

Appendix 9. Calculation of Acres of Exotic Annual Grasses, Conifers, and Wildfire Occurrence

i. Data Inputs

Data Set	Description	Source	Date
Ownership	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
Oregon Priority Areas for Conservation (PAC)	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
Exotic Annual Grasses (2013) 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
Tree Canopy Cover (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
Wildfire Perimeters	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.