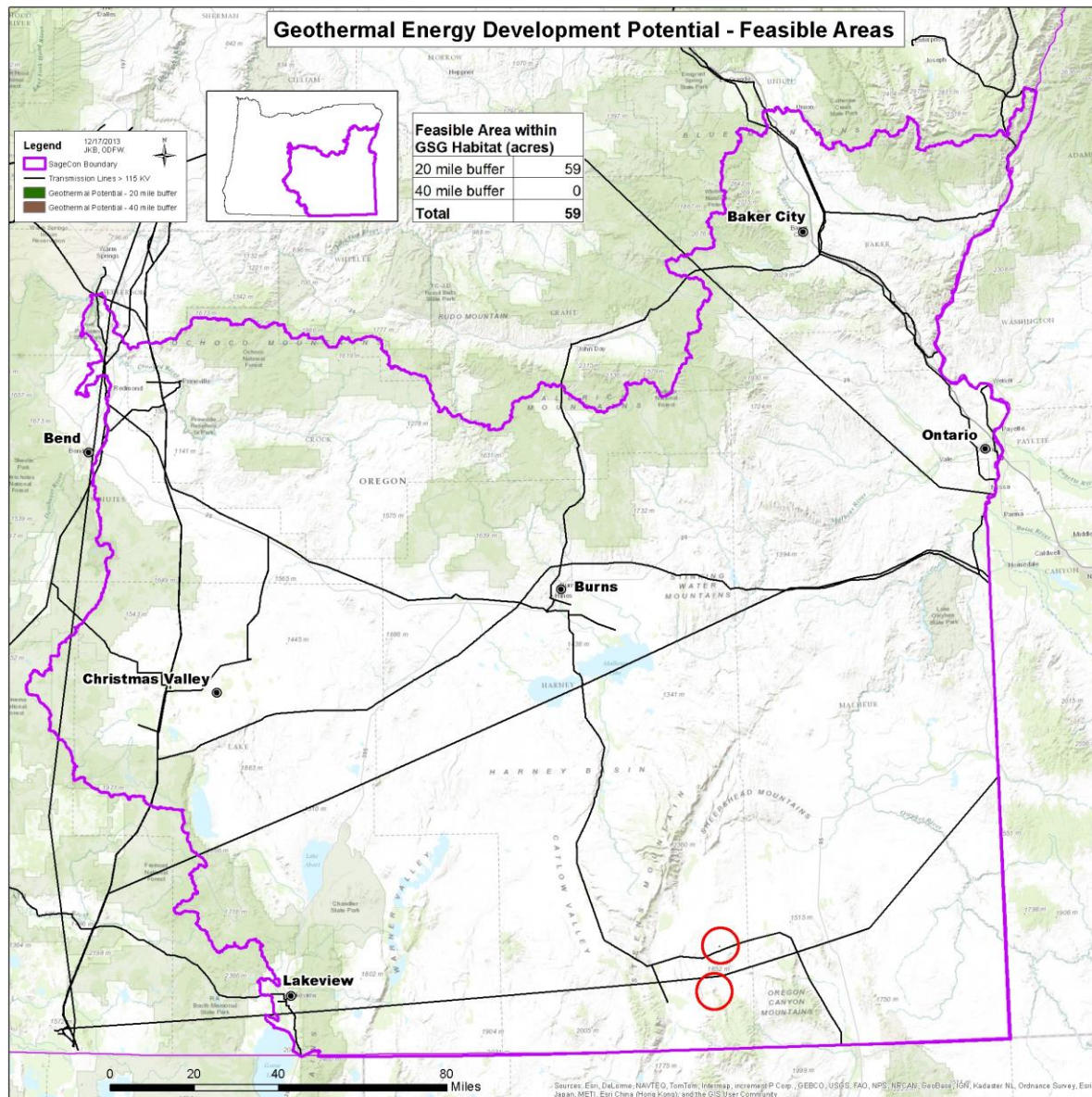


Several questions were raised that warrant additional examination should this preliminary analysis be expanded. These questions include:

- Is the wind class threshold correct? Should it be modified given developing technologies and industry drivers?
- Has the analysis appropriately captured the scale of current projects?
- Is the distance from transmission lines reasonable? Should it be modified?
- Can existing transmission line capacity data be obtained? Where are tie-in locations? Where is additional capacity likely to be developed in the future?
- What are the temporary (i.e., construction) and permanent footprint/uses associated with development?
- What are the general concerns around the avoidance and mitigation considerations for siting in and around sage grouse habitat?
- How is the BLM handling energy development in Oregon and other western states?
- Are there other factors that should be considered in the analysis?



**Figure 2. Geothermal resources revealed by this analysis were very limited. Areas identified as feasible for geothermal energy development are circled in red. The veracity of several transmission lines depicted in this map were questioned by reviewers of the data and present a source of error in the final feasibility layers that incorporated them. The lines were typically identified as proposed and their quality was described as “unverified within 1 mile.”**



The above questions suggest several potential refinements for future work such as:

Evaluate transmission line capacity: No evaluation has been done to determine if there is capacity for additional tie in with any of the identified transmission lines.

Include ID, NV & CA transmission lines: Transmission lines have been clipped to the Oregon state boundary. Transmission lines that exist near the border of Idaho or Nevada could influence the potential for energy development within Oregon sage grouse habitat.

Utilize finer resolution criteria and datasets: Increased resolution of the datasets could eliminate additional areas of overlap based on slope and orientation.

Factor in areas where development is excluded: Federal, state and local renewable energy development exclusion areas (e.g., protected land) could be used to reduce the land area with potential for renewable energy development. This may result in a smaller area of overlap between potentially developable areas and sage-grouse habitat.

Account for project size / configuration needs: Some areas identified through this analysis may be insufficient in size for the development of a full scale wind, solar or geothermal project. A minimum project area (by type) could be identified in order to address this limitation.

Include more specificity in the criteria used to define feasibility: This analysis was undertaken to broadly identify where existing sage-grouse habitat overlaps with areas considered feasible for renewable energy development based on environmental conditions and proximity to resources and infrastructure. The results indicated areas of potential conflict for sage-grouse and energy development. The analysis did not consider indirect impacts of energy development to sage-grouse. Indirect effects distances vary considerably among the types of human disturbances that accompany renewable energy projects. Consideration of the various indirect effects distances has the potential to change the spatial distribution of areas feasibility for renewable energy development by increasing the amount of overlap between energy development areas and sage-grouse habitat.

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## Appendix 13. Renewable Energy Market Potential

### Briefing Paper for the SageCon Partners Estimates of Oregon Renewable Development through 2025

Phil Carver, Oregon Dept. of Energy  
January 22, 2014

#### **Summary**

This paper discusses likely Oregon wind, geothermal and solar development through 2025 at the megawatt (MW) and larger scale in rural Oregon.

Wind development from 2014 through 2020 is likely to be minimal if the federal production tax credit (PTC) is not extended.

If the PTC were extended through 2019, PacifiCorp and Portland General Electric (PGE) might develop a few hundred MW of wind in Oregon ahead of their renewable portfolio standard (RPS) compliance requirements for post-2020. If so, this question would be discussed before the Oregon Public Utility Commission in the two integrated resource plan (IRP) dockets in 2016 or 2017.

Through 2020 Oregon utilities have built projects sufficient to comply with the solar photovoltaic (PV) capacity standard under ORS 757.370, with the exception of 0.5 MW for Idaho Power. Further utility-scale projects are unlikely before 2020, absent changes in state laws. Some relatively small new geothermal projects are possible before the end of 2020.

Post-2020 the crystal ball becomes cloudier. Emerging geothermal and PV technologies could become commercial and make these technologies cost-competitive with power from natural gas. Material improvements in wind technology are also possible. The historical unpredictability of natural gas prices will likely re-emerge before 2020. Natural gas prices are likely to be higher than current levels, but no one knows how high.

Federal policies will also influence renewable development. Federal energy and carbon policies are hard to predict even a year into the future. Oregon policies will also change. The plausible range of Oregon wind, geothermal and solar development from 2020 to 2030 is from nearly zero up to a thousand MW for each resource.

#### **Wind**

##### Through 2020

The federal PTC credit for new projects ended Dec. 31, 2013. Only wind projects that began construction by the end of 2013 will get the PTC unless Congress extends it. Loss of the credit (\$23 per megawatt-hour (MWh) or 2.3 cents per kilowatt-hour for 10 years) adds more than 25 percent to the cost of building wind projects. Without the credit, the cost of wind, relative to new natural gas-fired power plants, could be high enough to lead to a reexamination of the RPS. The cost comparison between new wind and gas-fired plants is uncertain because the price of natural gas over the next 20 years is uncertain.

As an example, PacifiCorp's 2013 IRP expects that even if the PTC is extended beyond the end of this year and set at its current level, new wind power plants will cost almost 30 percent more than power from a natural gas plant, based on the utility's gas price forecast and the kind of wind it modeled. Given its expectation that the PTC will not be extended, and with the banked renewable energy credits it already

has for compliance with RPS requirements in Oregon, California and Washington, it plans no new wind or other renewable resources in Oregon until 2024.

If the PTC is extended, some new wind in Oregon is possible by 2020. Under a scenario in PacifiCorp's integrated resource plan where the PTC is extended to 2019 and then repealed, the company's optimization model picks 682 MW of wind (across its six-state system) during 2016-2019 to reduce PacifiCorp's cost of compliance with renewable portfolio standards (RPS) in Oregon and Washington post-2020 (scenario S-6). Under this scenario PacifiCorp would be building wind ahead of the date needed for RPS compliance to take advantage of the expiring PTC. While these possible wind acquisitions might be in Oregon, it is more likely they would be in Utah or Wyoming.

PGE would be in a similar situation in this scenario. If it built ahead of need, the amount would be less than for PacifiCorp. The likely locations would be Oregon or Washington. Assuming PTC extension, this issue would be discussed in the separate IRP proceedings for PGE and PacifiCorp in 2016 or 2017.

In the past, the output of some wind projects has been sold to Oregon utilities under Section 210 of the federal Public Utilities Regulatory Policy Act (PURPA) of 1978. PacifiCorp, Idaho Power and PGE plan to reduce their PURPA prices in the coming months due to reduced need for new resources to serve loads. If approved by the Oregon Public Utility Commission, this reduction would make new wind PURPA projects unlikely prior to 2020.

There are more than 1,200 MW of wind projects in Oregon dedicated to meet the California RPS. To qualify for the Category One tier under the California RPS today, eligible renewable energy must be delivered to a California balancing authority without substitution or through dynamic scheduling. Both methods require firm transmission capacity be assigned to the new wind project.

Given the constraints on transmission capacity from Oregon to California, it seems unlikely that major new wind projects will be built for export south, absent transmission upgrades. An August 2013 California PUC compliance report noted: "very few out-of-state power purchases are expected to qualify as Category One [RPS resources]."<sup>1</sup> All of the exceptions noted were from Nevada and Arizona.

There is about 140 MW of transmission capacity dedicated towards the export of power from the Boardman Coal Plant to California. This capacity will be freed up by the closure of the plant no later than the end of 2020. Some of this capacity has already been returned to PGE and might be used to export new wind projects to California, even before 2020.

It seems unlikely that wind projects would be built to serve out-of-state RPS markets other than in California, given lower RPS requirements in these states and the tendency to build in-state.

It is interesting to note that six large wind projects are under review in the Oregon Energy Facility Siting Council process. Two other wind projects with site certificates have not yet begun construction. (for the list and links to where these projects are in the process see: <http://www.oregon.gov/energy/Siting/Pages/Facilities.aspx>). If there is wind development in Oregon before 2020, it would likely come from these eight projects.

#### 2021 through 2025

Land-based wind technology is relatively mature compared to solar and geothermal technologies. Still cost per installed kilowatt (kW) continues to decline. In recent years annual capacity factors in less robust wind regimes have improved (see <http://emp.lbl.gov/sites/all/files/lbnl-6356e-ppt.pdf>). Similar

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<sup>1</sup> Slide 21 of <http://www.nwcouncil.org/media/6877054/B-Monsen-NWPCC-Presentation-2013-09-05.pdf>

improvements may continue. The larger uncertainties with wind project development are natural gas prices and state and federal policies.

In 2020 the Oregon RPS for PGE and PacifiCorp goes from 15 percent of retail electricity sales to 20 percent. In 2025 it goes to 25 percent and holds steady. According to its 2013 IRP, PacifiCorp sees little need for wind or other large generating resources before 2024. PGE released its draft IRP at the end of November. The IRP indicates a need for additional renewable resources shortly after 2020.

The 5 percent increment for the RPS added in 2020 for PacifiCorp and PGE would require 550 to 600 MW of new wind, depending on load growth. Not all of this capacity would be built in Oregon and not all of the Oregon projects would be within the sage grouse planning area.

Some Oregon consumer-owned utilities (COUs) might need additional renewable resources post-2020. This could occur if they fall under the “large” utility standard under ORS 469A.052 or if they are created from or expand into the service area of an electric company without the consent of the electric company. The possible amount ranges from zero to as much as 50 MW of new wind. A Bonneville Power Administration analysis of Oct. 24, 2013 indicates that, outside these circumstances, Oregon COUs will be able to satisfy Oregon RPS requirements through 2028 with the renewable energy certificates they will receive for Bonneville hydro efficiency upgrades.

California’s RPS holds steady at 33 percent of sales from 2020 onwards. Even so, California utilities that are subject to the RPS will need to meet the requirements associated with load growth. Post-2020 expansion of the interties connecting Oregon and California is possible, especially for the direct current (DC) line from Celilo to Sylmar. That event could trigger additional renewable resource development in Oregon to meet incremental California RPS requirements.

## **Geothermal**

### Through 2020

The Neal Hot Springs geothermal project (near Vale, Oregon) was completed in 2012. It sells about 22 average MW to Idaho Power (25 MW nameplate). Geothermal power can be cost-competitive with natural gas power even without state or federal tax credits, depending on the quality of the resource. There are about 35 MW (nameplate) of geothermal projects under development in Oregon, not including the exploratory research at the Newberry Volcano by Alta Rock Energy, which is discussed below.

PGE and PacifiCorp are also open to good deals on geothermal projects by independent developers. It is difficult for utilities to recover the costs associated with dry holes, so they generally rely on independent developers.

### 2021 through 2025

The technology being developed by Alta Rock Energy holds great promise. If successful, it will avoid most dry-hole risk by injecting water into dry hot rocks. This technology has passed one major hurdle, with several ahead. If commercialized by 2020, it could open Oregon to many hundreds of MW of geothermal development from 2020 to 2030. Geothermal power that is cost-competitive with natural gas power could then be used to meet the RPS, serve load growth by Oregon utilities or replace power from coal plants that shut down.

PGE is committed to shut down the Boardman coal plant by 2020. The Centralia coal plant in Washington also has a planned closure by 2020. PacifiCorp and Idaho Power are considering shutting down some of their coal plants. The Environmental Protection Agency is developing rules for reducing carbon from existing power plants, with draft rules planned for June 2014. It is too early to tell what effect such rules may have on the other coal plants owned by Oregon utilities. Federal legislation to enact

a cap-and-trade system for greenhouse gases or a carbon tax, if passed, would likely induce multiple coal plant shut-downs. Geothermal, wind or solar projects could replace part of the hundreds of MWs that these coal plants currently provide to Oregon.

## **Solar**

### Through 2020

ORS 757.370 requires PGE, PacifiCorp and Idaho Power to develop 20 MW of PV power by 2020. Their requirements are 10.9, 8.7 and 0.5 MW, respectively. Projects must be between 0.5 and 5 MW. For scale, a 5 MW project covers about 50 acres.

PGE and PacifiCorp have satisfied their PV capacity requirements. Idaho Power will likely satisfy its 0.5 MW requirement before 2016. Given the relatively high cost of PV power, not much beyond these amounts can be expected before 2021, absent changes in state or federal policies.

### 2021 through 2025

Post-2020 there is an emerging solar PV technology (perovskite) that could make new solar cost-competitive with new natural gas power, even absent federal or state tax credits. If so, many hundreds of MW of utility-scale solar projects could be built. These could be projects built to meet the RPS, serve load growth or replace power from existing coal plants.

This PV technology will need more laboratory development and commercialization before major deployment. This process will require a minimum of seven years and could take longer. There are also challenges related to the balance of system costs (other than the PV cells), electricity transmission and integration of the variable PV output. If these challenges are overcome, there could be several hundreds of MW of PV developed in Oregon during 2021-2025.

## **Drivers That May Affect Future Wind, Solar and Geothermal Development**

The expiration of the wind PTC will end all possibility of new wind projects in Oregon before 2020 if it is not reversed in Congress. The wind industry is still optimistic that Congress will extend the PTC after a short hiatus as it has several times in the past. Congress might also enact other kinds of tax credits or other incentives for renewable power in the years ahead.

An unexpected rise in natural gas prices could make wind economic relative to natural gas power plants even without the PTC. Based on estimates in the PacifiCorp IRP for less robust wind regimes with the PTC, equivalence with wind occurs at natural gas prices of roughly \$8 per million British thermal units (MMBtu). Most forecasters expect gas prices in the range of \$4 to \$6 in 2020 (in dollars of constant 2013 buying power). This assumes a PTC of \$23 per MWh for the first ten years of operation. With the same assumptions about wind cost and performance, but without the PTC, the natural gas price would need to be around \$11 per MMBtu. While possible, that price seems unlikely.

Alternatively, there could be a federal price on CO<sub>2</sub> emissions through a carbon tax or a cap-and-trade program. A price on carbon emissions has two effects on natural gas prices. One effect is related to the carbon content of natural gas fuel. A carbon tax of \$30 per short ton of CO<sub>2</sub> would directly add \$1.77 per MMBtu to the price of natural gas. In addition, a tax at this level or above would lead to the shutdown of most or all of the coal-fired power plants in the western U.S. This would increase the demand for natural gas used to generate electricity which would further boost the natural gas price.

If the U.S. were to impose a price on carbon emissions, it could raise natural gas prices enough to make wind and other renewable resources economic relative to new gas-fired power plants. It is unlikely that a carbon price high enough to have this effect will be in place before 2025. Still, a policy that locked in a gradual increase in the carbon price resulting in \$100 per ton of CO<sub>2</sub> by 2030 would likely spur major

renewable development in Oregon for the 2020 to 2030 period. At that price it would be cost-effective to replace existing coal-fired power with new wind power even without a PTC.

New transmission projects could enable export of wind or other Oregon renewables to meet the California RPS. Early indicators of new transmission would be planning studies by the Western Electricity Coordination Council or by regional transmission groups such as the Northern Tier Transmission Group or Columbia Grid.

As noted above there are several technology developments that could make geothermal or PV power cost-competitive with natural gas power plants post-2020 at projected natural gas prices, even without government incentives or new carbon policies.

## Appendix 14. Habitat Connectivity

This appendix presents the full text of the report: Mapping Habitat Connectivity for Greater Sage-Grouse in Oregon's Sage-Grouse Conservation Partnership (SageCon) Assessment Area. This analysis was produced by The Nature Conservancy (Portland Oregon) in 2015 in partial fulfillment of BLM Cooperative Agreement L12AC20615. Sage-grouse habitat connectivity was analyzed in the SageCon Assessment Area of southeastern and central Oregon to help inform sage-grouse habitat conservation and restoration priorities with respect to habitat connectivity between leks.





**MAPPING HABITAT CONNECTIVITY FOR GREATER SAGE-GROUSE  
IN OREGON'S SAGE-GROUSE CONSERVATION PARTNERSHIP (SAGECON)  
ASSESSMENT AREA**

FINAL REPORT TO THE **BUREAU OF LAND MANAGEMENT**  
IN PARTIAL FULFILLMENT OF COOPERATIVE AGREEMENT L12AC20615

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Cover photo: Tatiana Gettelman

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## PROJECT RATIONALE AND OBJECTIVES

The Greater sage-grouse (*Centrocercus urophasianus*, hereinafter referred to as “sage-grouse”) is regarded as a focal species for conservation of sagebrush steppe and Great Basin sagebrush communities due in part to its broad range, its selection for habitat across multiple scales, and the wide-spread conversion, degradation, and fragmentation of this habitat. Habitat connectivity – the extent to which a landscape allows for movements of a species between vital resources, breeding locations, or among populations – is important to the survival of individuals, the maintenance of genetic diversity, and the long-term persistence of metapopulations. To support genetic exchange for long-term population viability, there is a recognized need to facilitate range-wide sage-grouse movement between Primary Areas for Conservation (PACs, USFWS 2013; also referred to as “core areas” by Hagen, 2011) and areas of  $\geq 75\%$  Breeding Bird Densities (“BBD areas”, Doherty et al. 2010).

In support of the Sage-Grouse Conservation Partnership (SageCon) in its development of a comprehensive plan for maintaining and improving sage-grouse populations and habitats in Oregon and to provide the Bureau of Land Management (BLM) with data products for related project-level planning and analysis, The Nature Conservancy analyzed sage-grouse habitat connectivity in the SageCon Assessment Area of southeastern and central Oregon (Fig. 1). The study was initiated to help inform sage-grouse habitat conservation and restoration priorities in light of the need to preserve, enhance, and/or restore habitat connectivity between leks and lek complexes. The Advisory Team of sage-grouse biologists was identified early in the process to guide model design and development as well as to review and interpret model outputs.

### Analytical Approach

The primary goal for mapping habitat connectivity was the identification of areas important to sage-grouse movement between core areas and leks in the intervening landscape mosaic. Our approach involved the following general steps: 1) model the area surrounding each target lek to describe its relative accessibility for a female sage-grouse moving away from the lek; 2) identify the lower cost *linkage zones* between each pair of leks based on landscape structure; 3) within the lower cost linkage zones, locate areas where movement of sage-grouse across linkages may be constrained; and 4) within the lower cost linkage zones, identify specific areas of fragmentation which may provide habitat restoration opportunities.

To implement our analyses we leveraged four existing modeling tools that have been applied and tested in similar studies of habitat connectivity: 1) the Conservation Assessment and Prioritization System (CAPS) Traversability metric R script (Compton 2014) and resistant kernel method as detailed in McGarigal et al. (2012); 2) Linkage Mapper (McRae and Kavanagh 2011); 3) Circuitscape (McRae and Shah 2009); and 4) Barrier Mapper tool (McRae 2012a). Using the resistant kernel algorithm (Compton 2014), we first calculated a traversability metric by which to define *lek kernels*, localized areas surrounding target leks modeled as being the most accessible to female sage-grouse moving outward from respective leks in search of a suitable nesting site. Second, we used Linkage Mapper to model the continuity of habitat in the landscape mosaic between lek kernels in the form of *least-cost linkages*, with a focus on those connecting separate core areas and BBD areas. Third, using Circuitscape by way of the Pinch-point Mapper tool (McRae 2012b), we analyzed connectivity within the linkage zones (as defined by the spatial extent of *normalized least-cost corridors*, or NLCCs) to identify areas where sage-grouse movement may be most constrained or “bottlenecked” (*pinch-points*). Fourth, we used the Barrier Mapper tool to identify areas within linkage zones (*barriers*) that most disrupt structural connectivity and which may conversely represent important habitat restoration opportunities.

The model results can be used in several ways to support planning and management for sage-grouse persistence. Mapped corridors and metrics of relative linkage quality and robustness (see ‘Linkage Statistics’) can be used in combination with population information and other management factors to help inform prioritization and siting of conservation actions across the study area. Within individual corridors, areas identified as pinch-points may warrant greater attention for habitat protection to maintain linkage connectivity, whereas identified barriers highlight opportunities where habitat restoration could most benefit network connectivity.

Landscape ecologists often distinguish between *structural* and *functional (habitat) connectivity*. Structural connectivity (or, *continuity*), long associated with traditional *least-cost path* analyses and the *patch-corridor-matrix* model of landscapes (Forman 1995), characterizes the spatial configuration of habitat types across a landscape without attempting to quantify the likelihood of movement by individuals through that landscape (With 1999; Crooks and Sanjayan 2006). Functional connectivity refers to the interaction of ecological flows (in this case, species movement) with landscape composition and spatial configuration. Functional approaches to habitat connectivity modeling seek to characterize how individuals of a species may progressively perceive, interact with, and move through the landscape mosaic (Jones 2004; Crooks and Sanjayan 2006). Fagen and Calabrese (2006) have further distinguished between metrics of *potential functional connectivity*, which are based on landscape structure and basic information about a focal species' dispersal abilities, and metrics of *actual functional connectivity*, which derive from empirical data on movements of individuals.

Our investigation incorporates metrics of both structural and potential functional connectivity. First, least-cost path and corridor analyses represent the classic approach to modeling structural connectivity. Second, although the resistant kernel algorithm includes a least-cost path component, it describes potential functional connectivity through use of a dispersal parameter (*bandwidth*) and by allowing for the incorporation of nonlinear ecological distance relationships in determining kernel shape and size (Compton et al. 2007). Third, our application of Circuitscape also explores structural continuity, though more holistically than in least-cost path analyses; here, algorithms from circuit theory are used to calculate the expected ecological flow of a species (sage-grouse) between patches (lek kernels) across *all possible paths* of a landscape mosaic (McRae et al. 2008). While there were insufficient data on sage-grouse across our analysis extent to support modeling of actual functional connectivity, our models of potential functional connectivity should nevertheless be evaluated and validated with more localized empirical data where available, including telemetry.

The modeling techniques used in this study are derived from a well-established body of literature and static (atemporal) modeling tools that define habitat connectivity in terms of the support for continuous movement of a focal species at or near ground level through the landscape mosaic. In all such approaches, it is important to establish a reasonable match between the resolution and accuracy of one's input data and the spatial scales at which a target species is thought to interact with a landscape. If this correspondence is called into question, then so must the attempt to track the physical continuity of habitat.

For birds and other flying species, habitat connectivity does not presuppose such explicit structural continuity, but rather a configuration of intermittent habitat patches that function as "stepping stones" for migratory movement and/or dispersal. Although sage-grouse may be less affected than most terrestrial species by fine-scale habitat fragmentation and disturbance over short distances, they are a low-flying species that is inhibited nonetheless by terrestrial barriers such as power lines. Telemetry studies have shown that sage-grouse most often travel in abbreviated bursts – characteristics that entail more frequent interaction with landscape pattern and a reliance on more proximate habitat patches. Further evidence of this is seen in avoidance of agricultural lands and other human development; sage-grouse movements have been found to deviate markedly from straight-line routes in favor of "lesser cost" routes in or near to shrub-steppe vegetation (Schroeder and Vander Haegen 2003). Smith (2010) also found sage-grouse to move in a series of small steps (less than 10 miles per day) over long-distance migrations, utilizing available habitat over their entire route.

## DATA PRODUCTS

Readers with access to ArcGIS software may utilize this report's companion GIS content, including: a geodatabase, GIS layer ("lyr") files with prescribed classifications and symbology, and map document. See:

<https://s3-us-west-1.amazonaws.com/orfo/deserts/SageGrouseConnectivity.zip>

## METHODS

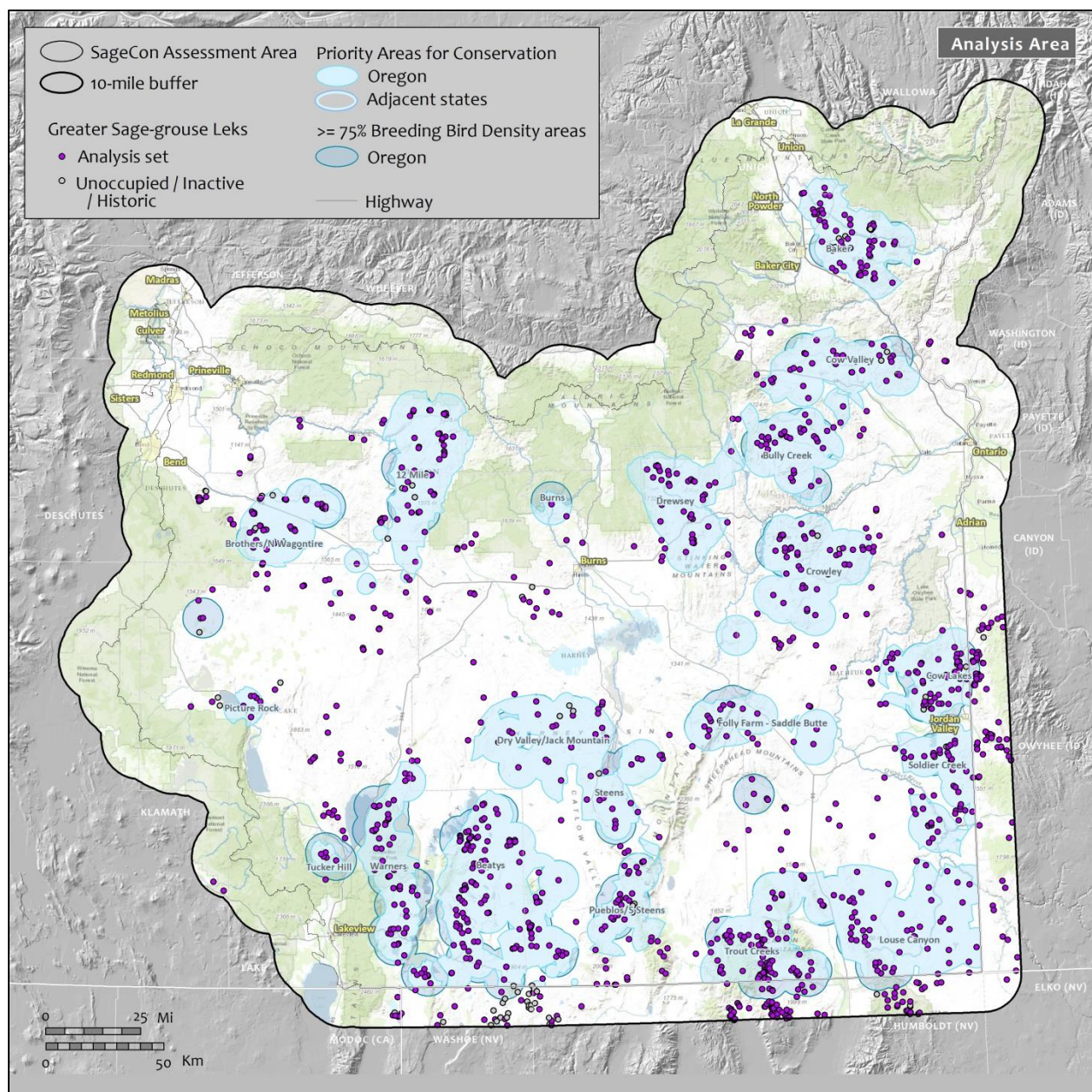
### Analysis Area

Our analysis area is centered on the Assessment Area of Oregon's Sage-Grouse Conservation Partnership (SageCon) which encompasses the majority of the range of sage-grouse and sagebrush habitats in southeastern and central Oregon. To avoid edge-effects in model results near the SageCon area boundary and to more effectively model habitat connectivity into surrounding lands, we extended our analysis scope across a 10-mile buffer, which includes portions of California, Nevada, and Idaho, resulting in an analysis area of 30,212,760 acres (Fig. 1).

Land ownership in the study area is comprised of 72% public and 28% private lands (NLCD). The majority of public land is managed by the BLM (63.1% of public lands, 45.4% of the study area) across four Districts in Oregon – Vale, Burns, Lakeview and Prineville – and five Districts in adjacent states: Boise and Coeur d'Alene (Idaho); Elko and Winnemucca (Nevada); and Northern California (California and Nevada). With the exception of Humboldt National Forest in Nevada, lands overseen by the USFS (28.1% of public lands, 20.2% of the study area), occur along the study area's northern and western reaches. Lands overseen by the USFWS (3.4% of public lands, 2.4% of the study area) include three large Refuges: Malheur and Hart Mountain NWRs in Oregon, and the Charles Shelton NWR in Nevada. Collectively, the Oregon Department of State Lands (DSL) and Idaho DSL manage an extent comparable to the USFWS (3.3% of public lands, 2.4% of the study area), with jurisdiction of the remaining public lands split primarily between Idaho Department of Fish and Game (IDFG), joint agency ownership, and the Bureau of Indian Affairs (BIA).

The majority of the analysis area occurs within the southern portion of the Columbia Plateau Ecoregion, where extensive high desert plateaus of sagebrush steppe are dominated by various sagebrush species and bunch grasses. Juniper woodlands once limited to rocky, fire resistant sites have expanded throughout the ecoregion, particularly at higher elevations and deeper soil sites. To the north and into the Middle Rockies - Blue Mountains Ecoregion, sagebrush grasslands in intermontane valleys transition first into lower elevation forests dominated by Douglas fir, grand fir and ponderosa pine, then into high country dominated by lodgepole pine, subalpine fir, and whitebark pine. To the west, the East Cascades – Modoc Plateau Ecoregion extends down from the Cascade Crest. Here, cooler and wetter conditions support extensive ponderosa pine forests in the mountains and valleys, and flatlands host large marshes and juniper woodlands mosaicked with increasing sage-steppe towards the east.





## Defining an Analysis Network

While our overarching analytical approach is well-established in landscape ecology literature (Crooks and Sanjayan 2006), framing a suitable conceptual model for the Oregon analyses required early guidance from the Advisory Team. The pivotal decision concerned ‘what to connect’; that is, ‘How should the *nodes* of the analysis network be defined?’ Several possibilities were considered, including equating nodes and/or disjunct clusters of nodes (*constellations*) with core areas, seasonal use areas, populations, or individual leks. The Advisory Team made the early determination to base network nodes on individual leks rather than polygonal core areas in order to preserve the leks’ higher spatial precision and strict biological basis.

Consideration was then given to whether the model would explicitly account for intra-seasonal movements by sage-grouse, whereby network linkages might be identified between constellations of leks and/or telemetry relocations as grouped by nesting, brood-rearing, and wintering activity. The team concluded that incorporating seasonality into the model design was unlikely to yield more insight than would an atemporal treatment of individual leks and applying knowledge of seasonal use to the interpretation of resulting models.

The team also weighed the potential value of population-specific models whereby lek constellations would be defined using data on sage-grouse population sizes; however, they concluded that a network constructed purely between un-clustered, individual leks should produce the most readily interpretable model results with the fewest assumptions. Considerations of gene flow between known populations may best be addressed in this case – as with questions of seasonal habitat use – at the stage of model interpretation.

Linkages which connect lek pairs occurring *within* core areas were ultimately withheld from analysis in light of the Advisory Team’s recognition that these core areas are already regarded as key habitat for sage-grouse conservation and that their internal linkages are presumed to be presently well-connected for unrestricted sage-grouse movement. In addition, we have set aside analysis of specific linkages *outside* of core areas characterized by straight-line distances which are less than or equal to the straight line distances observed *within* core areas (mean = 6.4 km, st.dev. = 6.4 km; see ‘Network Refinement’). The assumption here is that birds may easily fly such distances without necessarily being impeded by habitat fragmentation on the ground. Across the remaining *refined* analysis network we make the assumption that sage-grouse interact with the landscape mosaic at scales commensurate with our use of a 30-meter modeling resolution.

All combined, these decisions provided the basis for the topology of the analysis network. Next, a resistance surface was developed to characterize the intervening landscape mosaic between source and destination habitat areas (nodes in the analysis network). As before, recommendations from the Advisory Team during this phase were critical in guiding appropriate model parameterization and calibration.

## Resistance

A resistance surface is a raster-based representation of a landscape wherein each cell value signifies the relative cost associated with hypothetical movement through the cell by an individual of the focal species. (Often, resistance values are alternately interpreted as the inverse of scores for habitat suitability).

Developed with direct involvement of the Advisory Team and built out at a 30-meter resolution, the resistance (or, “cost”) surface is the first data product from this analysis and the foundation upon which all subsequent modeling results rely. Together with the target set of leks, it directly informs the definition of both source and destination habitat patches for sage-grouse (see ‘Lek Kernel Development’) and cost-weighted distances (CWDs, in kilometers) measured outward from them.

The first step in construction of the resistance surface involved identification of variables that impede (create resistance to) movement of the focal species, selection of associated spatial datasets (e.g., roads, tree canopy

cover, agriculture), and characterization of three types of resistance based on consequences to sage-grouse: 1) incurred energetic costs and movement difficulty, 2) increased mortality risk, and 3) increased behavioral avoidance (Table 1). Each type of resistance was then defined by a combination of variables. Energetic cost and movement difficulty were represented as the inverse of values in a habitat layer developed from several landcover variables, including: agriculture, existing vegetation type, fire, invasive species, and tree canopy cover (Table 2 and Fig. 2). Variables contributing to increased mortality risk included: housing density, communication towers, surface mining, pipelines, power plants, railways, roads, transmission lines, and wind turbines. Increased avoidance behavior was predicted separately for selected habitat classes in combination with the mortality risk variables (Table 3).

The Advisory Team reviewed the range of values present in each source dataset and helped to define new categories and class breaks to prepare the data for the resistance modeling (see the 'Data Quality: Lineage' tab section in the FGDC metadata for the raster 'GSGCSageConOR2014\_resistance'). The task of combining resistance values across the mortality risk variables and their subclasses was expedited through use of the Gnarly Landscape Utilities: Resistance and Habitat Calculator (McRae et al. 2013).

Each class of each dataset was assigned a relative resistance value (as the rounded average of recommendations from the Advisory Team) to represent its direct effect on sage-grouse movement through associated energy cost, difficulty of movement, and/or mortality risk. For variables believed to influence sage-grouse avoidance behavior, a separate resistance value to represent its indirect effect was then assigned to each class along with an avoidance distance, the distance from the disturbance within which the individual alters its behavior (Table 3). The relative resistance values for each dataset range linearly from 1 – 100, where 1 denotes ideal habitat and 100 represents heavily degraded habitat.

Resistance values associated with energy cost and movement difficulty are represented across the full analysis extent (Fig. 3), whereas those indicating mortality risk occur only where coincident with the physical footprints of mortality risk factors (Figs. 4). Resistance values representing avoidance behavior were applied: (a) using distance decay functions, (b) only to grid cells within the specified avoidance distance for each class, and (c) excluding grid cells with a mortality risk score (to avoid conflation of a feature's direct and indirect effects.)

Distance decay functions for avoidance factors differed by dataset type – densities were used with point and linear features, and inverse Euclidean distances were applied for raster classes. Density search radii and maximum Euclidean distances were set equal to avoidance distances such that both functions diminished to zero at the perimeter of each avoidance buffer. Resulting decay coefficients were masked to exclude grid cells with mortality risk scores, then multiplied by the resistance values assigned to avoidance factors to produce final avoidance resistances.

Once prepared, individual resistance inputs were summed first by resistance type for review, then summed again to form a single resistance surface with a value range of 1 - 268 (Fig. 5).

While most input datasets were prepared with full coverage across both the SageCon Assessment Area in Oregon and its 10-mile buffer (Fig. 1), a few datasets were discontinuous or absent within the buffer, including: the crop data layer, invasive annual grasses, tree canopy cover, and surface mining. Resulting edge effects outside of and along the Oregon state boundary may warrant lower confidence in interpretations made of model results outside the Oregon extent of the analysis area.

**Table 1: Resistance Variables and Datasets**

Variable	Resistance Type			Data type	Dataset(s)	Data model	Spatial extent
	Energy cost / Mvt difficulty	Mortality risk	Avoidance				

Habitat layer representing (inverse of) energy cost and movement difficulty							
Component datasets:							
Agriculture	X			Categorical	National Landcover Dataset (NLCD 2011)	Raster	SageCon Extended
				Categorical	Crop Data Layer (National Agricultural Statistics Service, 2012)	Raster	SageCon OR
Existing Vegetation Type	X			Categorical	Ecological Systems (2012), used in TNC's 2013 Columbia Plateau ecoregional update	Raster	SageCon Extended
Fire	X			Integer	GeoMAC (2000 - 2012)	Polygon	SageCon Extended
				Integer	RSAC Burn Perimeters (1984 - 2000)	Polygon	SageCon Extended
Invasives	X			Categorical	ILAP 2013 (INR)	Raster	SageCon OR
Tree canopy cover	X		X	Categorical	Tree canopy cover (INR)	Raster	SageCon OR

Feature physical footprints included as mortality risk factors							
Communication towers		X	X	Integer	Communication towers (FCC)	Point	SageCon Extended
Housing density *		X	X	Categorical	Housing densities, based on 2010 US census tracts with public lands removed	Raster	SageCon Extended
Mining (surface, active)		X	X	Categorical	Mineral Information Layer for Oregon (DOGAMI)	Point	SageCon OR
Pipelines (active)		X	X	Categorical	NG pipelines (Ventyx 2014)	Line	SageCon Extended
Power plants		X	X	Categorical	Power plants (Ventyx, 2013)	Point	SageCon Extended
Railways (active)		X	X	Categorical	Railway network (FRA - USDOT, 2013)	Line	SageCon Extended
Roads **		X	X	Categorical	24k roads composite (BLM, TIGER, ODOT)	Line	SageCon Extended
Transmission lines		X	X	Categorical	Electrical transmission lines (Ventyx 2014)	Line	SageCon Extended
Wind turbines		X	X	Integer	Wind towers (Ventyx, 2014)	Point	SageCon Extended



Densities and inverse Euclidean distances included as avoidance factors							
Selected classes from Habitat layer	X		X	Categorical	National Landcover Dataset (NLCD 2011)	Raster	SageCon Extended
Communication towers			X	Integer	Communication towers (FCC)	Point	SageCon Extended
Mining (surface, active)		X	X	Categorical	Mineral Information Layer for Oregon (DOGAMI)	Point	SageCon OR
Pipelines (active)		X	X	Categorical	NG pipelines (Ventyx 2014)	Line	SageCon Extended
Power plants		X	X	Categorical	Power Plants (Ventyx, 2013)	Point	SageCon Extended
Railways (active)		X	X	Categorical	State Railway System linework (ODOT, 2009)	Line	SageCon Extended
Roads **		X	X	Categorical	24k roads composite (BLM, TIGER, ODOT)	Line	SageCon Extended
Transmission lines		X	X	Categorical	Electrical transmission lines (Ventyx 2014)	Line	SageCon Extended
Tree canopy cover	X		X	Categorical	Tree canopy cover (INR)	Raster	SageCon OR
Wind turbines		X	X	Integer	Wind towers (Ventyx, 2014)	Point	SageCon Extended
<p>* Housing density data were not processed separately as an avoidance factor because it was presumed its geometry – large polygons based in part on census tracts – would already encompass areas in which avoidance behavior might be expected.</p> <p>** The 1:24,000 roads input was compiled between BLM GRTN data within Oregon and TIGER data in CA, NV, and ID. After removing duplicate features, road type and Annual Average Daily Traffic (AADT) volumes from ODOT were used in combination to define three classes of use level. ‘High’: Interstate OR AADT &gt; 2500; ‘Moderate’: AADT &lt;= 2500 OR US/State/Major Highways; ‘Low’: ROADTYPE = ‘All other roads’ classified independent of traffic flow data. Additionally and by BLM request, ‘lightly-used’ roads were removed from the input data. These included features in the BLM GRTN data that occurred outside of Wilderness Study Areas (WSAs) and for which any of the following criteria were true: (1) the road was unnamed; (2) Maintenance level &lt; 3; (3) CartoRoad &lt;&gt; ‘Intermediate’ or ‘Major’; (4) Drivability &lt;&gt; ‘2wdLow’; (5) NumLanes &lt;&gt; ‘DL’, ‘ML’, or ‘MD’; (6) RoadClass &lt;&gt; ‘Arterial’ or ‘Collector’ or ‘Local’; or (7) Surface &lt;&gt; ‘Bituminous’, ‘Concrete’, ‘Aggregate’, or ‘PitRun’.</p>							

**Table 2: Development of Habitat Layer**

Habitat Classification	Description
Dunes	Dunes (ESYST) where INR Tree canopy closure (CC) = 'Trace or less'
Playas	Playas (ESYST) where INR Tree CC = 'Trace or less'
Grasslands	Grassland (ESYST) where INR Tree CC = 'Trace or less' and ILAP exotic annual grass < 8%
Grasslands, with >= 8% exotics	Grassland (ESYST) where INR Tree CC = 'Trace or less' and ILAP exotic annual grass >= 8%
Sage-steppe - Basin	Sage-steppe (ESYST) where INR Tree CC = 'Trace or less'
Sage-steppe - Montane	Montane Sage (ESYST) where INR Tree CC = 'Trace or less'
Shrubland - Basin (excluding sage)	Basin Shrubland (ESYST) where INR Tree CC = 'Trace or less'
Shrubland - Montane	Montane Shrub (ESYST) where INR Tree CC = 'Trace or less'
Chaparral	Chaparral (ESYST) where INR Tree CC = 'Trace or less'
Savanna with < 4% CC (light)	Savanna (ESYST) where < 4% CC
Savanna with 4 - 10% CC (dense)	Savanna (ESYST) where 4 - 10% CC
Woodland and Forest (excluding Aspen)	Tree-dominated classes (ESYST) where INR Tree CC > 10%
Water	Lakes and ponds (NWI) or Open water (NLCD)
Emergent, herbaceous wetlands	Wet meadows (ESYST) or Wet meadow - unmanaged (Donnelly)
Wet Meadows	Wetlands (NWI) where INR Tree CC < 2 or Emergent herbaceous wetlands (NLCD)
Woody Wetlands	Woody wetlands (NLCD) or Wetlands (NWI) where INR Tree CC >= 2
Riparian	Riparian (Donnelly) or Riparian types (LF2010)
Aspen	Deciduous (NLCD) or Aspen (ESYST) or Aspen (LF 2010)
Pasture / Hay	Ag and Pasture (NLCD) and Pasture (CDL 2012)
'Selected' Agriculture (<500m from edge AND/OR important to sage-grouse per Donnelly data.)	Ag (NLCD) or Ag (CDL 2012) or Alfalfa (Donnelly)
'Avoided' Agriculture (>=500 from edge AND not identified in Donnelly data.)	Ag (NLCD) or Ag (CDL 2012) or Alfalfa (Donnelly)
Cliffs	Cliffs (ESYST)
Rocks, Barren, Lava	Lava, barren, alpine rock and scree, snow/ice (NLCD or ESYST)
Developed - Open space	Developed - Open space (NLCD)
Developed - Low intensity	Developed - Low intensity (NLCD)
Developed - Medium intensity	Developed - Medium intensity (NLCD)
Developed - High intensity	Developed - High intensity (NLCD)

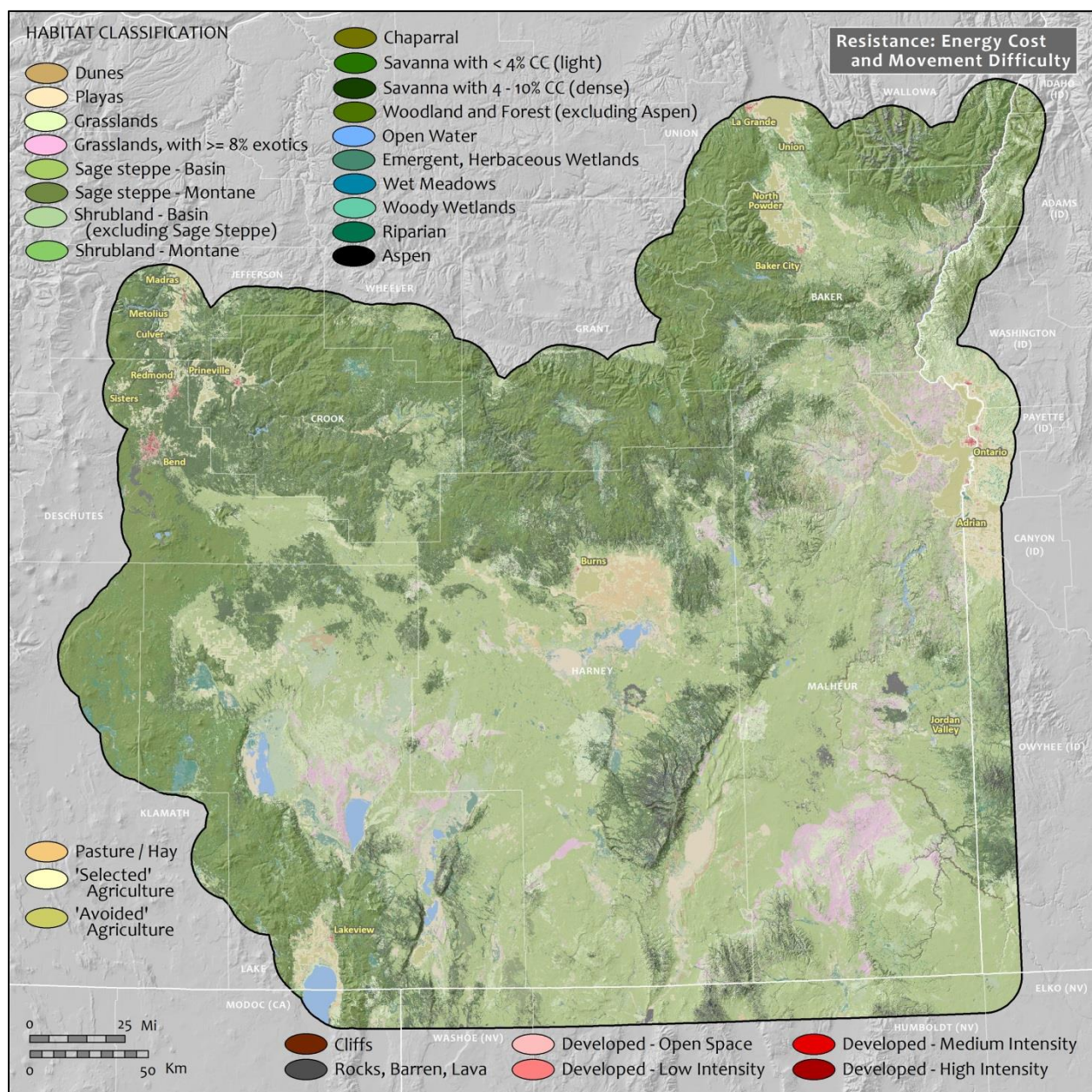
**Table 3: Resistance Value Assignments and Avoidance Distances (meters)**

		Resistance Values Assignments		
Variable	Classification	Direct Effects (Energy cost, movement difficulty and/or mortality risk)	Indirect Effect (Avoidance behavior)	Avoidance Distances (m)
<b>Habitat</b>	Dunes	1		
	Playas	1		
	Grasslands	1		
	Grasslands, with >= 8% exotics	5		
	Sage-steppe - Basin	0		
	Sage-steppe - Montane	0		
	Shrubland - Basin (excluding Sage- Steppe)	0		
	Shrubland - Montane	2		
	Chaparral	5	2	100
	Savanna with < 4% CC (light)	7	3	100
	Savanna with 4 - 10% CC (dense)	10	4	100
	Woodland and Forest (excluding Aspen)	16	6	100
	Open Water	5		
	Emergent, Herbaceous Wetlands	2		
	Wet Meadows	2		
	Woody Wetlands	8	3	100
	Riparian	2		
	Aspen	4	3	100
	Pasture / Hay	2		
	'Selected' Agriculture (<500m from edge AND/OR important to sage- grouse per P. Donnelly data.)	1		
	'Avoided' Agriculture (>=500 from edge AND not important to sage- grouse per P.Donnelly data.)	6		
	Cliffs	7		
	Rocks, Barren, Lava	7		
	Developed - Open space	1		



**Table 3: Resistance Value Assignments and Avoidance Distances (meters) (Continued)**

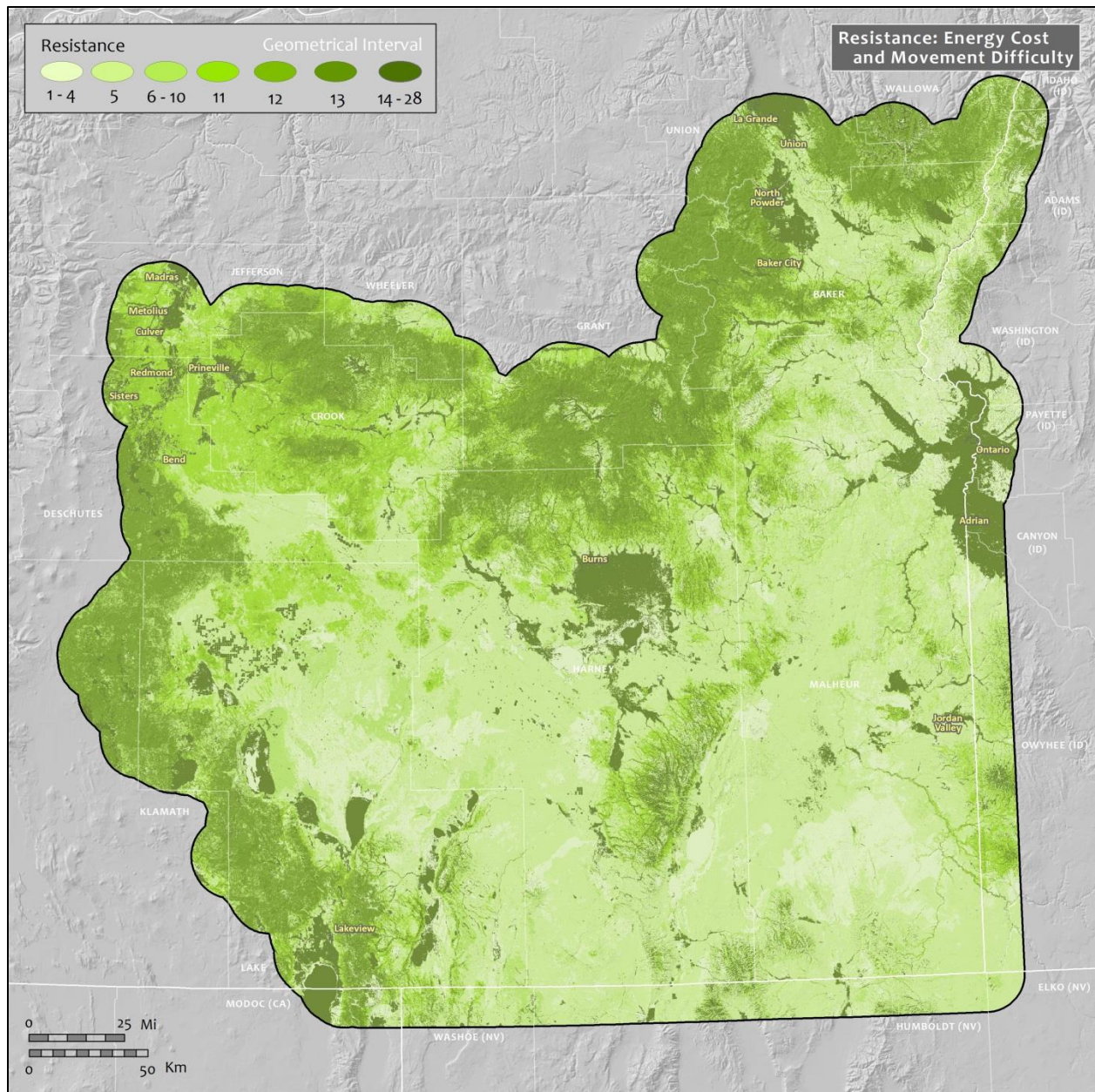
		Resistance Values Assignments		
Variable	Classification	Direct Effects	Indirect Effect	Avoidance Distances (m)
<b>Habitat</b> (continued)	Developed - Low intensity	13		
	Developed - Medium intensity	74		
	Developed - High intensity	99		
<b>Communication towers</b>	Shorter towers	5	4	1000
	Taller towers	7	5	2000
<b>Housing density</b> (Dwelling Units per Acre)	Residential - Rural low (0.001 - 0.006 DUA)	1		
	Residential - Rural (0.006 - 0.025 DUA)	6		
	Residential - Exurban low (0.025- 0.1 DUA)	13		
	Residential - Exurban (0.1- 0.4 DUA)	48		
	Residential - Low (0.4- 1.6 DUA)	74		
	Residential - Moderate (1.6 - 10 DUA)	83		
	Residential - High (> 10 DUA)	99		
<b>Mining (surface, active)</b>		89	50	3000
<b>Pipelines (active)</b>		3	1	30
<b>Power plants</b>		99	40	5000
<b>Railways (active)</b>		11	6	1000
<b>Roads</b>	High use	33	15	5000
	Moderate use	25	10	3000
	Low use	3	1	3000
<b>Transmission lines</b>	4 kV, one line	3	3	1000
	35 kV, one line	3	3	1000
	69 kV, one line	3	3	1000
	69 kV, two lines	6	7	2000
	115 kV, one line	4	3	1000
	138 kV, one line	4	3	1000
	230 kV, one line	7	8	2500
	230 kV, two lines	10	10	5000
	500 kV, one line	10	10	5000
<b>Tree canopy cover</b>	4 - 10 % cover	11	4	0
	> = 10% cover	26	9	120
<b>Wind turbines</b>		21	13	2000



**Figure 2: Habitat Classification**

These classes were included in modeling of resistance due to energy cost and movement difficulty (see Figure 3).

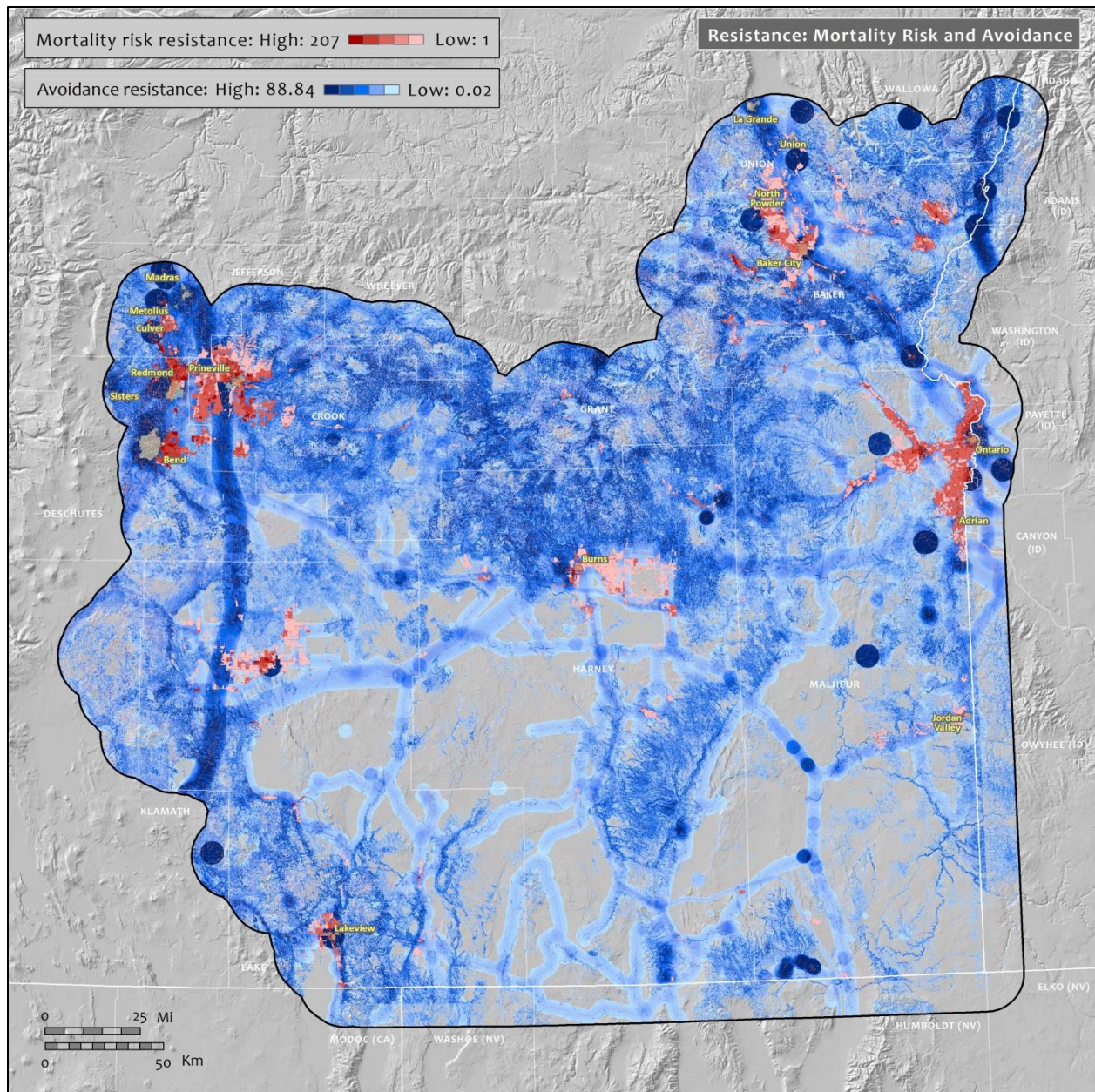




**Figure 3: Resistance: Energy Cost and Movement Difficulty**

Higher resistance values indicate greater cost and difficulty for sage-grouse movement. The geometrical interval classification algorithm ensures that a class range has approximately the same number of values in each class and that the change between intervals is relatively consistent.

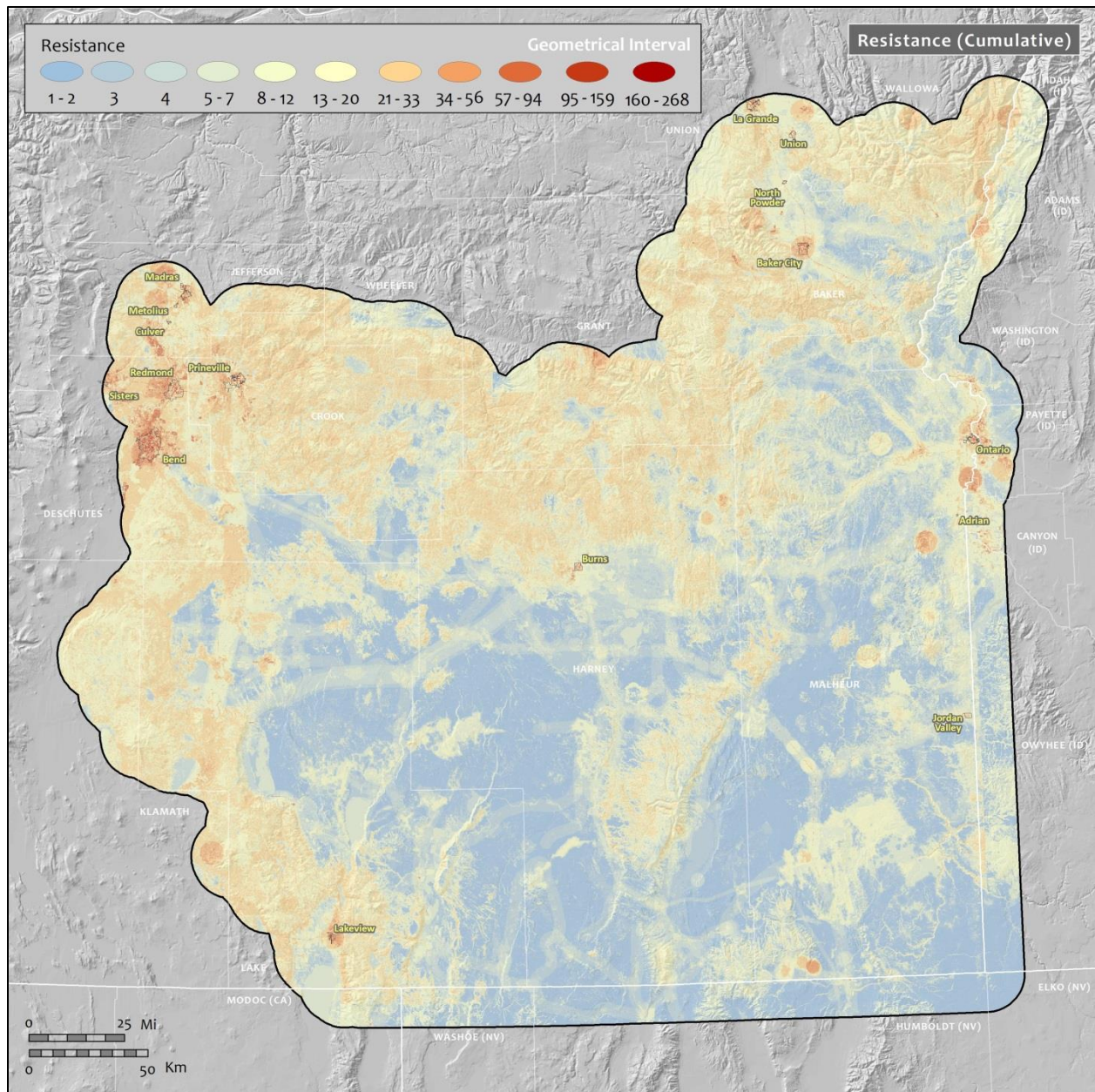




**Figure 4: Resistance: Mortality Risk and Avoidance**

Higher resistance values indicate greater mortality risk or resistance due to avoidance behavior. The highest mortality risk resistance values visible at this scale largely reflect high housing densities, whereas the highest visible avoidance resistance values are primarily associated with powerplants and high-voltage transmission lines.





**Figure 5: Resistance: Cumulative**

Higher resistance values indicate greater cost and difficulty for sage-grouse movement, greater mortality risk, and/or greater avoidance behavior.

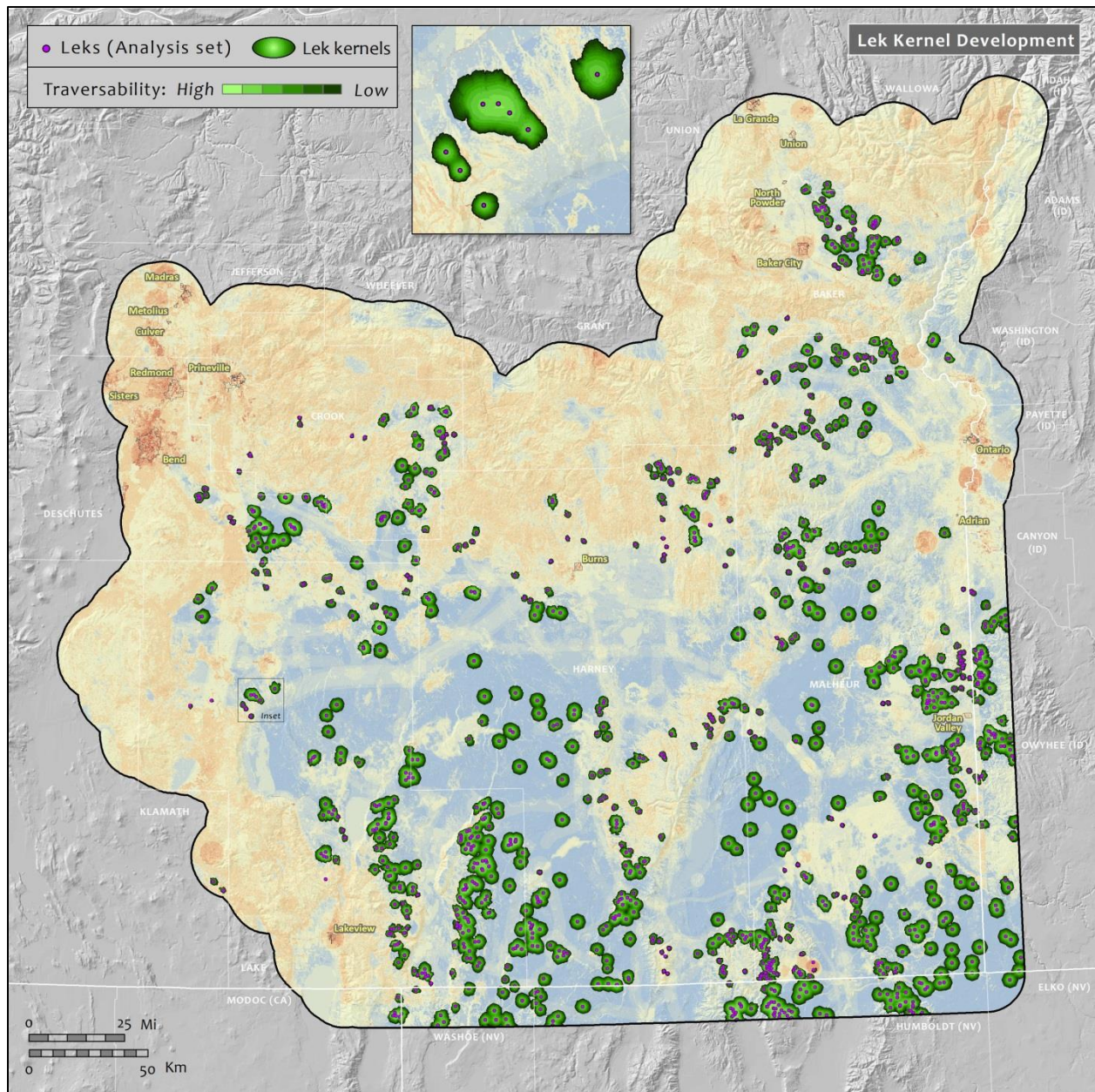
## Lek Kernel Development

A *lek kernel* is an area surrounding a lek which is modeled as the area most accessible to a female sage-grouse moving outward from the lek in search of a suitable nesting site. These areas serve as both source and destination habitat patches between which habitat connectivity for sage-grouse movement was analyzed in conjunction with the related cost-weighted distance (CWD) surface, using the Linkage Mapper toolbox (McRae and Kavanagh 2011).

Lek kernels were seeded at each specified lek and grown using the resistant kernel algorithm as a function of the CAPS traversability metric, one of three metrics of potential functional connectivity described in Compton et al. (2007) and McGarigal et al. (2012). The algorithm, a hybrid approach between the standard kernel estimator and least-cost paths (LCPs), estimates the realized ecological neighborhood around each target cell (lek) as a GIS focal operation (neighborhood statistic) using a dispersal parameter (bandwidth, measured in meters as the standard deviation of the kernel), a cost (resistance) matrix, and a search distance (indicating the maximum spread of the kernel as a multiple of bandwidth). The bandwidth and search distance parameters were set to simulate a 5 km nesting movement distance – i.e. the distance from leks within which approximately 80% of sage-grouse nests were found to occur (Hagen 2011). Towards this goal, bandwidth was set to a value of 1705 and the search distance parameter to 3 so as to approximate (assuming a normal distribution) the desired radial kernel spread of 5 km. The resistance surface developed for sage-grouse across the SE Oregon study area served as the cost surface (Fig. 5).

Lek kernels were delineated for a target set of leks in the study area (Fig. 6). In Oregon, this comprised all leks within lek complexes in addition to those leks with a Conservation Status of ‘Occupied’, ‘Occupied pending’, ‘Unoccupied pending’, or ‘Unknown’. In areas of California, Nevada, and Idaho within the SageCon study area’s 10-mile buffer, all leks were included except those of ‘Historic’ (presently unoccupied) status.





**Figure 6: Lek Kernel Development**

A kernel was seeded at each lek in the analysis set, then grown outward to represent the realized ecological neighborhood for a female sage-grouse moving outward from the lek. Typically, kernel spread is larger in areas of low resistance (see Inset).

### Cost-weighted Distances (CWDs)

Cost-weighted Distances (CWDs) are geographic distances modified by resistance values to represent the *effective distances* for species movement in a study landscape. Operationally, the geographic or Euclidean distance associated with any two contiguous cells equates to the raster's cell size multiplied by 1 for orthogonal adjacencies or by 1.4142 (i.e., the square root of two) for diagonal adjacencies. The respective CWD is then calculated as this Euclidean distance multiplied by the average of resistance values between the two cells. The CWD between two non-contiguous cells, then, is simply the CWDs for each intervening pair of adjacent cells summed along the most direct route between the terminal cells. In a CWD surface, each cell



value is the CWD to that cell from the nearest source area of species movement. The CWD surface for this analysis contains cell values of cost-weighted kilometers calculated outward from the lek kernels over the resistance surface (Fig. 7).

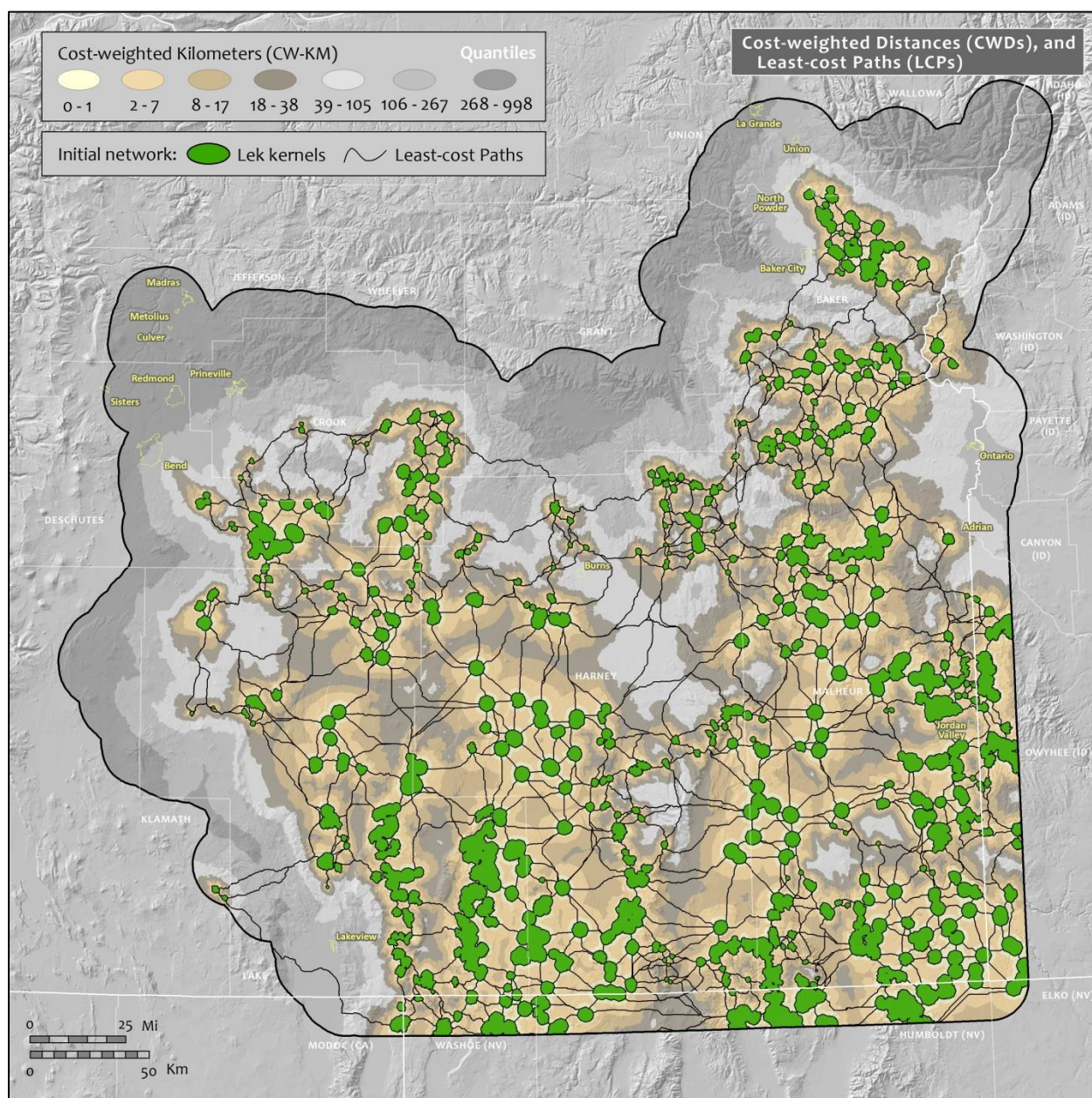
Instrumental to subsequent linkage modeling, the lek kernels and CWD surface also serve as a pair of key, self-standing data products with significant interpretive value. While the lek kernels characterize the traversability of local habitat surrounding leks, the CWD surface represents the relative isolation between the lek kernels and the relative difficulty of sage-grouse movement across the intervening landscape mosaic. The CWD surface further serves to complement the specificity of subsequent linkage maps with its “broad-brush” and wall-to-wall coverage of the study area. This characteristic perhaps best conveys: (1) the wide array of paths individual birds may select in progressively navigating the landscape, (2) spatial uncertainty stemming from the resolution of input factor data, and (3) uncertainty associated with how birds actually perceive and respond to resistance factors in the landscape (WHCWG 2010).

### **Least-cost Paths (LCPs)**

Least-cost paths (LCPs) provide a measure of the structural connectivity, or *continuity*, of sage-grouse habitat amid the network of habitat patches defined by the lek kernels dataset. Each LCP identifies the single-cell wide (30 meter) route of least cumulative resistance for an individual sage-grouse moving between a given pair of adjacent lek kernels. LCPs were identified and mapped with the Linkage Mapper toolset (McRae and Kavanagh 2011) using the lek kernels data and the CWD surface (Fig. 7) as inputs.

In context of the broader analysis, LCPs serve both as discrete representations of linkages between adjacent pairs in the lek kernel network and as a conceptual basis for least-cost corridors. LCPs and corridors derive from the spatial configuration and continuity of habitat in the study landscape. While they depict modeled routes of least cumulative resistance, neither necessarily correlate with known routes of sage-grouse migration nor describe the likelihood of particular routes attempted by individuals. That being so, while modeled as connections between lek kernels, over a quarter of the linkages were found to also connect lek kernels to nearby late summer brood-rearing habitat as modeled by Donnelly et al. (2014).

The least-cost approach to modeling connectivity serves to complement the study’s circuit theoretic component in several respects. First, delineation of LCPs provides an intuitive and distinct visualization of the full analysis network. Second, metrics of linkage *quality* and *robustness* (combined in this study into a single metric – see ‘Linkage Statistics’) enable distinct comparison between linkages as represented by the LCPs. Third, corridors demarcate broad belts of land with relatively greater habitat continuity; such linkage zones are useful for framing potential conservation actions and for constraining models based in circuit theory (see ‘Pinch-points’ and ‘Barriers and Restoration Opportunities Analysis’).



## Network Refinement

Using Linkage Mapper, a preliminary network of lek kernels ( $n = 362$ ) was constructed in which linked kernel pairs were defined by adjacency in either Euclidean or cost-weighted space. Minimum accumulated CWDs were calculated between each lek kernel pair, and an LCP mapped for each linkage with the exclusion of those that would intersect an intermediate lek kernel ( $n = 964$ ).

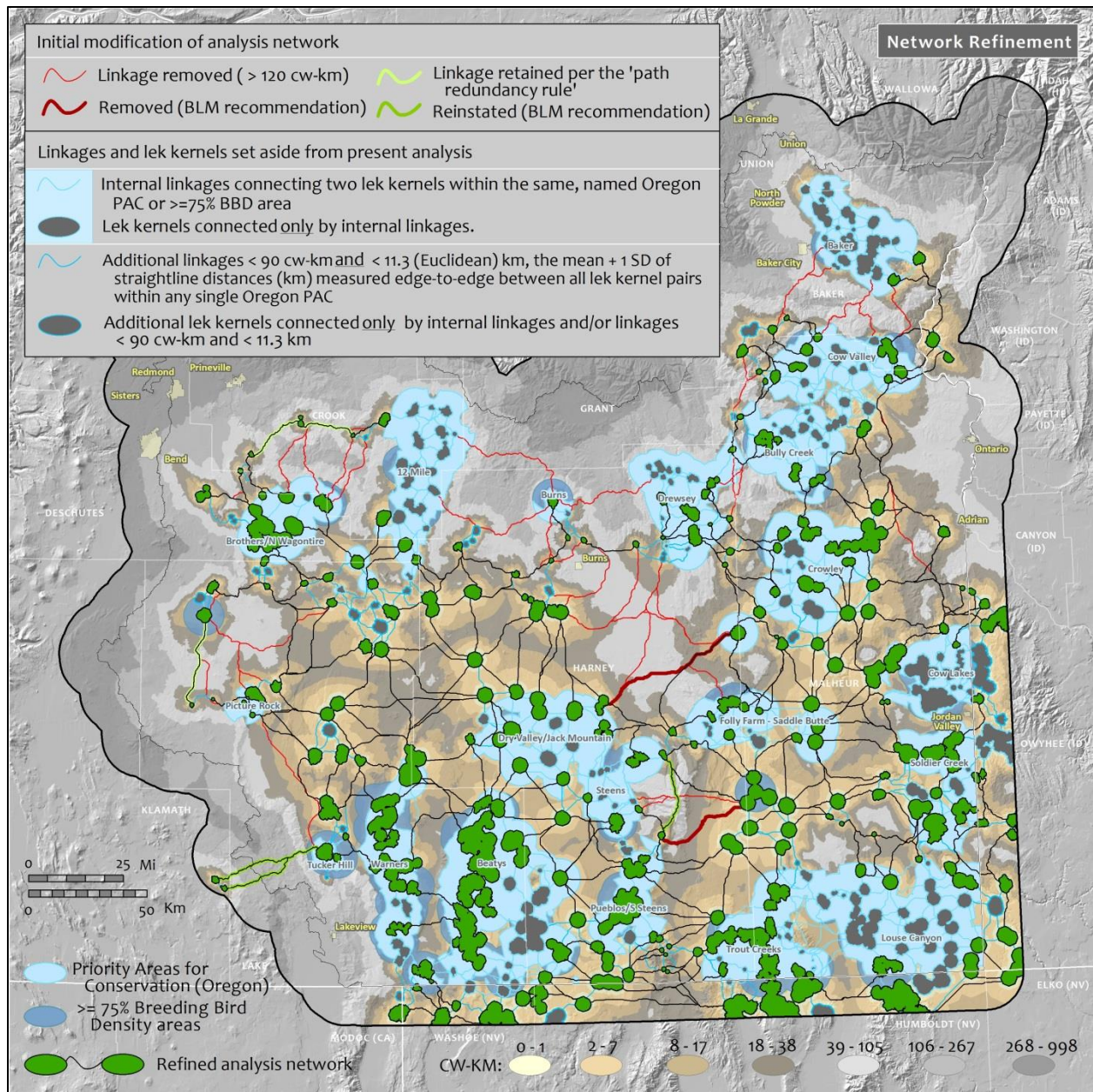
The initial analysis network of target lek kernels and associated LCPs resulted in a large set of linkage corridors with extensive overlap, making it difficult to proceed with analyses and interpretation. Consequently, a decision was made to further refine the network prior to continuing with the analyses.

With guidance from the Advisory Team, a ruleset was devised to hone the lek kernel network to remove potential linkages of relatively low importance and facilitate interpretation of the remaining individual linkage zones (Fig. 8).

Network refinement began with the application of an appropriate threshold CWD value over which LCPs would be removed; this threshold was determined through iterative modification of maximum CWD values with visual review of the resulting networks. Based on the Advisory Team's recommendations, all LCPs of  $> 120$  cw-km were removed with the exception of three required to maintain a minimum of two linkages for every lek kernel ( $n = 54$ ); this latter "path redundancy rule" was adopted so as to support analysis of at least one alternative movement route with the effective loss of any linkage to fire or other disturbance event. Second, a few linkages ( $n = 3$ ) were reinstated into the analysis set.

Next, network constellations determined to be presently well-connected were removed from the full analysis network. These linkages ( $n = 647$ ) and associated lek kernels ( $n = 149$ ) were first classified as either *internal* or *external*. Internal linkages ( $n = 426$ ) were defined as those connecting two lek kernels *within* the same core area or BBD area, and internal lek kernels ( $n = 122$ ) defined as those connected only by internal linkages. External linkages ( $n = 221$ ) were defined as those both  $< 90$  cw-km and  $< 11.3$  (Euclidean) km in length, the latter equal to the mean plus one standard deviation of straight line distances (km) measured edge-to-edge between all lek kernel pairs within any single core area. The associated external lek kernels ( $n = 27$ ) were defined as those connected only by internal linkages *and/or* linkages  $< 90$  cw-km and  $< 11.3$  km.





**Figure 8: Network Refinement**

In sum, 54 linkages were removed during the initial modification of the analysis network. 647 linkages and 149 lek kernels were then set aside in the assumption of their being presently well-connected for unrestricted sage-grouse movement. The refined analysis network then comprised the remaining 263 linkages and 213 lek kernels.

## Linkage Statistics

To better inform comparisons between linkages in the refined analysis network (263 LCPs and 213 lek kernels) for conservation planning, statistics for each linkage were used to derive two linkage metrics and, in turn, a single composite linkage index.

The first metric, a measure of *linkage quality*, was based on the *inverse of the CWD to Path Length Ratio*, the total cumulative cost along an LCP divided by the Euclidean distance along the same path. This statistic, independent of LCP length, is a measure of the average resistance encountered along an LCP (Eq. 1).

### *Unstandardized linkage quality*

$$x = \text{Max} \left( \frac{\text{CWD along LCP}}{\text{Euclidean distance along LCP}} \right) - \left( \frac{\text{CWD along LCP}}{\text{Euclidean distance along LCP}} \right) \quad (\text{Eq. 1})$$

The second metric, interpreted as a measure of *linkage robustness*, stems from the *CWD to Effective Resistance Ratio*. The *effective resistance* statistic, calculated using Circuitscape within defined linkage zones, serves as a measure of the relative isolation of lek kernels that accounts for the availability of multiple movement routes. The CWD to Effective Resistance Ratio, in turn, can be understood as a measure of average corridor width, the availability of multiple, low-resistance routes within a corridor, and – by extension – the robustness of the linkage to being severed (Eq. 2).

### *Unstandardized linkage robustness*

$$y = \frac{\text{CWD along LCP}}{\text{Effective resistance}} \quad (\text{Eq. 2})$$

Raw statistic values from LCPs were standardized from 0 – 1 to constitute each linkage metric and the metrics then multiplied to produce the *linkage index* (Eq. 3).

$$\text{Linkage index} = \left( \frac{x - \min(x \text{ across network})}{\max(x \text{ across network}) - \min(x \text{ across network})} \right) \left( \frac{y - \min(y \text{ across network})}{\max(y \text{ across network}) - \min(y \text{ across network})} \right) \quad (\text{Eq. 3})$$

Although the linkage index derives from one statistic defined at the extent of single-cell wide LCPs and a second statistic defined across the full breadth of linkage zones, the index itself was mapped to the LCPs for the sake of greater visual clarity when superimposed over raster model outputs (Figure 6.1).

The result serves as an integrated measure of linkage quality and average corridor width, with higher values suggestive of areas warranting greater linkage protection (also see ‘Discussion’).



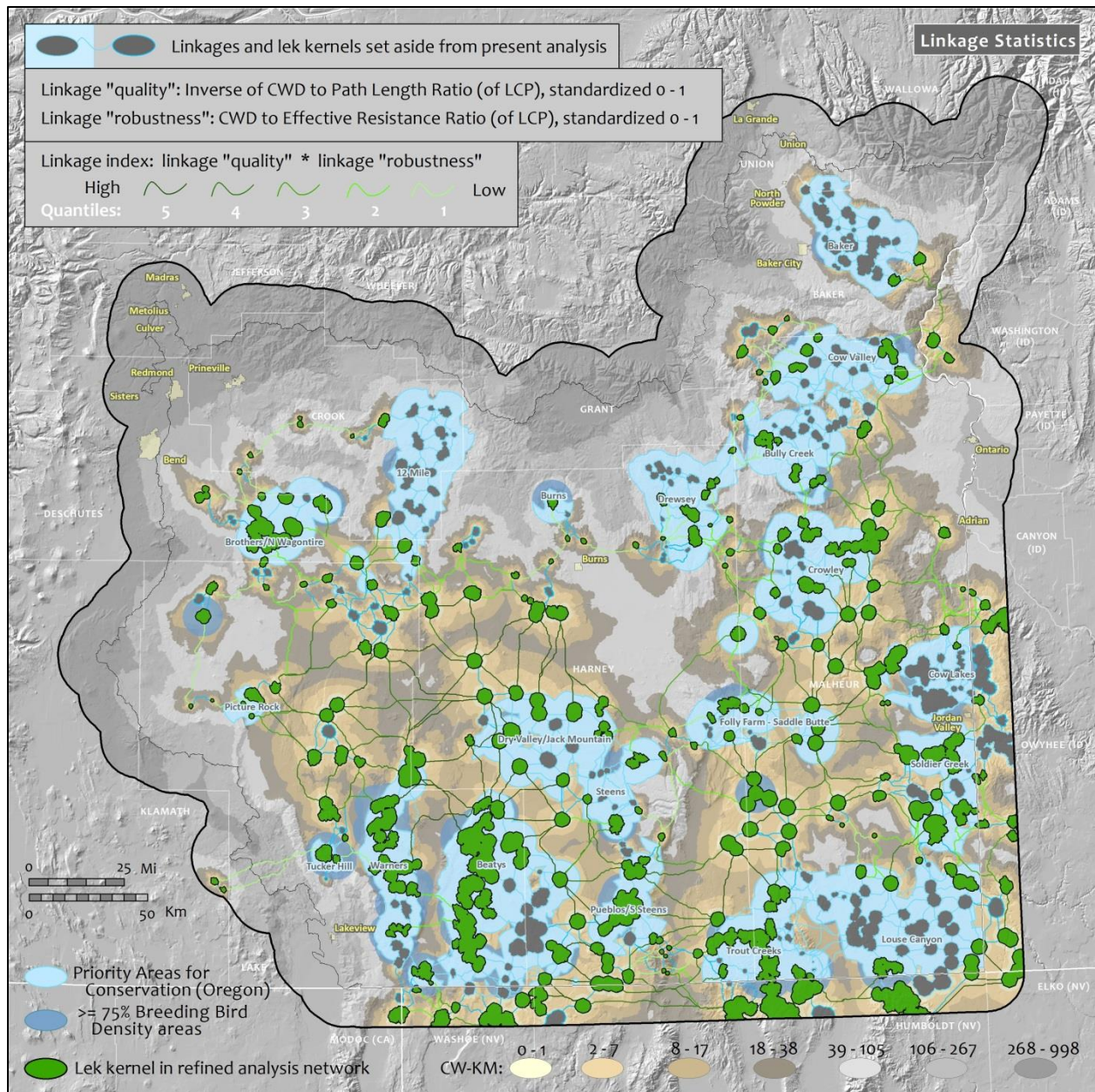


Figure 9: Linkage Statistics

### Normalized Least-cost Corridors (NLCCs)

With a refined analysis network established and linkage metrics calculated, a normalized least-cost corridor (NLCC) surface was produced as follows. First, for each linkage ( $n = 263$ ), a least-cost corridor was calculated as the sum of the two CWDs for the respective lek kernel pair, where resulting cell values represent the deviation in cumulative CWD values from the associated LCP. Each “raw” corridor was then normalized by subtracting the cost distance of its associated LCP. Lastly, NLCCs were narrowed to areas most relevant to conservation planning by applying a maximum cutoff width to restrict corridor widths. Three alternative maximum cost-distance values of 20, 10, and 5 cw-km were tested; of these, the 10 cw-km cutoff value was selected for further analyses as it resulted in reasonably narrow corridor widths without the loss of alternate, redundant branches in several linkage zones.

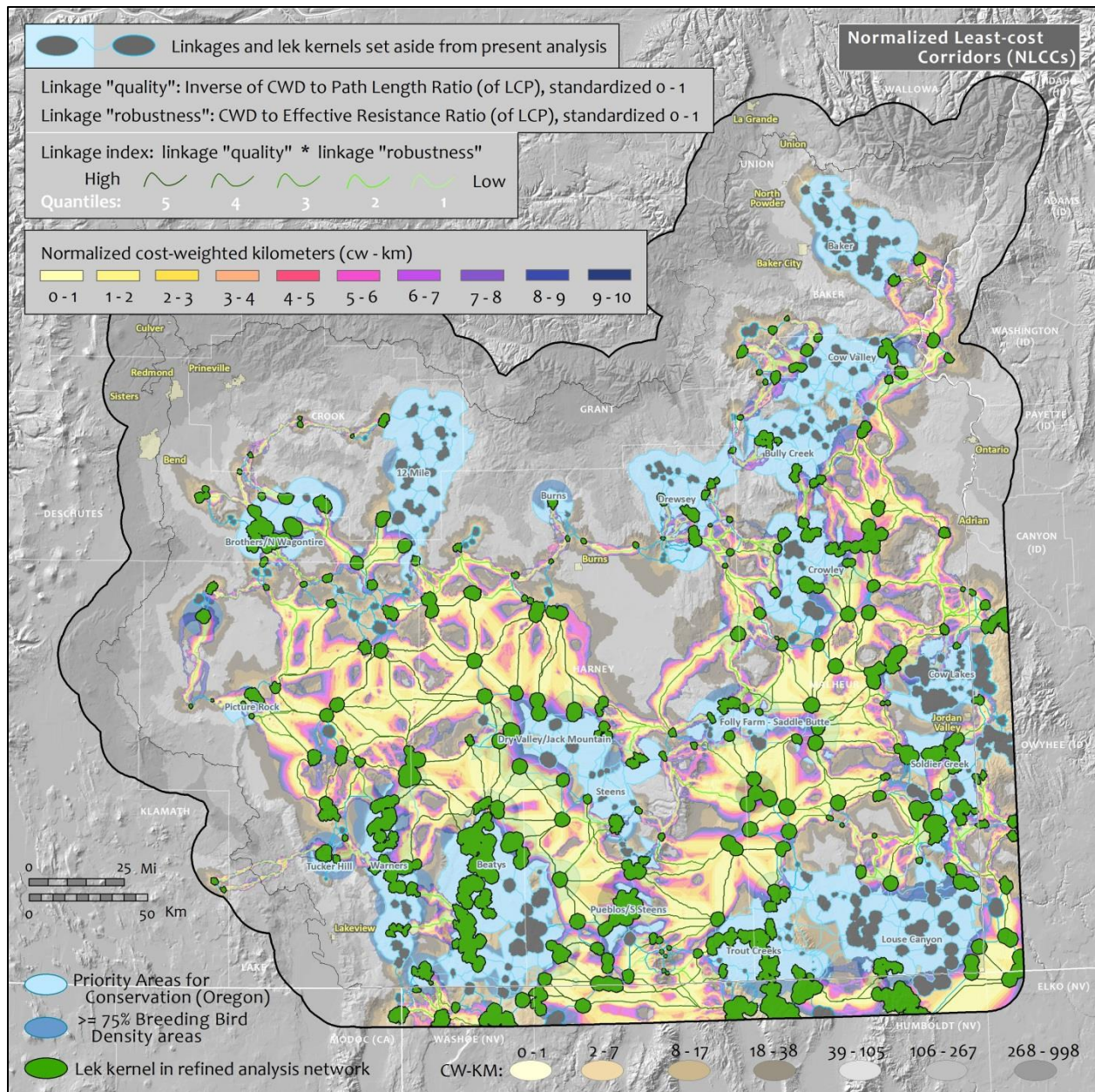
Once normalized, these corridors of variable habitat quality are depicted on the same scale (Fig. 10). Nevertheless, comparisons based on several corridor characteristics can provide insights to complement the linkage index. First, relative corridor width (Euclidean) reflects the number of alternative routes through similar quality habitat (with wide linkages typically indicative of more potential pathways through higher-quality habitat). Note that linkage width has no correlation with the actual area required to conserve linkage connectivity (WHCWG 2010). Second, the presence of secondary corridors within a given linkage may support more valuable path redundancy over alternate routes within a single corridor. Third, attention should be given to the spatial configuration of corridors, including their relative isolation or contiguity. Fourth, one may note the curve of increasing normalized CWDs measured cross-wise to a linkage; wide areas in low cost-weighted kilometers (warm hues in Fig. 10) suggest more resilient structural connectivity, whereas diffuse areas in high cost-weighted kilometers (cool hues) indicate more marginal or tenuous habitat continuity.

### Pinch-point Analysis

Utilizing the Pinch-point Mapper tool (McRae 2012b) in the Linkage Mapper toolkit, Circuitscape was implemented to identify *pinch-points*, areas where connectivity could be severed with the loss of a relatively small amount of dispersal habitat (Fig. 11).

For each linkage, a hypothetical electric current was applied between the associated pair of lek kernels. The current was run over squared resistance values to increase contrast in the resistance raster, and flow for each linkage zone was limited to areas below the same CWD threshold (10 cw-km) used to map the NLCCs. Locations of highly constricted and thus strong current flow are identified as pinch-points (warm hues in Fig. 11). Given the lower incidence or absence of alternative movement routes around such bottlenecks, habitat degradation and/or loss within them will, by unit area affected, entail a disproportionate adverse effect on connectivity. At a landscape scale, pinch-points are the areas at which linkages are most susceptible to being severed and which may deserve prioritization for habitat protection.





**Figure 10: Normalized Least-cost Corridors (NLCCs)**

Wide areas in low cost-weighted kilometers (warm hues) suggest more resilient structural connectivity, whereas diffuse areas in high cost-weighted kilometers (cool hues) indicate more marginal or tenuous habitat continuity. Linkage zones are defined by the extent of each NLCC.



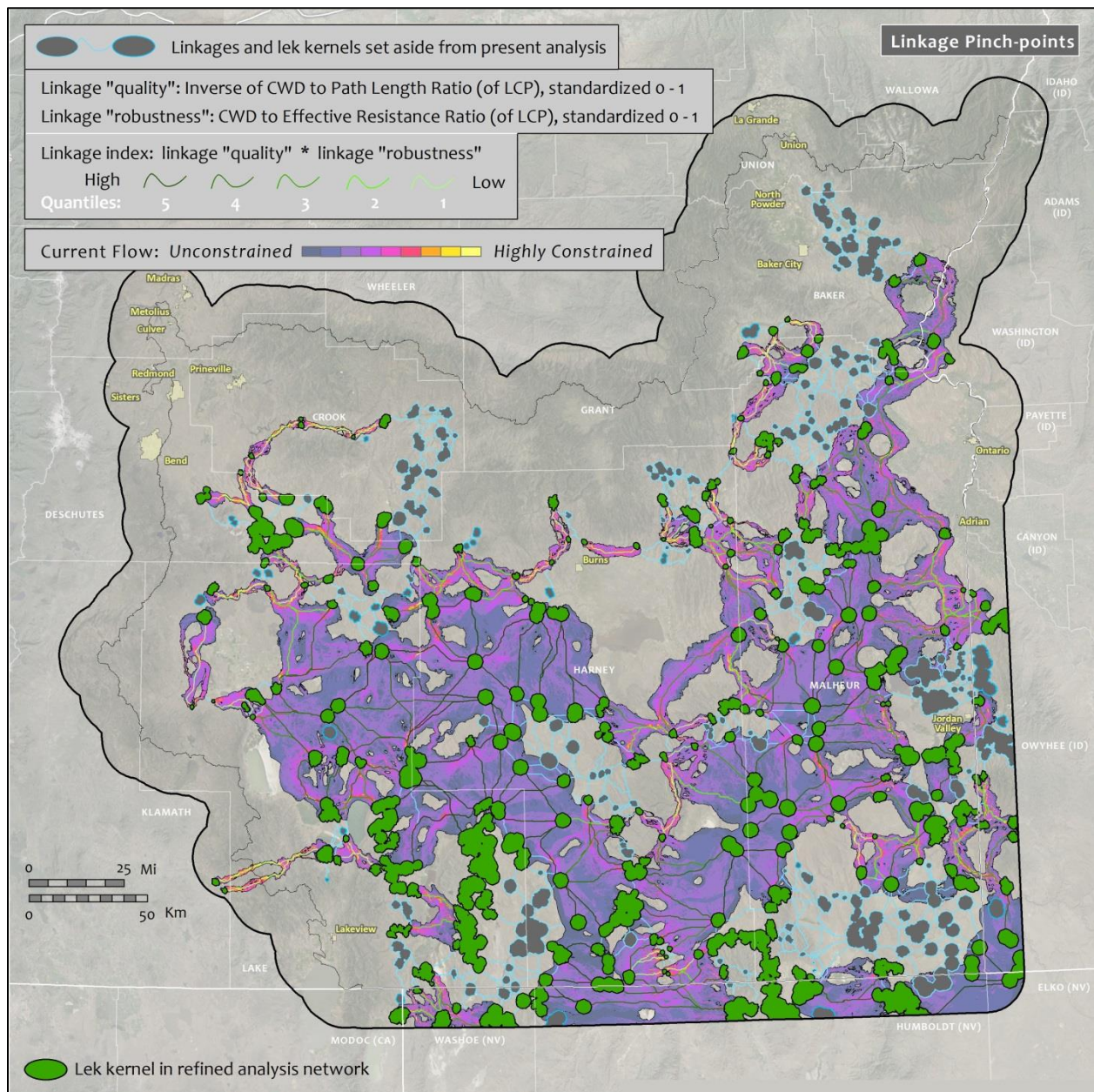


Figure 11: Linkage Pinch-points

## Barriers and Restoration Opportunities Analysis

We used barriers analysis to locate areas within established linkage zones that exhibit the highest impact in reducing habitat continuity and where habitat restoration may lead to the greatest improvement in structural connectivity among spatially coincident linkages.

The analysis was conducted using the Barrier Mapper tool (McRae 2012a) in the Linkage Mapper toolkit. The approach derives barrier impact or restoration improvement scores for a linkage by estimating reductions in its least-cost distance (LCD), the lowest cumulative movement cost between the respective lek kernel pair. The tool iteratively progresses across the surface in a *moving window analysis*, calculating the LCD for each focal cell that would result if the resistance values within the window were set to 1.0 to represent full habitat restoration. For each focal cell, the difference between LCDs with and without restoration is then normalized by the neighborhood's diameter to yield a single metric of structural connectivity improvement per unit distance restored (McRae et al. 2012). Results are then combined over the study area, with each cell value set to the maximum (or sum) of barrier impact (or, restoration improvement) scores as taken across all lek kernel pairs; in this analysis, the barriers surface was mosaicked using maximum scores. At mid to fine-scales, the resulting surface may be used in conjunction with mapped pinch-points to assess relative conservation benefits between habitat restoration and protection (Fig. 12).

Note that size of the selected circular search neighborhood should correspond with that of the effective barrier one wishes to detect; in this case, a detection radius of 360-meter was chosen as a moderate size reasonably correlated with the effects of more diffuse habitat restoration strategies such as conifer removal.



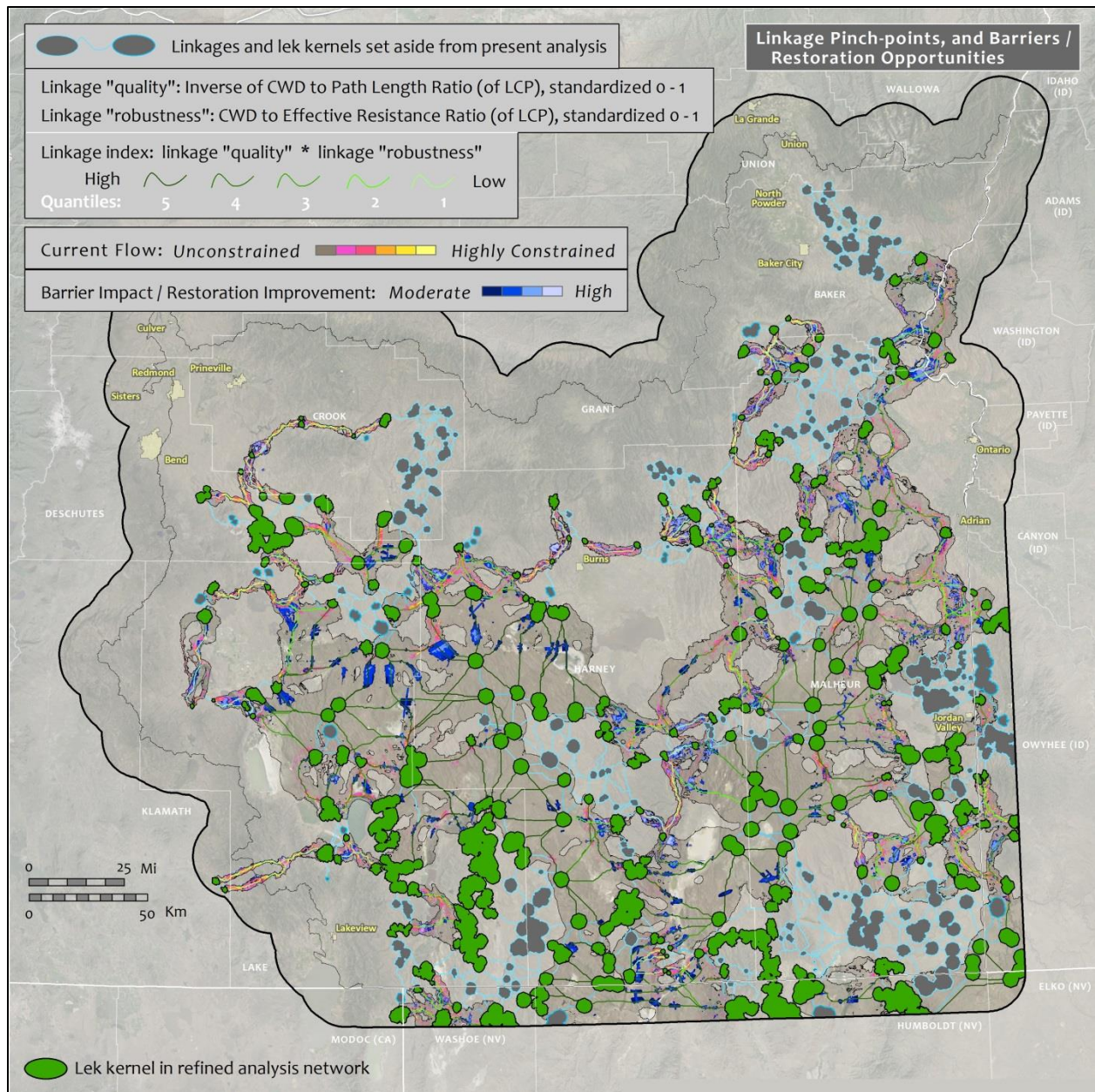


Figure 12: Barriers / Restoration Opportunities

## DISCUSSION

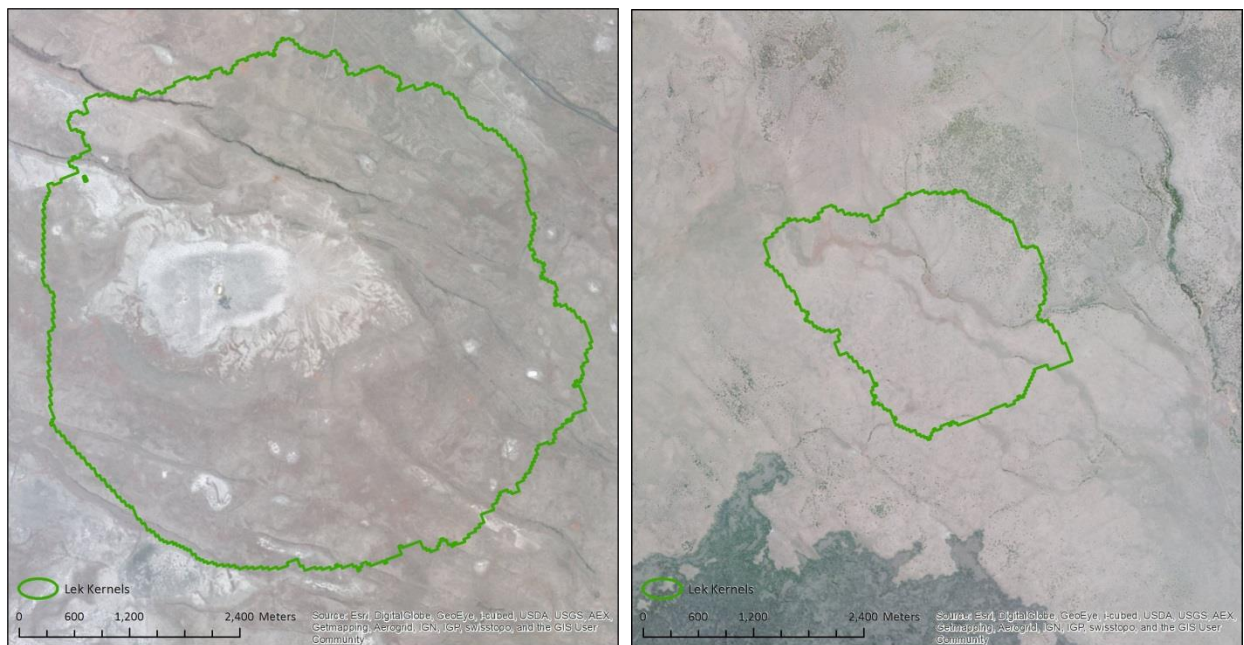
Our main objective with this study was to provide and describe spatial data products helpful to informing priorities in the protection and/or restoration of sage-grouse dispersal habitat in southeast Oregon. Behind these products, the modeling of habitat connectivity involves assumptions regarding species movement capabilities, selection of dispersal habitat, mortality risks, and avoidance behavior. In our case, limited field data were available to characterize these aspects of sage-grouse movement ecology and to help guide model parameterization and calibration. In light of this challenge, we have developed results utilizing the best available spatial data on habitat variables across the study extent in combination with the professional judgment of our Advisory Team in guiding decision points through the modeling process. The results are provisional and should be further evaluated and validated with empirical data, including telemetry.

Habitat connectivity modeling is a specialized and technical endeavor. For our methods and results to be appropriately vetted (and perhaps emulated), it was necessary to use the concepts and terminology that are specific to the field (also see ‘Glossary’). We have attempted to provide clear explanations for the methods and concepts for those seeking technical details. However, for a majority of readers, recommendations for use of the results to inform management are most important. Therefore, we offer guidance hereinafter on use of the study’s spatial data products.

The small-format map reproductions in this document are intended primarily as illustrations to explain concepts and outline our modeling methods rather than as media to directly inform management decisions. While engaged in decision-making processes, land managers can benefit from the use of large-format maps; these may include large plots of map images in this report (particularly Figs. 9, 11 and 12 – available from the authors) and/or large maps constructed on-the-fly from the report’s companion GIS content (see ‘Data Products’). The latter may be most informative during review of potential management actions, as fine-scale mapping can focus on specific areas of interest in the study geography with display of additional reference features and/or recent imagery (such as available as a “basemap” from ArcGIS Online).

Users of the GIS data should note that GIS layer files have been included for quick compilation of such maps; adding these files to a map document in ArcGIS will reference data in the geodatabase and display them with prescribed classifications and symbology. The most pertinent layer files for customized, fine-scale maps are: ‘AnalysisNetwork\_LekKernels.lyr’, ‘LinkageStatistics\_LinkageIndex.lyr’, ‘Pinchpoints.lyr’, and ‘Barriers.lyr’. Following is a recap of key points for their interpretation.

Lek kernels are models of the realized ecological neighborhoods for female sage-grouse moving outward from leks. The relative size of lek kernels provides land managers a readily interpretable indicator of the quality of dispersal habitat surrounding each lek. Larger kernels (or conjoined kernel clusters) indicate there are few structural impacts – such as juniper or man-made structures – to nesting or brood-rearing habitat. As the kernels are reduced in size, the quality of dispersal habitat is proportionally impaired (Fig. 13).



**Figure 13: Comparison of Lek Kernel Size**

The left image shows a larger lek kernel in a highly permeable landscape with few impediments to sage-grouse movement. On the right is a smaller kernel which has become constrained by conifer encroachment, primarily from the east, and a recent burn to the southwest (dark green).

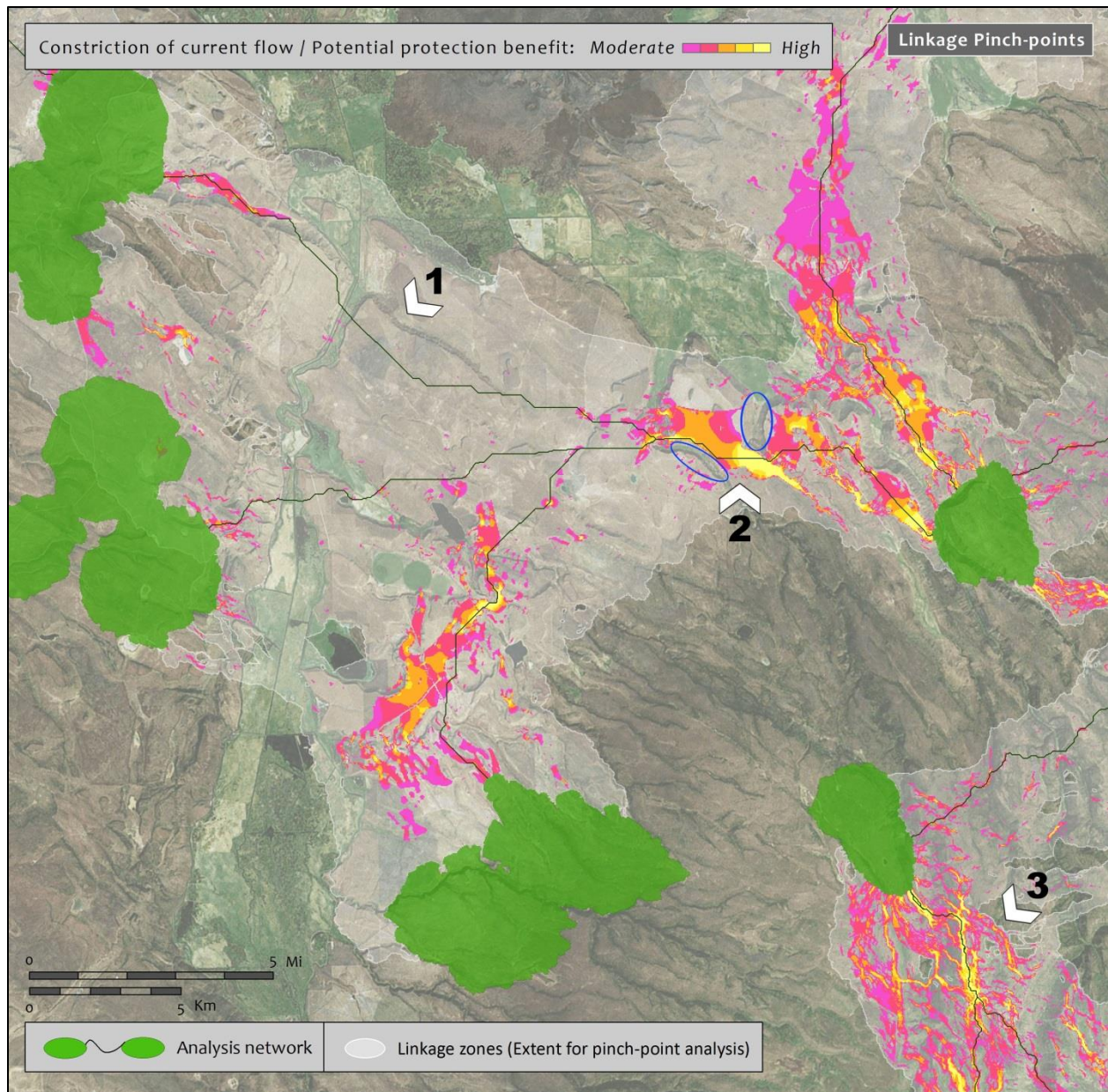
Pinch-points represent areas of movement habitat that are in relatively good condition and where no comparable alternate paths exist. Higher scores indicate greater importance to network connectivity. In many cases, these are places that, if degraded or lost, could result in severed connectivity between one or more lek kernels. These areas are the most important to protect from development and habitat degradation.

Fine-scale inspection of the barriers data can help inform potential restoration activities. As the barrier impact score increases, so does the potential improvement to connectivity if the barrier were removed. Note that improvement to network connectivity through removal of a high impact barrier may not be limited to a single linkage zone; rather, the removal may result in the emergence of a new LCP and/or multiple, alternate lower cost paths. Either way, the result is a landscape more conducive to sage-grouse movement.

A barrier may be associated with the *direct* and/or *indirect effects* of natural features (e.g., juniper or other conifers) and/or anthropogenic obstructions (e.g., powerlines). In some cases (particularly with powerplants), an anthropogenic feature's indirect effects (i.e. those affecting avoidance behavior) may be predominantly responsible for increasing barrier impact scores. In these instances, the scope of the respective avoidance buffer can often be identified within the resistance surface ('GSGCSageConOR2014\_Resistance') for consideration during planning.

At mid to fine-scales at which restoration projects are planned, pinch-points and barriers may be laid over imagery to help assess relative conservation benefits between habitat protection and restoration. Figures 14 and 15 focus on linkage zones between Jackass and Steens Mountains, including the confluence of the Donner und Blitzen River and Kiger Creek. Target leks in the area include: the Ham Brown Lake complex, Irish Lake, the Jack Mountain and Jack Mountain Burn complex, Little Kiger, the North Bridge Creek complex, and South Bridge Creek.





**Figure 14: Pinch-points and Imagery Overlay**

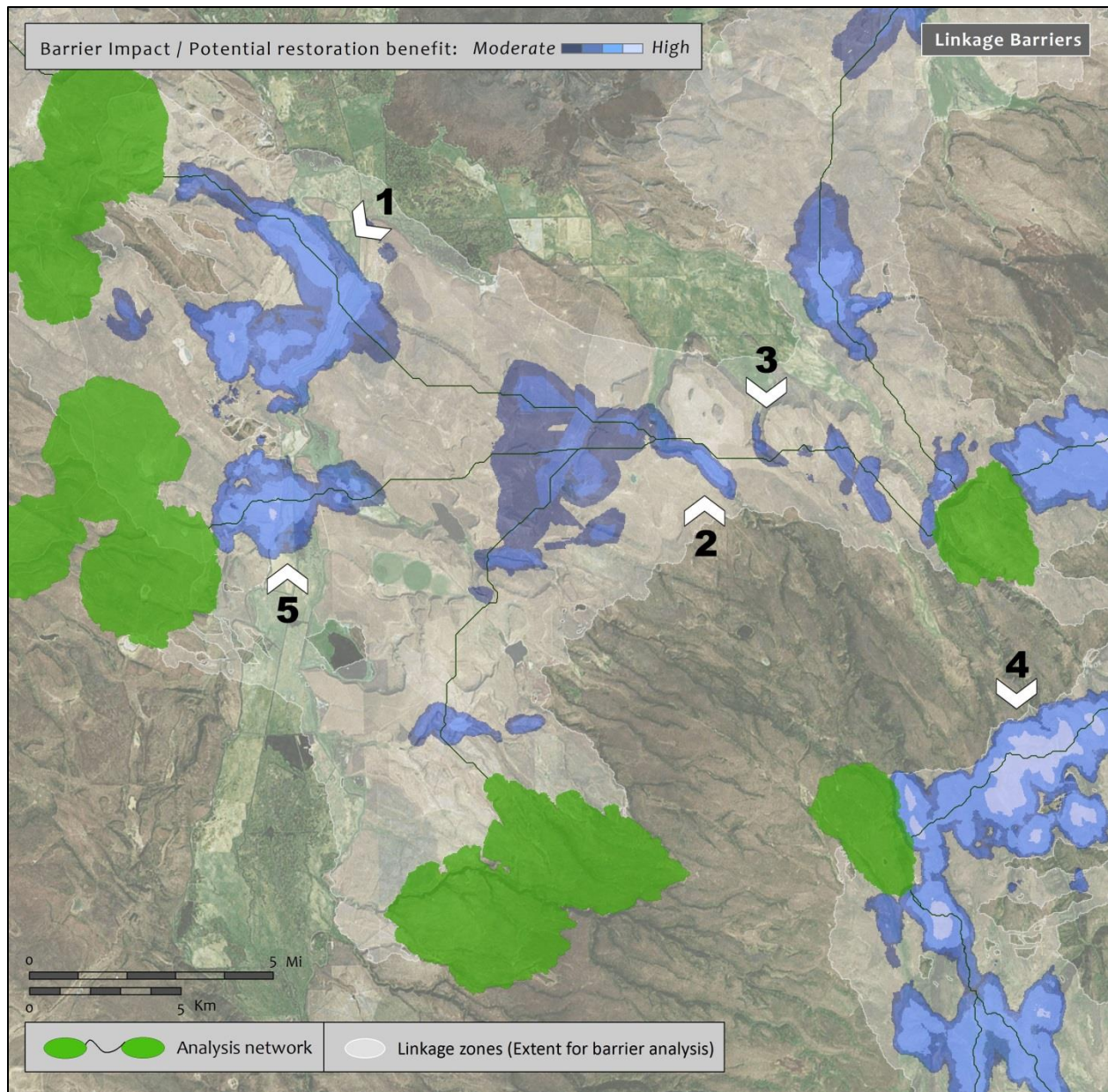
**Location 1:** Within the linkage zone, broad swaths without pinch-points reflect an area of homogenous habitat quality, diffuse current flow, and relatively low potential benefit from protective conservation actions.

**Location 2** marks a distinct pinch-point. Note the two small adjacent patches to its south and east (blue ellipses). These correspond with distinct changes in topography and landcover -- including a deep channelization of Kiger Creek -- features of high resistance that appear to funnel the current flow through the bottleneck. Loss of movement habitat in this pinch-point would likely sever connectivity to the three, converging linkage zones to its west; thus, network connectivity is likely to benefit highly from its protection (if viable).

**Location 3:** Current flow across this linkage is constrained through many small, braided stretches. Protection of movement habitat here may be less actionable here than at location 2.

In addition to further evaluation and validation at fine scales, we generally recommend that the data products from this study be used in conjunction with additional information when prioritizing restoration and protection activities. For this reason, pinch-points and barriers have been incorporated into the Oregon Rangeland





**Figure 15: Barrier and Imagery Overlay**

**Locations 1, 2, and 3:** Barriers detected at these locations may not be actionable, as they largely correspond to high gradient channels and riparian vegetation along Dunner Und Blitzen River and Kiger Creek. Note also that the barriers at locations 2 and 3 roughly coincide with the features (blue ellipses in Fig. 14) on either side of a distinct pinch-point.

**Locations 4 and 5:** Juniper treatments at location 4 would result in a disproportionately large improvement to network connectivity. Such restoration may also be more actionable than addressing a barrier in agricultural lands that include a highway (location 5).

Decision Support System (ORDSS), an initiative of TNC and INR which contains a wide variety of habitat and landuse metrics with relevance to the management of sage-grouse. All data within the ORDSS have been summarized to 640 acre (1 square mile) hexagons. In this case, the maximum values from the pinch-point and barrier datasets were attributed to each hexagon. This provides planners with additional context while making decisions on where to focus restoration efforts, allow development, etc.

## ACRONYMS

BBD	Areas of $\geq 75\%$ Breeding Bird Densities (Doherty et al. 2010)
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CAPS	Conservation Assessment and Prioritization System (Compton 2014)
CWD	Cost-weighted Distance
DOGAMI	Oregon Department of Geology and Mineral Industries
DSL	Department of State Lands
ESYST	USGS ReGAP 2010, Terrestrial Ecological Systems
FCC	Federal Communications Commission
FRA-USDOT	Federal Railroad Administration, US Department of Transportation
GeoMAC	Geospatial Multi-Agency Coordination, US Geologic Service
IDFG	Idaho Department of Fish and Game
ILAP	Integrated Landscape Assessment Project, Institute for Natural Resources
INR	Institute for Natural Resources, Oregon University System
LCD	Least-cost Distance
LCP	Least-cost Path
LF 2010	LANDFIRE Existing Vegetation, circa 2010
NLCC	Normalized Least-cost Corridor (McRae and Kavanagh 2011)
NLCD	National Landcover Dataset, circa 2011
NWI	National Wetlands Inventory, USFWS
NWR	National Wildlife Refuge
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
ORDSS	Oregon Rangeland Decision Support System
PAC	Priority Areas for Conservation (USFWS 2013)
RSAC	Remote Sensing Applications Center, US Forest Service
SageCon	Oregon's Sage-Grouse Conservation Partnership
TNC	The Nature Conservancy
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
WSA	Wilderness Study Area
WDFW	Washington Department of Fish and Wildlife

## GLOSSARY

**Actual functional (habitat) connectivity** – habitat connectivity modeled using field data on the actual movements of individuals (Fagen and Calabrese 2006). Also see *potential functional (habitat) connectivity*.

**Analysis network** – the specified network across which connectivity analyses are conducted. This network contains nodes – the locations that will be connected to each other (lek kernels), and the linkages (also: *edges*, or “links”) that connect them.

**Avoidance** – the behavioral response of an organism to avoid a landscape feature due to indirect impacts such as noise, visual obstruction, and perceived threat.

**Bandwidth** – a parameter used in the resistant kernel algorithm developed by Compton et al. (2007). Measured as the standard deviation of the resistant kernel (in meters), bandwidth represents the maximum expected migration or dispersal distance an organism might traverse from a focal cell. The parameter determines which cells can be connected to a focal cell as least-cost paths are calculated between the focal cell and all other cells within its neighborhood.

**Barriers** - areas within established least-cost linkages that exhibit the highest impact in reducing habitat continuity and where habitat restoration may lead to the greatest improvement in structural connectivity among spatially coincident linkages. In some cases, barrier removal can allow new least-cost linkages to emerge, and/or create alternate lower cost paths.

**Categorical data** – a statistical data type that has multiple categories with no intrinsic ordering. Examples include hair-color, gender, dog breeds, etc.

**Circuit theory** – a branch of graph theory with a lexicon and algorithms specific to analysis of electrical circuit topologies. Algorithms from circuit theory can be used to model habitat connectivity across landscape mosaics. With the study landscape represented as a conductive surface, metrics including ‘effective resistance’, current flow, and voltage can be calculated to represent ecological processes such as individual species movement or gene flow across a metapopulation. In kind with graph theory more broadly, the circuit theoretic framework supports concurrent analysis of not only multiple but all possible species movement routes across a landscape (McRae et al. 2008).

**Conceptual model** – All GIS models operate upon mathematical abstractions of real-world concepts and entities. For species habitat connectivity modeling, the conceptual model must include nodes and linkages (see *Analysis network*) as well a resistance surface representing the ability and/or willingness of a species to traverse each cell of the modeled landscape mosaic when moving between nodes.

**Connectivity** – see *habitat connectivity*, *structural connectivity*, *functional connectivity*, *potential connectivity*, and/or *actual connectivity*.

**Continuity** – refers to the structural connectivity of habitat across the landscape. Continuity is affected by both the amount and configuration of habitat.

**Core area** – Areas defined by wildlife agencies as critical to the recovery of greater sage-grouse. Also known as ‘Priority Areas for Conservation’ and ‘Preliminary Priority Habitat’.

**Cost-weighted Distance (CWD; also, *cost distance* or *effective distance*)** – a distance between points that incorporates the difficulty of moving between them. In a GIS, costs to movement are represented by a resistance surface. The CWD surface in this study is a measure of the relative isolation between lek kernels and the relative difficulty of sage-grouse movement across the intervening landscape mosaic.

**Cumulative resistance** – the total cost, calculated as the sum of all resistance values for all cells traversed between a source and destination node. The route between the source and destination nodes with the least cumulative resistance is the least-cost path.

**Data model** – in ArcGIS, a data model refers to the spatial representations (e.g. point, line, polygon, raster) of the themes (e.g. roads, transmission lines, land uses, etc.) used in a modelling exercise. A data model can also include the attributes of each theme and relationships amongst themes.

**Density** – the amount of an entity per unit area. In this analysis, density was calculated as a focal function, measuring the amounts of linear and point features within the search radius of a focal cell.

**Destination** – in connectivity analyses, a location that represents a ‘to’ node to be connected to a ‘from’ node (or source).

**Direct effect** – the energetic costs associated with the movement of a focal species through a particular land use or habitat type. The direct effect increases as the habitat suitability for the species decreases, potentially culminating in the demise of an individual (mortality risk).

**Distance decay** – a function that decreases in value as distance increases. Inverse Euclidean distance is a type of decay function.

**Ecological System** – a level of the U.S. National Vegetation Classification that groups plant associations into midscale units that are suitable for classification and mapping at scales relevant to many conservation applications.

**Effective distance** (also, cost distance or Cost-weighted Distance) – an ecological concept by which distance is defined in terms of the costs associated with movement of a focal species.

**Effective resistance** – calculated using Circuitscape within linkage zones. This serves as a measure of the relative isolation of lek kernels that accounts for the availability of multiple movement routes.

**Empirical data** – data that is the result of direct observation. In this case, telemetry data is one of the only empirical data sources that can inform connectivity modeling for sage-grouse.

**Focal operation** – the computation of an output raster where the output value at each cell location is a function of the value at that cell location and the values of the cells within a specified neighborhood around the cell. Focal operations are examples of *moving window* analyses.

**Functional connectivity** – a landscape’s facilitation of ecological flows (including species movement). Functional *habitat* connectivity refers to the interaction of species movement with landscape composition and spatial configuration. Modeling functional habitat connectivity characterizes how individuals of a species may progressively perceive, interact with, and move through the landscape mosaic (Jones 2004; Crooks and Sanjayan 2006).

**Habitat connectivity** - refers to the extent to which a landscape enables or impedes movements of individuals of a given species, either between vital resources (e.g., prey species, browse, water, or shelter) or between populations within a metapopulation. *Landscape connectivity*, a more general term, connotes the degree to which a landscape facilitates or hinders natural scales of movement for groups of species and, more generally, the spatial continuity of natural cover types across a landscape (Jones 2004).

**Indirect effect** – the effect of a landscape feature on an organism effectuated over a distance. In this study, these effects are associated with sage-grouse *avoidance behavior*.

**Integer data** – data that can be represented as whole numbers. Qualitative and quantitative data can both be expressed as integer data.

**Inverse Euclidean Distance** – Euclidean distance increases as an object is further away. The inverse Euclidean distance decreases with distance. In the case of sage-grouse behavioral avoidance, for example, the maximum avoidance response of a bird to a resistance feature would occur at distance zero, the location where the bird would encounter the feature. The resistance, therefore, is then calculated as a maximum value at the location of the resistant feature, decreasing in a linear function away from the feature out to the maximum distance where the bird would no longer respond.

**Least-cost corridor** - the sum of the two CWDs surfaces for a lek kernel pair, where resulting cell values represent the deviation from the associated LCP between the lek kernel pair. Also see normalized least-cost corridor (NLCC).

**Least-cost distance (LCD)** - The lowest cumulative movement cost between nodes.

**Least-cost linkage** – Least-cost paths (LCPs) and least-cost corridors.

**Least-cost path** – the single-cell wide path, from a source node to a destination node, with the least cumulative cost. LCPs were identified and mapped with the Linkage Mapper toolset using the lek kernels data and the CWD surface as inputs.

**Lek kernel** - localized areas surrounding target leks modeled as being the most accessible to a female sage-grouse moving outward from a given lek in search of a suitable nesting site, identified using the resistant kernel algorithm. These areas serve as both source and destination habitat patches (nodes) between which habitat connectivity for sage-grouse movement was analyzed.

**Linkage index** – an integrated measure of both *linkage quality* and average corridor width. See ‘Linkage Statistics’ for more information.

**Linkage quality** – This statistic, independent of LCP length, is a measure of the average resistance encountered along an LCP. See ‘Linkage Statistics’ section for equation.

**Linkage robustness** - a measure of average corridor width, the availability of multiple, low-resistance routes within a corridor. See ‘Linkage Statistics’ section for equation.

**Linkage zone** – broad belts of land with relatively greater habitat continuity. In this study, linkage zones have been delineated by the spatial extent of *normalized least-cost corridors*, or NLCCs.

**Mortality risk** – the risk of death to a focal organism from landscape or anthropogenic features.

**Moving window analysis** – see *Focal Operation*.

**NLCD** – the “National Land Cover Dataset” is a GIS product, produced by the USGS approximately every five years, which classifies each 30m cell to a category of land use (e.g. Developed – High Intensity) or structural vegetation type (e.g. Deciduous Forest). The name of each version of the NLCD includes a year which indicates the date of the imagery that version is based upon. In this case, NLCD 2011 was used as an input to the sage-grouse resistance surface.

**Network constellation** – a clustered subgroup of nodes (lek kernels) and linkages within a broader network.

**Network** – see *Analysis network*.

**Node(s)** – in connectivity analysis, locations that represent the entities being connected together. In this analysis, these are *lek kernels*.

**Normalized least-cost corridor (NLCC)** – A *least-cost corridor* that is normalized to enable its symbolization with other normalized corridors on a common scale. A least-cost corridor is normalized by subtracting the cost distance of its associated LCP.

**Pinch-points** – in Circuitscape modeling, pinch-points represent locations of highly constricted (and thus strong) current flow, where connectivity could be severed with the loss of a relatively small amount of dispersal habitat. Pinch-points may therefore represent key places to protect from habitat degradation/alteration.

**Polygon** – a class of GIS object which represents an area as a series of points (or “vertices”) connected by line segments.

**Potential functional (habitat) connectivity** – habitat connectivity modeled on landscape structure and limited information on a focal species’ dispersal abilities (Fagen and Calabrese 2006). Also see *actual functional (habitat) connectivity*.

**Raster** – a GIS data format which consists of a matrix of cells, arranged into rows and columns, where each cell contains a value representing information.

**Relative corridor width** - a characteristic of NLCCs, reflects the number of alternative routes through similar quality habitat (with wide linkages typically indicative of more potential pathways through higher-quality habitat).

**Resistance** – an estimate of the cost or impedance to movement of a focal species.

**Resistant kernel** – A modification of the standard kernel estimator applied to a resistant landscape (Compton et al. 2007).

**Sage-grouse** - Greater sage-grouse (*Centrocercus urophasianus*)

**Search neighborhood** – the neighborhood used in a GIS focal function, defined as a maximum search distance and shape of the neighborhood (e.g. square, circle, etc.).

**Source** – in connectivity analyses, a location that represents a ‘from’ node to be connected to a ‘to’ node (or destination).

**Structural connectivity** (or, *continuity*) – modeled *habitat or landscape connectivity* which characterizes the spatial configuration of habitat types across a landscape without attempting to quantify the likelihood of movement by individuals through that landscape. Structural connectivity is traditionally associated with least-cost path analyses and the patch-corridor-matrix model of landscapes, as compared to functional connectivity.

**Topology** – in a GIS, the rules by which point, line, and polygon features share geometry.

**Traversability** (metric) – cell metric based on a resistance-weighted spread algorithm (i.e., resistant kernel) to determine the area that can be reached from each cell, expressed as a proportion of the maximum dispersal area under conditions of minimum resistance. [McGarigal et al. 2012).



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## Appendix 15. Mid- to Broad-Scale Habitat Conditions and Trends for the Greater Sage-Grouse in Oregon

### Abstract

The Greater sage-grouse was determined to be warranted for protection under the Endangered Species Act by the U.S. Fish and Wildlife Service in 2010. As a result, the State of Oregon has undertaken a major effort to update its approach for conserving the species that will ensure that all lands and all threats are addressed. As part of this effort, we assessed mid- to broad-scale baseline conditions and documented methods for assessing habitat conditions over time. This report describes the conditions, trends, and methods for quantifying habitat conditions for the State of Oregon. We relied on relatively straightforward methods adapted from Knick et al. (2013) to examine basic land cover classes such as sagebrush, crop-pasture-hay, and developed lands. We generated summaries for several spatial units to explore differences among these units and provide information to the various working groups to aid in developing an action plan for the sage-grouse. Mean crop-pasture-hay land cover ranged from 0.6% in Priority Areas for Conservation (PACs) to 4.5% among sage-grouse population areas. Mean development ranged from 0.6% in PACs to 1.7% in sage-grouse population areas, and mean sagebrush land cover ranged from 74.1% in close proximity to leks and lek complexes to under 50% in sage-grouse population areas. PACs varied in the amount of the 11 land cover types examined. Big sagebrush shrub, big sagebrush steppe, low sagebrush, and grass habitat types had the widest ranges. Mean crop-pasture-hay and development land cover percentages were quite low and concentrated around towns and cities. Mean percentages of crop-pasture-hay and development among lek occupancy groups (conservation status groups) were also small. Mean percentages of sagebrush land cover decreased as the size of the spatial unit increased, as might be expected by the modifiable areal unit problem. The analysis suggested that there are similarities between the local-scale and regional-scale habitat conditions, but there are also important differences, particularly in relation to historic leks that warrants further study. Change in land cover classes between 2001 and 2010 were generally slight but change in development was statistically significant. Habitat conditions and the metrics used to monitor them also appear to be spatially dependent and therefore care must be exercised when applying results determined at one spatial scale to another.

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## Introduction

The greater sage-grouse (*Centrocercus urophasianus*) has seen its population decline (Connelly et al. 2011) and its habitat shrink to approximately half of its pre-European settlement range (Miller et al. 2011). As a result, the species is of conservation concern and was determined to be warranted for protection under the Endangered Species Act (ESA) in 2010 (USFWS 2010). With a final decision due in September 2015, states within the range of the sage-grouse have been developing plans to conserve the species and remove its candidate status. Likewise, the State of Oregon has been diligently preparing information and a plan for conserving and managing sage-grouse. As part of this statewide, multiple stakeholder effort, the Sage-Grouse Conservation (SageCon) Partnership and SageCon's technical team prepared this report.

This report addresses vegetation conditions and levels of development current up to 2010 at a mid-to-broad scale, and builds on work completed by the Oregon Department of Fish and Wildlife (ODFW) in its *Greater Sage-Grouse Conservation Assessment and Strategy for Oregon* (hereafter, 2011 Strategy; ODFW 2011) and work done at the regional scale by other scientists (e.g., Baruch-Mordo et al. 2013; Copeland et al. 2013; Knick et al. 2013). The methods used to complete this report are similar to methods used by ODFW but rely more heavily on more recent work (Knick et al. 2013). Methods developed for this report may be incorporated into a monitoring program for sage-grouse in the State of Oregon.

The objectives of this report were to (i) describe 2010 habitat conditions and the methods used and (ii) describe trends in habitat conditions from 2001 to 2010 and the methods used to determine those trends.

## Background

Determination of the baseline habitat conditions was a first step in understanding how to manage sage-grouse habitat in the future. The ODFW 2011 Strategy included an assessment of the habitat baseline conditions for 2005, using data from the *Changes in Sage-Grouse Habitat* (National Land Cover Dataset and SAGESTICH) and fire datasets prepared by the Bureau of Land Management (BLM); all data were acquired between 2004 and 2009. The report indicated that in 2005 there were 3.7 million hectares (ha) (9.2 million acres [ac]) of high-viability habitat in Oregon and that there have been dramatic losses in sagebrush habitat since the 1800s. Since 2005, a number of developments have necessitated a revised baseline conditions assessment that builds on the 2011 Strategy.

The rationale for this report and an alternative habitat baseline is as follows:

1. This report incorporates information provided by recent reports such as the multiagency Conservation Objectives Team (COT) Report (USFWS 2013).
2. The analyses reported here used datasets that were designed for change analysis. The 2011 Strategy relied on datasets available at the time, but they were not designed for change analysis, thus making comparisons between the 2011 Strategy assessments and subsequent assessments challenging. In particular, it is challenging to distinguish between differences that are due to the

different data sources and those that reflect actual landscape change. Change analysis is powerful because it provides information that can be referenced by the USFWS as they make their determination, due in September 2015. The USFWS “warranted but precluded” decision was finalized in 2010. Having information that tracks changes in conditions that are directly comparable simplifies some aspects of the USFWS analysis in 2015.

3. A USFWS decision to list the sage-grouse may have enormous repercussions for the economy of southeast Oregon; therefore, the Governor's office requested that a broader forum be convened to address the wide-ranging impacts of a listing. This analysis was developed to aid in the decision making associated with that process, and, therefore, information about the analysis has been shared on an ongoing basis to increase the transparency of the analytical process.
4. This report incorporates additional stakeholder perspectives and newly available data to facilitate an "all lands, all threats" approach designed to be incorporated into a statewide sage-grouse conservation program.
5. Methods and information were needed for the decision-making process being used to develop a conservation and management framework to be presented to the USFWS in preparation for the 2015 listing decision. To meet this need, we tailored the units of analysis and reporting to facilitate that process. This analysis has helped to inform numerous efforts related to the development of *The Oregon Sage-Grouse Action Plan* (hereafter “Action Plan”) (2015).

## Methods and Data

### Project Area

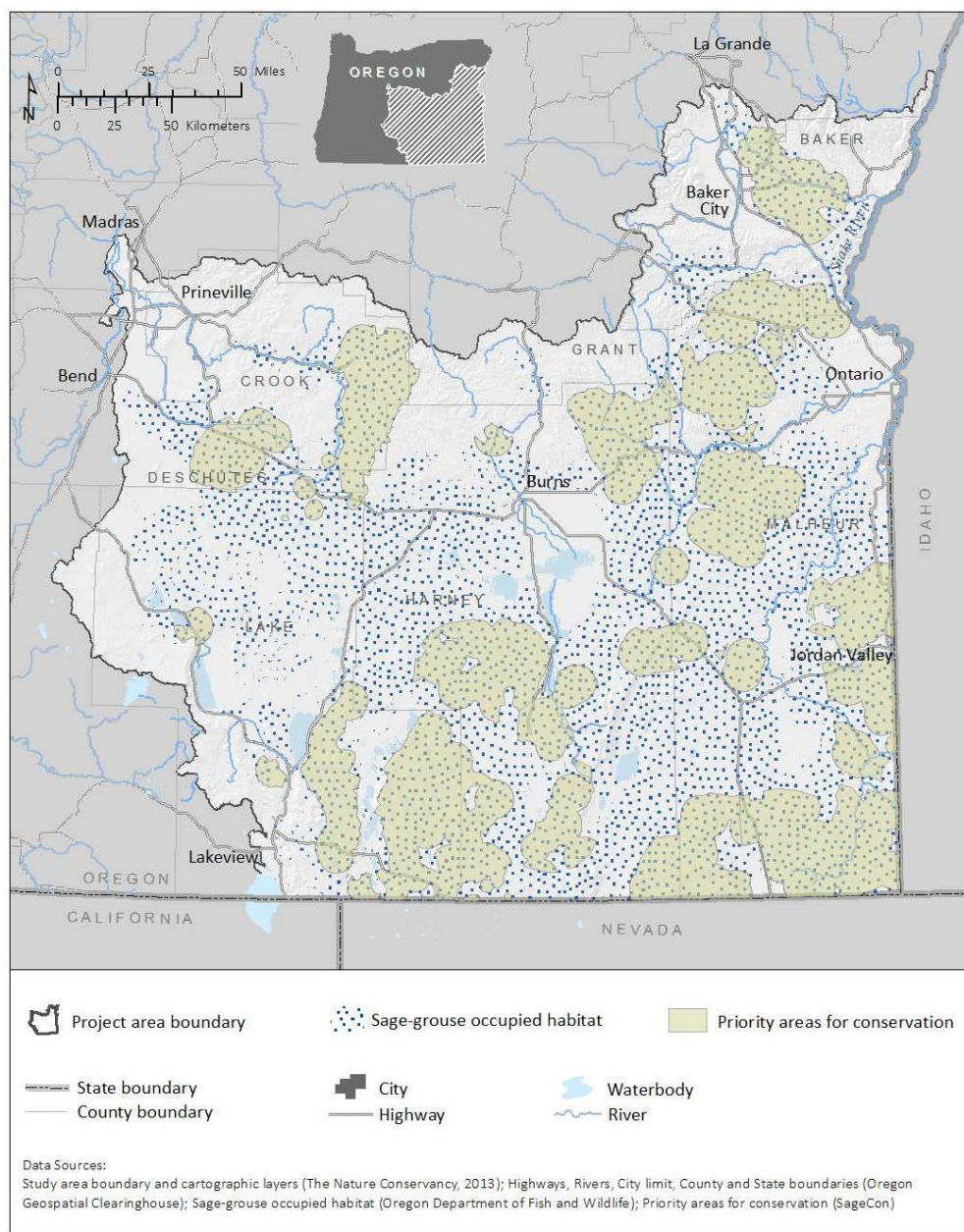
The project area is approximately 23.5 million acres (9.5 million ha) in central and eastern Oregon (Figure 1) and was developed using watershed boundaries (fifth-code hydrologic unit [HUC5]) (U.S. Department of Agriculture-Natural Resources Conservation Service et al. 2011). The spatial extent includes most of the range of the sage-grouse in Oregon, with the exception of the Klamath sage-grouse population in south-central Oregon. Sagebrush steppe habitats are the most abundant habitat types in the project area and make up about 55% of the existing vegetation types. Wyoming big sagebrush (*Artemisia tridentata* Nutt. subsp. *wyomingensis* Beetle and Young) and basin big sagebrush (*Artemisia tridentata* Nutt. subsp. *tridentata*) dominate plant communities at low elevations with relatively warm and dry conditions, and mountain big sagebrush (*A. tridentata* Nutt. subsp. *vaseyana*) plant communities dominate at high elevations with relatively cool and moist conditions. Western juniper (*Juniperus occidentalis* Hook) and other conifer species occur in about 16% of the total project area, primarily in mid-to-high elevations with adequate moisture availability.

Invasion by exotic annual grasses, such as cheatgrass (*Bromus tectorum* L.), medusahead (*Taeniatherum caput-medusae* (L.) Nevski) and others, is a major threat to sage-grouse habitat. These species invade via multiple mechanisms, including higher seeding capacity, earlier germination, and greater winter root growth than most native grasses, enabling earlier and faster use of soil moisture (Knapp 1996). Cheatgrass and other exotic grasses impact wildfire regimes due to the abundant and continuous fine fuels they provide (Knapp 1996). Expansion of western juniper is also a major threat to



sage-grouse habitat in Oregon (Boyd et al. 2014). Dramatic alterations in wildfire regimes are tied to shifts in both the composition of drier vegetation communities, such as Wyoming big sagebrush, and in moister communities, where western juniper is expanding (Davies et al. 2011).

**Figure 1. Project area and sage-grouse habitat.**



## Data

To estimate habitat conditions at the broad scale, we used land cover classes in the LANDFIRE Existing Vegetation Type 1.2.0 Refresh data product (LF 2010 [[www.landfire.gov](http://www.landfire.gov)]), and to assess trends since 2001, we used the LANDFIRE Existing Vegetation Type 1.0.5 Refresh data product (LF 2001

[[www.landfire.gov](http://www.landfire.gov)]). Land cover classes represent vegetation and other physical features, including asphalt and water, on Earth's surface. The Existing Vegetation Type (EVT) data products primarily represent complexes of vegetation communities named or classified according to the Ecological Systems classification (Comer et al. 2003), supplemented with units derived from the National Land Cover Dataset, National Vegetation Classification Standard Alliances, and LANDFIRE specific types. The EVT data products were developed using decision tree models to classify field data, Landsat imagery, elevation, and biophysical gradient data (combinations of climate, physiography, and soils; Keane et al. 2002). The list of LANDFIRE classes included was extensive (Appendix 2). EVT Refresh datasets are rasters with 30-m spatial resolution and were developed to support land cover change analysis. The EVT Refresh layers were also used in the development of other LANDFIRE products. Disturbance classes in the categories of fire, treatments, and exotics were included in the EVT Refresh datasets. The disturbance data were contributed by users to the LANDFIRE program as polygon datasets. The disturbance data was input to the LANDFIRE Events Database and used to refine the landscape conditions derived from modeling (<http://www.landfire.gov/about.php>). Fire disturbances and management actions such as chemical treatments resulted in shifts from shrubland types to herbaceous or exotic species types, depending on the location and treatments. In lowlands, shrublands were replaced by introduced grasses (exotic grasses) following disturbance (LANDFIRE 2011).

We grouped EVT Refresh classes using the same crosswalk as Knick et al. (2013), which we obtained directly from the source. The groups were used to convert the EVT Refresh datasets to single-theme, binary datasets representing land cover types or *landscape attributes* of interest, using Table 1 (also see Appendix 2).

**Table 1. Land cover types of interest. These were developed using a crosswalk by Knick et al. (2013). Member classes for each aggregated landscape attribute are listed in Appendix 2.**

Landscape attribute	Description
CROPPASHAY	Agricultural land use types, including pasture and hay fields and irrigated agriculture.
DEVELOP	Land use types that are primarily human, built environments, including residential and urban land uses.
SAGE	All sagebrush types were aggregated into this class.
BIG_SAGE_SHRUB	This is a single class: "Inter-mountain basins big sagebrush shrubland."
BIG_SAGE_STEPPE	This is a single class: "Inter-mountain basins big sagebrush steppe."
LOW_SAGE	Low sagebrush and scabland shrubs types are included.
MOUNTAIN_SAGE	All mountain big sagebrush types are included.
CONIFER	This includes all non-juniper conifer types such as ponderosa pine-dominated land covers.
JUNIPER	All western juniper types are included in this class in Oregon.
GRASS	All grassland land cover types.
RIPARIAN	All riparian types are included.

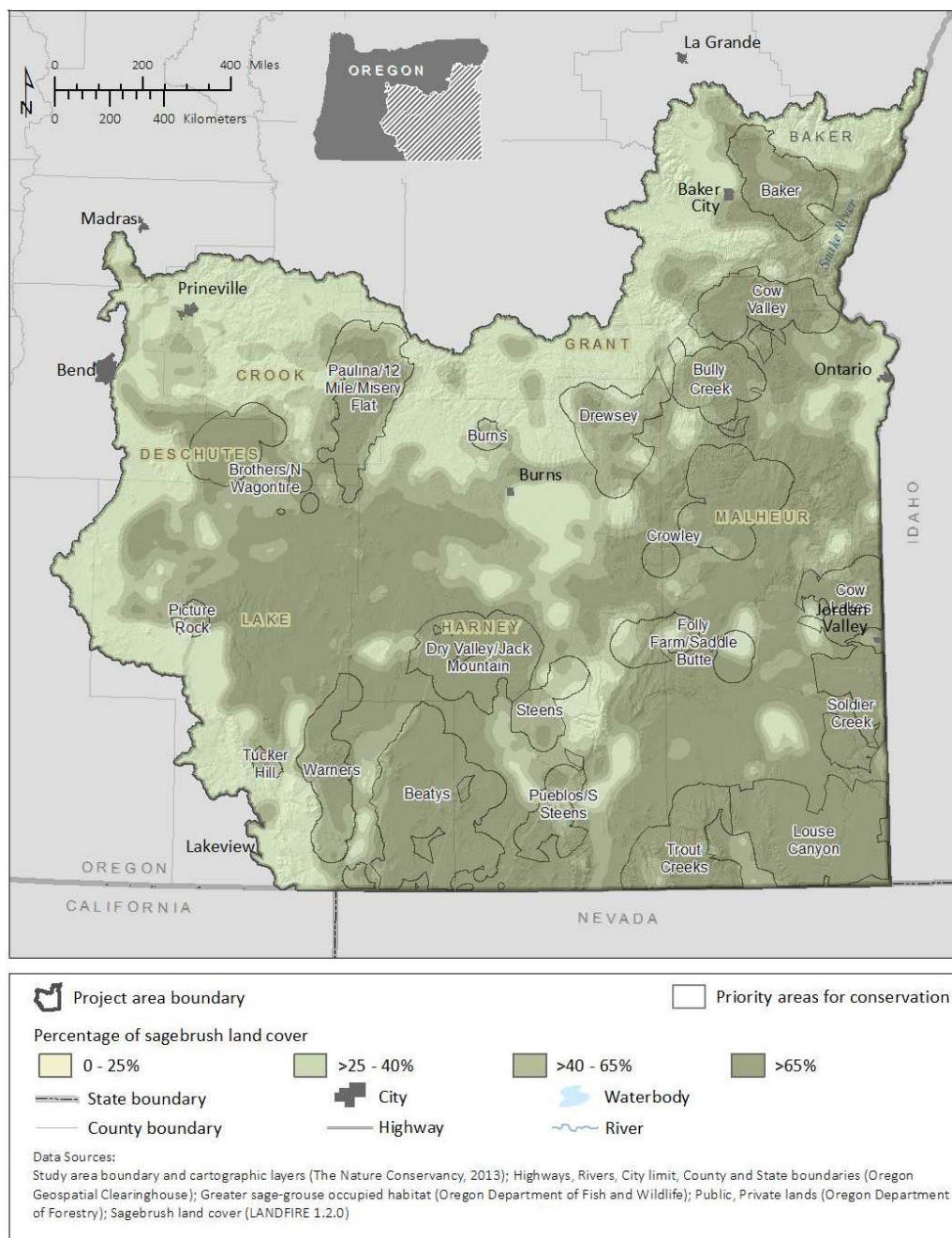
## Analysis of Habitat Conditions

Habitat conditions were determined for 2001 and 2010 by calculating percentage cover of each habitat type in a GIS for four primary spatial units: the boundaries of the project area, population areas, Oregon Priority Areas for Conservation (PACs), and areas within 5 km of lek locations. In addition, two

management units (Bureau of Land Management [BLM] districts and ODFW Sage-Grouse Action Areas [Action Areas]) were also used in this analysis.

Distinct sage-grouse breeding populations delineated and grouped by North American floristic regions (Connelly et al. 2004; pp. 6-1 to 6-77) were modified from Schroeder et al. (2004) to be continuous and cover the entire project area. PACs were developed with ODFW by grouping polygons of core habitat based on proximity and size criteria. Core habitat was mapped using a lek density model (ODFW 2011) and served as the boundary for PACs in Oregon for recent assessments completed by federal agencies (USFWS 2013). PACs were assigned to ODFW management units (Action Areas) and named according to the Action Area in which each PAC was located. We obtained lek location and occupancy data from ODFW in November 2013. The lek locations were buffered, using a 5-km distance to create “lek buffers” that represent lekking grounds and surrounding nesting habitat. Numerous studies have concluded that most nests are situated within 5 km of lek centers (e.g., Holloran and Anderson 2005; Doherty et al. 2010; Coates et al. 2013). Lek buffers overlap in a majority of cases.

Figure 2. Sagebrush land cover in 2010.



Leks were grouped by ODFW into six conservation status categories: occupied, occupied pending, unoccupied, unoccupied pending, historic, and unknown. For some analyses, we aggregated the leks into occupied and unoccupied groups. Occupied leks included leks defined as having one or more males counted in each of seven consecutive years ("occupied" conservation status) and leks that had one or more males at the last visit but had not been regularly monitored over the last seven years ("occupied pending" conservation status). Unoccupied leks were leks with an "unoccupied," "unoccupied pending," or "historic" status category, comprising leks at which no birds were present for eight or more



consecutive years in which repeated visits occurred (“unoccupied”); leks at which birds were not present at the last site visit and had not been regularly monitored during the past seven consecutive years (“unoccupied pending”); and leks that have not had males present since at least 1980 (“historic”). Leks with unknown status were not grouped.

ODFW identified lek complexes—groups of lek sites that tend to function as a single unit and are located in close vicinity ( $\leq 1$  mile), usually with at least one larger lek site (ODFW 2011)—in the lek dataset. Landscape attributes were summarized for lek complexes using all member leks with an occupied or occupied pending status. In addition, the geographic centers, or *centroids*, of the member leks for each lek complex were developed in ArcGIS. We estimated habitat conditions using the landscape attributes for “active” (at least one occupied or occupied pending lek within a complex) and “inactive” (all leks were unoccupied, unoccupied pending, or historic) lek complexes using two methods. The first method used the arithmetic mean as the estimate of habitat conditions in each lek complex; the second method used the inverse distance-to-lek-centroid-weighted average of the attributes of member lek buffers. Only the inverse distance-weighted average was used in the analysis and is presented in this report. The estimates of habitat conditions in the lek complexes were used in place of lek members in subsequent analyses. Lek complexes have not been used extensively by other researchers, and comparisons to other research are limited. However, because lek activity within lek complexes can vary over time, we felt that this approach provides a more realistic representation of sage-grouse habitat associations (but see Walker et al. 2007 for an example in which the lek concept has been used).

The two management-specific spatial units, BLM districts and Action Areas, were also incorporated into our efforts. These units are important to managers in Oregon. BLM is the largest owner and manager of sage-grouse habitat. Boundary data for BLM districts were obtained from the BLM corporate database (<http://www.blm.gov/or/gis/data.php>). ODFW organized implementation of the 2011 Strategy around the Action Areas; these units were developed with local stakeholder input and include both core and other habitat (mostly low-density). Boundaries for the Action Areas were obtained from ODFW.

## Data Analysis

Habitat conditions were estimated for the spatial units and management-specific units of interest (lek buffers, Oregon PACs, ODFW Action Areas, BLM districts, population areas, and the project area), using the 11 landscape attributes described in Table 1. Moran’s I was used to describe spatial autocorrelation among habitat attributes in lek buffers. We also examined change between 2001 and 2010 for three landscape attributes: all-sagebrush habitat, crop-pasture-hay, and development. The Wilcoxon signed rank test was implemented in R (R Core Team 2013) to test for significant change in habitat conditions between the two years. The V statistic was used to assess how different the median land cover proportions were for years 2001 and 2010, with less difference, or change, indicated by V-values close to zero, and more change indicated by larger absolute values. The range of V depends on the number of samples being tested. All GIS data were prepared and analyzed in ArcGIS 10.1. Python scripts were developed to automate summarization by the spatial units of interest.

## Results

### Spatial and Management Units

Four modified population areas (“population areas”) occur in the project area. The population areas ranged in size from 1,551,069 ac to 8,083,788 ac (std. dev = 2,555,030) (Table 2). Four BLM districts ranged in area from 5,771,366 ac to 15,222,301 ac (std. dev. = 3,627,501). Thirty-two ODWF Action Areas ranged in area from 32,208 ac to 939,551 ac (std. dev. = 258,856). There were 20 Oregon PACs that ranged in area from 31,545 ac to 841,398 ac (Table 2); the arrangement of core habitat areas composing individual PACs also varied (Figure 1). Lek buffers had a uniform area of 19,408 ac. One thousand eighty-eight leks were assessed in this analysis. Of these, 514 were members of lek complexes, and 574 were single leks not associated with a lek complex. Of the lek complexes, 156 were active, 28 were inactive, and four were of unknown status.

**Table 2. Mean and median area for spatial units assessed.**

	5-km Lek Buffers*	Oregon PAC	Action Areas	BLM Districts	Population Areas	Project Area
	n = 1088	n = 20	n = 32	n = 4	n = 4	n = 1
<b>Mean (acres)</b>	19,408.0	328,392.0	344,626.0	5,869,532.0	5,882,039.0	23,526,482.0
<b>Median (acres)</b>	NA	312,868.0	317,850.0	5,550,357.0	6,946,561.0	NA

\* Lek buffers are all of equal area, so the mean and median were equal to the area of each lek buffer.

### Mean Habitat Conditions

We calculated the habitat conditions as percentages of the total area of individual spatial units (Table 3), then averaged these within the spatial and management units. Mean crop-pasture-hay habitat cover ranged from 0.6% in PACs to 4.5% among population areas. Mean development ranged from 0.6% in PACs to 1.7% in population areas, and mean sagebrush habitat ranged from under 50% in population areas to just over 74% in close proximity to leks and lek complexes.

Crop-pasture-hay occurred across 3.7% and development occurred across 1.5% of the project area. Sagebrush habitat types occurred across more than half of the project area (Figure 2, Table 3). Big sagebrush shrub, big sagebrush steppe, and low sagebrush land covers, in descending order, made up the greatest proportions of sagebrush. Mountain sagebrush occurred across the smallest proportion of the project area. Conifers extended across almost 13% of the project area, and juniper land cover accounted for about 3.6% of the area. Grass habitat types occupied just over 14% of the project area. Riparian land cover types made up the smallest proportion of habitat types in the project area.

The mean sagebrush land cover among population areas was just under 50%, while the mean cover of crop-pasture-hay was 4.5%, and development was 1.7% (Table 3). In descending order, big sagebrush steppe, big sagebrush shrub, and low sagebrush land covers again made up the greatest proportions of sagebrush. The mean amount of mountain sage was just under 3%. Non-juniper conifer types extended across 17.4% of the population areas, and juniper land cover accounted for about 3.1% of the area. Grass habitat types extended across just under 16% of the population areas. Riparian land cover types made up the smallest proportion of habitat types in the population areas.

**Table 3. Baseline conditions (LF 2010) were calculated as percentages for several spatial units useful for management and monitoring purposes. The high standard deviations suggest that the range of values for a landscape attribute is high and that there is considerable spread around the mean. Unbiased coefficients of variation were used for the assessment units with small sample sizes (CV\*).**

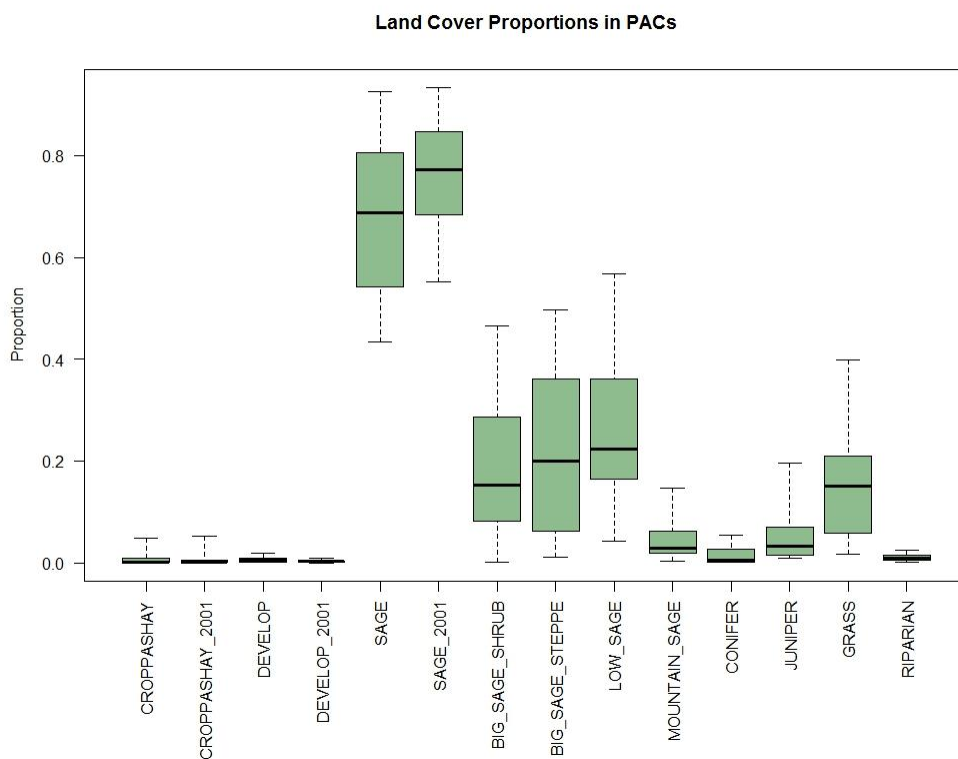
Landscape Attribute	All Lek/Lek Complexes		Oregon PAC		Action Areas		BLM Districts		Population Areas		Project Area
	n = 760		n = 20		n = 32		n = 4		n = 4		n = 1
	Mean	CV	Mean	CV	Mean	CV	Mean	CV*	Mean	CV*	Percent age
<b>CROPPASHAY</b>	0.80%	3.63	0.60%	1.83	0.90%	1.44	3.40%	0.94	4.50%	1.20	3.70%
<b>DEVELOP</b>	0.60%	2.00	0.60%	1.00	0.90%	1.11	1.60%	0.50	1.70%	0.94	1.50%
<b>SAGE</b>	74.10%	0.28	69.60%	0.22	68.50%	0.21	54.10%	0.28	48.60%	0.72	54.90%
<b>BIG_SAGE_SHRUB</b>	19.30%	1.13	18.30%	0.74	19.80%	0.92	18.90%	0.87	16.20%	1.77	19.90%
<b>BIG_SAGE_STEPPE</b>	23.00%	0.97	21.70%	0.75	25.40%	0.72	18.30%	0.51	18.30%	0.77	18.90%
<b>LOW_SAGE</b>	27.30%	0.88	24.90%	0.55	19.60%	0.69	13.80%	0.46	11.30%	1.03	13.10%
<b>MOUNTAIN_SAGE</b>	4.40%	1.64	4.70%	0.94	3.70%	1.03	3.10%	0.32	2.80%	0.57	3.00%
<b>CONIFER</b>	1.00%	4.30	1.50%	1.20	2.20%	1.41	14.70%	1.35	17.40%	1.54	12.90%
<b>JUNIPER</b>	3.00%	1.57	5.10%	1.00	5.60%	1.04	4.20%	1.33	3.10%	1.48	3.60%
<b>GRASS</b>	13.30%	1.20	15.30%	0.73	15.10%	0.68	12.50%	1.14	15.70%	0.97	14.20%
<b>RIPARIAN</b>	1.00%	1.30	1.10%	0.64	0.80%	0.88	1.20%	0.83	1.50%	1.33	1.20%

Among BLM districts, the mean occurrence of crop-pasture-hay was slightly smaller than in both the project area and population areas at 3.4% (Table 3). Development occurred on average over 1.6% of the districts, and sagebrush habitat types made up 54.1% of the land area on average. As with the project area and population areas, big sagebrush shrub, big sagebrush steppe, and low sage were the most abundant habitat types contributing to the overall sagebrush cover. The mean cover of mountain sagebrush habitats was 3.1%. The mean conifer land cover was almost 15%, and mean juniper land cover was 4.2%. Mean grass land cover was 12.5%, and riparian habitats made up just over 1% of the districts on average.

Average crop-pasture-hay and development were less than 1% in Action Areas (Table 3). Sagebrush habitat types averaged close to 70% across Action Areas. Big sagebrush steppe had a higher average in Action Areas than in the larger spatial units. Big sagebrush shrub and low sagebrush land covers were also somewhat more abundant than in the larger spatial units. Mean conifer land cover was considerably lower than in the broader spatial units (2.2%), and mean juniper land cover was greater than that of other conifers (5.6%). Grass habitat types averaged 15.1% in the Action Areas, and riparian types averaged only 0.8%.



**Figure 3. Land cover proportions among all Oregon PACs.** The boxplots illustrate the range of data using quartiles. The median is shown by the black line. The range of values is illustrated by the whiskers. Variables with the suffix “\_2001” are variables calculated from the 2001 LF 1.0.5 dataset, whereas variables with no suffix are current to 2010. Only crop-pasture-hay, developed, and sagebrush land covers were assessed in the change analysis.

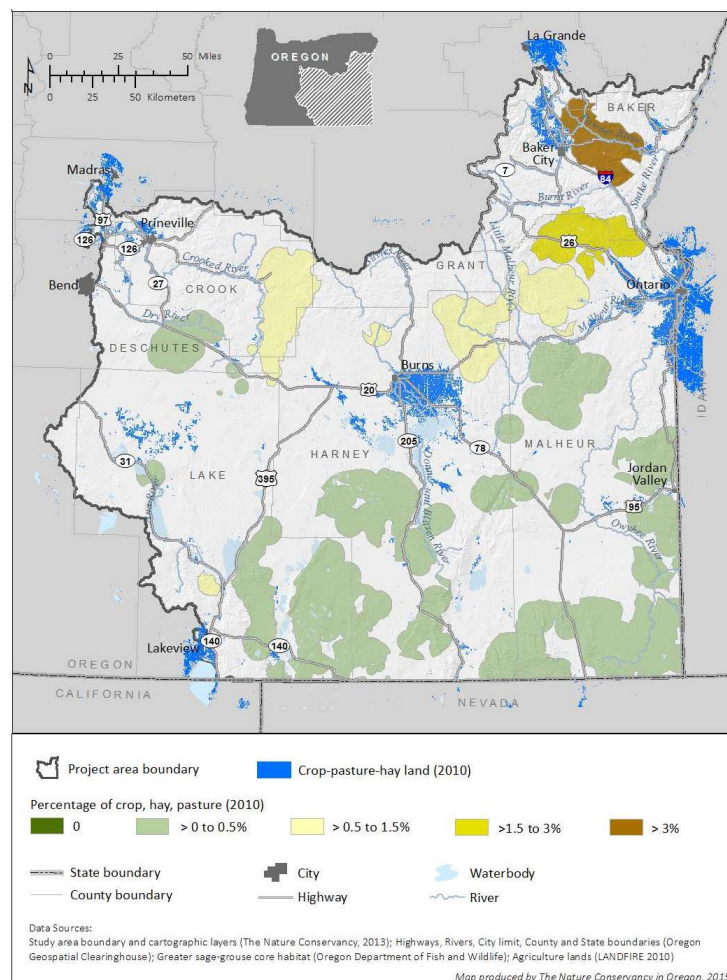


PACs had less crop-pasture-hay and development on average than any other spatial unit (0.6% for each; see Table 3, Figure 3, and Figure 4). Mean sagebrush was high (69.6%), but low sagebrush land cover was the most prevalent sagebrush type among those represented (24.9%) by LANDFIRE EVT. Conifer types were smaller than all broader spatial units (1.5%), and juniper cover was somewhat lower than the average for Action Areas (5.1%). Mean grass habitat cover was second highest (population areas had the highest grass habitat cover). PACs had the least riparian habitat cover of all the spatial units assessed.

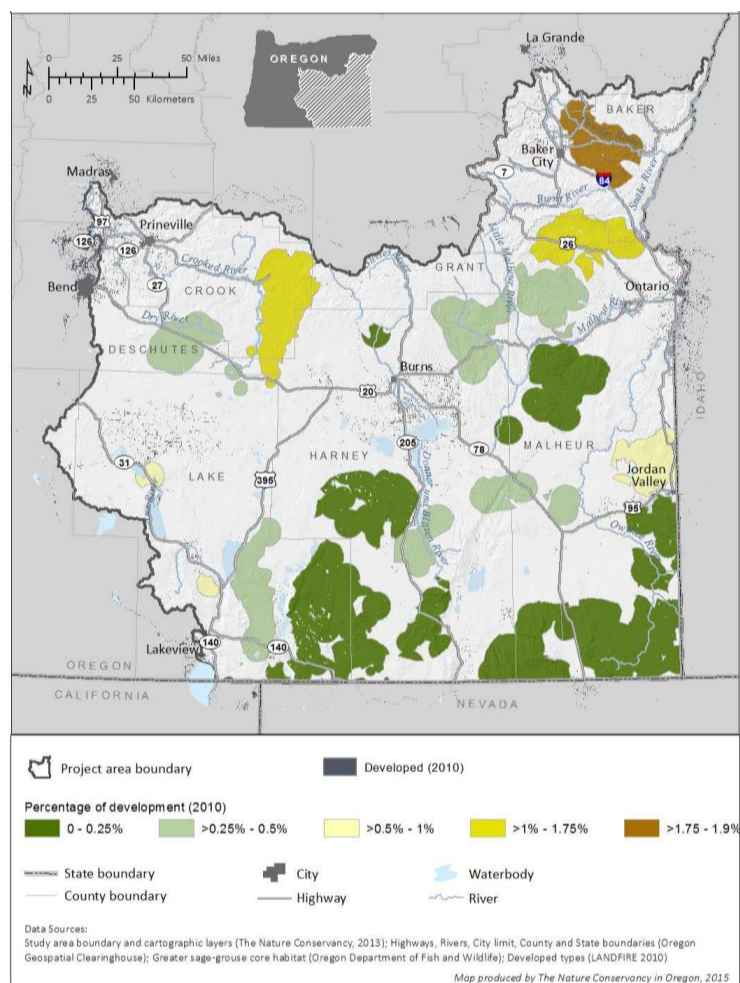
For all lek buffers, mean crop-pasture-hay and development were less than 1% (Table 3, Figure 5). Mean sagebrush habitat cover was higher in lek buffers than in any other spatial unit analyzed. Mean conifer and juniper habitat types were lowest in lek buffers relative to the other spatial units and mean grass habitat cover was the second lowest. Similar to conifer, juniper and grass habitats, riparian habitats were much less prevalent in lek buffers than the other spatial units.

Figure 4. Percentages of (a) crop-pasture-hay and (b) development within PACs.

(a)



(b)



ODFW classified leks as to their occupancy status as previously described, and called this the lek conservation status (Table 4). In the key landscape attribute of sagebrush, estimates of sagebrush land cover were clustered (Moran's  $I = 0.63$ ,  $z\text{-score} = 48.98$ ,  $p < 0.000$ ). Land cover proportions of crop-pasture-hay, development and overall sagebrush habitats for 2010 were variable among the different conservation statuses. Crop-pasture-hay cover was highest in close proximity to historic leks (4.1%) and smallest in close proximity to unoccupied leks (0.4%). Developed land cover proportions were highest near historic leks (4.4%) and smallest near occupied pending leks (0.5%). Sagebrush land cover proportions were highest near occupied leks (77.5%) and smallest near historic leks (70.8%). When occupied and occupied pending leks were pooled into the "occupied" class, the group mean sagebrush cover was 74.4%, group mean crop-pasture-hay cover was 0.6%, and group mean development cover was 0.5% (Table 5, Figure 6). When historic, unoccupied, and unoccupied pending leks were pooled into the "unoccupied" class, the group mean sagebrush cover was 75.8%, group mean crop-pasture-hay cover was 3.2%, and group mean development cover was 0.8%. There were only slight differences

between the means of the occupied and unoccupied lek groups for the key landscape attributes of sagebrush, crop-pasture-hay, and development. The distributions of the landscape attributes were highly skewed (Figure 6).

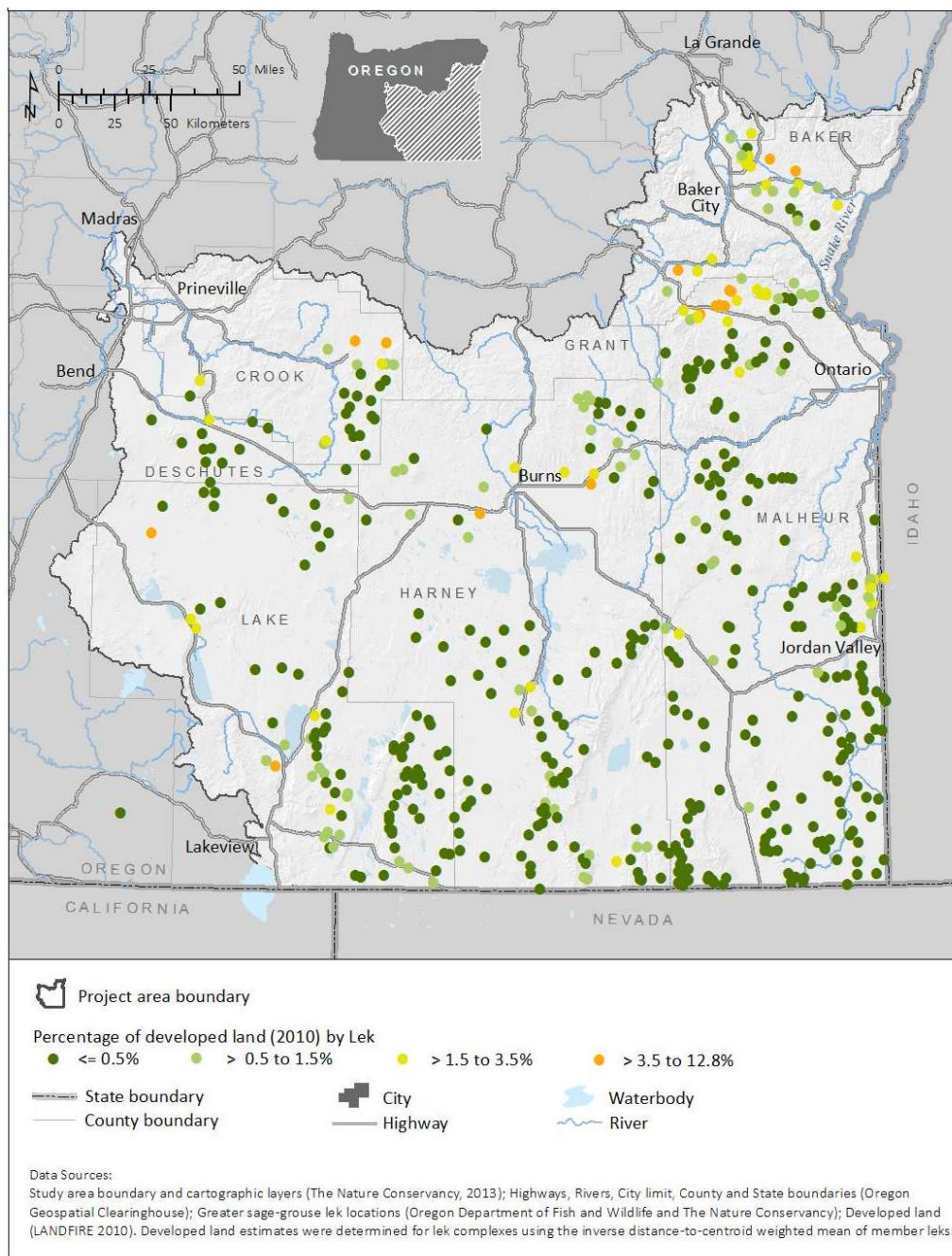
**Table 4. Leks grouped using the ODFW conservation status field. This field is determined using the most recent 8 years of data on lek occupancy. Statuses with a "pending" modifier indicate that less than 8 consecutive years of data were collected at a lek site, and therefore these statuses have a higher degree of uncertainty than the non-pending classes.**

	Occupied n = 118		Occupied Pending n = 503		Historic n = 12		Unoccupied n = 26		Unoccupied Pending n = 380		Unknown n = 49	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>CROPPASHAY</b>	0.5%	1.7%	0.6%	2.0%	4.1%	7.5%	0.4%	1.5%	1.0%	3.1%	1.0%	4.6%
<b>CROPPASHAY_2001</b>	0.5%	1.8%	0.6%	2.0%	4.4%	7.7%	0.3%	1.4%	1.0%	3.3%	1.1%	5.0%
<b>DEVELOP</b>	0.6%	1.3%	0.5%	1.1%	1.7%	1.9%	0.7%	1.1%	0.7%	1.7%	0.5%	1.2%
<b>DEVELOP_2001</b>	0.3%	0.5%	0.3%	0.6%	1.1%	1.4%	0.4%	0.6%	0.3%	0.7%	0.3%	0.7%
<b>SAGE</b>	77.5%	20.6%	73.7%	19.4%	70.8%	15.0%	75.2%	29.8%	76.0%	19.9%	74.4%	17.4%
<b>SAGE_2001</b>	81.6%	14.7%	78.1%	15.0%	72.3%	13.2%	87.4%	10.7%	79.2%	17.5%	76.8%	15.7%
<b>BIG_SAGE_SHRUB</b>	13.6%	16.6%	19.7%	22.2%	18.1%	10.2%	10.2%	9.9%	17.9%	19.7%	25.8%	27.1%
<b>BIG_SAGE_STEPPE</b>	22.2%	21.0%	22.0%	21.9%	38.3%	19.8%	20.3%	22.5%	23.9%	22.6%	25.0%	19.8%
<b>LOW_SAGE</b>	37.9%	27.9%	26.8%	22.6%	13.2%	13.3%	41.6%	32.2%	29.4%	25.2%	18.7%	21.1%
<b>MOUNTAIN_SAGE</b>	3.8%	5.5%	5.3%	7.0%	1.1%	1.6%	3.2%	6.3%	4.7%	8.0%	4.9%	9.5%
<b>CONIFER</b>	0.9%	2.9%	0.9%	3.3%	0.1%	0.1%	0.4%	1.0%	1.0%	4.9%	1.6%	5.3%
<b>JUNIPER</b>	4.7%	6.8%	3.0%	4.7%	1.2%	1.4%	2.6%	3.4%	2.8%	4.2%	1.4%	1.9%
<b>GRASS</b>	10.4%	15.7%	13.7%	15.8%	19.2%	15.9%	16.6%	28.0%	10.7%	13.4%	16.1%	15.2%
<b>RIPARIAN</b>	1.0%	1.4%	1.1%	1.4%	1.5%	1.5%	0.5%	1.0%	0.9%	1.2%	1.1%	1.5%

Lek complexes were separated from single leks and grouped into “active” and “inactive” classes by ODFW (Table 6). In the key attributes of crop-pasture-hay, development, and sagebrush, the mean land cover percentages for active lek complexes were 0.6%, 0.6%, and 77.1%, respectively. Mean land cover percentages for inactive lek complexes were 1.2% (crop-pasture-hay), 1.2% (development), and 73.7% (sagebrush). Mean percentages for lek complexes were similar to those of all leks.



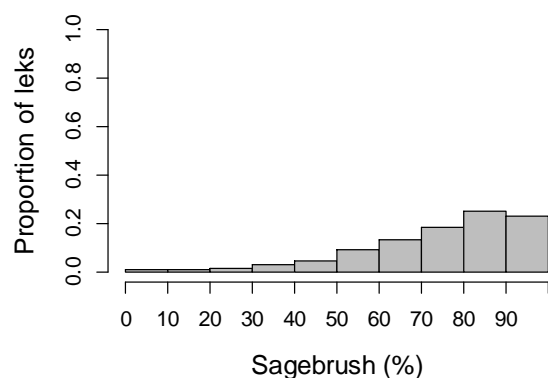
Figure 5. Percentage development in lek buffers in 2010. Single leks are indicated by dots; active lek complexes are indicated by triangles. Circles illustrate the number of leks per lek complex.



**Table 5. Percentage of landscape attributes within lek groupings.**

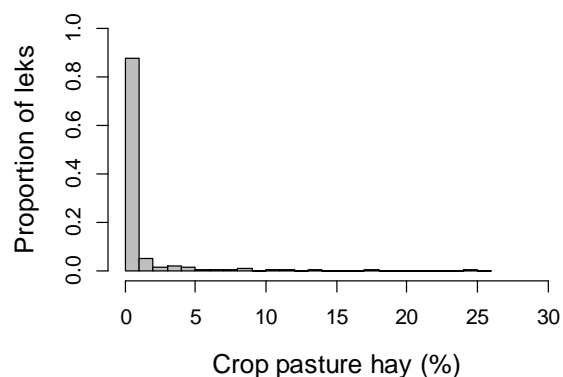
Conservation status	No. of leks	Sagebrush		Crop-pasture-hay		Development	
		Group mean	Group SD	Group mean	Group SD	Group mean	Group SD
Occupied	118	74.4%	19.7%	0.6%	2.0%	0.5%	1.1%
Occupied pending	503						
Historic	12	75.8%	20.5%	1.1%	3.2%	0.8%	1.7%
Unoccupied	26						
Unoccupied pending	380						
Unknown	49						
<b>Total</b>	<b>1088</b>						

(a)

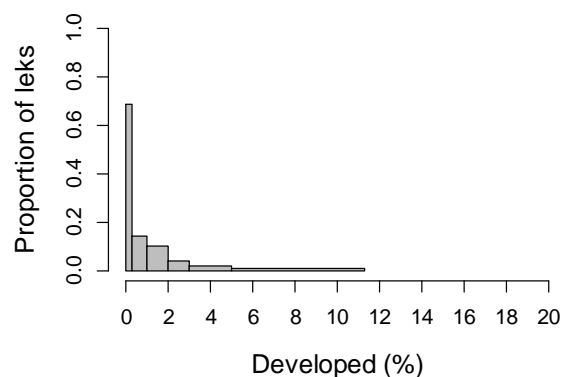


**Figure 6. The proportion of occupied and occupied pending leks relative to the percentage of the three landscape attributes. The three attributes are illustrated in three graphs: (a) sagebrush, (b) crop-pasture-hay, and (c) development. The vertical axes represent the proportion of leks falling into each percentage class represented on the horizontal axis. The horizontal axes are not equivalent among the graphs.**

(b)



(c)



## Past Conditions and Current Trends in Habitat

At the project area level, crop-pasture-hay decreased and development increased between 2001 and 2010 (Table 7). Mean amounts of sagebrush habitat in the project area decreased. Among population areas and BLM districts, we found the same trends for crop-pasture-hay, development, and sagebrush as at the project area. Statistical significance was not tested for these units due to the small sample size.

Among Action Areas, the mean change in sagebrush was slight but significant ( $p < 0.001$ ,  $V > 0$ ; Table 7). Changes in crop-pasture-hay were also small and not significant ( $p = 0.6$ ,  $V = 235$ ). Changes in development were slight but significant ( $p < 0.001$ ,  $V > 0$ ).

Mean amounts of sagebrush habitat have decreased in PACs since 2001 ( $p < 0.001$ ,  $V = 210$ ; Table 7), and appears to be related to habitat changes due to fire (Figure 7). Change due to fire was not controlled for. Change in crop-pasture-hay in PACs was not significant ( $p > 0.15$ ,  $V = 82$ ) and was concentrated in a few areas (Figure 8). Change in development was slight but significant ( $p < 0.001$ ,  $V > 0$ ) and also primarily limited to one PAC (Figure 9).

Among leks, sagebrush decreased by 4.3% ( $p < 0.001$ ,  $V = 253,180$ ; Table 7). Mean change in crop-pasture-hay was extremely small and not significant ( $p > 0.05$  level,  $V = 61,033$ ). Mean change in development was small but significant ( $p < 0.001$ ,  $V = 2,272$ ). Changes in landscape attributes associated with member leks in lek complexes were slight but were not tested for significance.

**Table 6. Land cover among lek complexes. Lek complex status was defined as “active” if there was at least one occupied or occupied pending lek within the complex, and the complex status was defined as “inactive” if all leks were unoccupied, unoccupied pending, or historic. Lek complex members are leks that are grouped into a lek complex. Single leks are the remaining leks that are not associated with a lek complex.**

	Active complexes n = 166		Inactive complexes n = 28		Unknown complexes n = 4		All single leks n = 574	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CROPPASHAY	0.6%	2.2%	1.2%	2.5%	0.7%	1.2%	0.9%	3.1%
CROPPASHAY_2001	0.6%	2.2%	0.9%	2.5%	0.6%	1.1%	0.9%	3.2%
SAGE	77.1%	17.9%	73.7%	23.7%	74.1%	20.0%	73.4%	20.8%
SAGE_2001	80.4%	14.3%	78.7%	18.3%	74.3%	19.8%	77.9%	16.7%
DEVELOP	0.6%	1.4%	1.2%	2.7%	0.4%	0.5%	0.6%	1.1%
DEVELOP_2001	0.2%	0.5%	0.3%	0.8%	0.3%	0.4%	0.3%	0.7%



Table 7. Mean percentages of habitat in 2001, based on LANDFIRE 2001 Refresh data, and change since 2001. Wilcoxon rank sum tests were used to test for significant change between 2001 and 2010 among leks/lek complexes, PACs, and Action Areas. Significant change is indicated in boldface. Rank sum tests were not performed on BLM districts, population areas, or project area because of the small sample sizes (n = 4).

	Leks/Lek Complexes n = 760			Oregon PAC n = 20			Action Areas n = 32		
	Mean	CV	Change since 2001	Mean	CV	Change since 2001	Mean	CV	Change since 2001
<b>CROPPASHAY</b>	0.80%	3.75	0.00%	0.60%	2.00	0.10%	0.80%	1.75	0.00%
<b>DEVELOP</b>	0.30%	2.33	<b>0.30%</b>	0.30%	1.00	<b>0.20%</b>	0.50%	0.80	<b>0.40%</b>
<b>SAGE</b>	78.30%	0.21	<b>-4.30%</b>	76.10%	0.16	<b>-6.50%</b>	74.60%	0.17	<b>-6.10%</b>
	BLM Districts n = 4			Population areas n = 4			Project Area n = 1		
	Mean	CV	Change since 2001	Mean	CV	Change since 2001	Prcnt	Change since 2001	
<b>CROPPASHAY</b>	3.50%	0.86	-0.10%	4.70%	1.19	-0.20%	3.70%	-0.10%	
<b>DEVELOP</b>	0.90%	0.67	0.70%	1.00%	1.00	0.80%	0.80%	0.70%	
<b>SAGE</b>	58.40%	0.27	-4.30%	52.60%	0.71	-4.10%	59.50%	-4.60%	

**Figure 7. Change in sagebrush habitat types since 2001 in core habitat areas. Fire is depicted to illustrate overlap between core and burned areas.**

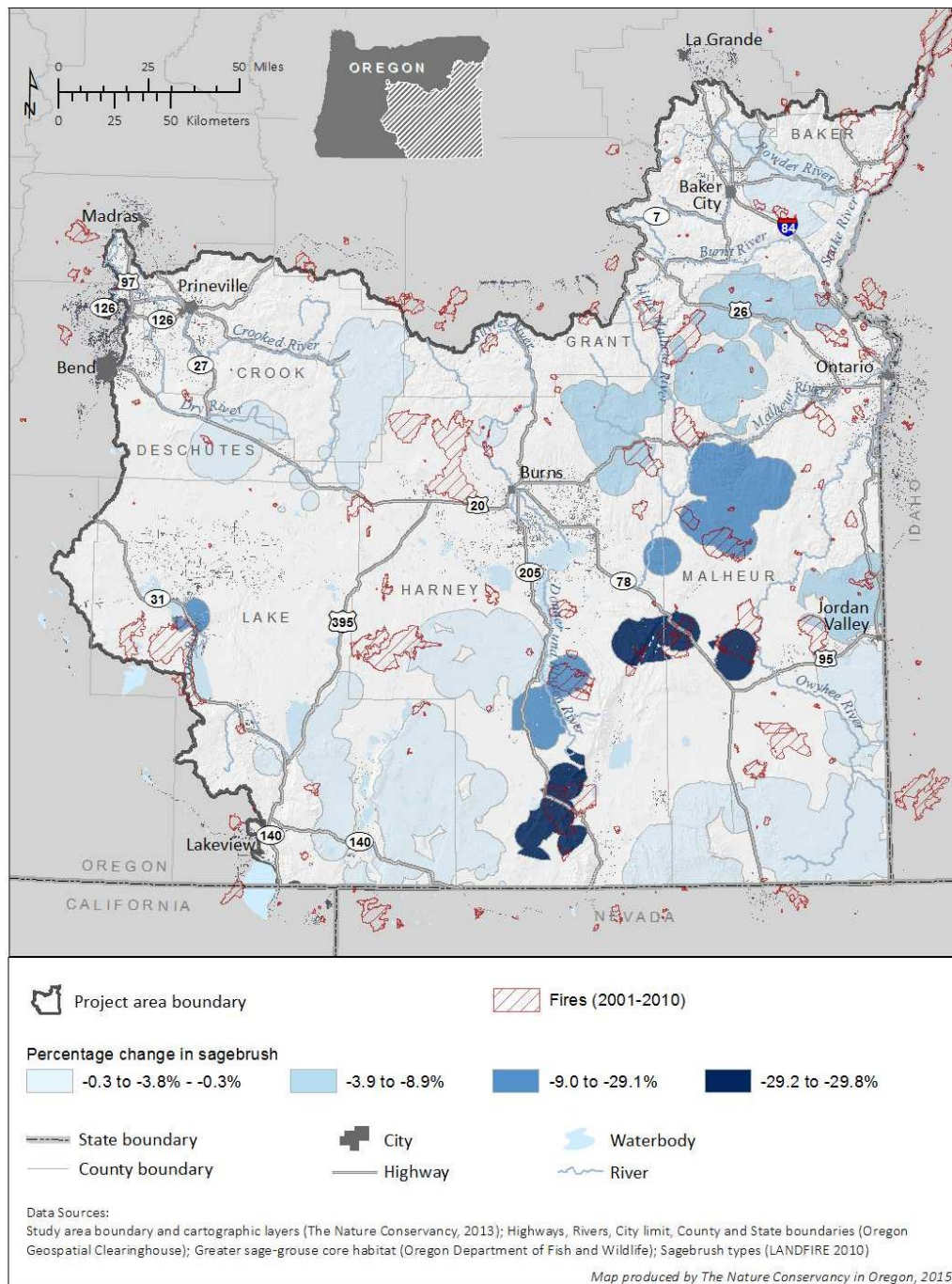


Figure 8. Change in crop-pasture-hay since 2001 in core habitat areas.

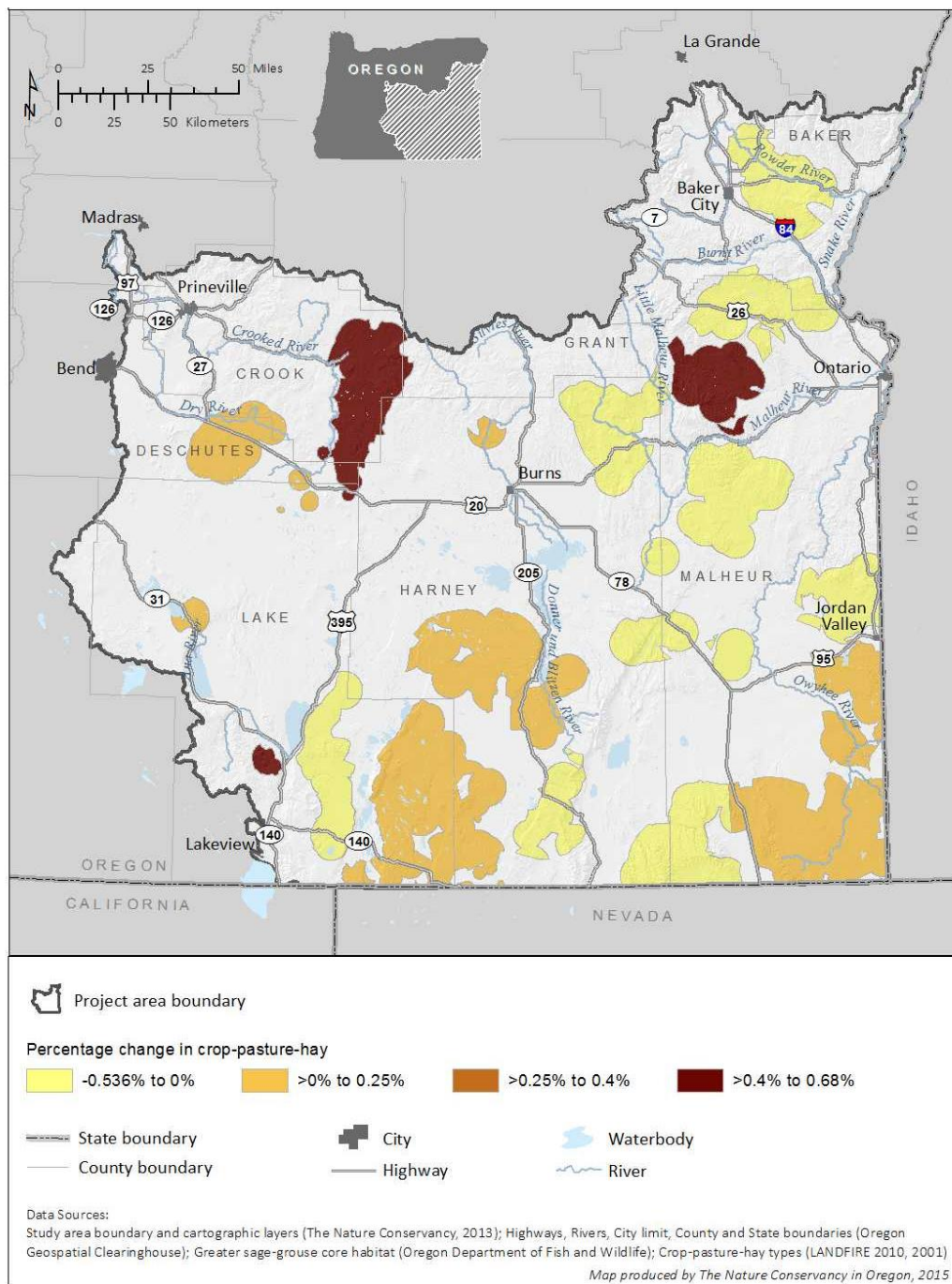
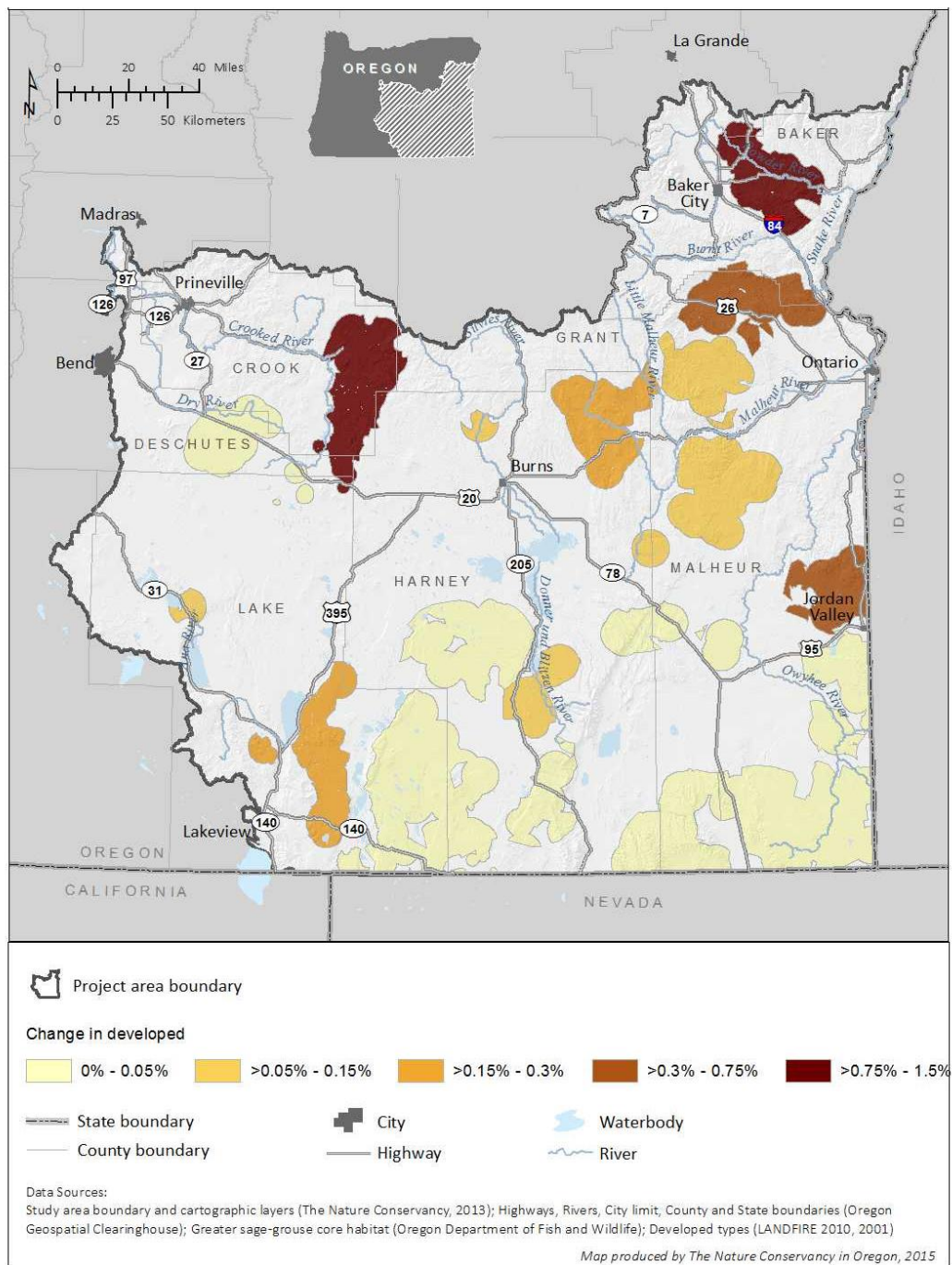




Figure 9. Change in developed land cover since 2001 in core habitat areas.



## Discussion

### Habitat Conditions

Among the spatial units examined, we observed that there was a relationship between the size of the spatial units analyzed and the amount of the sagebrush, development, and crop-pasture-hay in the units. We expected to see this relationship because the smallest units were determined using knowledge and data about sage-grouse habitat selection in the vicinity of lekking sites, and the larger units were developed for a variety of reasons and uses. More specifically, we observed that mean sagebrush land cover declined as the spatial unit size increased. Individual sagebrush type land covers also declined. These declines were expected because, as the spatial unit extent increased, the biophysical variation (topography, soils, micro-climates, etc.) was also likely to increase. Greater biophysical variation is tied to greater variation and number of land covers encountered. Crop-pasture-hay and development percentages increased as the spatial unit size increased. Because the smallest spatial units (leks/lek complexes and PACs) were defined according to sage-grouse locations and population densities, we expected that the abundance of crop-pasture-hay and development would be less in leks/lek complexes and PACs than it was in the BLM districts, population areas, and the project area. This is because the bird generally avoids disturbance and preferentially selects its habitat away from disturbed habitats.

In BLM districts, sagebrush land cover was considerably lower than those identified by the 2011 Strategy, so we may be underestimating values due to our reliance on EVT Refresh data. Some difference may be owed to the 30-m native resolution of the EVT data versus the 90-m native resolution of the SAGESTICH data used in the ODFW analysis. The larger cell size could contribute to different values relative to our estimates, depending on the spectral and geometric (i.e., shape) characteristics of the features captured in the EVT data.

We expected and found that PACs contained the best conditions for supporting sage-grouse and had high levels of sagebrush land cover, with a mean percentage of >70% for sagebrush habitat. Our results were in agreement with recent investigations that suggest that a biological threshold exists for sage-grouse habitat selection at around 70% habitat land cover (Baruch-Mordo et al. 2013; Knick et al. 2013). Likewise, the conditions associated with occupied leks and lek complexes were similar to those in recent investigations, especially in the key land covers of crop-pasture-hay, development, and sagebrush.

### Past Conditions and Habitat Change

We observed decreased sagebrush in all spatial units between 2001 and 2010 but only tested for significance in Action Areas, PACs, and leks/lek complexes due to small sample sizes in the other spatial units. Declines in sagebrush between 2001 and 2010 were statistically significant in the spatial units tested for significance (Action Areas, PACs, and leks/lek complexes). PACs experienced the greatest losses in sagebrush and leks/lek complexes had losses in line with the BLM districts. Population areas experienced the smallest losses, but these were only 0.2% less than those observed at the leks/lek complexes and district levels.

Development increased across all spatial units, with the smallest and second-smallest increases observed in PACs and leks/lek complexes. Increases between 2001 and 2010 were statistically significant for the spatial units tested for significance (Action Areas, PACs, and leks/lek complexes). This result

suggests that development has been slowed in the most important habitat areas in comparison to the larger and more diversely used landscape.

We found that the slight increase of development land cover in PACs was significant between 2001 and 2010. This may be because it was concentrated spatially (Figure 5) rather than distributed evenly throughout the project area. We also found that sagebrush significantly decreased. Overlay of fire perimeters from 2001 to 2010 over the PACs identified several large fires that affected several PACs (Figure 7).

We observed that a few PACs contributed most to the overall decrease in sagebrush (Figure 7), and that they are in locations that have been affected by large wildfires in the past 31 years, which we observed by overlaying fire perimeter data from the Monitoring Trends in Burn Severity dataset (<http://www.mtbs.gov/>). The wildfires have occurred in areas of moderate-to-high risk of exotic grass invasion according to the resistance and resilience concept (Chambers et al. 2014), and exotic annual grasses have been mapped over extensive portions of the wildfire-impacted PACs (SageCon 2015). PACs with decreased sagebrush appear to occur in different areas than where crop-pasture-hay and development increased (Figure 7, Figure 8, Figure 9), suggesting that geographic location or local drivers play an important role in addressing threats to sage-grouse.

Conditions associated with occupied leks/lek complexes suggest that sagebrush has decreased by about 4% since 2001, but is still in the range where probability of lek persistence is high (Knick et al. 2013; Chambers et al. 2014). Wildfire and invasive annual-grass expansion as well as juniper encroachment were likely strong contributors to the observed decrease in sagebrush. Human activities, signified by crop-pasture-hay and development, increased negligibly and slightly, respectively, with the increase in development at about 0.3%. Development increases were observed throughout the planning area, with some clustering (Figure 9).

Changes in crop-pasture-hay have some uncertainty associated with them, as the extent of these can change annually based on weather conditions, crop rotations, economic factors, and other factors. Without further analysis of inter-annual change, it is not clear if the changes (or lack of change in the case of occupied leks) in crop-pasture-hay observed within the spatial units are real trends, are related to inter-annual variation, or are a combination of both.

Historic leks had considerably higher levels of human activities than other leks in Oregon. Crop-pasture-hay levels were considerably lower than the ecological minimums identified by Knick et al. (2013), but development levels were in line with the trends observed by that research. The high levels of sagebrush in the 5 km buffers surrounding historic leks suggest that sagebrush loss may not be the main driver of lek extirpation in Oregon, and further research is needed to understand this implication. Instead, broader-scale processes such as habitat fragmentation, local disturbances, or a combination of changes in habitat may have influenced the occupancy of these leks.

Only minor differences were observed among the occupied pending, unoccupied, and unoccupied pending leks. Additional work is needed to identify the “pending” conservation statuses and to differentiate the conditions leading to unoccupied, historic, and occupied leks. An extension of this additional work is the need to more clearly relate sage-grouse population dynamics to land cover change dynamics in Oregon (but see Knick and Hanser 2011 for an example of a regional analysis).

## Limitations

### *Spatial autocorrelation*

A number of limitations were evident in the work presented here. Spatial autocorrelation was apparent in the estimates of habitat conditions in close proximity to leks. Spatial autocorrelation may bias habitat condition estimates, as numerous locations were “double sampled” due to overlap in two or more lek buffers throughout the project area. It may also exist within other spatial units such as the PACs. Additional work is needed to account for this potentially confounding factor.

### *Issues related to spatial scale and extent*

The methods used to complete this analysis were prepared with the intention that they could be used in future assessments of habitat for the State of Oregon while also facilitating decision-making processes. To meet the anticipated need for future monitoring, we used several criteria in our selection of the methods. First and foremost, we felt that it was important that the methods be relatively easy to understand by the collaborators and to replicate by analysts. To this end, the spatial units selected for the assessment were chosen to make sense to the collaborators, land managers, and other decision makers. Other important selection criteria were that data were readily available, consistent, and complete, and could be used to assess change over time. Because the types and characteristics of data products tend to evolve and improve over time, we also wanted methods that could be adapted to the emerging datasets. Finally, we wanted to ensure that comparisons could be made across data resolutions and spatial extents. For example, we wanted to ensure that differences in the estimates of habitat conditions could be standardized to allow relationships to be calculated between fine- and coarse-resolution datasets and across different management units. It was assumed that these conditions were true for the analyses presented here; however, the variation in size within and among the spatial units assessed was substantial (Table 2). In general, comparisons among spatial units should be avoided due to the scale problem (i.e., modifiable areal unit problem) (Openshaw 1984). This problem arises when information is grouped into different sized units and spatial arrangements. While we have presented the data together in Table 3, there was an evident decrease in some values as the area of the spatial unit increased and they were thus prone to the modifiable areal unit problem.

To assess the scalability of the methods adapted for this report, we informally analyzed the scaling relationship among the spatial units used. For this informal analysis, we sought to answer the basic question: Can habitat conditions derived from lek buffers be extrapolated to PACs or other analysis units? For the preliminary analysis, we hypothesized that changes in spatial unit extents result in linear changes in habitat condition estimates. We found that linear relationships were apparent for crop-pasture-hay, development, and sagebrush land cover among our spatial units and therefore lend themselves to prediction across spatial extents. Further research is needed to quantify the scaling relationships and understand how data resolution impacts the outcomes.

The sage-grouse has a range that extends across 11 states as well as two Canadian provinces. Considerable work has been completed to understand the local-, landscape-, and broad-scale conditions that explain sage-grouse habitat occupancy and population dynamics (Connelly et al. 2004; Hagen et al. 2007; Connelly et al. 2011; Coates et al. 2013); however, linking these studies with metrics that work with existing monitoring and management schemes is challenging. Doherty et al. (2010) demonstrated that sage-grouse habitat selection can be predicted using information derived at multiple spatial scales,



but their analysis relied on plot-level data and remote sensing information. Acquisition of plot-level vegetation and sage-grouse data that is consistent across the entire range of sage-grouse for monitoring mid- to broad-scale spatial patterns and population trends is challenging, leaving remote sensing information as the best available choice for monitoring at these broader scales in the near future. Understanding the scaling properties of sage-grouse habitat conditions when using data derived from remote sensing can provide useful information for monitoring and adaptive management of sage-grouse across multiple relevant scales.

### *Data error*

The datasets available to calculate habitat conditions were all modeled data. As such, they were, as George Box put it, wrong, but useful. Dataset utility comes from a clear understanding of the methods used to develop the data, the time range over which the data were applicable, and the repercussions of the resolution, among other factors. EVT data were developed at a regional scale for national- and regional-level analyses and therefore were less desirable for state-level and finer applications. Moreover, their accuracy at predicting arid system types has been questioned. For now, these data are useful for examining trends, but as higher resolution and more accurate data become available, EVT data should be phased out for state-level and finer applications.

In any large assessment in which many datasets are manipulated and analyzed, human error is always a possibility. To reduce the potential for processing errors, we created Python scripts that strictly record the processes used and can be used repeatedly. While they help to reduce error, they can be somewhat unstable between versions of ArcGIS.

## Conclusions

Our analysis suggested that, in Oregon, sage-grouse habitat conditions at local scales are similar to those identified as important at regional scales; however, there are also important local differences, particularly surrounding historic leks. Oregon has seen some changes in habitat conditions, and they appear spatially dependent at the PAC scale in particular. Changes between 2001 and 2010 in crop-pasture-hay and development were slight; however the change in development was statistically significant, suggesting that attention should be paid to this threat in the future. The data used in this analysis were developed for change analysis and can be used to examine change over time, an important part of monitoring habitat conditions. Additional research is needed to understand the scaling properties of the data used and how assessments of this type relate to population dynamics.

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## Appendix 1

### Data Sources

- LANDFIRE: Land cover—Existing Vegetation (LF 1.2.0, 2010 [released in 2013] and LF 1.0.5 [[www.landfire.gov](http://www.landfire.gov)])
- ODFW: Lek locations and sage-grouse Action Areas
- BLM: District boundaries
- SageCon: Modified population areas based on Schroeder et al. (2004)
- SageCon planning area boundary: This dataset was created by dissolving HUC 6 watersheds (12 digit HUCs) across SE Oregon to capture the occupied range of greater sage-grouse in the State.
- GEOMAC: Fire perimeters through 2014

## Appendix 2

Table 8. Classes used for creating binary maps and the source classes used in this aggregation step.

SageCon-LANDFIRE generalized land cover class (0.0.1)	Classes lumped for this analysis	LANDFIRE land cover description	Knick et al. 2013 generalized land cover class
Crop-pasture-hay	Cultivated Crops and Irrigated Agriculture	Agriculture-Cultivated Crops and Irrigated Agriculture	Agriculture
	Fallow	Agriculture-Fallow	Agriculture
	General	Agriculture-General	Agriculture
	Pasture/Hay	Agriculture-Pasture/Hay	Agriculture
	Small Grains	Agriculture-Small Grains	Agriculture
Sagebrush	Big Sagebrush Shrubland	Inter-Mountain Basins Big Sagebrush Shrubland	Big Sagebrush Shrubland
	Big Sagebrush Steppe	Inter-Mountain Basins Big Sagebrush Steppe	Big Sagebrush Steppe
	Low Sagebrush	Columbia Plateau Low Sagebrush Steppe	Low Sagebrush
	Mountain Sagebrush	Inter-Mountain Basins Montane Sagebrush Steppe	Mountain Sagebrush
	Stiff (Rigid) Sagebrush	Columbia Plateau Scabland Shrubland	Stiff Sagebrush
Developed	Developed-General	Developed-General	Developed
	Developed-High Intensity	Developed-High Intensity	Developed
	Developed-Low Intensity	Developed-Low Intensity	Developed
	Developed-Medium Intensity	Developed-Medium Intensity	Developed
	Developed-Open Space	Developed-Open Space	Developed

**Table 9. Crosswalk used to group LANDFIRE Existing Vegetation Types for the analyses.**

<b>LANDFIRE land cover class</b>	<b>LANDFIRE land cover description</b>	<b>Knick generalized land cover class</b>	<b>Knick generalized land cover description</b>	<b>SageCon-LANDFIRE generalized land cover class (0.0.1)</b>
80	Agriculture-General	Agriculture	1	Crop-Pasture-Hay
81	Agriculture-Pasture/Hay	Agriculture	1	Crop-Pasture-Hay
82	Agriculture-Cultivated Crops and Irrigated Agriculture	Agriculture	1	Crop-Pasture-Hay
83	Agriculture-Small Grains	Agriculture	1	Crop-Pasture-Hay
84	Agriculture-Fallow	Agriculture	1	Crop-Pasture-Hay
2009	Northwestern Great Plains Aspen Forest and Parkland	Aspen Woodland	2	Aspen Woodland
2011	Rocky Mountain Aspen Forest and Woodland	Aspen Woodland	2	Aspen Woodland
12	Snow/Ice	Barren	3	Barren
31	Barren	Barren	3	Barren
2067	Mediterranean California Alpine Fell-Field	Barren	3	Barren
2068	North Pacific Dry and Mesic Alpine Dwarf- Shrubland or Fell-field or Meadow	Barren	3	Barren
2071	Sierra Nevada Alpine Dwarf-Shrubland	Barren	3	Barren
2083	North Pacific Avalanche Chute Shrubland	Barren	3	Barren
2136	Mediterranean California Alpine Dry Tundra	Barren	3	Barren
2143	Rocky Mountain Alpine Fell-Field	Barren	3	Barren
2144	Rocky Mountain Alpine Turf	Barren	3	Barren
2168	Northern Rocky Mountain Avalanche Chute Shrubland	Barren	3	Barren
2078	Colorado Plateau Blackbrush-Mormon-tea Shrubland	Blackbrush	6	Blackbrush
2210	Coleogyne ramosissima Shrubland Alliance	Blackbrush	6	Blackbrush
2034	Mediterranean California Mesic Serpentine Woodland and Chaparral	Chaparral	8	Chaparral
2096	California Maritime Chaparral	Chaparral	8	Chaparral
2097	California Mesic Chaparral	Chaparral	8	Chaparral
2098	California Montane Woodland and Chaparral	Chaparral	8	Chaparral
2099	California Xeric Serpentine Chaparral	Chaparral	8	Chaparral
2101	Madrean Oriental Chaparral	Chaparral	8	Chaparral
2103	Great Basin Semi-Desert Chaparral	Chaparral	8	Chaparral
2104	Mogollon Chaparral	Chaparral	8	Chaparral
2105	Northern and Central California Dry-Mesic Chaparral	Chaparral	8	Chaparral
2108	Sonora-Mojave Semi-Desert Chaparral	Chaparral	8	Chaparral
2110	Southern California Dry-Mesic Chaparral	Chaparral	8	Chaparral
2170	Klamath-Siskiyou Xeromorphic Serpentine Savanna and Chaparral	Chaparral	8	Chaparral
2092	Southern California Coastal Scrub	Coastal Scrub	27	Coastal Scrub
2128	Northern California Coastal Scrub	Coastal Scrub	27	Coastal Scrub
2014	Central and Southern California Mixed Evergreen Woodland	Conifer Forest	7	Conifer
2015	California Coastal Redwood Forest	Conifer Forest	7	Conifer
2018	East Cascades Mesic Montane Mixed-	Conifer Forest	7	Conifer

LANDFIRE land cover class	LANDFIRE land cover description	Knick generalized land cover class	Knick generalized land cover description	SageCon-LANDFIRE generalized land cover class (0.0.1)
	Conifer Forest and Woodland			
2020	Inter-Mountain Basins Subalpine Limber- Bristlecone Pine Woodland	Conifer Forest	7	Conifer
2021	Klamath-Siskiyou Lower Montane Serpentine Mixed Conifer Woodland	Conifer Forest	7	Conifer
2022	Klamath-Siskiyou Upper Montane Serpentine Mixed Conifer Woodland	Conifer Forest	7	Conifer
2023	Madrean Encinal	Conifer Forest	7	Conifer
2024	Madrean Lower Montane Pine-Oak Forest and Woodland	Conifer Forest	7	Conifer
2026	Madrean Upper Montane Conifer-Oak Forest and Woodland	Conifer Forest	7	Conifer
2027	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	Conifer Forest	7	Conifer
2028	Mediterranean California Mesic Mixed Conifer Forest and Woodland	Conifer Forest	7	Conifer
2030	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	Conifer Forest	7	Conifer
2031	California Montane Jeffrey Pine(- Ponderosa Pine) Woodland	Conifer Forest	7	Conifer
2032	Mediterranean California Red Fir Forest	Conifer Forest	7	Conifer
2033	Mediterranean California Subalpine Woodland	Conifer Forest	7	Conifer
2035	North Pacific Dry Douglas-fir Forest and Woodland	Conifer Forest	7	Conifer
2036	North Pacific Hypermaritime Sitka Spruce Forest	Conifer Forest	7	Conifer
2037	North Pacific Maritime Dry-Mesic Douglas- fir-Western Hemlock Forest	Conifer Forest	7	Conifer
2038	North Pacific Maritime Mesic Subalpine Parkland	Conifer Forest	7	Conifer
2039	North Pacific Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest	Conifer Forest	7	Conifer
2041	North Pacific Mountain Hemlock Forest	Conifer Forest	7	Conifer
2042	North Pacific Mesic Western Hemlock- Silver Fir Forest	Conifer Forest	7	Conifer
2043	Mediterranean California Mixed Evergreen Forest	Conifer Forest	7	Conifer
2044	Northern California Mesic Subalpine Woodland	Conifer Forest	7	Conifer
2045	Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest	Conifer Forest	7	Conifer
2046	Northern Rocky Mountain Subalpine Woodland and Parkland	Conifer Forest	7	Conifer
2047	Northern Rocky Mountain Mesic Montane Mixed Conifer Forest	Conifer Forest	7	Conifer
2048	Northwestern Great Plains Highland White Spruce Woodland	Conifer Forest	7	Conifer
2049	Rocky Mountain Foothill Limber Pine- Juniper Woodland	Conifer Forest	7	Conifer
2050	Rocky Mountain Lodgepole Pine Forest	Conifer Forest	7	Conifer
2051	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Wood	Conifer Forest	7	Conifer

LANDFIRE land cover class	LANDFIRE land cover description	Knick generalized land cover class	Knick generalized land cover description	SageCon-LANDFIRE generalized land cover class (0.0.1)
2052	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	Conifer Forest	7	Conifer
2053	Northern Rocky Mountain Ponderosa Pine Woodland and Savanna	Conifer Forest	7	Conifer
2054	Southern Rocky Mountain Ponderosa Pine Woodland	Conifer Forest	7	Conifer
2055	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	Conifer Forest	7	Conifer
2056	Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland	Conifer Forest	7	Conifer
2057	Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	Conifer Forest	7	Conifer
2058	Sierra Nevada Subalpine Lodgepole Pine Forest and Woodland	Conifer Forest	7	Conifer
2060	East Cascades Oak-Ponderosa Pine Forest and Woodland	Conifer Forest	7	Conifer
2061	Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	Conifer Forest	7	Conifer
2117	Southern Rocky Mountain Ponderosa Pine Savanna	Conifer Forest	7	Conifer
2165	Northern Rocky Mountain Foothill Conifer Wooded Steppe	Conifer Forest	7	Conifer
2166	Middle Rocky Mountain Montane Douglas-fir Forest and Woodland	Conifer Forest	7	Conifer
2167	Rocky Mountain Poor-Site Lodgepole Pine Forest	Conifer Forest	7	Conifer
2172	Sierran-Intermontane Desert Western White Pine-White Fir Woodland	Conifer Forest	7	Conifer
2174	North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest	Conifer Forest	7	Conifer
2177	California Coastal Closed-Cone Conifer Forest and Woodland	Conifer Forest	7	Conifer
2178	North Pacific Hypermaritime Western Red-cedar-Western Hemlock Forest	Conifer Forest	7	Conifer
2179	Northwestern Great Plains-Black Hills Ponderosa Pine Woodland and Savanna	Conifer Forest	7	Conifer
2200	Pseudotsuga menziesii-Quercus garryana Woodland Alliance	Conifer Forest	7	Conifer
2205	Tsuga mertensiana-Abies amabilis Woodland Alliance	Conifer Forest	7	Conifer
2206	Pseudotsuga menziesii Giant Forest Alliance	Conifer Forest	7	Conifer
2208	Abies concolor Forest Alliance	Conifer Forest	7	Conifer
2227	Pseudotsuga menziesii Forest Alliance	Conifer Forest	7	Conifer
2228	Larix occidentalis Forest Alliance	Conifer Forest	7	Conifer
2229	Pinus albicaulis Woodland Alliance	Conifer Forest	7	Conifer
2230	Pinus sabiniana Woodland Alliance	Conifer Forest	7	Conifer
2231	Sequoiadendron giganteum Forest Alliance	Conifer Forest	7	Conifer
2232	Abies grandis Forest Alliance	Conifer Forest	7	Conifer
2074	Chihuahuan Creosotebush Desert Scrub	Creosote	9	Creosote
2087	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	Creosote	9	Creosote



LANDFIRE land cover class	LANDFIRE land cover description	Knick generalized land cover class	Knick generalized land cover description	SageCon-LANDFIRE generalized land cover class (0.0.1)
2077	Chihuahuan Succulent Desert Scrub	Desert Scrub	28	Desert Scrub
2090	Sonoran Granite Outcrop Desert Scrub	Desert Scrub	28	Desert Scrub
2091	Sonoran Mid-Elevation Desert Scrub	Desert Scrub	28	Desert Scrub
2100	Chihuahuan Mixed Desert and Thorn Scrub	Desert Scrub	28	Desert Scrub
2109	Sonoran Paloverde-Mixed Cacti Desert Scrub	Desert Scrub	28	Desert Scrub
20	Developed-General	Developed	10	Developed
21	Developed-Open Space	Developed	10	Developed
22	Developed-Low Intensity	Developed	10	Developed
23	Developed-Medium Intensity	Developed	10	Developed
24	Developed-High Intensity	Developed	10	Developed
2181	Introduced Upland Vegetation-Annual Grassland	Exotic	12	Exotic
2182	Introduced Upland Vegetation-Perennial Grassland and Forbland	Exotic	12	Exotic
2183	Introduced Upland Vegetation-Annual and Biennial Forbland	Exotic	12	Exotic
2186	Introduced Upland Vegetation-Shrub	Exotic	12	Exotic
2180	Introduced Riparian Vegetation	Exotic Riparian	13	Exotic Riparian
2121	Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	Grassland	15	Grassland
2122	Chihuahuan Gypsophilous Grassland and Steppe	Grassland	15	Grassland
2123	Columbia Plateau Steppe and Grassland	Grassland	15	Grassland
2129	California Central Valley and Southern Coastal Grassland	Grassland	15	Grassland
2130	California Mesic Serpentine Grassland	Grassland	15	Grassland
2131	California Northern Coastal Grassland	Grassland	15	Grassland
2132	Central Mixedgrass Prairie	Grassland	15	Grassland
2133	Chihuahuan Sandy Plains Semi-Desert Grassland	Grassland	15	Grassland
2134	Columbia Basin Foothill and Canyon Dry Grassland	Grassland	15	Grassland
2135	Inter-Mountain Basins Semi-Desert Grassland	Grassland	15	Grassland
2137	Mediterranean California Subalpine Meadow	Grassland	15	Grassland
2138	North Pacific Montane Grassland	Grassland	15	Grassland
2139	Northern Rocky Mountain Lower Montane-Foothill-Valley Grassland	Grassland	15	Grassland
2140	Northern Rocky Mountain Subalpine- Upper Montane Grassland	Grassland	15	Grassland
2141	Northwestern Great Plains Mixedgrass Prairie	Grassland	15	Grassland
2142	Columbia Basin Palouse Prairie	Grassland	15	Grassland
2145	Rocky Mountain Subalpine-Montane Mesic Meadow	Grassland	15	Grassland
2146	Southern Rocky Mountain Montane- Subalpine Grassland	Grassland	15	Grassland
2147	Western Great Plains Foothill and Piedmont Grassland	Grassland	15	Grassland
2149	Western Great Plains Shortgrass Prairie	Grassland	15	Grassland

LANDFIRE land cover class	LANDFIRE land cover description	Knick generalized land cover class	Knick generalized land cover description	SageCon-LANDFIRE generalized land cover class (0.0.1)
2150	Western Great Plains Tallgrass Prairie	Grassland	15	Grassland
2171	North Pacific Alpine and Subalpine Dry Grassland	Grassland	15	Grassland
2184	California Annual Grassland	Grassland	15	Grassland
2503	Chihuahuan Loamy Plains Desert Grassland	Grassland	15	Grassland
2504	Chihuahuan-Sonoran Desert Bottomland and Swale Grassland	Grassland	15	Grassland
2153	Inter-Mountain Basins Greasewood Flat	Greasewood	14	Greasewood
2012	Rocky Mountain Bigtooth Maple Ravine Woodland	Maple Woodland	21	Maple Woodland
2095	Apacherian-Chihuahuan Mesquite Upland Scrub	Mesquite	16	Mesquite
2111	Western Great Plains Mesquite Woodland and Shrubland	Mesquite	16	Mesquite
32	Quarries/Strip Mines/Gravel Pits	Mines	18	Mines
2127	Inter-Mountain Basins Semi-Desert Shrub- Steppe	Mixed Shrubland	19	Mixed Shrubland
2211	Grayia spinosa Shrubland Alliance	Mixed Shrubland	19	Mixed Shrubland
2082	Mojave Mid-Elevation Mixed Desert Scrub	Mojave Scrub	20	Mojave Scrub
2062	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland and Shrubland	Mountain Mahogany	17	Mountain Mahogany
2216	Cercocarpus montanus Shrubland Alliance	Mountain Mahogany	17	Mountain Mahogany
-9999	No Data	No Data	0	No Data
2008	North Pacific Oak Woodland	Oak Shrubland	23	Oak Shrubland
2013	Western Great Plains Dry Bur Oak Forest and Woodland	Oak Shrubland	23	Oak Shrubland
2029	Mediterranean California Mixed Oak Woodland	Oak Shrubland	23	Oak Shrubland
2107	Rocky Mountain Gambel Oak-Mixed Montane Shrubland	Oak Shrubland	23	Oak Shrubland
2112	California Central Valley Mixed Oak Savanna	Oak Shrubland	23	Oak Shrubland
2113	California Coastal Live Oak Woodland and Savanna	Oak Shrubland	23	Oak Shrubland
2114	California Lower Montane Blue Oak- Foothill Pine Woodland and Savanna	Oak Shrubland	23	Oak Shrubland
2118	Southern California Oak Woodland and Savanna	Oak Shrubland	23	Oak Shrubland
2201	Quercus garryana Woodland Alliance	Oak Shrubland	23	Oak Shrubland
2213	Quercus havardii Shrubland Alliance	Oak Shrubland	23	Oak Shrubland
2215	Quercus turbinella Shrubland Alliance	Oak Shrubland	23	Oak Shrubland
2217	Quercus gambelii Shrubland Alliance	Oak Shrubland	23	Oak Shrubland
2016	Colorado Plateau Pinyon-Juniper Woodland	Pinyon Juniper	24	Pinyon Juniper
2017	Columbia Plateau Western Juniper Woodland and Savanna	Pinyon Juniper	24	Pinyon Juniper
2019	Great Basin Pinyon-Juniper Woodland	Pinyon Juniper	24	Pinyon Juniper
2025	Madrean Pinyon-Juniper Woodland	Pinyon Juniper	24	Pinyon Juniper
2059	Southern Rocky Mountain Pinyon-Juniper Woodland	Pinyon Juniper	24	Pinyon Juniper
2115	Inter-Mountain Basins Juniper Savanna	Pinyon Juniper	24	Pinyon Juniper
2116	Madrean Juniper Savanna	Pinyon Juniper	24	Pinyon Juniper

LANDFIRE land cover class	LANDFIRE land cover description	Knick generalized land cover class	Knick generalized land cover description	SageCon-LANDFIRE generalized land cover class (0.0.1)
2119	Southern Rocky Mountain Juniper Woodland and Savanna	Pinyon Juniper	24	Pinyon Juniper
2202	Juniperus occidentalis Wooded Herbaceous Alliance	Pinyon Juniper	24	Pinyon Juniper
2203	Juniperus occidentalis Woodland Alliance	Pinyon Juniper	24	Pinyon Juniper
2151	California Central Valley Riparian Woodland and Shrubland	Riparian	25	Riparian
2152	California Montane Riparian Systems	Riparian	25	Riparian
2154	Inter-Mountain Basins Montane Riparian Systems	Riparian	25	Riparian
2155	North American Warm Desert Riparian Systems	Riparian	25	Riparian
2156	North Pacific Lowland Riparian Forest and Shrubland	Riparian	25	Riparian
2158	North Pacific Montane Riparian Woodland and Shrubland	Riparian	25	Riparian
2159	Rocky Mountain Montane Riparian Systems	Riparian	25	Riparian
2160	Rocky Mountain Subalpine/Upper Montane Riparian Systems	Riparian	25	Riparian
2162	Western Great Plains Floodplain Systems	Riparian	25	Riparian
2064	Colorado Plateau Mixed Low Sagebrush Shrubland	Low Sagebrush	11	Sagebrush
2065	Columbia Plateau Scabland Shrubland	Stiff Sagebrush	11	Sagebrush
2072	Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	Low Sagebrush	11	Sagebrush
2079	Great Basin Xeric Mixed Sagebrush Shrubland	Low Sagebrush	11	Sagebrush
2080	Inter-Mountain Basins Big Sagebrush Shrubland	Big Sagebrush Shrubland	4	Sagebrush
2124	Columbia Plateau Low Sagebrush Steppe	Low Sagebrush	11	Sagebrush
2125	Inter-Mountain Basins Big Sagebrush Steppe	Big Sagebrush Steppe	5	Sagebrush
2126	Inter-Mountain Basins Montane Sagebrush Steppe	Mountain Sagebrush	22	Sagebrush
2220	Artemisia tridentata ssp. vaseyana Shrubland Alliance	Mountain Sagebrush	22	Sagebrush
2066	Inter-Mountain Basins Mat Saltbush Shrubland	Salt Desert Shrub	26	Salt Desert Shrub
2075	Chihuahuan Mixed Salt Desert Scrub	Salt Desert Shrub	26	Salt Desert Shrub
2081	Inter-Mountain Basins Mixed Salt Desert Scrub	Salt Desert Shrub	26	Salt Desert Shrub
2088	Sonora-Mojave Mixed Salt Desert Scrub	Salt Desert Shrub	26	Salt Desert Shrub
2093	Southern Colorado Plateau Sand Shrubland	Salt Desert Shrub	26	Salt Desert Shrub
2063	North Pacific Broadleaf Landslide Forest and Shrubland	Shrubland	29	Shrubland
2070	Rocky Mountain Alpine Dwarf-Shrubland	Shrubland	29	Shrubland
2076	Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	Shrubland	29	Shrubland
2084	North Pacific Montane Shrubland	Shrubland	29	Shrubland
2085	Northwestern Great Plains Shrubland	Shrubland	29	Shrubland
2086	Rocky Mountain Lower Montane-Foothill	Shrubland	29	Shrubland

LANDFIRE land cover class	LANDFIRE land cover description	Knick generalized land cover class	Knick generalized land cover description	SageCon-LANDFIRE generalized land cover class (0.0.1)
	Shrubland			
2094	Western Great Plains Sandhill Steppe	Shrubland	29	Shrubland
2106	Northern Rocky Mountain Montane- Foothill Deciduous Shrubland	Shrubland	29	Shrubland
2148	Western Great Plains Sand Prairie	Shrubland	29	Shrubland
2169	Northern Rocky Mountain Subalpine Deciduous Shrubland	Shrubland	29	Shrubland
2173	North Pacific Wooded Volcanic Flowage	Shrubland	29	Shrubland
2214	Arctostaphylos patula Shrubland Alliance	Shrubland	29	Shrubland
2385	Western Great Plains Wooded Draw and Ravine	Shrubland	29	Shrubland
2001	Inter-Mountain Basins Sparsely Vegetated Systems	Sparse Vegetation	30	Sparse Vegetation
2002	Mediterranean California Sparsely Vegetated Systems	Sparse Vegetation	30	Sparse Vegetation
2003	North Pacific Sparsely Vegetated Systems	Sparse Vegetation	30	Sparse Vegetation
2004	North American Warm Desert Sparsely Vegetated Systems	Sparse Vegetation	30	Sparse Vegetation
2006	Rocky Mountain Alpine/Montane Sparsely Vegetated Systems	Sparse Vegetation	30	Sparse Vegetation
2007	Western Great Plains Sparsely Vegetated Systems	Sparse Vegetation	30	Sparse Vegetation
11	Open Water	Water	31	Water
2157	North Pacific Swamp Systems	Wetland	32	Wetland
2161	Northern Rocky Mountain Conifer Swamp	Wetland	32	Wetland
2163	Pacific Coastal Marsh Systems	Wetland	32	Wetland
2495	Western Great Plains Depressional Wetland Systems	Wetland	32	Wetland

## Appendix 16. Conservation Efforts Database

### i. Conservation Efforts Database

The Conservation Efforts Database (CED) is an online geodatabase developed by the U.S. Fish and Wildlife Service (USFWS). The CED was specifically designed for use during the USFWS status review to gather information about projects and programs state by state in order to quantify and summarize conservation activities implemented since 2010. The request for data focused on the following:

1. Information about the implementation of plans and projects to document the expected conservation benefit at different scales
2. Sage-grouse population status, trend, and available threat information

The CED provided a format for characterizing project location, geographic scale, and the phase and outcomes of implementation for each project or activity entered. Data could be quantitative or qualitative and include tabular data, spatial data, and/or conservation plans. The USFWS provided considerable guidance for submitting plan information to the Sage-Grouse Conservation Partnership in December 2014<sup>1</sup> (<http://orsolutions.org/wp-content/uploads/2014/08/Overview-of-the-Conservation-Efforts-Database-for-OR-SageCon.pdf>). Among the key requests for information were:

1. how the Action Plan addresses the objectives described in the COT Report {USFWS, 2013 #67}
2. policies, regulations, and ordinances to prevent, minimize, and/or ameliorate specific threats
3. funding source(s) and funding plan
4. obstacles to full implementation of the Plan
5. successes in implementing the Plan to date
6. implementation plan for the next 5 years
7. plans for monitoring effectiveness
8. supporting relevant documents

For more information about the CED, including tool updates and data call. Please visit the website: <https://conservationefforts.org/>.

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<sup>1</sup> Guidance was provided directly to SageCon in a presentation that is available for download: <http://orsolutions.org/wp-content/uploads/2014/08/Overview-of-the-Conservation-Efforts-Database-for-OR-SageCon.pdf>.

## ii. Oregon Summary

Many Oregon organizations answered the data call including ODFW, OWEB, The Nature Conservancy, NRCS as well as counties and private landowners. Hundreds of projects for addressing threats from conifers, invasive plant species, and wildfire were conducted in Oregon, resulting in thousands of acres worth of accomplishment, and reported to USFWS through the CED. A preliminary table summarizing data submitted from Oregon is provided in Table 1.

Please note, this table summarizes data provided for the initial data submission deadline for of January 2015. Subsequent data has been submitted and will be analyzed by the USFWS, but is not available for inclusion in the Plan at this time. Information from the CED will become public record and subject to FOIA requests following the September 2015 Endangered Species Act listing decision.

**Table 1. Oregon CED Summary Table (current to January 2015; more recent data will be available after September 2015)**

Threat	Management Zone	Area/Distance Covered	Number of Projects	Project Notes
Noxious Weeds	4	179,910 ac	200	
Urbanization	4	0	0	
Infrastructure	4	17 miles	2	Fences marked
Fire	4	0	0	
Conifers	4	30,348 ac	122	
Conifers	5	113,677 ac	170	Includes 2911 acres of conifer removal in 7 projects for fire breaks
Fire	5	257.1 miles	4	fire break construction
Infrastructure	5	17 miles	11	Fences were marked/removed in 10 projects plus 1 project burying 3 miles of power line
Mining	5	0	0	
Noxious Weeds	5	431,562 ac	190	
Urbanization	5	0	0	

## Appendix 17. LCDC Rule OAR 660-023-0115

### Land Conservation and Development Department, Chapter 660

OAR 660-023-0115

Greater Sage-Grouse

(1) Introduction. Greater Sage-Grouse (hereafter “sage-grouse”) habitat is a unique wildlife resource subject to a variety of threats across a broad, multi-state region. Oregon’s sage-grouse habitat is comprised of a combination of public land managed by the federal government and nonfederal land generally in private ownership. Managing private and other nonfederal land for the best possible outcomes requires partnership and cooperation among many stakeholders. Accordingly, private and other nonfederal lands are strongly encouraged to participate in a Candidate Conservation Agreement with Assurances program. Voluntary conservation efforts of this nature are recognized by the State of Oregon as a critical part in recovering the breeding population targeted by Oregon’s Greater Sage-Grouse Conservation Assessment and Strategy for Oregon. Beyond voluntary efforts it remains necessary to provide a regulatory framework that offers fairness, predictability and certainty for all involved parties. Engagement on the part of county government is critical to Oregon’s efforts to address possible impacts from future development.

(2) Exempt activities.

(a) Those activities that do not require governmental approval, including farm use as defined in ORS 215.203(2), are exempt from the provisions of this rule. State agency permits necessary to facilitate a farm use, including granting of new water right permits by the Oregon Water Resources Department (OWRD), are also exempt from the provisions of this rule.

(b) Any energy facility that submitted a preliminary application for site certificate pursuant to ORS 469.300 *et seq.* on or before the effective date of this rule is exempt from the provisions of this rule. Notwithstanding ORS 197.646(3), this rule shall not be directly applicable to any land use decision regarding that facility unless the applicant chooses otherwise. Similarly, any changes to a local government’s acknowledged comprehensive plan or land use ordinances developed to achieve consistency with this rule shall not constitute “applicable substantive criteria” pursuant to OAR 345-022-0030(3), unless they are in effect on the date the applicant submits a preliminary application for site certificate, unless the applicant chooses otherwise.

(c) Private and other nonfederal lands are strongly encouraged to participate in a Candidate Conservation Agreement with Assurances (CCAA) program. Voluntary conservation efforts of this nature are recognized by the State of Oregon as a critical part in recovering the breeding population targeted by the Greater Sage-Grouse Conservation Assessment and Strategy for Oregon. Uses identified in CCAA agreements are relieved from the provisions of this rule except that conflicting uses identified in section (7) will be subject to sections (9) to (11) in all instances regardless of enrollment status.



(3) Definitions. For purposes of this rule, the definitions in OAR 635-140-0002 and in the glossary of the “Greater Sage-Grouse Conservation Assessment and Strategy for Oregon” adopted by the Oregon Fish and Wildlife Commission on April 22, 2011 (copies of the plan are available through the Oregon Department of Fish and Wildlife (ODFW)) shall apply. In addition, the following definitions shall apply:

(a) “Areas of High Population Richness” means mapped areas of breeding and nesting habitat within core habitat that support the 75th percentile of breeding bird densities (*i.e.* the top 25 percent). Please see Exhibit A.

(b) “Candidate Conservation Agreement with Assurances” means a formal agreement between the United States Fish and Wildlife Service (USFWS) and one or more parties to address the conservation needs of proposed or candidate species, or species likely to become candidates, before they become listed as endangered or threatened. Landowners voluntarily commit to conservation actions that will help stabilize or restore the species with the goal that listing under the Federal Endangered Species Act will become unnecessary.

(c) “Core areas” means mapped sagebrush types or other habitats that support sage-grouse annual life history requirements that are encompassed by areas:

(A) Of very high, high, and moderate lek density strata;

(B) Where low lek density strata overlap local connectivity corridors; or

(C) Where winter habitat use polygons overlap with either low lek density strata, connectivity corridors, or occupied habitat. Core area maps are maintained by ODFW.

(d) “Development action” means any human activity subject to regulation by local, state, or federal agencies that could result in the loss of significant sage-grouse habitat. Development actions may include but are not limited to, construction and operational activities of local, state, and federal agencies. Development actions also include subsequent repermitting of existing activities proposing new impacts beyond current conditions.

(e) “Direct impact” means an adverse effect of a development action upon significant sage-grouse habitat which is proximal to the development action in time and place.

(f) “Disturbance” includes natural threats to sage-grouse habitat such as: wildfire, juniper infestation and the spread of noxious weeds or human activities that can negatively affect sage-grouse use of habitat either through changing the vegetation type or condition, or displacement of sage-grouse use of an area. For purposes of this rule only disturbance from human activities are considered.

(g) “General habitat” means occupied (seasonal or year-round) sage-grouse habitat outside core and low density habitats.

(h) “Indirect impacts” means adverse effects to significant sage-grouse habitat that are caused by or will ultimately result from an affected development activity. Indirect impacts usually occur later in time or are removed in distance compared to direct effects.

(i) “Large-scale development” means uses that are: over 50 feet in height; have a direct impact in excess of five acres; generate more than 50 vehicle trips per day; or create noise levels of at least 70 dB at zero meters for sustained periods of time. Uses that constitute large-scale development also require review by county decision makers and are listed in one of the following categories identified in the table attached to OAR 660-033-0120.

(A) Commercial Uses.

(B) Mineral, Aggregate, Oil and Gas Uses.

(C) Transportation Uses.

(D) Utility/Solid Waste Disposal Facilities.

(E) Parks/Public/Quasi-Public.

(j) “Lek” means an area where male sage-grouse display during the breeding season to attract females (also referred to as strutting-ground).

(k) “Low density areas” means mapped sagebrush types or other habitats that support sage-grouse that are encompassed by areas where:

(A) Low lek density strata overlapped with seasonal connectivity corridors;

(B) Local corridors occur outside of all lek density strata;

(C) Low lek density strata occur outside of connectivity corridors; or

(D) Seasonal connectivity corridors occur outside of all lek density strata.

Low density area maps are maintained by ODFW.

(l) “Mitigation hierarchy” means an approach used by decision makers to consider development proposals and is ordinarily comprised of a three step process:

(A) “Avoidance” is the first step in the mitigation hierarchy and is accomplished by not taking a certain development action or parts of that action.

(B) “Minimization” is the second step in the mitigation hierarchy and is accomplished by limiting the degree or magnitude of the development action and its implementation.

(C) “Compensatory mitigation” is the third step in the mitigation hierarchy and means the replacement or enhancement of the function of habitat capable of supporting sage-grouse in greater numbers than predicted to be impacted by a development.

(m) “Occupied Lek” means a lek that has been regularly visited by ODFW and has had one or more male sage-grouse counted in one or more of the last seven years.

(n) “Occupied Pending Lek” means a lek that has not been counted regularly by ODFW in the last seven years, but sage-grouse were present at ODFW’s last visit.

(o) “Priority Areas for Conservation” (PACs) means key habitats identified by state sage-grouse conservation plans or through other sage-grouse conservation efforts (*e.g.*, BLM Planning). In Oregon, core area habitats are PACs.

(4) Local program development and direct applicability of rule. Local governments may develop a program to achieve consistency with this rule by following the standard process in OAR 660-023-0030, 660-023-0040 and 660-023-0050 and submitting the amendment to the commission in the manner provided for periodic review under ORS 197.628 to 197.650 and OAR 660-025-0175. Until the commission has acknowledged a county amendment to its comprehensive plan and land use regulations to be in compliance with Goal 5 and equivalent to this rule with regard to protecting sage-grouse habitat, sections (5) to (12) shall apply directly to county land use decisions affecting significant sage-grouse habitat. Once the commission has acknowledged a local government program under this section, that program becomes the controlling county land use document and sections (5) to (12) of this rule no longer apply directly.

(5) Quality, Quantity and Location. For purposes of this rule, sage-grouse habitat is only present in Baker, Crook, Deschutes, Harney, Lake, Malheur and Union Counties. The location of sage-grouse habitat within these counties shall be determined by following the map produced by ODFW included as Exhibit B.

(6) Determination of Significance. Significant sage-grouse habitat includes only lands protected under Statewide Planning Goals 3 or 4 as of July 1, 2015 that are identified as:

(a) Core areas;

(b) Low density areas; and

(c) Lands within a general habitat area located within 3.1 miles of an occupied or occupied-pending lek.

(d) The exact location of sage-grouse habitat may be refined during consideration of specific projects but must be done in consultation with ODFW.

(7) Conflicting uses. For purposes of protecting significant sage-grouse habitat, conflicting uses are:

(a) Large-scale development; and

(b) Other activities, which require review by county decision makers pursuant to OAR 660-033-0120 table and are proposed:

(A) In a core area within 4.0 miles of an occupied or occupied-pending lek;

(B) In a low density area within 3.1 miles of an occupied or occupied-pending lek; or

(C) In general habitat within 3.1 miles of an occupied or occupied-pending lek.

(8) Pre-Application Conference. A county should convene a pre-application conference prior to accepting an application for a conflicting use in significant sage-grouse habitat. The pre-application conference should include, at a minimum, the applicant, county planning staff and local ODFW staff.

(9) Program to achieve the goal of protecting significant sage grouse habitat in a core area.

(a) A county may consider a large-scale development in a core area upon applying disturbance thresholds and the mitigation hierarchy as follows:

(A) A county may consider a large-scale development that does not cause the one-percent metering threshold described in section (16) or the three-percent disturbance threshold described in section (17) to be exceeded.

(B) Avoidance. Before proceeding with large-scale development activity that impacts a core area, the proponent must demonstrate that reasonable alternatives have been considered and that the activity or other action cannot avoid impacts within core area habitat. If the proposed large-scale development can occur in another location that avoids both direct and indirect impacts within core area habitat, then the proposal must not be allowed unless it can satisfy the following criteria.

(i) It is not technically feasible to locate the proposed large-scale development outside of a core area based on accepted engineering practices, regulatory standards or some combination thereof. Costs associated with technical feasibility may be considered, but cost alone may not be the only consideration in determining that development must be located such that it will have direct or indirect impacts on significant sage-grouse areas; or

(ii) The proposed large-scale development is dependent on a unique geographic or other physical feature(s) that cannot be found on other lands; and

(iii) If either subparagraph (9)(a)(B)(i) or (9)(a)(B)(ii) is found to be satisfied the county must also find that the large-scale development will provide important economic opportunity, needed infrastructure, public safety benefits or public health benefits for local citizens or the entire region.

(C) Minimization. If the proposed use cannot be sited by avoiding a core area altogether, including direct and indirect impacts, it shall be located to minimize the amount of such habitat directly or indirectly disturbed, and to minimize fragmentation of the core area(s) in question by locating the development adjacent to existing development and at the edge of the core area when possible. Uses should minimize impacts through micro-siting, limitations on the timing of construction or use, or both, and methods of construction. Minimizing impacts from large-scale development in core habitat shall also ensure direct and indirect impacts do not occur in known areas of high population richness within a given core area, unless a project proponent demonstrates, by a preponderance of the evidence, that such an approach is not feasible. Costs associated with minimization may be considered, but cost alone may not be the only consideration in determining that location of development cannot further minimize direct or indirect impacts to core areas.

(D) Compensatory Mitigation. To the extent that a proposed large-scale development will have direct or indirect impacts on a core area after application of the avoidance and minimization standards and criteria, above, the permit must be conditioned to fully offset the direct and indirect impacts of the development to any core area. The required compensatory mitigation must comply with OAR chapter 635, division 140.

(b) A county may approve a conflicting use as identified at subsection (7)(b) above upon either:

(A) Receiving confirmation from ODFW that the proposed conflicting use does not pose a threat to significant sage-grouse habitat or the way sage-grouse use that habitat; or

(B) Conditioning the approval based on ODFW recommendations, including minimization techniques and compensatory mitigation, if necessary, to resolve threats to significant sage-grouse habitat.

(10) Program to achieve the goal of protecting significant sage-grouse habitat in a low density area.

(a) A county may approve a large-scale development in a low density area upon applying the mitigation hierarchy as follows:

(A) Avoidance. Before proceeding with large-scale development activity that impacts a low density area, the proponent must demonstrate that reasonable alternatives have been considered and that the activity or other action cannot avoid impacts within a low density area. If the proposed large-scale development can occur in another location that avoids both direct

and indirect impacts within a low density area, then the proposal must not be allowed unless it can satisfy the following criteria:

- (i) It is not technically or financially feasible to locate the proposed large-scale development outside of a low density area based on accepted engineering practices, regulatory standards, proximity to necessary infrastructure or some combination thereof; or
- (ii) The proposed large-scale development is dependent on geographic or other physical feature(s) found in low density habitat areas that are less common at other locations, or it is a linear use that must cross significant sage-grouse habitat in order to achieve a reasonably direct route.

(B) Minimization. If the proposed use cannot be sited by avoiding a low density area altogether, including direct and indirect impacts, it shall be located to minimize the amount of such habitat directly or indirectly disturbed, and to minimize fragmentation of the low density area(s) in question by locating the development adjacent to existing development and at the edge of the low density area when possible. Uses should minimize impacts through micro-siting, limitations on the timing of construction or use, or both, and methods of construction.

(C) Compensatory Mitigation. Required consistent with the provisions of paragraph (9)(a)(D)above.

(b) A county may approve a conflicting use as identified at subsection (7)(b) above when found to be consistent with the provisions of subsection (9)(b).

(11) Program to achieve the goal of protecting significant sage-grouse habitat on general habitat.

(a) A county may approve a large-scale development on significant sage-grouse habitat in general habitat upon requiring:

(A) General Habitat Consultation. Minimizing impacts from development actions in general habitat shall include consultation between the development proponent and ODFW that considers and results in recommendations on how to best locate, construct or operate the development action so as to avoid or minimize direct and indirect impacts on significant sage-grouse habitat within the area of general habitat. A county shall attach ODFW recommendations as a condition of approval; and

(B) Compensatory Mitigation. Required consistent with the provisions of paragraph (9)(a)(D)above.

(b) A county may approve a conflicting use identified in subsection (7)(b) above when found to be consistent with the provisions of subsection (9)(b).

(12) Especially Unique Local Economic Opportunity. A county may approve a large-scale development proposal that does not meet the avoidance test for significant sage-grouse habitat if the county determines that the overall public benefits of the proposal outweigh the damage to significant sage-grouse habitat. Requirements for minimization and compensatory mitigation continue to apply and attempts should be made to avoid areas of high population richness, if possible. The county shall make this balancing determination only when the proposal involves an economic opportunity that will provide a number of permanent, full-time jobs, not including construction activities, paying at least 150 percent of average county wages sufficient to increase the amount of total private nonfarm payroll employment by at least 0.5 percent over the figure included in the most recent data available from the Oregon Department of Employment rounded down to the nearest whole number. The applicant has the burden to show that the overall public benefits outweigh the damage to the significant sage-grouse habitat. This provision may be exercised by each effected county once during every ten-year period beginning on the effective date of this rule. A county is also free not to approve a proposal submitted under this section.

(13) A proposal to up-zone lands containing significant sage-grouse habitat to a greater development potential than otherwise allowed under Goals 3 and 4 shall follow the ordinary Goal 5 process at OAR 660-023-0030 to 660-023-0050. Furthermore, up-zoning lands in a core area shall be considered a direct impact and count towards the three percent disturbance threshold pursuant to section (17) below.

(14) Landscape-Level Consideration. The standards in sections (9), (10) and (11) above, are designed to minimize the amount of future impacts from human sources to significant sage-grouse habitat areas. Consistent with available science concerning the relation between human activities and sage-grouse population levels, the department will monitor direct impacts in core areas in each of the PACs shown in Exhibit (C).

(15) Central Registry. The department will work with the counties identified in section (5), ODFW, the Bureau of Land Management (BLM), and USFWS to maintain a central registry, tracking human disturbance from existing (baseline) and all new development affecting core areas. In addition to serving as partners in maintaining the central registry, counties must report all development land use permits for all uses within a core area to the department. The registry will include baseline calculations of direct impact levels consistent with the approach identified by the BLM. Counties may establish more refined, project specific data to replace the baseline figures so long as all counties utilize a common methodology. Each year the department shall report to the commission the amount of new direct impacts in each PAC. The report shall be coordinated with and made available to all affected counties.

(16) Metering. This rule is intended to ensure that the area of direct impact levels in any PAC, including energy facilities exempted under subsection (2)(b), does not increase by an amount greater than 1.0 percent of the total area of the PAC in any ten-year period. The initial period shall commence upon the effective date of this rule and continue for ten consecutive years, where upon the process shall be successively repeated. The commission will consider revisions



to this rule if the department's yearly reports required by section (15) indicate that the development trends in any PAC indicate that the 1.0 percent direct impact threshold is in jeopardy of being exceeded before the ten-year period has expired. Any proposal to amend this rule undertaken by the department shall be developed in coordination with all affected counties and other stakeholders.

(17) Disturbance Threshold. This rule is intended to ensure that direct impact level, including energy facilities exempted under subsection (2)(b), does not exceed three percent of the total area in any PAC. If this three-percent threshold is approached, then the department must report that situation to the commission along with a proposal to amend this rule to adapt the standards and criteria such that the threshold is not exceeded.

(18) State agency coordination programs. All state agencies that carry out or that permit conflicting uses in core area, low density area, or significant general habitat including but not limited to OWRD, Oregon Department of Transportation, Department of State Lands, Department of Geology and Mineral Industries, Oregon Department of Energy and the Energy Facility Siting Council, and Department of Environmental Quality must report the proposed development to the department, along with an estimate of the direct impact of the development. In addition, to the extent not regulated by a county, such development, other than the issuance of water rights, the expansion of cultivation, and other farm uses under ORS 215.203(2), must meet the requirements of paragraph (9)(a)(D) of this rule.

(19) Scheduled Review. The department shall commence a review of these rules no later than June 30, 2020 and, if determined to be necessary, recommend revisions to achieve the policy objectives found herein. Furthermore, should the species become listed under the Federal Endangered Species Act, the commission shall consider whether continued application of this rule is necessary. Should the rule remain applicable and the species is de-listed the commission shall consider whether continued application of this rule is necessary.

Stat. Auth.: ORS 197.040

Stats. Implemented: ORS 197.040

Hist.:

Filed August 4, 2015 with Oregon Secretary of State Jeanne Atkins

[http://arcweb.sos.state.or.us/pages/rules/oars\\_600/oar\\_660/660\\_023.html](http://arcweb.sos.state.or.us/pages/rules/oars_600/oar_660/660_023.html)

Effective date: August 13, 2015

## Appendix 18. Local Ordinances

This appendix collates local Oregon county ordinances related to Exclusive Farm Use Zones and similar designations. These ordinances detail wildlife policies and permitted uses and limitations of farm and ranch lands in each county. Each ordinance is appended here in the format in which they were provided by the counties, and are presented in alphabetical order:

1. Baker County, Chapter 410 Exclusive Farm Use (EFU)
2. Crook County, Chapter 18.16 Exclusive Farm Use Zone, EFU-1 (Post-Paulina Area)
3. Deschutes County, Chapter 18.16 Exclusive Farm Use Zones
4. Harney County, Zoning Ordinance Article 3 Zoning Classifications Defined
5. Lake County, Article 3 Agriculture Use Zone: A-2
6. Malheur County, Article A. Resource Lands, EFU Exclusive Farm Use Zone, ERU Exclusive Range Use Zone, EFFU Exclusive Farm-Forest Use Zone
7. Union County, Article 3.00 A-2 Agriculture-Grazing Zone

**Chapter 410**  
**EXCLUSIVE FARM USE ZONE (EFU)**

**410.01 Purpose**

**410.02 Uses Permitted Through a Type I Procedure**

**410.03 Uses Permitted Through a Type II Procedure**

**410.04 Uses Permitted Through a Type III Procedure**

**410.05 Minimum Lot Size**

**410.06 Approval Criteria**

**410.01 Purpose.**

The Exclusive Farm Use Zone is intended to conserve and maintain productive agricultural land for continued agricultural use. The purpose of this chapter is to describe the applicability, permitted uses, and requirements for the EFU Zone.

**410.02 Uses Permitted Through a Type I Procedure.**

In the EFU Zone the following uses and their accessory uses shall be permitted outright when authorized in accordance with the provisions of Section 205.04:

A. Farm/Forest Resource:

1. Farm use, as defined in ORS 215.203(2), with the exception of livestock feedlots, sales yards, hog farms, or dairy herd confinement at any time of the year, or other concentration of livestock during May through September when such uses are located within one mile of a residential zone.
2. Accessory buildings customarily provided in conjunction with farm use.
3. The propagation or harvesting of a forest product.

B. Natural Resource:

1. Creation of, restoration of, or enhancement of wetlands.

C. Commercial:

1. Type I Minor Home Occupations, subject to the provisions of Section 760.02.

D. Transportation:

1. Climbing and passing lanes within the right-of-way existing as of July 1, 1987.
2. Reconstruction or modification of public roads and highways, including the placement of utility facilities overhead and in the subsurface of public roads and highways along the public right-of-way, but not including the addition of travel lanes, where no removal or displacement of buildings would occur, or no new land parcels result.
3. Temporary public road and highway detours that will be abandoned and restored to original condition or use at such a time as no longer needed.
4. Minor betterment of existing public road and highway related facilities such as maintenance yards, weigh stations and rest areas, within right-of-way existing as of July 1, 1987, and contiguous publicly-owned property utilized to support the operation and maintenance of public roads and highways.
5. Rehabilitation, replacements, minor betterment repairs and improvements, and other similar construction activities; or private or public parks, playgrounds or community centers, which are not considered to have land use impacts, as determined by the Director consistent with Chapter 220, Director's Interpretations.

### **410.03 Uses Permitted Through a Type II Procedure.**

In the EFU Zone the following uses and their accessory uses may be permitted when authorized in accordance with the provisions of Section 205.05:

#### **A. Residential:**

##### **1. Lot-of-Record Dwelling:** A single-family dwelling proposed on a lot or parcel meeting all of the following criteria:

- a. The lot or parcel on which the dwelling will be sited was lawfully created. When a lot or parcel is reconfigured pursuant to applicable law after November 4, 1993, the effect of which is to qualify a lot, parcel or tract for the siting of a dwelling, the date of the reconfiguration is the date of creation or existence. Reconfiguration means any change in the boundary of a lot, parcel or tract; and
- b. The lot or parcel was acquired by the present owner prior to January 1, 1985, or by devise or intestate succession from a person who acquired the lot or parcel prior to January 1, 1985; and
- c. The tract on which the dwelling will be sited does not include a dwelling. When the lot or parcel on which the dwelling will be sited is part of a tract, the remaining portions of the tract are consolidated into a single lot or parcel when the dwelling is allowed; and
- d. The lot or parcel on which the dwelling will be sited is not high-value farmland except as provided in OAR 660-033-0130(3)(c). ORS 215.710(5) provides an opportunity for an applicant to show that the property is not high-value farmland.

e. For the purpose of this Section a person cannot qualify as an "owner" as required by Section 410.03(A)(1) by virtue of a familial relationship to the current owner or by receiving the land as a gift or any form of sale after January 1, 1985.

f. For the purposes of this Section "owner" includes the wife, husband, son, daughter, mother, father, brother, brother-in-law, sister, sister-in-law, son-in-law, daughter-in-law, mother-in-law, father-in-law, aunt, uncle, niece, nephew, stepparent, stepchild, grandparent or grandchild of the owner or a business entity owned by any one or combination of these family members.

g. When approval is granted to an application under the provisions of this Section, the application may be transferred only one time by a person who has qualified under this section to any other person after the effective date of the land use decision.

h. The proposed dwelling will comply with the requirements of the acknowledged land use plan and other County land use regulations and other provisions of law.

##### **2. Farm Dwellings:**

###### **a. Parcel Size Test:**

A single-family dwelling may be considered in conjunction with farm use if it is not identified as high-value farmland pursuant to OAR 660-033-020 (8) and:

- i. The dwelling is proposed on a parcel which is currently employed for farm use, as defined in ORS 215.203;
- ii. Contains no other dwelling except seasonal farm worker housing;

- iii. The dwelling will be occupied by a person or persons who will be principally engaged in farm use of the land at a commercial scale; and
- iv. Complies with the minimum parcel size requirements of Section 410.05 (B)(6).
- b. Capability Test:  
A single-family dwelling may be considered in conjunction with farm use if the dwelling is proposed on an agricultural parcel or tract which is not identified as high-value farmland and:
  - i. Is at least as large as the median size of commercial farm or ranch tracts capable of generating at least \$10,000 in annual gross sales that are wholly or partially within one mile from the perimeter of the subject parcel; and
  - ii. The subject parcel or tract is capable of producing at least the median level of annual gross sales of County indicator crops as the same commercial farm and ranch tracts identified in Section 410.03(A)(4)(a) determined pursuant to OAR 660-33-135(3); and
  - iii. The subject parcel or tract is currently employed for farm use as defined in ORS 215.203, at a level capable of producing the annual gross sales required by Section 410.03(A)(4); and
  - iv. The subject parcel or tract on which the dwelling is proposed is not less than 20 acres; and
  - v. There is no other dwelling located on the subject parcel or tract, except seasonal farm-worker housing as permitted by ORS 215.283(1)(f); and
  - vi. If no farm use has been established at the time of application, land use approval shall be subject to a condition that no

building permit may be issued prior to the establishment of the farm use as required by Section 410.03(A)(4)(c).

- vii. The dwelling will be occupied by a person or persons who will be principally engaged in farm use of the land, such as planting, harvesting, marketing, or caring for livestock, at a commercial scale.
- c. Income Test:  
A single-family dwelling may be considered in conjunction with farm use if the dwelling is proposed on an agricultural parcel or tract which is not identified as high-value farmland; and
  - i. The subject parcel is currently employed for farm use, as defined in ORS 215.203, that produced in the last two years or three of the last five years the lower of the following:
    - (a) At least \$40,000 (1994 dollars) in gross annual income from the sale of farm products; or
    - (b) Gross annual income of at least the midpoint of the median income range of gross sales for farms in Baker County with gross sales of \$10,000 or more according to the 1992 Census of Agriculture, Oregon; and
  - ii. There is no other dwelling on the subject parcel, except seasonal farm-worker housing as permitted by ORS 215.283(1)(f).
  - iii. The dwelling will be occupied by a person or persons who produced the commodities which grossed the income in Section 410.03(A)(5)(a).
  - iv. In determining the gross income required by Section 410.03(A)(5)(a) the cost of purchased livestock shall be

deducted from the total gross income attributed to the farm or ranch operation; only gross income from land owned, not leased or rented, shall be counted; and gross farm income earned from a lot or parcel which has been used previously to qualify another lot or parcel for the construction or siting of a primary farm dwelling may not be used.

v. Noncontiguous lots or parcels zoned for farm use in Baker County or contiguous counties may be used to meet the gross income requirements. When a farm or ranch operation has lots or parcels in both “Western” and “Eastern” Oregon as defined by statute division, lots or parcels in Eastern or Western Oregon may not be used to qualify a dwelling in the other part of the state.

vi. (a) Prior to the final approval for a dwelling authorized under this section that requires one or more contiguous or non contiguous lots or parcels of a farm or ranch operation to comply with the gross farm income requirements, the applicant shall provide evidence that the covenants, conditions and restrictions form adopted as “Exhibit A” has been recorded with the county clerk of the county or counties where the property subject to the covenants, conditions and restrictions is located. The covenants, conditions and restrictions shall be recorded for each lot or parcel subject to the application for the primary farm dwelling and shall preclude:

(i) All future rights to construct a dwelling except for accessory farm dwellings, relative farm assistance dwellings, temporary hardship dwellings or replacement dwellings allowed by ORS Chapter 215; and

(ii) The use of any gross farm income earned on the lots or parcels to qualify

another lot or parcel for a primary farm dwelling.

(b) The covenants, conditions and restrictions are irrevocable, unless a statement of release is signed by an authorized representative of the county or counties where the property subject to the covenants, conditions and restrictions is located.

(c) Enforcement of the covenants, conditions and restrictions may be undertaken by the Department of Land Conservation and Development or by the county or counties where the property subject to the covenants, conditions and restrictions is located;

(d) The failure to follow the requirements of this section shall not affect the validity of the transfer of property or the legal remedies available to the buyers of property which is subject to the covenants, conditions and restrictions required by the section;

(e) The Director shall maintain a copy of the covenants, conditions and restrictions filed in the county deed records pursuant to this section and a map or other record depicting the lots and parcels subject to the covenants, conditions and restrictions filed in the county deed records pursuant to this section. The map or other record required by this subsection shall be readily available to the public in the county planning office.

d. High Value Test:

A single-family dwelling may be considered customarily provided in conjunction with farm use if the dwelling is proposed on a parcel or tract which is identified as high-value farmland; and

- i. The subject parcel or tract is currently employed for farm use, as defined in ORS 215.203, that produced at least \$40,000 in gross annual income from the sale of farm products in the last two years or three of the last five years; or
- ii. Gross annual income of at least the midpoint of the median income range of gross sales for farms in Baker County with gross sales of \$10,000 or more.
- iii. There is no other dwelling on the subject parcel or tract, except seasonal farm-worker housing as permitted by ORS 215.283(1)(f); and
- iv. The dwelling will be occupied by a person or persons who produced the commodities which grossed the income in Section 410.03(A)(6)(a).
- v. In determining the gross income required by Section 410.03(A)(6)(a), the cost of purchased livestock shall be deducted from the total gross income attributed to the parcel or tract.
- vi. Noncontiguous lots or parcels zoned for farm use in Baker County or contiguous counties may be used to meet the gross income requirements. When a farm or ranch operation has lots or parcels in both "Western" and "Eastern" Oregon as defined by statute division, lots or parcels in Eastern or Western Oregon may not be used to qualify a dwelling in the other part of the state.
- vii. (a) Prior to the final approval for a dwelling authorized under this section that requires one or more contiguous or non contiguous lots or parcels of a farm or ranch operation to comply with the gross farm income requirements, the applicant shall provide evidence that the covenants, conditions and restrictions form adopted as "Exhibit A" has been

recorded with the Baker County Clerk where the property subject to the covenants, conditions and restrictions is located. The covenants, conditions and restrictions shall be recorded for each lot or parcel subject to the application for the primary farm dwelling and shall preclude:

- (i) All future rights to construct a dwelling except for accessory farm dwellings, relative farm assistance dwellings, temporary hardship dwellings or replacement dwellings allowed by ORS Chapter 215; and
- (iii) The use of any gross farm income earned on the lots or parcels to qualify another lot or parcel for a primary farm dwelling.
- (b) The covenants, conditions and restrictions are irrevocable, unless a statement of release is signed by an authorized representative of the county or counties where the property subject to the covenants, conditions and restrictions is located.
- (c) Enforcement of the covenants, conditions and restrictions may be undertaken by the Department of Land Conservation and Development or by the county or counties where the property subject to the covenants, conditions and restrictions is located;
- (d) The failure to follow the requirements of this section shall not affect the validity of the transfer of property or the legal remedies available to the buyers of property which is subject to the covenants, conditions and restrictions required by the section;
- (e) The county planning director shall maintain a copy of the covenants, conditions and restrictions filed in the



county deed records pursuant to this section and a map or other record depicting the lots and parcels subject to the covenants, conditions and restrictions filed in the county deed records pursuant to this section. The map or other record required by this subsection shall be readily available to the public in the county planning office.

3. Secondary Dwelling: Dwellings on real property used for farm use if the dwelling is located on the same lot or parcel as the dwelling of the farm operator and is occupied by a relative of the farm operator or the farm operator's spouse, whose assistance in the management of the farm use is or will be required by the farm operator. "Relative" is defined in Chapter 150, Definitions, of this ordinance.
4. Accessory Farm Dwellings which satisfy the following requirements:
  - a. The accessory farm dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land and whose assistance in the management of the farm use is or will be required by the farm operator; and
  - b. The dwelling will be located:
    - i. On the same lot or parcel as the dwelling of the principal farm dwelling; or
    - ii. On the same tract as the principal farm dwelling when the lot or parcel on which the accessory farm dwelling will be sited is consolidated into a single parcel with all contiguous lots and parcels in the tract; or
    - iii. On a lot or parcel on which the principal farm dwelling is not located when the accessory farm dwelling is a

manufactured dwelling and a deed restriction is filed with the county clerk. The deed restriction shall require the manufactured dwelling to be removed when the lot or parcel is conveyed to another party. An accessory farm dwelling approved pursuant to this section may not be occupied by a person or persons who will not be principally engaged in the farm use of the land and whose assistance in the management of the farm use is not or will not be required by the farm operator. The manufactured dwelling may remain if it is re-approved under these rules for an accessory farm dwelling. An accessory farm dwelling may only be replaced by a manufactured dwelling.

- c. There is no other dwelling on lands designated for exclusive farm use owned by the operator that is vacant or currently occupied by persons not working on the subject farm or ranch and that could reasonably be used as an accessory farm dwelling; and
- d. The principal farm dwelling to which the proposed dwelling would be accessory, meets one of the following:
  - i. On land not identified as high-value farmland, the principal farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203, and produced in the last two years or three of the last five years the lower of the following:
    - (a) At least \$40,000 (1994 dollars) in gross annual income from the sale of farm products. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract; or
    - (b) Gross annual income of at least the midpoint of the median income range of

gross annual sales for farms in the county with the gross annual sales of \$10,000 or more according to the 1992 Census of Agriculture, Oregon. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract; or

- ii. On land identified as high-value farmland, the principal farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203, and produced at least \$80,000 (1992 dollars) in gross annual income from the sale of farm products in the last two years or three of the last five years.
- iii. For the purposes of this section "farm or ranch operation" includes all property used by the farm operator to produce agricultural goods and commodities.
- e. The County shall not approve any proposed division of a lot or parcel for an accessory farm dwelling approved pursuant to this subsection Section 410.03(7). If it is determined that an accessory farm dwelling satisfies farm dwelling requirements in Section 410.03(6), a parcel may be created consistent with the minimum parcel size requirements.
- f. An accessory farm dwelling approved pursuant to this subsection cannot later be used to satisfy the requirements for a dwelling not provided in conjunction with farm use pursuant to 410.04 of this chapter.
- 5. Replacement Dwelling: A lawfully established dwelling may be altered, restored or replaced if, when an application for a permit is submitted, the Director finds to their satisfaction, based on substantial evidence, that:

- a. The dwelling to be altered, restored or replaced has, or formerly had:
  - i. Intact exterior walls and roof structure;
  - ii. Indoor plumbing consisting of a kitchen sink, toilet and bathing facilities connected to a sanitary waste disposal system;
  - iii. Interior wiring for interior lights; and
  - iv. A heating system; and
- b. The dwelling was assessed as a dwelling for purposes of ad valorem taxation for the previous five property tax years, or, if the dwelling has existed for less than five years, from that time; and
- c. Notwithstanding paragraph (b), if the value of the dwelling was eliminated as a result of either of the following circumstances, the dwelling was assessed as a dwelling until such time as the value of the dwelling was eliminated:
  - i. The destruction (i.e. by fire or natural hazard), or demolition in the case of restoration of the dwelling; or
  - ii. The applicant establishes to the satisfaction of the Director that the dwelling was improperly removed from the tax roll by a person other than the current owner. "Improperly removed" means that the dwelling has taxable value in its present state, or had taxable value when the dwelling was first removed from the tax roll or was destroyed by fire or natural hazard, and the county stopped assessing the dwelling even though the current or former owner did not request removal of the dwelling from the tax roll.

6. For replacement of a lawfully established dwelling:

a. The dwelling to be replaced shall be removed, demolished, or converted to an allowable nonresidential use:

i. Within one year after the date the replacement dwelling is certified for occupancy pursuant to ORS 455.055; or

ii. If the dwelling to be replaced is, in the discretion of Baker County, in such a state of repair that the structure is unsafe for occupancy or constitutes an attractive nuisance, on or before a date set by the permitting authority that is not less than 90 days after the replacement permit is issued; and

iii. If a dwelling is removed by moving it off the subject parcel to another location, the applicant must obtain approval from the Director for the new location.

b. The applicant must cause to be recorded in the deed records of the county a statement that the dwelling to be replaced has been removed, demolished or converted.

c. As a condition of approval, if the replacement dwelling is located on a portion of the lot or parcel that is not zoned for exclusive farm use, the applicant shall execute and cause to be recorded in the deed records of the county a deed restriction prohibiting the siting of another dwelling on that portion of the lot or parcel. The restriction imposed is irrevocable unless the Director, or the Director's designee, places a statement of release in the deed records of the county to the effect that the provisions of 2013 Oregon Laws, chapter 462, section 2 and either ORS 215.213 or 215.283 regarding replacement dwellings have changed to

allow the lawful siting of another dwelling. The Director, or the Director's designee, shall maintain a record of:

i. The lots and parcels for which dwelling to be replaced have been removed, demolished or converted; and

ii. The lots and parcels that do not qualify for the siting of a new dwelling under subsection (6) of this section, including a copy of the deed restrictions filed under paragraph (b) of this subsection.

7. A replacement dwelling must comply with applicable building codes, plumbing codes, sanitation codes and other requirements relating to health and safety at the time of construction. However, the standards may not be applied in a manner that prohibits the siting of the replacement dwelling.

a. The replacement dwelling must be sited on the same lot or parcel;

i. Using all or part of the footprint of the replaced dwelling or near a road, ditch, river, property line, forest boundary or other natural boundary of the lot or parcel; and

ii. If possible, for the purpose of minimizing the adverse impacts on resource use of land in the area, within a concentration or cluster of structures or within 500 yards of another structure.

b. Replacement dwellings that currently have the features described in paragraph (6)(a) of this subsection and that have been on the tax roll as described in paragraph (5)(b) may be sited on any part of the same lot or parcel.

c. A replacement dwelling permit is a land use decision where the dwelling to be replaced:

- i. Formerly had the features described in paragraph (5)(a) of this section; or
- ii. Was removed from the tax roll as described in paragraph (5)(c) of this section;
- d. Is not subject to the time to act limit of ORS 215.417; and
- e. If expired before January 1, 2014, shall be deemed to be valid and effective if, before January 1, 2015, the holder of the permit:
- i. Removes, demolishes or converts to an allowable nonresidential use the dwelling to be replaced; and
- ii. Causes to be recorded in the deed records of the county a statement that the dwelling to be replaced has been removed, demolished or converted.

6. Replacement dwelling to be used in conjunction with farm use if the existing dwelling has been listed in a county inventory as historic property as defined in ORS 358.480.

7. Temporary Hardship Dwelling: A manufactured dwelling, or recreational vehicle, or the temporary use of an existing building in conjunction with an existing dwelling, or the temporary use of a dwelling may be allowed for the term of the hardship suffered by the existing resident or relative as defined in ORS Chapter 215, subject to the following:

- a. The manufactured dwelling shall use the same subsurface sewage disposal system used by the existing dwelling, if that disposal system is adequate to accommodate the additional dwelling. If the manufactured home will use a public

sanitary sewer system, such condition will not be required.

- b. Permits shall be reviewed every year.
- c. Within three months of the end of the hardship, the manufactured dwelling shall be removed or demolished or, in the case of an existing building, the building shall be removed, demolished, or returned to an allowed nonresidential use.
- d. A temporary residence approved under this section is not eligible for replacement under ORS 215.213(t) or 215.283(s).
- e. As used in this section, "hardship" means a medical hardship or hardship for the care of an aged or infirm relative as defined in ORS Chapter 215.

#### B. Commercial:

1. Type II Major Home Occupations, subject to the provisions of Section 760.03.

2. Farm stands meeting the following specifications:

- a. The structures are designed and used for sale of farm crops and livestock grown on the farm operation, or grown on the farm operation and other farm operations in the local agricultural area, including the sale of retail incidental items and fee-based activity to promote the sale of farm crops or livestock sold at the farm stand. If the annual sales of incidental items and fees from promotional activity do not make up more than 25 percent of the total annual sales of the farm stand; and
- b. The farm stand does not include structures designed for occupancy as a

residence or for activities other than the sale of farm crops and livestock and does not include structures for banquets, public gatherings or public entertainment.

C. Transportation:

1. Construction of additional passing and travel lanes requiring the acquisition of right of way, but not resulting in the creation of new land parcels.
2. Reconstruction or modification of public roads and highways involving the removal or displacement of buildings, but not resulting in the creation of new land parcels.
3. Improvements of public road and highway related facilities, such as maintenance yards, weigh stations and rest areas, where additional property or right-of-way is required, but not resulting in the creation of new land parcels.

D. Utility/Solid Waste Disposal Facilities:

1. Utility facilities, and similar minor facilities necessary for public service and repair, replacement and maintenance thereof, except commercial facilities for the purpose of generating power for public use by sale and transmission towers under 200 feet in height.
2. Irrigation canals, delivery lines and those structures and accessory operational facilities associated with a district as defined in ORS 540.505.
3. Utility facility service lines (under 200 feet).
4. A wind measurement device that is less than 200 feet in height if it is for

temporary use for a period not to exceed 48 months.

5. Required permanent maintenance/operations buildings for a wind power facility shall be located off-site in one of Baker County's appropriately zoned areas, except that such a building may be constructed on-site if (1) the building design and construction are generally consistent with the character of similar buildings used by commercial farmers or ranchers, and (2) the building will be removed or converted to farm use upon decommissioning of the Wind Power Generation Facility.
6. Residential Wind Power Generation Facility in accordance with the provisions of Chapter 750 of this Ordinance.

E. Parks/Public/Quasi-Public:

1. Onsite filming and activities accessory to onsite filming for 45 days or fewer as provided for in ORS 215.306.
2. A site for the takeoff and landing of model aircraft, including such buildings as may reasonably be necessary.
3. Land application of reclaimed water, agricultural or industrial process water or bio-solids.
4. Fire service facilities providing rural fire protection services.
5. An outdoor gathering described in ORS 197.015(10)(d), provided that a Temporary Permit has been granted per the requirements of Section 250.02.

**410.04 Uses Permitted Through a Type III Procedure.**

In the EFU Zone, the following uses may be permitted when authorized in accordance with the provisions of Section 205.06. These uses shall also require a Conditional Use Permit as described in Chapter 210.

A. Farm/Forest Resource:

1. A facility for the primary processing of forest products.
2. A facility for the processing of farm crops or the production of biofuel as defined in ORS 315.141.
3. Livestock feedlot, sales yard, hog farm or dairy herd confinement at any time of the year, or other concentration of livestock during May through September, when such uses are located within one mile of a residential zone.
4. Guest Ranch in conjunction with an existing commercial cattle, sheep, horse, or bison operation that complies with ORS 215.203 , and the requirements under Section 210.07(E), Guest Ranch, of this Ordinance. For purposes of this section, guest shall mean a person who purchases an activity package which includes ranch and recreational activities and which may include meals.

B. Natural Resource:

1. The propagation, cultivation, maintenance, and harvesting of aquatic species that are not under the jurisdiction of the State Fish and Wildlife Commission, or insect species.
2. A wildlife habitat conservation and management plan pursuant to ORS 215.799.
3. Feeding stations and wildlife management areas subject to the provisions of Section 210.07(A).

C. Residential:

1. Single family residential dwellings not provided in conjunction with farm use pursuant to ORS 215.284(2) (9/9/02).
2. Residential home or facility as defined in ORS 197.660 in existing dwellings.
3. Room and board arrangements for a maximum of five unrelated persons in existing residences.

D. Commercial:

1. Commercial activities in conjunction with farm use, including the processing of farm crops pursuant to ORS 215.213(1)(x) and 215.283(1)(u).
2. Type III Major Home Occupations, subject to the provisions of Section 760.04.
3. Dog Kennels.
4. A destination resort which is approved consistent with the requirements of Goal 8.
5. A winery, as described in ORS 215.452 (2003).
6. An aerial fireworks display business that has been in continuous operation at its current location within an exclusive farm use zone since December 31, 1986, and possesses a wholesaler's permit to sell or provide fireworks.
7. The breeding, kenneling and training of greyhounds for racing.
8. A landscaping business, as defined in ORS 671.520, or a business providing landscape architecture services, as described in ORS 671.318, if the

business is pursued in conjunction with the growing and marketing of nursery stock on the land that constitutes farm use.

E. Mineral, Aggregate, Oil, and Gas Uses:

1. Operations conducted for the exploration, mining and processing of aggregate and other mineral resources or other subsurface resources subject to the restrictions and permits of the Department of Geology and Minerals Industry. See Chapter 440, Mineral Extraction Zone when dealing with patented mining claims.
2. Operations conducted for mining, crushing, or stockpiling of aggregate and other mineral and other subsurface resources subject to ORS 215.298.
3. Processing as defined by ORS 517.750 of aggregate into asphalt or portland cement.
4. Processing of other mineral resources and other subsurface resources.
5. Operations conducted for mining and processing of geothermal resources as defined by ORS 522.005 and oil and gas as defined by ORS 520.005 not otherwise permitted.

F. Transportation:

1. Roads, highways and other transportation facilities, and improvements not otherwise allowed.
2. Transportation improvements on rural lands allowed by OAR 660-012-0065.
3. Personal-use airports for airplanes and helicopter pads including associated hangar, maintenance and service facilities. A personal-use airport as used

in this Section means an airstrip restricted, except for aircraft emergencies, to use by the owner and, on an infrequent and occasional basis, by invited guest(s), and by commercial aviation activities in connection with agricultural operations. No aircraft may be used on a personal-use airport other than those owned or controlled by the owner of the airstrip.

Exceptions to the activities permitted under the definition may be granted through waiver action by the Oregon Aeronautics Division in specific instances. A personal-use airport lawfully existing as of September 13, 1975, shall continue to be permitted subject to any applicable regulations of the Aeronautics Division.

G. Utility/Solid Waste Disposal Facilities:

1. Major utility facilities as defined in Chapter 150 of this ordinance.
2. Transmission towers over 200 feet in height.
3. A site for the disposal of solid waste that has been ordered to be established by the Environmental Quality Commission under ORS 459.049, together with the equipment, facilities or buildings necessary for its operation.
4. Commercial utility facilities for the purpose of generating power for public use by sale, not including wind power generation facilities.
5. Wind power generation facility in accordance with the provisions of Chapter 750 of this Ordinance.
6. A wind measurement device that is greater than 200 feet in height.



7. A wind measurement device that will be used for a period exceeding 48 months.
8. A site for the disposal of solid waste approved by the governing body of a county and for which a permit has been granted under ORS 459.245 by the Department of Environmental Quality together with equipment, facilities or buildings necessary for its operation.
9. Composting facilities for which a permit has been granted by the Department of Environmental Quality under ORS 459.245 and OAR 340-096-0020.

H. Parks/Public/Quasi-Public:

1. Public or private schools for kindergarten through grade 12, including all buildings essential to the operation of a school, primarily for the residents of the rural area in which the school is located, may be permitted:
  - a. On parcels which are not predominantly comprised of high-value farmland soils if the use is not within 3 miles of an urban growth boundary unless an exception is approved pursuant to ORS 197.732 and OAR 660 Division 4.
  - b. On parcels which are predominantly comprised of high-value farmland soils existing facilities may be maintained, expanded or enhanced.
2. Private, semi-public and public parks, playgrounds, hunting and fishing preserves, campgrounds, and community centers.
3. Parks and playgrounds consistent with the provisions of ORS 195.120.
4. Community centers owned by a governmental agency or a nonprofit organization and operated primarily by

and for residents of the local rural community.

5. Golf courses on land determined not to be high-value farmland as defined in ORS 195.300.
6. Living history museum.
7. Firearms training facility as provided in ORS 197.770.
8. Armed forces reserve center as provided for in ORS 215.213(1).
9. Onsite filming and activities accessory to onsite filming for more than 45 days as provided for in ORS 215.306.
10. Expansion of existing county fairgrounds and activities directly relating to county fairgrounds governed by county fair boards established pursuant to ORS 565.210
11. Operations for the extraction and bottling of water.
12. Any gathering subject to review of a county planning commission under ORS 433.763.
13. Churches and cemeteries in conjunction with churches consistent with ORS 215.441, may be allowed:
  - a. On parcels which are not predominantly comprised of high-value farmland soils if the use is not within 3 miles of an urban growth boundary unless an exception is approved pursuant to ORS 197.732 and OAR 660 Division 4.
  - b. On parcels which are predominantly comprised of high-value farmland soils, existing facilities may be maintained, expanded or enhanced.

#### **410.05 Minimum Parcel Size.**

##### **A. General Exception to Parcel Size Requirements:**

1. Any parcel of land or portion thereof which has been or is to be dedicated to a public or semi-public entity for a road, railroad, utility or other public use shall be entitled to an adjustment from the minimum parcel size requirement set forth by this Ordinance. The adjustment shall be limited to the amount of land dedicated to and accepted for public use.
2. Minimum requirements relative to lot size, where applicable, shall be considered as standard metes and bounds land Section divisions. Therefore, lot sizes may be smaller than set forth in this Ordinance if a total Section acreage reduction is due to a U.S. Public Lands survey adjustment.
3. Statutory "Lot of Record" provisions (Sections 9-13, Chapter 884, Oregon Laws 1981, as amended by Sections 14 and 15, Chapter 826, Oregon Laws 1983) may provide a development right for sub-standard sized lots or parcels if said lot(s) or parcels qualify under the law.

##### **B. Except as provided for under Subsection "A" of this section, new parcels in the EFU Zone shall comply with the following minimum parcel size requirements:**

1. 80 acres if fully covered by valid primary water rights.
2. 160 acres for non-irrigated land, or 2 acres for each dry acre less than 80 for land partially covered by valid primary water rights. For example, 60 acres of irrigated land would require a minimum parcel size of 100 acres ( $80 - 60 = 20$ ;  $20$

$\times 2 = 40$ ; 60 irrigated acres + 40 non-irrigated acres = 100 acres).

3. In the EFU Zone, a parcel created to accommodate a conditional use shall comply with the following requirements:
  - a. The proposed parcel shall be the minimum amount of land necessary for the proposed use, considering applicable state and local standards and the criteria set forth in this Ordinance, but shall be no less than 2 acres; and
  - b. The remaining parcel complies with the requirements under Section 410.05(B)(1) or (2), as applicable.
4. If land in the EFU Zone is also located in the Big Game Habitat Overlay, the minimum parcel size for a non-farm or lot of record dwelling shall be 40 acres, unless the parcel on which the dwelling is to be located was legally created prior to January 1, 1986. If the parcel is less than 40 acres, but was legally created prior to January 1, 1986, it is considered to be a pre-existing non-conforming parcel and a non-farm or lot of record dwelling may be allowed subject to the following conditions:
  - a. The dwelling will be located within 200 feet of a public road. If the road access to the dwelling is owned or maintained by the Oregon Department of Forestry, the Bureau of Land Management, or the U.S. Forest Service, the applicant shall provide proof of a road access use agreement.
  - b. There is no other dwelling located on the property.
5. For non-farm partitions in the Big Game Habitat Overlay, the minimum parcel size shall be 40 acres.

6. The minimum parcel size for a farm related dwelling based on minimum parcel sizes established by statute and/or rule shall be 160 acres if covered with at least 160 acres of valid primary water rights or 320 acres non-irrigated, or a combination thereof, except that there shall be 2 acres for each dry acre less than 160. For example, 100 acres of land with valid primary water rights would require a minimum parcel size of 220 acres ( $160 - 100 = 60$ ;  $60 \times 2 = 120$ ;  $100 \text{ irrigated acres} + 120 \text{ non-irrigated acres} = 220 \text{ acres}$ ).
2. The use will not materially alter the stability of the overall land use pattern of the area. In determining whether a proposed nonfarm dwelling will alter the stability of the land use pattern in the area, the cumulative impact of nonfarm dwellings on other lots or parcels in the area similarly situated and whether creation of the parcel will lead to the creation of other nonfarm parcels to the detriment of agriculture in the area will be considered pursuant to OAR 660-033-0130(4)(c)(C)(c)(A).

#### **410.06 Approval Criteria.**

- A. For Type II and Type III uses, in addition to the applicable standards in Chapter 210, Conditional Uses, the applicant shall demonstrate that the following criteria have been satisfied:
  1. Such uses will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and
  2. Such uses will not significantly increase the cost of accepted farm or forest practices on lands devoted to farm or forest use.
- B. Placement of dwellings in the EFU zone shall conform to statutory and rule provisions.
- C. The following criteria apply to Type III uses:
  1. The use or activities associated with the use will not force a significant change in or significantly increase the cost of accepted farming or forest practices on nearby lands devoted to farm or forest use.
  3. The use is situated on a parcel or portion of a parcel which is generally unsuitable for the production of farm crops and livestock considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation and location and size of the tract. A lot or parcel shall not be considered unsuitable solely because of size or location if it can reasonably be put to farm or forest use in conjunction with other land.
  4. When the use is a dwelling, the dwelling will be situated upon land which, as a condition of approval, can be approved for sub-surface sewage disposal or an approved alternative sewage disposal system.
  5. The portion of land approved for a use under Section 410.04 of this Ordinance shall be disqualified from farm deferral where the land cannot reasonably continue in farm use.
  6. Explanation acceptable to the County is provided to demonstrate that:
    - a. Existing public services, utilities, and road systems are adequate to accommodate the proposed use, or that any such need will be provided by the applicant.

- b. The proposed development is designed to minimize adverse impacts to existing terrain, slope, and ground cover and to protect the immediate and surrounding area from potential adverse impacts caused by surface water run-off.
- c. Water, both in terms of quantity and quality, is available and adequate for the use, and adequate provisions for solid waste disposal will be provided.
- 7. The use complies with such other conditions, as the Planning Commission considers necessary.
- D. The following standards shall apply for land divisions to create up to two new parcels smaller than the minimum size established by ORS 215.780, each to contain a nonfarm dwelling:
  - 1. Nonfarm dwellings have been approved pursuant to Sections 410.04 and 410.06 of this ordinance, in addition to other applicable criteria;
  - 2. The parcels for the nonfarm dwellings are divided from a lot or parcel that was lawfully created prior to July 1, 2001;
  - 3. The parcels for the nonfarm dwellings are divided from a lot or parcel that complies with the minimum size established under ORS 215.780, and the remainder of the original lot or parcel that does not contain the nonfarm dwellings complies with the minimum size established under ORS 215.780; and
  - 4. The parcels for the nonfarm dwellings are generally unsuitable for the production of farm crops and livestock or merchantable tree species considering the terrain, adverse soil or land conditions, drainage or flooding, vegetation, location and size of the tract. A parcel may not be considered

unsuitable based solely on size or location if the parcel can reasonably be put to farm or forest use in conjunction with other land.

- E. The following standards shall apply for land divisions to divide a lot or parcel into two parcels, each to contain one dwelling not provided in conjunction with farm use if:
  - 1. The nonfarm dwellings have been approved under pursuant to Sections 410.04 and 410.06 of this ordinance, in addition to other applicable criteria;
  - 2. The parcels for the nonfarm dwellings are divided from a lot or parcel that was lawfully created prior to July 1, 2001;
  - 3. The parcels for the nonfarm dwellings are divided from a lot or parcel that is equal to or smaller than the minimum size established under ORS 215.780 but equal to or larger than 40 acres;
  - 4. The parcels for the nonfarm dwellings are not capable of producing more than at least 20 cubic feet of wood fiber;
  - 5. The parcels for nonfarm dwellings are either composed of 90% Class VII and VIII soils; or
  - 6. The parcels are composed of at least 90% Class VI, VII and VIII soils and are not capable of producing adequate herbaceous forage for grazing livestock. A parcel that produces 1,050<sup>1</sup> or more total pounds of dry matter per acre in a normal year, as calculated using the Natural Resources Conservation Service Soil Survey for Baker County, is considered to produce adequate

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<sup>1</sup> Note: Adequate herbaceous forage was calculated based on rounding up the average total pounds of dry matter in a normal year for Class VII soils.

herbaceous forage for the purposes of this section.

7. The parcels for the nonfarm dwellings do not have established water rights for irrigation; and
8. The parcels for the nonfarm dwellings are generally unsuitable for the production of farm crops and livestock or merchantable tree species considering the terrain, adverse soil or land conditions, drainage or flooding, vegetation, location and size of tract. A parcel may not be considered unsuitable based solely on size or location if the parcel can reasonably be put to farm or forest use in conjunction with other land; and
9. A lot or parcel or portion of a lot or parcel is not “generally unsuitable” simply because it is too small to be farmed profitably by itself. If a lot or parcel or portion of a lot or parcel can be sold, leased, rented or otherwise managed as a part of a commercial farm or ranch, then the lot or parcel is not “generally unsuitable. A lot or parcel or portion of a lot or parcel is presumed to be suitable if it is composed predominantly of Class I-VI soils. Just because a lot or parcel or portion of a lot or parcel is unsuitable for one farm use does not mean it is not suitable for another farm use.

**Crook County**  
**Chapter 18.16**  
**EXCLUSIVE FARM USE ZONE, EFU-1 (POST-PAULINA AREA)**

Sections:

- 18.16.005 Regulations designated.**
- 18.16.010 Uses permitted outright.**
- 18.16.020 Conditional uses permitted.**
- 18.16.025 Commercial and noncommercial energy criteria.**
- 18.16.030 Goal 5 conditional mining uses subject to hearing authority review.**
- 18.16.040 Limitations on conditional uses.**
- 18.16.050 Use limitations.**
- 18.16.060 Farm dwelling.**
- 18.16.070 Land divisions.**
- 18.16.080 Limitations on nonfarm residential uses.**
- 18.16.081 Wildlife policy applicability.**
- 18.16.090 Dimensional standards.**
- 18.16.100 Yards.**
- 18.16.110 Signs.**
- 18.16.120 Special nonfarm parcel criteria.**
- 18.16.130 Parcel size exception.**

**18.16.005 Regulations designated.**

In an EFU-1 zone, the following regulations shall apply. (Ord. 18 § 3.010, 2003)

**18.16.010 Uses permitted outright.**

In an EFU-1 zone, the following uses and accessory uses thereof are permitted outright: all uses authorized under ORS [215.283](#)(1), in conjunction with any other applicable provisions of this chapter. (Ord. 231 § 1 (Exh. A), 2010; Ord. 190 § 1, 2007; Ord. 18 § 3.010(1), 2003)

**18.16.020 Conditional uses permitted.**

In an EFU-1 zone, the following uses and their accessory uses are permitted when authorized in accordance with the requirements of Chapter [18.160](#) CCC and in conjunction with any other applicable provisions of this chapter: all uses authorized under ORS [215.283](#)(2) and (3). (Ord. 231 § 1 (Exh. A), 2010; Ord. 18 § 3.010(2), 2003)

#### **18.16.025 Commercial and noncommercial energy criteria.**

In addition to the uses permitted under CCC [18.16.010](#) and [18.16.020](#), noncommercial and commercial wind and photovoltaic energy systems are permitted in the zone to the extent they are consistent with current state law and the applicable criteria in Chapters [18.160](#), [18.161](#) and [18.162](#) CCC. (Ord. 245 § 1, 2011; Ord. 229 § 1 (Exh. A), 2010)

#### **18.16.030 Goal 5 conditional mining uses subject to hearing authority review.**

See uses and procedures described in Chapter [18.144](#) CCC. (Ord. 18 § 3.010(3), 2003)

#### **18.16.040 Limitations on conditional uses.**

In addition to the general standards and conditions that may be attached to the approval of a conditional use as provided by Chapter [18.160](#) CCC, the following limitations shall apply to a conditional use permitted in CCC [18.16.020](#).

A use allowed under CCC [18.16.020](#) may be approved where the county finds that the use will not:

- (1) Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or
- (2) Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.

An applicant for a use allowed under CCC [18.16.020](#) may demonstrate that the standards under subsections (1) and (2) of this section will be satisfied through the imposition of conditions. Any conditions so imposed shall be clear and objective. (Ord. 18 § 3.010(4), 2003)

#### **18.16.050 Use limitations.**



No conflicting use shall be allowed in any Goal 5 mining impact area designated in the comprehensive plan without first obtaining approval under the standards and criteria set forth in this section.

(1) Review and Approval Criteria. An application for review shall be required for a conflicting use in an impact area prior to commencement of construction of the use. The approving authority shall review and approve the application provided:

- (a) The proposed use is consistent with the ESEE analysis in the comprehensive plan; and
- (b) The proposed use will not prevent the adjacent aggregate operator from meeting the standards and conditions set forth in Chapter [18.144](#) CCC.



(2) Waiver of Remonstrance. The applicant for site plan approval of a conflicting use in the Goal 5 mining impact area shall sign and record in the Crook County book of records a statement declaring that the applicant and his or her successors will not now or in the future complain about the allowed surface mining activities on the adjacent surface mining site.

(3) Development Agreement and Performance Bond. As a condition of approval, the applicant may be required to execute a development agreement with the county and performance bond or other form of security approved by the county to ensure full and faithful performance of any required improvements. Any bond shall be for 100 percent of the dollar required of the improvement cost. (Ord. 18 § 3.010(5), 2003)

#### **18.16.060 Farm dwelling.**

The resource dwellings identified in CCC [18.16.010](#) and [18.16.020](#) may be approved for a commercial farm or ranch based upon the following:

(1) The size of the entire resource unit including all contiguous land in the same ownership; the types of farm crops and acreage for each type; operational requirements for the particular farm activity; the number of other permanent or temporary dwellings on or serving the entire farm or ranch unit (permanent and seasonal); the extent and nature of the work to be performed by occupants of the proposed dwelling.

(2) The dwelling will be situated on a parcel currently employed for farm use as defined in ORS [215.203](#). Land is not in farm use unless the day-to-day activities on the subject land are principally directed to the farm use of the land consistent with accepted farming practices.

(3) Notice of the proposed administrative approval of a dwelling in conjunction with farm use as provided for in CCC [18.16.010](#) shall be mailed to adjoining property owners. Within 10 days following notice to adjoining property owners, the application shall be considered for approval by the planning director. An objection by an adjoining property owner shall result in a review of the application by the planning commission as a conditional use permit.

(4) Farm Hand or Secondary Resource Dwelling. When determining whether a proposed farm hand or secondary dwelling may be provided, the farm owner or operator shall demonstrate that an occupant of the proposed dwelling is required to assist in the commercial farm or ranch operation.

(5) Commercial Resource Determination. When determining whether an existing or proposed parcel is a commercial farm or ranch unit, the standards of this section shall be met and the following factors shall be considered:

(a) Soil productivity; drainage; terrain, special soil and land conditions; availability of water; type and acreage of crops grown; crops yields; number and type of livestock; processing and marketing practices; and the amount of land needed to constitute a commercial agricultural enterprise as defined in CCC [18.08.030](#). (Ord. 18 § 3.010(6), 2003)

#### **18.16.070 Land divisions.**

Divisions of land shall be only allowed when consistent with the requirements of this chapter and the land development ordinance.

(1) Farm Parcels. Division of land for farm parcels shall be appropriate for the continuation of the existing commercial agricultural operations in the area, but shall not be less than the minimum size established in ORS [215.780](#) and CCC [18.16.090](#).

(2) Nonfarm Parcels. Division of land for nonfarm parcels shall comply with the following requirements including CCC [18.16.080](#):

(a) Nonfarm dwellings have been approved for the proposed parcels pursuant to CCC [18.16.020](#)(14);

(b) The parcels for the nonfarm dwellings are divided from a lot or parcel that was lawfully created prior to July 1, 2001;

(c) Two nonfarm parcels may be created as long as the remainder of the original parcel meets or exceeds the minimum standards established by CCC [18.16.090](#);

(d) For those existing parcels that are below the minimum size established by CCC [18.16.090](#), but are greater than 40 acres, compliance with CCC [18.16.120](#) is required.

(3) Minimum lot size shall be 320 acres within the elk wintering range as designated in the county's comprehensive plan, Goal 5 element. Minimum lot size for critical deer winter range shall be 160 acres, as designated by the county's comprehensive plan, Goal 5 element. Minimum lot size for general winter range shall be 80 acres.

(4) A land division for a nonfarm dwelling may be approved only if the nonfarm dwelling has first been approved under CCC [18.16.020](#). (Ord. 18 § 3.010(7), 2003)

#### **18.16.080 Limitations on nonfarm residential uses.**

The county may approve a nonfarm residential dwelling upon a finding that the proposed dwelling:

(1) Accepted Farm or Forest Practices. Will not seriously interfere with or force a significant change in accepted farm and forest practices, as defined in ORS [215.203\(2\)\(C\)](#), on nearby or adjacent lands devoted to farm use or forest use, including but not limited to increasing the costs of accepted farm or forest practices on nearby land devoted to farm use.

(2) Land Use Pattern. The dwelling will not materially alter the stability of the overall land use pattern of the area. In determining whether a proposed nonfarm dwelling will alter the stability of the land use pattern in the area, the county shall consider the cumulative impacts of new nonfarm dwellings on other lots or parcels in the area. If the application involves the creation of a new parcel for the nonfarm dwelling, the county shall consider whether creation of the parcel will lead to the creation of other nonfarm parcels, to the detriment of agriculture in the area. To address this standard, the applicant shall:

(a) Identify a study area representative of the surrounding agricultural area including adjacent and nearby land zoned for exclusive farm use. Nearby land zoned for rural residential or other urban or nonresource uses shall not be included;

(b) Identify the types and sizes of all farm and nonfarm uses and the stability of the existing land use pattern within the identified study area; and

(c) Explain how the introduction of the proposed nonfarm dwelling will not materially alter the land use pattern within the identified study area.

The applicant's evidence shall be sufficient to enable the county to make findings on these issues as well as other applicable requirements.

(3) Unsuitability for Agriculture.

(a) The dwelling is situated upon a lot or parcel, or a portion of a lot or parcel, that is generally unsuitable land for the production of farm crops and livestock, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract. A lot or parcel shall not be considered unsuitable solely because of size or location if it can reasonably be put to farm use in conjunction with other land. A lot or parcel is not generally unsuitable simply because it is too small to be farmed profitably by itself. If a lot or parcel can be sold, leased, rented or otherwise managed as a part of a commercial farm or ranch, it is not generally unsuitable. A lot or parcel is presumed to be suitable if it is composed predominantly of Class I through VI soils. Just because a lot or parcel is unsuitable for one farm use does not mean it is not suitable for another farm use.

(b) If the parcel is under forest assessment, the dwelling shall be situated upon generally unsuitable land for the production of merchantable tree species recognized by the forest practices rules, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the parcel. If a lot or parcel is under forest assessment, the area is not managed for forest production profitably by itself. If rented or otherwise managed as a part of a forestry operation, it is not generally unsuitable. If a lot or parcel is under forest assessment, it is presumed suitable if it is producing 20 cubic feet of wood fiber per acre per year. If a lot or parcel is under forest assessment, to be found surrounding land it must not force a significant change in forest practices or significantly increase the cost of those practices on the surrounding land.

(4) Other Conditions Deemed Necessary. Complies with such other conditions, as the county considers necessary.

(5) Creation of Lot. The dwelling will be sited on a lot or parcel created before January 1, 1993, or on a lot or parcel created after January 1, 1993, pursuant to CCC [18.16.070](#)(4).

(6) Disqualification from Farm Deferral. Prior to final approval of a building permit for a use governed by this section, the entire lot or parcel upon which the nonfarm dwelling will be located must be disqualified for farm assessments pursuant to ORS [215.236](#). (Ord. 231 § 1 (Exh. A), 2010; Ord. 18 § 3.010(8), 2003)

#### **18.16.081 Wildlife policy applicability.**



All new nonfarm dwellings on existing parcels within the deer and elk winter ranges must meet the residential density limitations found in Wildlife Policy 2 of the Crook County comprehensive plan. Compliance with the residential density limitations may be demonstrated by calculating a one-mile radius (or 2,000-acre) study area. An applicant may use a different study area size or shape to demonstrate compliance with Wildlife Policy 2 provided the methodology and size of the study area are explained and are found to be consistent with the purpose of Crook County comprehensive plan Wildlife Policy 2. (Ord. 236 § 1 (Exh. A), 2010)

#### **18.16.090 Dimensional standards.**

In an EFU-1 zone, the following dimensional standards shall apply:

(1) The minimum new parcel size for farm use permitted by this chapter shall be 160 acres unless a larger minimum size is necessary to satisfy CCC [18.16.070](#) based on an evaluation of the subject property and commercial agricultural enterprises, as defined in CCC [18.08.030](#), located in the same zone at least one mile from the property boundary of the subject property, which shows the proposed parcels are equal to or greater than the typical commercial agricultural enterprise in the area.

(2) The minimum lot area for a nonfarm dwelling shall be based upon the requirements of CCC [18.16.080](#), but shall not be smaller than 10 acres.

(3) The minimum lot area for all nonfarm uses listed under CCC [18.16.020](#) (except dwellings) shall not be larger than the minimum necessary for the use.

(4) A land division for a nonfarm dwelling may be approved only if the nonfarm dwelling has first been approved under CCC [18.16.040](#). (Ord. 18 § 3.010(9), 2003)

#### **18.16.100 Yards.**

In an EFU-1 zone, the minimum yard setback requirements shall be as follows:

In an exclusive farm use zone (EFU) the minimum setback of a residence or habitable structure from a property line shall be 100 feet.

(1) If a parcel in the EFU zone is nonbuildable as a result of the habitable structure setback requirements, the commission may consider a conditional use application from the landowner to adjust the setback requirements to make the parcel buildable.

(2) The minimum setbacks for all accessory structures are:

(a) Front yard setback shall be 20 feet for property fronting on a local minor collector or marginal access street, 30 feet from a property line fronting on a major collector ROW, and 80 feet from an arterial ROW unless other provisions for combining accesses are provided and approved by the county.

(b) Each side yard shall be a minimum of 20 feet, except corner lots where the side yard on the street side shall be a minimum of 30 feet.

(c) Rear yards shall be a minimum of 25 feet. (Ord. 18 § 3.010(10), 2003)

#### **18.16.110 Signs.**

In an EFU-1 zone, the following signs are permitted:

(1) One nameplate for each dwelling unit not more than one and one-half square feet in area and shall not be illuminated.

(2) One temporary sign advertising the sale, lease or rental of the property on which it is located, not more than three square feet in area and not illuminated.

(3) One sign identifying the name of a farm or ranch of 160 acres or greater, not more than 32 square feet in area, not illuminated, and located at least 10 feet from a property line.

(4) One sign identifying an enterprise other than a farm or ranch, a conditional use, not more than 25 square feet in area, not illuminated, and located at least 10 feet from a property line. (Ord. 18 § 3.010(11), 2003)

**18.16.120 Special nonfarm parcel criteria.**

Standards for land divisions for parcels equal to or below minimum size as established by ORS [215.780](#).

(1) A parcel may be divided into two nonfarm parcels each to contain one dwelling not in conjunction with farm use upon a finding that:

(a) Nonfarm dwellings have been approved pursuant to CCC [18.16.080](#);

(b) Parcel was lawfully created prior to July 1, 2001;

(c) The original parcel size is larger than 40 acres;

(d) Parcels are not capable of producing at least 20 cubic feet per acre of wood fiber;

(e) There are not any established water rights for irrigation;

(f) Composed of 90 percent Class VII and VIII soils;

(g) Composed of 90 percent Class VI through VIII soils and complying with subsection (2) of this section.

(2) Parcels identified in subsection (1)(g) of this section must demonstrate that the sites are not capable of producing adequate herbaceous forage for grazing livestock. These findings shall include the following:

(a) Whether the parcel is an open range or a livestock district.

(b) Whether the parcel is currently fenced.

(c) Whether livestock water is available.

(d) Size of parcel.

(e) AUM's availability determined by on-site study by qualified independent party such as a Crook County soil and water conservation representative or USDA Natural Resources Conservation Representative, or in the private sector, a range consultant or professional in rangeland management certified by the Society

of Range Management. The study shall use accepted practices in the identification of herbaceous forage, using best management practices in determining the parcel's capability for herbaceous forage production. The study shall include the total pounds for current year dry matter herbaceous forage on site.

(f) Each site shall have not more than 13,000 pounds current year dry matter herbaceous forage.

(3) Parcels approved pursuant to subsections (1) and (2) of this section shall have the following conditions imposed to minimize any impacts to adjacent farming practices:

(a) A conservation plan to be submitted prior to issuance of building permit for a nonfarm dwelling addressing animal management, weed control, juniper/fire issues, and erosion control measures if located on sloped land.

(b) Nonfarm parcels are to be removed from farm deferral, if on program, prior to final plat approval and recording.

(c) Letter of nonremonstrance agreeing not to object to accepted farm practices in the area. (Ord. 18 § 3.010(12), 2003)

**18.16.130 Parcel size exception.**

Whereas land sections in the area of the county subject to this section are commonly affected by survey adjustments, requirements relative to farm or lot sizes shall be considered as standard metes and bounds land section divisions; i.e., 160, 80, 40, 20, etc. Therefore, lot sizes may be reduced by five percent due to a survey adjustment or other manmade barriers such as roads or major canals over which the applicant has had no control. (Ord. 18 § 3.010(13), 2003)



## **Chapter 18.16. EXCLUSIVE FARM USE ZONES**

### **18.16.010. Purpose.**

### **18.16.020. Uses Permitted Outright.**

### **18.16.025. Uses Permitted Subject to the Special Provisions Under DCC Section 18.16.038 and a Review Under DCC Chapter 18.124 For Items C Through M.**

### **18.16.030. Conditional Uses Permitted - High Value and Nonhigh Value Farmland.**

### **18.16.031. Nonresidential Conditional Uses on Nonhigh Value Farmland Only.**

### **18.16.033. Nonresidential Conditional Uses on High Value Farmland Only.**

### **18.16.035. Destination Resorts.**

### **18.16.037. Guest Ranch.**

### **18.16.038. Special Conditions for Certain Uses Listed Under DCC 18.16.025.**

### **18.16.040. Limitations on Conditional Uses.**

### **18.16.042. Agri-Tourism and Other Commercial Events or Activities Limited Use Permit**

### **18.16.043. Single Permit**

### **18.16.050. Standards for Dwellings in the EFU Zones.**

### **18.16.055. Land Divisions.**

### **18.16.060. Dimensional Standards.**

### **18.16.065. Subzones.**

### **18.16.067. Farm Management Plans.**

### **18.16.070. Yards.**

### **18.16.080. Stream Setbacks.**

### **18.16.090. Rimrock Setback.**

### **18.16.010. Purpose.**

- A. The purpose of the Exclusive Farm Use zones is to preserve and maintain agricultural lands and to serve as a sanctuary for farm uses.
- B. The purposes of this zone are served by the land use restrictions set forth in the Comprehensive Plan and in DCC 18.16 and by the restrictions on private civil actions and enforcement actions set forth in ORS 30.930 through 30.947.

(Ord. 95-007 §9, 1995; Ord. 92-065 §3, 1992; Ord. 91-038 §§1 and 2, 1991)

### **18.16.020. Uses Permitted Outright.**

The following uses and their accessory uses are permitted outright:

- A. Farm use as defined in DCC Title 18.
- B. Propagation or harvesting of a forest product.
- C. Operations for the exploration for minerals as defined by ORS 517.750. Any activities or construction relating to such operations shall not be a basis for an exception under ORS 197.732(2)(a) or (b).
- D. Accessory buildings customarily provided in conjunction with farm use.
- E. Climbing and passing lanes within the right of way existing as of July 1, 1987.
- F. Reconstruction or modification of public roads and highways, including the placement of utility facilities overhead and in the subsurface of public roads and highways along the public right of way, but not including the addition of travel lanes, where no removal or displacement of buildings would occur, or no new land parcels result.
- G. Temporary public road and highway detours that will be abandoned and restored to original condition or use when no longer needed.

- H. Minor betterment of existing public road and highway-related facilities such as maintenance yards, weigh stations and rest areas, within a right of way existing as of July 1, 1987, and contiguous public owned property utilized to support the operation and maintenance of public roads and highways.
- I. Creation, restoration or enhancement of wetlands.
- J. Alteration, restoration or replacement of a lawfully established dwelling that:
  - 1. Has intact exterior walls and roof structure;
  - 2. Has indoor plumbing consisting of a kitchen sink, toilet and bathing facilities connected to a sanitary waste disposal system;
  - 3. Has interior wiring for interior lights;
  - 4. Has a heating system; and
  - 5. In the case of replacement, is removed, demolished or converted to an allowable nonresidential use within three months of completion of the replacement dwelling. A replacement dwelling may be sited on any part of the same lot or parcel, and shall comply with all applicable siting standards. If the dwelling to be replaced is located on a portion of the lot or parcel not zoned for exclusive farm use, the applicant, as a condition of approval, shall execute and record in the deed records for the county a deed restriction prohibiting the siting of a dwelling on that portion of the lot or parcel. The restriction imposed shall be irrevocable unless a statement of release is placed in the deed records for the county. The release shall be signed by the county or its designee and state that the provisions of the statute and county code have changed to allow the siting of another dwelling; and
  - 6. The replacement dwelling is subject to OAR 660-033-0130(30) and the County shall require as a condition of approval of a single-family replacement dwelling that the landowner for the dwelling sign and record in the deed records for the county a document binding the landowner, and the landowner's successors in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 to 30.937.
  - 7. An applicant for a replacement dwelling may request a deferred replacement dwelling permit.
    - a. The dwelling to be replaced shall be removed or demolished within three months after the deferred replacement permit is issued.
    - b. A deferred replacement permit allows construction of the replacement dwelling at any time. If, however, the established dwelling is not removed or demolished within three months after the deferred replacement permit is issued, the replacement permit becomes void.
    - c. The replacement dwelling must comply with applicable building codes, plumbing codes, sanitation codes and other requirements relating to health and safety or to siting at the time of construction.
    - d. A deferred replacement permit may not be transferred, by sale or otherwise, except by the applicant to the spouse or child of the applicant.
- K. A replacement dwelling to be used in conjunction with farm use if the existing dwelling is listed on the National Register of Historic Places and on the County inventory as a historic property as defined in ORS 358.480, and subject to 18.16.020(J)(6) above.
- L. Wildlife habitat conservation and management plan approved under ORS 215.800 to 215.808.
- M. Operation, maintenance, and piping of existing irrigation systems operated by an Irrigation District except as provided in DCC 18.120.050.
- N. Utility facility service lines. Utility facility service lines are utility lines and accessory facilities or structures that end at the point where the utility service is received by the customer and that are located on one or more of the following:
  - 1. A public right of way;
  - 2. Land immediately adjacent to a public right of way, provided the written consent of all adjacent property owners has been obtained; or
  - 3. The property to be served by the utility.
- O. The land application of reclaimed water, agricultural process or industrial process water or biosolids for agricultural, horticultural or silvicultural production, or for irrigation in connection with a use allowed in

an exclusive farm use zone, subject to the issuance of a license, permit or other approval by the Department of Environmental Quality under ORS 454.695, 459.205, 468B.053 or 468B.055, or in compliance with rules adopted under ORS 468B.095, and with the requirements of ORS 215.246 to 215.251.

- P. Fire service facilities providing rural fire protection services.
  - Q. Operations for the exploration for and production of geothermal resources as defined by ORS 522.005 and oil and gas as defined by ORS 520.005, including the placement and operation of compressors, separators and other customary production equipment for an individual well adjacent to the wellhead. Any activities or construction relating to such operations shall not be a basis for an exception under ORS 197.732(2)(a) or (b).
  - R. Outdoor mass gathering described in ORS 197.015(10)(d), and subject to DCC Chapter 8.16.
  - S. Composting operations that are accepted farming practices in conjunction with and auxiliary to farm use on the subject tract as allowed under OAR 660-033-0130(29).
- (Ord. 2012-007 §2, 2012; Ord. 2010-022 §2, 2010; Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 2004-001 §2, 2004; Ord. 2001-039 §1, 2001; Ord. 2001-016 §2, 2001; Ord. 98-030 §1, 1998; Ord. 95-007 §10, 1995; Ord. 92-065 §3, 1992; Ord. 91-038 §§1 and 2, 1991; Ord. 91-024 §1, 1991; Ord. 91-020 §1, 1991; Ord. 91-005 §4, 1991; Ord. 91-002 §3, 1991; Ord. 86-007 §1, 1986; Ord. 81-025 §1, 1981; Ord. 81-001 §1, 1981)

**18.16.025. Uses Permitted Subject to the Special Provisions Under DCC Section 18.16.038 or DCC Section 18.16.042 and a Review Under DCC Chapter 18.124 where applicable.**

- A. Dwellings customarily provided in conjunction with farm use (farm-related dwellings), subject to DCC 18.16.050.
- B. A relative farm assistance dwelling, subject to DCC 18.16.050.
- C. Churches and cemeteries in conjunction with churches consistent with ORS 215.441, that are not within 3 miles of an acknowledged urban growth boundary, on nonhigh value farmland.
- D. Churches and cemeteries in conjunction with churches consistent with ORS 215.441, that are within 3 miles of an acknowledged urban growth boundary, subject to Oregon Administrative Rules 660-033-0130 on nonhigh value farmland.
- E. Expansion of an existing church or cemetery in conjunction with a church on the same tract as the existing use, subject to Oregon Administrative Rules 660-033-0130.
- F. Utility facilities necessary for public service, including wetland waste treatment systems, but not including commercial facilities for the purpose of generating electrical power for public use by sale and transmission towers over 200 feet in height. A utility facility necessary for public service may be established as provided in DCC 18.16.038(A).
- G. Winery, as described in ORS 215.452.
- H. Farm stands, subject to DCC 18.16.038.
- I. A site for the takeoff and landing of model aircraft, including such buildings or facilities as may be reasonably necessary.
- J. A facility for the processing of farm crops, or the production of biofuel as defined in ORS 315.141, that is located on a farm operation that provides at least one-quarter of the farm crops processed at the facility.
  - a. The building established for the processing facility shall not exceed 10,000 square feet of floor area exclusive of the floor area designated for preparation, storage or other farm use or devote more than 10,000 square feet to the processing activities within another building supporting farm uses.
  - b. A processing facility shall comply with all applicable siting standards but the standards shall not be applied in a manner that prohibits the siting of the processing facility.
  - c. The County shall not approve any division of a lot or parcel that separates a processing facility from the farm operation on which it is located.
- K. Agri-tourism and other commercial events and activities subject to DCC 18.16.042.

(Ord. 2012-007 §2, 2012; Ord. 2012-004 §2, 2012; Ord. 2010-022 §2, 2010; Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 2004-001 §2, 2004)

#### **18.16.030. Conditional Uses Permitted -High Value and Nonhigh Value Farmland.**

The following uses may be allowed in the Exclusive Farm Use zones on either high value farmland or nonhigh value farmland subject to applicable provisions of the Comprehensive Plan, DCC 18.16.040 and 18.16.050, and other applicable sections of DCC Title 18.

- A. Nonfarm dwelling.
- B. Lot of record dwelling.
- C. Residential home or facility, as defined in DCC 18.04.030, in existing dwellings.
- D. A hardship dwelling, which can include one manufactured dwelling or recreational vehicle, in conjunction with an existing dwelling as a temporary use for the term of a hardship suffered by the existing resident or a relative of the resident.
- E. A dwelling in conjunction with a wildlife habitat conservation and management plan.
- F. Commercial activities that are in conjunction with farm use, but not including the processing of farm crops as described in DCC 18.16.025.
- G. Operations conducted for:
  - Mining and processing of geothermal resources as defined by ORS 522.005, and
  - Mining and processing of natural gas or oil as defined by ORS 520.005, not otherwise permitted under DCC 18.16.020.
- H. Expansion of an existing private park, playground, hunting and fishing preserve and campground on the same tract as the existing use.
- I. Public park and playground consistent with the provisions of ORS 195.120, and including only the uses specified under OAR 660-034-0035 or 660-034-0040, whichever is applicable.
- J. Community centers owned by a governmental agency or a nonprofit organization and operated primarily by and for residents of the local rural community.
  - 1. A community center authorized under this section may provide services to veterans, including but not limited to emergency and transitional shelter, preparation and service of meals, vocational and educational counseling and referral to local, state or federal agencies providing medical, mental health, disability income replacement and substance abuse services, only in a facility that is in existence on January 1, 2006.
  - 2. The services may not include direct delivery of medical, mental health, disability income replacement or substance abuse services.
- K. Transmission towers over 200 feet in height.
- L. Commercial utility facility, including a hydroelectric facility (in accordance with DCC 18.116.130 and 18.128.260, and OAR 660-033-0130), for the purpose of generating power for public use by sale, not including wind power generation facilities.
- M. Personal use airport for airplanes and helicopter pads, including associated hangar, maintenance and service facilities. A personal use airport as used in DCC 18.16.030 means an airstrip restricted, except for aircraft emergencies, to use by the owner, and, on an infrequent and occasional basis, by invited guests, and by commercial aviation activities in connection with agricultural operations.
- N. Home Occupation, subject to DCC 18.116.280.
  - 1. The home occupation shall:
    - a. be operated substantially in the dwelling or other buildings normally associated with uses permitted in the EFU zone;
    - b. be operated by a resident or employee of a resident of the property on which the business is located; and
    - c. employ on the site no more than five full-time or part-time persons.
  - 2. The home occupation shall not unreasonably interfere with other uses permitted in the EFU zone.

- O. A facility for the primary processing of forest products, provided that such facility is found to not seriously interfere with accepted farming practices and is compatible with farm uses described in ORS 213.203(2). The primary processing of a forest product, as used in DCC 18.16.030, means the use of a portable chipper or stud mill or other similar methods of initial treatment of a forest product in order to enable its shipment to market. Forest products, as used in DCC 18.16.030, means timber grown upon a parcel of land or contiguous land where the primary processing facility is located.
  - P. Construction of additional passing and travel lanes requiring the acquisition of right of way, but not resulting in the creation of new land parcels.
  - Q. Reconstruction or modification of public roads and highways involving the removal or displacement of buildings, but not resulting in the creation of new land parcels.
  - R. Improvement of public road and highway-related facilities such as maintenance yards, weigh stations and rest areas, where additional property or right of way is required, but not resulting in the creation of new land parcels.
  - S. The propagation, cultivation, maintenance and harvesting of aquatic species that are not under the jurisdiction of the State Fish and Wildlife Commission or insect species.
    - 1. Insect species shall not include any species under quarantine by the State Department of Agriculture or the United States Department of Agriculture.
    - 2. The county shall provide notice of all applications under this section to the State Department of Agriculture.
    - 3. Notice shall be provided in accordance with DCC Title 22, but shall be mailed at least 20 calendar days prior to any administrative decision or initial public hearing on the application.
  - T. Room and board arrangements for a maximum of five unrelated persons in an existing residence. If approved, this use is subject to the recording of the statement listed in DCC 18.16.020(J)(6).
  - U. Excavation, grading and fill and removal within the bed and banks of a stream or river or in a wetland.
  - V. Roads, highways and other transportation facilities, and improvements not otherwise allowed under DCC 18.16, if an exception to Goal 3, Agricultural Lands, and to any other applicable goal is first granted under state law. Transportation uses and improvements may be authorized under conditions and standards as set forth in OAR 660-012-0035 and 660-012-0065.
  - W. Surface mining of mineral and aggregate resources in conjunction with the operation and maintenance of irrigation systems operated by an Irrigation District, including the excavation and mining for facilities, ponds, reservoirs, and the off-site use, storage, and sale of excavated material.
  - X. A living history museum.
  - Y. Operations for the extraction and bottling of water.
  - Z. Transportation improvements on rural lands allowed by OAR 660-012-0065.
  - AA. Expansion of existing county fairgrounds and activities relating to county fairgrounds governed by county fair boards established pursuant to ORS 565.210.
  - BB. Extended outdoor mass gatherings, subject to DCC 8.16.
  - CC. A landscape contracting business, as defined in ORS 671.520, or a business providing landscape architecture services, as described in ORS 671.318, if the business is pursued in conjunction with the growing and marketing of nursery stock on the land that constitutes farm use.
  - DD. Wind power generation facilities as commercial utility facilities for the purpose of generating power for public use by sale, subject to OAR 660-033-0130.
  - EE. Photovoltaic solar power generation facilities as commercial utility facilities for the purpose of generating power for public use by sale, subject to OAR 660-033-0130.
- (Ord. 2012-007 §2, 2012; Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 2004-001 §2, 2004; Ord. 2001-039 §1, 2001; Ord. 2001-016 §2, 2001; Ord. 98-030 §1, 1998; Ord. 95-025 §1, 1995; Ord. 95-007 §11, 1995; Ord. 94-008 §9, 1994; Ord. 92-065 §3, 1992; Ord. 91-038 §2, 1991; Ord. 91-020 §1, 1991; Ord. 91-014 §1, 1991; Ord. 91-005 §5, 1991; Ord. 90-018 §1, 1990; Ord. 90-014 §§23 and 31, 1991; Ord. 87-013 §1, 1987; Ord. 86-018 §3, 1986; Ord. 83-028 §1, 1983)



#### **18.16.031. Conditional Uses on Nonhigh Value Farmland Only.**

The following uses may be allowed only on tracts in the Exclusive Farm Use Zones that constitute nonhigh value farmland subject to applicable provisions of the Comprehensive Plan and DCC 18.16.040 and other applicable sections of DCC Title 18.

- A. Dog kennel.
- B. A site for the disposal of solid waste approved by the governing body of a city or County or both and for which a permit has been granted under ORS 459.245 by the Department of Environmental Quality together with equipment, facilities or buildings necessary for its operation.
- C. Golf course and accessory golf course uses as defined in DCC Title 18 on land determined not to be high value farmland, as defined in ORS 195.300.
- D. Except for those composting facilities that are a farm use as allowed under DCC 18.16.020, composting operations and facilities for which a permit has been granted by the Oregon Department of Environmental Quality under OAR 340-093-0050 and 340-096-0060. Buildings and facilities used in conjunction with the composting operation shall only be those required for the operation of the subject facility. On-site sales shall be limited to bulk loads of at least one unit (7.5 cubic yards) in size that are transported in one vehicle.
- E. Private parks, playgrounds, hunting and fishing preserves and campgrounds.
- F. Public or private schools for kindergarten through grade 12, including all buildings essential to the operation of a school, primarily for residents of the rural area in which the school is located, subject to the applicable Oregon Administrative Rules.

(Ord. 2012-007 §2, 2012; Ord. 2010-022 §2, 2010; Ord. 2009-014 §1, 2009; Ord. 2004-001 §2, 2004; Ord. 95-007 §12, 1995)

#### **18.16.033. Conditional Uses on High Value Farmland Only.**

In addition to those uses listed in DCC 18.16.030 above, the following uses may be allowed on tracts in the Exclusive Farm Use Zones that constitute high value farmland subject to applicable provisions of the Comprehensive Plan and DCC 18.16.040 and other applicable sections of DCC Title 18.

- A. Maintenance, enhancement or expansion of dog kennels existing as of March 1, 1994, subject to other requirements of law. New dog kennels are prohibited.
- B. Maintenance, enhancement or expansion of a site described in 18.16.031 (B) existing as of March 1, 1994, subject to other requirements of law. New such sites are prohibited.
- C. Maintenance, enhancement or expansion of golf course and accessory golf course uses as defined in DCC Title 18 existing as of March 1, 1994, subject to other requirements of law. New such uses are prohibited. Expanded courses may not exceed 36 holes total.
- D. Additions or expansions to existing public or private schools on high value farmland, for kindergarten through grade 12, including all buildings essential to the operation of a school, subject to the applicable Oregon Administrative Rules.

(Ord. 2010-022 §2, 2010; Ord. 2009-014 §1, 2009; Ord. 2004-001 §2, 2004; Ord. 95-007 §13, 1995)

#### **18.16.035. Destination Resorts.**

Destination resorts may be allowed, where mapped, as a conditional use, subject to all applicable standards of the Destination Resort Zone.

(Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 92-065 §3, 1992; Ord. 92-004 §3, 1992)

#### **18.16.037. Guest Ranch.**

- A. A guest ranch may be established in conjunction with an existing and continuing livestock operation, using accepted livestock practices that qualifies as a farm use under DCC 18.04.030, subject to the applicable provisions set forth in DCC 18.16.040(A)(1), (2) and (3), the applicable provisions of DCC

18.128, and the provisions of the applicable Oregon Revised Statutes. A guest ranch shall not be located within the boundaries of or surrounded by:

- (1) A federally designated wilderness area or a wilderness study area;
- (2) A federally designated wildlife refuge;
- (3) A federally designated area of critical environmental concern; or
- (4) An area established by an Act of Congress for the protection of scenic or ecological resources.

- B. "Guest ranch" means a facility for overnight guest lodging units, including passive recreational activities and food services, as set forth in ORS 215 that are incidental and accessory to an existing livestock operation that qualifies as a farm use under DCC 18.04.030.
- C. A guest lodging unit means a guest room in a lodge, bunkhouse, cottage or cabin used only for transient overnight lodging and not for a permanent residence accommodations.
- D. For the purposes of DCC 18.16.037, "livestock" means cattle, sheep, horses, and bison.
- E. A proposed division of land in an exclusive farm use zone for a guest ranch or a division of a lot or parcel that separates a guest ranch from the dwelling of the person conducting the livestock operation shall not be allowed.
- F. Notwithstanding DCC 18.16.055, a proposed division of land in an exclusive farm use zone for a guest ranch shall not be allowed.

(Ord. 2012-007 §2, 2012; Ord. 2010-022 §2, 2010; Ord. 2009-014 §1, 2009; Ord. 2001-043 §1, 2001; Ord. 98-056 §1, 1998)

**Note:** DCC 18.16.037 will be repealed January 2, 2018 (Ord. 2012-007 §2, 2012; Ord. 2010-017 §1, 2010).

#### **18.16.038. Special Conditions for Certain Uses Listed Under DCC 18.16.025.**

- A. A utility facility necessary for public use allowed under DCC 18.16.025 shall be one that is necessary to be situated in an agricultural zone in order for service to be provided. To demonstrate that a utility facility is necessary, an applicant must show that reasonable alternatives have been considered and that the facility must be sited in an exclusive farm use zone due to one or more of the following factors:
  1. Technical and engineering feasibility;
  2. The proposed facility is locationally dependent. A utility facility is locationally dependent if it must cross land in one or more areas zoned for exclusive farm use in order to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;
  3. Lack of available urban and nonresource lands;
  4. Availability of existing rights of way;
  5. Public health and safety; and
  6. Other requirements of state and federal agencies.
  7. Costs associated with any of the factors listed in 1-6 above may be considered, but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations for substantially similar utility facilities that are not substantially similar.
  8. The owner of a utility facility approved under this section shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this subsection shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.
  9. In addition to the provisions of 1-6 above, the establishment or extension of a sewer system as defined by OAR 660-011-0060(1)(f) in an exclusive farm use zone shall be subject to the provisions of OAR 660-011-0060.
  10. The provisions above do not apply to interstate gas pipelines and associated facilities authorized by and subject to regulation by the Federal Energy Regulatory Commission.



11. The County shall impose clear and objective conditions on an application for utility facility siting to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use, in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on surrounding farmlands.
  12. Utility facilities necessary for public service may include on-site and off-site facilities for temporary workforce housing for workers constructing a utility facility. Such facilities must be removed or converted to an allowed use under OAR 660-033-0130(19) or other statute or rule when project construction is complete. Off-site facilities allowed under this provision are subject to OAR 660-033-0130(5). Temporary workforce housing facilities not included in the initial approval may be considered through a minor amendment request. A minor amendment request shall have no effect on the original approval.
- B. Wineries are subject to the following:
1. A winery, authorized under DCC 18.16.025 is a facility that produces wine with a maximum annual production of:
    - a. Less than 50,000 gallons and:
      - i. Owns an on-site vineyard of at least 15 acres;
      - ii. Owns a contiguous vineyard of at least 15 acres;
      - iii. Has a long-term contract for the purchase of all of the grapes from at least 15 acres of a vineyard contiguous to the winery; or
      - iv. Obtains grapes from any combination of i, ii or iii of this subsection; or
    - b. At least 50,000 gallons and the winery:
      - i. Owns an on-site vineyard of at least 40 acres;
      - ii. Owns a contiguous vineyard of at least 40 acres;
      - iii. Has a long-term contract for the purchase of all of the grapes from at least 40 acres of a vineyard contiguous to the winery; or
      - iv. Obtains grapes from any combination of i., ii., or iii. of this subsection.
  2. A winery may:
    - a. Market and sell wine produced in conjunction with the winery, including the following activities:
      - i. Wine tours;
      - ii. Wine tastings in a tasting room or other location at the winery;
      - iii. Wine clubs; and
      - iv. Similar activities conducted for the primary purpose of promoting wine produced in conjunction with the winery;
    - b. Market and sell items directly related to the sale or promotion of wine produced in conjunction with the winery, the marketing and sale of which is incidental to retail sale of wine on-site, including food and beverages served by a limited service restaurant, as defined in ORS 624.010; and
    - c. Provide services, including private events, hosted by the winery or patrons of the winery, at which wine produced in conjunction with the winery is featured, that:
      - i. Are directly related to the sale or promotion of wine produced in conjunction with the winery;
      - ii. Are incidental to the retail sale of wine on-site; and
      - iii. Are limited to 25 days or fewer in a calendar year.
  3. Gross Income.
    - a. The gross income of the winery from the sale of incidental items pursuant to subsection (2)(b) of this section and services provided pursuant to subsection (2)(c) of this section may not exceed 25 percent of the gross income from the on-site retail sale of wine produced in conjunction with the winery.

- b. The winery shall submit to the Deschutes County Community Development Department a written statement, prepared by a certified public accountant, that certifies compliance with this section for the previous tax year by April 15 of each year in which private events are held.
  - 4. A winery operating under this section shall provide parking for all activities or uses on the lot, parcel or tract on which the winery is established.
  - 5. Prior to the issuance of a permit to establish a winery under this section, the applicant shall show that vineyards described in subsections (B)(1) of this section have been planted or that the contract for the purchase of grapes has been executed, as applicable.
  - 6. The siting of a winery shall be subject to the following standards:
    - a. Establishment of a setback of at least 100 feet from all property lines for the winery and all public gathering places.
    - b. Shall comply with DCC Chapter 18.80, Airport Safety Combining Zone, and DCC 18.116.180, Building Setbacks for the Protection of Solar Access.
  - 7. As used in this section, "private events" includes, but is not limited to, facility rentals and celebratory gatherings.
  - 8. The winery shall have direct road access and internal circulation.
  - 9. A winery is subject to the following public health and safety standards:
    - a. Sanitation facilities shall include, at a minimum, portable restroom facilities and stand-alone hand washing stations.
    - b. No event, gathering or activity may begin before 7:00 a.m. or end after 10:00 p.m., including set-up and take-down of temporary structures.
    - c. Noise control.
      - i. All noise, including the use of a sound producing device such as, but not limited to, loud speakers and public address systems, musical instruments that are amplified or unamplified, shall be in compliance with applicable state regulations.
      - ii. A standard sound level meter or equivalent, in good condition, that provides a weighted sound pressure level measured by use of a metering characteristic with an "A" frequency weighting network and reported as dBA shall be available on-site at all times during private events.
    - d. Adequate traffic control must be provided by the property owner to address the following:
      - i. There shall be one traffic control person for each 250 persons expected or reasonably expected to be in attendance at any time.
      - ii. All traffic control personnel shall be certified by the State of Oregon and shall comply with the current edition of the Manual of Uniform Traffic Control Devices.
    - e. Structures.
      - i. All permanent and temporary structures and facilities are subject to fire, health and life safety requirements, and shall comply with all requirements of the Deschutes County Building Safety Division and the Environmental Soils Division and any other applicable federal, state and local laws.
      - ii. Compliance with the requirements of the Deschutes County Building Safety Division shall include meeting all building occupancy classification requirements of the State of Oregon adopted building code.
    - f. Inspection of event premises authorization. The applicant shall provide in writing a consent to allow law enforcement, public health, and fire control officers to come upon the premises for which the Limited Use Permit has been granted for the purposes of inspection and enforcement of the terms and conditions of the permit and DCC Chapter 18.16 Exclusive Farm Use Zone and DCC Chapter 8.08 Noise Control, and any other applicable laws or ordinances.
  - 10. DCC Chapter 18.16.038(B), Sections (2c),(3), (7) and (9) sunset on January 1, 2014.
- C. Farm stands are subject to the following:

1. The structures are designed and used for the sale of farm crops or livestock grown on the farm operation, or grown on the farm operation and other farm operations in the local agricultural area, including the sale of retail incidental items and fee-based activity to promote the sale of farm crops or livestock sold at the farm stand, if the annual sales of the incidental items and fees from promotional activity do not make up more than 25 percent of the total annual sales of the farm stand; and
  2. The farm stand does not include structures designed for occupancy as a residence or for activities other than the sale of farm crops or livestock, and does not include structures for banquets, public gatherings or public entertainment.
  3. As used in this section, "farm crops or livestock" includes both fresh and processed farm crops and livestock grown on the farm operation, or grown on the farm operation and other farm operations in the local agricultural area.
  4. As used in this subsection, "processed crops and livestock" includes jams, syrups, apple cider, animal products and other similar farm crops and livestock that have been processed and converted into another product but not prepared food items.
  5. As used in this section, "local agricultural area" includes Oregon or an adjacent county in Washington, Idaho, Nevada or California that borders the Oregon county in which the farm stand is located.
- D. A site for the takeoff and landing of model aircraft is subject to the following:
1. Buildings or facilities shall not be more than 500 square feet in floor area or placed on a permanent foundation unless the building of facility preexisted the use approved under this section.
    - a. The site shall not include an aggregate surface or hard surface area, unless the surface preexisted the use approved under this section.
    - b. An owner of property used for the purpose authorized in this section may charge a person operating the use on the property rent for the property.
    - c. An operator may charge users of the property a fee that does not exceed the operator's cost to maintain the property, buildings and facilities.
    - d. As used in this section, "model aircraft" means a small-scale version of an airplane, glider, helicopter, dirigible or balloon that is used or intended to be used for flight and is controlled by radio, lines or design by a person on the ground.
- E. A facility for the processing of farm crops shall be located on a farm operation that provides at least one-quarter of the farm crops processed at the facility.
1. The building established for the processing facility shall not exceed 10,000 square feet of floor area exclusive of the floor area designated for preparation, storage or other farm use or devote more than 10,000 square feet to the processing activities within another building supporting farm uses.
  2. A processing facility shall comply with all applicable siting standards, but the standards shall not be applied in a manner that prohibits the siting of the processing facility.
  3. The County shall not approve any division of a lot or parcel that separates a processing facility from the farm operation on which it is located.

(Ord. 2012-007 §2, 2012; Ord. 2012-004 §2, 2012; Ord. 2010-022 §2, 2010; Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 2004-001 §2, 2004)

#### **18.16.040. Limitations on Conditional Uses.**

- A. Conditional uses permitted by DCC 18.16.030 may be established subject to ORS 215.296 and applicable provisions in DCC 18.128 and upon a finding by the Planning Director or Hearings Body that the proposed use:
1. Will not force a significant change in accepted farm or forest practices as defined in ORS 215.203(2)(c) on surrounding lands devoted to farm or forest uses; and
  2. Will not significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use; and

3. That the actual site on which the use is to be located is the least suitable for the production of farm crops or livestock.
- B. A commercial activity allowed under DCC 18.16.030(F) shall be associated with a farm use occurring on the parcel where the commercial use is proposed. The commercial activity may use, process, store or market farm products produced outside of Deschutes County.
- C. A power generation facility that is part of a commercial utility facility for the purpose of generating power for public use by sale identified in DCC 18.16.030(L) and:
  1. That is located on high-value farmland, the permanent features of which shall not preclude more than 12 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and Oregon Administrative Rules 660, Division 004.
  2. That is located on nonhigh-value farmland, the permanent features of which shall not preclude more than 20 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and Oregon Administrative Rules 660, Division 4.
  3. A power generation facility may include on-site and off-site facilities for temporary workforce housing as allowed under OAR 660-033-0130(17) and (22)
- D. A wind power generation facility includes, but is not limited to, the following system components: all wind turbine towers and concrete pads, permanent meteorological towers and wind measurement devices, electrical cable collection systems connecting wind turbine towers with the relevant power substation, new or expanded private roads (whether temporary or permanent) constructed to serve the wind power generation facility, office and operation and maintenance buildings, temporary lay-down areas and all other necessary appurtenances, including but not limited to on-site and off-site facilities for temporary workforce housing for workers constructing a wind power generation facility. Such facilities must be removed or converted to an allowed use under OAR 660-033-0130(19) or other statute or rule when project construction is complete. Temporary workforce housing facilities not included in the initial approval may be considered through a minor amendment request filed after a decision to approve a power generation facility. A minor amendment request shall be subject to OAR 660-033-0130(5) and shall have no effect on the original approval. A proposal for a wind power generation facility shall be subject to the following provisions:
  1. For high value farmland soils described in ORS 195.300(10), that all of the following are satisfied:
    - a. Reasonable alternatives have been considered to show that siting the wind power generation facility or component thereof on high-value farmland soils is necessary for the facility or component to function properly or if a road system or turbine string must be placed on such soils to achieve a reasonably direct route considering the following factors:
      - i. Technical and engineering feasibility;
      - ii. Availability of existing rights of way; and
      - iii. The long term environmental, economic, social and energy consequences of siting the facility or component on alternative sites, as determined under OAR 660-033-0130(37)(a)(B);
    - b. The long-term environmental, economic, social and energy consequences resulting from the wind power generation facility or any component thereof at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located on other agricultural lands that do not include high-value farmland soils;
    - c. Costs associated with any of the factors listed in OAR 660-033-0130(37)(a)(A) may be considered, but costs alone may not be the only consideration in determining that siting any component of a wind power generation facility on high-value farmland soils is necessary;
    - d. The owner of a wind power generation facility approved under OAR 660-033-0130(37)(a) shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this section shall prevent the

- owner of the facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration; and
- e. The criteria of OAR 660-033-0130(37)(b) are satisfied.
2. For arable lands, meaning lands that are cultivated or suitable for cultivation, including high-value farmland soils described at ORS 195.300(10), the governing body or its designated must find that:
    - a. The proposed wind power facility will not create unnecessary negative impacts on agricultural operations conducted on the subject property. Negative impacts could include, but are not limited to, the unnecessary construction of roads, dividing a field or multiple fields in such a way that creates small or isolated pieces of property that are more difficult to farm, and placing wind farm components such as meteorological towers on lands in a manner that could disrupt common and accepted farming practices;
    - b. The presence of a proposed wind power facility will not result in unnecessary soil erosion or loss that could limit agricultural productivity on the subject property. This provision may be satisfied by the submittal and county approval of a soil and erosion control plan prepared by an adequately qualified individual, showing how unnecessary soil erosion will be avoided or remedied and how topsoil will be stripped, stockpiled and clearly marked. The approved plan shall be attached to the decision as a condition of approval;
    - c. Construction or maintenance activities will not result in unnecessary soil compaction that reduces the productivity of soil for crop production. This provision may be satisfied by the submittal and county approval of a plan prepared by an adequately qualified individual, show unnecessary soil compaction will be avoided or remedied in a timely manner through deep soil decompaction or other appropriate practices. The approved plan shall be attached to the decision as a condition of approval;
    - d. Construction or maintenance activities will not result in the unabated introduction or spread of noxious weeds and other undesirable weeds species. This provision may be satisfied by the submittal and county approval of a weed control plan prepared by an adequately qualified individual that includes a long-term maintenance agreement. The approved plan shall be attached to the decision as a condition of approval.
  3. For nonarable lands, meaning lands that are not suitable for cultivation, the governing body or its designate must find that the requirements of OAR 660-033-0130(37)(b)(D) are satisfied.
  4. In the event that a wind power generation facility is proposed on a combination of arable and nonarable lands as described in OAR 660-033-0130(37)(b) and (c) the approval criteria of OAR 660-033-0130(37)(b) shall apply to the entire project.
- E. No aircraft may be based on a personal-use airport identified in DCC 18.16.030(M) other than those owned or controlled by the owner of the airstrip. Exceptions to the activities permitted under this definition may be granted through waiver action by the Oregon Department of Aviation in specific instances. A personal use airport lawfully existing as of September 13, 1975, shall continue to be permitted subject to any applicable rules of the Oregon Department of Aviation.
  - F. The facility for the primary processing of forest products identified in DCC 18.16.030 is intended to be portable or temporary in nature. Such a facility may be approved for a one-year period which is renewable.
  - G. Batching and blending mineral and aggregate into asphaltic cement may not be authorized within two miles of a planted vineyard. Planted vineyard means one or more vineyards totaling 40 acres or more that are planted as of the date of the application for bat
  - H. Accessory uses for golf courses shall be limited in size and orientation on the site to serve the needs of persons and their guests who patronize the golf course to golf. An accessory use that provides commercial services (e.g., pro shop, etc.) shall be located in the clubhouse rather than in separate buildings. Accessory uses may include one or more food and beverage service facilities in addition to food and beverage service facilities located in a clubhouse. Food and beverage service facilities must be part of and incidental to the operation of the golf course and must be limited in size and orientation on the site to service only the needs of persons who patronize the golf course and their guests. Accessory



food and beverage service facilities shall not be designed for or include structures for banquets, public gatherings or public entertainment.

- I. An expansion of an existing golf course as allowed under DCC 18.16.033(C) shall comply with the definition of "golf course" set forth in DCC Title 18 and the provisions of DCC 18.16.040(A).
  - J. An applicant for a nonfarm conditional use may demonstrate that the standards for approval will be satisfied through the imposition of conditions. Any conditions so imposed shall be clear and objective.
  - K. For purposes of approving a conditional use permit for a lot of record dwelling under DCC 18.16.030, the soil class, soil rating or other soil designation of a specific lot or parcel may be changed if the property owner:
    - 1. Submits a statement of agreement from the Natural Resources Conservation Service of the United States Department of Agriculture that the soil class, soil rating or other soil designation should be adjusted based on new information; or
    - 2. Submits a report from a soils scientist whose credentials are acceptable to the Oregon Department of Agriculture that the soil class, soil rating or other soil designation should be changed; and
    - 3. Submits a statement from the Oregon Department of Agriculture that the Director of Agriculture or the director's designee has reviewed the report described in 2 above and finds the analysis in the report to be soundly and scientifically based.
    - 4. The soil classes, soil ratings or other soil designations used in or made pursuant to this definition are those of the NRCS in its most recent publication for that class, rating or designation before November 4, 1993, except for changes made pursuant to subsections 1-3 above.
    - 5. For the purposes of approving a land use application under OAR 660-033-0090, 660-033-0120, 660-033-0130 and 660-033-0135, soil classes, soil ratings or other soil designations used in or made pursuant to this definition are those of the NRCS in its most recent publication for that class, rating or designation.
  - L. Except on a lot or parcel contiguous to a lake or reservoir, a private campground shall not be allowed within three miles of an urban growth boundary unless an exception is approved pursuant to ORS 197.732 and OAR chapter 660, division 004.
    - a. A private campground may provide yurts for overnight camping. No more than one-third or a maximum of 10 campsites, whichever is smaller, may include a yurt.
    - b. The yurt shall be located on the ground or on a wood floor with no permanent foundation.
    - c. As used in this paragraph, "yurt" means a round, domed shelter of cloth or canvas on a collapsible frame with no plumbing, sewage disposal hook-up or internal cooking appliance.
    - d. A campground shall be designed and integrated into the rural agricultural and forest environment in a manner that protects the natural amenities of the site and provides buffers of existing native trees and vegetation or other natural features between campsites.
  - M. living history museum shall be related to resource based activities and be owned and operated by a governmental agency or a local historical society.
    - a. A living history museum may include limited commercial activities and facilities that are directly related to the use and enjoyment of the museum and located within authentic buildings of the depicted historic period or the museum administration building, if areas other than an exclusive farm use zone cannot accommodate the museum and related activities, or if the museum administration buildings and parking lot are located within one-quarter mile of an urban growth boundary.
    - b. As used in this paragraph, a "living history museum" means a facility designed to depict and interpret everyday life and culture of some specific historic period using authentic buildings, tools, equipment and people to simulate past activities and events; and "local historical society" means the local historic society recognized by the County and organized under ORS Chapter 65.
- (Ord. 2012-007 §2, 2012; Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 2006-008 §3, 2006; Ord. 2004-001 §2, 2004; Ord. 98-030 §1, 1998; Ord. 95-075 §1, 1995; Ord. 95-007 §14, 1995; Ord. 92-065 §3, 1992; Ord. 91-038 §1 and 2, 1991; Ord. 91-020 §1, 1991; Ord. 91-011 §1, 1991)

#### **18.16.042 Agri-Tourism and other Commercial Events or Activities Limited Use Permit**

- A. Agri-tourism and other commercial events or activities related to and supportive of agriculture may be approved in an area zoned for exclusive farm use only if the standards and criteria in this section are met.
- B. Application. The application shall include the following.
  - 1. The General Provisions information required in DCC 22.08.010.
  - 2. A written description of:
    - a. The proposal.
    - b. The types of agri-tourism and other commercial events or activities that are proposed to be conducted, including the number and duration of the agri-tourism and other commercial events and activities, the anticipated maximum daily attendance and the hours of operation, and how the agri-tourism and other commercial events or activities will be related to and supportive of agriculture and incidental and subordinate to the existing farm use of the tract.
    - c. The types and locations of all permanent and temporary structures, access and egress, parking facilities, and sanitation and solid waste to be used in connection with the agri-tourism or other commercial events or activities.
  - 3. A traffic management plan that:
    - a. Identifies the projected number of vehicles and any anticipated use of public roads;
    - b. Provides an assurance that one traffic control person shall be provided for each 250 persons expected or reasonably expected to be in attendance at any time during the agri-tourism and other commercial event or activity. The traffic control personnel shall be certified by the State of Oregon and shall comply with the current edition of the Manual of Uniform Traffic Control Devices.
    - c. Demonstrates that the parcel, lot or tract has direct access such that the lot, parcel or tract on which commercial events will occur:
      - i. Fronts on a public road; or
      - ii. Is accessed by an access easement or private road, and all underlying property owners and property owners taking access between the subject property and the public road consent in writing to the use of the road for agri-tourism and other commercial events or activities at the time of initial application.
  - 4. Inspection of Event Premises Authorization. The applicant shall provide in writing a consent to allow law enforcement, public health, and fire control officers and code enforcement staff to come upon the premises for which the Limited Use Permit has been granted for the purposes of inspection and enforcement of the terms and conditions of the permit and DCC Chapter 18.16 Exclusive Farm Use Zone and DCC Chapter 8.08 Noise Control, and any other applicable laws or ordinances.
- C. Approval Criteria.
  - 1. Type 1. Up to six (6) agri-tourism events in a calendar year on a tract may be approved by a limited use permit that is personal to the applicant and is not transferred by, or transferred with, a conveyance of the tract, if in compliance with:
    - a. Criteria set forth in 18.16.042(C)(2)(d-j).
    - b. May not, individually, exceed one calendar day.
    - c. Commercial events or activities are not permitted.
    - d. Minimum lot or parcel size: 5 acres.
    - e. Comply with DCC Chapter 8.08 Noise Control at all times. Sound amplification and sound producing devices are prohibited.
    - f. The maximum attendance is 30 at any one time for all non-residents of the tract.
    - g. Where there is a conflict between this section and DCC 18.16.042(C)(4-12), the more restrictive criteria shall apply.



2. Type 2. Up to six (6) agri-tourism and other commercial events or activities in a calendar year on a tract may be approved by a limited use permit that is personal to the applicant and is not transferred by, or transferred with, a conveyance of the tract, if in compliance with:
  - a. Minimum lot or parcel size: 10 acres.
  - b. Agri-tourism events may not, individually, exceed a duration of 72 consecutive hours, excluding set-up and take down of all temporary structures and facilities. The limitation on the hours of operations is included within the duration of 72 consecutive hours.
  - c. Commercial events or activities may not, individually, exceed a duration of 30 consecutive hours, excluding set-up and take down of all temporary structures and facilities. The limitation on the hours of operations is included within the duration of 30 consecutive hours.
  - d. Must be incidental and subordinate to existing farm use of the tract, and shall be related to and supportive of agriculture.
  - e. Set-up and take down of all temporary structures and facilities shall occur up to one business day prior to the agri-tourism and other commercial events or activities and one business day after the agri-tourism and other commercial events or activities between 7:00 a.m. and 10:00 p.m.
  - f. May not require that a new permanent structure be built, used or occupied in connection with the agri-tourism or other commercial events or activities.
  - g. May not, in combination with other agri-tourism or other commercial events or activities authorized in the area, materially alter the stability of the land use pattern in the area.
  - h. Must comply with ORS 215.296.
  - i. Limited Use Permits approved under this section expire two years from the date of approval.
  - j. Limited Permits may be renewed for an additional two years subject to:
    - i. An application for renewal; and
    - ii. Demonstration of compliance with conditions that apply to the limited use permit and applicable provisions in this section, DCC Chapter 18.16.042.
3. Type 3. Agri-tourism or other commercial events or activities may be approved by a limited use permit that is personal to the applicant and is not transferred by, or transferred with, a conveyance of the tract, more frequently or for a longer period than allowed under 18.16.042(C)(1) and (2) if the agri-tourism or other commercial events or activities is in compliance with:
  - a. Criteria set forth in 18.16.042(C)(2)(d)(e)(f)(g) and (h).
  - b. Must be incidental and subordinate to existing commercial farm use of the tract and are necessary to support the commercial farm uses or the commercial agricultural enterprises in the area.
  - c. Minimum lot or parcel size: 160 acres.
  - d. Do not exceed 18 commercial events or activities in a calendar year.
  - e. Commercial events or activities may not, individually, exceed a duration of 24 consecutive hours, excluding set-up and take down of all temporary structures and facilities. The limitation on the hours of operations is included within the duration of 24 consecutive hours.
  - f. Agri-tourism events may not, individually, exceed a duration of 72 consecutive hours, excluding set-up and take down of all temporary structures and facilities. The limitation on the hours of operations is included within the duration of 72 consecutive hours.
  - g. No more than two commercial events or activities may occur in one month.
  - h. Limited Use Permits approved under this section expire four years from the date of approval.
  - i. Limited Use Permits may be renewed at four year intervals subject to:
    - i. An application for renewal;
    - ii. Public notice and public comment as part of the review process.
    - iii. Demonstration of compliance with conditions that apply to the limited use permit and applicable provisions in this section, DCC Chapter 18.16.042.
4. The area in which the agri-tourism or other commercial events or activities are located shall be setback at least 100 feet from the property line.

5. Notification of agri-tourism and other commercial events or activities.
  - a. The property owner shall submit in writing the list of calendar days scheduled for all agri-tourism and other commercial events or activities by April 1 of the subject calendar year or within 30 days of new or renewed limited use permits, if after April 1, to Deschutes County's Community Development Department and Sheriff's Office, and all property owners within 500 feet of the subject property.
  - b. The list of calendar dates for all agri-tourism, commercial events and activities may be amended by submitting the amended list to the same entities at least 72 hours prior to any date change.
  - c. If such notice is not provided, the property owner shall provide notice by Registered Mail to the same list above at least 10 days prior to each agri-tourism and other commercial event or activity.
  - d. The notification shall include a contact person or persons for each agri-tourism and other commercial event or activity who shall be easily accessible and who shall remain on site at all times, including the person(s) contact information.
6. Sanitation facilities shall include, at a minimum, portable restroom facilities and stand-alone hand washing stations.
7. Hours of Operation. No agri-tourism and other commercial event or activity may begin before 7:00 a.m. or end after 10:00 p.m.
8. Overnight camping is not allowed.
9. Noise Control
  - a. All noise, including the use of a sound producing device such as, but not limited to, loud speakers and public address systems, musical instruments that are amplified or unamplified, shall be in compliance with applicable state regulations.
  - b. A standard sound level meter or equivalent, in good condition, that provides a weighted sound pressure level measured by use of a metering characteristic with an "A" frequency weighting network and reported as dBA shall be available on-site at all times during agri-tourism and other commercial events or activities.
10. Transportation Management.
  - a. Roadways, driveway aprons, driveways and parking surfaces shall be surfaces that prevent dust, and may include paving, gravel, cinders, or bark/wood chips.
  - b. Driveways extending from paved roads shall have a paved apron, requiring review and approval by the County Road Department.
  - c. The parcel, lot or tract has direct access as defined in DCC Chapter 18.16.042(B)(3)(c).
  - d. Adequate traffic control must be provided by the property owner to address the following:
    - i. There shall be one traffic control person for each 250 persons expected or reasonably expected to be in attendance at any time.
    - ii. All traffic control personnel shall be certified by the State of Oregon and shall comply with the current edition of the Manual of Uniform Traffic Control Devices.
11. Health and Safety Compliance
  - a. All permanent and temporary structures and facilities are subject to fire, health and life safety requirements, and shall comply with all requirements of the Deschutes County Building Safety Division and the Environmental Soils Division and any other applicable federal, state and local laws.
  - b. Compliance with the requirements of the Deschutes County Building Safety Division shall include meeting all building occupancy classification requirements of the State of Oregon adopted building code.
12. The maximum number of people shall not exceed 500 per calendar day.
13. Agri-Tourism and other Commercial Events or Activities shall not be allowed:

- a. Within the County adopted big game winter ranges during the months of December through March.
- b. Within the County adopted big game migration corridors during the month of April and during the months of October and November.
- c. Within the County adopted sensitive bird and mammal habitat areas as defined in DCC 18.90.020, unless a site has had no nesting attempt or the nest has failed, as determined by a professional wildlife biologist in May of the calendar year in which the application is approved, unless a site has had no nesting attempt or the nest has failed which could be determined in May by a professional wildlife biologist.

(Ord. 2012-004, §2, 2012)

#### **18.16.043 Single Permit.**

- A. The maximum number of agri-tourism and other commercial events or activities on a lot, parcel or tract may not exceed the total number of commercial events allowed by any individual land use approval, including a winery authorized under DCC 18.16.038(B), and events, outdoor mass gatherings or extended outdoor mass gatherings authorized under DCC Chapter 8.16. B.

The following permits may not be combined:

- 1. Agri-tourism and other commercial events or activities under DCC 18.16.042,
- 2. Winery under DCC 18.16.038(B),
- 3. Events, outdoor mass gatherings, extended outdoor mass gatherings, parades or funeral processions authorized under DCC Chapter 8.16,
- 4. Home occupation for commercial events or activities.

(Ord. 2012-004, §2, 2012)

#### **18.16.050. Standards for Dwellings in the EFU Zones.**

Dwellings listed in DCC 18.16.025 and 18.16.030 may be allowed under the conditions set forth below for each kind of dwelling, and all dwellings are subject to the landowner for the property upon which the dwelling is placed, signing and recording in the deed records for the County, a document binding the landowner, and the landowner's successors in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.

- A. Farm-related dwellings on nonhigh value farmland. A dwelling customarily provided in conjunction with farm use, as listed in DCC 18.16.030(A), may be approved if it satisfies any of the alternative tests set forth below:

- 1. Acreage test.
  - a. On land not identified as high-value farmland, a dwelling, including a manufactured home in accordance with DCC 18.116.070, may be considered customarily provided in conjunction with farm use if:
    - i. The parcel on which the dwelling will be located is at least:
      - (a) One hundred sixty acres and not in the Horse Ridge East subzone; or
      - (b) Three hundred twenty acres in the Horse Ridge East subzone;
    - ii. The subject tract is currently employed for farm use, as defined in DCC 18.04.030, and which is evidenced by a farm management plan;
    - iii. The dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land, such as planting, harvesting, marketing or caring for livestock, at a commercial scale;
    - iv. There is no other dwelling on the subject tract, except as allowed under DCC 18.16.020(K);
- 2. Median acreage/gross sales test.

- a. On land not identified as high-value farmland, a dwelling, including a manufactured home in accordance with DCC 18.116.070, may be considered customarily provided in conjunction with farm use if:
    - i. The subject tract is at least as large as the median size of those commercial farm or ranch tracts capable of generating at least \$10,000 in annual gross sales that are located within a study area that includes all tracts wholly or partially within one mile of the perimeter of the subject tract;
    - ii. The subject tract is capable of producing at least the median level of annual gross sales of County indicator crops as the same commercial farm or ranch tracts used to calculate the tract size in DCC 18.16.050(A)(2)(a)(i);
    - iii. The subject tract is currently employed for farm use, as defined in DCC 18.04.030, and which is evidenced by a farm management plan, at a level capable of producing the annual gross sales required in DCC 18.16.050(A)(2)(a)(ii). If no farm use has been established at the time of application, land use approval shall be subject to a condition that no building permit may be issued prior to establishment of the farm use capable of meeting the median income test.
    - iv. The subject lot or parcel on which the dwelling is proposed is at least 20 acres in size;
    - v. There is no other dwelling on the subject tract, except as allowed under DCC 18.16.020(K); and
    - vi. The dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land, such as planting, harvesting, marketing or caring for livestock, at a commercial scale.
  - b. For the purpose of calculating appropriate tract sizes and gross incomes to satisfy DCC 18.16.050(A)(2)(a)(i) and (ii), the County will utilize the methodology contained in Oregon Administrative Rules 660-33-135(3) using data on gross sales per acre tabulated by LCDRC pursuant to Oregon Administrative Rules 660-33-135(4).
3. Gross annual income test.
    - a. On land not identified as high-value farmland, a dwelling, including a manufactured home in accordance with DCC 18.116.070, may be considered customarily provided in conjunction with farm use if:
      - i. The subject tract is currently employed for a farm use, and that the farm operator earned \$32,500 in gross annual revenue in the last two years, three of the last five years, or based on the average farm revenue earned on the tract in the highest three of the last five years.
      - ii. There is no other dwelling on the subject tract, except as allowed under 18.16.020(K);
      - iii. The dwelling will be occupied by a person or persons who produced the commodities which grossed the income in DCC 18.16.050(A)(3)(a)(i); and
    - b. In determining gross revenue, the cost of purchased livestock shall be deducted from the total gross revenue attributed to the tract.
    - c. Noncontiguous lots or parcels zoned for farm use in the same county or contiguous counties may be used to meet the gross revenue requirements.
    - d. Only gross revenue from land owned, not leased or rented, shall be counted; and gross farm revenue earned from a lot or parcel which has been used previously to qualify another lot or parcel for the construction or siting of a primary farm dwelling may not be used.
    - e. Prior to a dwelling being approved under this section that requires one or more contiguous or noncontiguous lots or parcels of a farm or ranch operation to comply with the gross farm revenue requirements, the applicant shall provide evidence that the covenants, conditions and restrictions form attached to Chapter 18.16, has been recorded with the county clerk or counties where the property subject to the covenants, conditions and restrictions is located.
      1. The covenants, conditions and restrictions shall be recorded for each lot or parcel subject to the application for primary farm dwelling and shall preclude:

- a. All future rights to construct a dwelling except for accessory farm dwellings, relative farm assistance dwellings, temporary hardship dwellings or replacement dwellings allowed under ORS Chapter 215; and
  - b. The use of any gross farm revenue earned on the lots or parcels to qualify another lot or parcel for a primary farm dwelling;
  - c. The covenants, conditions and restrictions are irrevocable, unless a statement of release is signed by an authorized representative of the county or counties where the property subject to the covenants, conditions and restrictions is located;
  - d. The failure to follow the requirements of this section shall not affect the validity of the transfer of property or the legal remedies available to the buyers of property which is subject to the covenants, conditions and restrictions required by this section.
- B. Farm related dwellings on high value farmland. On land identified as high-value farmland, a dwelling, including a manufactured home in accordance with DCC 18.116.070, may be considered customarily provided in conjunction with farm use if:
  - 1. The subject lot or parcel is currently employed for the farm use as defined in DCC 18.04.030, and that the farm operator earned at least \$80,000 in gross annual revenue from the sale of farm products in the last two years, three of the last five years, or based on the average farm revenue earned by the farm operator in the best three of the last five years, and the lot or parcel on which the dwelling is proposed is at least the size of the minimum lot or parcel size in the subzone. In determining gross revenue, the cost of purchased livestock shall be deducted from the total gross revenue attributed to the tract;
  - 2. There is no other dwelling on the subject tract, except as allowed under 18.16.020(K);
  - 3. The dwelling will be occupied by a person or persons who produced the commodities which grossed the revenue under DCC 18.16.050(B)(1); and
  - 4. Noncontiguous lots or parcels zoned for farm use in the same county or contiguous counties may be used to meet the gross revenue requirements;
  - 5. Only gross revenue from land owned, not leased or rented, shall be counted; and gross farm revenue earned from a lot or parcel which has been used previously to qualify another lot or parcel for the construction or siting of a primary farm dwelling may not be used.
  - 6. Prior to a dwelling being approved under this section that requires one or more contiguous or noncontiguous lots or parcels of a farm or ranch operation to comply with the gross farm revenue requirements, the applicant shall provide evidence that the covenants, conditions and restrictions form attached to Chapter 18.16, has been recorded with the county clerk. The covenants, conditions and restrictions shall be recorded for each lot or parcel subject to the application for primary farm dwelling and shall preclude:
    - a. All future rights to construct a dwelling except for accessory farm dwellings, relative farm assistance dwellings, temporary hardship dwellings or replacement dwellings allowed by ORS Chapter 215; and
    - b. The use of any gross farm revenue earned on the lots or parcels to qualify another lot or parcel for a primary farm dwelling.
- C. Accessory dwelling. A dwelling, including a manufactured home in accordance with DCC 18.116.070, is considered to be an accessory farm dwelling customarily provided in conjunction with farm use when:
  - 1. The accessory dwelling meets the following criteria:
    - a. The accessory farm dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land and whose seasonal or year-round assistance in the management of the farm use, such as planting, harvesting, marketing or caring for livestock, is or will be required by the farm operator; and
    - b. The accessory farm dwelling will be located:
      - i. On the same lot or parcel as the primary farm dwelling; or



- ii. On the same tract as the primary farm dwelling when the lot or parcel on which the accessory farm dwelling will be sited is consolidated into a single parcel with all other contiguous lots and parcels in the tract; or
    - iii. On a lot or parcel on which the primary farm dwelling is not located, when the accessory farm dwelling is limited to only a manufactured home and a deed restriction substantially in compliance with the form set forth in Exhibit A to DCC 18.16 is filed with the County Clerk. The deed restriction shall require the manufactured dwelling to be removed when the lot or parcel is conveyed to another party. The manufactured home may remain if it is reapproved under DCC 18.16.050; or
    - iv. On a lot or parcel on which the primary farm dwelling is not located, when the accessory farm dwelling is located on a lot or parcel at least the size of the applicable minimum lot size under DCC 18.16.065 and the lot or parcel complies with the gross farm income requirements in DCC 18.16.050(A)(3) or (B)(1), whichever is applicable; and
  - c. There is no other dwelling on land zoned EFU owned by the farm operator that is vacant or currently occupied by persons not working on the subject farm or ranch and that could reasonably be used as an accessory farm dwelling; and
2. The primary farm dwelling to which the proposed dwelling would be accessory meets one of the following:
- a. On land not identified as high-value farmland, the primary farm dwelling is located on a farm or ranch operation that is currently employed in farm use and produced \$32,500 in gross annual sales in the last two years, ~~or~~ three of the last five years, or based on the average farm revenue earned on the tract in the highest three of the last five years. In determining gross revenue, the cost of purchased livestock shall be deducted from the total gross revenue attributed to the tract; or
  - b. On land identified as high-value farmland, the primary farm dwelling is located on a farm or ranch operation that is currently employed for farm use, and produced at least \$80,000 in gross annual revenue from the sale of farm products in the last two years, ~~or~~ three of the last five years, or based on the average farm revenue earned on the tract in the highest three of the last five years. Gross revenue shall be calculated by deducting the cost of purchased livestock from the total gross revenue attributed to the tract; and
3. A lot or parcel approved for an accessory farm dwelling under DCC 18.16.050 shall not be approved for a division of land except as provided for in DCC 18.16.055(B).
4. An accessory farm dwelling approved pursuant to this section cannot later be used to satisfy the requirements for a nonfarm dwelling pursuant to DCC 18.16.050(G).
- D. Relative farm assistance dwelling.
- 1. A dwelling listed in DCC 18.16.025(B) is allowed when:
    - a. The subject tract is at least 40 acres in size, unless it is demonstrated to the Planning Director or Hearings Body that a smaller unit of land is a commercial agricultural enterprise.
    - b. The subject tract is used for farm use;
    - c. The dwelling is a manufactured home and is sited in accordance with DCC 18.116.070, or is a pre-existing site-built home that: (1) was established at least 30 years prior to the date the land use permit was submitted and (2) is located on a parcel of at least 40 acres in size and that meets the minimum irrigated acres standard for the subzone within which it is located;
    - d. The dwelling is located on the same lot or parcel as the dwelling of the farm operator, and is occupied by a relative of the farm operator or farm operator's spouse, including a grandparent, step-grandparent, grandchild, parent, step-parent, child, brother, sister, sibling, step-sibling, niece, nephew, or first cousin of either, if the farm operator does, or will, require the assistance of the relative in the management of the farm use.
  - 1. Notwithstanding ORS 92.010 to 92.190 or the minimum lot or parcel size requirements under ORS 215.780, if the owner of a dwelling described in this subsection obtains construction financing or other financing secured by the dwelling and the secured party

forecloses on the dwelling, the secured party may also foreclose on the homesite, as defined in ORS 308A.250, and the foreclosure shall operate as a partition of the homesite to create a new parcel.

2. Prior conditions of approval for the subject land and dwelling remain in effect.
3. For purposes of this subsection, "Foreclosure" means only those foreclosures that are exempt from partition under ORS 92.010(7)(a).
- e. The farm operator plays the predominant role in the management and farm use of the farm and will continue to do so after the relative farm help dwelling is approved.
- f. Any approval granted under DCC 18.16.050 shall be conditioned with a requirement that the farm operator annually submit a report to the Planning Division identifying the resident(s) of the dwelling, their relationship to the farm operator, the assistance the resident provides to the farm operator, and verifying the farm operator's continued residence on the property and the predominant role the farm operator continues to play in the management and farm use of the farm.
2. A manufactured home permitted under DCC 18.16.050 shall be considered to be a temporary installation, and permits for such home shall be renewable and renewed on an annual basis. The manufactured home shall be removed from the property if it no longer meets the criteria of DCC 18.16.050 and the approval shall be so conditioned.
3. A pre-existing dwelling approved under DCC 18.16.050 shall be removed or converted to an allowable use within one year of the date the relative farm help dwelling no longer meets the criteria of DCC 18.16.050 and the approval shall be so conditioned.
4. Upon approval of a dwelling under DCC 18.16.050, a Conditions of Approval Agreement shall be recorded with the Deschutes County Clerk prior to issuance of any building or placement permit for the new dwelling on the property.
5. For the purposes of DCC 18.16.050(D), a farm operator is a person who operates a farm, doing the work and making the day-to-day decisions about such things as planting, harvesting, feeding and marketing.
- E. Lot of record dwelling on nonhigh value farmland.
  1. A lot of record dwelling may be approved on a pre-existing lot or parcel on nonhigh value farmland when all of the following requirements are met:
    - a. The lot or parcel on which the dwelling will be sited was lawfully created and was acquired and owned continuously by the present owner:
      - i. Prior to January 1, 1985; or
      - ii. By devise or by intestate succession from a person who acquired and owned continuously the lot or parcel prior to January 1, 1985.
    - b. The tract on which the dwelling will be sited does not include a dwelling.
    - c. For lots or parcels located within a wildlife area (WA) combining zone, siting of the proposed dwelling would be consistent with the limitations on density as applied under the applicable density restrictions of DCC 18.88.
    - d. If the lot or parcel on which the dwelling will be sited is part of a tract, the remaining portions of the tract shall be consolidated into a single lot or parcel when the dwelling is allowed.
    - e. The County Assessor shall be notified of any approval of a dwelling under DCC 18.16.050.
    - f. If the lot or parcel on which the dwelling will be sited was part of a tract on November 4, 1993, no dwelling exists on another lot or parcel that was part of the tract;
  2. For purposes of DCC 18.16.050(E), "owner" includes the wife, husband, son, daughter, mother, father, brother, brother-in-law, sister, sister-in-law, son-in-law, daughter-in-law, mother-in-law, father-in-law, aunt, uncle, niece, nephew, step-parent, step-child, grandparent or grandchild of the owner or a business entity owned by any one or a combination of these family members.
  3. For purposes of DCC 18.16.050(E), the date of creation and existence means that, when a lot, parcel or tract is reconfigured pursuant to applicable law after November 4, 1993, the effect of which is to qualify a lot, parcel or tract for the siting of a lot of record dwelling, the date of the reconfiguration



is the date of creation and existence. Reconfigured means any change in the boundary of the lot, parcel or tract.

F. Lot of record dwelling on high-value farmland.

1. A lot of record dwelling on a pre-existing lot or parcel will be approved on high value farmland when all of the following requirements are met:
  - a. The requirements set forth in DCC 18.16.050(E)(1)(a) through (f), as determined by the County; and
  - b. The requirements of Oregon Administrative Rules 660-33-130(3)(c)(C), as determined by the County hearings officer.
2. Applicants under DCC 18.16.050(F) shall make their application to the County. The County shall notify the State Department of Agriculture at least 20 calendar days prior to the public hearing under DCC 18.16.050(F)(1)(b).
3. Applicants under DCC 18.16.050(F) shall be subject to such other procedural requirements as are imposed by the Oregon Department of Agriculture.
4. For purposes of DCC 18.16.050(F), the date of creation and existence means that, when a lot, parcel or tract is reconfigured pursuant to applicable law after November 4, 1993, the effect of which is to qualify a lot, parcel or tract for the siting of a lot of record dwelling, the date of the reconfiguration is the date of creation and existence. Reconfigured means any change in the boundary of the lot, parcel or tract.

G. Nonfarm dwelling.

1. One single-family dwelling, including a manufactured home in accordance with DCC 18.116.070, not provided in conjunction with farm use, may be permitted on an existing lot or parcel subject to the following criteria:
  - a. The Planning Director or Hearings Body shall make findings that:
    - i. The dwelling or activities associated with the dwelling will not force a significant change in or significantly increase the cost of accepted farming practices, as defined in ORS 215.203(2)(c), or accepted forest practices on nearby lands devoted to farm or forest use.
    - ii. The proposed nonfarm dwelling will not materially alter the stability of the overall land use pattern of the area. In determining whether a proposed nonfarm dwelling will alter the stability of the land use pattern in the area, the County shall consider the cumulative impact of nonfarm dwellings on other lots or parcels in the area similarly situated, by applying the standards under OAR 660-033-0130(4)(a)(D), and whether creation of the parcel will lead to creation of other nonfarm parcels, to the detriment of agriculture in the area.
    - iii. The proposed nonfarm dwelling is situated on an existing lot or parcel, or a portion of a lot or parcel that is generally unsuitable for the production of farm crops and livestock or merchantable tree species, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract.
    - iv. The proposed nonfarm dwelling is not within one-quarter mile of a dairy farm, feed lot or sales yard, unless adequate provisions are made and approved by the Planning Director or Hearings Body for a buffer between such uses. The establishment of a buffer shall be designed based upon consideration of such factors as prevailing winds, drainage, expansion potential of affected agricultural uses, open space and any other factor that may affect the livability of the nonfarm-dwelling or the agriculture of the area. Road access, fire and police services and utility systems (i.e., electrical and telephone) are adequate for the use.
    - v. The nonfarm dwelling shall be located on a lot or parcel created prior to January 1, 1993, or was created or is being created as a nonfarm parcel under the land division standards in DCC 18.16.055(B) or (C).
2. For the purposes of DCC 18.16.050(G) only, "unsuitability" shall be determined with reference to the following:

- a. A lot or parcel or a portion of a lot or parcel shall not be considered unsuitable solely because of size or location if it can reasonably be put to farm or forest use in conjunction with other land. If the parcel is under forest assessment, the dwelling shall be situated upon generally unsuitable land for the production of merchantable tree species recognized by the Forest Practices Rules, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the parcel.
  - b. A lot or parcel or portion of a lot or parcel is not "generally unsuitable" simply because it is too small to be farmed profitably by itself. If a lot or parcel or portion of a lot or parcel can be sold, leased, rented or otherwise managed as part of a commercial farm or ranch, it is not "generally unsuitable." A lot or parcel or portion of a lot or parcel is presumed to be suitable if it is composed predominantly of Class I-VI soils. Just because a lot or parcel or portion of a lot or parcel is unsuitable for one farm use does not mean it is not suitable for another farm use. If the parcel is under forest assessment, the area is not "generally unsuitable" simply because it is too small to be managed for forest production profitably by itself.
  - c. If a lot or parcel under forest assessment can be sold, leased, rented or otherwise managed as a part of a forestry operation, it is not "generally unsuitable." If a lot or parcel is under forest assessment, it is presumed suitable if it is composed predominantly of soil capable of producing 20 cubic feet of wood fiber per acre per year. If a lot or parcel is under forest assessment, to be found compatible and not seriously interfere with forest uses on surrounding land it must not force a significant change in forest practices or significantly increase the cost of those practices on the surrounding land.
3. Loss of tax deferral. Except as provided in DCC 18.16.050(I)(2), pursuant to ORS 215.236, a nonfarm dwelling on a lot or parcel in an Exclusive Farm Use zone that is or has been receiving special assessment may be approved only on the condition that before a building permit is issued the applicant must produce evidence from the County Assessor's office that the parcel upon which the dwelling is proposed has been disqualified under ORS 308A.113 or ORS 308A.116 for special assessment at value for farm use under ORS 308A.062 or other special assessment under ORS 308A.068, 321.352, 321.730 or 321.815 and that any additional tax or penalty imposed by the County Assessor as a result of disqualification has been paid.
- H. Temporary hardship dwelling.
1. A temporary hardship dwelling listed in DCC 18.16.030 is allowed under the following conditions:
    - a. The dwelling is a manufactured home or recreational vehicle, and is used in conjunction with an existing dwelling on the lot or parcel;
    - b. The manufactured home or recreational vehicle would be temporarily sited on the lot or parcel only for the term of a hardship suffered by the existing resident or relative of the resident. The manufactured dwelling shall be removed or demolished within three months of the date the hardship no longer exists. The recreational vehicle shall not be occupied once the term of the medical hardship is completed, except as allowed under DCC 18.116.095. A temporary residence approved under this section is not eligible for replacement under DCC 18.16.020(J);
    - c. The existence of a medical hardship is verified by a written doctor's statement, which shall accompany the permit application; and
    - d. The temporary manufactured home uses the same subsurface sewage disposal system used by the existing dwelling, provided that the existing disposal system is adequate to accommodate the additional dwelling. If the manufactured home will use a public sanitary sewer system, such condition will not be required.
    - e. If a recreational vehicle is used as a medical hardship dwelling, it shall be required to have a bathroom, and shall meet the minimum setbacks established under DCC 18.16.070.
  2. Permits granted under DCC 18.16.050(H) shall be subject to the provisions of DCC 18.116.090 and shall be required to meet any applicable DEQ review and removal requirements as a condition of approval.

3. As used in DCC 18.16.050(H), the term "hardship" means a medical hardship or hardship for the care of an aged or infirm person or persons.
4. As used in DCC 18.16.050(H), the term "relative" means grandparent, step-grandparent, grandchild, parent, step-parent, child, step-child, brother, sister, sibling, step-sibling, niece, nephew, uncle, aunt, or first cousin of the existing resident.
5. The proposed hardship dwelling or recreational vehicle shall meet the criteria under DCC 18.16.040(A)(1-2) and DCC 18.16.020(J)(6).

I. Wildlife conservation plan dwelling.

1. A dwelling listed in DCC 18.16.030(G) is allowed when the Planning Director or the Hearings Body finds that the proposed dwelling:
  - a. Is situated on a lot or parcel existing on November 4, 1993, that qualifies for a farm dwelling, as listed in DCC 18.16.030(A), or a nonfarm dwelling, as listed in DCC 18.16.030(C);
  - b. Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use;
  - c. Will not significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use;
  - d. Will not be established on a lot or parcel that is predominantly composed of soils rated Class I or II, when not irrigated, or rated Prime or Unique by the United States Natural Resources Conservation Service or any combination of such soils; and
  - e. Is the only dwelling situated on the affected lot or parcel.
2. For a wildlife conservation plan dwelling approval based upon nonfarm dwelling criteria, DCC 18.16.050(I) shall also apply. Unless prior to approval of a conditional use permit for a wildlife conservation plan dwelling the applicant submits to the assessor certification demonstrating approval by Oregon Department of Fish and Wildlife of a wildlife conservation and management plan and its implementation, the conditional use permit shall contain a condition requiring that the applicant, prior to issuance of a building permit for such dwelling, either 1) submit certification to the assessor from ODFW demonstrating approval and implementation of a wildlife conservation and management plan qualifying under ORS 215.808 or 2) pay the tax penalties required by DCC 18.16.050(G)(3).

(Ord. 2012-007 §2, 2012; Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 2004-0020 §1, 2004; Ord. 2004-013 §2, 2004; Ord. 2004-001 §2, 2004; Ord. 98-033 §1, 1998; Ord. 98-030 §1, 1998; Ord. 95-007 §15, 1995; Ord. 94-026 §1, 1994; Ord. 92-065 §3, 1992; Ord. 91-038 §§2 and 3, 1991; Ord. 91-020 §1, 1991)

### **18.16.055. Land Divisions.**

- A. General. A division of land in the exclusive farm use zone shall be identified on the land division application as either an irrigated land division, nonirrigated land division, or a division of land for a use permitted by Oregon Revised Statutes 215.263 other than a dwelling. An irrigated land division is subject to subsection B below; a nonirrigated land division is subject to subsection C below; and a land division for a use other than a dwelling is subject to subsection E below, as well as ORS 215.263.
- B. Irrigated land division.
  1. An irrigated land division shall be subject to the minimum lot or parcel size requirements of DCC 18.16.065, Subzones, and all applicable requirements of DCC Title 17.
  2. Partitions establishing parcels less than the EFU minimum parcel size established under DCC 18.16.065, may be permitted to create new parcels for nonfarm dwellings as follows:
    - a. If the parent parcel is equal to or greater than the minimum parcel size established under 18.16.065, and is less than 80 acres in size, one new nonfarm parcel may be created subject to the following:
      - i. Parent parcel was lawfully created prior to July 1, 2001;
      - ii. Remainder parcel shall meet the minimum lot size established under 18.16.065;

- iii. All standards established under 18.16.050(G) for the dwelling shall be met;
  - iv. No minimum lot size shall be required for the nonfarm parcel.
  - v. The parcel for the nonfarm dwelling is generally unsuitable for the production of farm crops and livestock or merchantable tree species considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract. A parcel may not be considered unsuitable based solely on size or location if the parcel can reasonably be put to farm or forest use in conjunction with other land.
- b. If the parent parcel is equal to or greater than the minimum lot size established under 18.16.065, and is greater than or equal to 80 acres in size, two new nonfarm parcels may be created subject to the following:
  - i. Parent parcel was lawfully created prior to July 1, 2001;
  - ii. Remainder parcel shall meet the minimum lot size established under 18.16.065;
  - iii. All standards established under 18.16.050(G) for the dwellings shall be met;
  - iv. No minimum parcel size shall be required for the nonfarm parcel.
  - v. The parcels for the nonfarm dwellings are generally unsuitable for the production of farm crops and livestock or merchantable tree species considering the terrain, adverse soil or land conditions, drainage or flooding, vegetation, location and size of the tract. A parcel may not be considered unsuitable based solely on size or location if the parcel can reasonably be put to farm or forest use in conjunction with other land.
- 3. The minimum size for new parcels does not mean that farm dwellings may be approved on the new parcels.
- 4. New dwellings in conjunction with farm use must satisfy the criteria in DCC 18.16.050.
- C. Nonirrigated land division.
  - 1. The minimum lot or parcel size for a nonirrigated land division is 80 acres.
  - 2. Notwithstanding 1 above, land divisions creating nonfarm parcels less than the minimum lot size may be allowed as follows:
    - a. If the parent parcel is greater than 80 acres in size, up to two new nonfarm parcels may be allowed subject to the following:
      - i. Parent parcel was lawfully created prior to July 1, 2001;
      - ii. Remainder parcel shall be at least 80 acres in size;
      - iii. All standards established under 18.16.050(G) for the dwellings shall be met;
      - iv. The minimum size for the nonfarm parcels is 5 acres.
      - v. The parcels for the nonfarm dwellings are generally unsuitable for the production of farm crops and livestock or merchantable tree species considering the terrain, adverse soil or land conditions, drainage or flooding, vegetation, location and size of the tract. A parcel may not be considered unsuitable based solely on size or location if the parcel can reasonably be put to farm or forest use in conjunction with other land.
      - vi. Be located outside of the Horse Ridge East subzone.
    - b. If the parent parcel is greater than or equal to 40 acres and less than or equal to 80 acres, one new nonfarm parcel is allowed subject to the following:
      - i. Parent parcel was lawfully created prior to July 1, 2001;
      - ii. Parcels are not capable of producing more than 20 cubic feet per acre per year of wood fiber;
      - iii. Parcels are composed of at least 90 percent Class VII and VIII soils, or are composed of at least 90 percent Class VI through VIII soils and are not capable of producing adequate herbaceous forage for grazing livestock;
    - iv. Parcels shall not have established water rights for irrigation;
    - v. All standards established under 18.16.050(G) for the dwellings shall be met;
    - vi. The parcels for the nonfarm dwellings are generally unsuitable for the production of farm crops and livestock or merchantable tree species considering the terrain, adverse soil or land conditions, drainage or flooding, vegetation, location and size of the tract. A parcel may not

be considered unsuitable based solely on size or location if the parcel can reasonably be put to farm or forest use in conjunction with other land

vii. The minimum parcel size is 5 acres;

viii. Be located outside of the Horse Ridge East subzone.

D. Partitions in the Wildlife Area Combining Zones must meet the minimum parcel sizes established under DCC 18.88.050.

E. A division of land for a use listed under ORS 215.263 other than a dwelling. Such divisions shall be subject to the minimum parcel size requirements of DCC 18.16.060(C), ORS 215.263, and the applicable partitioning standards, including the general partition standards set forth in DCC 17.22, the Subdivision and Partition Ordinance.

(Ord. 2012-007 §2, 2012; Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 2006-008 §3, 2006; Ord. 2004-001 §2, 2004; Ord. 2002-016 §1, 2002; Ord. 2001-016 §2, 2001; Ord. 95-007 §16, 1995; Ord. 94-026 §2, 1994; Ord. 92-065 §3, 1992)

#### **18.16.060. Dimensional Standards.**

A. The minimum parcel size for irrigated land divisions created subject to DCC Title 17 shall be as specified under DCC 18.16.065, "Subzones."

B. The minimum parcel size for nonirrigated land divisions created subject to DCC Title 17 is as specified under DCC 18.16.055(C).

C. The minimum parcel size for all other uses permitted by Oregon Revised Statutes 215.263 shall be no greater than the minimum size necessary for the use.

D. Each parcel shall have a minimum street frontage of 50 feet.

E. Building height. No building or structure shall be erected or enlarged to exceed 30 feet in height, except as allowed under DCC 18.120.040.

(Ord. 2012-007 §2, 2012; Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 2002-016 §1, 2002; Ord. 2001-016 §2, 2001; Ord. 95-007 §17, 1995; Ord. 93-043 §3, 1993; Ord. 93-004 §1, 1993; Ord. 92-065 §3, 1992; Ord. 92-055 §1, 1992; Ord. 91-038 §§1 and 2, 1991; Ord. 91-020 §1, 1991)

#### **18.16.065. Subzones.**

A. Lower Bridge. A proposed irrigated land division must result in parcels that demonstrate the following characteristics or capabilities:

One hundred thirty acres of irrigated land.

B. Sisters/Cloverdale. A proposed irrigated land division must result in parcels that demonstrate the following characteristics or capabilities:

Sixty-three acres of irrigated land.

C. Terrebonne. A proposed irrigated land division must result in parcels that demonstrate the following characteristics or capabilities:

Thirty-five acres of irrigated land.

D. Tumalo/Redmond/Bend. A proposed irrigated land division must result in parcels that demonstrate the following characteristics or capabilities:

Twenty-three acres of irrigated land.

E. Alfalfa. A proposed irrigated land division must result in parcels that demonstrate the following characteristics or capabilities:

Thirty-six irrigated acres.

F. La Pine. A proposed irrigated land division must result in parcels that demonstrate the following characteristics or capabilities:

Thirty-seven acres of irrigated land.

G. Horse Ridge East. Minimum parcel size for a land division is 320 acres.

(Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 2002-016 §1, 2002; Ord. 2001-016 §2, 2001; Ord. 95-007 §18, 1995; Ord. 92-065 §3, 1992)



#### **18.16.067. Farm Management Plans.**

- A. Contents. A farm management plan shall consist of the following components:
  - 1. A written description of existing and/or proposed farm uses, including type of crops or livestock, size and location of areas for each use, and land or soil preparation required.
  - 2. An assessment of the soils, climate and irrigation on the parcel demonstrating that the parcel is suitable for the current or proposed use outlined in DCC 18.16.067(A)(1).
  - 3. A business plan, including a demonstration that markets exist for the product; estimates of gross sales or actual gross sales figures; estimated or actual figures concerning necessary expenditures; and a list of capital expenditures incurred or projected to be incurred in establishing the farm use on the parcel.
  - 4. A written description of the farm uses in the area, including acreage, size and type of crop or livestock raised showing that the proposed plan is representative of similar farm uses, if any, in the area and will not conflict with the existing agriculture types.
  - 5. For farm uses not currently practiced in the area, an analysis showing that the plan is representative of the type of agriculture proposed.
- B. Conditional approvals.
  - 1. For purposes of land use approval, in instances where at the time of application the subject land is not currently in farm use, a farm management plan will be deemed to demonstrate current employment of the land for farm use if:
    - a. The farm management plan establishes a level of farming that constitutes a farm use;
    - b. The farm management plan sets forth specific timelines for the completion of capital improvements (barns, fencing, irrigation, etc.) and for the establishment of the proposed farm use on the parcel; and
    - c. Land use approval is subject to a condition that no building permit for the farm dwelling can be issued prior to a determination that pursuant to the farm management plan a farm use has been established on the subject land.
  - 2. For purposes of determining under DCC 18.16.067 that a farm use has been established on the land, the County shall determine that the farm management plan has been implemented to the extent that the farm use has achieved the gross farm sales figure required under DCC 18.16.050.

(Ord. 95-007 §19, 1995; Ord. 93-004 §2, 1993; Ord. 92-065 §3, 1992)

#### **18.16.070. Yards.**

- A. The front yard shall be a minimum of: 40 feet from a property line fronting on a local street, 60 feet from a property line fronting on a collector street, and 100 feet from a property line fronting on an arterial street.
- B. Each side yard shall be a minimum of 25 feet, except that for a nonfarm dwelling proposed on property with side yards adjacent to property currently employed in farm use, and receiving special assessment for farm use, the side yard shall be a minimum of 100 feet.
- C. Rear yards shall be a minimum of 25 feet, except that for a nonfarm dwelling proposed on property with a rear yard adjacent to property currently employed in farm use, and receiving special assessment for farm use, the rear yard shall be a minimum of 100 feet.
- D. In addition to the setbacks set forth herein, any greater setbacks required by applicable building or structural codes adopted by the State of Oregon and/or the County under DCC 15.04 shall be met.

(Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 94-008 §16, 1994; Ord. 93-004 §3, 1993; Ord. 92-065 §3, 1992; Ord. 91-038 §§1 and 2, 1991; Ord. 89-016 §1, 1989; Ord. 83-037 §8, 1983)

#### **18.16.080. Stream Setbacks.**

To permit better light, air, vision, stream pollution control, protection of fish and wildlife areas and preservation of natural scenic amenities and vistas along streams and lakes, the following setbacks shall apply:

- A. All sewage disposal installations, such as septic tanks and septic drainfields, shall be set back from the ordinary high water mark along all streams or lakes a minimum of 100 feet, measured at right angles to the ordinary high water mark. In those cases where practical difficulties preclude the location of the facilities at a distance of 100 feet and the County Sanitarian finds that a closer location will not endanger health, the Planning Director or Hearings Body may permit the location of these facilities closer to the stream or lake, but in no case closer than 25 feet.
- B. All structures, buildings or similar permanent fixtures shall be set back from the ordinary high water mark along all streams or lakes a minimum of 100 feet measured at right angles to the ordinary high water mark.

(Ord. 91-038 §§1 and 2, 1991; Ord. 91-020 §1, 1991)

#### **18.16.090. Rimrock Setback.**

Notwithstanding the provisions of DCC 18.16.070, setbacks from rimrock shall be as provided in DCC 18.116.160 or 18.84.090, whichever is applicable.

(Ord. 2009-014 §1, 2009; Ord. 2008-001 §2, 2008; Ord. 92-065 §3, 1992; Ord. 91-038 §§1 and 2, 1991; Ord. 86-053 §5, 1986)



EXHIBIT A

**DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS**

Whereas the undersigned \_\_\_\_\_ hereinafter referred to as "Declarant," is owner in fee simple of the property described in Exhibit A attached hereto and by this reference incorporated herein (the property); and

Whereas, Declarant has received approval to site a manufactured home on the property described herein pursuant to land use permit No. \_\_\_\_\_ for an accessory farm dwelling, issued by Deschutes County pursuant to Section 18.16.050(C) of the Deschutes County Code;

Whereas Section 18.16.050(C)(1)(b)(iii) requires as a condition of approval the recording of a deed restriction in favor of Deschutes County requiring that any manufactured home sited under said permit be removed prior to any further conveyance of this property; and

Whereas the Declarant desires to declare his/her intention to create covenants, conditions and restrictions necessary to effectuate and comply with the requirements of OAR 660-33-130(24)(a)(B)(iii) and Section 18.16.050(C) of the Deschutes County Code;

Declarant hereby declares that all of the property described in Exhibit A shall be held, sold and conveyed subject to the following covenants, conditions and restrictions in favor of Deschutes County:

Declarant shall cause to be removed any manufactured home sited on the property described herein pursuant to Deschutes County land use permit No. \_\_\_\_\_ for an accessory dwelling prior to any further conveyance of the property.

Declarant's obligations under this covenant shall not be extinguished by any subsequent conveyance made in disregard of these covenants, conditions and restrictions.

These covenants, conditions, and restrictions shall in addition run with the land and be binding upon any of the Declarant's successors in interest should the property be transferred in disregard of this covenant.

It is intended that this covenant shall have the same effect as a regulation designed to implement the comprehensive plan. This covenant may be enforced by Deschutes County by a suit in equity, or if Deschutes County fails to take such action, by any person described in ORS 215.188.

These covenants, conditions and restrictions shall be released by the County upon proof that the requirements set forth herein have been met.

Dated this \_\_\_\_\_ day of \_\_\_\_\_.

\_\_\_\_\_  
(Signature)

(notary seal)

## **Article 3. Zoning Classifications Defined**

### Sections:

- 3.010. Exclusive Farm and Range Use – 1, EFRU-1
- 3.020. Exclusive Farm and Range Use – 2, EFRU-2
- 3.060. Forest Use, FU
- 3.070. Airport Development Zone, AD-1
- 3.080. Airport Vicinity Overlay Zone, AVO
- 3.090. Rural Residential, R-1
- 3.110. Rural Recreational, R-2
- 3.120.1 Rural Service Center – Andrews, RSC-AN
- 3.120.2 Rural Commercial Area – Buchanan, RCA-BU
- 3.120.3 Rural Community – Crane, RC-CR
- 3.120.4 Rural Service Center – Diamond, RSC-DI
- 3.120.5 Rural Community – Drewsey, RC-DR
- 3.120.6 Rural Service Center – Fields, RSC-FI
- 3.120.7 Rural Service Center – Frenchglen, RSC-FR
- 3.120.8 Rural Commercial Area – Lawen, RCA-LA
- 3.120.9 Rural Commercial Area – Princeton, RCA-PR
- 3.120.10 Rural Commercial Area – Riley, RCA-RI
- 3.120.11 Rural Commercial Area – Wagontire, RCA-WA
- 3.130. Commercial & Industrial Zone, C-1
- 3.140. Limited Use Combining Zone, LU
- 3.150. Mineral and Aggregate Resource Overlay Zone, MARO

### **Section 3.010. Exclusive Farm and Range Use – 1, EFRU-1**

#### Sub-Sections:

- 1. Uses Permitted
- 2. Uses Subject To Administrative Review
- 3. Conditional Uses Permitted
- 4. Dwellings Provided in Conjunction with Farm Use
- 5. Accessory Dwellings Provided in Conjunction with Farm Use
- 6. Dwellings Not Provided in Conjunction with Farm Use
- 7. Specific Review Criteria
- 8. Lot Size/Land Divisions
- 9. Standards

It is the intent and purpose of the Exclusive Farm and Range Use – 1 Zone to be utilized in areas of Harney County that are primarily in agriculture use as indicated within the Harney County Comprehensive Plan. This zone shall serve to implement these Plan elements and Statewide Planning Goal – Agriculture 3.

It is further the intent and purpose to provide a zoning designation that will serve to protect the agricultural resources, by allowing only uses compatible to and supportive

of the resource, and also to provide a zoning designation in conformance with ORS 215.

It is further the intent and purpose to allow only lots of a minimum size that will permit operations appropriate for the continuation of the existing commercial agricultural operations in the area.

In an EFRU-1 Zone the following regulations shall apply:

**1. Uses Permitted (Type I Decisions).** In an EFRU-1 zone, the following uses and their accessory uses are permitted. These uses do not require land use approval. While some uses may prompt an inquiry to, and/or action by, the Planning Director, authorization of such uses does not require notice to adjacent property owners or other interested parties and does not constitute a land use decision pursuant to ORS 197.015(10).

- A. Farm Use. As used in this section, "farm use" means the current employment of land for the primary purpose of obtaining a profit in money by raising, harvesting and selling crops or the feeding, breeding, management and sale of, or the production of, livestock, poultry, fur bearing animals or honeybees or for dairying and the sale of dairy products or any other agricultural or horticultural use or animal husbandry or any combination thereof. "Farm use" includes the preparation, storage and disposal by marketing or otherwise of the products or by-products raised on such land for human or animal use. "Farm use" also includes the current employment of land for the primary purpose of obtaining a profit in money by stabling or training equines included but not limited to providing riding lessons, training clinics and schooling shows. "Farm use" also includes the propagation, cultivation, maintenance and harvesting of aquatic species and bird and animal species to the extent allowed by the rules adopted by the State Fish and Wildlife Commission. "Farm use" includes the on-site construction and maintenance of equipment and facilities used for the activities described in this subsection. "Farm use" does not include the use of land subject to the provisions of ORS chapter 321, except land used exclusively for growing cultured Christmas trees as defined in ORS 215.203(3) or land described in ORS 321.267(1)(e) or 321.824.
- B. Operations for the exploration of geothermal resources as defined by ORS 522.005(11), including the placement and operation of compressors, separators and other customary production equipment for an individual well adjacent to the wellhead. Any activities or construction relating to such operations shall not be a basis for an exception under ORS 197.732(1)(a) or (b).
- C. The propagation or harvesting of a forest product.
- D. Climbing and passing lanes within the right-of-way existing as of July 1, 1987.

- E. Temporary public roads or detours that will be abandoned and restored to original condition or use at such time as no longer needed.
- F. Operations for the exploration for minerals as defined by ORS 517.750(7). Any activities or construction relating to such operations shall not be a basis for an exception under ORS 197.732(1)(a) or (b).
- G. Minor betterment of existing public roads and highway related facilities such as maintenance yards, weight stations and rest areas within the right-of-way existing as of July 1, 1987, and contiguous public-owned property utilized to support the operation and maintenance of public roads and highways.
- H. Creation, restoration or enhancement of wetlands.
- I. Alteration, restoration or replacement of a lawfully established dwelling that:
  - a. Has intact exterior walls and roof structure;
  - b. Has indoor plumbing consisting of a kitchen sink, toilet and bathing facilities connected to a sanitary waste disposal system;
  - c. Has interior wiring for interior lights;
  - d. Has a heating system;
  - e. In the case that replacement is removed, demolished or converted to an allowable non-residential use within three months of completion of the replacement dwelling. A replacement dwelling may be sited on any part of the same lot or parcel. A dwelling established under this paragraph shall comply with all applicable siting standards. However, the standards shall not be applied in a manner that prohibits the siting of the dwelling. If the dwelling to be replaced is located on a portion of the lot or parcel not zoned for exclusive farm use, the applicant, as a condition of approval, shall execute and record in the deed records for Harney County a deed restriction prohibiting the siting of a dwelling on that portion of the lot or parcel. The restriction imposed shall be irrevocable unless a statement of release is placed in the deed record for the county. The release shall be signed by the county or its designee and state that the provisions of this paragraph regarding replacement dwellings have changed to allow the siting of another dwelling. The Harney County Planning Director or the Director's designee shall maintain a record of the lots and parcels that do not qualify for the siting of a new dwelling under the provisions of this paragraph, including a copy of the deed restrictions and release statements filed under this paragraph; and,
  - f. Harney County shall require, as a condition of approval, that the landowner for the dwelling sign and record in the deeds records for the county a

document binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.

- J. Seasonal farm worker housing as discussed in ORS 197.677 through 197.685.
- K. A winery as described in ORS 215.452.

**2. Uses Subject To Administrative Review (Type II Decisions).** In the EFRU-1 Zone, the following uses and their accessory uses may be permitted if determined by the Planning Director to satisfy the applicable criteria and provisions of law. Authorization of these uses does constitute a land use decision pursuant to ORS 197.015(10). Notice and an opportunity for a hearing must be provided in the manner described in ORS 215.416. These uses may be referred to the Planning Commission for review if deemed appropriate by the Planning Director.

- A. Dwellings provided in conjunction with farm use pursuant to Section 3.010(4).
- B. Accessory dwellings in conjunction with farm use pursuant to Section 3.010(5)(A).
- C. Dwellings not provided in conjunction with farm use pursuant to Section 3.010(6)(A).
- D. Churches and cemeteries in conjunction with churches:
  - a. New facilities may not:
    - I. Be established on high-value farmland; or,
    - II. Be established within three miles of an urban growth boundary.
  - b. Existing facilities may:
    - I. Be maintained, enhanced or expanded on the same tract subject to the review criteria of Section 3.010(7)(a).
- E. Utility facilities necessary for public service, including wetland waste treatment systems but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height. A utility facility necessary for public service may be established as provided in ORS 215.275.

- F. A facility for the primary processing of forest products, provided that such a facility does not seriously interfere with accepted farming practices and is compatible with farm uses described in ORS 215.203(2). Such a facility may be approved for a one-year period, which is renewable. These facilities are intended to be only portable or temporary in nature. The primary processing of a forest product, as used in this section, means the use of a portable chipper or stud mill or other similar methods of initial treatment of a forest product in order to enable its shipment to market. Forest products, as used in this section, means timber grown upon a parcel of land or contiguous land where the primary processing facility is located.
- G. Farm stands, if:
  - a. The structures are designed and used for the sale of farm crops and livestock grown on farms in the local agricultural area, including the sale of retail incidental items, if the sales of the incidental items make up no more than 25 percent of the total sales of the farm stand; and,
  - b. The farm stand does not include structures designed for occupancy as a residence or for activities other than the sale of farm crops and livestock and does not include structures for banquets, public gatherings or public entertainment.
- H. A facility for the processing of farm crops. The processing facility must be located on a farm that provides at least one-quarter of the crops processed at the facility. The building established for the processing facility shall not exceed 10,000 square feet of floor area exclusive of the floor area designed for preparation, storage or other farm use or devote more than 10,000 square feet to the processing activities within another building supporting a farm use. A processing facility shall comply with all applicable siting standards but the standards shall not be applied in a manner that prohibits the siting of the processing facility. Harney County shall not approve any division of a lot or parcel that separates a processing facility from the farm operation on which it is located.
- I. A site for the takeoff and landing of model aircraft, including such buildings or facilities as may reasonably be necessary. Buildings or facilities shall not be more than 500 square feet in floor area or placed on a permanent foundation unless the building or facility pre-existed the use approved under this paragraph. The site shall not include an aggregate surface or hard surface area unless the surface pre-existed the use approved under this paragraph. An owner of property used for the purpose authorized in this paragraph may charge a person operating the use on the property rent for the property. An operator may charge users of the property a fee that does not exceed the operator's cost to maintain the property, buildings and facilities. As used in this paragraph, "model aircraft" means a small scale-version of an airplane, glider, helicopter, dirigible or balloon



that is used or intended to be used for flight and is controlled by radio, lines or design by a person on the ground.

- J. Fire service facilities providing rural fire protection services.
- K. Irrigation canals, delivery lines and those structures and accessory operational facilities associated with a district as defined in ORS 540.505(1).
- L. Utility facility service lines. Utility facility service lines are utility lines and accessory facilities or structures that end at the point where the utility service is received by the customer and that are located on one or more of the following:
  - a. A public right of way;
  - b. Land immediately adjacent to a public right of way, provided the written consent of all adjacent property owners has been obtained; or,
  - c. The property to be served by the utility.

**3. Conditional Uses Permitted (Type III Decisions).** In the EFRU-1 Zone, the following uses and their accessory uses may be permitted if determined by the Planning Commission during a public hearing to satisfy the applicable criteria and provisions of law.

- A. A dwelling on real property used for farm use if the dwelling is:
  - a. Located on the same lot or parcel as those terms are defined in ORS 92.010, as the dwelling of the farm operator;
  - b. To qualify, persons shall occupy a dwelling whose assistance in the management and farm use of the existing commercial farming operation is required by the farm operator. The farm operator shall continue to play the predominant role in the management and farm use of the farm. A farm operator is a person who operates a farm, doing the work and making the day-to-day decisions about such things as planting, harvesting, feeding and marketing;
  - c. The parcel is not subsequently divided; and,
  - d. Harney County shall require as a condition of approval that the landowner for the dwelling sign and record in the deeds records for the county a document binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.



- B. Commercial activities in conjunction with farm use, but not including the processing of farm crops as described in Section 3.010(2)(H). Approval of this use is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- C. Personal-use airports for airplanes and helicopter pads, including associated hanger, maintenance and service facilities. A personal-use airport as used in this section means an airstrip restricted, except for aircraft emergencies, to use by the owner, and on an infrequent and occasional basis, by invited guests, and by commercial aviation activities in connection with agricultural operations. No aircraft may be based on a personal use airport other than those owned or controlled by the owner of the airstrip. Exceptions to the activities permitted under this definition may be granted through waiver action by the Department of Transportation in specific instances. A personal-use airport lawfully existing as of September 13, 1975, shall continue to be permitted subject to any applicable rules of the Department of Transportation. Approval of this use is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- D. Operations conducted for the mining and processing of geothermal resources as defined in ORS 522.005 or exploration, mining, and processing of aggregate and other mineral resources or other subsurface resources, and oil and gas as defined by ORS 520.005 not otherwise permitted under Section 3.010(1)(B):
  - a. Mining, crushing or stockpiling of aggregate and other mineral and other subsurface resources subject to ORS 215.298;
  - b. Processing, as defined by ORS 517.750(11), of aggregate into asphalt or portland cement;
  - c. Processing of other mineral resources and other subsurface resources; and,
  - d. Approval of any use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(a), and any other applicable criteria or provision of law. Section 3.150 of this Ordinance may apply if the project meets the definition of a "significant site" (see Section 3.150(2)(X)).
- E. Private parks, playgrounds, hunting and fishing preserves and campgrounds. Subject to the approval of the county governing body or its designee, a private campground may provide yurts for overnight camping. No more than one-third or a maximum of 10 campsites, whichever is smaller, may include a yurt. The yurt shall be located on the ground or on a wood floor with no permanent foundation. Upon request of a county governing body, the Land Conservation and Development Commission may provide by rule for an increase in the number of yurts allowed on all or a portion of the campgrounds in a county if the commission determines that the increase will comply with the standards

described in ORS 215.296(1). As used in this paragraph, "yurt" means a round, domed shelter of cloth or canvas on a collapsible frame with no plumbing, sewage disposal hookup or internal cooking appliance.

- F. Private parks and campgrounds. Except on a lot or parcel contiguous to a lake or reservoir, campgrounds shall not be allowed within three miles of an urban growth boundary unless an exception is approved pursuant to ORS 197.732 and OAR Chapter 660, Division 4. A campground is an area devoted to overnight temporary use for vacation, recreational or emergency purposes, but not residential purposes and is established on a site or is contiguous to lands with a park or other outdoor natural amenity that is accessible for recreational use by the occupants of the campground. A campground shall be designed and integrated into the rural agricultural and forest environment in a manner that protects the natural amenities of the site and provides buffers of existing native trees and vegetation or other natural features between campsites. A tent, travel trailer or recreational vehicle may occupy campsites. Separate sewer, water or electric service hook-ups shall not be provided to individual campsites. Campgrounds authorized by this rule shall not include intensively developed recreational uses such as swimming pools, tennis courts, retail stores or gas stations. Overnight temporary use in the same campground by a camper or camper's vehicle shall not exceed a total of 30 days during any consecutive six (6) month period. Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- G. Parks, playgrounds or community centers owned by a governmental agency or a nonprofit community organization and operated primarily by and for residents of the local rural community. A public park may be established consistent with the provisions of ORS 195.120. Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- H. Golf Courses, as defined in Section 1.030, on land determined to not be high-value farmland, as defined in ORS 195.300. Approval of this use is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- I. Commercial utility facilities for the purpose of generating power for public use by sale. Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A) & (B), and any other applicable criteria or provisions of law.
- J. Home occupations carried on by the resident as an accessory use within dwellings or other buildings referred to in ORS 215.203(2)(b)(F) or (G) as provided in ORS 215.448. Approval of a use pursuant to this subsection is

subject to the review criteria of Section 3.010(7)(A) & (B), and any other applicable criteria or provisions of law.

- K. One manufactured dwelling, or the temporary residential use of an existing building, in conjunction with an existing dwelling as a temporary use for the term of a hardship suffered by the existing resident or a relative of the resident. Within three months of the end of the hardship, the manufactured dwelling shall be removed or demolished, or in the case of an existing building, the building shall be removed, demolished or returned to an allowable non-residential use. The governing body or its designee shall provide for periodic review of the hardship claimed under this paragraph. A temporary residence approved under this paragraph is not eligible for replacement under Section 3.010(1)(I). Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A) & (B), and any other applicable criteria or provisions of law.
  - a. Harney County shall require as a condition of approval that the landowner for the dwelling sign and record in the deeds records for the county a document binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.
- L. A replacement dwelling to be used in conjunction with farm use if the existing dwelling has been listed in a Harney County inventory and the National Inventory of Historic Places as a historic property as defined in ORS 358.480(2).
  - a. Harney County shall require as a condition of approval that the landowner for the dwelling sign and record in the deeds records for the county a document binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.
- M. Transmission towers over 200 feet in height. Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- N. Dog kennels not described in ORS 215.283(1)(j). Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- O. Residential homes as defined in ORS 197.660, in existing dwellings. Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.

- a. Harney County shall require as a condition of approval that the landowner for the dwelling sign and record in the deeds records for the county a document binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.
- P. The propagation, cultivation, maintenance and harvesting of aquatic or insect species. Insect species shall not include any species under quarantine by the State Department of Agriculture or the United States Department of Agriculture. The county shall provide notice of all applications under this paragraph to the State Department of Agriculture. Notice shall be provided in accordance with the county's land use regulations but shall be mailed at least 20 calendar days prior to any administrative decision or initial public hearing on the application. Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- Q. Construction of additional passing lanes and travel lanes requiring the acquisition of right-of-way but not resulting in the creation of new land parcels. Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- R. Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of new land parcels. Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(a), and any other applicable criteria or provisions of law.
- S. Improvement of public roads and highway facilities, such as maintenance yards, weigh stations and rest areas, where additional property or right-of-way is required but not resulting in the creation of new land parcels. Approval of a use pursuant to this subsection is subject to the review criteria of Section 3.010(7)(A), and any other applicable criteria or provisions of law.
- T. Room and board arrangements for a maximum of five unrelated persons in existing residences.
- U. Operations for the extraction and bottling of water.
- V. Expansion of existing county fairgrounds and activities directly relating to county fairgrounds governed by county fair boards established pursuant to ORS 565.210.
- W. A living history museum:

- a. A living history museum related to resource-based activities owned and operated by a governmental agency or a local historical society, together with limited commercial activities and facilities that are directly related to the use and enjoyment of the museum and located within authentic buildings of the depicted historic period or the museum administration building, if areas other than an exclusive farm use zone cannot accommodate the museum and related activities or if the museum administration buildings and parking lot are located within one quarter mile of an urban growth boundary.
  - b. As used in this paragraph:
    - I. "Living history museum" means a facility designed to depict and interpret everyday life and culture of some specific historic period using authentic buildings, tools, equipment and people to simulate past activities and events; and,
    - II. "Local historical society" means the local historical society recognized by the county governing body and organized under ORS chapter 65.
- X. Wildlife habitat conservation and management plans.
- Y. Guest Ranch. Notwithstanding ORS 215.283, a guest ranch may be established in conjunction with an existing livestock operation that qualifies as a farm use under ORS 215.203 and 3.010(1)(A). A guest ranch established under this subsection shall meet the following conditions:
- a. Except as provided in paragraph c. of this subsection, the lodge, bunk house or cottages cumulatively shall:
    - I. Include not less than four nor more than ten (10) overnight guestrooms exclusive of kitchen areas, rest rooms, storage and other shared indoor facilities; and,
    - II. Not exceed a total of 12,000 square feet in floor area.
  - b. The guest ranch shall be located on a lawfully established parcel that is:
    - I. At least 160 acres;
    - II. Not within 10 air miles of an urban growth boundary containing a population greater than 5,000;
    - III. The parcel containing the dwelling of the person conducting the livestock operation; and,
    - IV. Not classified as high-value farmland as defined in ORS 215.710.



- c. For each doubling of the initial 160 acres required under paragraph b. of this subsection, up to five additional overnight guestrooms and 3,000 square feet of floor area may be added to the guest ranch for a total of not more than 25 guestrooms and 21,000 square feet of floor area.
- d. A guest ranch may provide recreational activities that can be provided in conjunction with the livestock operation's natural setting, including but not limited to hunting, fishing, hiking, biking, horseback riding, camping or swimming. Intensively developed recreational facilities such as golf courses as identified in ORS 215.283 shall not be allowed. A campground as described in ORS 215.283(2)(c) shall not be allowed in conjunction with a guest ranch, and a guest ranch shall not be allowed in conjunction with an existing golf course or with an existing campground under ORS 215.283(2)(c).
- e. Food services shall be incidental to the operation of the guest ranch and shall be provided only for the guests of the guest ranch. The cost of the meals provided to the guests shall be included as part of the fee to visit or stay at the guest ranch. The sale of individual meals to persons who are not guests of the guest ranch shall not be allowed.
- f. Approval of a guest ranch shall be subject to the provisions of Section 3.010(7)(a), and any other applicable criteria or provisions of law.
- g. As used in this subsection:
  - I. "Guest ranch" means a facility for overnight lodging incidental and accessory to an existing livestock facility that qualifies for farm use under ORS 215.203 and 3.010(1)(A). Guest ranch facilities may include a lodge, bunkhouse or cottage accommodations as well as passive recreational activities and food services as set forth in items b. and d. of this subsection.
  - II. "Livestock" means cattle, sheep, horses and bison (Oregon Laws 1997, Chapter 728(1)).
- h. Notwithstanding ORS 215.263, the governing body of Harney County or its designee shall not approve a proposed division of land in an exclusive farm use zone for a guest ranch as defined in item Y(g) of this subsection.
- i. The governing body of Harney County or its designee shall not approve a proposed division of a lot or parcel that separates a guest ranch described in item Y(g) of this subsection from the dwelling of the person conducting the livestock operation (Oregon Laws 1997, Chapter 728).

Z. Public or private schools for kindergarten through grade 12, including all buildings essential to the operation of a school, primarily for residents of the rural area in which the school is located:

a. New facilities may not:

- I. Be established on high-value farmland; or,
- II. Be established within three miles of an Urban Growth Boundary.

b. Existing facilities may:

- I. Be maintained, enhanced or expanded on the same tract subject to the review criteria of Section 3.010(7)(a).

AA. Dwellings not provided in conjunction with farm use pursuant to Section 3.010(6)(B).

BB. Expansion or replacement of an existing facility for an animal shelter as defined in ORS 609.500, if the shelter is tax exempt pursuant to section 501(c)(3) of the Internal Revenue Code as amended and in effect on January 1, 1999.

CC. Roads, highways and other transportation facilities and improvements not allowed under subsections (1) and (2) of this section may be established, subject to the approval of Harney County or its designee, in areas zoned for exclusive farm use subject to:

- a. Adoption of an exception to the goal related to agricultural lands and to any other applicable goal with which the facility or improvement does not comply; or,
- b. ORS 215.296 for those uses identified by rule of the Land Conservation and Development Commission.

DD. Utility Facilities.

**4. Dwellings Provided In Conjunction With Farm Use (Type II Decisions).** In the EFRU-1 Zone, a dwelling in conjunction with farm use may be approved if one of the following (item A or B) is satisfied:

A. Acreage Threshold. A dwelling may be considered customarily provided in conjunction with farm use if:

- a. The parcel on which the dwelling will be located is at least 160 acres;



- b. The subject tract is currently employed for farm use, as defined in ORS 215.203;
  - c. The dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land, such as planting, harvesting, marketing or caring for livestock at a commercial scale;
  - d. There is no other dwelling on the subject tract; and,
  - e. Harney County shall require as a condition of approval that the landowner for the dwelling sign and record in the deeds records for the county a document binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.
- B. Farm Income Threshold. A dwelling may be considered customarily provided in conjunction with farm use if:
- a. The subject tract is currently employed for farm use, as defined in ORS 215.203 that has produced \$40,000 (1994) dollars in gross annual income from the sale of farm products in each of the last two years or three of the last five years;
  - b. Except as permitted by 3.010(1)(K) there is no other dwelling on the subject tract;
  - c. A person or persons who produced the commodities, which grossed the income, required in item 4(B)(a) would occupy the dwelling;
  - d. On determining the gross income required by item 4(B)(a) above, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract. Only gross income from land owned by the applicant, not leased or rented shall be counted; and,
  - e. Harney County shall require as a condition of approval that the landowner for the dwelling sign and record in the deeds records for the county a document binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.

**5. Accessory Dwellings Provided In Conjunction With Farm Use (Type II Decisions).** In the EFRU-1 Zone, an accessory dwelling may be provided in conjunction with an existing farm dwelling and may be approved subject to the following:

- A. An accessory farm dwelling may be considered customarily provided in conjunction with farm use if it meets all of the following requirements:
  - a. The accessory farm dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land and whose assistance in the management of the farm use is or will be required by the farm operator;
  - b. The accessory dwelling will be located:
    - I. On the same lot or parcel as the dwelling of the principal farm dwelling;
    - II. On the same tract as the principal farm dwelling when the lot or parcel on which the accessory farm dwelling will be sited is consolidated into a single parcel with all other contiguous lots and parcels in the tract; or,
    - III. On a lot or parcel on which the principal farm dwelling is not located, when the accessory farm dwelling is a manufactured dwelling and a deed restriction is filed with the Harney County Clerk. The deed restriction shall require the manufactured dwelling to be removed when the lot or parcel is conveyed to another party. An accessory farm dwelling approved pursuant to this subsection may not be occupied by a person or persons who will not be principally engaged in the farm use of the land and whose assistance is not or will not be required by the farm operator. The manufactured dwelling may remain if it is re-approved under 3.010(4);
  - c. There is no other dwelling on the lands designated for exclusive farm use owned by the farm operator that is vacant or currently occupied by persons not working on the subject farm or ranch and that could reasonably be used as an accessory farm dwelling;
  - d. The principal farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203 and has produced \$40,000 (1994 dollars) in gross annual income from the sale of farm products in each of the last two years or three of the last five years. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract; and,
  - e. Harney County shall require as a condition of approval that the landowner for the dwelling sign and record in the deeds records for the county a document

binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.

**6. Dwellings Not Provided In Conjunction With Farm Use.** In the EFRU-1 Zone two types of dwellings not provided in conjunction with farm use may be authorized.

- A. Lot of Record Dwelling (Type II Decision). A dwelling not provided in conjunction with farm use may be approved if all of the following are satisfied:
- a. The lot or parcel on which the dwelling will be established was lawfully created and was acquired and owned continuously by the present owner:
    - I. Since prior to January 1, 1985; or
    - II. By devise or intestate succession from a person who acquired and had owned continuously the lot or parcel since prior to January 1, 1985.
    - III. For the purposes of this subsection, "owner" includes the spouse, child, parent, sibling, brother-in-law, sister-in-law, son-in-law, daughter-in-law, father-in-law, mother-in-law, aunt, uncle, niece, nephew, stepparent, stepchild, grandparent, or grandchild of the owner or a business entity owned by any one or a combination of these family members.
  - b. The tract on which the dwelling will be sited does not include a dwelling;
  - c. If the lot or parcel on which the dwelling will be sited was part of a tract on November 4, 1993, no other dwelling may exist on another lot or parcel that was part of that tract;
  - d. The proposed dwelling is not prohibited by, and will comply with the provisions of the Harney County Comprehensive Plan and land use regulations and any other relevant provisions of law;
  - e. When the lot or parcel on which the dwelling will be sited lies within an area designated in the Harney County Comprehensive Plan as big game habitat, the siting of the dwelling shall be consistent with the Comprehensive Plan and land use regulations established to provide protection to the big game habitat resource;
  - f. When the lot or parcel on which the dwelling will be sited is part of a tract, the remaining portions of the tract are consolidated into a single lot or parcel when the dwelling is allowed;

recognized by the Forest Practices Rules, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract. If a lot or parcel is under forest assessment the area is not "generally unsuitable" simply because it is too small to be managed for forest production profitably by itself. If a lot or parcel can be sold, leased, rented or otherwise managed as a part of a forestry operation, it is not "generally unsuitable." A lot or parcel, or portion of a lot or parcel, under forest assessment is presumed suitable for farm use if it is predominantly composed of soils capable of producing 20 cubic feet of wood fiber per acre per year. If a lot or parcel is under forest assessment, to be found compatible and not seriously interfere with forest uses on surrounding land it must not force a significant change in forest practices or significantly increase the cost of those practices on surrounding lands;

- c. The dwelling will not materially alter the stability of the overall land use pattern of the area. In determining whether a proposed non-farm dwelling will alter the stability of the overall land use pattern of the area, Harney County shall consider the cumulative impact of new non-farm dwellings on other lots or parcels similarly situated in the area. To address this standard the county shall:
  - I. Identify a study area for the cumulative impacts analysis. The study area shall include at least 2000 acres, or a smaller area not less than 1000 acres if the smaller area is a distinct agricultural area based on topography, soil types, land use pattern, or the type of farm or ranch operations or practices that distinguish it from other, adjacent agricultural areas. Findings shall describe the study area, its boundaries, the location of the subject parcel within this area, why the selected area is representative of the land use pattern surrounding the subject parcel and is adequate to conduct the analysis required by this standard. Lands zoned for rural residential or other urban or non-resource uses shall not be included in the study area;
  - II. Identify within the study area the broad types of farm uses (irrigated or non-irrigated crops, pasture or grazing lands), the number, location and type of existing dwellings (farm, non-farm, hardship, etc), and the dwelling development trends since 1993. Determine the potential number of non-farm/lot-of-record dwellings that could be approved under this section, including identification of predominant soil classifications, the parcels created prior to January 1, 1993 and the parcels larger than the minimum lot size that may be divided to create new parcels for non-farm dwellings under ORS 215.263(4) and 3.010(8). The findings shall describe the existing land use pattern of the study area including the distribution and arrangement of existing uses and the land use pattern

- g. The Harney County Planning Department shall notify the Harney County Assessor that they intend to approve the application;
  - h. Harney County shall require as a condition of approval that the landowner for the dwelling sign and record in the deed records for the county a document binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937; and,
  - i. When Harney County approves an application for a single-family dwelling under Section 3.010(6)(A) the approval may be transferred by the person who qualified under this subsection to any other person after the effective date of the land use decision. Transfers occurring pursuant to this paragraph may occur one time and one time only.
- B. Non-farm Dwelling (Type III Decision). A single-family residential dwelling, not provided in conjunction with farm use, may be established upon findings that each of the following review criteria have been satisfied:
- a. The dwelling or activities associated with the dwelling will not force a significant change in or significantly increase the cost of accepted farming or forest practices on nearby lands devoted to farm or forest use;
  - b. The dwelling is situated upon a lot or parcel, or a portion of a lot or parcel that is generally unsuitable land for the production of farm crops and livestock or merchantable tree species, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract; and,
    - I. The lot or parcel shall not be considered unsuitable solely because of size or location if it can reasonably be put to farm or forest use in conjunction with other land; and,
    - II. The lot or parcel is not "generally unsuitable" simply because it is too small to be farmed profitably by itself. If a lot or parcel can be sold, leased, rented or otherwise managed as a part of a commercial farm or ranch, it is not "generally unsuitable." A lot or parcel, or portion of a lot or parcel, is presumed to be suitable for farm use if it is predominantly composed of Class I-VI soils. Just because a lot or parcel is unsuitable for one farm use does not mean it is not suitable for another farm use; or,
    - III. If the lot or parcel is under forest assessment, the dwelling is situated upon a lot or parcel, or a portion of a lot or parcel, that is generally unsuitable land for the production of merchantable tree species



that could result from approval of the possible non-farm dwellings under this paragraph; and,

- III. Determine whether approval of the proposed non-farm/lot-of-record dwellings together with existing non-farm dwellings will materially alter the stability of the land use pattern in the area. The stability of the land use pattern will be materially altered if the cumulative effect of existing and potential non-farm dwellings will make it more difficult for the existing types of farms in the area to continue operation due to diminished opportunities to expand, purchase or lease farmland, acquire water rights or diminish the number of tracts or acreage in farm use in a manner that will destabilize the overall character of the study area.
- d. The dwelling will be sited on a lot or parcel created before January 1, 1993;
- e. The dwelling complies with such other conditions, as Harney County considers necessary;
- f. Harney County shall require as a condition of approval that the landowner for the dwelling sign and record in the deeds records for the county a document binding the land owner and the landowner's successor's in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937; and,
- g. Harney County shall not grant final approval of a non-farm dwelling under this subsection on a lot or parcel that is, or has been, receiving special assessment without evidence that the lot or parcel upon which the dwelling is proposal has been disqualified for special assessment at a value for farm use or other special assessment under ORS 308A.253, 321.257 to 321.367 and any additional tax imposed as the result of disqualification has been paid.

**7. Specific Review Criteria.** In the EFRU-1 Zone certain uses are subject to specific criteria, in addition to any other applicable criteria. The specific provisions of this subsection apply only when referenced within the list of uses included in subsections 3.010(2) and (3).

- A. The use may be approved only where Harney County finds that the use will not:
  - a. Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or
  - b. Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.

**8. Lot Size/Land Divisions.** Any proposed division of land included within an exclusive farm use zone resulting in the creation of one or more parcels of land shall be reviewed and approved or disapproved by the governing body or its designee of Harney County. The governing body of the county by ordinance shall require such prior review and approval for such divisions of land within exclusive farm use zones established within the county.

- A. Farm Related Land Divisions (Type II Decisions). The governing body of Harney County may approve a proposed division of land to create parcels for farm use as defined in ORS 215.203 if it finds:
  - a. That the proposed division of land is appropriate for the continuation of the existing commercial agricultural enterprise within the area; or
  - b. The parcels created by the proposed division are not smaller than the minimum lot size acknowledged under ORS 215.780. The minimum lot size in the EFRU-1 Zone is 160-acres.
- B. Non-farm Related Land Divisions (Type III Decisions). New parcels less than 160-acres may be created subject to the following standards:
  - a. The governing body of Harney County may approve a proposed division of land in an exclusive farm use zone for non-farm uses, except dwellings, set out in ORS 215.213(2) or 215.283(2) if it finds that the parcel for the non-farm use is not larger than the minimum size necessary for the use. The governing body may establish other criteria, as it considers necessary.
  - b. The governing body of Harney County may approve a division of land in an exclusive farm use zone for a dwelling not provided in conjunction with farm use only if the dwelling has been approved under ORS 215.213(3) or 215.284. The governing body of the county shall not approve a subdivision or series partition for a dwelling not provided in conjunction with farm use. The provisions of this subsection regarding a series partition apply only to applications for a land division submitted after July 1, 1997. For purposes of this subsection, "series partition" shall have the meaning given that term in ORS 92.305(11).
  - c. This section shall not apply to the creation or sale of cemetery lots, if a cemetery is within the boundaries designated for a farm use zone at the time the zone is established.
  - d. This section shall not apply to divisions of land resulting from lien foreclosures or divisions of land resulting from foreclosure of recorded contracts for the sale of real property.



- e. The governing body of Harney County may approve a proposed division of land in an exclusive farm use zone to create a parcel with an existing dwelling to be used:
  - I. As a residential home as described in ORS 197.660(2) only if the dwelling has been approved under ORS 215.213(3) or 215.284(1), (2), (3) or (4); and,
  - II. For historic property that meets the requirements of ORS 215.213(1)(q) and 215.283(1)(o).
- f. The governing body of Harney County shall not approve a division of land for non-farm use under subsection (a), (b) or (f) of this section unless any additional tax imposed for the change in use has been paid, and,
- g. Parcels used or to be used for training or stabling facilities shall not be considered appropriate to maintain the existing commercial agricultural enterprise in an area where other types of agriculture occur.

#### **9. Setback Standards.**

- A. The setback from all property lines shall be a minimum of 20 feet.
- B. All residences, buildings or similar permanent fixtures shall be set back from the high water line along all streams or lakes a minimum of 100 feet measured at right angles to the high water line.

**ORDINANCE HISTORY NOTES:** The Exclusive Farm and Range Use-1 Zone provisions, Section 3.010 of the Harney County Zoning Ordinance was modified and adopted by the County Court on February 24, 1999 through a Periodic Review Work Task. The review and revision of this section subsequently occurred during May-June, 2000 as part (Work Task 2) of a voluntary Modified Revised Periodic Review Work Task via DLCD Grant No. TA-R-01-012. Section 3.010 was subsequently readopted by Harney County on August 16, 2000 and acknowledged by LCDC on May 10, 2002. Any changes to this Section from this point on will have the effective date listed after each modified paragraph with subsequent historical notes.

ARTICLE 3: AGRICULTURE USE ZONE: A-2

Section 3.01 Agriculture Use Zone. The Agriculture Use Zone is intended to preserve grazing and other agricultural land, except in those areas designated by the Plan as Rural or Farm Residential, and to allow rural homesites, hobby farms and similar "not for profit" farm residences in accord with Comprehensive Plan policies and provisions for such uses.

Section 3.02 Permitted Uses. In an A-2 Zone, the following uses and their accessory uses are permitted outright:

- A. Farm use as defined in ORS 215.203, except the dwelling customarily provided in conjunction therewith.
- B. The propagation or harvesting of a forest product.
- C. Utility facilities necessary for public service, except commercial facilities for the purpose of generating power for public use by sale and transmission towers over 200 feet in height.
- D. Nonresidential buildings customarily provided in conjunction with farm use.
- E. Operations for the exploration of geothermal resources as defined by ORS 522.005.
- F. The breeding, boarding and training of horses for profit.

Section 3.03 Uses Permitted With A Zoning Permit. In an A-2 Zone, the following uses and their accessory uses are permitted upon the issuance of a Zoning Permit:

- A. A dwelling customarily provided in conjunction with farm use on land "currently employed for farm use" and found in compliance with the criteria or standards set forth in this Article and in Section 20.14 of this Ordinance; includes mobile house or manufactured home.
- B. Single-family dwellings, not provided in conjunction with farm use, on lots or parcels located within areas designated by the Plan as Farm Residential, Rural Residential or Rural Center; includes mobile house or manufactured home.
- C. A dwelling on real property used for farm use, including mobile house or manufactured home, if the dwelling is:
  - 1. Located on the same lot or parcel as the dwelling of the farm operator; and
  - 2. Occupied by a relative, which means grandparent, grandchild, parent, child, brother or sister of the farm operator or the farm operator's spouse, whose assistance in management of the farm is required.
- D. One mobile home in conjunction with an existing dwelling as a temporary use for the term of a hardship suffered by the existing resident or a relative of the resident.
- E. A replacement dwelling, including mobile house or manufactured home, to be used in conjunction with farm use if the existing dwelling has been listed in the County's inventory as historic property as defined in ORS 358.480.

- F. Retention of a life estate in a dwelling and in a tract of land under and around such dwelling upon the sale or transfer of the remaining real property for continued farm use.

Section 3.04 Conditional Uses. In an A-2 Zone, the following uses and their accessory uses are permitted when authorized in accordance with the requirements of this Article and Article 24 of this Ordinance:

A. Type I. Conditional Uses.

1. Commercial activities in conjunction with farm use.
2. Home occupations.
3. A facility for the primary processing of forest products intended to be only portable or temporary in nature.
4. The propagation, cultivation, maintenance and harvesting of aquatic species.
5. A site for the disposal of solid waste that has been ordered to be established by the Environmental Quality Commission under ORS 459.049, together with equipment, facilities or buildings necessary for its operation.
6. Public parks, playgrounds, campground, golf course and community center owned and operated by a government agency or a nonprofit community organization.
7. Construction of additional passing and travel lanes requiring the acquisition of right-of-way but not resulting in the creation of new land parcels.
8. Improvement of public roads and highway related facilities such as maintenance yards, weigh stations and rest areas, where additional property or right-of-way is required but not resulting in the creation of new land parcels.

B. Type II. Conditional Uses.

1. Public or private schools, including all buildings essential to the operation of a school.
2. Churches.
3. Operations conducted for the mining and processing of geothermal resources as defined by ORS 522.005, or exploration, mining and processing of aggregate and other mineral resources or other subsurface resources.
4. Private parks, hunting and fishing preserves, campground or golf course.
5. Personal use airports for airplanes and helicopter pads, including associated hangar, maintenance and service facilities.
6. Commercial utility facilities for the purpose of generating power for public use by sale.
7. A site for the disposal of solid waste approved by the governing body of a city or the county or both and for which a permit has been granted under ORS 459.245 by the Department of Environmental Quality together with equipment, facilities or buildings necessary for its operation.

8. Dog kennels as set forth by ORS 215.283(2) (m).
9. Transmission towers over 200 feet in height. DOR
10. Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of new land parcels.
11. A destination resort which is approved consistent with the requirements of any Statewide planning goal relating to the siting of the same.
12. Single-family residential dwelling, not provided in conjunction with farm use, subject to the requirements set forth in Sections 24.19 and 24.20 of this Ordinance; includes mobile house or manufactured home.
13. Residential homes for handicapped persons, as those terms are defined in ORS 443.580, in existing dwellings, subject to the requirements set forth in Sections 24.19 and 24.20 of this Ordinance.
14. Commercial livestock feedlot or sales yard, hog or mink farm, or slaughter facility located within one-quarter mile of a lot or parcel in an area designated or zoned as Farm Residential, Rural Residential or Rural Center, or within one-half mile of an Urban Growth Boundary.

Section 3.05 Dimensional Standards. In an A-2 Zone, the following Dimensional Standards shall apply:

- A. A lot or parcel of 160 acres or more shall be considered a farm unit if found to be "currently employed in farm use".
- B. A lot or parcel less than 160 acres may only be approved as a farm unit when found to comply with the criteria set forth in Section 24.23 of this Ordinance through the Type II Conditional Use Permit process.
- C. In an area designated as Farm Residential, the minimum lot or parcel shall be 10 acres unless rezoned to a higher density.
- D. In an area designated as Rural Residential, the minimum lot or parcel shall be 3 acres unless rezoned to a higher density.
- E. In an area designated as Rural Center, the minimum lot or parcel without either public or community water or sewage disposal system shall be one (1) acre; 20,000 sq. ft. if either an approved public or community water or sewer system is provided; and 10,000 sq. ft. if both an approved public or community water and sewer system is provided.
- F. For nonfarm uses permitted in areas not designated by the Plan as Farm Residential, Rural Residential or Rural Center, the minimum lot or parcel size shall be one (1) acre and should not be more than necessary to accommodate the intended or proposed use.
- G. The minimum Front and Rear Yard setbacks shall be 20 feet, and sideyard setbacks shall be 10 feet, except that a sideyard of a nonfarm use adjacent to a farm use in an area not designated as Farm Residential, Rural Residential or Rural Center shall be 50 feet.

- H. All structures shall be setback at least 60 feet from the centerline of State or Federal rights-of-way and 45 feet from the centerline of any County or other public road or street right-of-way.

## **Malheur County**

### **ARTICLE A. RESOURCE LANDS, EFU EXCLUSIVE FARM USE ZONE, ERU EXCLUSIVE RANGE USE ZONE, EFFU EXCLUSIVE FARM-FOREST USE ZONE**

#### **6-3A-1: PURPOSE:**

#### **6-3A-2: PERMITTED USES:**

#### **6-3A-3: CONDITIONAL USES:**

#### **6-3A-4: APPROVAL OF FARM OR RANCH DWELLINGS:**

#### **6-3A-5: DIVISION OF LAND:**

#### **6-3A-6: DIMENSIONAL STANDARDS:**

#### **6-3A-7: CREATION OF MORTGAGE LOTS:**

#### **6-3A-1: PURPOSE:**

Resource lands consist of the exclusive farm, ranch and farm-forest use zones and appropriate overlay zones such as for destination resorts and secondary lands. The purpose of the EFU, ERU and EFFU zones is to maintain the resource based economy of Malheur County by permitting the establishment of only those uses that are compatible with agricultural activities. The intent is to ensure that areas classified EFU, ERU or EFFU are preserved and protected from conflicting nonresource uses. (Ord. 86, 12-7-1993)

#### **6-3A-2: PERMITTED USES:**

A. The following uses may be permitted outright by ministerial permit in each of the three (3) resource zones except as specifically added or excluded:

1. Farm uses as defined in ORS 215.203(2), including the propagation, cultivation, maintenance and harvesting of aquatic species, excluding feedlots.
2. The propagation or harvesting of a forest product.
3. The dwellings and other buildings customarily provided in conjunction with farm or ranch use, subject to section [6-3A-4](#) of this article.
4. Subject to section [6-3A-4](#) of this article, an additional dwelling on real property used for farm or ranch use if the dwelling is:
  - a. Located on the same lot or parcel as the dwelling of the resource operator; and is
  - b. Occupied by a relative, which means grandparent, grandchild, parent, child, brother or sister of the farm or ranch operator or operator's spouse, whose assistance in the management of the resource use is or will be required by the operator.

5. Well drilling is a permitted activity, provided permits are obtained as required by state statute and this code. Development of the well for production usage shall be for agricultural or forest purposes only unless additional approval has been granted under section [6-3A-3](#) of this article.
6. Climbing and passing lanes within the right of way existing as of July 1, 1987.
7. Reconstruction or modification of public roads and highways, not including the addition of travel lanes where no removal or displacement of buildings would occur, or no new land parcels result.
8. Temporary public road and highway detours that will be abandoned and restored to original condition or use at such time as no longer needed.
9. Minor betterment of existing public roads and highway related facilities such as maintenance yards, weigh stations and rest areas, within rights of way existing as of July 1, 1987, and contiguous public owned property utilized to support the operation and maintenance of public roads and highways.
10. A replacement dwelling to be used in conjunction with farm use if the existing dwelling has been listed in a county inventory as historic property as defined in ORS 358.480.
11. Exploration only for geothermal, gravel and mineral deposits.
12. Breeding, boarding and training horses for profit.
13. Seasonal farm worker housing.
14. Utility facilities necessary for public service, including wetland waste treatment systems but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over two hundred feet (200') in height. A utility facility necessary for public service may be established as provided in ORS 215.275 and section [6-6-8-8](#), "Wireless Telecommunication Facilities" of this title. (Ord. 86, 12-7-1993; amd. Ord. 146, 4-14-2004)

### **6-3A-3: CONDITIONAL USES:**

The following conditional uses and their accessory uses may be established when authorized in accordance with [chapter 6](#) of this title:

- A. Public or private schools.
- B. Churches.
- C. Commercial utility facilities for the purpose of generating power for public use by sale.
- D. A site for the disposal of solid waste approved by the governing body of a city or county or both and for which a permit has been granted under ORS 459.245 by the department of environmental quality together with equipment, facilities or buildings necessary for its operation.
- E. Operations conducted for:



1. Exploration for and production of oil and gas as defined by ORS 520.005, including the placement of operation compressors, separators and other customary production equipment for an individual well adjacent to the wellhead.
  2. Mining and processing of geothermal resources as defined by ORS 522.005.
  3. Mining of aggregate and other mineral resources or other subsurface resources subject to section [6-4-7](#) of this title.
  4. Processing, as defined by ORS 517.750, of aggregate into asphalt or portland cement.
  5. Processing of other mineral resources and other subsurface resources.
- F. Private parks, playgrounds, hunting and fishing preserves and campgrounds.
- G. Parks, playgrounds or community centers owned and operated by a governmental agency or a nonprofit community organization.
- H. Golf courses.
- I. Personal use airports for airplanes and helicopter pads, including associated hangar, maintenance and service facilities. A "personal use airport" means an airstrip restricted, except for aircraft emergencies, to use by the owner and, on an infrequent and occasional basis, by invited guests, and by commercial aviation activities in connection with resource management operations.
- J. Commercial activities that are in conjunction with farm or ranch use.
- K. The boarding of horses for profit.
- L. Home occupations or home businesses as provided in section [6-6-8-6](#) of this title and ORS 215.448.
- M. A facility for the primary processing of forest products; provided, that such facility is found to not seriously interfere with accepted farming practices and is compatible with farm uses described in ORS 215.203(2). Such a facility may be approved for a one year period, which is renewable. These facilities are intended to be only portable or temporary in nature. The primary processing of a forest product, as used in this section, means the use of a portable chipper or stud mill or other similar methods of initial treatment of a forest product in order to enable its shipment to market. "Forest products", as used in this section, means timber grown upon a parcel of land or contiguous land where the primary processing facility is located.
- N. Residential homes as defined in ORS 197.660, in existing dwellings.
- O. Feedlots.
- P. Single-family residential dwellings not provided in conjunction with the respective resource use, except dwellings on parcels partitioned pursuant to section [6-4-4](#) of this title, which shall be established as authorized in accordance with that section.
- Q. The temporary use of a manufactured dwelling during a family hardship condition, where such condition is related to the aged, the infirm, or to persons otherwise incapable of maintaining a completely separate residence apart from their family for health reasons. The zoning permit for such

use shall note that it is temporary and subject to renewal annually without additional fee. In the event the hardship no longer exists, the removal of the temporary use shall be required. If the temporary manufactured dwelling is to be connected to an existing sewage system, compliance with applicable rules of the department of environmental quality will be required. Application for a temporary manufactured dwelling shall consist of a letter describing the nature of the hardship and any form required by the planning department.

R. Nonresource land uses and land partitions are restricted and regulated by sections [6-6-8-1](#) and [6-6-8-2](#) of this title.

S. Construction of additional passing travel lanes requiring the acquisition of right of way but not resulting in the creation of new land parcels.

T. Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of new land parcels.

U. Improvement of public roads and highway related facilities such as maintenance yards, weigh stations and rest areas, where additional property or right of way is required but not resulting in the creation of new land parcels.

V. Cemeteries in conjunction with churches.

W. Dog kennels.

X. Transmission towers over two hundred feet (200') in height. (Ord. 86, 12-7-1993; amd. Ord. 101, 4-25-1996; Ord. 146, 4-14-2004; Ord. 147, 4-14-2004; Ord. 184, 10-21-2009)

#### **6-3A-4: APPROVAL OF FARM OR RANCH DWELLINGS:**

The resource dwellings identified in subsections [6-3A-2A](#) of this article may be approved subject to a determination that the dwellings are in conjunction with the respective commercial farm or ranch use based on subsection A of this section and subsection [6-3A-5A](#) of this article and that the property and improvements constitute a commercial resource operation based on subsection C of this section.

A. Primary Resource Dwelling Determination: When determining whether a proposed primary dwelling to be permanently located on the property is "customarily provided in conjunction" with the farm or ranch use, the following factors shall be considered:

The size of the entire resource unit including all contiguous land in the same ownership; the types of farm crops and acreage for each type; operational requirements for the particular farm activity; the number of other permanent or temporary dwellings on or serving the entire farm or ranch unit (permanent and seasonal); the extent and nature of the work to be performed by occupants of the proposed dwelling.

B. Farm Hand Or Secondary Resource Dwelling: When determining whether a proposed farm hand or secondary dwelling may be provided, the following criteria shall apply:

An affidavit by the farm owner or operator making it clear the occupant will be an employee shall be signed and submitted.

C. Commercial Resource Determination: When determining whether an existing or proposed parcel is a commercial farm or ranch unit, the standards of subsection A shall be met and the following factors shall be considered:

1. Soil productivity; drainage; terrain; special soil or land conditions; availability of water; type and acreage of crops grown; crop yields; number and type of livestock; processing and marketing practices; and the amount of land needed to constitute a commercial farm or ranch unit.
  2. ORS 215.213(1)(g) and 215.283(1)(f) authorize a farm dwelling in an EFU zone only where it is shown that the dwelling will be situated on a parcel currently employed for farm use as defined in ORS 215.203. Land is not in farm use unless the day to day activities on the subject land are principally directed to the farm use of the land. Where land would be principally used for residential purposes rather than for farm use, a proposed dwelling would not be "customarily provided in conjunction with farm use" and could only be approved according to ORS 215.213(3) or 215.283(3).
- D. Notice Of Proposed Ministerial Approval: Notice of the proposed ministerial approval of a dwelling in conjunction with farm use shall be mailed to adjoining property owners. Within ten (10) days following notice to adjoining property owners, the application shall be considered for approval by the planning director. An objection by an adjoining property owner shall require any further action to be conducted by the planning commission as a conditional use permit. (Ord. 86, 12-7-1993)

## **6-3A-5: DIVISION OF LAND:**

Subdivisions and planned developments are not consistent with the purpose and intent of this zone and are prohibited. Proposed lot line adjustments and partitions of land in an EFU, ERU or EFFU zone are subject to the provisions of the Malheur County subdivision and partitioning ordinance<sup>1</sup>. In addition, proposed lot line adjustments and partitions shall meet the following requirements:

A. Resource Use: Persons proposing a division of land to create parcels for farm or ranch use shall satisfactorily demonstrate to the planning director in writing photographs, maps, charts, statistics and other easily preserved means of communication that the proposal will conform to the following requirements. Facts and collaborating evidence need to be presented in as concise and accurate a manner as is practical. Failure to bring adequate and convincing facts to bear on this issue will result in no approval being granted.

1. Is the proposed land division consistent with the state legislature's agricultural land policy as established in ORS 215.243 and 215.263(2)? How? Address each issue.
2. Are the proposed parcels appropriate for the continuation of the existing commercial agricultural operations in the area based on the evaluation prescribed in subsection [6-3A-4B](#)? Show substantiation. The evaluation shall include the subject property and commercial agricultural operations located in the same zone within one mile of the subject property.
3. Are the proposed parcels equal or greater in size than the typical commercial agricultural units in the area? Substantiate. Are they appropriate for more intensive commercial agricultural operations such as the growing of nursery stock, greenhouse or hydroponic products, the raising of small fur-bearing animals or poultry in large quantity, drylot dairies or feedlots? If so, submit a management plan for five (5) years and project an outline for the second or following five (5) years. If not, it must be shown that the proposed parcels will support commercial farm practices by being used in conjunction with other farmland in the area. A management plan is also required in this situation.

4. Will the addition and/or proposed location of new structures and other improvements on the property impose serious limitations on accepted farming practices on adjacent lands? How will this problem be avoided?
  5. Will the proposed land division materially alter the stability of the overall land use pattern of the area, assuming a principal dwelling may be allowed on the lot? Why not?
- B. Nonresource Land Partitions: Nonresource land partitions shall be approved as provided in sections [6-6-8-1](#) and [6-6-8-2](#) of this title.
- C. Financial Partitions:
1. Partitions for financial purposes which are eligible may proceed through foreclosure proceedings after notice to the county planning department. Lien and sales contracts eligible for financial partitioning are those established at the time of sale and purchase of the subject land. Following the 1989 date of adoption of this code, all property used as collateral in conjunction with the sale of property, shall conform to the size, access and other requirements of the county zoning and land division ordinance in effect at the time of the property transaction.
  2. Those parcels created by a financial partition shall be disqualified from the farm tax deferral and appropriate back taxes paid up unless one or both meet the criteria of subsection A of this section. (Ord. 86, 12-7-1993)

### **6-3A-6: DIMENSIONAL STANDARDS:**

- A. Setbacks: No building or sight obscuring fence, other than a fence or facility associated with irrigation activities, shall be located closer than forty feet (40') from a street or road right of way line and fifteen feet (15') from any other property line. No sight obscuring fence exceeding three feet (3') in height shall be placed within the forty foot (40') street setback, also within this setback shrubbery other than trees shall be maintained at heights not exceeding three feet (3'). Dwellings and inhabitable structures, including associated sewage disposal facilities and removal of vegetation, shall be prohibited within one hundred feet (100') of rivers, streams, lakes, reservoirs and other wetlands, unless topographic features make such setback unnecessary to protect riparian habitat.
- B. Lot Area: The criteria in section [6-3A-5](#) of this article shall be used to determine the appropriate parcel size.
- C. Contiguous Ownership: Contiguous lots or parcel of land under the same ownership will be considered as one lot or parcel, except that lots created by subdivisions or partitions approved in accordance with the subdivision ordinance<sup>2</sup> will be considered separate lots, regardless of whether they are under one ownership. (Ord. 86, 12-7-1993)

### **6-3A-7: CREATION OF MORTGAGE LOTS:**

A partitioning of land for the purpose of obtaining financing for farm dwellings and farm support buildings is allowed subject to the provisions of this title and the Malheur County subdivision and partitioning ordinance<sup>3</sup>. The resulting parcel and structure may not be sold separately by the owner from the parent lot from which it was originally partitioned unless allowed by this title and state law. (Ord. 86, 12-7-1993)

ARTICLE 3.00  
A-2 AGRICULTURE-GRAZING ZONE

3.01 PURPOSE

The purpose of the A-2 Zone is to protect and maintain agricultural lands for farm use, consistent with existing and future needs for agricultural products. The A-2 Zone is also intended to allow other uses that are compatible with agricultural activities, to protect forests, scenic resources and fish and wildlife habitat. It is also the purpose of the A-2 Zone to qualify farms for farm use valuation under the provisions of ORS Chapter 308.

The A-2 Zone has been applied to lands designated as Agriculture-Grazing in the Land Use Plan. The provisions of the A-2 Zone reflect the agricultural policies of the Land Use Plan as well as the requirements of ORS Chapter 215 and OAR 660-033. The minimum parcel size and other standards established by this zone are intended to promote commercial agricultural operations.

3.02 PERMITTED USES

In the A-1 Zone, the following uses and activities and their accessory buildings and uses are permitted subject to the general provisions set forth by this ordinance:

1. Farm use.
2. Propagation or harvesting of a forest product.
3. Other buildings customarily provided in conjunction with farm use.

3.03 ADMINISTRATIVE USES

The following uses may be established in an A-2 Zone subject to the review process identified in Section 24.02 (Planning Director Land Use Decision).

1. Creation of, restoration of, or enhancement of wetlands.
2. Climbing and passing lanes within the right of way existing as of July 1, 1987.
3. Reconstruction or modification of public roads and highways, including the placement of utility facilities overhead and in the subsurface of public roads and highways along the public right of way, but not including the addition of travel lanes, where no removal or displacement of buildings would occur, or no new land parcels result.
4. Temporary public road and highway detours that will be abandoned and restored to original condition or use at such time as no longer needed.

5. Irrigation reservoirs, canals, delivery lines and those structures and accessory operational facilities, not including parks or other recreational structures and facilities, associated with a district as defined in ORS 540.505.
6. Fire service facilities providing rural fire protection services.
7. Onsite filming and activities accessory to onsite filming for 45 days or less as provided for in ORS 215.306.
8. Firearms training facility in existence on September 9, 1995.
9. Dwelling customarily provided in conjunction with farm use subject to Subsection 2.05.26.B. and Section 2.07.
10. Replacement dwelling to be used in conjunction with farm use if the existing dwelling has been listed in a county inventory as historic property as defined in ORS 358.480 and listed on the National Register of Historic Places subject to Subsection 2.05.26.B.
11. Alteration, restoration, or replacement of a lawfully established dwelling subject to Subsection 2.05.26.B and Section 2.11.

#### 3.04 CONDITIONAL USES WITH GENERAL REVIEW CRITERIA

In the A-2 Zone, the following uses and their accessory buildings and uses are permitted subject to county review under Article 24.03 Quasi-Judicial land use decision and the specific standards for the use set forth in Section 3.05, as well as the general standards for the zone and the applicable standards in Article 21.00 (Conditional Uses).

1. Operations for the exploration for and production of geothermal resources as defined by ORS 522.005 and oil and gas as defined by ORS 520.005, including the placement and operation of compressors, separators and other customary production equipment for an individual well adjacent to the wellhead.
2. Operations for the exploration for minerals as defined by ORS 517.750.
3. Minor betterment of existing public road and highway related facilities such as maintenance yards, weigh stations and rest areas, within right of way existing as of July 1, 1987, and contiguous public-owned property utilized to support the operation and maintenance of public roads and highways.
4. An outdoor mass gathering of more than 3,000 persons that is expected to continue for more than 24 hours but less than 120 hours in any three-month period, as provided in ORS 433.735.

5. A facility for the processing of farm crops, biofuel or poultry subject to Subsection 2.05.1.
6. Dog training classes or testing trials subject to Subsection 3.05.5.
7. Farm stands subject to Subsection 3.05.6.
8. A winery subject to Section 3.12.
9. Agri-tourism and other commercial events or activities subject to Section 3.13.
10. Utility facility service lines subject to Subsection 3.05.14.
11. Utility facilities necessary for public service, including associated transmission lines as defined in Section 1.08 and wetland waste treatment systems, but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height as provided in Subsection 3.05.15.
12. A site for the takeoff and landing of model aircraft subject to Subsection 3.05.19.
13. Churches, and cemeteries in conjunction with churches, subject to Subsection 3.05.26.A. This use is not permitted on high value farmland except that existing churches on high value farmland may be expanded subject to Subsection 3.05.26.C.
14. Any outdoor gathering of more than 3,000 persons that is anticipated to continue for more than 120 hours in any three-month period is subject to review by the county planning commission under ORS 433.763.
15. A dwelling on property used for farm use located on the same lot or parcel as the dwelling of the farm operator, and occupied by a relative of the farm operator or farm operator's spouse if the farm operator does, or will, require the assistance of the relative in the management of the farm use subject to Subsections 3.05.3, and 3.05.26.B.
16. Accessory farm dwellings for year-round and seasonal farm workers subject to Subsection 3.05.26.B. and Section 3.08.
17. One single-family dwelling on a lawfully created lot or parcel subject to Subsection 3.05.26.B and Section 3.09.
18. Single-family residential dwelling, not provided in conjunction with farm use subject to Subsection 3.05.26.B and Section 3.10.
19. A facility for the primary processing of forest products subject to Subsection 3.05.1.



20. The propagation, cultivation, maintenance and harvesting of aquatic species that are not under the jurisdiction of the Oregon Fish and Wildlife Commission or insect species.
21. Temporary hardship dwelling subject to Subsection 3.05.4.
22. Residential home or facility as defined in ORS 197.660, in existing dwellings, subject to Subsection 3.05.26.B.
23. Room and board arrangements for a maximum of five unrelated persons in existing residences subject to Subsection 3.05.26.B.
24. Parking of up to seven log trucks.
25. Home occupations as provided in Subsection 3.05.7.
26. Commercial dog boarding kennels or dog training classes or testing trials that cannot be established under Subsection 3.05.5.
27. An aerial fireworks display business that has been in continuous operation at its current location since December 31, 1986, and possesses a wholesaler's permit to sell or provide fireworks.
28. A landscape contracting business, as defined in ORS 671.520, or a business providing landscape architecture services, as described in ORS 671.318, if the business is pursued in conjunction with the growing and marketing of nursery stock on the land that constitutes farm use.
29. Commercial activities in conjunction with farm use, including the processing of farm crops into biofuel not permitted under Subsection 3.04.5, subject to 3.05.9.
30. Guest ranch subject to Subsection 3.05.8.
31. Operations conducted for mining and processing of geothermal resources as defined by ORS 522.005 and oil and gas as defined by ORS 520.005 not otherwise permitted.
32. Operations conducted for mining, crushing or stockpiling of aggregate and other mineral and other subsurface resources subject to ORS 215.298.
33. Processing as defined by ORS 517.750 of aggregate into asphalt or portland cement subject to 3.05.10.
34. Processing of other mineral resources and other subsurface resources.

35. Construction of additional passing and travel lanes requiring the acquisition of right of way but not resulting in the creation of new land parcels.
36. Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of new land parcels.
37. Improvement of public road and highway related facilities, such as maintenance yards, weigh stations and rest areas, where additional property or right of way is required but not resulting in the creation of new land parcels and subject to OAR 660-012-0065 where applicable.
38. Transportation improvements on rural lands allowed by and subject to the requirements of OAR 660-012-0065.
39. Personal use airports for airplanes and helicopter pads, including associated hangar, maintenance and service facilities subject to Subsection 3.05.12.
40. Transmission towers over 200 feet in height.
41. Commercial utility facilities for the purpose of generating power for public use by sale, not including wind power generation facilities or photovoltaic solar power generation facilities subject to Subsection 3.14.1.
42. Wind power generation facilities as commercial utility facilities for the purpose of generating power for public use by sale subject to Subsection 3.14.2.
43. Photovoltaic solar power generation facilities as commercial utility facilities for the purpose of generating power for public use by sale subject to Subsection 3.14.3.
44. A site for the disposal of solid waste for which a permit has been granted under ORS 459.245 by the Department of Environmental Quality together with equipment, facilities or buildings necessary for its operation. This use is not permitted on high value farmland except that existing facilities on high value farmland may be expanded subject to Subsection 3.05.26.C.
45. Composting facilities for which a permit has been granted by the Department of Environmental Quality under ORS 459.245 and OAR 340-093-0050 and 340-096-0060 subject to Subsection 2.05.17. This use is not permitted on high value farmland except that existing facilities on high value farmland may be expanded subject to Subsection 3.05.26.C.
46. Onsite filming and activities accessory to onsite filming for more than 45 days as provided for in ORS 215.306.

47. Living history museum as defined in Section 1.08. and subject to Subsections 2.05.20 and 3.05.26.A.
48. Community centers owned by a governmental agency or a nonprofit organization and operated primarily by and for residents of the local rural community subject to Subsections 3.05.21 and 3.05.26.A.
49. Public parks and playgrounds subject to Subsections 3.05.22 and 3.06.25.A.
50. Expansion of existing county fairgrounds and activities directly relating to county fairgrounds governed by county fair boards established pursuant to ORS 565.210.
51. Operations for the extraction and bottling of water.
52. Public or private schools for kindergarten through grade 12, including all buildings essential to the operation of a school, primarily for residents of the rural area in which the school is located, subject to Subsection 3.05.26.A. This use is not permitted on high value farmland except that existing schools on high value farmland may be expanded subject to Subsections 3.05.23 and 3.05.26.C.
53. Private parks, playgrounds, hunting and fishing preserves, and campgrounds subject to Subsections 3.05.24 and 3.05.26.A. This use is not permitted on high value farmland except that existing private parks on high value farmland may be expanded subject to Subsection 3.05.26.C.
54. Golf courses as defined in Section 1.08 and subject to Subsections 3.05.25 and 3.05.26.A. This use is not permitted on high value farmland as defined in ORS 195.300 except that existing golf courses on high-value farmland may be expanded subject to Subsection 3.05.26.C.

### 3.05 USE STANDARDS

1. A farm on which a processing facility is located must provide at least one-quarter of the farm crops processed at the facility. A farm may also be used for an establishment for the slaughter, processing or selling of poultry or poultry products pursuant to ORS 603.038. If a building is established or used for the processing facility or establishment, the farm operator may not devote more than 10,000 square feet of floor area to the processing facility or establishment, exclusive of the floor area designated for preparation, storage or other farm use. A processing facility or establishment must comply with all applicable siting standards but the standards may not be applied in a manner that prohibits the siting of the processing facility or establishment. A county may not approve any division of a lot or parcel that separates a processing facility or establishment from the farm operation on which it is located.

2. A facility for the primary processing of forest products shall not seriously interfere with accepted farming practices and shall be compatible with farm uses described in Section 1.08. Such facility may be approved for a one-year period that is renewable and is intended to be only portable or temporary in nature. The primary processing of a forest product, as used in this section, means the use of a portable chipper or stud mill or other similar methods of initial treatment of a forest product in order to enable its shipment to market. Forest products as used in this section means timber grown upon a tract where the primary processing facility is located.
3. To qualify for a relative farm help dwelling, a dwelling shall be occupied by relatives whose assistance in the management and farm use of the existing commercial farming operation is required by the farm operator. The farm operator shall continue to play the predominant role in the management and farm use of the farm.
4. A temporary hardship dwelling is subject to the following:
  - A. One manufactured dwelling, or recreational vehicle, or the temporary residential use of an existing building may be allowed in conjunction with an existing dwelling as a temporary use for the term of the hardship suffered by the existing resident or relative, subject to the following:
    - (1) The manufactured dwelling shall use the same subsurface sewage disposal system used by the existing dwelling, if that disposal system is adequate to accommodate the additional dwelling. If the manufactured home will use a public sanitary sewer system, such condition will not be required;
    - (2) Doctor certification;
    - (3) The county shall review the permit authorizing such manufactured homes every two years; and
    - (4) Within three months of the end of the hardship, the manufactured dwelling or recreational vehicle shall be removed or demolished or, in the case of an existing building, the building shall be removed, demolished or returned to an allowed nonresidential use.
  - B. A temporary residence approved under this section is not eligible for replacement under Subsection 3.03.11. Department of Environmental Quality review and removal requirements also apply.
  - C. As used in this section “hardship” means a medical hardship or hardship for the care of an aged or infirm person or persons as determined by a certified doctor.

5. Dog training classes or testing trials conducted outdoors, or in farm buildings that existed on January 1, 2013, are limited as follows:
  - D. The number of dogs participating in training does not exceed 10 per training class and the number of training classes to be held on-site does not exceed six per day; and
  - E. The number of dogs participating in a testing trial does not exceed 60 and the number of testing trials to be conducted on-site does not exceed four per calendar year.
6. A farm stand may be approved if:
  - F. The structures are designed and used for sale of farm crops and livestock grown on the farm operation, or grown on the farm operation and other farm operations in the local agricultural area, including the sale of retail incidental items and fee-based activity to promote the sale of farm crops or livestock sold at the farm stand if the annual sales of the incidental items and fees from promotional activity do not make up more than 25 percent of the total annual sales of the farm stand.

Fee-based promotional activities may include farm-to-plate dinners and small-scale gatherings like farm-themed birthday parties, but not large-scale gatherings like weddings. Food carts may only be allowed if used for the sale of farm crops or livestock grown on the farm operation.
  - G. The farm stand does not include structures designed for occupancy as a residence or for activities other than the sale of farm crops and livestock and does not include structures for banquets, public gatherings or public entertainment.
  - H. As used in this section, "farm crops or livestock" includes both fresh and processed farm crops and livestock grown on the farm operation, or grown on the farm operation and other farm operations in the local agricultural area. As used in this subsection, "processed crops and livestock" includes jams, syrups, apple cider, animal products and other similar farm crops and livestock that have been processed and converted into another product but not prepared food items.
  - I. As used in this section, "local agricultural area" includes Oregon or an adjacent county in Washington, Idaho, Nevada or California that borders the Oregon county in which the farm stand is located.
  - J. Farm Stand Development Standards

- (1) Adequate off-street parking will be provided pursuant to provisions of the County.
- (2) Roadways, driveway aprons, driveways and parking surfaces shall be surfaces that prevent dust, and may include paving, gravel, cinders, or bark/wood chips.
- (3) All vehicle maneuvering will be conducted on site. No vehicle backing or maneuvering shall occur within adjacent roads, streets or highways.
- (4) No farm stand building or parking is permitted within the right-of-way.
- (5) Approval is required from the County Public Works Department regarding adequate egress and access. All egress and access points shall be clearly marked.
- (6) Vision clearance areas. No visual obstruction (e.g., sign, structure, solid fence, wall, planting or shrub vegetation) may exceed three (3) feet in height within “vision clearance areas” at street intersections.
  - (a) Service drives shall have a minimum clear-vision area formed by the intersection of the driveway centerline, the road right-of-way line, and a straight line joining said lines through points twenty (20) feet from their intersection.
  - (b) Height is measured from the top of the curb or, where no curb exists, from the established street center line grade.
  - (c) Trees exceeding three (3) feet in height may be located in this area, provided all branches and foliage are removed to a height of eight (8) feet above grade.
- (7) All outdoor light fixtures shall be directed downward, and have full cutoff and full shielding to preserve views of the night sky and to minimize excessive light spillover onto adjacent properties, roads and highways, except as provided for up-lighting of flags and permitted building-mounted signs.
- (8) Signs are permitted consistent with Section 3.17 Development Standards.

K. Permit approval is subject to compliance with the Department of Environmental Quality Subsurface Sewage Disposal Program or Department of Agriculture requirements and with the development standards of this zone.

7. Home occupations:

L. A home occupation shall:

- (1) Be operated by a resident or employee of a resident of the property on which the business is located;
- (2) Employ on the site no more than one full-time or part-time persons at any given time;
- (3) Be operated substantially in:
  - (a) No more than 49% of the dwelling; or
  - (b) Other buildings where no more than 1,200 square feet is used for the home occupation and the building is normally associated with uses permitted in the zone where the property is located, except that such other buildings may not be utilized as bed and breakfast facilities or rental units unless they are legal residences.
- (4) Not unreasonably interfere with other uses permitted in the zone in which the property is located.
- (5) When a bed and breakfast facility is sited as a home occupation on the same tract as a winery established under Subsection 2.05.8. and is operated in association with the winery:
  - (a) The bed and breakfast facility may prepare and serve two meals per day to the registered guests of the bed and breakfast facility; and
  - (b) The meals may be served at the bed and breakfast facility or at the winery.
- (6) The home occupation shall be accessory to an existing, permanent dwelling on the same parcel.
- (7) No materials or mechanical equipment shall be used which will be detrimental to the residential use of the property or adjoining residences because of vibration, noise, dust, smoke, odor, interference with radio or television reception, or other factors.
- (8) All off-street parking must be provided on the subject parcel where the home occupation is operated.



- (a) Employees must use an approved off-street parking area.
    - (b) Customers visiting the home occupation must use an approved off-street parking area.
  - (9) One (1) sign identifying the home and occupation is permitted, not to exceed a total of 32 square feet in area and located outside of the public right of way.
  - (10) Retail sales shall be limited or accessory to a service.
  - (11) Auto or vehicle oriented activities (repair, painting, detailing, wrecking, transportation services, or similar activities) shall be prohibited.
8. A guest ranch must comply with the following provisions:
- M. Definitions
    - (1) “Guest lodging unit” means a guest room in a lodge, bunkhouse, cottage or cabin used only for transient overnight lodging and not for a permanent residence.
    - (2) “Guest ranch” means a facility for guest lodging units, passive recreational activities described in paragraph F and food services described in paragraph G that are incidental and accessory to an existing and continuing livestock operation that qualifies as a farm use.
    - (3) “Livestock” means cattle, sheep, horses and bison.
  - N. A guest ranch may be established unless the proposed site of the guest ranch is within the boundaries of or surrounded by:
    - (1) A federally designated wilderness area or a wilderness study area;
    - (2) A federally designated wildlife refuge;
    - (3) A federally designated area of critical environmental concern; or
    - (4) An area established by an Act of Congress for the protection of scenic or ecological resources.
  - O. The guest ranch must be located on a lawfully established unit of land that:
    - (1) Is at least 160 acres;

- (2) Contains the dwelling of the individual conducting the livestock operation; and
  - (3) Is not high-value farmland.
- P. Except as provided in paragraph E, the guest lodging units of the guest ranch cumulatively must:
  - (1) Include not fewer than four nor more than 10 overnight guest lodging units; and
  - (2) Not exceed a total of 12,000 square feet in floor area, not counting the floor area of a lodge that is dedicated to kitchen area, rest rooms, storage or other shared or common indoor space.
- Q. For every increment of 160 acres that the lawfully established unit of land on which the guest ranch is located exceeds the minimum 160-acre requirement described in paragraph C, up to five additional overnight guest lodging units not exceeding a total of 6,000 square feet of floor area may be included in the guest ranch for a total of not more than 25 guest lodging units and 30,000 square feet of floor area.
- R. A guest ranch may provide passive recreational activities that can be provided in conjunction with the livestock operation's natural setting including, but not limited to, hunting, fishing, hiking, biking, horseback riding, camping and swimming. A guest ranch may not provide intensively developed recreational facilities, including golf courses as identified in ORS 215.283.
- S. A guest ranch may provide food services only for guests of the guest ranch, individuals accompanying the guests and individuals attending a special event at the guest ranch. The cost of meals, if any, may be included in the fee to visit or stay at the guest ranch. A guest ranch may not sell individual meals to an individual who is not a guest of the guest ranch, an individual accompanying a guest or an individual attending a special event at the guest ranch.
- T. Notwithstanding ORS 215.283, the governing body of a county or its designee may not allow a guest ranch in conjunction with:
  - (1) A campground as described in ORS 215.283 (2).
  - (2) A golf course as described in ORS 215.283 (2).

- U. Notwithstanding ORS 215.263, the governing body of a county or its designee may not approve a proposed division of land:
  - (1) for a guest ranch; or
  - (2) to separate the guest ranch from the dwelling of the individual conducting the livestock operation.
- 9. Commercial activities in conjunction with farm use may be approved when:
  - V. The commercial activity is either exclusively or primarily a customer or supplier of farm products;
  - W. The commercial activity is limited to providing products and services essential to the practice of agriculture by surrounding agricultural operations that are sufficiently important to justify the resulting loss of agricultural land to the commercial activity; or
  - X. The commercial activity significantly enhances the farming enterprises of the local agricultural community, of which the land housing the commercial activity is a part. Retail sales of products or services to the general public that take place on a parcel or tract that is different from the parcel or tract on which agricultural product is processed, such as a tasting room with no on-site winery, are not commercial activities in conjunction with farm use.
- 10. Facilities that batch and blend mineral and aggregate into asphalt cement may not be authorized within two miles of a planted vineyard. Planted vineyard means one or more vineyards totaling 40 acres or more that are planted as of the date the application for batching and blending is filed.
- 11. Mining, crushing or stockpiling of aggregate and other mineral and subsurface resources are subject to the following:
  - Y. A land use permit is required for mining more than one thousand (1,000) cubic yards of material or excavation preparatory to mining of a surface area of more than one (1) acre.
  - Z. A land use permit for mining of aggregate shall be issued only for a site included on a mineral or aggregate inventory in the land use plan.

12. A personal use airport, as used in this Article, prohibits aircraft other than those owned or controlled by the owner of the airstrip. Exceptions to the activities allowed under this definition may be granted through waiver action by the Oregon Department of Aviation in specific instances. A personal use airport lawfully existing as of September 13, 1975, shall continue to be allowed subject to any applicable rules of the Oregon Department of Aviation.
13. Land Application of Reclaimed or Process Water, agricultural process or industrial process water or biosolids for agricultural, horticultural or silvicultural production, or for irrigation in connection with a use allowed in an EFU zone is subject to the issuance of a license, permit or other approval by the Department of Environmental Quality under ORS 454.695, 459.205, 468B.050, 468B.053 or 468B.055, or in compliance with rules adopted under 468B.095, and with the requirements of 215.246, 215.247, 215.249 and 215.251.
  - AA. Compost facility operators must prepare, implement and maintain a site-specific Odor Minimization Plan that:
    - (1) Meets the requirements of OAR 340-096-0150;
    - (2) Identifies the distance of the proposed operation to the nearest residential zone;
    - (3) Includes a complaint response protocol;
    - (4) Is submitted to the DEQ with the required permit application; and
    - (5) May be subject to annual review by the county to determine if any revisions are necessary.
  - BB. Compost operations subject to Section 2.05.15 include:
    - (1) A new disposal site for composting that sells, or offers for sale, resulting product; or
    - (2) An existing disposal site for composting that sells, or offers for sale, resulting product that:
      - (a) Accepts as feedstock non-vegetative materials, including dead animals, meat, dairy products and mixed food waste (type 3 feedstock); or
      - (b) Increases the permitted annual tonnage of feedstock used by the disposal site by an amount that requires a new land use approval.

14. Utility facility service lines are utility lines and accessory facilities or structures that end at the point where the utility service is received by the customer and that are located on one or more of the following:
  - CC. A public right of way;
  - DD. Land immediately adjacent to a public right of way, provided the written consent of all adjacent property owners has been obtained; or
  - EE. The property to be served by the utility.
15. A utility facility that is necessary for public service
  - FF. A utility facility is necessary for public service if the facility must be sited in the exclusive farm use zone in order to provide the service. To demonstrate that a utility facility is necessary, an applicant must show that reasonable alternatives have been considered and that the facility must be sited in an exclusive farm use zone due to one or more of the following factors:
    - (1) Technical and engineering feasibility;
    - (2) The proposed facility is locationally-dependent. A utility facility is locationally-dependent if it must cross land in one or more areas zoned for exclusive farm use in order to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;
    - (3) Lack of available urban and non-resource lands;
    - (4) Availability of existing rights of way;
    - (5) Public health and safety; and
    - (6) Other requirements of state and federal agencies.
  - GG. Costs associated with any of the factors listed in subparagraph A. of this paragraph may be considered, but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations for substantially similar utility facilities and the siting of utility facilities that are not substantially similar.

- HH. The owner of a utility facility approved under paragraph A shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this paragraph shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.
- II. The county shall impose clear and objective conditions on an application for utility facility siting to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on surrounding farmlands.
- JJ. Utility facilities necessary for public service may include on-site and off-site facilities for temporary workforce housing for workers constructing a utility facility. Such facilities must be removed or converted to an allowed use under the A-1 Zone or other statute or rule when project construction is complete. Off-site facilities allowed under this paragraph are subject to Section 2.06 Conditional Use Review Criteria. Temporary workforce housing facilities not included in the initial approval may be considered through a minor amendment request. A minor amendment request shall have no effect on the original approval.
- KK. In addition to the provisions of subparagraphs A to D of this paragraph, the establishment or extension of a sewer system as defined by OAR 660-011-0060(1)(f) shall be subject to the provisions of 660-011-0060.
- LL. The provisions of subparagraphs A to D of this paragraph do not apply to interstate natural gas pipelines and associated facilities authorized by and subject to regulation by the Federal Energy Regulatory Commission.
- 16. An associated transmission line is necessary for public service upon demonstration that the associated transmission line meets either the following requirements of subparagraph A or subparagraph B of this paragraph.
  - MM. An applicant demonstrates that the entire route of the associated transmission line meets at least one of the following requirements:
    - (1) The associated transmission line is not located on high-value farmland, as defined in ORS 195.300, or on arable land;

- (2) The associated transmission line is co-located with an existing transmission line;
  - (3) The associated transmission line parallels an existing transmission line corridor with the minimum separation necessary for safety; or
  - (4) The associated transmission line is located within an existing right of way for a linear facility, such as a transmission line, road or railroad, that is located above the surface of the ground.
- NN. After an evaluation of reasonable alternatives, an applicant demonstrates that the entire route of the associated transmission line meets, subject to paragraphs 16(C) and 16(D), two or more of the following criteria:
- (1) Technical and engineering feasibility;
  - (2) The associated transmission line is locationally-dependent because the associated transmission line must cross high-value farmland, as defined in ORS 195.300, or arable land to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;
  - (3) Lack of an available existing right of way for a linear facility, such as a transmission line, road or railroad, that is located above the surface of the ground;
  - (4) Public health and safety; or
  - (5) Other requirements of state or federal agencies.
- OO. As pertains to paragraph 16.B the applicant shall demonstrate how the applicant will mitigate and minimize the impacts, if any, of the associated transmission line on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmland.
- PP. The county may consider costs associated with any of the factors listed in subparagraph 16.B, but consideration of cost may not be the only consideration in determining whether the associated transmission line is necessary for public service.



17. Composting operations and facilities shall meet the performance and permitting requirements of the Department of Environmental Quality under OAR 340-093-0050 and 340-096-0060. Buildings and facilities used in conjunction with the composting operation shall only be those required for the operation of the subject facility. Onsite sales shall be limited to bulk loads of at least one unit (7.5 cubic yards) in size that are transported in one vehicle. This use is not permitted on high value farmland except that existing facilities on high value farmland may be expanded subject to Subsection 2.05.26.C.
18. Solid waste disposal facilities shall meet the performance and permitting requirements of the Department of Environmental Quality under ORS 459.245, shall meet the requirements of Section 2.06 and shall comply with the following requirements.
  - QQ. The facility shall be designed to minimize conflicts with existing and permitted uses allowed under plan designations for adjacent parcels as outlined in policies of the Land Use Plan.
  - RR. The facility must be of a size and design to minimize noise or other detrimental effects when located adjacent to farm, forest and grazing dwelling(s) or a residential zone.
  - SS. The facility shall be fenced when the site is located adjacent to dwelling(s) or a residential zone and landscaping, buffering and/or screening shall be provided.
  - TT. The facility does not constitute an unnecessary fire hazard. If located in a forested area, the county shall condition approval to ensure that minimum fire safety measures will be taken, which may include but are not limited to the following:
    - (1) The area surrounding the facility is kept free from litter and debris.
    - (2) Fencing will be installed around the facility, if deemed appropriate to protect adjacent farm crops or timber stand.
    - (3) If the proposed facility is located in a forested area, construction materials shall be fire resistant or treated with a fire retardant substance and the applicant will be required to remove forest fuels within 30 feet of structures.
  - UU. The facility shall adequately protect fish and wildlife resources by meeting minimum Oregon State Department of Forestry regulations.

- VV. Access roads or easements for the facility shall be improved to the county's Transportation System Plan standards and comply with grades recommended by the Public Works Director.
- WW. Road construction for the facility must be consistent with the intent and purposes set forth in the Oregon Forest Practices Act to minimize soil disturbance and help maintain water quality.
- XX. Hours of operation for the facility shall be limited to 8 am – 7 pm.
- YY. Comply with other conditions deemed necessary.
19. Buildings and facilities associated with a site for the takeoff and landing of model aircraft shall not be more than 500 square feet in floor area or placed on a permanent foundation unless the building or facility preexisted the use approved under this section. The site shall not include an aggregate surface or hard surface area unless the surface preexisted the use approved under this section. An owner of property used for the purpose authorized in this section may charge a person operating the use on the property rent for the property. An operator may charge users of the property a fee that does not exceed the operator's cost to maintain the property, buildings and facilities. As used in this section, "model aircraft" means a small-scale version of an airplane, glider, helicopter, dirigible or balloon that is used or intended to be used for flight and is controlled by radio, lines or design by a person on the ground.
20. A living history museum shall be related to resource based activities and shall be owned and operated by a governmental agency or a local historical society. A living history museum may include limited commercial activities and facilities that are directly related to the use and enjoyment of the museum and located within authentic buildings of the depicted historic period or the museum administration building, if areas other than an exclusive farm use zone cannot accommodate the museum and related activities or if the museum administration buildings and parking lot are located within one quarter mile of an urban growth boundary. "Local historical society" means the local historical society, recognized as such by the county governing body and organized under ORS Chapter 65.
21. A community center may provide services to veterans, including but not limited to emergency and transitional shelter, preparation and service of meals, vocational and educational counseling and referral to local, state or federal agencies providing medical, mental health, disability income replacement and substance abuse services, only in a facility that is in existence on January 1, 2006. The services may not include direct delivery of medical, mental health, disability income replacement or substance abuse services.

22. Public parks may include:
- A. All uses authorized under ORS 215.283;
  - B. The following uses, if authorized in a local or park master plan that is adopted as part of the local Land Use Plan, or if authorized in a state park master plan that is adopted by OPRD:
    - (1) Campground areas: recreational vehicle sites; tent sites; camper cabins; yurts; teepees; covered wagons; group shelters; campfire program areas; camp stores;
    - (2) Day use areas: picnic shelters, barbecue areas, swimming areas (not swimming pools), open play fields, play structures;
    - (3) Recreational trails: walking, hiking, biking, horse, or motorized off-road vehicle trails; trail staging areas;
    - (4) Boating and fishing facilities: launch ramps and landings, docks, moorage facilities, small boat storage, boating fuel stations, fish cleaning stations, boat sewage pumpout stations;
    - (5) Amenities related to park use intended only for park visitors and employees: laundry facilities; recreation shops; snack shops not exceeding 1500 square feet of floor area;
    - (6) Support facilities serving only the park lands wherein the facility is located: water supply facilities, sewage collection and treatment facilities, storm water management facilities, electrical and communication facilities, restrooms and showers, recycling and trash collection facilities, registration buildings, roads and bridges, parking areas and walkways;
    - (7) Park Maintenance and Management Facilities located within a park: maintenance shops and yards, fuel stations for park vehicles, storage for park equipment and supplies, administrative offices, staff lodging; and

- (8) Natural and cultural resource interpretative, educational and informational facilities in state parks: interpretative centers, information/orientation centers, self-supporting interpretative and informational kiosks, natural history or cultural resource museums, natural history or cultural educational facilities, reconstructed historic structures for cultural resource interpretation, retail stores not exceeding 1500 square feet for sale of books and other materials that support park resource interpretation and education.
  - C. Visitor lodging and retreat facilities if authorized in a state park master plan that is adopted by OPRD: historic lodges, houses or inns and the following associated uses in a state park retreat area only:
    - (1) Meeting halls not exceeding 2000 square feet of floor area;
    - (2) Dining halls (not restaurants).
- 23. Schools as formerly allowed pursuant to ORS 215.283(1)(a) that were established on or before January 1, 2009, may be expanded if:
  - A. The Conditional Use Review Criteria in Section 2.06 are met; and
  - B. The expansion occurs on the tax lot on which the use was established on or before January 1, 2009 or a tax lot that is contiguous to the tax lot and that was owned by the applicant on January 1, 2009.

24. Private Campgrounds are subject to the following:
- A. Except on a lot or parcel contiguous to a lake or reservoir, private campgrounds shall not be allowed within three miles of an urban growth boundary unless an exception is approved pursuant to ORS 197.732 and OAR chapter 660, division 4. A campground shall be designed and integrated into the rural agricultural and forest environment in a manner that protects the natural amenities of the site and provides buffers of existing native trees and vegetation or other natural features between campsites. Campgrounds shall not include intensively developed recreational uses such as swimming pools, tennis courts, retail stores or gas stations. Overnight temporary use in the same campground by a camper or camper's vehicle shall not exceed a total of 30 days during any consecutive six-month period.
  - B. Campsites may be occupied by a tent, travel trailer, yurt or recreational vehicle. Separate sewer, water or electric service hook-ups shall not be provided to individual camp sites except that electrical service may be provided to yurts allowed by paragraph C.
  - C. A private campground may provide yurts for overnight camping. No more than one-third or a maximum of 10 campsites, whichever is smaller, may include a yurt. The yurt shall be located on the ground or on a wood floor with no permanent foundation.
25. Accessory uses provided as part of a golf course shall be limited consistent with the following standards:
- A. An accessory use to a golf course is a facility or improvement that is incidental to the operation of the golf course and is either necessary for the operation and maintenance of the golf course or that provides goods or services customarily provided to golfers at a golf course. An accessory use or activity does not serve the needs of the non-golfing public. Accessory uses to a golf course may include: parking; maintenance buildings; cart storage and repair; practice range or driving range; clubhouse; restrooms; lockers and showers; food and beverage service; pro shop; a practice or beginners course as part of an 18 hole or larger golf course; or golf tournament. Accessory uses to a golf course do not include: Sporting facilities unrelated to golfing such as tennis courts, swimming pools, and weight rooms; wholesale or retail operations oriented to the non-golfing public; or housing;

- B. Accessory uses shall be limited in size and orientation on the site to serve the needs of persons and their guests who patronize the golf course to golf. An accessory use that provides commercial services (e.g., pro shop, etc.) shall be located in the clubhouse rather than in separate buildings; and
- C. Accessory uses may include one or more food and beverage service facilities in addition to food and beverage service facilities located in a clubhouse. Food and beverage service facilities must be part of and incidental to the operation of the golf course and must be limited in size and orientation on the site to serve only the needs of persons who patronize the golf course and their guests. Accessory food and beverage service facilities shall not be designed for or include structures for banquets, public gatherings or public entertainment.

26. General Standards.

- A. Three-mile setback from the Urban Growth Boundary (UGB). For uses subject to this subsection:
  - (1) No enclosed structure with a design capacity greater than 100 people, or group of structures with a total design capacity of greater than 100 people, shall be approved in connection with the use within three miles of an urban growth boundary, unless an exception is approved pursuant to ORS 197.732 and OAR chapter 660, division 4, or unless the structure is described in a master plan adopted under the provisions of OAR chapter 660, division 34.
  - (2) Any enclosed structures or group of enclosed structures described in paragraph (1) within a tract must be separated by at least one-half mile. For purposes of this Subsection, “tract” means a tract that is in existence as of June 17, 2010.
  - (3) Existing facilities wholly within a farm use zone may be maintained, enhanced or expanded on the same tract, subject to other requirements of law, but enclosed existing structures within a farm use zone within three miles of an urban growth boundary may not be expanded beyond the requirements of this ordinance.
- B. Single-family dwelling deeds. The landowner shall sign and record in the deed records for the county a document binding the landowner, and the landowner's successors in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.

- C. Expansion standards. Existing facilities wholly within a farm use zone may be maintained, enhanced or expanded on the same tract, subject to other requirements of law. An existing golf course may be expanded consistent with the requirements of Subsection 2.04.54 and Section 2.06.

### 3.06 CONDITIONAL USE REVIEW CRITERIA

- 1. An applicant for a use permitted in Section 3.04 must demonstrate compliance with the following criteria in addition to the applicable standards in Article 21.00 and subject to the review process identified in Section 24.03.
- 2. The use will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and
- 3. The use will not significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.

### 3.07 DWELLINGS CUSTOMARILY PROVIDED IN CONJUNCTION WITH FARM USE

- 1. Large Tract Standards. On land not identified as high-value farmland as defined in Section 1.08, a dwelling may be considered customarily provided in conjunction with farm use if:
  - A. The parcel on which the dwelling will be located is at least:
    - (1) 160 acres and not designated rangeland; or
    - (2) 320 acres and designated rangeland.
  - B. The subject tract is currently employed for farm use.
  - C. The dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land, such as planting, harvesting, marketing or caring for livestock, at a commercial scale.
  - D. Except for an accessory farm dwelling, there is no other dwelling on the subject tract.
- 2. Farm Capability Standards.
  - A. On land not identified as high-value farmland pursuant to OAR 660-033-0020(8), a dwelling may be considered customarily provided in conjunction with farm use if:



- (1) The subject tract is at least as large as the median size of those commercial farm or ranch tracts capable of generating at least \$10,000 in annual gross sales that are located within a study area that includes all tracts wholly or partially within one mile from the perimeter of the subject tract;
- (2) The subject tract is capable of producing at least the median level of annual gross sales of county indicator crops as the same commercial farm or ranch tracts used to calculate the tract size in subparagraph (1);
- (3) The subject tract is currently employed for a farm use, as defined in ORS 215.203, at a level capable of producing the annual gross sales required in subparagraph (1);
- (4) The subject lot or parcel on which the dwelling is proposed is not less than 20 acres;
- (5) Except for an accessory farm dwelling, there is no other dwelling on the subject tract;
- (6) The dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land, such as planting, harvesting, marketing or caring for livestock, at a commercial scale; and
- (7) If no farm use has been established at the time of application, land use approval shall be subject to a condition that no building permit may be issued prior to the establishment of the farm use required by subparagraph (3).

B. In order to identify the commercial farm or ranch tracts to be used in subparagraph A, the potential gross sales capability of each tract in the study area, including the subject tract, must be determined, using the gross sales figures prepared by the county pursuant to OAR 660-044-0135(2)(c).

3. Farm Income Standards (non-high value). On land not identified as high-value farmland, a dwelling may be considered customarily provided in conjunction with farm use if:

A. The subject tract is currently employed for the farm use on which, in each of the last two years or three of the last five years, or in an average of three of the last five years, the farm operator earned the lower of the following:

- (1) At least \$40,000 in gross annual income from the sale of farm products; or

- (2) Gross annual income of at least the midpoint of the median income range of gross annual sales for farms in the county with gross annual sales of \$10,000 or more according to the 1992 Census of Agriculture, Oregon; and
  - B. Except for an accessory farm dwelling, there is no other dwelling on lands designated for exclusive farm use pursuant to ORS Chapter 215 owned by the farm or ranch operator or on the farm or ranch operation;
  - C. The dwelling will be occupied by a person or persons who produced the commodities that grossed the income in paragraph A; and
  - D. In determining the gross income required by paragraph A:
    - (1) The cost of purchased livestock shall be deducted from the total gross income attributed to the farm or ranch operation;
    - (2) Only gross income from land owned, not leased or rented, shall be counted; and
    - (3) Gross farm income earned from a lot or parcel that has been used previously to qualify another lot or parcel for the construction or siting of a primary farm dwelling may not be used.
4. Farm Income Standards (high-value). On land identified as high-value farmland, a dwelling may be considered customarily provided in conjunction with farm use if:
- A. The subject tract is currently employed for the farm use on which the farm operator earned at least \$80,000 in gross annual income from the sale of farm products in each of the last two years or three of the last five years, or in an average of three of the last five years; and
  - B. Except for an accessory farm dwelling, there is no other dwelling on lands designated for exclusive farm use owned by the farm or ranch operator or on the farm or ranch operation; and
  - C. The dwelling will be occupied by a person or persons who produced the commodities that grossed the income in paragraph A;
  - D. In determining the gross income required by paragraph A:
    - (1) The cost of purchased livestock shall be deducted from the total gross income attributed to the farm or ranch operation;

- (2) Only gross income from land owned, not leased or rented, shall be counted; and
- (3) Gross farm income earned from a lot or parcel that has been used previously to qualify another lot or parcel for the construction or siting of a primary farm dwelling may not be used.

5. Additional Farm Income Standards

- A. For the purpose of Subsections 3.07.3 or 3.07.4, noncontiguous lots or parcels zoned for farm use in the same county or contiguous counties may be used to meet the gross income requirements. Lots or parcels in eastern or western Oregon may not be used to qualify a dwelling in the other part of the state.
- B. Prior to the final approval for a dwelling authorized by Subsections 3.07.3 or 3.07.4 that requires one or more contiguous or non-contiguous lots or parcels of a farm or ranch operation to comply with the gross farm income requirements, the applicant shall provide evidence that the covenants, conditions and restrictions form adopted as "Exhibit A" to OAR chapter 660, division 33 has been recorded with the county clerk of the county or counties where the property subject to the covenants, conditions and restrictions is located. The covenants, conditions and restrictions shall be recorded for each lot or parcel subject to the application for the primary farm dwelling and shall preclude:
  - (1) All future rights to construct a dwelling except for accessory farm dwellings, relative farm assistance dwellings, temporary hardship dwellings or replacement dwellings allowed by ORS Chapter 215; and
  - (2) The use of any gross farm income earned on the lots or parcels to qualify another lot or parcel for a primary farm dwelling.
- C. The covenants, conditions and restrictions are irrevocable, unless a statement of release is signed by an authorized representative of the county or counties where the property subject to the covenants, conditions and restrictions is located;
- D. Enforcement of the covenants, conditions and restrictions may be undertaken by the Department of Land Conservation and Development or by the county or counties where the property subject to the covenants, conditions and restrictions is located;

- E. The failure to follow the requirements of this section shall not affect the validity of the transfer of property or the legal remedies available to the buyers of property that is subject to the covenants, conditions and restrictions required by this section;
  - F. The planning director shall maintain a copy of the covenants, conditions and restrictions filed in the county deed records pursuant to this section and a map or other record depicting the lots and parcels subject to the covenants, conditions and restrictions filed in the county deed records pursuant to this section. The map or other record required by this subsection shall be readily available to the public in the county planning office.
6. Commercial Dairy Farm Standards. A dwelling may be considered customarily provided in conjunction with a commercial dairy farm as defined in paragraph 7 if:
- A. The subject tract will be employed as a commercial dairy as defined in paragraph 7;
  - B. The dwelling is sited on the same lot or parcel as the buildings required by the commercial dairy;
  - C. Except for an accessory farm dwelling, there is no other dwelling on the subject tract;
  - D. The dwelling will be occupied by a person or persons who will be principally engaged in the operation of the commercial dairy farm, such as the feeding, milking or pasturing of the dairy animals or other farm use activities necessary to the operation of the commercial dairy farm;
  - E. The building permits, if required, have been issued for and construction has begun for the buildings and animal waste facilities required for a commercial dairy farm; and
  - F. The Oregon Department of Agriculture has approved the following:
    - (1) A permit for a "confined animal feeding operation" under ORS 468B.050 and 468B.200 to 468B.230; and
    - (2) A Producer License for the sale of dairy products under ORS 621.072.
7. As used in this section, "commercial dairy farm" is a dairy operation that owns a sufficient number of producing dairy animals capable of earning the gross annual income required by Subsections 3 or 4, whichever is applicable, from the sale of fluid milk.

8. Relocated Farm Operations. A dwelling may be considered customarily provided in conjunction with farm use if:
  - A. Within the previous two years, the applicant owned and operated a different farm or ranch operation that earned the gross farm income in each of the last five years or four of the last seven years as required by Subsection 3 or 4, whichever is applicable;
  - B. The subject lot or parcel on which the dwelling will be located is:
    - (1) Currently employed for the farm use that produced in each of the last two years or three of the last five years, or in an average of three of the last five years the gross farm income required by Subsection 3 or 4, whichever is applicable; and
    - (2) At least the size of the applicable minimum lot size under Section 2.16;
  - C. Except for an accessory farm dwelling, there is no other dwelling on the subject tract;
  - D. The dwelling will be occupied by a person or persons who produced the commodities that grossed the income in paragraph A; and
  - E. In determining the gross income required by paragraph A and subparagraph B(1):
    - (1) The cost of purchased livestock shall be deducted from the total gross income attributed to the tract; and
    - (2) Only gross income from land owned, not leased or rented, shall be counted.

### 3.08 ACCESSORY FARM DWELLINGS -YEAR ROUND AND SEASONAL

1. Accessory farm dwellings as permitted by Section 3.05 may be considered customarily provided in conjunction with farm use if:
  - A. Each accessory farm dwelling meets all the following requirements:
    - (1) The accessory farm dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land and whose seasonal or year-round assistance in the management of the farm use, such as planting, harvesting, marketing or caring for livestock, is or will be required by the farm operator;

- (2) The accessory farm dwelling will be located:
- (a) On the same lot or parcel as the primary farm dwelling;
  - (b) On the same tract as the primary farm dwelling when the lot or parcel on which the accessory farm dwelling will be sited is consolidated into a single parcel with all other contiguous lots and parcels in the tract;
  - (c) On a lot or parcel on which the primary farm dwelling is not located, when the accessory farm dwelling is limited to only a manufactured dwelling with a deed restriction. The deed restriction shall be filed with the county clerk and require the manufactured dwelling to be removed when the lot or parcel is conveyed to another party. The manufactured dwelling may remain if it is reapproved under these provisions;
  - (d) On any lot or parcel, when the accessory farm dwelling is limited to only attached multi-unit residential structures allowed by the applicable state building code or similar types of farmworker housing as that existing on farm or ranch operations registered with the Department of Consumer and Business Services, Oregon Occupational Safety and Health Division under ORS 658.750. A county shall require all accessory farm dwellings approved under this subparagraph to be removed, demolished or converted to a nonresidential use when farmworker housing is no longer required. "Farmworker housing" shall have the meaning set forth in 215.278 and not the meaning in 315.163; or
  - (e) On a lot or parcel on which the primary farm dwelling is not located, when the accessory farm dwelling is located on a lot or parcel at least the size of the applicable minimum lot size under ORS 215.780 and the lot or parcel complies with the gross farm income requirements in OAR 660-033-0135(3) or (4), whichever is applicable; and
- (3) There is no other dwelling on the lands designated for exclusive farm use owned by the farm operator that is vacant or currently occupied by persons not working on the subject farm or ranch and that could reasonably be used as an accessory farm dwelling.

- B. In addition to the requirements in paragraph A, the primary farm dwelling to which the proposed dwelling would be accessory, meets one of the following:
- (1) On land not identified as high-value farmland, the primary farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203, on which, in each of the last two years or three of the last five years or in an average of three of the last five years, the farm operator earned the lower of the following:
    - (a) At least \$40,000 in gross annual income from the sale of farm products. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract; or
    - (b) Gross annual income of at least the midpoint of the median income range of gross annual sales for farms in the county with gross annual sales of \$10,000 or more according to the 1992 Census of Agriculture, Oregon. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract;
  - (2) On land identified as high-value farmland, the primary farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203, on which the farm operator earned at least \$80,000 in gross annual income from the sale of farm products in each of the last two years or three of the last five years or in an average of three of the last five years. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract; or
  - (3) It is located on a commercial dairy farm as defined in Section 2.07.7; and
    - (a) The building permits, if required, have been issued and construction has begun or been completed for the buildings and animal waste facilities required for a commercial dairy farm;
    - (b) The Oregon Department of Agriculture has approved a permit for a "confined animal feeding operation" under ORS 468B.050 and 468B.200 to 468B.230; and
    - (c) A Producer License for the sale of dairy products under ORS 621.072.



- C. No division of a lot or parcel for an accessory farm dwelling shall be approved pursuant to this subsection. If it is determined that an accessory farm dwelling satisfies the requirements of this ordinance, a parcel may be created consistent with the minimum parcel size requirements in 3.16.1.
  - D. An accessory farm dwelling approved pursuant to this section cannot later be used to satisfy the requirements for a dwelling not provided in conjunction with farm use pursuant to Subsection 3.04.18.
2. For purposes of this Subsection, "accessory farm dwelling" includes all types of residential structures allowed by the applicable state building code.

### 3.09 OWNERSHIP LOT OF RECORD DWELLINGS

1. A dwelling may be approved on a pre-existing lot or parcel if:
- A. The lot or parcel on which the dwelling will be sited was lawfully created and was acquired and owned continuously by the present owner as defined in paragraph 5:
    - (1) Since prior to January 1, 1985; or
    - (2) By devise or by intestate succession from a person who acquired and had owned continuously the lot or parcel since prior to January 1, 1985.
  - B. The tract on which the dwelling will be sited does not include a dwelling;
  - C. The lot or parcel on which the dwelling will be sited was part of a tract on November 4, 1993, no dwelling exists on another lot or parcel that was part of that tract;
  - D. The proposed dwelling is not prohibited by, and will comply with, the requirements of the acknowledged Land Use Plan and land use regulations and other provisions of law;
  - E. The lot or parcel on which the dwelling will be sited is not high-value farmland except as provided in paragraphs 3 and 4; and
  - F. When the lot or parcel on which the dwelling will be sited lies within an area designated in the Land Use Plan as habitat of big game, the siting of the dwelling is consistent with the limitations on density upon which the acknowledged Land Use Plan and land use regulations intended to protect the habitat are based.

2. When the lot or parcel on which the dwelling will be sited is part of a tract, the remaining portions of the tract are consolidated into a single lot or parcel when the dwelling is allowed;
3. Notwithstanding the requirements of subparagraph 1.E, a single-family dwelling may be sited on high-value farmland if:
  - A. It meets the other requirements of paragraphs 1 and 2;
  - B. The lot or parcel is protected as high-value farmland as defined in OAR 660-033-0020(8)(a);
  - C. The Planning Commission determines that:
    - (1) The lot or parcel cannot practicably be managed for farm use, by itself or in conjunction with other land, due to extraordinary circumstances inherent in the land or its physical setting that do not apply generally to other land in the vicinity.
      - (a) For the purposes of this section, this criterion asks whether the subject lot or parcel can be physically put to farm use without undue hardship or difficulty because of extraordinary circumstances inherent in the land or its physical setting. Neither size alone nor a parcel's limited economic potential demonstrates that a lot of parcel cannot be practicably managed for farm use.
      - (b) Examples of "extraordinary circumstances inherent in the land or its physical setting" include very steep slopes, deep ravines, rivers, streams, roads, railroad or utility lines or other similar natural or physical barriers that by themselves or in combination separate the subject lot or parcel from adjacent agricultural land and prevent it from being practicably managed for farm use by itself or together with adjacent or nearby farms.
      - (c) A lot or parcel that has been put to farm use despite the proximity of a natural barrier or since the placement of a physical barrier shall be presumed manageable for farm use;
    - (2) The dwelling will comply with the provisions of 2.06; and
    - (3) The dwelling will not materially alter the stability of the overall land use pattern in the area by applying the standards set forth in paragraph 3.10.1.A

4. Notwithstanding the requirements of subparagraph 1.E, a single-family dwelling may be sited on high-value farmland if:
- (1) It meets the other requirements of paragraphs 1 and 2;
  - (2) The tract on which the dwelling will be sited is:
    - (a) Identified in OAR 660-033-0020(8)(c) or (d);
    - (b) Not sited on high-value farmland defined in Section 2.02; and
    - (c) Twenty-one acres or less in size; and
  - (3) The tract is bordered on at least 67 percent of its perimeter by tracts that are smaller than 21 acres, and at least two such tracts had dwellings on January 1, 1993; or
  - (4) The tract is not a flag lot and is bordered on at least 25 percent of its perimeter by tracts that are smaller than 21 acres, and at least four dwellings existed on January 1, 1993, within one-quarter mile of the center of the subject tract. Up to two of the four dwellings may lie within an urban growth boundary, but only if the subject tract abuts an urban growth boundary; or
  - (5) The tract is a flag lot and is bordered on at least 25 percent of its perimeter by tracts that are smaller than 21 acres, and at least four dwellings existed on January 1, 1993, within one-quarter mile of the center of the subject tract and on the same side of the public road that provides access to the subject tract. The governing body of a county must interpret the center of the subject tract as the geographic center of the flag lot if the applicant makes a written request for that interpretation and that interpretation does not cause the center to be located outside the flag lot. Up to two of the four dwellings may lie within an urban growth boundary, but only if the subject tract abuts an urban growth boundary:
    - (a) “Flag lot” means a tract containing a narrow strip or panhandle of land providing access from the public road to the rest of the tract.
    - (b) “Geographic center of the flag lot” means the point of intersection of two perpendicular lines of which the first line crosses the midpoint of the longest side of a flag lot, at a 90-degree angle to the side, and the second line crosses the midpoint of the longest adjacent side of the flag lot.

5. For purposes of paragraph 1, “owner” includes the wife, husband, son, daughter, mother, father, brother, brother-in-law, sister, sister-in-law, son-in-law, daughter-in-law, mother-in-law, father-in-law, aunt, uncle, niece, nephew, stepparent, stepchild, grandparent or grandchild of the owner or a business entity owned by any one or a combination of these family members;
6. The county assessor shall be notified that the governing body intends to allow the dwelling.
7. An application for a single-family dwelling that is approved under this section may be transferred by a person who has qualified under this section to any other person after the effective date of the land use decision.
8. The county shall provide notice of all applications for ownership of record dwellings on high value farmland to the State Department of Agriculture. Notice shall be provided in accordance with land use regulations and shall be mailed at least 20 calendar days prior to the public hearing.

### 3.10 DWELLINGS NOT IN CONJUNCTION WITH FARM USE

1. Non-farm dwelling. A non-farm dwelling sited on a lot or parcel is subject to the following requirements:
  - A. The dwelling or activities associated with the dwelling will not force a significant change in or significantly increase the cost of accepted farming or forest practices on nearby lands devoted to farm or forest use.
  - B. The following applies to a non-farm dwelling:
    - (1) The dwelling is situated upon a lot or parcel, or a portion of a lot or parcel that is generally unsuitable land for the production of farm crops and livestock or merchantable tree species, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract. A lot or parcel or portion of a lot or parcel shall not be considered unsuitable solely because of size or location if it can reasonably be put to farm or forest use in conjunction with other land; and

- (2) A lot or parcel or portion of a lot or parcel is not "generally unsuitable" simply because it is too small to be farmed profitably by itself. If a lot or parcel or portion of a lot or parcel can be sold, leased, rented or otherwise managed as a part of a commercial farm or ranch, then the lot or parcel or portion of the lot or parcel is not "generally unsuitable". A lot or parcel or portion of a lot or parcel is presumed to be suitable if, in Eastern Oregon, it is composed predominantly of Class I-VI soils. Just because a lot or parcel or portion of a lot or parcel is unsuitable for one farm use does not mean it is not suitable for another farm use; or
- (3) If the parcel is under forest assessment, the dwelling shall be situated upon generally unsuitable land for the production of merchantable tree species recognized by the Forest Practices Rules, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the parcel. If a lot or parcel is under forest assessment, the area is not "generally unsuitable" simply because it is too small to be managed for forest production profitably by itself. If a lot or parcel under forest assessment can be sold, leased, rented or otherwise managed as a part of a forestry operation, it is not "generally unsuitable". If a lot or parcel is under forest assessment, it is presumed suitable if, in Eastern Oregon it is composed predominantly of soils capable of producing 20 cubic feet of wood fiber per acre per year. If a lot or parcel is under forest assessment, to be found compatible and not seriously interfere with forest uses on surrounding land it must not force a significant change in forest practices or significantly increase the cost of those practices on the surrounding land.

- C. The dwelling will not materially alter the stability of the overall land use pattern of the area. In determining whether a proposed nonfarm dwelling will alter the stability of the land use pattern in the area, a county shall consider the cumulative impact of nonfarm dwellings on other lots or parcels in the area similarly situated by applying the standards set forth below in subparagraphs (1) through (3). If the application involves the creation of a new parcel for the nonfarm dwelling, a county shall consider whether creation of the parcel will lead to creation of other nonfarm parcels, to the detriment of agriculture in the area by applying the standards set forth below in subparagraphs (1) through (3).

- (1) Identify a study area for the cumulative impacts analysis. The study area shall include at least 2000 acres or a smaller area not less than 1000 acres, if the smaller area is a distinct agricultural area based on topography, soil types, land use pattern, or the type of farm or ranch operations or practices that distinguish it from other, adjacent agricultural areas. Findings shall describe the study area, its boundaries, the location of the subject parcel within this area, why the selected area is representative of the land use pattern surrounding the subject parcel and is adequate to conduct the analysis required by this standard. Lands zoned for rural residential or other urban or nonresource uses shall not be included in the study area;
- (2) Identify within the study area the broad types of farm uses (irrigated or nonirrigated crops, pasture or grazing lands), the number, location and type of existing dwellings (farm, nonfarm, hardship, etc.), and the dwelling development trends since 1993. Determine the potential number of nonfarm/lot-of-record dwellings that could be approved under Subsections A and B and Section 2.10, including identification of predominant soil classifications, the parcels created prior to January 1, 1993 and the parcels larger than the minimum lot size that may be divided to create new parcels for nonfarm dwellings under ORS 215.263(4). The findings shall describe the existing land use pattern of the study area including the distribution and arrangement of existing uses and the land use pattern that could result from approval of the possible nonfarm dwellings under this subparagraph; and
- (3) Determine whether approval of the proposed nonfarm/lot-of-record dwellings together with existing nonfarm dwellings will materially alter the stability of the land use pattern in the area. The stability of the land use pattern will be materially altered if the cumulative effect of existing and potential nonfarm dwellings will make it more difficult for the existing types of farms in the area to continue operation due to diminished opportunities to expand, purchase or lease farmland, acquire water rights or diminish the number of tracts or acreage in farm use in a manner that will destabilize the overall character of the study area.

If a single-family dwelling is established on a lot or parcel as set forth in Subsection 2.05.7 or (forest zone reference to dwellings in forest zones), no additional dwelling may later be sited under the provisions of this section.

2. Non-farm dwelling. A non-farm dwelling sited on a parcel created after January 1, 1993, as allowed in ORS 215.263(5), is subject to the following requirements:
  - A. The dwelling or activities associated with the dwelling will not force a significant change in or significantly increase the cost of accepted farm or forest practices on nearby lands devoted to farm or forest use.
  - B. No final approval of a non-farm dwelling shall be given unless any additional taxes imposed upon the change in use have been paid.
  - C. If a single-family dwelling is established on a lot or parcel as set forth in ORS 215.705 to 215.750, no additional dwelling may later be sited as a non-farm dwelling.
  - D. The dwelling will not materially alter the stability of the overall land use pattern of the area.
  - E. The non-farm dwelling complies with such other conditions as the governing body or its designee considers necessary.

### 3.11 ALTERATION, RESTORATION OR REPLACEMENT OF A LAWFULLY-ESTABLISHED DWELLING

1. A lawfully established dwelling may be altered, restored or replaced if, when an application for a permit is submitted, the permitting authority finds to its satisfaction, based on substantial evidence that:
  - A. The dwelling to be altered, restored or replaced has, or formerly had:
    - (1) Intact exterior walls and roof structure;
    - (2) Indoor plumbing consisting of a kitchen sink, toilet and bathing facilities connected to a sanitary waste disposal system;
    - (3) Interior wiring for interior lights;
    - (4) A heating system; and
    - (5) The dwelling was assessed as a dwelling for purposes of ad valorem taxation for the previous five property tax years, or, if the dwelling has existed for less than five years, from that time; and



- B. Notwithstanding subsection 1.A(5), if the value of the dwelling was eliminated as a result of either of the following circumstances, the dwelling was assessed as a dwelling until such time as the value of the dwelling was eliminated:
  - (1) The destruction (i.e, by fire or natural hazard), or demolition in the case of restoration, of the dwelling; or
  - (2) The applicant establishes to the satisfaction of the permitting authority that the dwelling was improperly removed from the tax roll by a person other than the current owner. “Improperly removed” means that the dwelling has taxable value in its present state, or had taxable value when the dwelling was first removed from the tax roll or was destroyed by fire or natural hazard, and the county stopped assessing the dwelling even though the current or former owner did not request removal of the dwelling from the tax roll.
- 2. For replacement of a lawfully established dwelling under Subsection 3.03.11:
  - A. The dwelling to be replaced must be removed, demolished or converted to an allowable nonresidential use:
    - (1) Within one year after the date the replacement dwelling is certified for occupancy pursuant to ORS 455.055; or
    - (2) If the dwelling to be replaced is, in the discretion of the permitting authority, in such a state of disrepair that the structure is unsafe for occupancy or constitutes an attractive nuisance, on or before a date set by the permitting authority that is not less than 90 days after the replacement permit is issued; and
    - (3) If a dwelling is removed by moving it off the subject parcel to another location, the applicant must obtain approval from the permitting authority for the new location.
  - B. The applicant must cause to be recorded in the deed records of the county a statement that the dwelling to be replaced has been removed, demolished or converted.

- C. As a condition of approval, if the dwelling to be replaced is located on a portion of the lot or parcel that is not zoned for exclusive farm use, the applicant shall execute and cause to be recorded in the deed records of the county in which the property is located a deed restriction prohibiting the siting of another dwelling on that portion of the lot or parcel. The restriction imposed is irrevocable unless the county planning director, or the director's designee, places a statement of release in the deed records of the county to the effect that the provisions of 2013 Oregon Laws, chapter 462, section 2 and ORS 215.283 regarding replacement dwellings have changed to allow the lawful siting of another dwelling.
- 3. A replacement dwelling must comply with applicable building codes, plumbing codes, sanitation codes and other requirements relating to health and safety or to siting at the time of construction. However, the standards may not be applied in a manner that prohibits the siting of the replacement dwelling.
  - A. The siting standards of paragraph B apply when a dwelling qualifies for replacement because the dwelling:
    - (1) Formerly had the features described in paragraph 1.A;
    - (2) Was removed from the tax roll as described in paragraph 1.C; or
    - (3) Had a permit that expired as described under paragraph 4.C.
  - B. The replacement dwelling must be sited on the same lot or parcel:
    - (1) Using all or part of the footprint of the replaced dwelling or near a road, ditch, river, property line, forest boundary or another natural boundary of the lot or parcel; and
    - (2) If possible, for the purpose of minimizing the adverse impacts on resource use of land in the area, within a concentration or cluster of structures or within 500 yards of another structure.
  - C. Replacement dwellings that currently have the features described in paragraph 1.A and that have been on the tax roll as described in paragraph 1.B may be sited on any part of the same lot or parcel.
- 4. A replacement dwelling permit that is issued under 3.03.11:
  - A. Is a land use decision as defined in ORS 197.015 where the dwelling to be replaced:

- (1) Formerly had the features described in paragraph 1.A; or
  - (2) Was removed from the tax roll as described in paragraph 1.C;
- B. Is not subject to the time to act limits of ORS 215.417; and
- C. If expired before January 1, 2014, shall be deemed to be valid and effective if, before January 1, 2015, the holder of the permit:
  - (1) Removes, demolishes or converts to an allowable nonresidential use the dwelling to be replaced; and
  - (2) Causes to be recorded in the deed records of the county a statement that the dwelling to be replaced has been removed, demolished or converted.

### 3.12 WINERIES

- 1. A winery may be established as a permitted use if the proposed winery will produce wine with a maximum annual production of:
  - A. Less than 50,000 gallons and the winery:
    - (1) Owns an on-site vineyard of at least 15 acres;
    - (2) Owns a contiguous vineyard of at least 15 acres;
    - (3) Has a long-term contract for the purchase of all of the grapes from at least 15 acres of a vineyard contiguous to the winery; or
    - (4) Obtains grapes from any combination of subparagraph (1), (2) or (3); or
  - B. At least 50,000 gallons and the winery:
    - (1) Owns an on-site vineyard of at least 40 acres;
    - (2) Owns a contiguous vineyard of at least 40 acres;
    - (3) Has a long-term contract for the purchase of all of the grapes from at least 40 acres of a vineyard contiguous to the winery;
    - (4) Owns an on-site vineyard of at least 15 acres on a tract of at least 40 acres and owns at least 40 additional acres of vineyards in Oregon that are located within 15 miles of the winery site; or
    - (5) Obtains grapes from any combination of subparagraph (1), (2), (3) or (4).

2. In addition to producing and distributing wine, a winery established under this section may:
  - A. Market and sell wine produced in conjunction with the winery.
  - B. Conduct operations that are directly related to the sale or marketing of wine produced in conjunction with the winery, including:
    - (1) Wine tastings in a tasting room or other location on the premises occupied by the winery;
    - (2) Wine club activities;
    - (3) Winemaker luncheons and dinners;
    - (4) Winery and vineyard tours;
    - (5) Meetings or business activities with winery suppliers, distributors, wholesale customers and wine-industry members;
    - (6) Winery staff activities;
    - (7) Open house promotions of wine produced in conjunction with the winery; and
    - (8) Similar activities conducted for the primary purpose of promoting wine produced in conjunction with the winery.
  - C. Market and sell items directly related to the sale or promotion of wine produced in conjunction with the winery, the marketing and sale of which is incidental to on-site retail sale of wine, including food and beverages:
    - (1) Required to be made available in conjunction with the consumption of wine on the premises by the Liquor Control Act or rules adopted under the Liquor Control Act; or
    - (2) Served in conjunction with an activity authorized by paragraph 2.A, D, or E.
  - D. Carry out agri-tourism or other commercial events on the tract occupied by the winery subject to Subsection 5
  - E. Host charitable activities for which the winery does not charge a facility rental fee.

3. A winery may include on-site kitchen facilities licensed by the Oregon Health Authority under ORS 624.010 to 624.121 for the preparation of food and beverages described in Subsection 2.C. Food and beverage services authorized under Subsection 2.C may not utilize menu options or meal services that cause the kitchen facilities to function as a café or other dining establishment open to the public.
4. The gross income of the winery from the sale of incidental items or services provided pursuant to Subsection 2.C and 2.D may not exceed 25 percent of the gross income from the on-site retail sale of wine produced in conjunction with the winery. The gross income of a winery does not include income received by third parties unaffiliated with the winery. At the request of the county, the winery shall submit to the county a written statement that is prepared by a certified public accountant and certifies the compliance of the winery with this subsection for the previous tax year.
5. A winery may carry out up to 18 days of agri-tourism or other commercial events annually on the tract occupied by the winery. If a winery conducts agri-tourism or other commercial events authorized under this Section, the winery may not conduct agri-tourism or other commercial events or activities authorized by 2.13 1 to 4.
6. A winery operating under this section shall provide off-street parking for all activities or uses of the lot, parcel or tract on which the winery is established.
7. Prior to the issuance of a permit to establish a winery under Subsection 1, the applicant shall show that vineyards described in Subsection 1 have been planted or that the contract has been executed, as applicable.
8. Standards imposed on the siting of a winery shall be limited solely to each of the following for the sole purpose of limiting demonstrated conflicts with accepted farming or forest practices on adjacent lands:
  - A. Establishment of a setback of at least 100 feet from all property lines for the winery and all public gathering places unless the local government grants an adjustment or variance allowing a setback of less than 100 feet; and
  - B. Provision of direct road access and internal circulation.
9. In addition to a winery permitted in Subsections 1 to 8, a winery may be established if:
  - A. The winery owns and is sited on a tract of 80 acres or more, at least 50 acres of which is a vineyard;
  - B. The winery owns at least 80 additional acres of planted vineyards in Oregon that need not be contiguous to the acreage described in paragraph 9.A; and

- C. The winery has produced annually, at the same or a different location, at least 150,000 gallons of wine in at least three of the five calendar years before the winery is established under this subsection.
10. In addition to producing and distributing wine, a winery described in Subsection 9 may:
- A. Market and sell wine produced in conjunction with the winery;
  - B. Conduct operations that are directly related to the sale or marketing of wine produced in conjunction with the winery, including:
    - (1) Wine tastings in a tasting room or other location on the premises occupied by the winery;
    - (2) Wine club activities;
    - (3) Winemaker luncheons and dinners;
    - (4) Winery and vineyard tours;
    - (5) Meetings or business activities with winery suppliers, distributors, wholesale customers and wine-industry members;
    - (6) Winery staff activities;
    - (7) Open house promotions of wine produced in conjunction with the winery; and
    - (8) Similar activities conducted for the primary purpose of promoting wine produced in conjunction with the winery;
  - C. Market and sell items directly related to the sale or promotion of wine produced in conjunction with the winery, the marketing and sale of which is incidental to retail sale of wine on-site, including food and beverages:
    - (1) Required to be made available in conjunction with the consumption of wine on the premises by the Liquor Control Act or rules adopted under the Liquor Control Act; or
    - (2) Served in conjunction with an activity authorized by paragraph 10.B(2), (4), or (5);

- D. Provide services, including agri-tourism or other commercial events, hosted by the winery or patrons of the winery, at which wine produced in conjunction with the winery is featured, that:
  - (1) Are directly related to the sale or promotion of wine produced in conjunction with the winery;
  - (2) Are incidental to the retail sale of wine on-site; and
  - (3) Are limited to 25 days or fewer in a calendar year; and
  - (4) Host charitable activities for which the winery does not charge a facility rental fee.

11. Income Requirements

- A. The gross income of the winery from the sale of incidental items pursuant to paragraph 10.C and services provided pursuant to paragraph 10.D may not exceed 25 percent of the gross income from the on-site retail sale of wine produced in conjunction with the winery.
- B. At the request of a local government with land use jurisdiction over the site of a winery, the winery shall submit to the local government a written statement, prepared by a certified public accountant, that certifies compliance with paragraph A for the previous tax year.

12. A winery permitted under Subsection 9:

- A. Shall provide off-street parking for all activities or uses of the lot, parcel or tract on which the winery is established.
- B. May operate a restaurant, as defined in ORS 624.010, in which food is prepared for consumption on the premises of the winery.

13. Permit Requirements

- A. A winery shall obtain a permit if the winery operates a restaurant that is open to the public for more than 25 days in a calendar year or provides for agri-tourism or other commercial events authorized under Subsection 10.D occurring on more than 25 days in a calendar year.
- B. In addition to any other requirements, a local government may approve a permit application under this subsection if the local government finds that the authorized activity:



- (1) Complies with the standards described in Subsections 3.06.1, 2, and 3;
  - (2) Is incidental and subordinate to the retail sale of wine produced in conjunction with the winery; and
  - (3) Does not materially alter the stability of the land use pattern in the area.
- C. If the local government issues a permit under this subsection for agri-tourism or other commercial events, the local government shall review the permit at least once every five years and, if appropriate, may renew the permit.
- 14. A person may not have a substantial ownership interest in more than one winery operating a restaurant under Subsection 9.
- 15. Prior to the issuance of a permit to establish a winery under Subsection 9, the applicant shall show that vineyards described in Subsection 9 have been planted.
- 16. A winery operating under Subsection 9 shall provide for:
  - A. Establishment of a setback of at least 100 feet from all property lines for the winery and all public gathering places; and
  - B. Direct road access and internal circulation.
- 17. A winery operating under Subsection 9 may receive a permit to host outdoor concerts for which admission is charged, facility rentals or celebratory events if the winery received a permit in similar circumstances before August 2, 2011.
- 18. As used in this section:
  - A. “Agri-tourism or other commercial events” includes outdoor concerts for which admission is charged, educational, cultural, health or lifestyle events, facility rentals, celebratory gatherings and other events at which the promotion of wine produced in conjunction with the winery is a secondary purpose of the event.
  - B. “On-site retail sale” includes the retail sale of wine in person at the winery site, through a wine club or over the Internet or telephone.

### 3.13 AGRI-TOURISM AND OTHER COMMERCIAL EVENTS

- 1. The following agri-tourism and other commercial events or activities that are related to and supportive of agriculture may be established:

2. A single agri-tourism or other commercial event or activity on a tract in a calendar year that is personal to the applicant and is not transferred by, or transferable with, a conveyance of the tract, if the agri-tourism or other commercial event or activity meets any local standards that apply and:
  - A. The agri-tourism or other commercial event or activity is incidental and subordinate to existing farm use on the tract;
  - B. The duration of the agri-tourism or other commercial event or activity does not exceed 72 consecutive hours;
  - C. The maximum attendance at the agri-tourism or other commercial event or activity does not exceed 500 people;
  - D. The maximum number of motor vehicles parked at the site of the agri-tourism or other commercial event or activity does not exceed 250 vehicles;
  - E. The agri-tourism or other commercial event or activity complies with the standards described in Subsections 3.06.1, 2, and 3;
  - F. The agri-tourism or other commercial event or activity occurs outdoors, in temporary structures, or in existing permitted structures, subject to health and fire and life safety requirements; and
  - G. The agri-tourism or other commercial event or activity complies with conditions established for:
    - (1) Planned hours of operation;
    - (2) Access, egress and parking;
    - (3) A traffic management plan that identifies the projected number of vehicles and any anticipated use of public roads; and
    - (4) Sanitation and solid waste.

3. In the alternative to Subsections 1 and 2, the county may authorize, through an expedited, single-event license, a single agri-tourism or other commercial event or activity on a tract in a calendar year by an expedited, single-event license that is personal to the applicant and is not transferred by, or transferable with, a conveyance of the tract. A decision concerning an expedited, single-event license is not a land use decision, as defined in ORS 197.015. To approve an expedited, single-event license, the governing body of a county or its designee must determine that the proposed agri-tourism or other commercial event or activity meets any local standards that apply, and the agri-tourism or other commercial event or activity:
  - A. Must be incidental and subordinate to existing farm use on the tract;
  - B. May not begin before 6 a.m. or end after 10 p.m.;
  - C. May not involve more than 100 attendees or 50 vehicles;
  - D. May not include the artificial amplification of music or voices before 8 a.m. or after 8 p.m.;
  - E. May not require or involve the construction or use of a new permanent structure in connection with the agri-tourism or other commercial event or activity;
  - F. Must be located on a tract of at least 10 acres unless the owners or residents of adjoining properties consent, in writing, to the location; and
  - G. Must comply with applicable health and fire and life safety requirements.
4. In the alternative to Subsections 1 and 2, the county may authorize up to six agri-tourism or other commercial events or activities on a tract in a calendar year by a limited use permit that is personal to the applicant and is not transferred by, or transferable with, a conveyance of the tract. The agri-tourism or other commercial events or activities must meet any local standards that apply, and the agri-tourism or other commercial events or activities:
  - A. Must be incidental and subordinate to existing farm use on the tract;
  - B. May not, individually, exceed a duration of 72 consecutive hours;
  - C. May not require that a new permanent structure be built, used or occupied in connection with the agri-tourism or other commercial events or activities;
  - D. Must comply with the standards described in Subsections 2.06.1, 2, and 3;

- E. May not, in combination with other agri-tourism or other commercial events or activities authorized in the area, materially alter the stability of the land use pattern in the area; and
  - F. Must comply with conditions established for:
    - (1) The types of agri-tourism or other commercial events or activities that are authorized during each calendar year, including the number and duration of the agri-tourism or other commercial events and activities, the anticipated daily attendance and the hours of operation;
    - (2) The location of existing structures and the location of proposed temporary structures to be used in connection with the agri-tourism or other commercial events or activities;
    - (3) The location of access and egress and parking facilities to be used in connection with the agri-tourism or other commercial events or activities;
    - (4) Traffic management, including the projected number of vehicles and any anticipated use of public roads; and
    - (5) Sanitation and solid waste.
  - G. A permit authorized by this subsection shall be valid for two calendar years. When considering an application for renewal, the county shall ensure compliance with the provisions of Subsection 3, any local standards that apply and conditions that apply to the permit or to the agri-tourism or other commercial events or activities authorized by the permit.
5. In addition to Subsections 1 to 3, the county may authorize agri-tourism or other commercial events or activities that occur more frequently or for a longer period or that do not otherwise comply with Subsections 1 to 3 if the agri-tourism or other commercial events or activities comply with any local standards that apply and the agri-tourism or other commercial events or activities:
- A. Are incidental and subordinate to existing commercial farm use of the tract and are necessary to support the commercial farm uses or the commercial agricultural enterprises in the area;
  - B. Comply with the requirements of 3.C, D, E, and F;
  - C. Occur on a lot or parcel that complies with the acknowledged minimum lot or parcel size; and

- D. Do not exceed 18 events or activities in a calendar year.
- 6. A holder of a permit authorized by a county under Subsection 4 must request review of the permit at four-year intervals. Upon receipt of a request for review, the county shall:
    - A. Provide public notice and an opportunity for public comment as part of the review process; and
    - B. Limit its review to events and activities authorized by the permit, conformance with conditions of approval required by the permit and the standards established by Subsection 4.
  - 7. Temporary structures established in connection with agri-tourism or other commercial events or activities may be permitted. The temporary structures must be removed at the end of the agri-tourism or other event or activity. Alteration to the land in connection with an agri-tourism or other commercial event or activity including, but not limited to, grading, filling or paving, are not permitted.
  - 8. The authorizations provided by section are in addition to other authorizations that may be provided by law, except that “outdoor mass gathering” and “other gathering,” as those terms are used in ORS 197.015 (10)(d), do not include agri-tourism or other commercial events and activities.
  - 9. Agri-Tourism and other Commercial Events or Activities Permit. Agri-tourism and other commercial events or activities related to and supportive of agriculture may be approved in an area zoned for exclusive farm use only if the standards and criteria in this section are met.
    - A. A permit application for an agri-tourism or other commercial event or activity shall include the following:
      - (1) A description of the type of agri-tourism or commercial events or activity that is proposed, including the number and duration of the event and activity, the anticipated daily attendance and the hours of operation and, for events not held at wineries, how the agri-tourism and other commercial events or activities will be related to and supportive of agriculture and incidental and subordinate to the existing farm use of the tract.
      - (2) The location of existing structures and the location of proposed temporary structures to be used in connection with the agri-tourism or other commercial events or activities;
      - (3) A traffic management plan that meets the criteria in Section B(3) .

- (4) Authorization to allow inspection of the event premises. The applicant shall provide in writing a consent to allow law enforcement, public health, and fire control officers and code enforcement staff to come upon the premises for which the permit has been granted for the purposes of inspection and enforcement of the terms and conditions of the permit and the Exclusive Farm Use Zone and any other applicable laws or ordinances.

B. Approval Criteria.

- (1) The area in which the agri-tourism or other commercial events or activities are located shall be setback at least 100 feet from the property line.
- (2) Noise Control
  - (a) All noise, including the use of a sound producing device such as, but not limited to, loud speakers and public address systems, musical instruments that are amplified or unamplified, shall be in compliance with applicable state regulations.
  - (b) A standard sound level meter or equivalent, in good condition, that provides a weighted sound pressure level measured by use of a metering characteristic with an "A" frequency weighting network and reported as dBA shall be available on-site at all times during agri-tourism and other commercial events or activities.
- (3) Transportation Management
  - (a) Adequate traffic control must be provided by the property owner and must include one traffic control person for each 250 persons expected or reasonably expected to be in attendance at any time. All traffic control personnel shall be certified by the State of Oregon and shall comply with the current edition of the Manual of Uniform Traffic Control Devices.
  - (b) Adequate off-street parking will be provided adequate to accommodate anticipated attendance.
- (4) Health and Safety Compliance
  - (a) Sanitation facilities shall include, at a minimum, portable restroom facilities and stand-alone hand washing stations.

- (b) All permanent and temporary structures and facilities are subject to fire, health and life safety requirements, and shall comply with all requirements of the Oregon Uniform Building Code and any other applicable federal, state and local laws.
- (c) Compliance with the requirements of the building codes shall include meeting all building occupancy classification requirements of the State of Oregon adopted building code.

### 3.14 COMMERCIAL FACILITIES FOR GENERATING POWER

#### 1. Commercial Power Generating Facility, except for wind and photovoltaic solar facilities.

##### A. Permanent features of a power generation facility shall not preclude more than:

- (1) 12 acres from use as a commercial agricultural enterprise on high value farmland unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4; or
- (2) 20 acres from use as a commercial agricultural enterprise on land other than high-value farmland unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4.

##### B. A power generation facility may include on-site and off-site facilities for temporary workforce housing for workers constructing a power generation facility. Such facilities must be removed or converted to an allowed use under OAR 660-033-0130(19) or other statute or rule when project construction is complete. Temporary workforce housing facilities not included in the initial approval may be considered through a minor amendment request. A minor amendment request shall be subject to 660-033-0130(5) and shall have no effect on the original approval.

#### 2. Wind Power Generation Facility.



- A. For purposes of this ordinance a wind power generation facility includes, but is not limited to, the following system components: all wind turbine towers and concrete pads, permanent meteorological towers and wind measurement devices, electrical cable collection systems connecting wind turbine towers with the relevant power substation, new or expanded private roads (whether temporary or permanent) constructed to serve the wind power generation facility, office and operation and maintenance buildings, temporary lay-down areas and all other necessary appurtenances, including but not limited to on-site and off-site facilities for temporary workforce housing for workers constructing a wind power generation facility.
- (1) Temporary workforce housing described in Subsection 3.14.1.B must be removed or converted to an allowed use under OAR 660-033-0130(19) or other statute or rule when project construction is complete.
  - (2) Temporary workforce housing facilities not included in the initial approval may be considered through a minor amendment request filed after a decision to approve a power generation facility. A minor amendment request shall be subject to 660-033-0130(5) and shall have no effect on the original approval.
- B. For wind power generation facility proposals on high-value farmland soils, as described at ORS 195.300(10), the governing body or its designate must find that all of the following are satisfied:
- (1) Reasonable alternatives have been considered to show that siting the wind power generation facility or component thereof on high-value farmland soils is necessary for the facility or component to function properly or if a road system or turbine string must be placed on such soils to achieve a reasonably direct route considering the following factors:
    - (a) Technical and engineering feasibility;
    - (b) Availability of existing rights of way; and
    - (c) The long-term environmental, economic, social and energy consequences of siting the facility or component on alternative sites, as determined under subparagraph (2);

- (2) The long-term environmental, economic, social and energy consequences resulting from the wind power generation facility or any components thereof at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located on other agricultural lands that do not include high-value farmland soils;
  - (3) Costs associated with any of the factors listed in subparagraph (1) may be considered, but costs alone may not be the only consideration in determining that siting any component of a wind power generation facility on high-value farmland soils is necessary;
  - (4) The owner of a wind power generation facility approved under paragraph B shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this subsection shall prevent the owner of the facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration; and
  - (5) The criteria of paragraph C are satisfied.
- C. For wind power generation facility proposals on arable lands, meaning lands that are cultivated or suitable for cultivation, including high-value farmland soils described at ORS 195.300(10), the governing body or its designate must find that:
- (1) The proposed wind power facility will not create unnecessary negative impacts on agricultural operations conducted on the subject property. Negative impacts could include, but are not limited to, the unnecessary construction of roads, dividing a field or multiple fields in such a way that creates small or isolated pieces of property that are more difficult to farm, and placing wind farm components such as meteorological towers on lands in a manner that could disrupt common and accepted farming practices;

- (2) The presence of a proposed wind power facility will not result in unnecessary soil erosion or loss that could limit agricultural productivity on the subject property. This provision may be satisfied by the submittal and county approval of a soil and erosion control plan prepared by an adequately qualified individual, showing how unnecessary soil erosion will be avoided or remedied and how topsoil will be stripped, stockpiled and clearly marked. The approved plan shall be attached to the decision as a condition of approval;
  - (3) Construction or maintenance activities will not result in unnecessary soil compaction that reduces the productivity of soil for crop production. This provision may be satisfied by the submittal and county approval of a plan prepared by an adequately qualified individual, showing how unnecessary soil compaction will be avoided or remedied in a timely manner through deep soil decompaction or other appropriate practices. The approved plan shall be attached to the decision as a condition of approval; and
  - (4) Construction or maintenance activities will not result in the unabated introduction or spread of noxious weeds and other undesirable weeds species. This provision may be satisfied by the submittal and county approval of a weed control plan prepared by an adequately qualified individual that includes a long-term maintenance agreement. The approved plan shall be attached to the decision as a condition of approval.
- D. For wind power generation facility proposals on nonarable lands, meaning lands that are not suitable for cultivation, the requirements of subparagraph C(4) are satisfied.
- E. In the event that a wind power generation facility is proposed on a combination of arable and nonarable lands as described in paragraphs C and D, the approval criteria of paragraph C shall apply to the entire project.
- 3. Photovoltaic Solar Power Generation Facility. A proposal to site a photovoltaic solar power generation facility shall be subject to the following definitions and provisions:
  - A. “Arable land” means land in a tract that is predominantly cultivated or, if not currently cultivated, predominantly comprised of arable soils.
  - B. “Arable soils” means soils that are suitable for cultivation as determined by the governing body or its designate based on substantial evidence in the record of a local land use application, but “arable soils” does not include high-value farmland soils described at ORS 195.300(10) unless otherwise stated.

- C. “Nonarable land” means land in a tract that is predominantly not cultivated and predominantly comprised of nonarable soils.
- D. “Nonarable soils” means soils that are not suitable for cultivation. Soils with an NRCS agricultural capability class V–VIII and no history of irrigation shall be considered nonarable in all cases. The governing body or its designate may determine other soils, including soils with a past history of irrigation, to be nonarable based on substantial evidence in the record of a local land use application.
- E. “Photovoltaic solar power generation facility” includes, but is not limited to, an assembly of equipment that converts sunlight into electricity and then stores, transfers, or both, that electricity. This includes photovoltaic modules, mounting and solar tracking equipment, foundations, inverters, wiring, storage devices and other components. Photovoltaic solar power generation facilities also include electrical cable collection systems connecting the photovoltaic solar generation facility to a transmission line, all necessary grid integration equipment, new or expanded private roads constructed to serve the photovoltaic solar power generation facility, office, operation and maintenance buildings, staging areas and all other necessary appurtenances. For purposes of applying the acreage standards of this section, a photovoltaic solar power generation facility includes all existing and proposed facilities on a single tract, as well as any existing and proposed facilities determined to be under common ownership on lands with fewer than 1320 feet of separation from the tract on which the new facility is proposed to be sited. Projects connected to the same parent company or individuals shall be considered to be in common ownership, regardless of the operating business structure. A photovoltaic solar power generation facility does not include a net metering project established consistent with ORS 757.300 and OAR chapter 860, division 39 or a Feed-in-Tariff project established consistent with ORS 757.365 and OAR chapter 860, division 84.
- F. For high-value farmland described at ORS 195.300(10), a photovoltaic solar power generation facility shall not preclude more than 12 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4. The governing body or its designate must find that:

- (1) The proposed photovoltaic solar power generation facility will not create unnecessary negative impacts on agricultural operations conducted on any portion of the subject property not occupied by project components. Negative impacts could include, but are not limited to, the unnecessary construction of roads dividing a field or multiple fields in such a way that creates small or isolated pieces of property that are more difficult to farm, and placing photovoltaic solar power generation facility project components on lands in a manner that could disrupt common and accepted farming practices;
- (2) The presence of a photovoltaic solar power generation facility will not result in unnecessary soil erosion or loss that could limit agricultural productivity on the subject property. This provision may be satisfied by the submittal and county approval of a soil and erosion control plan prepared by an adequately qualified individual, showing how unnecessary soil erosion will be avoided or remedied and how topsoil will be stripped, stockpiled and clearly marked. The approved plan shall be attached to the decision as a condition of approval;
- (3) Construction or maintenance activities will not result in unnecessary soil compaction that reduces the productivity of soil for crop production. This provision may be satisfied by the submittal and county approval of a plan prepared by an adequately qualified individual, showing how unnecessary soil compaction will be avoided or remedied in a timely manner through deep soil decompaction or other appropriate practices. The approved plan shall be attached to the decision as a condition of approval;
- (4) Construction or maintenance activities will not result in the unabated introduction or spread of noxious weeds and other undesirable weed species. This provision may be satisfied by the submittal and county approval of a weed control plan prepared by an adequately qualified individual that includes a long-term maintenance agreement. The approved plan shall be attached to the decision as a condition of approval;
- (5) The project is not located on high-value farmland soils unless it can be demonstrated that:
  - (a) Non high-value farmland soils are not available on the subject tract;

- (b) Siting the project on non high-value farmland soils present on the subject tract would significantly reduce the project's ability to operate successfully; or
  - (c) The proposed site is better suited to allow continuation of an existing commercial farm or ranching operation on the subject tract than other possible sites also located on the subject tract, including those comprised of non high-value farmland soils; and
- (6) A study area consisting of lands zoned for exclusive farm use located within one mile measured from the center of the proposed project shall be established and:
  - (a) If fewer than 48 acres of photovoltaic solar power generation facilities have been constructed or received land use approvals and obtained building permits within the study area, no further action is necessary.
  - (b) When at least 48 acres of photovoltaic solar power generation have been constructed or received land use approvals and obtained building permits, either as a single project or as multiple facilities within the study area, the local government or its designate must find that the photovoltaic solar energy generation facility will not materially alter the stability of the overall land use pattern of the area. The stability of the land use pattern will be materially altered if the overall effect of existing and potential photovoltaic solar energy generation facilities will make it more difficult for the existing farms and ranches in the area to continue operation due to diminished opportunities to expand, purchase or lease farmland or acquire water rights, or will reduce the number of tracts or acreage in farm use in a manner that will destabilize the overall character of the study area.

G. For arable lands, a photovoltaic solar power generation facility shall not preclude more than 20 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4. The governing body or its designate must find that:

- (1) The project is not located on high-value farmland soils or arable soils unless it can be demonstrated that:
  - (a) Nonarable soils are not available on the subject tract;

- (b) Siting the project on nonarable soils present on the subject tract would significantly reduce the project's ability to operate successfully; or
  - (c) The proposed site is better suited to allow continuation of an existing commercial farm or ranching operation on the subject tract than other possible sites also located on the subject tract, including those comprised of nonarable soils;
- (2) No more than 12 acres of the project will be sited on high-value farmland soils described at ORS 195.300(10) unless an exception is taken pursuant to 197.732 and OAR chapter 660, division 4;
- (3) A study area consisting of lands zoned for exclusive farm use located within one mile measured from the center of the proposed project shall be established and:
  - (a) If fewer than 80 acres of photovoltaic solar power generation facilities have been constructed or received land use approvals and obtained building permits within the study area no further action is necessary.
  - (b) When at least 80 acres of photovoltaic solar power generation have been constructed or received land use approvals and obtained building permits, either as a single project or as multiple facilities, within the study area the local government or its designate must find that the photovoltaic solar energy generation facility will not materially alter the stability of the overall land use pattern of the area. The stability of the land use pattern will be materially altered if the overall effect of existing and potential photovoltaic solar energy generation facilities will make it more difficult for the existing farms and ranches in the area to continue operation due to diminished opportunities to expand, purchase or lease farmland, acquire water rights or diminish the number of tracts or acreage in farm use in a manner that will destabilize the overall character of the study area; and
- (4) The requirements of subparagraphs F(1), (2), (3), and (4) are satisfied.



- H. For nonarable lands, a photovoltaic solar power generation facility shall not preclude more than 250 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4. The governing body or its designate must find that:
- (1) The project is not located on high-value farmland soils or arable soils unless it can be demonstrated that:
    - (a) Siting the project on nonarable soils present on the subject tract would significantly reduce the project's ability to operate successfully; or
    - (b) The proposed site is better suited to allow continuation of an existing commercial farm or ranching operation on the subject tract as compared to other possible sites also located on the subject tract, including sites that are comprised of nonarable soils;
  - (2) No more than 12 acres of the project will be sited on high-value farmland soils described at ORS 195.300(10);
  - (3) No more than 20 acres of the project will be sited on arable soils unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4;
  - (4) The requirements of subparagraph F(4) are satisfied;
  - (5) If a photovoltaic solar power generation facility is proposed to be developed on lands that contain a Goal 5 resource protected under the county's Land Use Plan, and the plan does not address conflicts between energy facility development and the resource, the applicant and the county, together with any state or federal agency responsible for protecting the resource or habitat supporting the resource, will cooperatively develop a specific resource management plan to mitigate potential development conflicts. If there is no program present to protect the listed Goal 5 resource(s) present in the local Land Use Plan or implementing ordinances and the applicant and the appropriate resource management agency(ies) cannot successfully agree on a cooperative resource management plan, the county is responsible for determining appropriate mitigation measures; and

(6) If a proposed photovoltaic solar power generation facility is located on lands where the potential exists for adverse effects to state or federal special status species (threatened, endangered, candidate, or sensitive), or to wildlife species of concern identified and mapped by the Oregon Department of Fish and Wildlife (including big game winter range and migration corridors, golden eagle and prairie falcon nest sites, and pigeon springs), the applicant shall conduct a site-specific assessment of the subject property in consultation with all appropriate state, federal, and tribal wildlife management agencies. A professional biologist shall conduct the site-specific assessment by using methodologies accepted by the appropriate wildlife management agency and shall determine whether adverse effects to special status species or wildlife species of concern are anticipated. Based on the results of the biologist's report, the site shall be designed to avoid adverse effects to state or federal special status species or to wildlife species of concern as described above. If the applicant's site-specific assessment shows that adverse effects cannot be avoided, the applicant and the appropriate wildlife management agency will cooperatively develop an agreement for project-specific mitigation to offset the potential adverse effects of the facility. Where the applicant and the resource management agency cannot agree on what mitigation will be carried out, the county is responsible for determining appropriate mitigation, if any, required for the facility.

(7) The provisions of paragraph (6) are repealed on January 1, 2022.

- I. The project owner shall sign and record in the deed records for the county a document binding the project owner and the project owner's successors in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices as defined in ORS 30.930(2) and (4).
- J. Nothing in this section shall prevent the county from requiring a bond or other security from a developer or otherwise imposing on a developer the responsibility for retiring the photovoltaic solar power generation facility.

### 3.15 LAND DIVISIONS

- 1. Minimum Parcel Size. The minimum size for creation of a new parcel shall comply with Section 3.16.
- 2. A division of land to accommodate a use permitted by Section 3.04, except a residential use, smaller than the minimum parcel size provided in Subsection 1 may be approved if the parcel for the nonfarm use is not larger than the minimum size necessary for the use.

3. A division of land to create up to two new parcels smaller than the minimum size established under Section 3.16, each to contain a dwelling not provided in conjunction with farm use, may be permitted if:
  - A. The nonfarm dwellings have been approved under paragraph 3.10.2;
  - B. The parcels for the nonfarm dwellings are divided from a lot or parcel that was lawfully created prior to July 1, 2001;
  - C. The parcels for the nonfarm dwellings are divided from a lot or parcel that complies with the minimum size in Section 3.16;
  - D. The remaining area of the original lot or parcel that does not contain the nonfarm dwellings complies with the minimum size in Section 3.16; and
  - E. The parcels for the nonfarm dwellings are generally unsuitable for the production of farm crops and livestock or merchantable tree species considering the terrain, adverse soil or land conditions, drainage or flooding, vegetation, location and size of the tract. A parcel may not be considered unsuitable based solely on size or location if the parcel can reasonably be put to farm or forest use in conjunction with other land.
4. A division of land to divide a lot or parcel by creating up to two parcels, each to contain one dwelling not provided in conjunction with farm use, may be permitted if:
  - A. The nonfarm dwellings have been approved under Subsection 3.10.2;
  - B. The parcels for the nonfarm dwellings are divided from a lot or parcel that was lawfully created prior to July 1, 2001;
  - C. The parcels for the nonfarm dwellings are divided from a lot or parcel that is equal to or smaller than the minimum size in Section 3.16 but equal to or larger than 40 acres;
  - D. The parcels for the nonfarm dwellings are:
    - (1) Not capable of producing more than at least 20 cubic feet per acre per year of wood fiber; and

- (2) Either composed of at least 90 percent Class VII and VIII soils, or composed of at least 90 percent Class VI through VIII soils and are not capable of producing adequate herbaceous forage for grazing livestock. The Land Conservation and Development Commission, in cooperation with the State Department of Agriculture and other interested persons, may establish by rule objective criteria for identifying units of land that are not capable of producing adequate herbaceous forage for grazing livestock. In developing the criteria, the commission shall use the latest information from the United States Natural Resources Conservation Service and consider costs required to utilize grazing lands that differ in acreage and productivity level;
- E. The parcels for the nonfarm dwellings do not have established water rights for irrigation; and
- F. The parcels for the nonfarm dwellings are generally unsuitable for the production of farm crops and livestock or merchantable tree species considering the terrain, adverse soil or land conditions, drainage or flooding, vegetation, location and size of the tract. A parcel may not be considered unsuitable based solely on size or location if the parcel can reasonably be put to farm or forest use in conjunction with other land.
- 5. This section does not apply to the creation or sale of cemetery lots, if a cemetery is within the boundaries designated for a farm use zone at the time the zone is established.
- 6. This section does not apply to divisions of land resulting from lien foreclosures or divisions of land resulting from foreclosure of recorded contracts for the sale of real property.
- 7. This section does not allow division of a lot or parcel described in 3.04.15 or 3.04.21.
- 8. This section does not allow division of a lot or parcel that separates a processing facility from the farm operation specified in Section 3.04.19.
- 9. A division of land may be permitted to create a parcel with an existing dwelling to be used:
  - A. As a residential home as described in ORS 197.660 (2) only if the dwelling has been approved under Section 3.10; and
  - B. For historic property that meets the requirements of Section 3.03.10.

10. Notwithstanding Section 3.16, a division of land may be approved for the purpose of establishing a park, provided the following are met:
  - A. A parcel created pursuant to this subsection that does contain a dwelling:
    - (1) The land division is for the purpose of allowing a provider of public parks or open space, or a not-for-profit land conservation organization, to purchase at least one of the resulting parcels; and
    - (2) A parcel created by the land division that contains a dwelling is large enough to support continued residential use of the parcel.
  - B. A parcel created pursuant to this subsection that does not contain a dwelling:
    - (1) Is not eligible for siting a dwelling, except as may be authorized under ORS 195.120;
    - (2) May not be considered in approving or denying an application for siting any other dwelling;
    - (3) May not be considered in approving a redesignation or rezoning of forestlands except for a redesignation or rezoning to allow a public park, open space or other natural resource use; and
    - (4) May not be smaller than 25 acres unless the purpose of the land division is to facilitate the creation of a wildlife or pedestrian corridor or the implementation of a wildlife habitat protection plan or to allow a transaction in which at least one party is a public park or open space provider, or a not-for-profit land conservation organization, that has cumulative ownership of at least 2,000 acres of open space or park property.
11. A division of land smaller than the minimum lot or parcel size in Section 2.16 may be approved provided:
  - A. The division is for the purpose of establishing a church, including cemeteries in conjunction with the church;
  - B. The church has been approved under Subsection 3.04.;
  - C. The newly created lot or parcel is not larger than five acres; and

- D. The remaining lot or parcel, not including the church, meets the minimum lot or parcel size described in Subsection 3.16 either by itself or after it is consolidated with another lot or parcel.
- 12. Notwithstanding the minimum lot or parcel size described Section 3.16, a division for the nonfarm uses set out in Subsection 3.03.6 if the parcel for the nonfarm use is not larger than the minimum size necessary for the use.
- 13. The governing body of a county may not approve a division of land for nonfarm use under subsection 2, 3, 5, 6, 7, or 8 unless any additional tax imposed for the change in use has been paid.
- 14. Parcels used or to be used for training or stabling facilities may not be considered appropriate to maintain the existing commercial agricultural enterprise in an area where other types of agriculture occur.

### 3.16 MINIMUM PARCEL SIZE

- 1. The minimum parcel size for farm related parcels in the A-1 Exclusive Farm Use Zone shall be as follows:
  - A. 160 acres for land not designated rangeland.
  - B. 320 acres for land designated rangeland.
  - C. On a predominantly agricultural parcel a variance application may be submitted per Article 30.00 to create parcels per ORS 215.780(1) for resource related purposes only.

### 3.17 DEVELOPMENT STANDARDS

The following standards shall apply to all development in an A-1 Exclusive Farm Use Zone.

- 1. Any proposed division of land included within the A-1 Zone resulting in the creation of one or more parcels of land shall be reviewed and approved or disapproved by the County (ORS 215.263).
- 2. Setbacks from property lines or road rights-of-way shall be a minimum of 20-feet front and rear yards and 10-feet side yards.
- 3. Animal shelters shall not be located closer than 100 feet to an R-1 or R-2 Zone.
- 4. Signs shall be limited to the following:

- A. All off-premise signs within view of any State Highway shall be regulated by State regulation under ORS Chapter 377 and receive building permit approval.
- B. All on-premise signs shall meet the Oregon Administrative Rule regulations for on-premise signs which have the following standards:
  - (1) Maximum total sign area for one business is 8% of building area plus utilized parking area, or 2,000 square feet, whichever is less.
  - (2) Display area maximum is 825 square feet for each face of any one sign, or half the total allowable sign area, whichever is less.
  - (3) Businesses which have no buildings located on the premises or have buildings and parking area allowing a sign area of less than 250 square feet may erect and maintain on-premises signs with the total allowable area of 250 square feet, 125 square feet maximum for any one face of a sign.
  - (4) Maximum height of freestanding signs adjacent to interstate highways is 65 feet, for all other highways is 35 feet, measured from the highway surface or the premises grade, whichever is higher to the top of the sign.
- C. All on-premise signs within view or 660 feet of any State Highway shall obtain permit approval from the Permit Unit, Oregon State Highway Division. No sign shall be moving, revolving or flashing, and all lighting shall be directed away from residential use or zones, and shall not be located so as to detract from a motorists vision except for emergency purposes.



## Appendix 19. ODFW Rule OAR 635-140-0000

Included in this appendix is the filing notice and full text of the Oregon Department of Fish and Wildlife's Oregon Administrative Rule 635-140-0000. This rule amends rules relating to the Greater Sage-Grouse Conservation Strategy for Oregon to address mitigation policy on impact to sage grouse habitat. This mitigation policy specifically addresses impact to sage grouse habitat from actions authorized by local county or other governmental authorities. In addition new rules were developed to implement new legislation (ORS 498.5000 and 498.502.)

Secretary of State  
Certificate and Order for Filing  
**PERMANENT ADMINISTRATIVE RULES**

**FILED**  
9-1-15 1:52 PM  
ARCHIVES DIVISION  
SECRETARY OF STATE

I certify that the attached copies are true, full and correct copies of the PERMANENT Rule(s) adopted on 07/27/2015 by the  
Department of Fish and Wildlife 635

Agency and Division

Administrative Rules Chapter Number

Michelle Tate

(503) 947-6044

Rules Coordinator

Telephone

4034 Fairview Industrial Dr. SE, Salem, OR 97302

Address

To become effective Upon filing. Rulemaking Notice was published in the July 2015 Oregon Bulletin.

**RULE CAPTION**

Amend Rules Relating to Greater Sage-Grouse Conservation Strategy for Oregon to Address Mitigation

Not more than 15 words that reasonably identifies the subject matter of the agency's intended action.

**RULEMAKING ACTION**

Secure approval of new rule numbers with the Administrative Rules Unit prior to filing.

**ADOPT:**

635-140-0002, 635-140-0025

**AMEND:**

635-140-0000, 635-140-0005, 635-140-0010, 635-140-0015

**REPEAL:**

**RENUMBER:**

**AMEND AND RENUMBER:**

**Statutory Authority:**

ORS 496.012, 496.138, 496.146, 496.162, 498.500, 498.502

**Other Authority:**

**Statutes Implemented:**

ORS 496.012, 496.138, 496.146, 496.162, 498.500, 498.502

**RULE SUMMARY**

Mitigation policy specific to addressing impact to sage grouse habitat from actions authorized by local county or other governmental authorities. Develop rules to implement new legislation (ORS 498.5000 and 498.502.)

Michelle Tate

michelle.l.tate@state.or.us

Rules Coordinator Name

Email Address



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**DIVISION 140  
GREATER SAGE-GROUSE CONSERVATION STRATEGY FOR OREGON**

**635-140-0000**

**Purpose**

These administrative rules establish the policy of the Commission for the protection and enhancement of Greater Sage-Grouse in Oregon. These rules incorporate and supplement portions of the "Greater Sage-Grouse Conservation Assessment and Strategy for Oregon" (2011) ("the Strategy") which sets population and habitat management objectives, and defines and governs the Department's core area approach to conservation of sage-grouse in Oregon. These rules also advance sage-grouse population and habitat protection through a mitigation hierarchy and the establishment of a mitigation standard for impacts from certain types of development actions in sage-grouse habitat. In the event of a conflict between the "Strategy" and these rules, these rules govern.

Statutory Authority: ORS 496.012, 496.138, 496.146, 496.162, 498.500, 498.502

Stats Implemented: ORS 496.012, 496.138, 496.146, 496.162, 498.500, 498.502

**635-140-0002**

**Definitions**

For the purposes of OAR 635-140-0000:

Technical terms used in these sections are further defined in the glossary of the "Greater Sage-Grouse Conservation Assessment and Strategy for Oregon" adopted by the Commission on April 22, 2011 (copies of the plan are available through the Oregon Department of Fish and Wildlife).

(1) "Areas of High Population Richness" are mapped areas of breeding and nesting habitat within core habitat that support the 75<sup>th</sup> percentile of breeding bird densities (i.e., the top 25%).

(2) "Core areas" are mapped sagebrush types or other habitats that support greater sage-grouse annual life history requirements that are encompassed by areas: a) of very high, high, and moderate lek density strata; b) where low lek density strata overlap local connectivity corridors; or c) where winter habitat use polygons overlap with either low lek density strata, connectivity corridors, or occupied habitat." Core area maps are maintained by the Department.

(3) "Development action" means any human activity subject to regulation by local, state, or federal agencies that could result in the loss of sage-grouse habitat. Development actions may include but are not limited to, construction, and operational activities authorized or conducted by local, state, and federal agencies. Development actions also include subsequent re-permitting of existing activities proposing new impacts beyond current conditions.

(4) "Direct impact" means an adverse effect of a development action upon sage-grouse habitat which is proximal to the physical footprint of the development action in time and place.

(5) "Functionality" is the ability of habitat to meet sage-grouse seasonal and/or year round life history needs (e.g. breeding, early rearing, wintering, migratory) and sustain sage-grouse populations.

(6) "Indirect impacts" are adverse effects to sage-grouse and their habitat that are caused by or will ultimately result from implementation of a development action, with such effects usually occurring later in time or more removed in distance as compared to direct effects.

(7) "Low density" areas are mapped sagebrush types or other habitats that support greater sage-grouse that are encompassed by areas where: a) low lek density strata overlapped with seasonal connectivity corridors; b) local corridors occur outside of all lek density strata; c) low lek density strata occur outside of connectivity corridors; or d) seasonal connectivity corridors occur outside of all lek density strata." Low density area maps are maintained by the Department.



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(8) “General habitat” is occupied (seasonal or year-round) sage-grouse habitat outside core and low density habitats.

(9) “Priority Areas for Conservation (PACs)” are key habitats identified by state sage-grouse conservation plans or through other sage-grouse conservation efforts (e.g., federal Bureau of Land Management plans or U.S. Fish and Wildlife Service efforts). In Oregon, core area habitats are PACs.

Statutory Authority: ORS 496.012, 496.138, 496.146, 496.162, 498.500, 498.502

Stats Implemented: ORS 496.012, 496.138, 496.146, 496.162, 498.500, 498.502

**635-140-0005**

**Population Management**

In accordance with the Wildlife Policy (ORS 496.012), the Department’s primary population management goal is to restore, maintain and enhance populations of greater sage-grouse such that multiple uses of populations and their habitats can continue. Regional and state population objectives shall be identified based on the best information available.

(1) Policy: Manage greater sage-grouse statewide to maintain or enhance their abundance and distribution at the 2003 spring breeding population level, approximately 30,000 birds over the next 50 years.

(2) Objectives: Consistent with the population management policy, achieve the following regional population objectives:

(a) Baker Resource Area BLM: maintain or enhance greater sage-grouse abundance and distribution at the 2003 spring breeding population level, approximately 2,000 birds.

(b) Vale District BLM excluding Baker Resource Area BLM: maintain or enhance greater sage-grouse abundance and distribution at the 2003 spring breeding population level, approximately 11,000 birds.

(c) Burns District BLM: maintain or enhance greater sage-grouse abundance and distribution at the 2003 spring breeding population level, approximately 4,300 birds.

(d) Lakeview District BLM: maintain or enhance greater sage-grouse abundance and distribution at the 2003 spring breeding population level, approximately 9,400 birds.

(e) Prineville District BLM: restore greater sage-grouse abundance and distribution near the 1980 spring breeding population level, approximately 3,000 birds.

Statutory Authority: ORS 496.012, 496.138, 496.146, 496.162

Stats Implemented: ORS 496.012, 496.138, 496.146, 496.162

**635-140-0010**

**Habitat Management**

(1) Goals: The Department’s habitat goals are to achieve the following, recognizing that such achievement is dependent upon authorities, programs, collaborative partnerships, and other factors beyond those within the Department’s authority alone:

(a) Maintain or enhance the distribution of sagebrush habitats within greater sage-grouse range in Oregon;

(b) Manage those habitats in a variety of structural stages to benefit greater sage-grouse while reducing or minimizing habitat threats and promoting resilience;

(c) Avoid development actions in sage-grouse core, low density, and general habitats which adversely impact sage-grouse habitat or sage-grouse use of those habitats;

(d) Limit the extent, location, and negative impacts of development actions over time within sage-grouse core, low density, and general habitats. In core areas, direct impact levels from development



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actions will be limited to no more than 3% of any "Priority Area for Conservation" and a rate not to exceed 1.0% over a ten year period, as described in OAR 660 023 0115;

(e) Require compensatory mitigation for direct and indirect impacts from developments within sage-grouse core, low density, and general habitats. Ensure such mitigation provides a net conservation benefit to sage-grouse and their habitat by providing an increase in the functionality of their habitat to support sage-grouse, consistent with OAR 635-140-0025.

(2) Objective: Manage a minimum of 70% of greater sage-grouse range for sagebrush habitat in advanced structural stages, sagebrush class 3, 4 or 5, with an emphasis on classes 4 and 5. The remaining approximately 30% includes areas of juniper encroachment, non-sagebrush shrub land, and grassland and should be managed to increase available habitat within greater sage-grouse range.

(3) Objective: Maintain and enhance existing sagebrush habitats and enhance potential habitats that have been disturbed such that there is a net conservation gain of sagebrush habitat in the following regions:

- (a) Baker Resource Area BLM: 82% sagebrush and 18% disturbed habitats.
- (b) Vale District BLM (excluding Baker Resource Area): 70% sagebrush and 30% disturbed habitats.
- (c) Burns District BLM: 68% sagebrush and 32% disturbed habitats.
- (d) Lakeview District BLM: 72% sagebrush and 28% disturbed habitats.
- (e) Prineville District BLM: 47% sagebrush and 53% disturbed habitats.

Statutory Authority: ORS 496.012, 496.138, 496.146, 496.162

Stats Implemented: ORS 496.012, 496.138, 496.146, 496.162

### **635-140-0015**

#### **Core Area Approach to Conservation**

(1) The purpose of establishing the Department's core area approach is to address greater sage-grouse management from a conservation biology perspective that identifies the most productive populations and habitats associated with meeting all life history needs related to ensuring sage-grouse viability in Oregon.

(a) Policy 1. The Department shall develop and maintain maps that identify core area habitats necessary to conserve 90% of Oregon's greater sage-grouse population, with emphasis on highest density and important use areas which provide for breeding, wintering and connectivity corridors.

(b) Policy 2. The Department shall develop and maintain maps that identify low density habitat which provide breeding, summer, and migratory habitats of the Oregon statewide greater sage-grouse population.

(c) When developing, revising, or maintaining the maps referred to in paragraphs (a) and (b) the Department will use:

(A) Local Sage-Grouse Implementation Teams to evaluate the maps and refine exterior boundaries by use of aerial imagery and local knowledge of sage-grouse and sage-grouse habitat;

(B) Best available science to further understanding of greater sage-grouse life history and conservation needs; and

(C) County governing bodies, or their designees, to provide local knowledge and input regarding changes in local land use to be incorporated in the core area maps and any related mapping changes.

Statutory Authority: ORS 496.012, 496.138, 496.146, 496.162

Stats Implemented: ORS 496.012, 496.138, 496.146, 496.162



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**635-140-0025**

**Mitigation Hierarchy of Impacts in Sage-grouse Core, Low Density, and General Habitats**

Adverse impacts in sage-grouse core, low density, and general habitat from development actions must be mitigated by the developer for both direct and indirect adverse impacts to sage-grouse and their habitats. When ascertaining direct and indirect adverse impacts from development actions, the Department will use the most current and best available science related to sage-grouse biology and habitat conservation, including the Mitigation Framework for Sage-Grouse Habitats (ODFW, March 20, 2012). Mitigation is comprised, in hierarchal order, of avoidance, minimization, and compensatory mitigation.

(1) Policy 1. Mitigation for direct and indirect impacts from development actions will be required where the proposed development action:

(a) Requires a county land use permit, is a large-scale development as defined in OAR 660-023-0115, and would impact core or low density habitat,

(b) Requires a county land use permit, is a large-scale development as defined in OAR 660-023-0115, and would impact general habitat within 3.1 miles of a lek in a manner that would reduce functional sage-grouse habitat or sage-grouse use of their habitat,

(c) Requires a county land use permit but is not a large scale development as defined in OAR 660-023-0115. In this case, through consultation with the development action proponent, the Department will determine:

(A) Whether to require mitigation based on the likelihood of adverse impacts from the proposed action in a manner that would reduce functional sage-grouse habitat or sage-grouse use of that habitat;

(1) within 4 miles of a lek in core area habitat,

(2) within 3.1 miles of a lek in low density habitat, or

(3) within 3.1 miles of a lek in general habitat

(B) If mitigation is required based on (1)(c)(A) above, the appropriate level of mitigation will be based on the nature of the impact upon habitat functionality and the resultant risk to sage-grouse.

(C) Mitigation is not required for private land agricultural activities exempted from regulation under OAR-660-023-0115.

(d) Is located in or would adversely impact sage-grouse habitat on public lands and requires state or federal approval not otherwise exempted in OAR 660-023-0115.

(2) Policy 2. The Department may approve or recommend approval of mitigation for impacts from a large-scale development permitted by a county; or development actions permitted by a state or federal government entity on public land, within sage-grouse habitat only after the following mitigation hierarchy has been addressed by the permitting entity, with the intent of directing the development action away from the most productive habitats and into the least productive areas for sage-grouse (in order of importance: core area, low density, general, and non-habitat).

(a) Avoidance in Core Area Habitat. If the proposed development can occur in another location that avoids both direct and indirect impacts within core habitat, then the proposal must not be allowed unless it can satisfy the following criteria:

(A) It is not technically feasible to locate the proposed development activity or its impacts outside of a core habitat area based on accepted engineering practices, regulatory standards or some combination thereof. Costs associated with technical feasibility may be considered, but cost alone may not be the only consideration in determining that the development must be located such that it will have direct or indirect impacts on sage-grouse core area habitat; or

(B) The proposed development is dependent on a unique geographic or other physical feature(s) that cannot be found on other lands; and

(C) If the proposal is for a large-scale development as defined in Oregon Land Conservation and Development OAR 660-023-0115 and either (2)(a)(A) or (2)(a)(B) is found to be satisfied, the permitting



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entity must also find that it will provide important economic opportunity, needed infrastructure or public safety benefits for local citizens or the entire region.

(b) Avoidance in Low Density Habitat. If the proposed development action can occur in another location that avoids both direct and indirect impacts within low density sage-grouse habitat, then the proposal must not be allowed unless it can satisfy the following criteria:

(A) It is not technically or financially feasible to locate the proposed use outside of low density sage-grouse habitat based on accepted engineering practices, regulatory standards, proximity to necessary infrastructure or some combination thereof; or

(B) The proposed development action is dependent on geographic or other physical feature(s) found in low density habitat areas that are less common at other locations.

(c) Avoidance in General Habitat. If the proposed development activity and its direct and indirect impacts are in general sage-grouse habitat (within 3.1 miles of a lek), then the permitting entity may allow the activity based on satisfaction of the following criteria:

(A) Consultation between the development proponent and the Department that generates recommendations pursuant to the approach identified in minimization subsection (d), and

(B) Incorporation by the project proponent of reasonable changes to the project proposal based on the above consultation with the Department, and/or justification as to why a given recommendation is not feasible.

(d) Minimization. If after exercising the above avoidance tests, the permitting entity finds the proposed development action cannot be moved to non-habitat or into a habitat category that avoids adverse direct and indirect impacts to a habitat category of greater significance (i.e., core or low density), then the next step applied in the mitigation hierarchy will be minimization of the direct and indirect impacts of the proposed development action. Minimization consists of how to best locate, construct, operate and time (both seasonally and diurnally) the development action so as to avoid or minimize direct and indirect impacts on important sage-grouse habitat and sage-grouse.

(A) Minimizing impacts from development actions in core habitat shall ensure direct and indirect impacts do not occur in known areas of high population richness within a given core area, unless a project proponent demonstrates, by a preponderance of the evidence, that such an approach is not feasible.

(B) Minimizing impacts from development actions in general habitat shall include consultation between the development proponent and the Department that considers and results in recommendations on how to best locate, construct, or operate the development action so as to avoid or minimize direct and indirect impacts on important sage-grouse habitat within the area of general habitat.

(e) Compensatory Mitigation. If avoidance and minimization efforts have been exhausted, compensatory mitigation to address both direct and indirect impacts will be required as part of the permitting process for remaining adverse impacts from the proposed development action to sage-grouse habitat, consistent with the mitigation standard in (3) Policy 3 below.

(3) Policy 3. The standard for compensatory mitigation of direct and indirect habitat impacts in sage-grouse habitat (core low density, and general areas) is to achieve net conservation benefit for sage-grouse by replacing the lost functionality of the impacted habitat to a level capable of supporting greater sage-grouse numbers than that of the habitat which was impacted. Where mitigation actions occur in existing sage-grouse habitat, the increased functionality must be in addition to any existing functionality of the habitat to support sage-grouse. When developing and implementing mitigation measures for impacts to core, low density, and general sage-grouse habitats, the project developers shall:

(a) Work directly with the Department and permitting entity to obtain approval to implement a mitigation plan or measures, at the responsibility of the developer, for mitigating impacts consistent with the standard in OAR 635 140 0025 (3) or,





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(b) Work with an entity approved by the Department to implement, at the responsibility of the developer, “in-lieu fee” projects consistent with the standard in OAR 635 140 0025 (3).

(c) Any mitigation undertaken pursuant to (a) or (b) above must have in place measures to ensure the results of the mitigation activity will persist (barring unintended natural events such as fire) for the life of the original impact. The Department will engage in mitigation discussions related to development actions in a manner consistent with applicable timelines of permitting entities.

(4) Policy 4. The Department shall follow the Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0000) when defining habitat categories and providing recommendations to address potential site-level impacts to species other than greater sage-grouse that occur within sage-grouse core area habitat or sage-grouse low density habitat, except that if there is a resulting conflict between OAR 635-415-0000 and this rule, then this rule shall control.

Statutory Authority: ORS 496.012, 496.138, 496.146, 496.162

Stats Implemented: ORS 496.012, 496.138, 496.146, 496.162

Amended: July 2015

## Appendix 20. Datasets Used and Developed for the Action Plan

Datasets used and developed for the Action Plan can be found on the Oregon Explorer site:  
<http://oregonexplorer.info/content/sagecon?topic=203&ptopic=179>

Title	Posted	Download	Metadata	Map Services	Category
Ancient Juniper	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
BLM Roads	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	NA	Infrastructure
Cheat Grass Risk	10/2/2014	<a href="#">website</a>	NA	NA	Vegetation
Counties	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Base
Current Distribution of Sage-grouse in Oregon	10/2/2014	<a href="#">.zip</a>	<a href="#">.doc</a>	NA	Sage-grouse
Dalmation Toadflax	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Diffuse Knapweed	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Dissolved Fire Perimeters from GeoMAC, 2000-2012	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Fire
Ecological Systems	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	NA	Vegetation
Energy Development Exclusion Zones, <i>Draft</i>	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Energy
Exotic Annual Grasses (2013), 2 IAG Classes, Masked	3/5/2015	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Exotic Annual Grasses (2013), 2 IAG Classes	3/5/2015	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Exotic Annual Grasses (2013), 3 IAG Classes Masked	3/5/2015	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Exotic Annual Grasses (2013), 3 IAG Classes	3/5/2015	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Existing Vegetation, ILAP	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Greater Sage-grouse Action Areas	10/2/2014	NA	<a href="#">.xml</a>	NA	Sage-grouse
GSG Core and Low Density Habitat (ODFW)	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	NA	Sage-grouse
Greater Sage-grouse Occupied Habitat	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Sage-grouse
Greater Sage-grouse Priority Areas for Conservation in Oregon	12/8/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, GoogleEarth	Sage-grouse
Hexagons from CHAT/COMPASS	10/2/2014	<a href="#">website</a>	NA	NA	Base
Current Vegetation of SE and Central Oregon (2013)	11/5/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	NA	Vegetation

Title	Posted	Download	Metadata	Map Services	Category
Invasive Annual Grass Risk	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Landfire Existing Vegetation	10/2/2014	<a href="#">website</a>	NA	NA	Vegetation
Landfire Potential Vegetation	10/2/2014	<a href="#">website</a>	NA	NA	Vegetation
Oregon Railroads	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	NA	Infrastructure
Ownership Allocation	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Base
Medusahead	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Perennial Pepperweed	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Primary Road Densities	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Infrastructure
Rush Skeletonweed	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
SageCon Planning Area	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Base
Sage-grouse Management Zones	10/2/2014	<a href="#">website</a>	<a href="#">.xml</a>	NA	Sage-grouse
Sage-grouse Population Boundaries, Modified	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Sage-grouse
Sage Habitats (ReGAP) within 5 KMs (Focal Stats)	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Sage-grouse
Secondary Road Densities	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Infrastructure
Simulated Historical Mean Fire Return Interval	10/2/2014	<a href="#">website</a>	NA	NA	Fire
Solar Direct Normal Irradiance	10/2/2014	<a href="#">website</a>	NA	NA	Base
Solar Global Horizontal Irradiance	10/2/2014	<a href="#">website</a>	NA	NA	Base
Special BLM Management Areas	10/2/2014	<a href="#">website</a>	NA	NA	Base
Spotted Knapweed	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Tertiary Road Densities	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Infrastructure
Waterbodies	10/2/2014	<a href="#">.zip</a>	<a href="#">.html</a>	NA	Base
Wetlands	10/2/2014	<a href="#">website</a>	NA	NA	Base
Whitetop	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Wildland Fire Potential	10/2/2014	<a href="#">website</a>	NA	NA	Fire

Title	Posted	Download	Metadata	Map Services	Category
Wind Energy Right of Ways	10/2/2014	<a href="#">website</a>	NA	NA	Energy
Wind Potential at 50m Height	10/2/2014	<a href="#">website</a>	NA	NA	Energy
Tree Cover (Woody Vegetation over 7 feet in height)	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation
Yellow Star-thistle	10/2/2014	<a href="#">.zip</a>	<a href="#">.xml</a>	ArcMap, Google Earth	Vegetation