

2019 OREGON ACTION PLAN

For Implementation of Department of the Interior Secretarial Order 3362: “Improving Habitat Quality in Western Big-Game Winter Range and Migration Corridors”

Introduction

Secretarial Order 3362 (SO3362) directs appropriate bureaus (US Fish and Wildlife Service [USFWS], National Park Service [NPS], and Bureau of Land Management [BLM]) within the Department of the Interior (DOI) to work in close partnership with the State of Oregon to enhance and improve the quality of big-game winter range and migration corridor habitat on Federal lands under the management jurisdiction of the DOI in a way that recognizes state authority to conserve and manage big-game species and respects private property rights. Through scientific endeavors and land management actions, wildlife such as Rocky Mountain Elk (elk), Mule Deer (deer), Pronghorn Antelope (pronghorn), and a host of other species will benefit.

Conditions in the broader landscape influence the function of migration corridors and sustainability of big game populations. Such conditions may include habitat fragmentation, land use patterns, resource management, or urbanization. The United States Department of Agriculture (USDA), through the USDA Forest Service (USFS) and USDA Natural Resource Conservation Service (NRCS), will collaborate with DOI, the states, and other natural resource managers across the broader landscape when developing an all-lands approach to research, planning, and management for ecological resources, to include migration corridors in a manner that promotes the welfare and populations of elk, deer, and pronghorn, as well as the ecological integrity of terrestrial ecosystems in Oregon.

There are just over 62 million acres of land in Oregon, of which approximately 51% (31.9 million acres) is either DOI or Forest Service (USFS) managed. The USFS manages about 25% (15.5 million acres), with DOI managing the rest (25% BLM, 1% USFWS and >1%NPS) (see map Appendix A). The landscapes necessary to maintain ungulate winter range and migration routes are becoming increasingly fragmented across the western United States due to human encroachment from agriculture (Donald and Evans 2006), residential development and urban sprawl (Johnson et. al 2018, Radeloff et. al 2005, Wyckoff et. al 2018), roadway expansion (Coe et. al 2015, Johnson 2001, Simpson et. al 2016), and natural resource extraction (Hennings and Soll 2012, Lendrum et. al 2013, Sawyer et. al 2017).

Secretarial Order 3362, Improving Habitat Quality in Western Big-Game Winter Range and Migration Corridors, recognizes the need to enhance critical migratory corridors and winter range on Federal lands. The Order further directs the DOI to collaborate with both the State and Tribal agencies to attain or sustain wildlife population goals. Additional important partners in

helping achieve Oregon's goals are both the national Department of Transportation (DOT) and the Oregon Department of Transportation (ODOT). In Oregon, the BLM administers 15.7 million acres of land, primarily in southeastern Oregon and along the Interstate 5 corridor of western Oregon. Native ungulates, including mule deer, elk, and pronghorn, occur throughout BLM lands, and commonly migrate 30-65 miles between seasonal ranges. While federal land management agencies and State and National transportation agencies influence wildlife habitat and movement, ultimately the Oregon Department of Fish and Wildlife (ODFW) is responsible for ungulate management on federal lands in Oregon.

Robust and sustainable elk, deer, and pronghorn populations contribute greatly to the economy and well-being of communities across the West. In fact, hunters and tourists travel to Western States from across our Nation and beyond to pursue and enjoy this wildlife. In doing so, they spend billions of dollars at large and small businesses that are crucial to State and local economies. The DOI has a responsibility as a manager with large landholdings to be a collaborative neighbor and steward of the resources held in trust. Secretarial Order 3362 directs the DOI to work with State partners and others to conserve and/or improve priority western big-game winter range and migration corridors in sagebrush ecosystems and in other ecotypes as necessary.

Collectively, the appropriate bureaus within the DOI have an opportunity to serve in a leadership role and take the initiative to work closely with Western States on their priorities and objectives as they relate to big-game winter range and migration corridors on lands managed by the DOI, and by the USFS with their cooperation. In addition, if private landowners are interested and willing, conservation may occur on lands within these important areas through voluntary agreements.

This Oregon Action Plan identifies opportunities for habitat restoration and mitigation efforts to improve big game winter range and migratory areas in four areas in the state, including mitigation of transportation infrastructure and control of western juniper and exotic annual grasses, as well as a research priority to assist in understanding migration corridors, winter range, and stop-over areas for Roosevelt elk on DOI-managed lands in southwestern Oregon.

Habitat Needs (Corridor/Winter Range)

U.S. Highway 97 and OR Highway 31

Maintenance of movement corridors is a critical component of wildlife conservation, and is particularly important for terrestrial species that migrate, such as elk and mule deer. These long-distance movements between winter and summer ranges often bring wildlife into conflict with humans. In particular, ungulates are susceptible to wildlife-vehicle collisions (WVC) on the numerous roads and highways that bisect historic migratory routes. Mule deer winter ranges in south-central Oregon are populated by 18,000 – 22,000 animals, many of which migrate from summer ranges in the high Cascades. Analyses from 492 mule deer tracked by the Oregon

Department of Fish and Wildlife (ODFW) using GPS collars from 2005 to 2011 indicate that many critical migratory corridors overlap U.S. Highway 97 and OR Highway 31 (Figure 1, Coe et al. 2015), and that a significant number of WVC occur each year, particularly during migration periods (Figure 2). Highway 97 is a major travel route from Oregon to California and Nevada and is currently undergoing expansion to add a number of passing lanes to facilitate traffic flow. Expansion is expected to increase WVCs with migrating mule deer, potentially having an additive impact on already depressed mule deer herds.

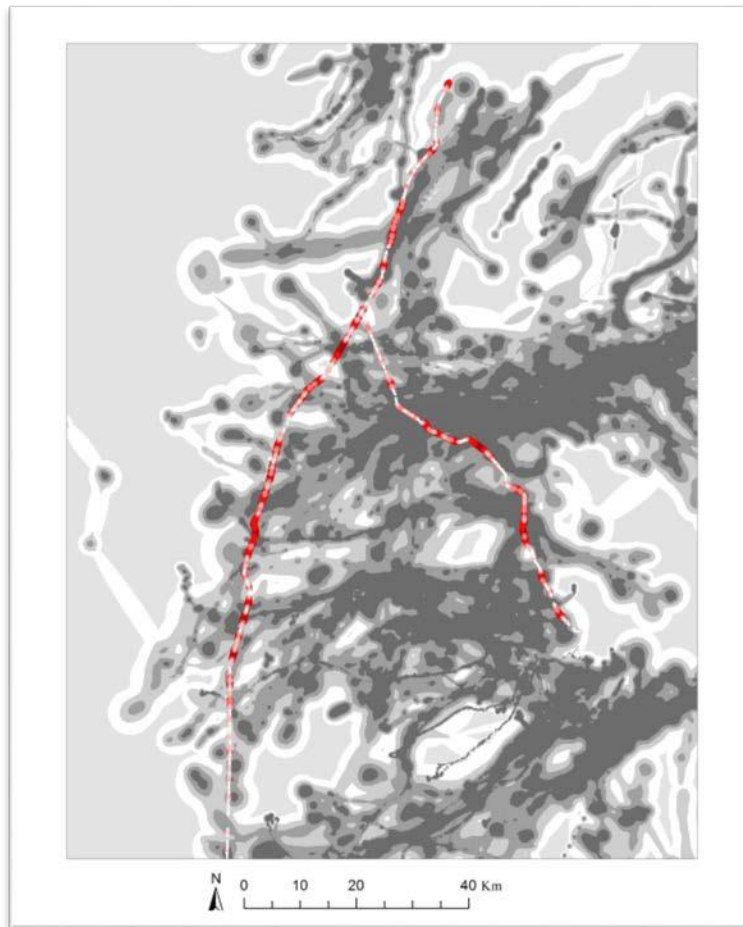


Figure 1: Relative risk of mule deer–vehicle collision (light pink to dark red = low to high risk) and probability of use during migration (light gray to dark gray = low to high probability of use) on U.S. Highway 97 and Oregon Highway 31 in south-central Oregon (From Coe et al. 2015)

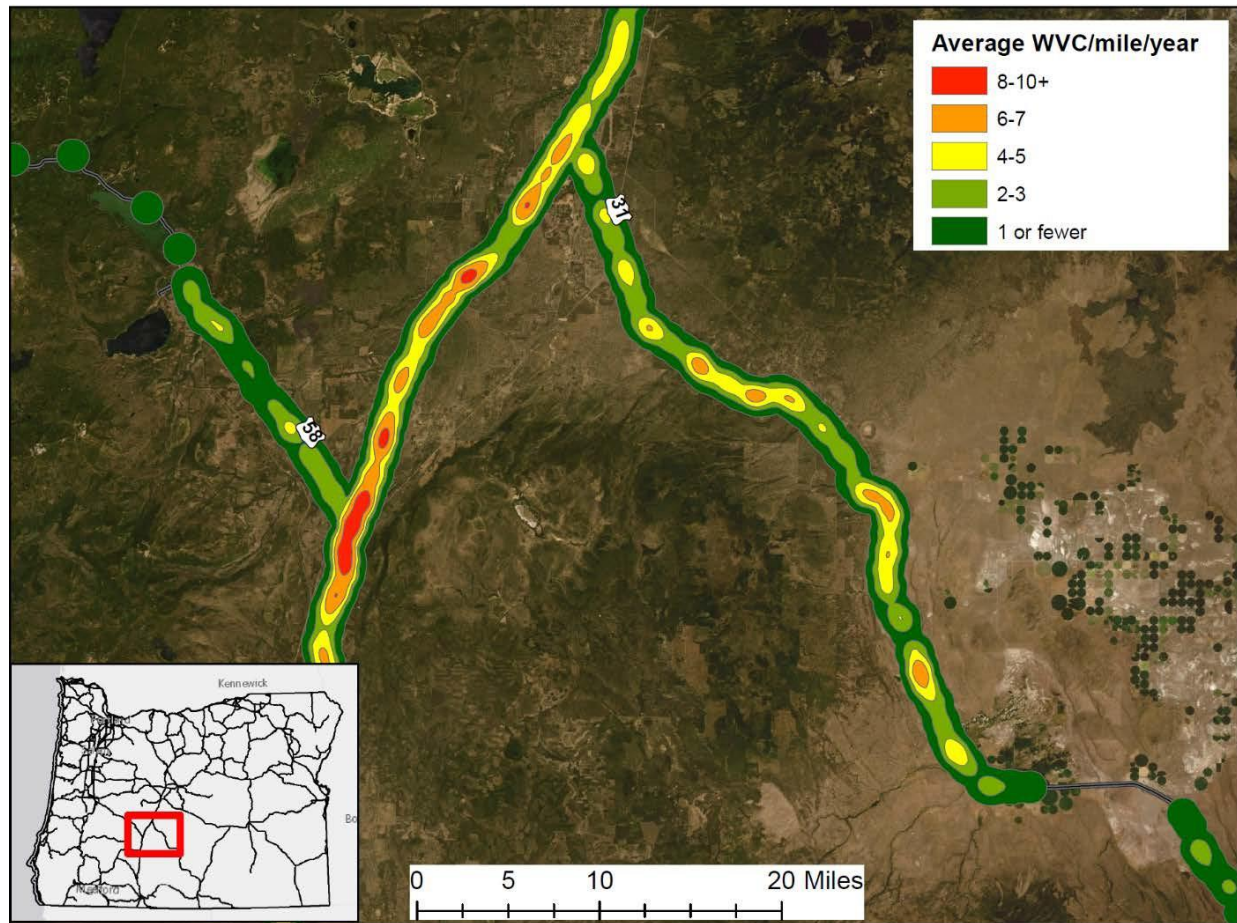


Figure 2: Location of intersection of U.S. Highway 97 with OR Highway 31 in south-central Oregon, along with annual average wildlife-vehicle collisions per mile.

Surrounding habitat is largely ponderosa pine and lodgepole pine forest, harvested forest, and western juniper woodland, transitioning to sagebrush steppe to the east. The communities of La Pine and Gilchrist surround the intersections of U.S. 97 and OR-31 and U.S. 97 and OR-58, respectively. Land management is a mix of private, state, and federal (Figure 3). USFS manages most of the surrounding landscape, with significant private ownership on either side of U.S. 97 and in agricultural development east of OR-31. Timber harvest is the primary land use on private lands bordering U.S. 97. Public lands see high recreational use from the surrounding communities and the nearby city of Bend, including OHV use, dispersed hiking, and camping.

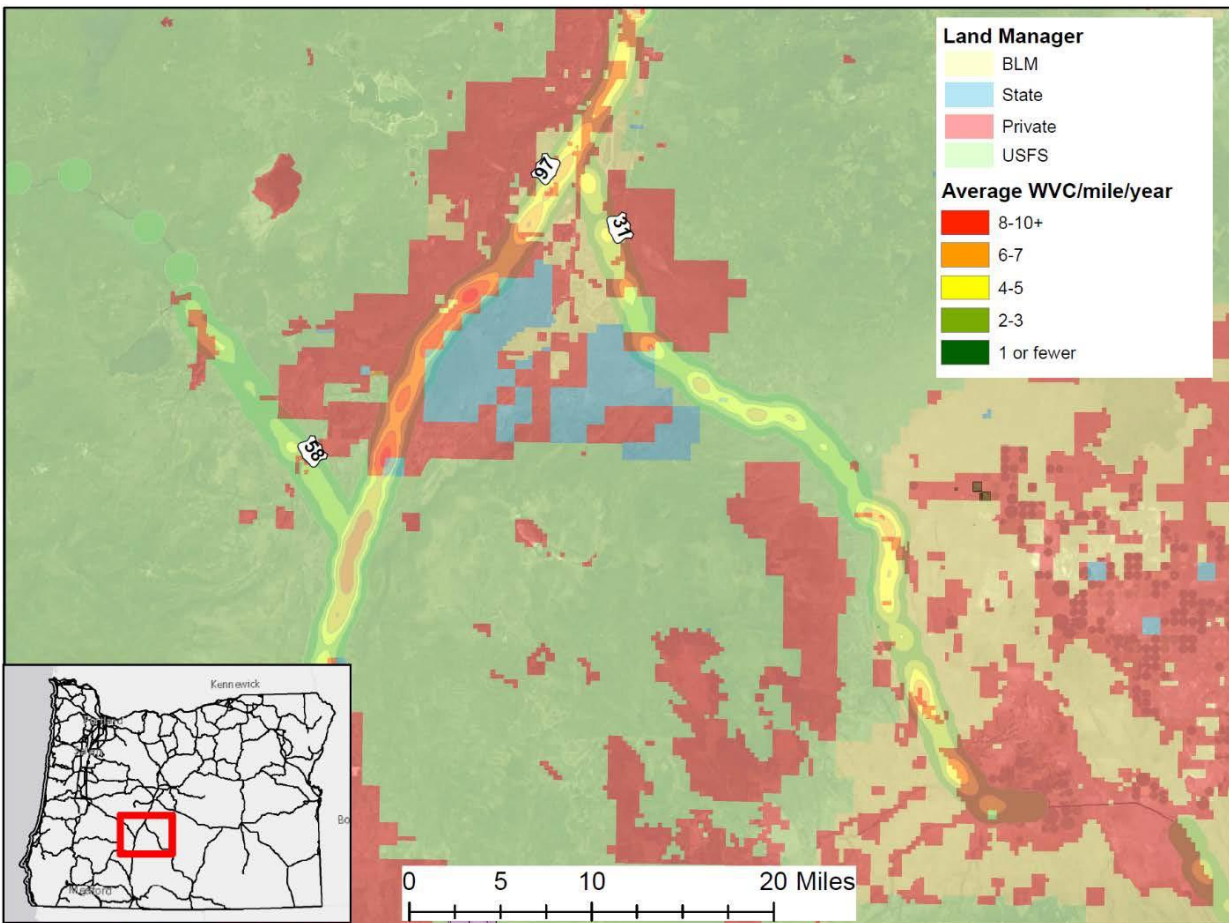


Figure 3: Land management of lands surrounding U.S. Highway 97 and OR-31 in south-central Oregon

In addition to high densities of WVCs along U.S. 97 and OR-31, risks and threats to big game in this area include human recreation, illegal harvest, and disease.

ODFW, ODOT, the Oregon Hunter's Association (OHA), Oregon Wildlife Foundation (OWF), and other partner groups have proposed a series of wildlife crossing structures along U.S. Highway 97 and Oregon Highway 31, based on a 7-year study of mule deer migration in south-central Oregon and concurrent 5-year deer-vehicle mortality study along both highways. ODOT is planning to incorporate passage structures for wildlife opportunistically, where topography and funding allows, as passing lanes are constructed along Highway 97. A single dedicated wildlife underpass and a multi-use underpass were installed near Sunriver, OR, in 2012.

ODOT has secured funding for a new wildlife underpass and fencing installation during construction of the newest series of passing lanes on U.S. Highway 97, near mile marker 180 north of the community of Gilchrist. However, additional funds are needed to purchase fencing materials. Ungulate-proof fencing is critical to the success of wildlife underpasses, and in decreasing wildlife-vehicle collisions with ungulates (Dodd et al. 2007, Huijser et al. 2016).

Habitat and mitigation projects that would benefit this area including funding completion of the directional fencing for the wildlife undercrossing north of Gilchrist, installation of additional passage structures, and removal of trees along both highways to improve visibility of deer and elk for motorists. In particular, several stretches along OR-31, including an approximately 13-mile stretch between mileposts 28 and 41, see high deer use as animals migrate between winter and summer range. Subsequently, these are areas of high mule deer mortality due to WVCs.

U.S. Highway 20: Harper to Juntura

In addition to migratory periods, deer and elk are also susceptible to WVCs on winter range. Numerous roadkill hotspots exist throughout Oregon. An area of particular concern is U.S. Highway 20 between the communities of Harper and Juntura in eastern Oregon. Highway 20 directly bisects one of the highest density mule deer winter ranges in Oregon, and the area sees some of the highest numbers of deer-vehicle collisions in the state (Figure 4). The overlap of the Highway with winter range leads individual animals to cross the Highway regularly throughout winter, and data from GPS collared deer suggest that some individuals will cross, or attempt to cross, multiple times a day. The highway parallels the Malheur River and travels through the Malheur River Canyon.

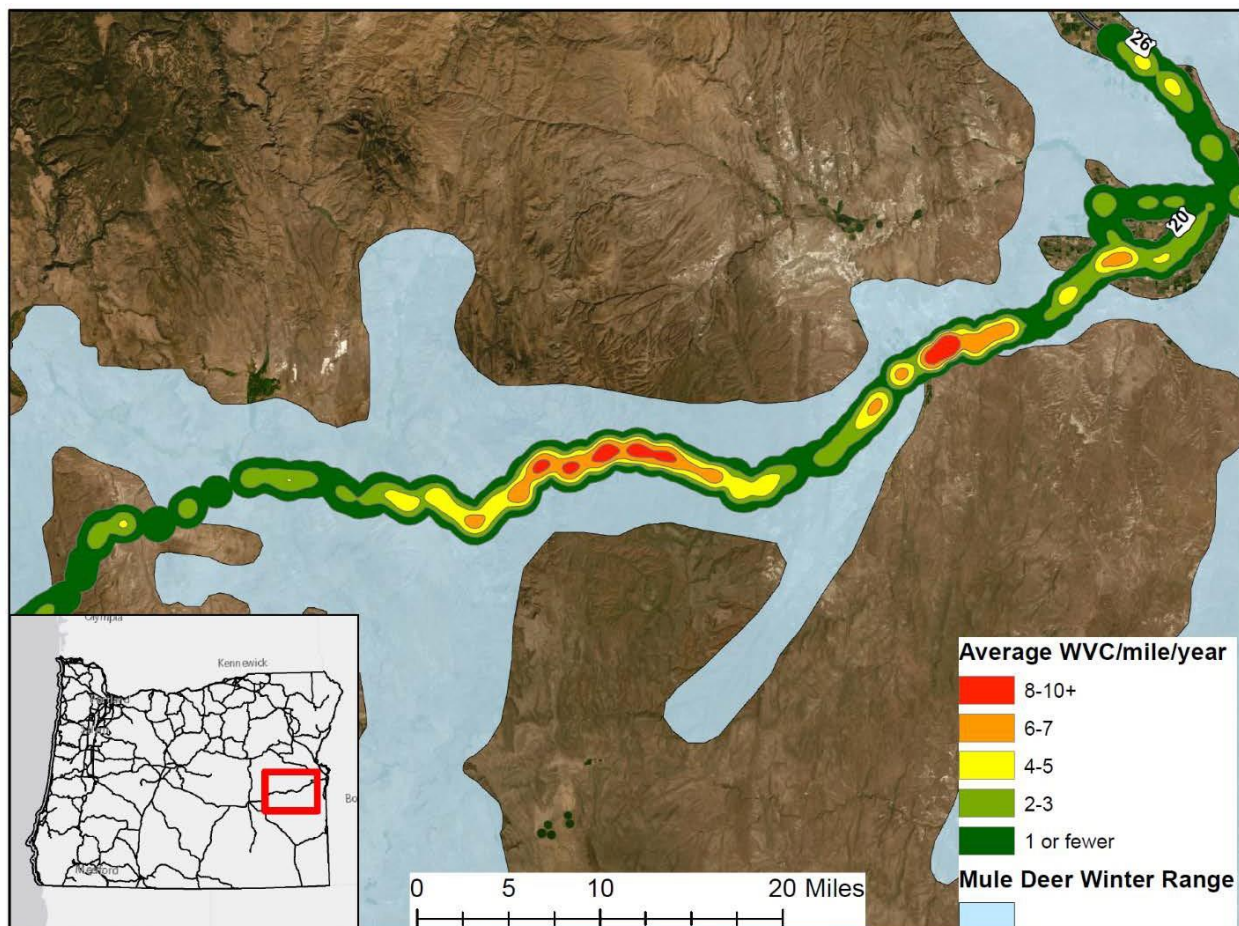


Figure 4: Location of U.S. Highway 20 in eastern Oregon, along with annual average wildlife-vehicle collisions per mile. The Highway directly bisects high-density mule deer winter range.

Habitat in the area is largely shrub steppe and introduced annual and perennial grasslands, with some agriculture and smaller, dispersed patches of salt desert scrub. The Malheur River Canyon has been heavily impacted by wildfire and invasive species, and is devoid of suitable shrub cover in many areas, particularly north of the highway. Land management is a mix of federal, state, and private, with the BLM responsible for managing most of the land in the area, although the lands directly adjacent to Highway 20 are largely privately owned (Figure 5).

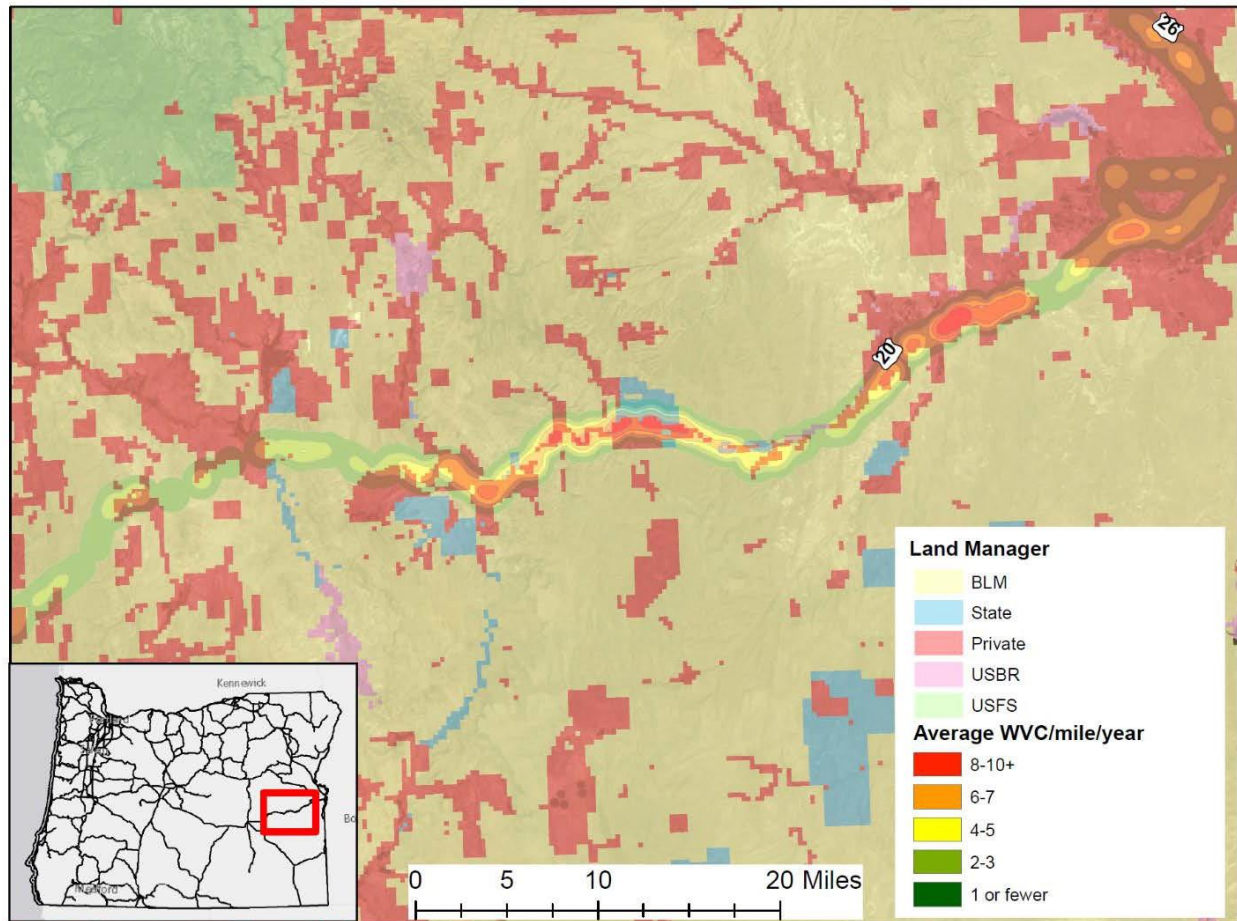


Figure 5: Land management of lands surrounding U.S. Highway 20 in eastern Oregon

In addition to high densities of WVCs, wildfire and habitat conversion to introduced/nonnative annual grass with loss of shrubs poses the greatest risk to mule deer in this area.

Several conservation efforts are ongoing. The ODFW Mule Deer Initiative and the BLM have been working to improve shrub cover across 750 acres by planting shrubs in the Currey Canyon fire scar. The Burns Paiute tribe has been working on restoring riparian areas, reducing grazing, and removing juniper at Denny Jones Ranch. The Oregon Department of State Lands has worked to remove juniper in the Jonesboro parcel. Additionally, in December of 2019, ODFW will mark 50 adult does and 50 fawns on this winter range to monitor annual overwinter survival.

Habitat and mitigation projects that would benefit the area include removal of dilapidated fencing along the railroad grade parallel to the highway, as well as retrofitting of existing

bridges, culverts, and fencing to better facilitate wildlife passage underneath the highway. Additionally, habitat improvements away from the highway would reduce the need for deer to regularly cross to the south side to access shrub forage. There are nearly 30,000 acres of compromised habitat north of Highway 20 that would benefit from a combination of annual grass control via herbicide application and subsequent shrub seeding/plug planting.

Phillip W. Schneider Wildlife Area

The Phillip W. Schneider Wildlife Area (PWSWA), located in Northeastern Oregon, is approximately 52,830 acres (Figure 6). The PWSWA provides wintering habitat for both mule deer and Rocky Mountain elk. Recent mule deer collaring efforts by ODFW have shown that the PWSWA winters mule deer from 6 different wildlife management units in eastern Oregon. The Murderers Creek Basin within the PWSWA winters more than 1,000 elk during harsher winters. Previous and ongoing elk collaring efforts have also shown that elk from 4 different management units winter within the Murderers Creek Basin.

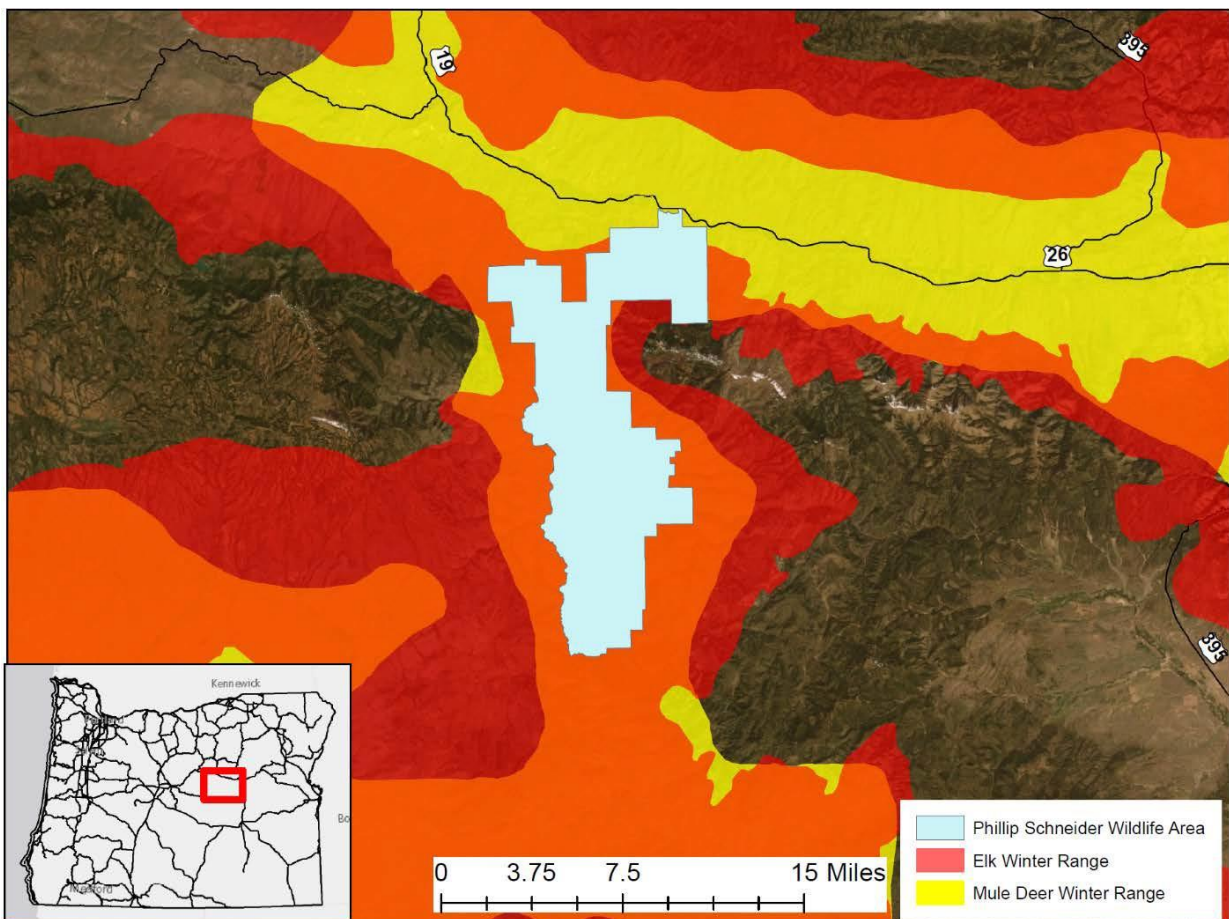


Figure 6: Location of PWSWA in Northeastern Oregon. Both mule deer and Rocky Mountain elk winter in the Wildlife Area. Elk winter range is displayed in red, mule deer in yellow. Orange areas are areas where mule deer and elk winter range overlap.

Habitat in the wildlife area and surrounding region is largely shrub steppe, western juniper, introduced annual and perennial grasses, grassland steppe, and ponderosa pine and eastside Douglas-fir evergreen forests. Land management is a mix of private, state, and federal, with 50% of PWSWA being administered by the BLM, 44% by ODFW, and 6% by private landowners. The surrounding lands are largely private to the north and south, and managed by USFS to the east and west (Figure 7).

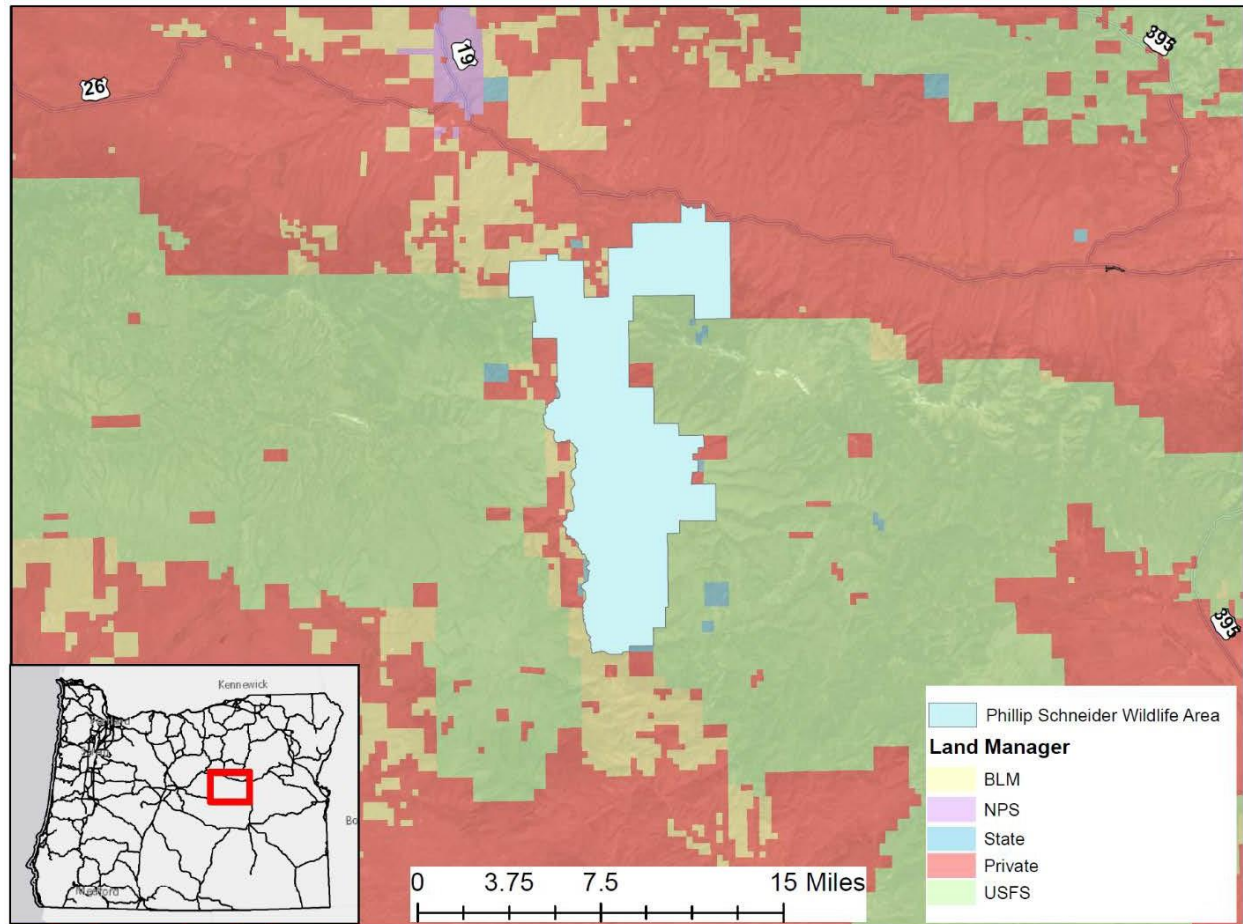


Figure 7: Land management of lands surrounding Phillip W. Schneider Wildlife Area in Northeastern Oregon. Land within the PWSWA is administered by both ODFW and the BLM.

Historically the PWSWA was composed of a sage-steppe vegetative community. Currently, however, much of the Wildlife Area is dominated by western juniper and exotic annual grasses. Sites degraded by western juniper and annual grasses offer less nutritional value, which may lead to increased mortality of wintering big game. Removal of western juniper has been documented to help restore sites to a more productive vegetative state. In addition to encroachment by introduced grasses and western juniper, winter range in PWSWA is at risk from degradation due to feral horses. The Wildlife Area is located within the Murderer's Creek Herd Management Area (HMA). Appropriate Management Levels for the Murderer's Creek HMA are between 50 and 140 individuals, but herd counts in winter of 2019 identified a minimum of 339 horses

within the HMA. At this current inflated population level there is considerable threat of degradation to winter range and riparian areas within PWSWA.

Ongoing conservation efforts have largely focused on juniper removal. Through the Mule Deer Initiative, some work has been completed with private landowners surrounding the Wildlife Area to remove juniper, as well as juniper removal work within the Wildlife Area with partners such as the OHA, Rocky Mountain Elk Foundation (RMEF), and the Mule Deer Foundation (MDF). Since 2005, ODFW has removed western juniper from approximately 6,015 acres of ODFW-administered lands within the PWSWA. Site recovery following juniper removal has varied from site to site depending on several factors, including degradation of the site before treatment, the established seed bank, and the aspect of the site. Current research on the PWSWA indicates that poor shrub recruitment and expansion of annual grass following juniper removal is slowing site recovery. Additionally, in 2014, the South Fork Complex Fire burned throughout the majority of the PWSWA, including approximately 3,005 acres where juniper had previously been removed, converting the area into an annual grass savanna. Following the South Fork Complex Fire ODFW and BLM both have made multiple attempts to treat the annual grass expansion in the Murderers Creek Basin. Starting in 2015, the BLM has treated approximately 12,000 acres and ODFW has treated approximately 6,050 acres with imazapic. Ongoing camera trap monitoring of ODFW's juniper removal efforts indicate that during mild winters mule deer on the PWSWA select for areas of juniper removal outside the South Fork Complex Fire perimeter but avoid areas of juniper removal inside the burn perimeter.

Habitat and mitigation projects that would benefit the area include additional removal of western juniper and follow-up control of annual grasses, and reduction of the Murderers Creek feral horse herd to Appropriate Management Levels.

Upper Crooked River

The Upper Crooked River Restoration (UCRR) project area is an incredibly diverse landscape that encompasses 659,184 acres of public and private land across the eastern half of central Oregon (Figure 8). The area provides critical winter range habitat for both mule deer and Rocky Mountain elk, and is recognized by government agencies, tribes, and private interests as a conservation priority. The Upper Crooked River maintains relatively intact winter ranges and migratory corridors for both deer and elk, and is an area of active public-private partnerships toward habitat restoration and conservation.

Habitat types in the area are mixed, including ponderosa pine and eastside Douglas-fir evergreen forests, western juniper, shrub steppe, low sage, and introduced annual and perennial grasses. The area is best described as a “working landscape” that spans privately-owned ranch and timber lands in the Crooked River Valley, intermixed with sage-steppe BLM lands in the valleys and foothills, and surrounded by dry ponderosa pine and mixed conifer forest types in the Ochoco National Forest. Lands within the Project Area are largely administered by private landowners, followed by the BLM and USFS with some smaller state-owned parcels in the south (Figure 9).

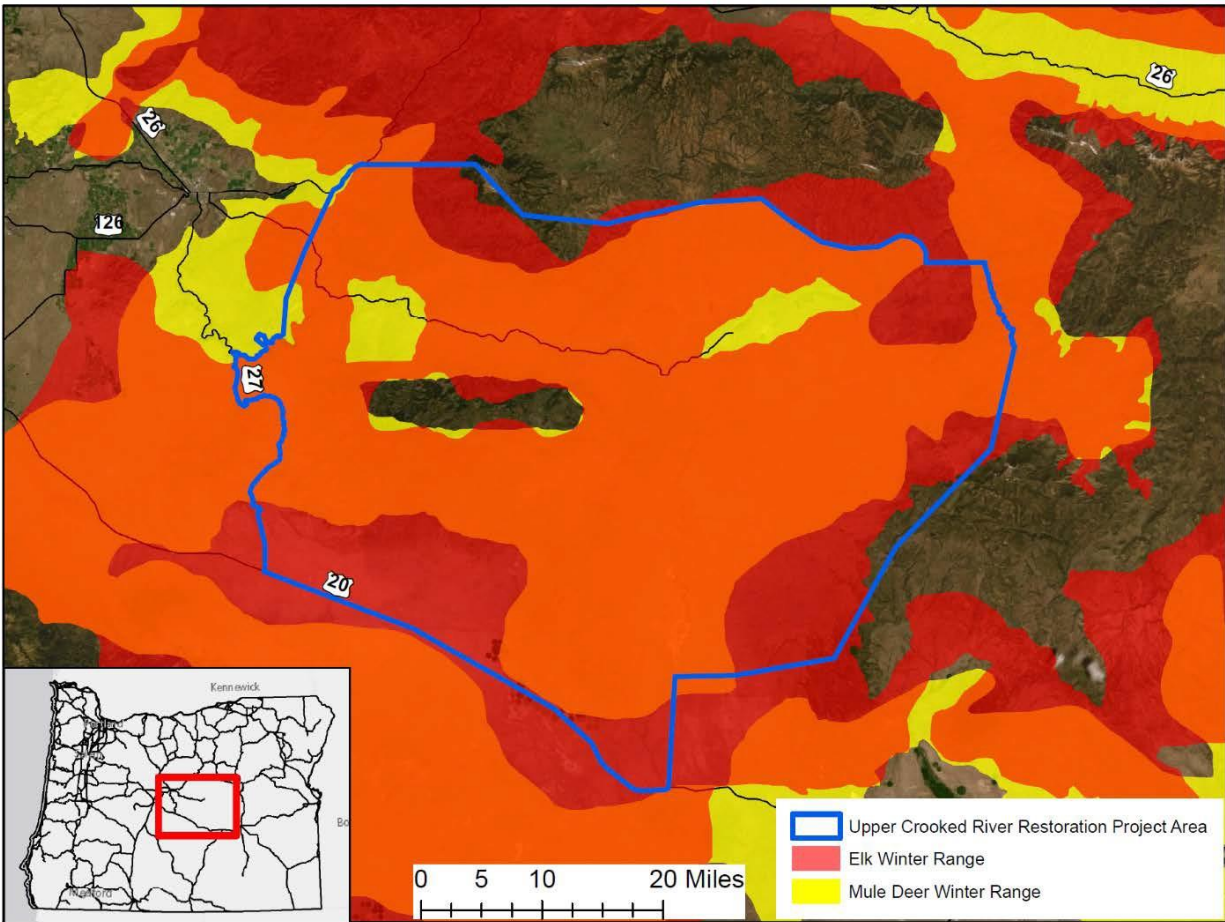


Figure 8: Location of the Upper Crooked River Restoration Project Area in central Oregon. The area provides winter range for both mule deer and Rocky Mountain elk. Elk winter range is displayed in red, mule deer in yellow. Orange areas are areas where mule deer and elk winter range overlap.

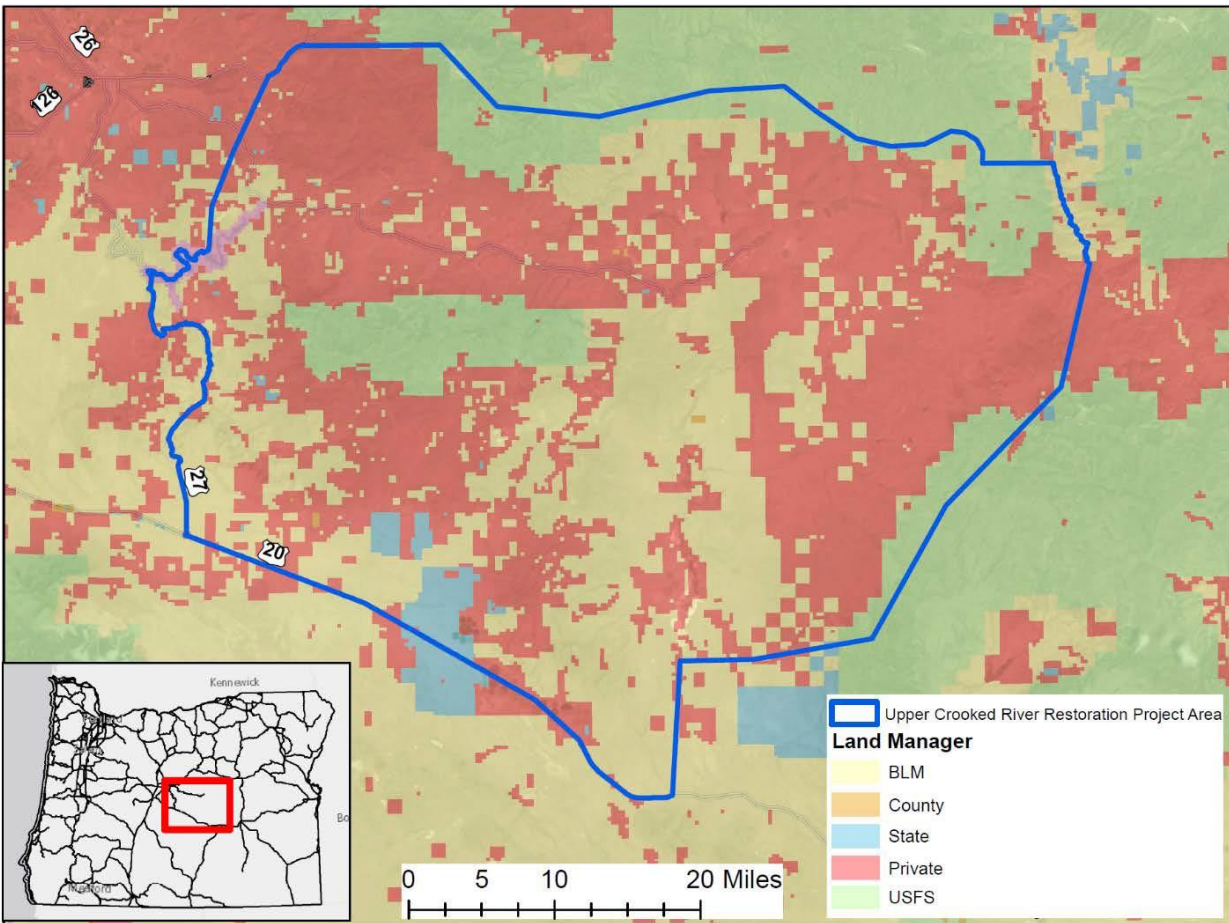


Figure 9: Land management of lands within the Upper Crooked River Restoration Project Area. Land ownerships is largely a mix of private and federal, with most lands being administered by private landowners and the BLM.

Ongoing risks and threats to the habitat in the area include wildfire, water security, and encroachment of nonnative annual and perennial grasses. Additionally, one of the primary conservation concerns is increased development on private parcels fragmenting habitat.

Partnership work within the UCRR project area includes efforts to restore late seral ponderosa pine forests, wetlands, and riparian zones to improve habitat. Work across public and private boundaries has included numerous projects to thin and restore fire to ponderosa pine forests, hazardous fuels reduction, juniper cutting, invasive weeds treatments, aspen restoration, and both upland and riparian restoration within the watershed. Restoration accomplishments have occurred on both public and private lands. On private lands within the project area there have been two major programs – the NRCS Sage Grouse Initiative (SGI) and the ODFW Maury Mule Deer Initiative (MDI). Through these programs, the NRCS and ODFW have cooperated with 46 private landowners to promote and implement more than 185,705 acres of sage grouse and mule deer habitat restoration, primarily through juniper removal. The Crooked River Watershed Council, Crook County Soil and Water Conservation District, and Oregon State University Extension reached 40 additional landowners to complete an additional 21,600 acres of juniper removal, in addition to other restoration work. Complementary work by the Prineville District of the BLM includes more than 30,471 acres of juniper removal in the UCRR project area as well.

Invasive plant management in the UCRR project area has been a cooperative effort between the Crooked River Weed Management Area, Crooked River Watershed Council, Crook County Soil and Water Conservation District, and Nature Conservancy. More than 35,260 acres of invasive treatments have occurred on 57 landowner properties by using a combination of contracts, interagency, partnership, and intergovernmental agreements. Weed management by the Forest Service and BLM, in coordination with the Crooked River Weed Management Area and Crook County, account for the treatment of approximately 3,000 acres of public land treatment in the UCRR project area annually.

Additional habitat projects that would benefit the UCRR area include removal of western juniper, timber and aspen stand improvement, controlled burning, and invasive plant control. Further, conservation easements with private landowners could benefit the area by reducing the risk of development and preventing habitat fragmentation.

Research Needs

There is a pressing need to initiate development of connectivity maps for a broad array of Oregon's terrestrial wildlife species, as many species rely on the ability to move throughout the landscape to fulfill their daily and seasonal requirements for access to food, shelter, and opportunities to reproduce. Anthropogenic landscape change can restrict the ability of wildlife to move across the landscape by adding barriers, instigating behavioral changes, impacting critical stopover sites, and increasing habitat fragmentation. Mapping and maintaining movement corridors will help species to fulfill their daily, seasonal, and life history needs (Noss 1991), allow for dispersal (Hanski 1998), help maintain genetic diversity (Watts et al. 2015), and promote population viability and persistence in increasingly-fragmented landscapes. Further, maintaining and restoring landscape connectivity is the most frequently proposed strategy to aid wildlife in adapting to changing climates (Heller and Zavaleta 2009).

The Oregon Habitat Connectivity Consortium (OHCC), led by ODFW, has recently developed an implementation plan for how to assess existing habitat connectivity for terrestrial wildlife across the state. The plan was co-developed with state, federal, and NGO partners and represents the current best practices in landscape-scale connectivity assessment and mapping for movement and migration corridors. The next step in their process is to complete the assessment and produce connectivity maps for the state of Oregon and adjacent lands in neighboring states. These fine resolution connectivity maps will provide utility to a wide diversity of partners, aiding in statewide planning and prioritization for strategic conservation investment, protection measures, siting for land use changes and development, mitigating barriers to animal movement, targeted restoration efforts, and transportation improvements, among many other uses.

To date, efforts to map connected habitat corridors in Oregon have been based primarily on expert opinion, and have proven to be insufficient in making decisions related to maintaining

species' ability to move across the landscape. Improvements in the availability and resolution of spatial data, as well as new and more robust statistical modeling techniques, have made fine-resolution, landscape-scale habitat connectivity modeling feasible.

The planned assessment, the Oregon Connectivity Assessment and Mapping Project (OCAMP), draws on hierarchical clustering analysis to create groups of species based on habitat associations for each ecoregion in the state. These species are then filtered using a set of criteria regarding life history types, dispersal capabilities, diversity of taxa, availability of data on species presence and distribution, and sensitivity to human disturbance, among others, to select species from each group to act as surrogates, or representatives of broader classes of species and movement types. To those surrogate species, focal species and generalists are added—species such as elk, deer, and pronghorn, which might not have close habitat associations but are nonetheless ecologically and socioeconomically important for understanding connectivity.

The ultimate goal is to map connectivity for a variety of both game and non-game species that are representative of a broad diversity of taxa, dispersal capabilities, conservation need, and movement types. For each selected species, species habitat models are built to identify important habitat areas. These models, along with species-specific landscape resistance models, are used to map landscape permeability, highlighting areas that both facilitate and impede species movement. Ultimately, the outputs from the analyses for each species are combined, resulting in a suite of maps highlighting connectivity for each individual surrogate/focal species, as well as a single map illustrating connectivity for the group of all species as a whole.

This work is a massive undertaking with a large financial burden. Estimated costs to complete the corridor assessment are ~ \$1 million. The Oregon Department of Fish and Wildlife, in partnership with the OHCC, has secured matching funds from a variety of organizations, totaling \$700K. ODFW and the OHCC are looking for granting opportunities to obtain the remaining \$300K for the project. The Opportunity for Immediate Action below will provide ODFW with foundational information on current Roosevelt elk migratory corridors and winter range that will eventually inform the statewide analysis. Alongside the need to assess and map connectivity for big game and other terrestrial wildlife in the state, Oregon has identified two additional longer-term, persistent research needs. First, management of big game in Oregon would benefit from research investment in appropriate, viable seed mixes for restoration of shrub-steppe habitat. There has been strong, successful investment in developing seed mixes for native grasses, but there has not yet been success with a robust seed mix for restoring shrub-steppe habitat, particularly following wildfire. Second, the current failure rate of the existing options for GPS collars frequently increases the cost of collaring animals and extends the time it takes to collect data on big game migrations and migratory pathways. Research directed toward improving GPS collar technology for big game, particularly research addressing collar failure rates, is needed.

Opportunity for Immediate Action

Oregon Research Priorities

Movement and migration corridors are important biological parameters for ungulate populations. These areas are best delineated using movement data collected from animals using GPS transmitters and modern, rigorous geospatial analyses. ODFW is currently collecting GPS data from hundreds of mule deer throughout their eastern Oregon ranges that will facilitate identification of critical movement and migration corridors on all land ownerships. Most Rocky Mountain elk occur primarily on USDA Forest Service lands or on privately owned lands. ODFW will begin evaluation of Rocky Mountain elk seasonal range use, movements, and migrations in parts of the species range beginning winter 2019-2020.

Data describing seasonal habitat use and movements of Roosevelt elk in western and southwestern Oregon are incomplete or lacking completely. Roosevelt elk purportedly use BLM lands extensively but movement patterns and seasonality of use is poorly understood. More data are needed in Oregon to properly identify where critical Roosevelt elk corridors occur on the landscape.

In response to SO3362, with funds provided by the BLM, ODFW initiated the Southeast Oregon Pronghorn Study in September 2019 to identify seasonal pronghorn distribution and ranges, location and timing of pronghorn migration corridors, and potential barriers to pronghorn migration and movement in southeastern Oregon. With expectations that some adult mortalities will occur, sample size for analysis will need augmentation to effectively address study objectives.

In accordance with collaborative direction stemming from Secretarial Order 3362 and subsequent direction from the U.S. Fish & Wildlife Service in 2019, ODFW proposes a \$250,000 study documenting movements of Roosevelt elk throughout BLM lands in 3 wildlife management units (WMUs) in southwestern Oregon, and \$50,000 in additional funds to augment the Southeast Oregon Pronghorn Study.

Southwest Roosevelt Elk Study

Objectives

- 1) Document seasonal elk distributions, proportions of elk home ranges, and annual elk movements associated with BLM lands in 3 WMUs, and
- 2) Identify location of critical elk habitat corridors, potential barriers to elk movement, and elk winter range use within the 3 WMUs.

Methods and Details

This basis of the study will be deployment of Iridium-based GPS telemetry collars on cow elk occupying BLM lands in 3 southwestern Oregon WMUs. An estimated 80 GPS collars will be deployed on cow elk via helicopter net gun capture during late winter (February - March). Twenty collars will be deployed on cows occupying BLM land in the Dixon WMU and 30 collars each will be deployed in Tioga and Siuslaw WMUs (Figure 10). Location data will be remotely monitored by ODFW staff. ODFW Wildlife Research staff will recover collars from any mortalities. ODFW personnel will conduct data analyses with potential consultation with BLM and/or USGS research staff.

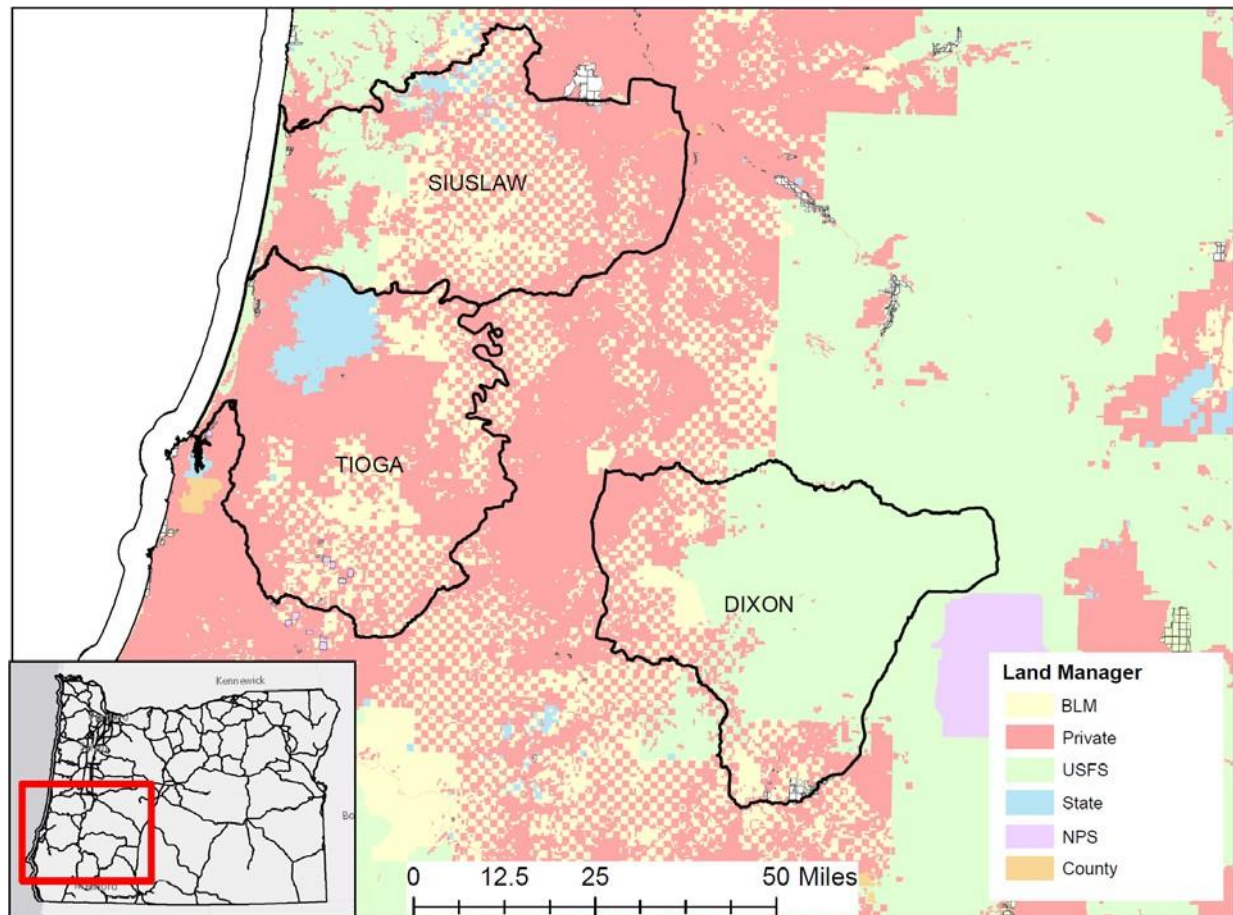


Figure 10: Location of Tioga, Siuslaw, and Dixon Wildlife Management Units for proposed Roosevelt Elk GPS collar deployment.

Expected GPS collar lifetime would provide three years of data collection. Collecting 6 locations per elk per day for 3 years would produce over 525,000 animal locations from which to identify seasonal ranges and movement corridors. Additionally, the 3-year lifespan of collars will capture annual variation in movement patterns that may be influenced by variability in weather patterns or other factors.

The estimated initial funding need from Department of Interior (DOI) is \$250,000 (Table 1). All initial funds requested would be applied toward purchase and delivery of Iridium-based GPS

collars, associated data collection fees, and capture-related costs. The final number of collars will be dependent on the bid process, final vendor selection, and final unit bid price.

Table 1. Estimated cost of capture and GPS collars to evaluate distribution and movements of elk in southwestern Oregon.

Item Detail	Quantity	Unit Price	Total
Capture	80	\$850	\$68,000
Iridium Platform GPS Collars	80	\$2275	\$182,000
Total			\$250,000

ODFW already has qualified staff to monitor collars, collect data and conduct analyses. Pending funding availability in subsequent years, collars retrieved from mortalities with sufficient battery life will be re-deployed, and potentially new collars will be deployed to maintain an adequate sample size of collared animals.

Impact of Addressing this Research Need

This project will benefit the general public by filling critical information gaps relative to Roosevelt elk management in southwest Oregon. Since Roosevelt elk occur on BLM lands across the west coast, information gained from animals radio-collared in Oregon will improve management and conservation of the species at a regional level.

Southeast Pronghorn Study

The majority of pronghorn habitats in Oregon occur on BLM lands. Rigorous data documenting movement and migration corridors for pronghorn in Oregon is extremely limited in extent. As a result of SO3362, ODFW initiated the Southeast Oregon Pronghorn Study in September 2019 to identify seasonal pronghorn distribution and ranges, location and timing of pronghorn migration corridors, and potential barriers to pronghorn migration and movement in southeastern Oregon (Figure 11). A total of 150 GPS transmitters were deployed. An unknown level of mortality of collared animals is anticipated, resulting in a potential decrease in sample size that will affect viability of the analyses.

Objectives

1. Maintain adequate sample size of animals to allow rigorous evaluation of seasonal pronghorn distribution and ranges, identification of location and timing of pronghorn migration corridors, and identification of potential barriers to pronghorn migration and movement in southeastern Oregon.

Methods and Details

This basis of the study will continue to rely on Iridium-based GPS telemetry collars. An estimated 23 new collars will be deployed via helicopter net gun capture during late summer 2020. Location data will be remotely monitored by ODFW staff. ODFW District wildlife staff

will recover collars from any mortalities as quickly as workloads allow. ODFW personnel will conduct analyses with potential consultation with USGS research staff.

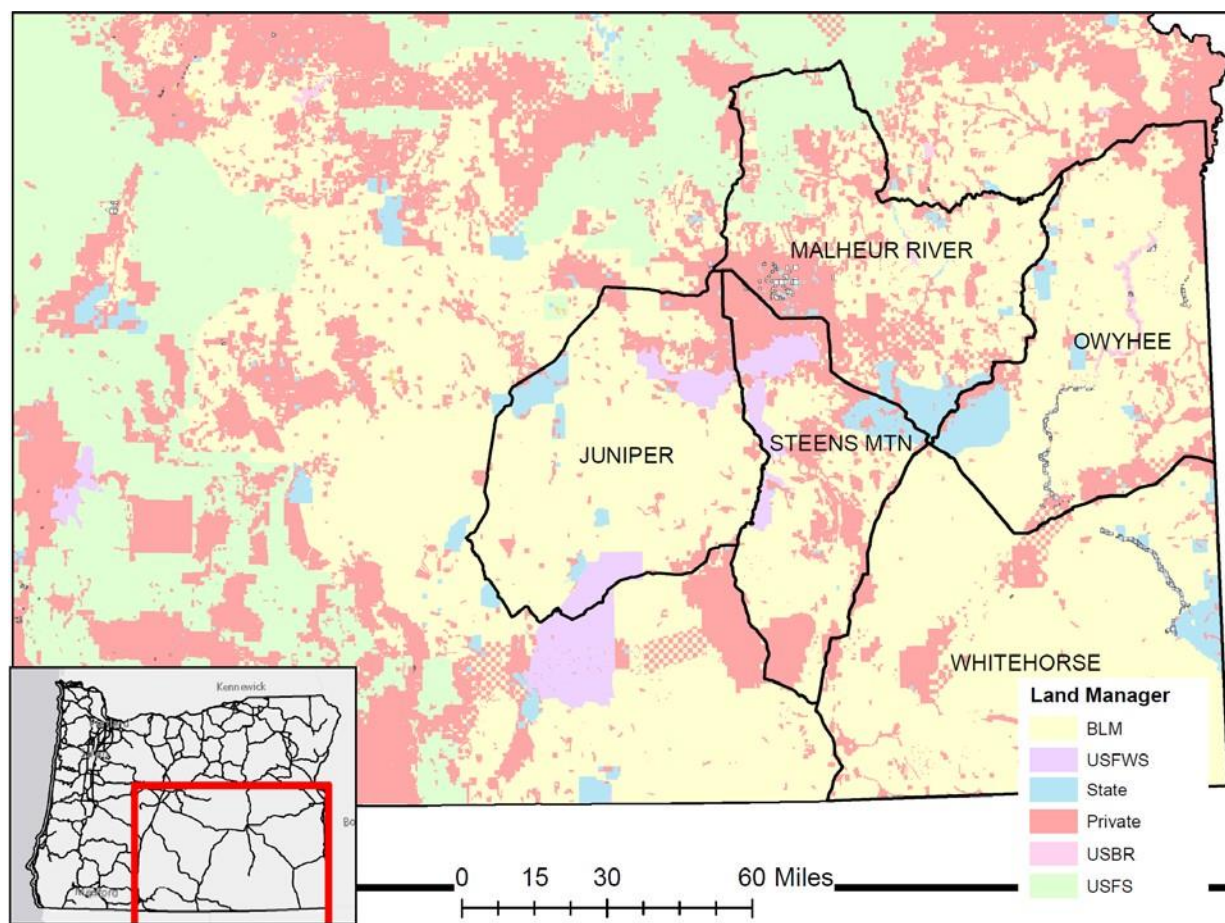


Figure 11: A total of 150 GPS collars were deployed on pronghorn across five Wildlife Management Units in southeastern Oregon. Funding is requested to augment sample sizes and replace collars lost due to animal mortality.

Expected GPS collar lifetime would provide three years of data collection. Collecting 5 locations per animal per day for 3 years would produce over 150,000 additional animal locations from which to identify seasonal ranges and movement corridors. Additionally, the 3-year lifespan of collars will capture annual variation in movement patterns that may be influenced by variability in weather patterns or other factors.

The estimated funding need from Department of Interior (DOI) is \$50,000 (Table 2). All funds requested would be applied toward purchase of Iridium-based GPS collars for pronghorn. ODFW already has qualified staff, and/or has established collaborations with other institutions, to monitor data collection and conduct analyses. Additionally, collaboration at the field level for both ODFW (District Wildlife Biologists) and BLM (District Rangers or Wildlife Specialists) is already ongoing for many issues in the area. ODFW staff have also confirmed with staff from

Idaho Department of Fish and Game and Nevada Division of Wildlife that the three state agencies will coordinate efforts to implement pronghorn collaring. We anticipate that these animals will move across state lines and intend to gather data across all three states.

Table 2. Estimated GPS collar cost to evaluate distribution and movements of pronghorn in southeastern Oregon.

Item Detail	Quantity	Unit Price	Total
Iridium Platform GPS Collars	24	\$1,750.00	\$42,000.00
Collar Activation Fee	24	\$30	\$720.00
Collar Data Fees (3 Years)	24	\$270.00	\$6,480.00
Miscellaneous Supplies		\$800.00	
Total			\$ 50,000.00

Impact of Addressing this Research Need

By funding acquisition and deployment of additional GPS tracking collars on pronghorn in southeastern Oregon, DOI will address a critical shortfall in ODFW's ability to rigorously identify migration corridors on DOI-managed lands. ODFW is currently monitoring 150 GPS collars on pronghorn in the study area. Loss of sample size due to animal mortalities is expected, and collars will need to be replaced.

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Appendix A



THE SECRETARY OF THE INTERIOR WASHINGTON

ORDER NO. 3362

Subject: Improving Habitat Quality in Western Big-Game Winter Range and Migration Corridors

Sec. 1 Purpose. This Order directs appropriate bureaus within the Department of the Interior (Department) to work in close partnership with the states of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming to enhance and improve the quality of big-game winter range and migration corridor habitat on Federal lands under the management jurisdiction of this Department in a way that recognizes state authority to conserve and manage big-game species and respects private property rights.

Through scientific endeavors and land management actions, wildlife such as Rocky Mountain Elk (elk), Mule Deer (deer), Pronghorn Antelope (pronghorn), and a host of other species will benefit.

Additionally, this Order seeks to expand opportunities for big-game hunting by improving priority habitats to assist states in their efforts to increase and maintain sustainable big game populations across western states.

Sec. 2 Authorities. This Order is issued under the authority of section 2 of Reorganization Plan No. 3 of 1950 (64 Stat. 1262), as amended, as well as the Department's land and resource management authorities, including the following:

- a. Federal Land Policy and Management Act of 1976, as amended, 43 U.S.C. 1701, *et seq.*;
- b. U.S. Geological Survey Organic Act, as amended, 43 U.S.C. 31, *et seq.*;
- c. National Wildlife Refuge System Improvement Act of 1997, as amended, 16 U.S.C. 668dd *et seq.*; and
- d. National Park Service Organic Act of 1916, as amended, 54 U.S.C. 100101, *et seq.*

Sec. 3 Background. The West was officially "settled" long ago, but land use changes continue to occur throughout the western landscape today. Human populations grow at increasing rates with population movements from east and west coast states into the interior West. In many areas, development to accommodate the expanding population has occurred in important winter habitat and migration corridors for elk, deer, and pronghorn. Additionally, changes have occurred across large swaths of land not impacted by residential development. The habitat quality and value of these areas crucial to western big-game populations are often degraded or declining.

The Bureau of Land Management (BLM) is the largest land manager in the United States (U.S.) with more than 245 million acres of public land under its purview, much of which is found in Western States. The U.S. Fish and Wildlife Service (FWS) and National Park Service (NPS) also manage a considerable amount of public land on behalf of the American people in the West. Beyond land management responsibilities, the Department has strong scientific capabilities in the U.S. Geological Survey (USGS) that can be deployed to assist State wildlife agencies and Federal land managers. Collectively, the appropriate bureaus within the Department have an opportunity to serve in a leadership role and take the initiative to work closely with Western States on their priorities and objectives as they relate to big-game winter range and migration corridors on lands managed by the Department.

Consistent with the American conservation ethic, ultimately it is crucial that the Department take action to harmonize State fish and game management and Federal land management of big-game winter range and corridors. On lands within these important areas, if landowners are interested and willing, conservation may occur through voluntary agreements.

Robust and sustainable elk, deer, and pronghorn populations contribute greatly to the economy and well-being of communities across the West. In fact, hunters and tourists travel to Western States from across our Nation and beyond to pursue and enjoy this wildlife. In doing so, they spend billions of dollars at large and small businesses that are crucial to State and local economies. We have a responsibility as a Department with large landholdings to be a collaborative neighbor and steward of the resources held in trust.

Accordingly, the Department will work with our State partners and others to conserve and/or improve priority western big-game winter range and migration corridors in sagebrush ecosystems and in other ecotypes as necessary. This Order focuses on the Western States of: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. These States generally have expansive public lands with established sagebrush landscapes along with robust big-game herds that are highly valued by hunters and tourists throughout the Nation.

The Department has broad responsibilities to manage Federal lands, waters, and resources for public benefit, including managing habitat to support fish, wildlife, and other resources. Secretary's Order 3356, "Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories," (SO 3356) was issued on September 15, 2017. SO 3356 primarily focused on physical access to lands for recreational activities, particularly hunting and fishing. This Order is focused on providing access to big game animals by providing direction regarding land management actions to improve habitat quality for big-game populations that could help ensure robust big-game populations continue to exist. Further, SO 3356 includes a number of directives related to working with States and using the best available science to inform development of guidelines, including directing relevant bureaus to:

- a. Collaborate with State, tribal, and territorial fish and wildlife agencies to attain or sustain State, tribal, and territorial wildlife population goals during the Department's land management planning and implementation, including prioritizing active habitat management

projects and funding that contributes to achieving wildlife population objectives, particularly for wildlife that is hunted or fished, and identifying additional ways to include or delegate to States habitat management work on Federal lands;

b. Work cooperatively with State, tribal, and territorial wildlife agencies to enhance State, tribe, and territorial access to the Department's lands for wildlife management actions;

c. Within 180 days, develop a proposed categorical exclusion for proposed projects that utilize common practices solely intended to enhance or restore habitat for species such as sage grouse and/or mule deer; and

d. Review and use the best available science to inform development of specific guidelines for the Department's lands and waters related to planning and developing energy, transmission, or other relevant projects to avoid or minimize potential negative impacts on wildlife.

This Order follows the intent and purpose of SO 3356 and expands and enhances the specific directives therein.

Sec. 4 Implementation. Consistent with governing laws, regulations, and principles of responsible public stewardship, I direct the following actions:

a. With respect to activities at the national level. I hereby direct the BLM, FWS, and NPS to:

(1) Within 30 days, identify an individual to serve as the "Coordinator" for the Department. The Coordinator will work closely with appropriate States, Federal agencies, nongovernmental organizations, and/or associations to identify active programs focused on big-game winter range and/or migration corridors. The programs are to be organized and cataloged by region and other geographic features (such as watersheds and principles of wildlife management) as determined by the Deputy Secretary, including those principles identified in the Department's reorganization plan.

(2) Within 45 days, provide the Coordinator information regarding:

(i) Past and current bureau conservation/restoration efforts on winter range and migration corridors;

(ii) Whether consideration of winter range and corridors is included in appropriate bureau land (or site) management plans;

(iii) Bureau management actions used to accomplish habitat objectives in these areas;

(iv) The location of areas that have been identified as a priority for conservation and habitat treatments; and

(v) Funding sources previously used and/or currently available to the bureau for winter range and migration corridor conservation/restoration efforts.

(3) Within 60 days, if sufficient land use plans are already established that are consistent with this Order, work with the Coordinator and each regional Liaison (see section 4b) to discuss implementation of the plans. If land use plans are not already established, work with the Coordinator and each regional Liaison to develop an Action Plan that summarizes information collected in section 4 (a)(1) and (2), establishes a clear direction forward with each State, and includes:

(i) Habitat management goals and associated actions as they are associated with big game winter range and migration corridors;

(ii) Measurable outcomes; and

(iii) Budgets necessary to complete respective action(s).

b. With respect to activities at the State level, I hereby direct the BLM, FWS, and NPS to:

(1) Within 60 days, identify one person in each appropriate unified region (see section 4a) to serve as the Liaison for the Department for that unified region. The Liaison will coordinate at the State level with each State in their region, as well as with the Liaison for any other regions within the State. The Liaison will schedule a meeting with the respective State fish and wildlife agency to assess where and how the Department can work in close partnership with the State on priority winter range and migration corridor conservation.

(2) Within 60 days, if this focus is not already included in respective land management plans, evaluate how land under each bureau's management responsibility can contribute to State or other efforts to improve the quality and condition of priority big-game winter and migration corridor habitat.

(3) Provide a report on October 1, 2018, and at the end of each fiscal year thereafter, that details how respective bureau field offices, refuges, or parks cooperated and collaborated with the appropriate State wildlife agencies to further winter range and migration corridor habitat conservation.

(4) Assess State wildlife agency data regarding wildlife migrations early in the planning process for land use plans and significant project-level actions that bureaus develop; and

(5) Evaluate and appropriately apply site-specific management activities, as identified in State land use plans, site-specific plans, or the Action Plan (described above), that conserve or restore habitat necessary to sustain local and regional big-game populations through measures that may include one or more of the following:

(i) restoring degraded winter range and migration corridors by removing encroaching trees from sagebrush ecosystems, rehabilitating areas damaged by fire, or treating exotic/invasive vegetation to improve the quality and value of these areas to big game and other wildlife;

(ii) revising wild horse and burro-appropriate management levels (AML) or removing horses and burros exceeding established AML from winter range or migration corridors if habitat is degraded as a result of their presence;

(iii) working cooperatively with private landowners and State highway departments to achieve permissive fencing measures, including potentially modifying (via smooth wire), removing (if no longer necessary), or seasonally adapting (seasonal lay down) fencing if proven to impede movement of big game through migration corridors;

(iv) avoiding development in the most crucial winter range or migration corridors during sensitive seasons;

(v) minimizing development that would fragment winter range and primary migration corridors;

(vi) limiting disturbance of big game on winter range; and

(vii) utilizing other proven actions necessary to conserve and/or restore the vital big-game winter range and migration corridors across the West.

c. With respect to science, I hereby direct the USGS to:

(1) Proceed in close cooperation with the States, in particular the Western Association of Fish and Wildlife Agencies and its program manager for the Crucial Habitat Assessment Tool, prior to developing maps or mapping tools related to elk, deer, or pronghorn movement or land use; and

(2) Prioritize evaluations of the effectiveness of habitat treatments in sagebrush communities, as requested by States or land management bureaus, and identified needs related to developing a greater understanding of locations used as winter range or migration corridors.

d. I further hereby direct the responsible bureaus and offices within the Department to:

(1) Within 180 days, to update all existing regulations, orders, guidance documents, policies, instructions, manuals, directives, notices, implementing actions, and any other similar actions to be consistent with the requirements in this Order;

(2) Within 30 days, provide direction at the state or other appropriate level to revise existing Federal-State memorandums of agreement to incorporate consultation with State agencies on the location and conservation needs of winter range and migration routes; and

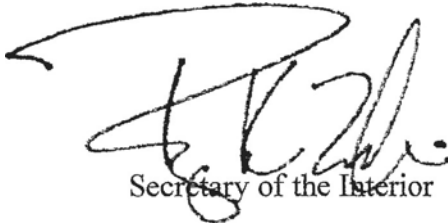
(3) Consult with State wildlife agencies and bureaus to ensure land use plans are consistent and complementary to one another along the entire wildlife corridor in common instances where winter range or migration corridors span jurisdictional boundaries.

e. Heads of relevant bureaus will ensure that appropriate members of the Senior Executive Service under their purview include a performance standard in their respective current or future performance plan that specifically implements the applicable actions identified in this Order.

Sec. 5 Management. I hereby direct the Deputy Secretary to take is responsible for taking all reasonably necessary steps to implement this Order.

Sec. 6 Effect of Order. This Order is intended to improve the internal management of the Department. This Order and any resulting reports or recommendations are not intended to, and do not create any right or benefit, substantive or procedural, enforceable at law or equity by a party against the United States, its departments, agencies, instrumentalities or entities, its officers or employees, or any other person. To the extent there is any inconsistency between the provision of this Order and any Federal laws or regulations, the laws or regulations will control.

Sec. 7 Expiration Date. This Order is effective immediately. It will remain in effect until its provisions are implemented and completed, or until it is amended, superseded, or revoked.



Secretary of the Interior

Date: FEB 09 2018

Appendix B



U.S. Department of the Interior

Distribution of Department of Interior and Department of Agriculture Lands in the State of Oregon

