

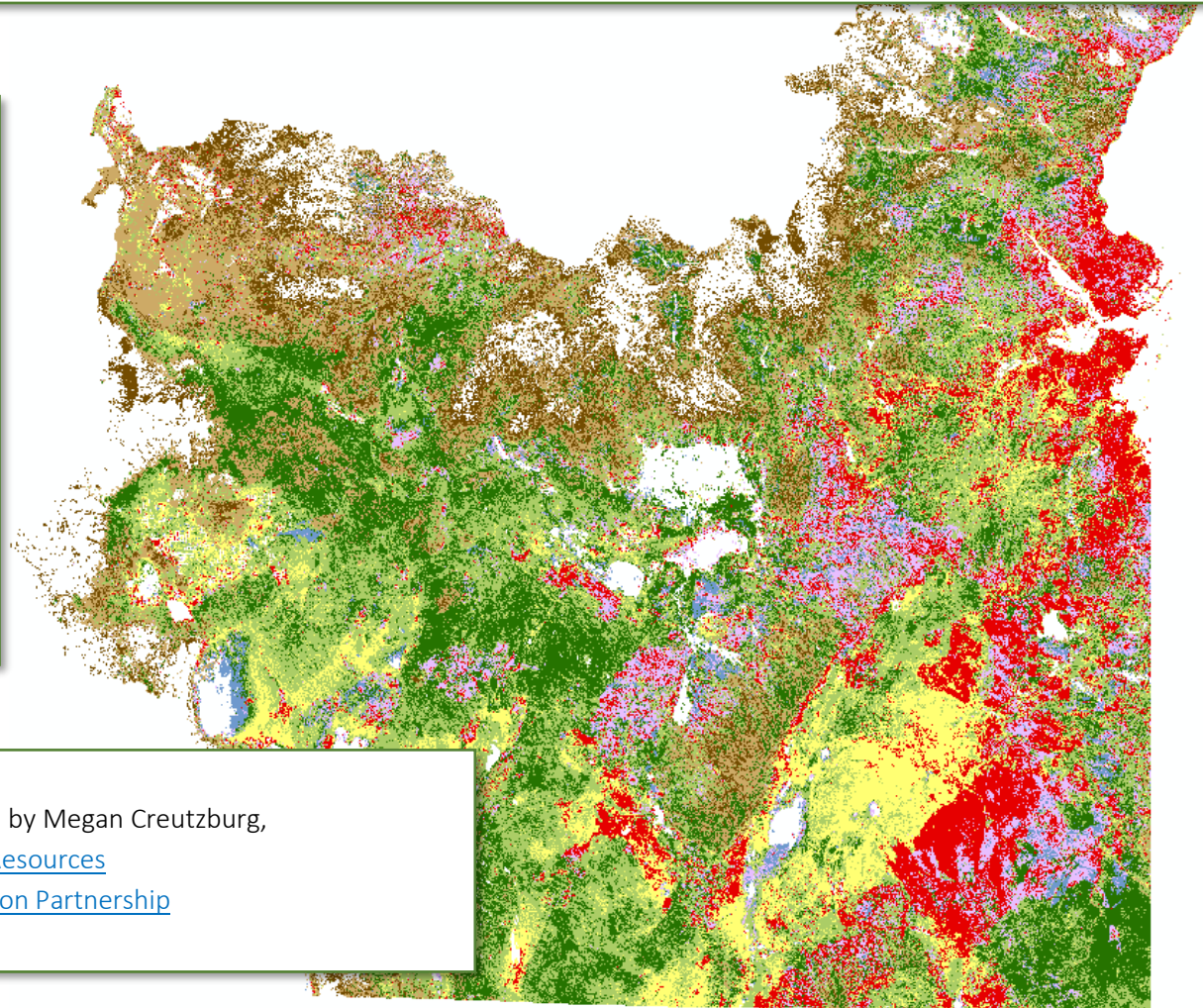


# RANGELAND CONDITION IN OREGON

SageCon  
Partnership  
Rangeland  
Condition Report

UPDATE

June 2021



Information compiled by Megan Creutzburg,  
[Institute for Natural Resources](#)  
for the Oregon [SageCon Partnership](#)

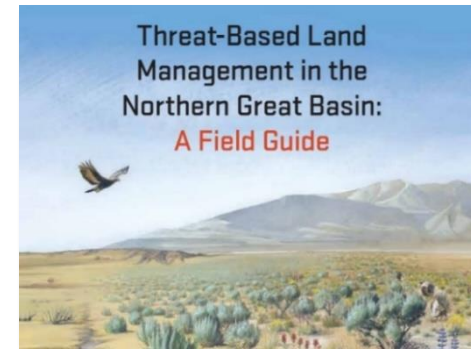
## RANGELAND CONDITION IN OREGON

Sagebrush rangelands in Oregon cover more than 18 million acres across nearly one third of the land base in the state. The sagebrush ecosystem came to the forefront of public attention when the [Greater sage-grouse](#), a sagebrush-obligate bird, was considered for listing under the [Endangered Species Act](#) in 2010 and again in 2015. Although the sage-grouse was not listed, populations remain concerning and high quality sagebrush rangelands in Oregon and across the western US continue to decline. In Oregon, the primary threats to sagebrush ecosystems and sage-grouse habitat are invasive annual grasses, wildfire, and juniper encroachment. Invasive annual grasses such as cheatgrass are widespread throughout rangelands in the state, creating fine fuels that drive wildfire and displacing native bunchgrasses that are key to ecosystem resilience. As a result, uncharacteristically large wildfires have burned in Oregon rangelands in recent years, particularly in 2012 and 2014. Juniper, a native conifer tree species that historically occurred at higher elevations, is expanding into areas previously dominated by sagebrush and grasses. All of these changes impact wildlife habitat, ecosystem function, and livestock ranching operations.



### PRIMARY RANGELAND CONDITION INDICATORS

9.1 million	acres of functioning sagebrush rangeland
4.1 million	acres impaired by invasive grasses
2.9 million	acres impaired by juniper expansion
3.1 million	acres of rangelands burned in Oregon (2003-2020)



Oregon has adopted a [threat-based model](#) approach to characterizing sagebrush rangelands, capturing two primary aspects of condition:

- Ecosystem structure: shrub dominated communities maintain structure necessary for many species of wildlife, but many areas lack shrub cover or have been encroached by juniper woodlands. Areas with sagebrush cover >10% without juniper encroachment is often beneficial for sage-grouse.
- Understory herbaceous condition: areas with good condition are dominated by perennial bunchgrasses with minimal invasive annual grasses, whereas invasive species are dominant in poor condition areas. Intermediate condition areas are in between; perennial grasses are dominant but annual grasses are present at concerning levels. Deep-rooted bunchgrasses provide the greatest soil stability and resistance to invasion.

Overall condition is summarized into “ecostates” based on shrub, tree, annual herbaceous and perennial herbaceous cover.

This report summarizes maps and vegetation plot data to provide a snapshot of condition and threats across Oregon rangelands, and has been updated to include a set of [Ecstate Time Series](#) maps developed in 2021. *This report replaces the previous Rangeland Condition report from 2020; see last page for more details.* This reporting supports the monitoring requirements of the 2015 [Oregon Sage-Grouse Action Plan](#) and supplements the [SageCon Dashboard](#), which provides an overview of the status and trends of sagebrush, sage-grouse, and collaborative conservation in southeastern Oregon.



## RANGELAND CHANGE OVER TIME



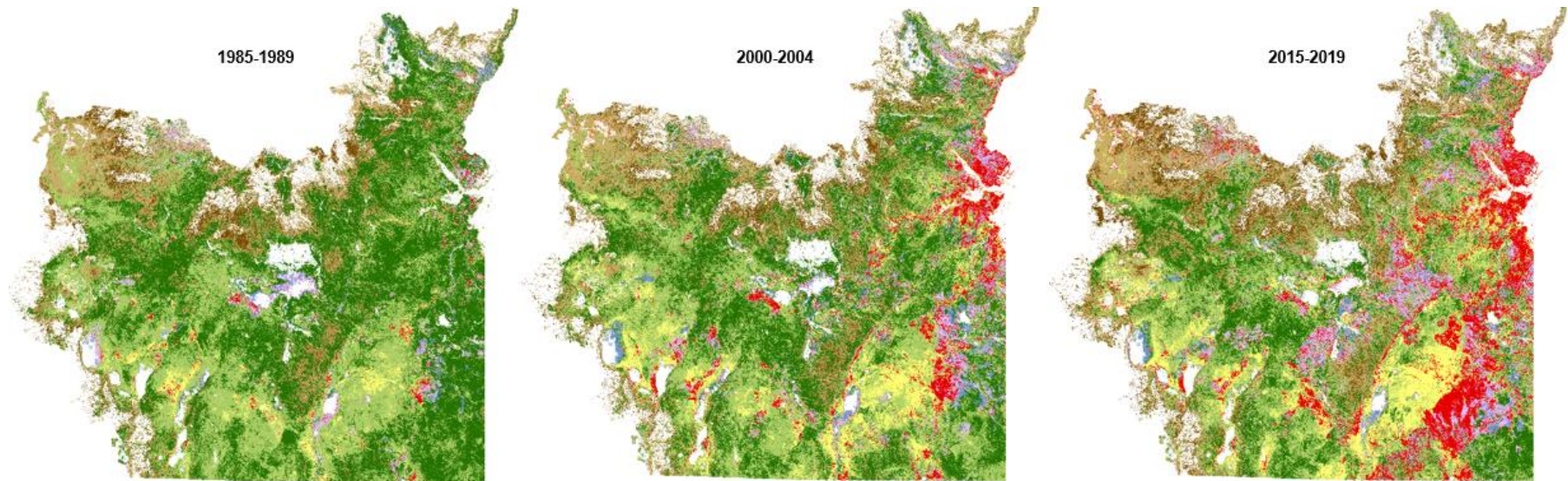
The photo above shows “state A” a healthy and diverse sagebrush community with shrubs, bunchgrasses, and forbs. These areas have declined over time in southeastern Oregon. Photo credit: Jennifer Strickland, US Fish & Wildlife Service.

New mapping technology has allowed researchers to develop spatial datasets that cover large spatial extents and long time frames. The [Ecostate Time Series](#) dataset developed for Oregon depicts rangeland condition from the mid-1980s to present in seven maps, each representing 5-year time slices (three shown below). This time series provides a powerful visualization of changing rangelands and a tool to evaluate change in sagebrush ecosystem condition and the distribution and severity of annual grass invasion and juniper encroachment over the last few decades. Ecostates A and A-C (dark and light green) can be combined to show areas with relatively intact herbaceous vegetation, although areas mapped as A-C should be monitored to ensure perennial grasses retain their dominance over invasive species.



- A: Good condition shrubland
- A-C: Intermediate condition shrubland
- B: Good condition grassland
- B-D: Intermediate condition grassland
- C: Poor condition shrubland
- D: Poor condition grassland
- Juniper: low-mid cover
- Juniper: high cover

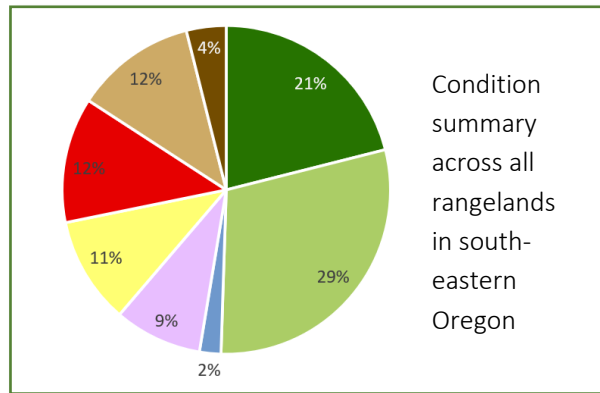
The time series maps shown below depict widespread changes, from good and intermediate condition shrubland in the 1980s to large areas with poor condition due to the expansion of invasive annual grasses and large wildfire events.



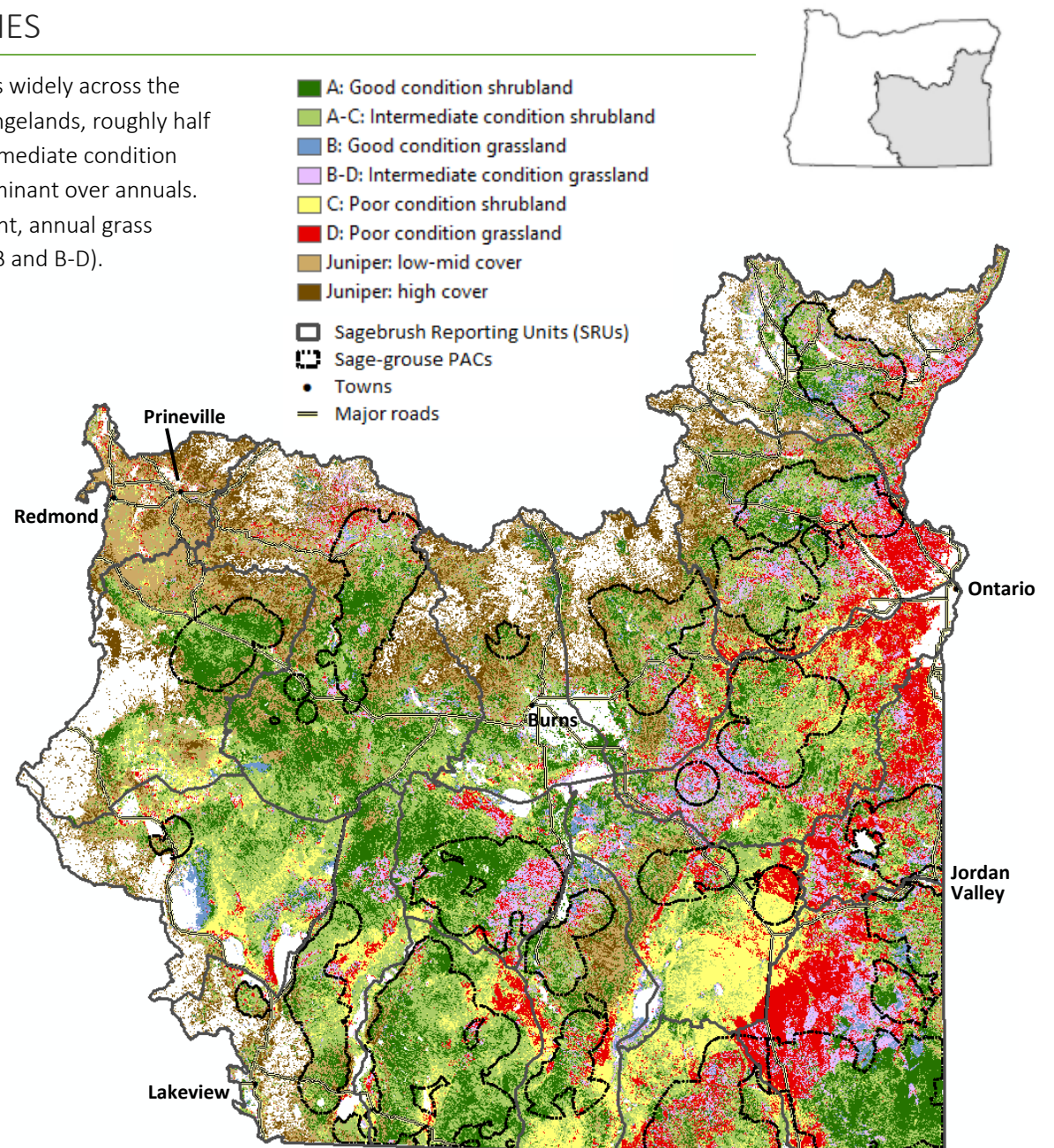
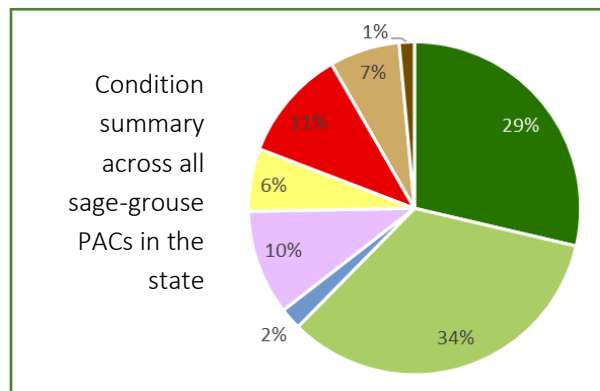


## RANGELAND CONDITION SUMMARIES

Rangeland condition across southeastern Oregon varies widely across the landscape based on many factors. Across all Oregon rangelands, roughly half of the area is mapped as relatively intact (good or intermediate condition shrubland; A and A-C), where perennial grasses are dominant over annuals. The rest of the landscape contains juniper encroachment, annual grass invasion (C and D), and areas with sparse shrub cover (B and B-D).



Areas mapped as sage-grouse Priority Areas for Conservation (PACs) contain some of the best quality rangelands in the state, with roughly two-thirds of the area across all PACs in ecostates A or A-C, and one-third compromised by one or more threat.



# RANGELAND CONDITION SUMMARIES BY SAGEBRUSH REPORTING UNIT

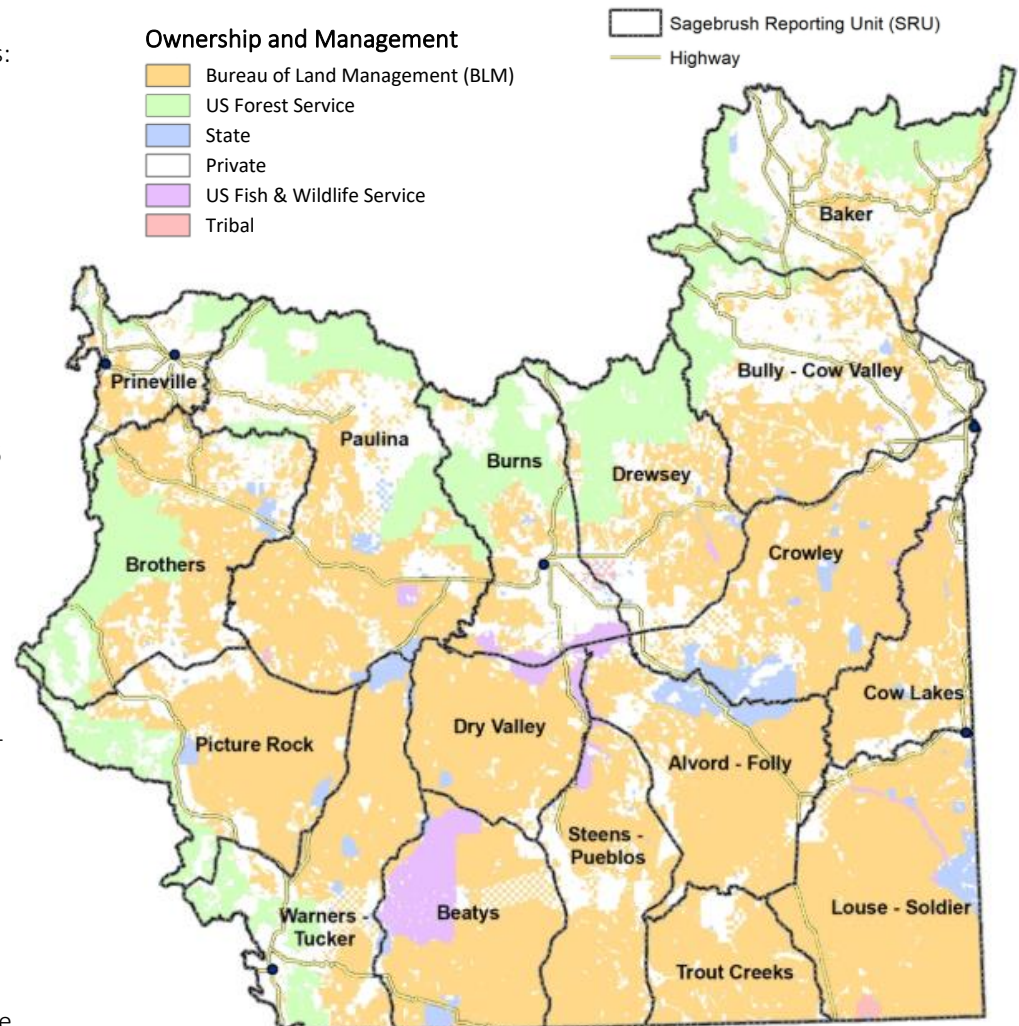
This report provides rangeland condition summaries for 17 sagebrush reporting units (SRUs) across southeastern Oregon. SRUs contain large areas within and around sage-grouse PACs and divide the landscape into units that are large enough to obscure information about individual private landowners. Each page below describes condition and threats in each SRU through text, maps, and charts (excluding the Prineville SRU, as it is peripheral).



Rangeland condition in this report is summarized from three sources:

1. [Ecstate Time Series maps](#), which provide a generalized snapshot of vegetation condition and the distribution and extent of primary threats (invasion by annual grasses and encroachment of juniper; see description above) over time. The maps cross both public and private jurisdictions for a landscape-wide view of rangeland condition.
2. Vegetation plot data from 2016-2020 collected through the Bureau of Land Management (BLM) Assessment Inventory and Monitoring ([AIM](#)) program. AIM plots contain detailed quantitative information on rangeland condition from 2,596 plots on BLM-administered land. Indicators selected for this report include sagebrush cover, deep-rooted perennial bunchgrass cover, and perennial forb diversity. These indicators generally correspond to high condition sagebrush rangelands and complements the map summaries on the distribution of threats in the ecstate maps.
3. Wildfire perimeters capture wildfire disturbance from 2003-2020 across public and private land. Wildfire is a primary threat because invasive annual grasses often expand post-fire and fires often kill sagebrush plants, which can take decades to recolonize burned sites.

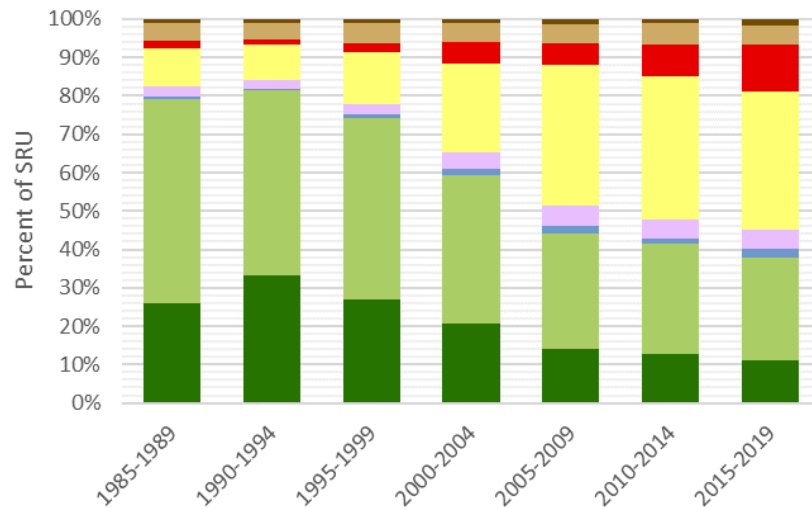
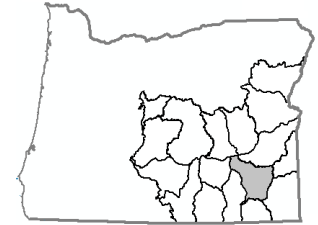
Taken together, these three information sources provide a snapshot of vegetation condition across rangelands in Oregon (see last page for more details). The ecstate map and other spatial datasets can be accessed from the [SageCon Landscape Planning Tool](#).



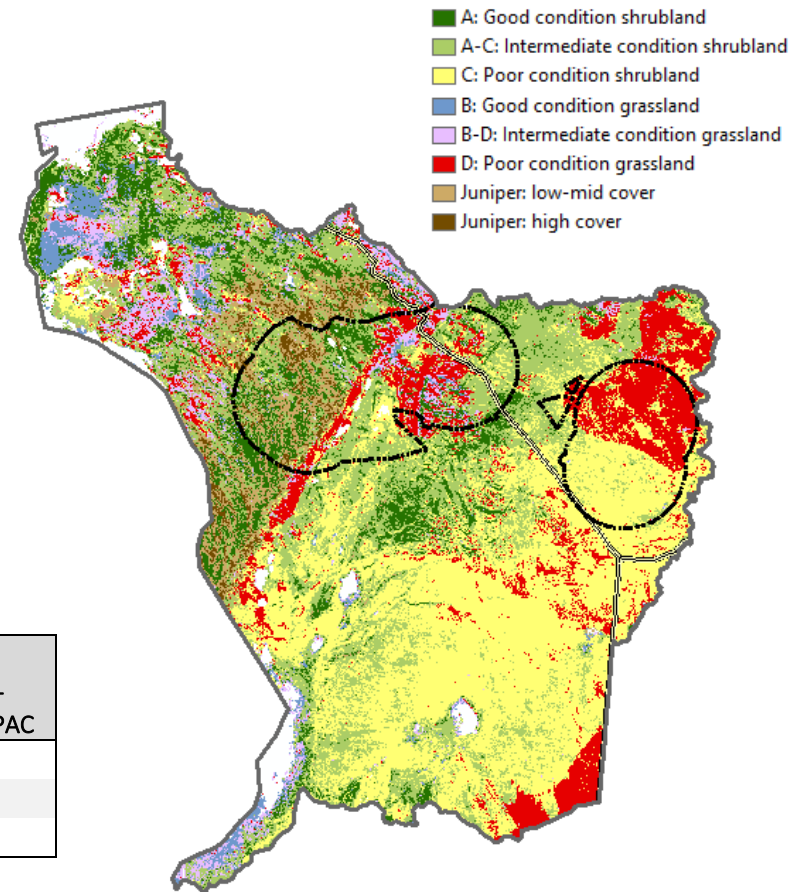


## ALVORD – FOLLY FARM SAGEBRUSH REPORTING UNIT

The Alvord – Folly Farm SRU covers 1.36 million acres and contains 1.28 million acres of rangelands east of Steens mountain. It includes the Folly Farm - Saddle Butte sage-grouse PAC (251,000 acres), and 728,000 acres of low-density sage-grouse habitat east of the Alvord Desert. Land ownership is 77% federally-managed, 8% state-managed, and 15% private.



Annual grasses are widespread in this SRU, with large expanses of poor condition shrublands. Areas of relatively intact shrub steppe (A and A-C) cover approximately 483,000 acres (38%) of the SRU and 87,000 acres (35%) of rangelands in the PAC.



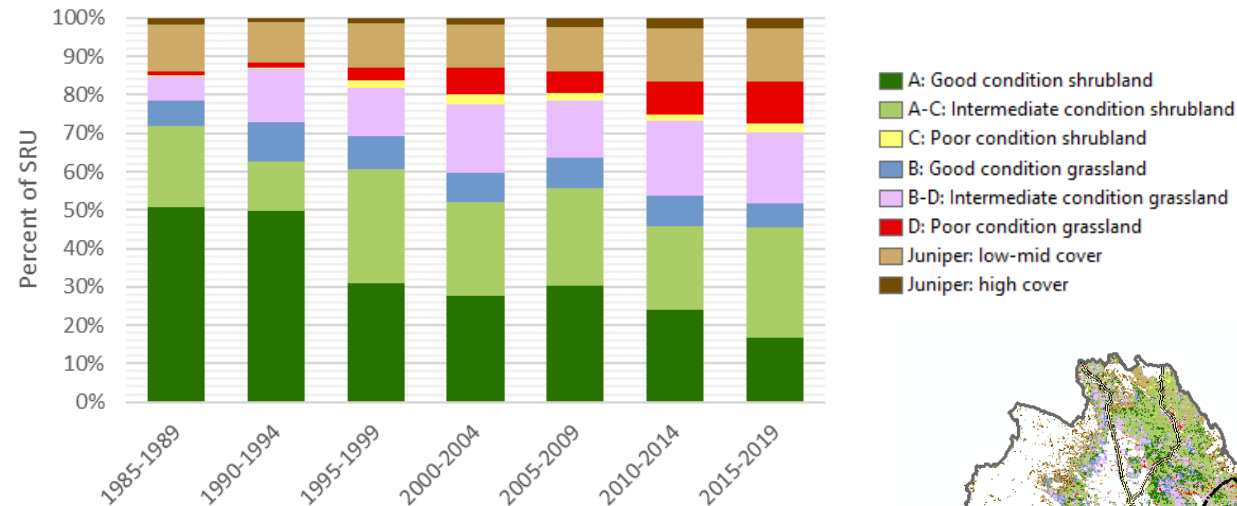
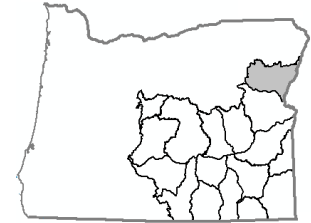
VEGETATION MAP SUMMARY		ACRES & PERCENT RANGELANDS AFFECTED			
Primary Threat		Alvord - Folly SRU		Folly Farm - Saddle Butte PAC	
IAG dominated (2015-2019)		615,000	48%	120,000	48%
Juniper encroached (2015-2019)		86,000	7%	28,000	11%
Wildfire (burned 2003-2020)		159,000	11%	57,000	23%

AIM PLOT SUMMARY (BLM MANAGED ONLY)		NUMBER (%) OF AIM PLOTS	
Selected Rangeland Health Indicators		Alvord - Folly SRU	Folly Farm - Saddle Butte PAC
Plots with 10-25% sagebrush cover		65 (44%)	29 (45%)
Plots with ≥15% deep-root perennial grass cover		31 (21%)	18 (28%)
Plots with ≥5% perennial forb cover		25 (17%)	15 (23%)

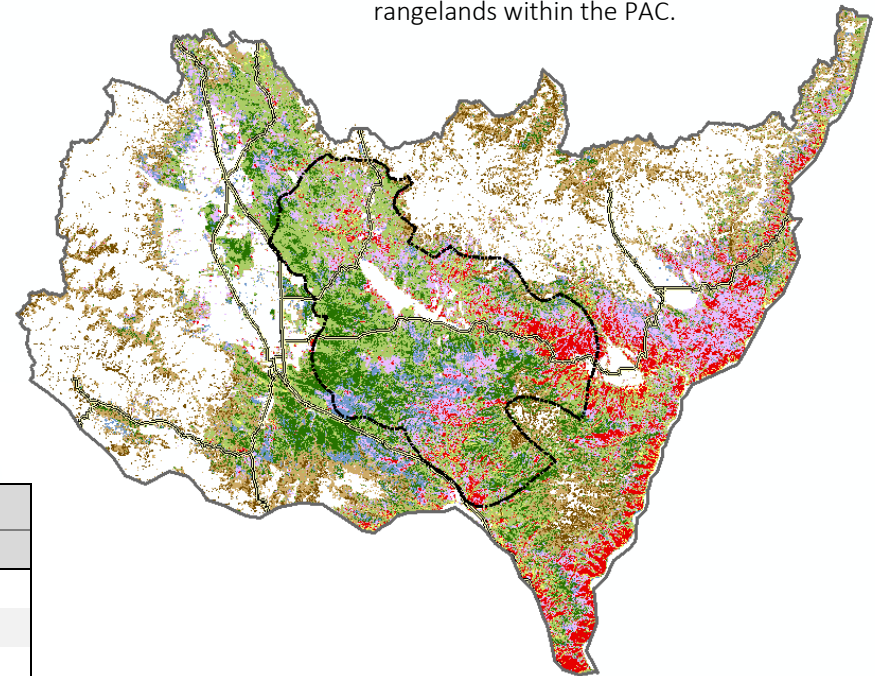
Number of BLM AIM plots (2016-2020) in SRU: 147, PAC: 64.

## BAKER SAGEBRUSH REPORTING UNIT

The Baker SRU encompasses nearly 1.6 million acres and 833,000 acres of sagebrush rangelands in the northeastern corner of the sage-grouse range in Oregon, including 336,300 acres in the Baker PAC. Land ownership is 48% federally-managed (much of that area in the forests surrounding the PAC) and 52% private. The Baker PAC has a high proportion of private land (66%) compared to most other PACs, highlighting the importance of coordination across public and private lands.



The Baker SRU has a wide mix of conditions, including large areas of grasslands with low shrub cover, pockets of annual grasses, and scattered juniper encroachment. Areas of relatively intact shrub steppe (A and A-C) cover approximately 378,000 acres (45%) of the SRU and 175,000 acres (58%) of mapped rangelands within the PAC.



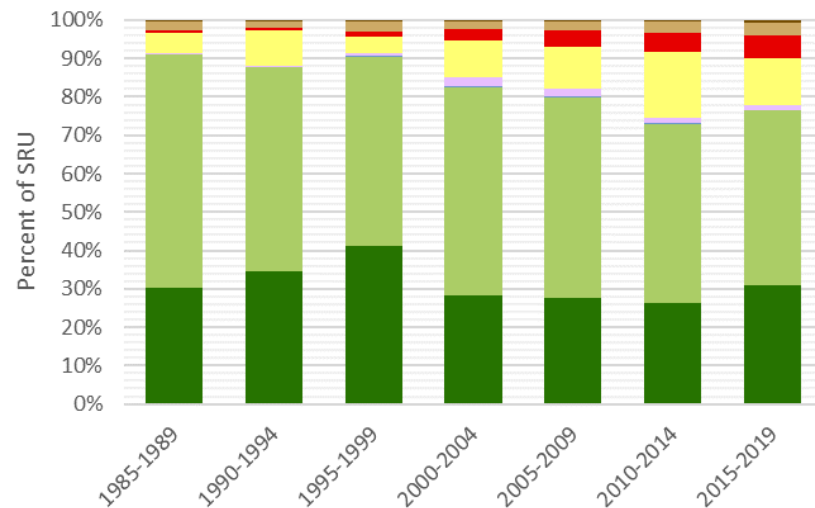
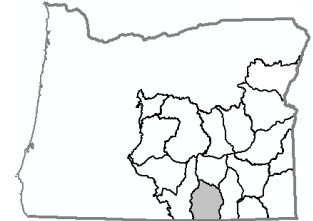
VEGETATION MAP SUMMARY Primary Threat	ACRES & PERCENT RANGELANDS AFFECTED			
	Baker SRU		Baker PAC	
IAG dominated (2015-2019)	109,000	13%	34,000	11%
Juniper encroached (2015-2019)	138,000	17%	13,000	4%
Wildfire (burned 2003-2020)	158,000	10%	16,000	5%

AIM PLOT SUMMARY (BLM MANAGED ONLY) Selected Rangeland Health Indicators	NUMBER (%) OF AIM PLOTS	
	Baker SRU	Baker PAC
Plots with 10-25% sagebrush cover	51 (54%)	51 (54%)
Plots with ≥15% deep-root perennial grass cover	49 (52%)	49 (52%)
Plots with ≥5% perennial forb cover	55 (58%)	55 (58%)

Number of BLM AIM plots (2016-2020) in SRU: 95, PAC: 95.

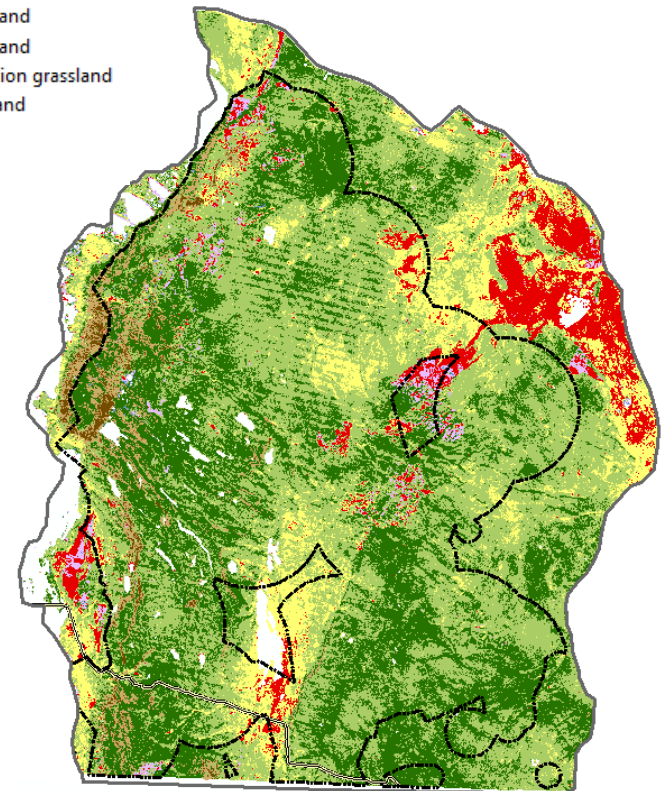
## BEATYS SAGEBRUSH REPORTING UNIT

The Beatys SRU includes roughly 1.25 million acres and 1.18 million acres of sagebrush rangelands across Lake and Harney Counties. Most of the SRU contains sage-grouse habitat, including the Beatys Butte PAC (841,000 acres, the largest sage-grouse PAC in the state) and 319,500 acres of low-density habitat. Land ownership is 86% federally-managed, 3% state-managed, and 10% private. The [Hart Mountain National Antelope Refuge](#), managed by the U.S. Fish and Wildlife Service, is located in the northwest corner of the SRU and comprises nearly a quarter of the area.



The Beatys Butte area contains some of the largest expanses of native sage steppe in the state. Areas of relatively intact shrub steppe (A and A-C) cover approximately 904,000 acres (76%) of the SRU and 676,000 acres (83%) of the PAC.

- A: Good condition shrubland
- A-C: Intermediate condition shrubland
- C: Poor condition shrubland
- B: Good condition grassland
- B-D: Intermediate condition grassland
- D: Poor condition grassland
- Juniper: low-mid cover
- Juniper: high cover



VEGETATION MAP SUMMARY		ACRES & PERCENT RANGELANDS AFFECTED			
Primary Threat		Beatys SRU		Beatys Butte PAC	
IAG dominated (2015-2019)		214,000	18%	88,000	11%
Juniper encroached (2015-2019)		47,000	4%	45,000	6%
Wildfire (burned 2003-2020)		36,000	3%	24,000	3%

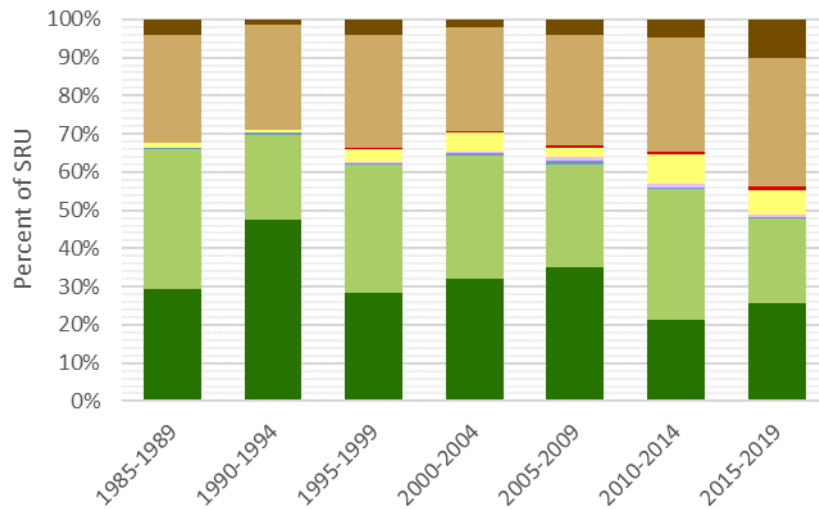
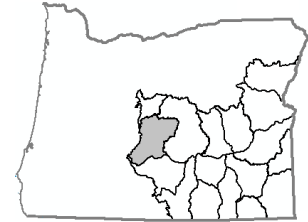
AIM PLOT SUMMARY (BLM MANAGED ONLY)		NUMBER (%) OF AIM PLOTS	
Selected Rangeland Health Indicators		Beatys SRU	Beatys Butte PAC
Plots with 10-25% sagebrush cover		122 (47%)	103 (47%)
Plots with ≥15% deep-root perennial grass cover		54 (21%)	42 (19%)
Plots with ≥5% perennial forb cover		87 (34%)	81 (37%)

Number of BLM AIM plots (2016-2020) in SRU: 258, PAC: 219.



## BROTHERS SAGEBRUSH REPORTING UNIT

The Brothers SRU covers 1.7 million acres, including 1.1 million acres of sagebrush on the western edge of the rangelands in Oregon. It contains the Brothers - North Wagonfire PAC, which covers 293,800 acres across the Brothers and Paulina SRUs and 328,600 acres of low-density sage-grouse habitat. Land ownership is 72% federally-managed and 26% private.



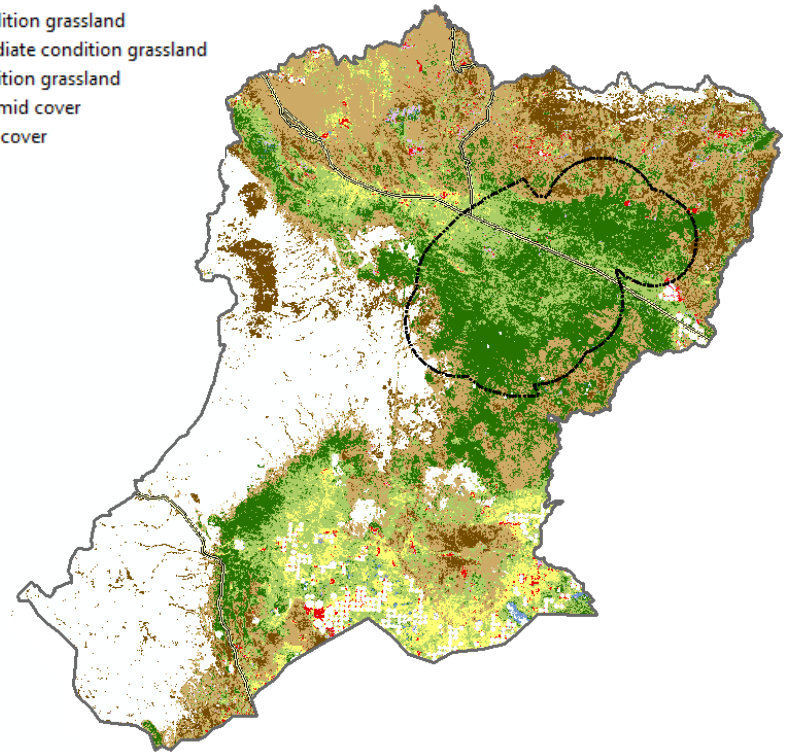
The Brothers SRU, including edges of the PAC, is heavily encroached by juniper, but IAG encroachment is minor. Areas of relatively intact shrub steppe (A and A-C) cover approximately 535,000 acres (48%) of the SRU and 235,000 acres (83%) of the PAC.

- A: Good condition shrubland
- A-C: Intermediate condition shrubland
- C: Poor condition shrubland
- B: Good condition grassland
- B-D: Intermediate condition grassland
- D: Poor condition grassland
- Juniper: low-mid cover
- Juniper: high cover

VEGETATION MAP SUMMARY		ACRES & PERCENT RANGELANDS AFFECTED			
Primary Threat		Brothers SRU		Brothers - N Wagonfire PAC	
IAG dominated (2015-2019)		83,000	7%	2,000	1%
Juniper encroached (2015-2019)		487,000	44%	22,000	8%
Wildfire (burned 2003-2020)		41,000	2%	2,000	1%

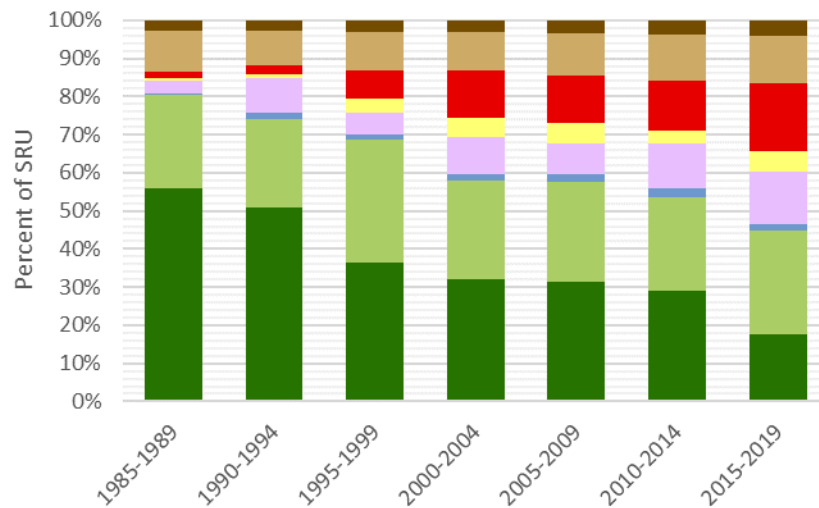
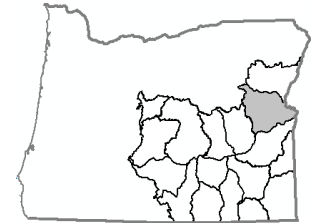
AIM PLOT SUMMARY (BLM MANAGED ONLY)		NUMBER (%) OF AIM PLOTS	
Selected Rangeland Health Indicators		Brothers SRU	Brothers - N Wagonfire PAC
Plots with 10-25% sagebrush cover		79 (43%)	49 (60%)
Plots with ≥15% deep-root perennial grass cover		112 (62%)	56 (68%)
Plots with ≥5% perennial forb cover		24 (13%)	14 (17%)

Number of BLM AIM plots (2016-2020) in SRU: 182, PAC: 82.

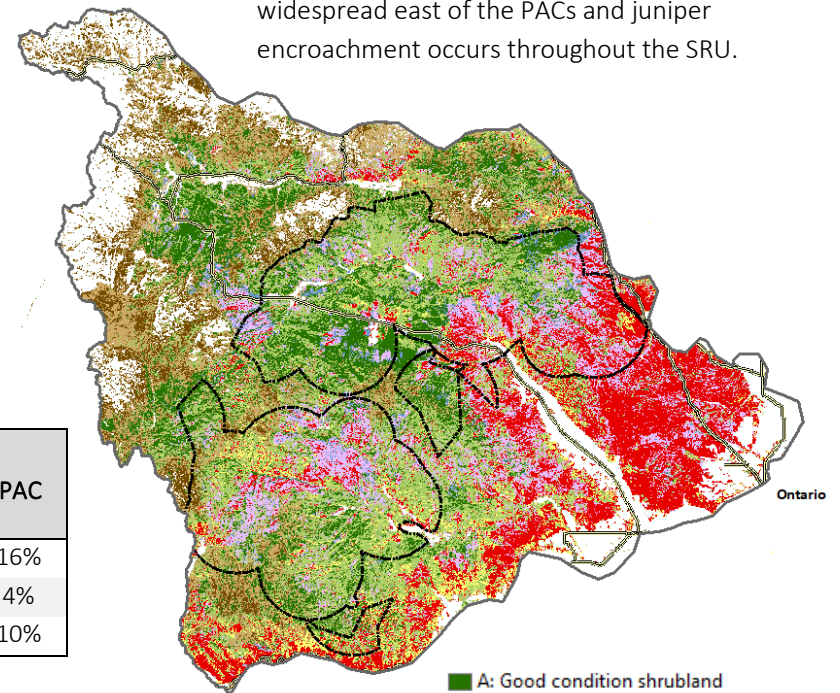


## BULLY - COW VALLEY SAGEBRUSH REPORTING UNIT

The Bully – Cow Valley SRU contains 1.9 million acres with 1.47 million acres of sagebrush rangeland, including important sage-grouse habitat in the Bully Creek PAC (279,700 acres) and the Cow Valley PAC (368,300 acres). Land ownership is 50% federally-managed and 50% private. The Cow Valley PAC contains the highest proportion of private lands (74%) of any PAC in Oregon.



Areas of relatively intact shrub steppe (A and A-C) cover approximately 657,000 acres (45%) of the SRU and 204,000 acres (58%) in the Bully Creek PAC, and 148,000 acres (55%) of the Cow Valley PAC. Annual grasses are widespread east of the PACs and juniper encroachment occurs throughout the SRU.



VEGETATION MAP SUMMARY Primary Threat	ACRES & PERCENT RANGELANDS AFFECTED					
	Bully – Cow Valley SRU		Bully Creek PAC		Cow Valley PAC	
IAG dominated (2015-2019)	341,000	23%	40,000	15%	57,000	16%
Juniper encroached (2015-2019)	242,000	16%	31,000	11%	13,000	4%
Wildfire (burned 2003-2020)	357,000	19%	104,000	38%	36,000	10%

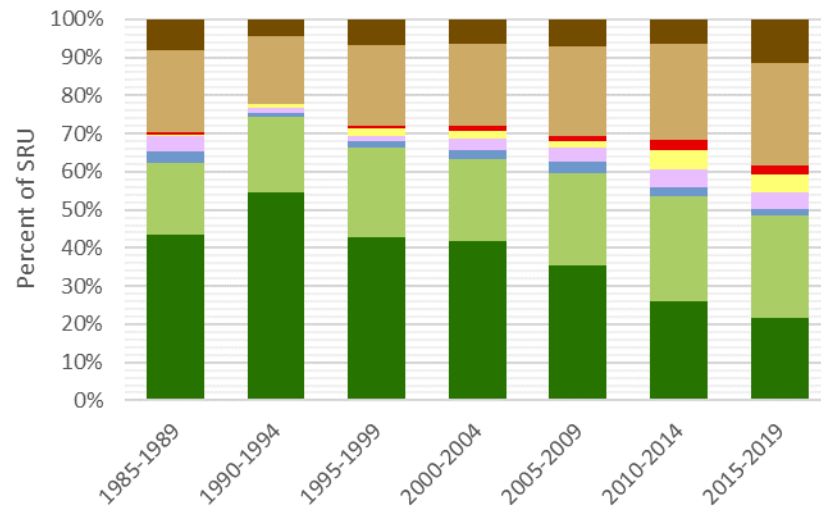
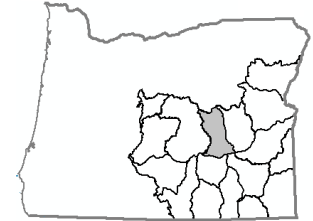
AIM PLOT SUMMARY (BLM MANAGED ONLY) Selected Rangeland Health Indicators	NUMBER (%) OF AIM PLOTS		
	Bully – Cow Valley SRU	Bully Creek PAC	Cow Valley PAC
Plots with 10-25% sagebrush cover	111 (44%)	95 (46%)	12 (46%)
Plots with ≥15% deep-root perennial grass cover	118 (47%)	97 (47%)	14 (54%)
Plots with ≥5% perennial forb cover	140 (56%)	113 (55%)	20 (77%)

Number of BLM AIM plots (2016-2020) in SRU: 250, Bully Creek PAC: 205, Cow Valley PAC: 26.



## BURNS SAGEBRUSH REPORTING UNIT

The Burns SRU covers 1.2 million acres and contains 594,000 acres of sagebrush rangeland. It contains the Burns PAC (36,000 acres, the second smallest PAC in the state) and just under 111,000 acres of low-density sage-grouse habitat. Land ownership is 57% federally-managed (much of the federally-managed area is non-rangeland), 40% private and 1% tribal.

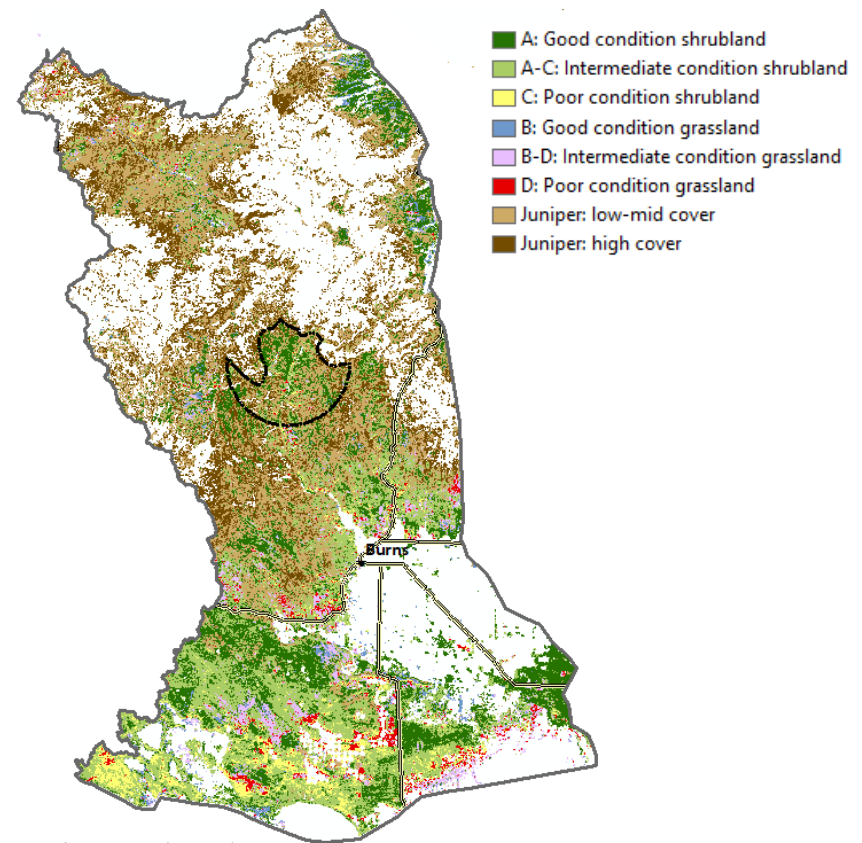


Juniper encroachment is widespread throughout the SRU and PAC (see table below) and annual grasses have encroached in areas mostly outside the PAC. Areas of relatively intact shrub steppe (A and A-C) cover approximately 289,000 acres (49%) of the SRU and 14,000 acres (45%) of rangelands in the PAC.

VEGETATION MAP SUMMARY		ACRES & PERCENT RANGELANDS AFFECTED			
Primary Threat		Burns SRU		Burns PAC	
IAG dominated (2015-2019)		41,000	7%	600	2%
Juniper encroached (2015-2019)		228,000	38%	16,000	52%
Wildfire (burned 2003-2020)		75,000	6%	1,500	4%

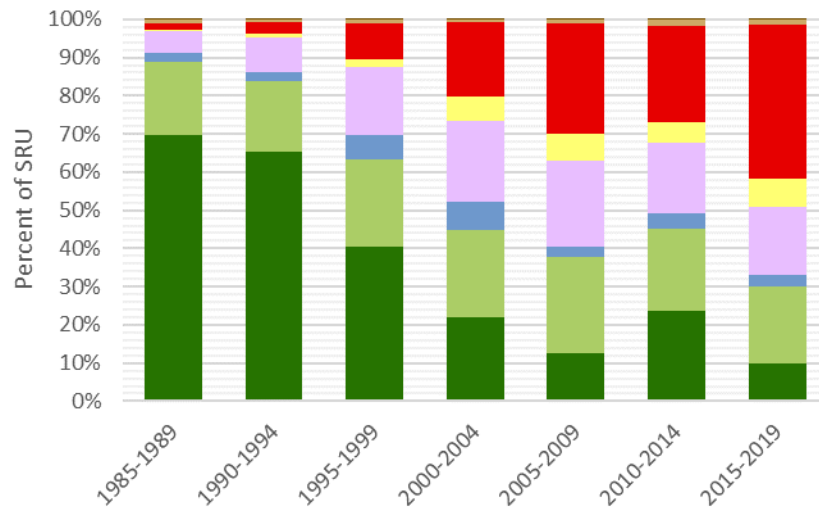
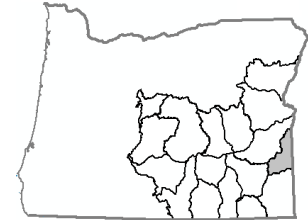
AIM PLOT SUMMARY (BLM MANAGED ONLY)		NUMBER (%) OF AIM PLOTS	
Selected Rangeland Health Indicators		Burns SRU	
Plots with 10-25% sagebrush cover		13	(50%)
Plots with ≥15% deep-root perennial grass cover		7	(27%)
Plots with ≥5% perennial forb cover		7	(27%)

Number of BLM AIM plots (2016-2020) in SRU: 26. (Burns PAC summary not shown due to low sample size).



## COW LAKES SAGEBRUSH REPORTING UNIT

The Cow Lakes SRU covers 800,000 acres, and 709,000 acres of sagebrush rangelands. It contains the Cow Lakes PAC (249,000 acres) and 186,500 acres of low-density sage-grouse habitat. Land ownership is 78% federally-managed, 2% state-managed, and 20% private.



The Cow Lakes SRU contains some of the highest levels of annual grass invasion in the state. Historic management and wildfires have impacted much of the area, including the [2015 Soda Fire](#) that burned in both Oregon and Idaho. Areas of relatively intact shrub steppe (A and A-C) cover approximately 214,000 acres (30%) of the SRU and 104,000 (43%) of rangelands within the PAC.

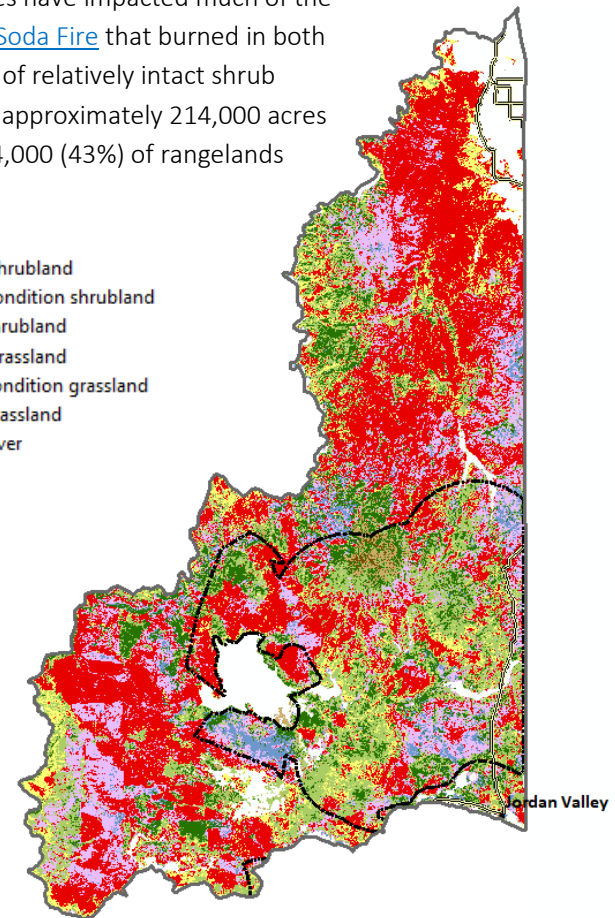
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- A-C: Intermediate condition shrubland
- C: Poor condition shrubland
- B: Good condition grassland
- B-D: Intermediate condition grassland
- D: Poor condition grassland
- Juniper: low-mid cover
- Juniper: high cover

VEGETATION MAP SUMMARY	ACRES & PERCENT RANGELANDS AFFECTED			
	Primary Threat	Cow Lakes SRU		Cow Lakes PAC
	IAG dominated (2015-2019)	339,000	48%	78,000 33%
	Juniper encroached (2015-2019)*	10,000	1%	6,000 2%
	Wildfire (burned 2003-2020)	213,000	27%	48,000 19%

\* some of the area mapped as juniper is mountain mahogany.

AIM PLOT SUMMARY (BLM MANAGED ONLY)	NUMBER (%) OF AIM PLOTS	
	Cow Lakes SRU	Cow Lakes PAC
Plots with 10-25% sagebrush cover	70 (33%)	67 (39%)
Plots with ≥15% deep-root perennial grass cover	77 (37%)	59 (34%)
Plots with ≥5% perennial forb cover	62 (30%)	57 (33%)

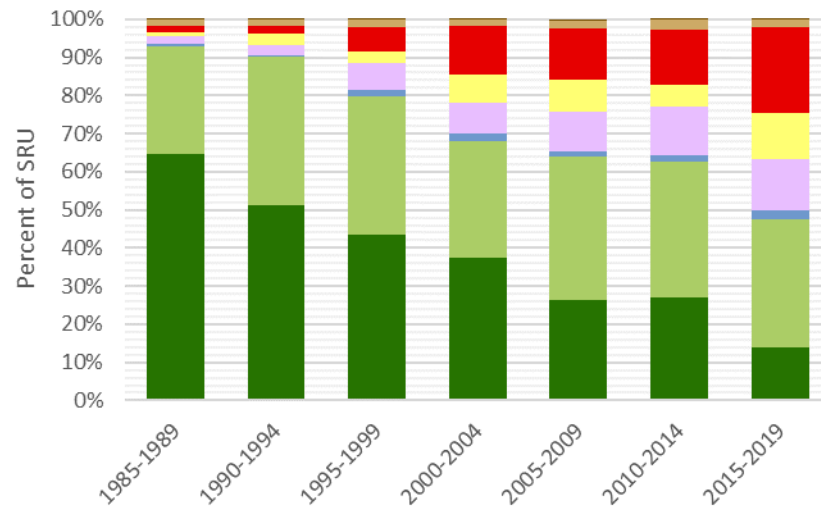
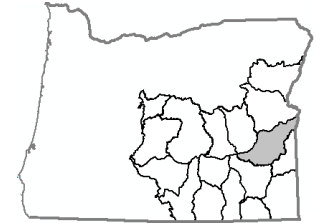
Number of BLM AIM plots (2016-2020) in SRU: 210 , PAC: 174.



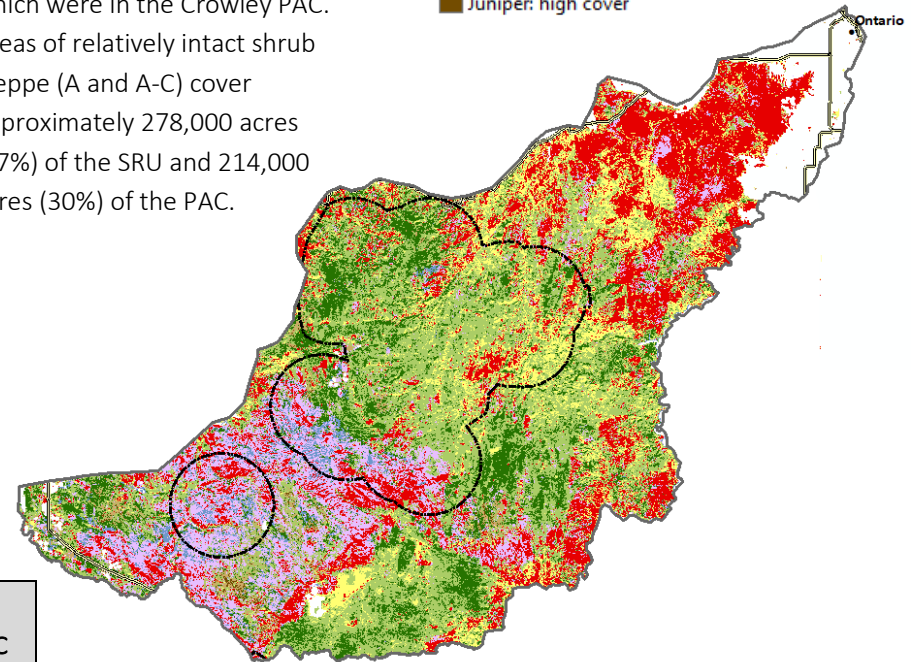
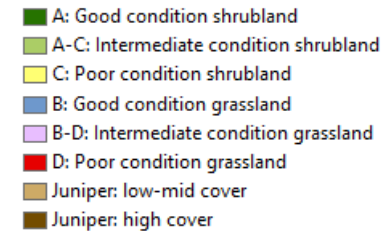


## CROWLEY SAGEBRUSH REPORTING UNIT

The Crowley SRU encompasses 1.6 million acres and nearly 1.5 million acres of sagebrush rangelands. It contains the Crowley PAC, at 490,715 acres and nearly 480,000 acres of low-density sage-grouse habitat. Land ownership is 66% federally-managed, 10% state-managed, and 24% private.



The Crowley SRU contains widespread annual invasion in the SE corner and in pockets throughout the area. The Buzzard Complex fires of 2014 burned over 250,000 acres, 90,000 of which were in the Crowley PAC. Areas of relatively intact shrub steppe (A and A-C) cover approximately 278,000 acres (57%) of the SRU and 214,000 acres (30%) of the PAC.



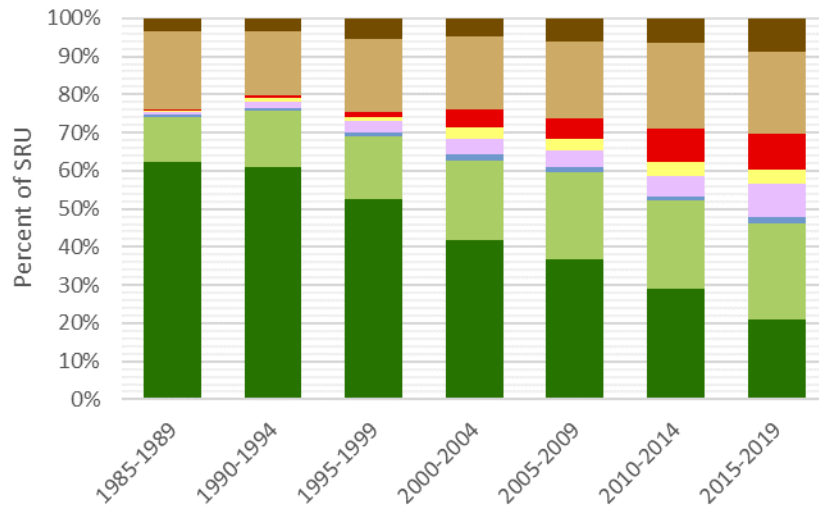
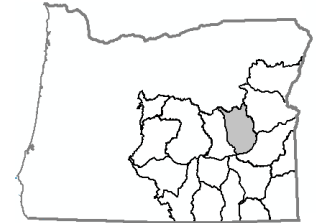
VEGETATION MAP SUMMARY	ACRES & PERCENT RANGELANDS AFFECTED			
	Primary Threat	Crowley SRU		Crowley PAC
	IAG dominated (2015-2019)	513,000	35%	116,000 24%
	Juniper encroached (2015-2019)	30,000	2%	7,000 1%
	Wildfire (burned 2003-2020)	414,000	26%	114,000 25%

AIM PLOT SUMMARY (BLM MANAGED ONLY)	NUMBER (%) OF AIM PLOTS	
Selected Rangeland Health Indicators	Crowley SRU	Crowley PAC
Plots with 10-25% sagebrush cover	41 (31%)	27 (32%)
Plots with ≥15% deep-root perennial grass cover	70 (52%)	45 (54%)
Plots with ≥5% perennial forb cover	51 (38%)	42 (50%)

Number of BLM AIM plots (2016-2020) in SRU: 134, PAC: 84.

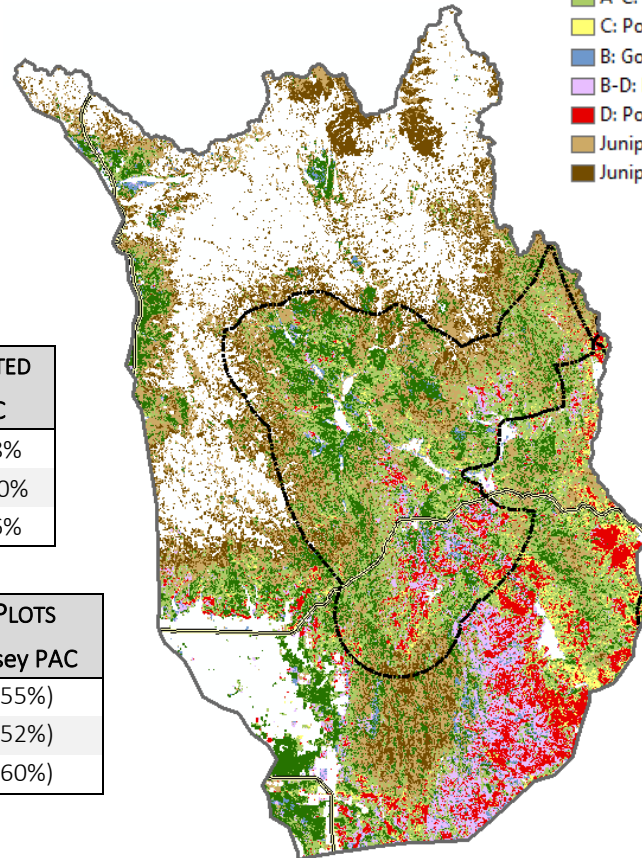
## DREWSEY SAGEBRUSH REPORTING UNIT

The Drewsey SRU covers nearly 1.4 million acres, with 853,000 acres of sagebrush rangelands including the Drewsey PAC (368,000 acres) and 210,000 acres of low-density sage-grouse habitat. Land ownership is 67% federally-managed, 1% state-managed, and 31% private, and 1% tribal lands.



The Drewsey area contains high levels of juniper encroachment throughout and invasive grasses in pockets. Areas of relatively intact shrub steppe (A and A-C) cover approximately 394,000 acres (36%) of the SRU and 182,000 (55%) of rangelands in the PAC.

- A: Good condition shrubland
- A-C: Intermediate condition shrubland
- C: Poor condition shrubland
- B: Good condition grassland
- B-D: Intermediate condition grassland
- D: Poor condition grassland
- Juniper: low-mid cover
- Juniper: high cover



VEGETATION MAP SUMMARY	ACRES & PERCENT RANGELANDS AFFECTED			
	Drewsey SRU		Drewsey PAC	
Primary Threat				
IAG dominated (2015-2019)	112,000	13%	26,000	8%
Juniper encroached (2015-2019)	259,000	30%	98,000	30%
Wildfire (burned 2003-2020)	150,000	11%	23,000	6%

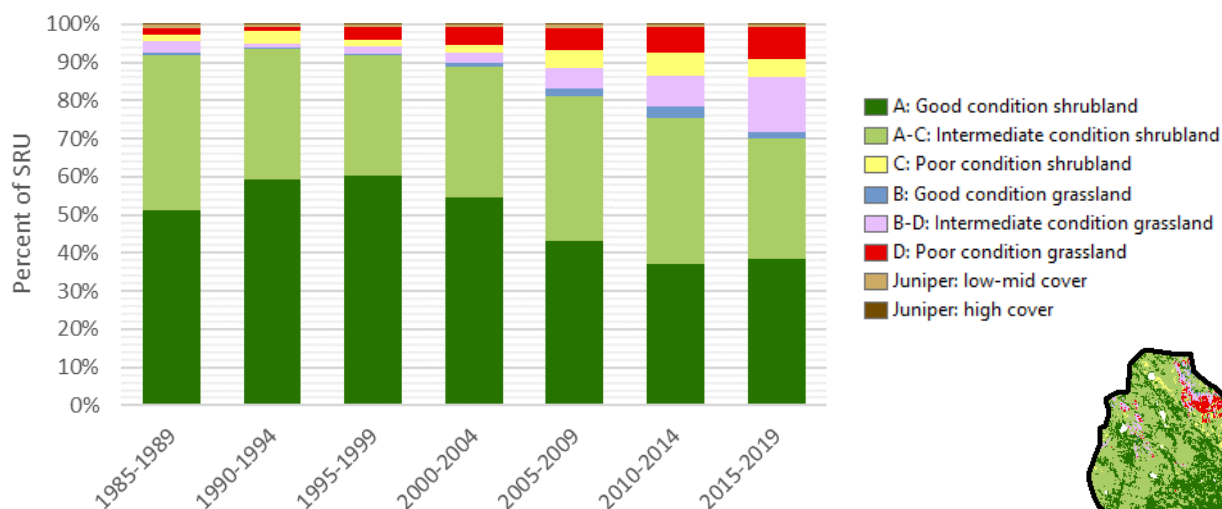
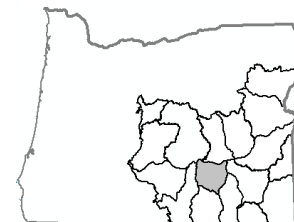
AIM PLOT SUMMARY (BLM MANAGED ONLY)	NUMBER (%) OF AIM PLOTS	
	Drewsey SRU	Drewsey PAC
Selected Rangeland Health Indicators		
Plots with 10-25% sagebrush cover	38 (46%)	23 (55%)
Plots with ≥15% deep-root perennial grass cover	45 (55%)	22 (52%)
Plots with ≥5% perennial forb cover	44 (54%)	25 (60%)

Number of BLM AIM plots (2016-2020) in SRU: 82, PAC: 42.

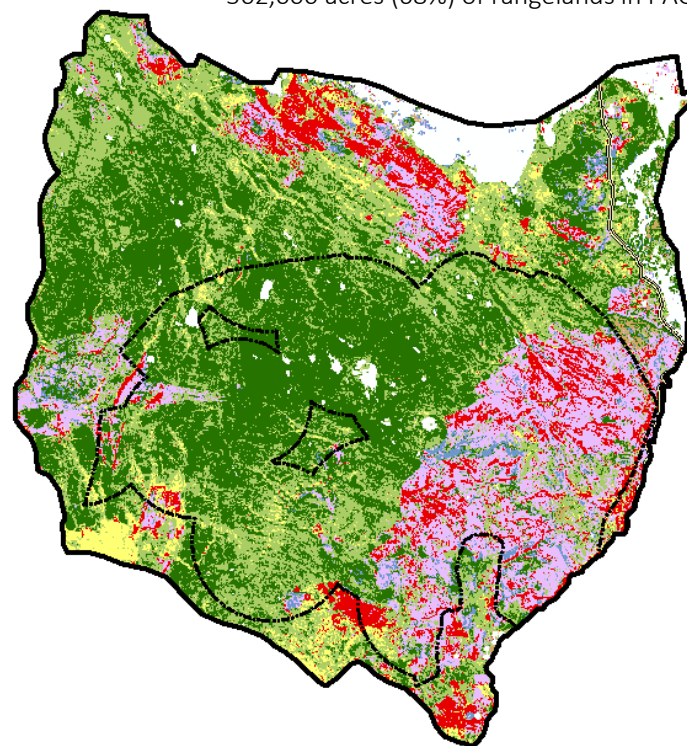


## DRY VALLEY SAGEBRUSH REPORTING UNIT

The Dry Valley SRU covers 970,000 acres and 906,000 acres of sagebrush rangelands, including the Dry Valley-Jack Mountain PAC (449,000) acres and 306,000 acres of low-density habitat. Land ownership is 92% federally-managed, 1% state-managed, and 7% private.



This SRU contains large areas of intact shrub steppe, except where large fires have occurred, including the 2012 Miller Homestead that burned 160,000 acres on the eastern side of the PAC. Areas of relatively intact shrub steppe (A and A-C) cover 634,000 acres (70%) of the SRU and 302,000 acres (68%) of rangelands in PAC.



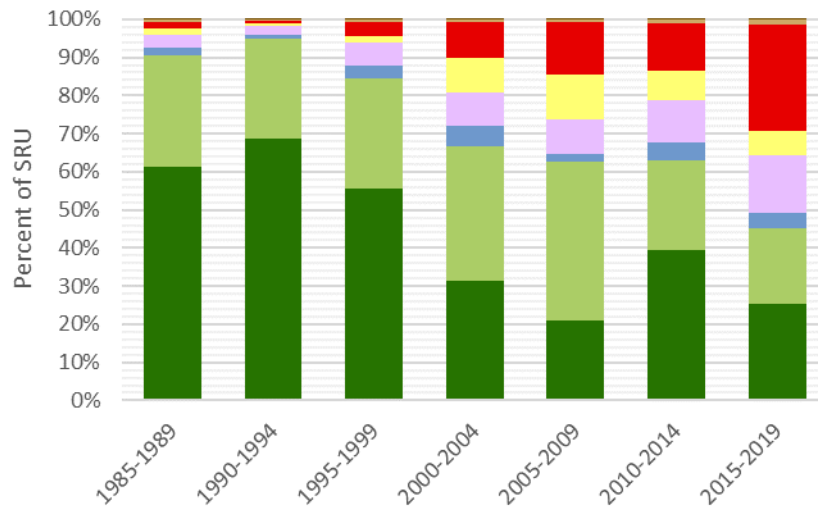
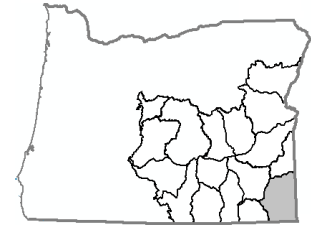
VEGETATION MAP SUMMARY Primary Threat	ACRES & PERCENT RANGELANDS AFFECTED			
	Dry Valley SRU		Dry Valley - Jack Mountain PAC	
IAG dominated (2015-2019)	121,000	13%	47,000	11%
Juniper encroached (2015-2019)	5,000	1%	2,000	<1%
Wildfire (burned 2003-2020)	171,000	18%	146,000	33%

AIM PLOT SUMMARY (BLM MANAGED ONLY) Selected Rangeland Health Indicators	NUMBER (%) OF AIM PLOTS	
	Dry Valley SRU	Dry Valley - Jack Mountain PAC
Plots with 10-25% sagebrush cover	57 (34%)	46 (33%)
Plots with ≥15% deep-root perennial grass cover	60 (36%)	49 (35%)
Plots with ≥5% perennial forb cover	54 (32%)	50 (35%)

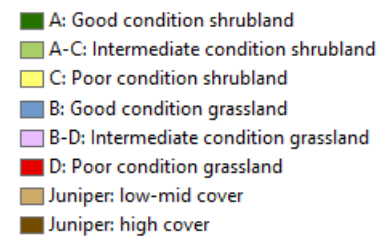
Number of BLM AIM plots (2016-2020) in SRU: 167, PAC: 141.

## LOUSE – SOLDIER SAGEBRUSH REPORTING UNIT

The Louse – Soldier SRU covers 1.7 million acres in the far southeast corner of the state. It contains the Louse Canyon PAC (671,000 acres, the second largest PAC in the state) and Soldier Creek PAC (295,000 acres). Much of the area surrounding the PACs provides low-density sage-grouse habitat (442,000 acres). Land ownership is 86% federally-managed, 5% state-managed, 7% private, and 1% tribal.



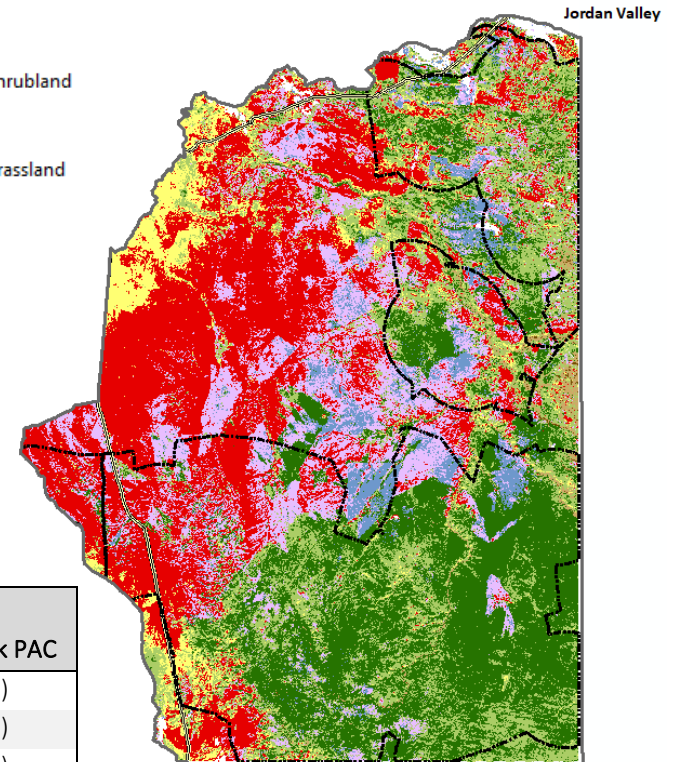
This SRU has been heavily impacted by fire, with over one-third of the area burned within the last two decades and some areas burning up to four times. The Long Draw fire burned more than 494,000 acres in this SRU in 2012, with 185,000 of those acres in the Louse Canyon PAC. Areas of relatively intact shrub steppe (A and A-C) cover 759,000 (45%) of the SRU, 446,000 (67%) of the Louse Canyon PAC, and 163,000 (56%) of the Soldier Creek PAC.



VEGETATION MAP SUMMARY Primary Threat	ACRES & PERCENT RANGELANDS AFFECTED					
	Louse - Soldier SRU		Louse Canyon PAC		Soldier Creek PAC	
IAG dominated (2015-2019)	576,000	34%	122,000	18%	66,000	23%
Juniper encroached (2015-2019)	22,000	1%	6,000	1%	7,000	2%
Wildfire (burned 2003-2020)	630,000	36%	201,000	30%	24,000	8%

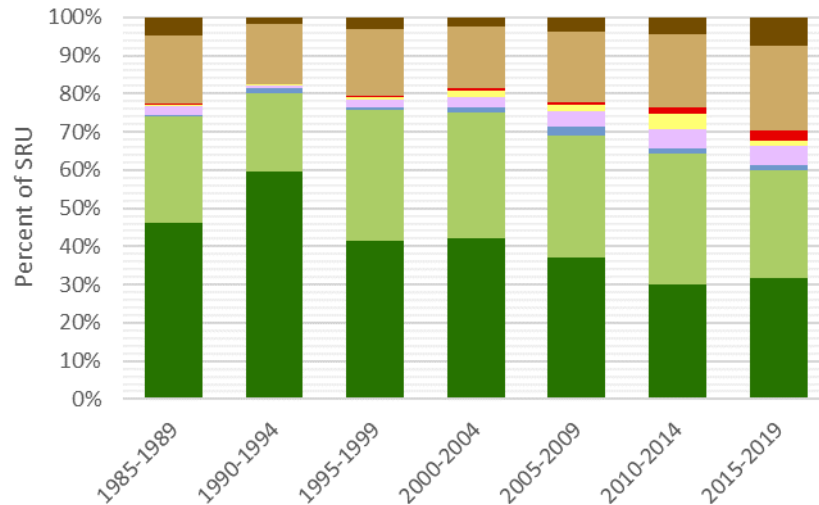
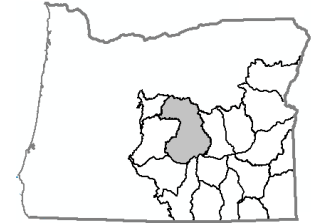
AIM PLOT SUMMARY (BLM MANAGED ONLY) Selected Rangeland Health Indicators	NUMBER (%) OF AIM PLOTS		
	Louse - Soldier SRU	Louse Canyon PAC	Soldier Creek PAC
Plots with 10-25% sagebrush cover	84 (28%)	41 (28%)	32 (47%)
Plots with ≥15% deep-root perennial grass cover	92 (30%)	37 (25%)	24 (35%)
Plots with ≥5% perennial forb cover	63 (21%)	38 (26%)	19 (28%)

Number of BLM AIM plots (2016-2020) in SRU: 303, Louse Canyon PAC: 149, Soldier Creek PAC: 68.

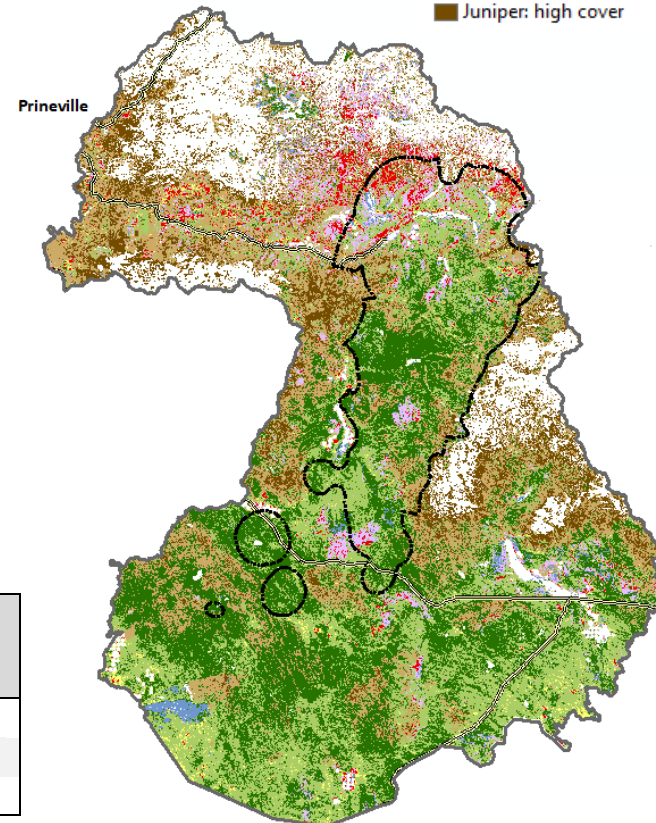
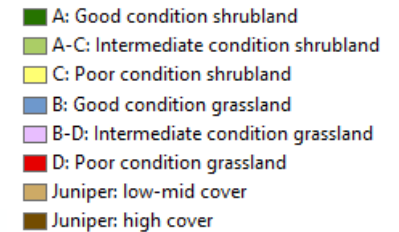


## PAULINA SAGEBRUSH REPORTING UNIT

The Paulina SRU covers 2.5 million acres, including 1.9 million acres of sagebrush rangelands. It contains the Paulina-12 mile-Misery Flat PAC (442,000 acres) and small portions of the Brothers - N Wagontire PAC (reported with the Brothers SRU). It also contains 638,000 acres of low-density sage-grouse habitat. Land ownership is 68% federally-managed, 2% state-managed, and 30% private. 58% of the Paulina PAC is privately owned.



This SRU contains widespread juniper encroachment throughout the area. Areas of relatively intact shrub steppe (A and A-C) cover 1,162,00 acres (60%) of the SRU and 266,000 acres (65%) of the PAC.



VEGETATION MAP SUMMARY Primary Threat	ACRES & PERCENT RANGELANDS AFFECTED			
	Paulina SRU		Paulina-12 mile-Misery Flat PAC	
IAG dominated (2015-2019)	80,000	4%	21,000	5%
Juniper encroached (2015-2019)	576,000	30%	82,000	20%
Wildfire (burned 2003-2020)	176,000	7%	7,000	2%

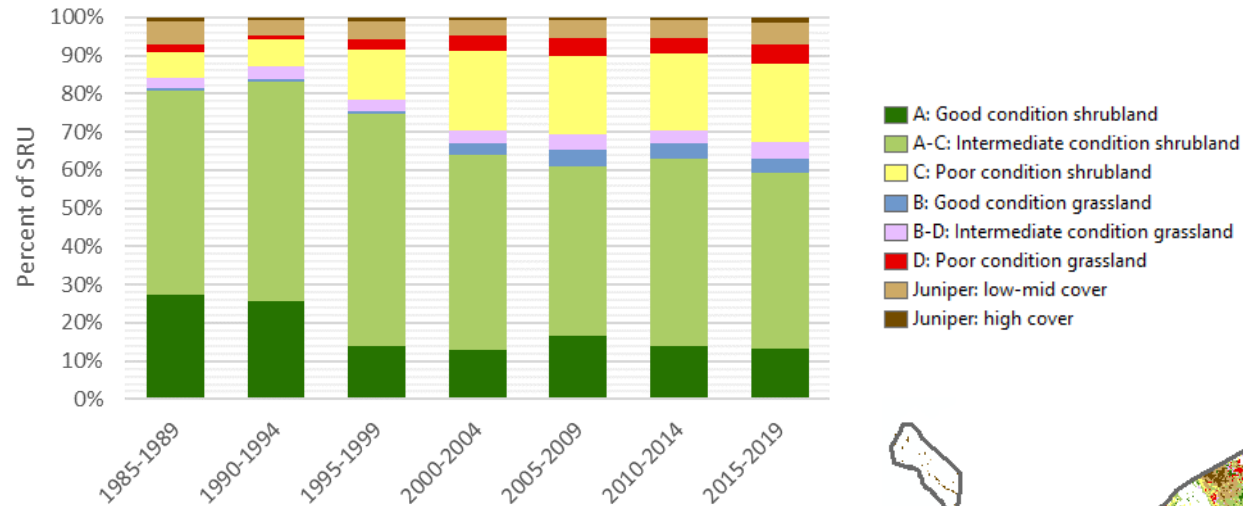
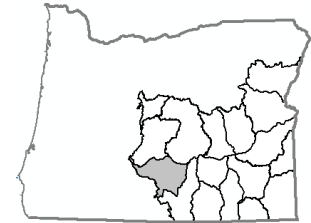
AIM PLOT SUMMARY (BLM MANAGED ONLY) Selected Rangeland Health Indicators	NUMBER (%) OF AIM PLOTS	
	Paulina SRU	Paulina-12 mile-Misery Flat PAC
Plots with 10-25% sagebrush cover	129 (53%)	31 (48%)
Plots with ≥15% deep-root perennial grass cover	119 (49%)	32 (50%)
Plots with ≥5% perennial forb cover	64 (26%)	19 (30%)

Number of BLM AIM plots (2016-2020) in SRU: 244, PAC: 64.



## PICTURE ROCK SAGEBRUSH REPORTING UNIT

The Picture Rock SRU covers 1.5 million acres on the western edge of sagebrush country in Oregon, with 911,000 acres of sagebrush rangelands. It contains the small Picture Rock PAC (43,000 acres) and 157,700 acres of low-density sage-grouse habitat. Land ownership is 76% federally-managed, 2% state-managed, and 20% private.

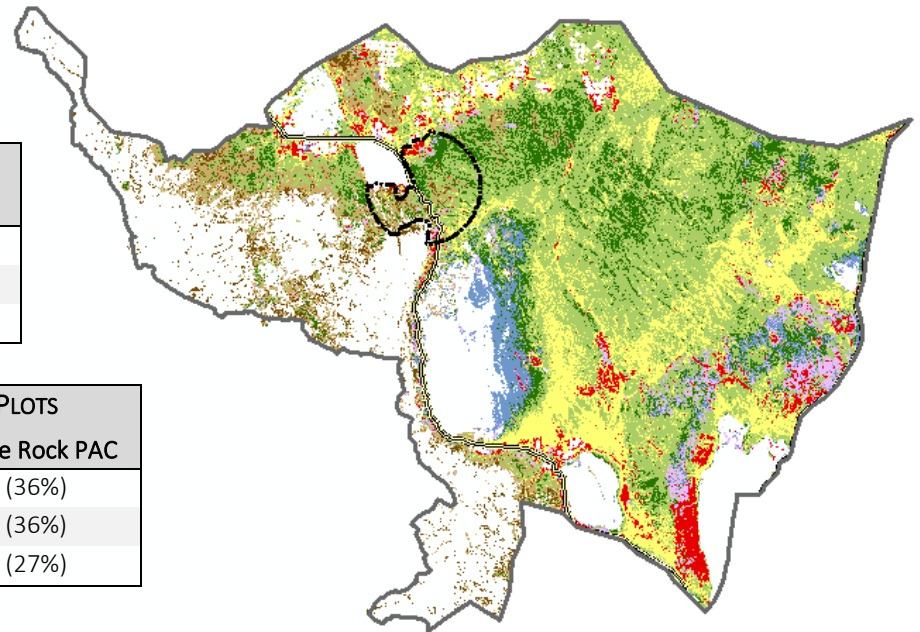


The Picture Rock area contains widespread shrublands with degraded understory (state C) and some juniper encroachment around the forested margin. This area is particularly arid, limiting suitability for sage-grouse across much of the area. Areas of relatively intact shrub steppe (A and A-C) cover 576,000 acres (59%) of the SRU and 23,000 acres (64%) of the PAC.

VEGETATION MAP SUMMARY	ACRES AND PERCENT OF AREA AFFECTED			
	Primary Threat	Picture Rock SRU		Picture Rock PAC
	IAG dominated (2015-2019)	250,000	26%	5,000 14%
	Juniper encroached (2015-2019)	69,000	7%	7,000 19%
	Wildfire (burned 2003-2020)	79,000	5%	4,000 10%

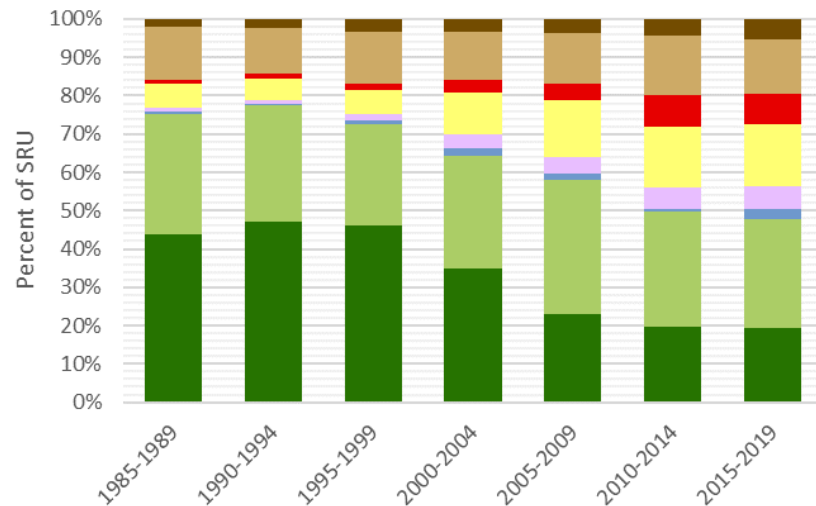
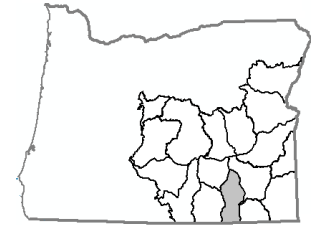
AIM PLOT SUMMARY (BLM MANAGED ONLY)	NUMBER (%) OF AIM PLOTS	
	Picture Rock SRU	Picture Rock PAC
Plots with 10-25% sagebrush cover	53 (41%)	4 (36%)
Plots with ≥15% deep-root perennial grass cover	43 (33%)	4 (36%)
Plots with ≥5% perennial forb cover	9 (7%)	3 (27%)

Number of BLM AIM plots (2016-2020) in SRU: 129, PAC: 11.

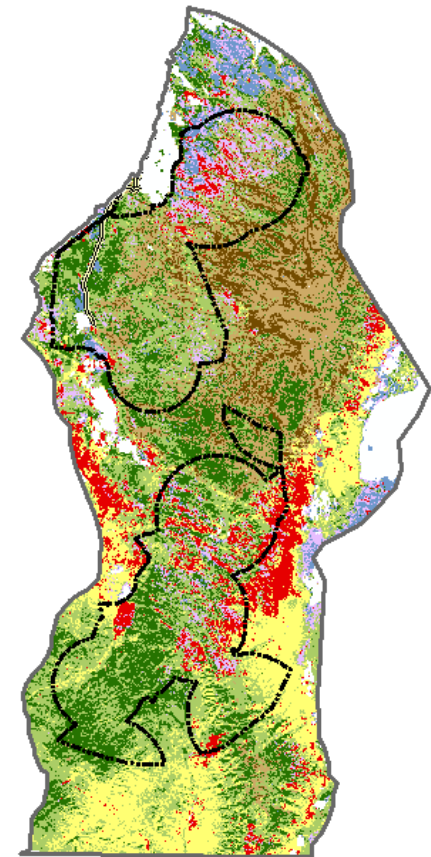
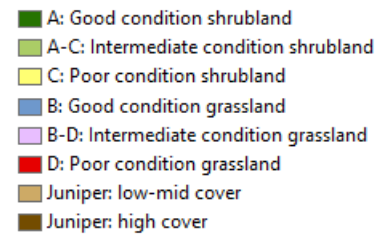


## STEENS – PUEBLOS SAGEBRUSH REPORTING UNIT

The Steens – Pueblos SRU covers slightly over 1 million acres of sagebrush rangelands in the Steens mountain area. It contains the Steens PAC (185,000 acres) and Pueblos – South Steens PAC (209,000 acres). Most of the rest of the area that is not in a sage-grouse PAC is considered low-density habitat (440,000 acres). Land ownership is 72% federally-managed and 28% private.



The Steens – Pueblos SRU contains the highest elevation sagebrush in the state, with a mix of invasive annual grass and juniper threat across the area (see table below). Areas of relatively intact shrub steppe (A and A-C) cover 477,000 acres (48%) of the SRU, 137,000 acres (66%) of rangelands in the Steens PAC, and 96,000 (53%) of rangelands in the Pueblos-S Steens PAC.



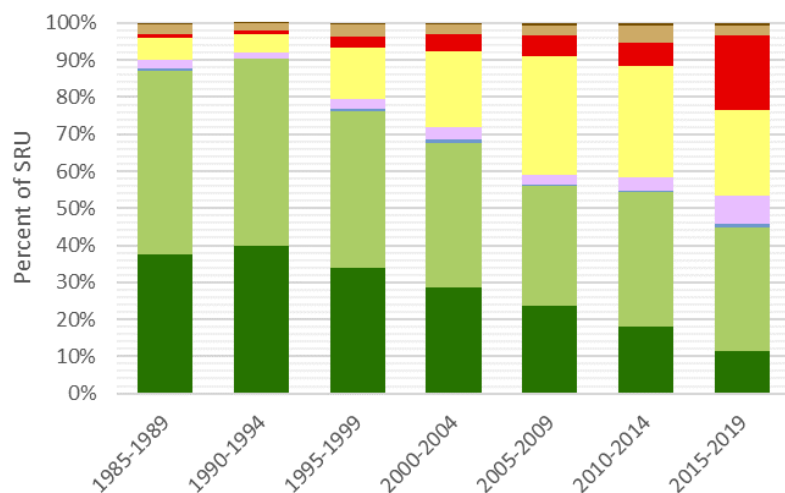
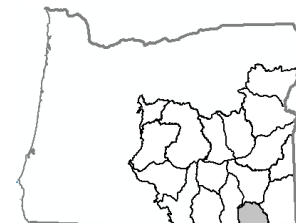
VEGETATION MAP SUMMARY Primary Threat	ACRES & PERCENT RANGELANDS AFFECTED					
	Steens - Pueblos SRU		Steens PAC		Pueblos - South Steens PAC	
IAG dominated (2015-2019)	240,000	24%	11,000	6%	49,000	23%
Juniper encroached (2015-2019)	197,000	20%	47,000	26%	10,000	5%
Wildfire (burned 2003-2020)	156,000	14%	42,000	23%	64,000	31%

AIM PLOT SUMMARY (BLM MANAGED ONLY) Selected Rangeland Health Indicators	NUMBER (%) OF AIM PLOTS		
	Steens - Pueblos SRU	Steens PAC	Pueblos - South Steens PAC
Plots with 10-25% sagebrush cover	39 (42%)	10 (36%)	12 (52%)
Plots with ≥15% deep-root perennial grass cover	39 (42%)	16 (57%)	8 (35%)
Plots with ≥5% perennial forb cover	36 (39%)	15 (54%)	7 (30%)

Number of BLM AIM plots (2016-2020) in SRU: 93, Steens PAC: 28, Pueblos-South Steens PAC: 23.

## TROUT CREEKS SAGEBRUSH REPORTING UNIT

The Trout Creeks SRU covers 715,000 acres, with 656,000 acres of sagebrush rangelands along the southern border of the state. The area contains most of the Trout Creeks PAC, which covers 393,000 acres. Almost all the SRU is considered a PAC or low-density habitat (287,000 acres) for sage-grouse. Land ownership is 85% federally-managed and 15% private.



The Trout Creeks SRU is heavily impacted by invasive annual grasses, especially following the Holloway Fire of 2012, which burned a large proportion of the Trout Creeks PAC. Areas of relatively intact shrub steppe (A and A-C) cover 310,000 acres (45%) of the SRU and 165,000 (42%) of the PAC.

- A: Good condition shrubland
- A-C: Intermediate condition shrubland
- C: Poor condition shrubland
- B: Good condition grassland
- B-D: Intermediate condition grassland
- D: Poor condition grassland
- Juniper: low-mid cover
- Juniper: high cover

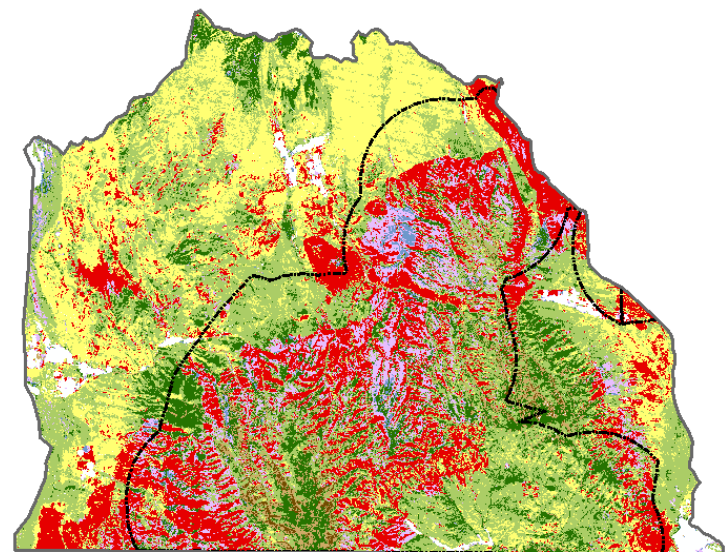
VEGETATION MAP SUMMARY		ACRES & PERCENT RANGELANDS AFFECTED			
Primary Threat		Trout Creeks SRU		Trout Creeks PAC	
IAG dominated (2015-2019)		299,000	43%	155,000	40%
Juniper encroached (2015-2019)*		23,000	3%	18,000	5%
Wildfire (burned 2003-2020)**		264,000	37%	271,000	69%

\* much of the area mapped as juniper is actually dominated by aspen trees.

\*\* PAC burned acres exceed the SRU burned acres because the PAC extends into the neighboring SRU.

AIM PLOT SUMMARY (BLM MANAGED ONLY)		NUMBER (%) OF AIM PLOTS	
Selected Rangeland Health Indicators		Trout Creeks SRU	Trout Creeks PAC
Plots with 10-25% sagebrush cover		35 (28%)	23 (23%)
Plots with ≥15% deep-root perennial grass cover		27 (22%)	28 (28%)
Plots with ≥5% perennial forb cover		44 (36%)	45 (45%)

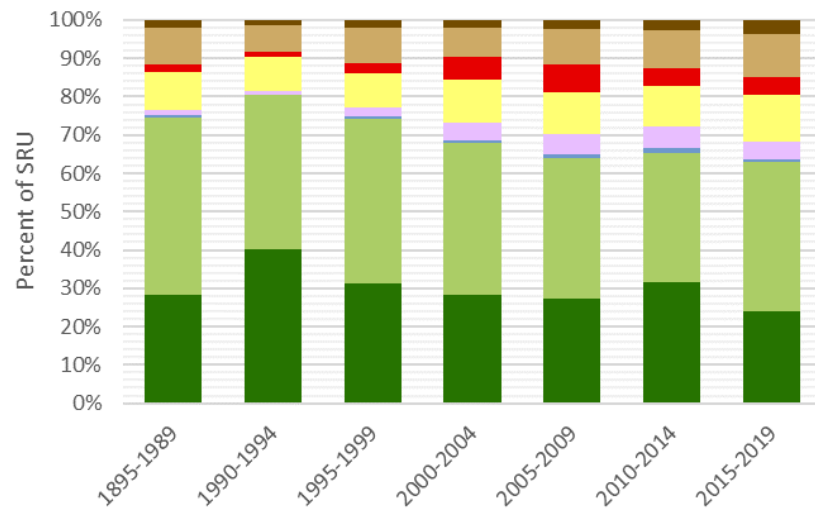
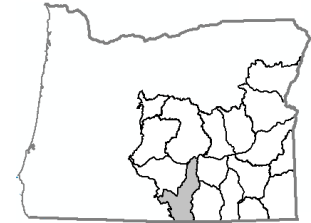
Number of BLM AIM plots (2016-2020) in SRU: 123, PAC: 100.



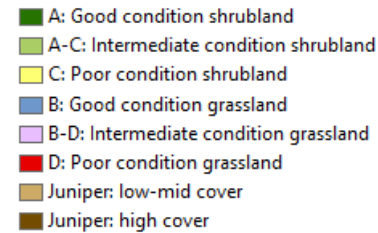


## WARNERS – TUCKER SAGEBRUSH REPORTING UNIT

The Warners – Tucker SRU covers 1.5 million acres, with 994,000 acres of sagebrush rangelands along the southwestern edge of sagebrush in the state. It contains two PACs: the Warners PAC (330,300 acres) and the smaller Tucker Hill PAC (31,500 acres), and 153,000 acres of low-density habitat. Land ownership is 68% federally-managed, 5% state-managed, and 26% private.



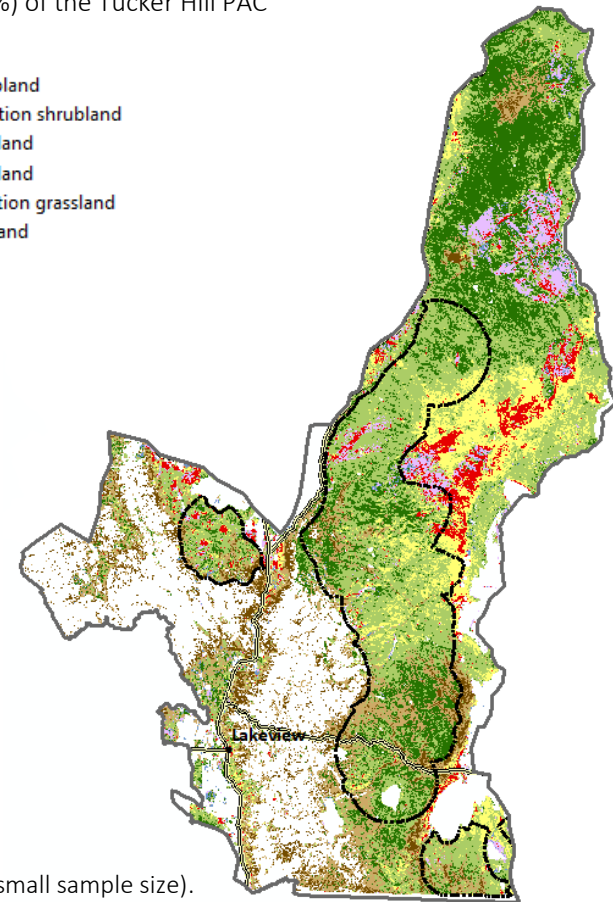
The Warners area is impacted by both juniper encroachment and invasive annual grasses. Areas of relatively intact shrub steppe (A and A-C) cover 625,000 acres (63%) of the SRU, 230,000 acres (74%) of the Warners PAC, and 18,000 acres (63%) of the Tucker Hill PAC



VEGETATION MAP SUMMARY		ACRES & PERCENT RANGELANDS AFFECTED					
Primary Threat	Warners - Tucker SRU		Warners PAC		Tucker Hill PAC		
IAG dominated (2015-2019)	168,000	17%	33,000	11%	3,500	12%	
Juniper encroached (2015-2019)	147,000	15%	43,000	14%	6,000	21%	
Wildfire (burned 2003-2020)	40,000	3%	2,000	1%	<100	0%	

AIM PLOT SUMMARY (BLM MANAGED ONLY)		NUMBER (%) OF AIM PLOTS	
Selected Rangeland Health Indicators		Warners - Tucker SRU	Warners PAC
Plots with 10-25% sagebrush cover		52 (35%)	27 (33%)
Plots with ≥15% deep-root perennial grass cover		49 (33%)	30 (37%)
Plots with ≥5% perennial forb cover		67 (45%)	43 (52%)

Number of BLM AIM plots (2016-2020) in SRU: 149, Warners PAC: 82. (Tucker Hill PAC not shown due to small sample size).





## MORE DETAILS ABOUT RANGELAND VEGETATION CONDITION IN OREGON

The SageCon Rangeland Condition Report synthesizes information about rangeland condition and trend in Oregon for the 5-year review of the [Oregon Sage-Grouse Action Plan](#) as part of the [SageCon Dashboard](#). This report **replaces the initial 2020 Rangeland Condition Report** with improved maps. The previous report used maps from the Southeast Oregon Nearest Neighbor Vegetation Community Map, which represented an older snapshot in time and was not appropriate for use at fine spatial scales. The updated report uses a newer suite of maps as described below, and discrepancies between the reports are due to differences in mapping methodology, map error, and differing rule sets for assigning ecostates.

The **Ecstate Time Series Map** shown in this report is based on rangeland vegetation functional group maps from the [Rangeland Analysis Platform](#). Maps of shrub, tree, annual herbaceous and perennial herbaceous cover were combined into 8 ecostates as described in the [map documentation](#). The new set of maps offer several advantages over previous maps: they cover a long time frame from 1984 to current (with annual updates planned), they generally have greater accuracy than previous generations of maps, and they can be used at wider range of spatial scales, including fine spatial scales such as smaller pastures or treatment units. The most recent time snapshot (2015-2019) can be viewed and downloaded from the [SageCon Landscape Planning Tool](#), and users can [download](#) the full time series. Summaries exclude areas that are mapped as non-rangeland vegetation (forests, agriculture, barren areas).

The **BLM Assessment Inventory and Monitoring (AIM)** program is designed to quantitatively assess the condition and trend of natural resources on BLM-managed lands. This summary includes 2,596 vegetation plots across the state sampled between 2016 and 2020. AIM data provides detailed vegetation information for each SRU, and the rangeland health indicators summarized from AIM plots were selected to represent a few key features of high-quality sagebrush ecosystems to complement the more generalized view of threats provided by the ecostate map. Indicators include: sagebrush cover between 10-25%, which provides shelter and a food source for sage-grouse; deep-rooted perennial grasses greater than 15% cover (deep-rooted bunchgrasses maximize site resilience and stabilize soil); and perennial forb cover, which provides an important food source for many species of wildlife. Note that forb cover is highly variable from year to year and within years, and in some cases cover is likely underestimated due to the timing of sampling. Ecological site potential also varies widely across the rangelands in the state, and the thresholds chosen for this generalized summary are not appropriate at all sites. AIM plots are located on BLM-administered lands only and do not represent adjacent private and other public lands.

**Wildfire perimeter** data was taken from multiple sources, including BLM and US Forest Service records, Northwest Coordination Center, and National Interagency Fire Center. Fire perimeters were analyzed by SRU and PAC starting in 2003 to match sage-grouse population baseline numbers (see [ODFW sage-grouse population reports](#)). Fire acreages include all areas within burned perimeters (including unburned islands) and counts acres affected by multiple fires since 2003 only once. They also include non-rangeland areas within some SRUs (e.g., forests or woodlands around the perimeter of the SRU).

### More resources:

- The [SageCon Dashboard](#) provides an overview of the status and trends of sagebrush, sage-grouse, and rangeland conservation efforts in the state.
- The [Rangeland Assessment and Management Tools](#) page contains information about maps and technical tools for rangeland management.
- The [SageCon website](#) contains more information on sage-grouse planning, policy, and current efforts in Oregon rangelands.