

WYOMING 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

The purpose of this action plan is to further guide implementation of the Department of the Interior Secretarial Order 3362 (SO 3362) in Wyoming. The Wyoming Game and Fish Department (WGFD) has identified the top five migration mule deer corridors. The rational for prioritization as well as identification of threats to the corridors are briefly described and evaluated in the next section for each location. These priority areas have some degree of mule deer movement data and the WGFD is working with stakeholders on a corridor assessment in an effort to plan and implement conservation actions.

Wyoming has a considerable amount of information on habitat use including migration corridors. The University of Wyoming Cooperative Wildlife Research Unit and numerous partners created the Wyoming Migration Initiative where many studies have occurred or are underway. However, WGFD has identified the top three research priorities (third section) where additional data is needed or analysis of existing data is required. These include the Carter Mountain Pronghorn Herd, Powder River/Pumpkin Buttes Mule Deer Herd and Sublette Pronghorn data set. Yellowstone and Grand Tetons National Parks are included in seasonal range designations and big game movements and considered during the development of the State’s priorities.

SO 3362 (Appendix B) directs the appropriate bureaus within the Department of Interior to collaborate closely with the wildlife agency of each western state. The Order recognizes the states have direct responsibility and jurisdiction for the management of big game. In addition, the Order recognizes the rights of private landowners. DOI is enlisted to assist the states with scientific endeavors and land management actions that help inform and conserve state identified priority corridors and winter range. In accordance with Sec 4 b. (2) and to assist timely implementation of SO 3362, the Bureau of Land Management should review and amend as necessary, existing management plans that recognize big game migration corridors and winter ranges as important wildlife habitats and align management prescriptions to retain and enhance the long-term functionality of these habitats. Through these actions, improved priority habitats should contribute to sustainable big game herds and hunting opportunities.

Conditions in the broader landscape may 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 and USDA Natural Resource

Conservation Service, will collaborate with DOI, the Wyoming Game and Fish Department, 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 the plan area.

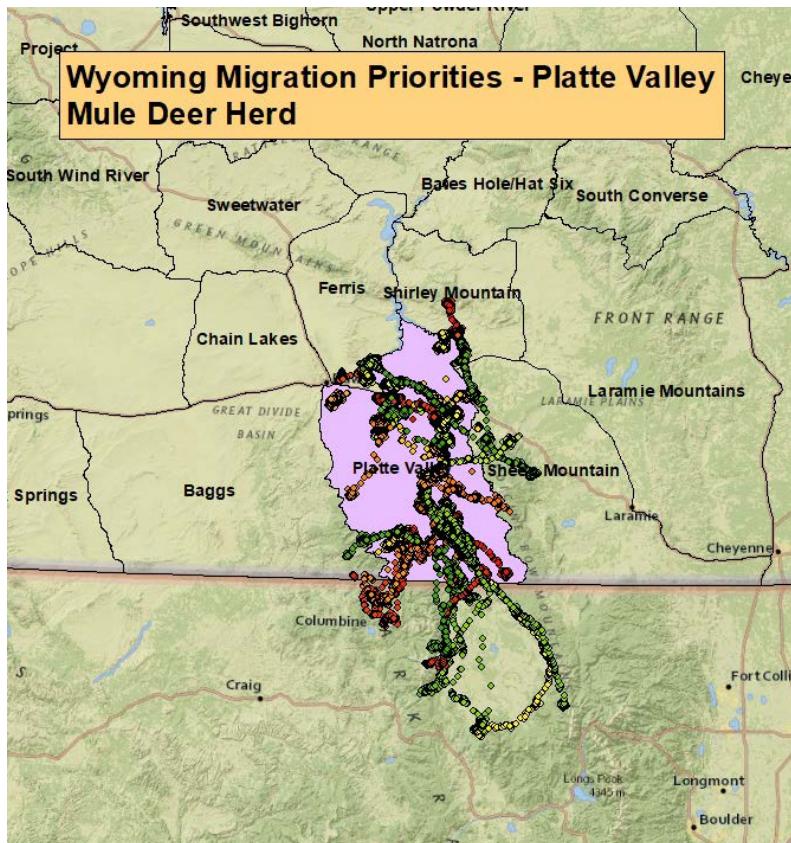
Wyoming has approximately 62,147,200 total acres, 18,357,570 or 48% of which is under the management authority of the federal government. The Bureau of Land Management manages 18,357,570 acres, the US Forest Service manages 9,237,620 acres, and the National Park Service manages 2,393,200 acres. The US Fish and Wildlife Service manages 93,040 acres, including 24,000 acres at the National Elk Refuge. Other agencies make up the remainder of federal ownership. Also, the Wyoming Game and Fish Department owns 168,000 acres and the State of Wyoming owns 3,696,800 acres. There are also private lands throughout big game habitats. This ownership structure requires cooperative partnerships to work across all the habitat categories and ownerships for big game species. A map of Wyoming Landownership is found in Appendix A.

Priority Corridors/Winter Range

The WGFD identified five priority migration corridors for mule deer herd units in Wyoming. These include Platte Valley, Wyoming Range, Dubois, Sublette and Baggs Mule Deer Herds. Managers have collected mule deer movement data to some degree in each of these areas and are currently working with stakeholders and agency personnel to identify related research and proactive conservation actions that are geared toward conserving vital habitats in each of these herd units.

#1 Wyoming Migration Corridor Priority:

Platte Valley Mule Deer (Laramie Region)



Why the area selected as a priority:

The Platte Valley mule deer migration corridor network represents high use seasonal migration corridors documented through the use of GPS collar technology and delineated using a Brownian bridge movement model. These corridors document important habitats used by approximately 5,000 mule deer migrating from summer range in Colorado to winter range in Wyoming. The corridors also illustrate the barrier to migration caused by the development of Interstate 80 where at present only approximately 400 mule deer utilize one machinery underpass for safe passage to winter range.

Spatial Location:

The Platte Valley migration corridor network is located primarily in Carbon County in south central Wyoming and into Jackson County in north central Colorado.

Habitat Types:

Habitats include alpine meadows, subalpine and montane forests, mixed mountain shrub, sagebrush-grasslands, cottonwood riparian, and agricultural croplands. The forests are a mix of subalpine fir, Engelmann spruce, Douglas-fir, lodgepole pine, aspen, and a few ponderosa pines, with associated grass/forb/shrub understory vegetation. Big sagebrush, antelope bitterbrush, and true mountain mahogany dominate the lower elevation winter ranges. Elevation within the corridor ranges from just over 12,000 feet at Medicine Bow Peak to 6,400 feet along the North Platte River.

Important Stopover areas within the corridor:

Important stopover areas include areas designated as crucial winter range in the Encampment River Wilderness Study Area (WSA), Beaver Hills, Bennett Peak, Baggot Rocks, Cedar Breaks, Savage Meadows and St. Mary's Ridge areas.

Landownership:

Landownership is mixed within the migration corridor and encompasses 196 square miles consisting of: Private (50%), Bureau of Land Management (30%), Forest Service (14%), and Office of State Lands & Investments (6%).

Land Uses:

Federal lands not designated as Wilderness are managed for multiple use. Common uses include livestock grazing, motorized and non-motorized recreation, and extractive and renewable energy development. Some of Bureau of Land Management (BLM) lands are currently designated as Wilderness Study Areas (WSAs). Mule deer also migrate through parcels that have been leased for oil and gas or through areas with ongoing energy development. Lands managed by the Office of State Lands & Investments (OSLI) are managed primarily for livestock grazing. Private lands along the corridor network are primarily used for agricultural purposes and rural residential development.

Risk/Threats:

The northern Platte Valley corridor network has been modified by the construction of Interstate 80 (I-80), U.S. Highway 30 and the Union Pacific (UP) railroad. There is one I-80 machinery underpass where approximately 400 mule deer have been documented passing through the structure seasonally. This underpass is located in an area where there is game fencing to direct animal movement to the crossing structure. On other portions of I-80 which are not game fenced, Wyoming Department of Transportation (WYDOT) has documented a high number of wildlife/vehicle collisions for mule deer, elk, pronghorn and moose. The most significant future

threats in this area is increased traffic on I-80, Highway 30 and the UP railroad, as well as extractive and renewable energy development. The southern corridor network is currently used by approximately 5,000 mule deer; most of which are migrating into Wyoming from Colorado to reach their winter ranges. The most significant future threat to these corridors is presumed to be habitat fragmentation from rural residential development, as well as increased disturbance from off highway vehicle (OHV) recreation and human disturbance on winter ranges (e.g. antler hunting).

Are the Risk/Threats Immediate or Long-term:

Long-Term

Actions necessary to reduce or eliminate risks/threats:

In the northern corridor network, risks/threats could be reduced with the development of underpasses/overpasses on I-80, U.S. Highway 30, and the UP railroad. Threats to the corridor network in the southern portion could be reduced by maintaining open habitats on private lands through planning and zoning at the county level. BLM lands could provide better protections for corridor and stopover habitats through implementing motorized travel management plans. A travel management plan would also reduce harassment of mule deer from antler hunters. Implementation of a shed antler season east of the Continental Divide would reduce human disturbance to wintering and migrating mule deer.

Current efforts (what is the activity; who is conducting the work; and partners involved):

The WGFD is working with WYDOT, Carbon County Conservation District, local Conservation organizations, BLM, U.S. Forest Service (USFS), and OSLI to influence improvements/protections where possible. However, underpasses/overpasses in many cases are cost prohibitive for conventional funding sources. The BLM advises they are potentially a decade away from completing a travel management plan in this area.

Cost of current or needed habitat treatments; road crossings etc.:

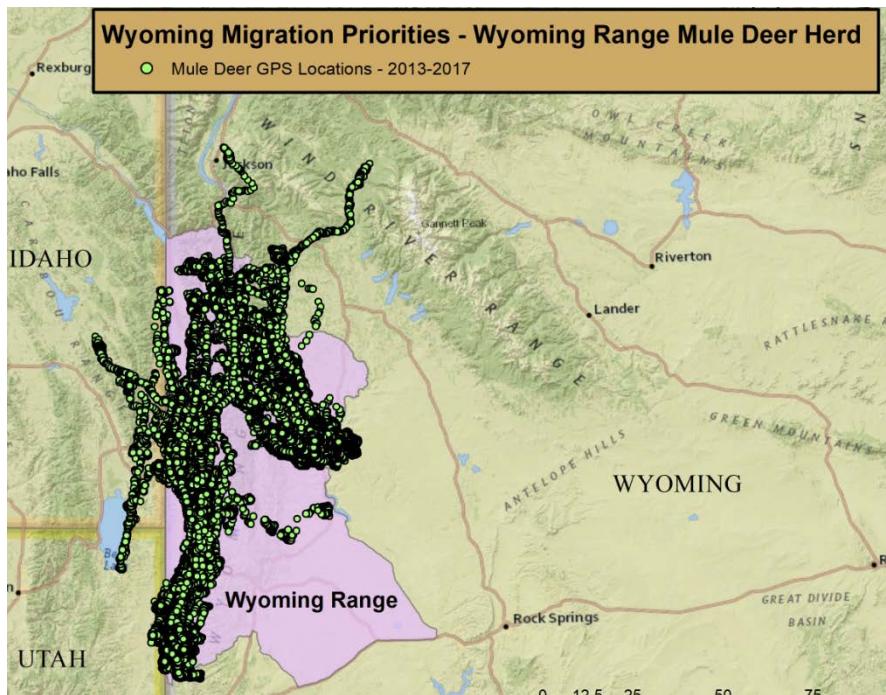
The large scale habitat treatments and interstate/highway crossings structures and fencing necessary to improve the Platte Valley network of migration corridors would be very costly and could reach several million dollars. Just over \$800,000 has been allocated for habitat treatments, monitoring, fence modifications and migration work in Platte Valley herd unit.

Other Issues for awareness:

None known.

#2 Wyoming Migration Corridor Priority:

Wyoming Range Mule Deer (Jackson Region)



Why the area selected as a priority:

The Wyoming Range mule deer herd is one of the premier mule deer populations for both hunting and wildlife viewing. This herd has complex and dynamic movement patterns with some mule deer migrating extensive distances (150+ miles) between high elevation summer ranges to several distinct winter range complexes. GPS telemetry studies demonstrated that individual mule deer have a strong fidelity to the same summer and winter ranges and migration corridors. Proactive management is necessary to assure persistence of migration corridors as mule deer cross a mix of land ownership and land-use patterns. The WGFD is currently analyzing point data in an effort to designate migration corridors in the herd unit.

Spatial Location:

The Wyoming Range mule deer herd migrate approximately 150 miles between seasonal ranges in western Wyoming, southeastern Idaho and northeastern Utah.

Habitat Types:

Mid to high elevation summer ranges include alpine basins, spruce-fir forests, aspen stands and mountain meadow/tall forb communities. Fall/transition areas at slightly lower elevation contain mountain big sagebrush, mixed conifers, aspen, and riparian communities. Lower elevation

foothill and basin habitats are typified by Wyoming and mountain big sagebrush communities interspersed with areas of antelope bitterbrush and mixed-mountain shrubs. Sagebrush dominated winter range habitats are primarily located along the southern and southeastern flanks of the Wyoming Range, and also include some juniper, isolated aspen stands and limited acreages of bitterbrush. Much of the winter range habitats are mostly sagebrush and desert shrub basins, with rocky outcrops and topographically diverse canyons.

Important Stopover areas within the corridor:

Recent research indicates that mule deer spend 95% of their migration period in a series of stopover sites, where they congregate to feed and replenish energy stores in areas with nutritious forage. In many instances mule deer stopover sites overlap with delineated crucial winter range habitat due to the extensive movement into and through some winter habitats to access winter ranges elsewhere within this herd unit. This is especially true in the Wyoming Range, and illustrates the importance of stopover habitat within migration corridors as foraging habitats.

Landownership:

During annual migrations, mule deer in the Wyoming Range herd cross a mix of land ownership patterns. While most summer ranges are located on USFS lands, transition areas and winter ranges can include USFS, BLM, OSLI lands, and private lands.

Land Uses:

Land uses on both USFS and BLM lands include livestock grazing, timber harvest, motorized and non-motorized recreation, and energy development. Some BLM lands are designated as areas of critical environmental concern (ACEC), special recreation management areas (SRMA), special management areas (SMA), or WSAs. Wyoming Range mule deer move through the Raymond Mountain and Rock Creek ACECs, as well as the Lake Mountain WSA. Mule deer also migrate through parcels that have been leased for oil and gas or areas with ongoing energy development and production. State lands, managed by OSLI are managed primarily for “long-term growth in value” and “optimum, sustainable revenue production” to generate funds for public schools. Accordingly, the primary uses of these lands are livestock grazing and energy development. Private lands along the corridor are primarily used for agriculture and urban development.

Risk/Threats:

Portions of the Wyoming Range mule deer migration corridor are intact and functioning with significant conservation work already completed to facilitate habitat enhancements, highway crossings, and wildlife-friendly fencing. Additional conservation and land use efforts are needed to benefit mule deer in the future. Habitat conditions and range use are critical due to the arid climate and condition of some plant communities. Habitat treatments in aspen communities are

especially important to improve understory plants to maximize nutrition for does and fawns coming off summer ranges. Invasive plant communities in portions of the corridor may decrease habitat functionality, and the invasion of cheatgrass is currently limiting management options. Significant resources must be put into cheatgrass control or many proactive habitat enhancements will not be feasible. A critical highway crossing at Nugget Canyon was addressed with several underpasses. Roadways and increasing traffic volumes in the corridor can impact seasonal movements of deer and may become a larger barrier to mule deer movements. Right-of-way fences and deep snow conditions are a concern for late migrants (difficult for deer to cross). Mule deer habitats are favored recreation areas, and protection of these vital habitat features from excessive human recreation (motorized and non-motorized) and overuse by wild and domestic ungulates would enhance their long term persistence on the landscape. The possibility of wind energy projects, and the first solar farm is slated to be built in the very near future, and other proposals seem imminent. A large reservoir (Sublette Reservoir) is proposed in a migration corridor bottleneck. Subdivision and recreational property development could have adverse impacts in specific areas. Oil and gas development and production that minimize disturbance in mule deer habitats will benefit this herd.

Are the Risk/Threats Immediate or Long-term:

Establishment of invasive plant communities are an immediate and long term threat. Managing public access and recreation are long term as is urban development and mineral leasing and development. Increasing traffic volume, wildlife vehicle collisions, and wildlife crossing structures are also long term issues.

Actions necessary to reduce or eliminate risks/threats:

Maintaining collaborative relationships with private landowners, oil and gas operators, non-governmental organizations (NGO's), local county governments, federal land managers and the public are essential to ensure mule deer migration remains unimpeded.

Current Efforts:

Habitat enhancement work in cooperation and collaboration with federal land management agencies, livestock grazing permittees, and private landowners has been ongoing. The WGFD is currently working with WYDOT and others to address wildlife crossings throughout the herd unit, with particular focus on a crossing structure near Dry Piney Creek and U.S. Highway 189. The BLM has committed to an evaluation of deer movement and habitat use between LaBarge Creek and the Ham's Fork River to improve data for the Wyoming Range mule deer migration corridor. These efforts include collaborations with; the University of Wyoming (UW), WYDOT, local governments, local NGOs, BLM, USFS, OSLI and individual land owners. The WGFD is currently evaluating geospatial data to designate the Wyoming Range Corridor and will begin working with stakeholders on a risk assessment following the designation.

Cost of current or needed habitat treatments; road crossings etc.:

Cost estimates will be refined as site-specific projects are developed and started; however, funding needs at the Dry Piney wildlife crossing on U.S. Highway 189 are about \$5 million (no funding is secured to date). The deer movement project between LaBarge Creek and the Ham's Fork River could benefit from additional funding in the neighborhood of \$50,000-\$75,000.

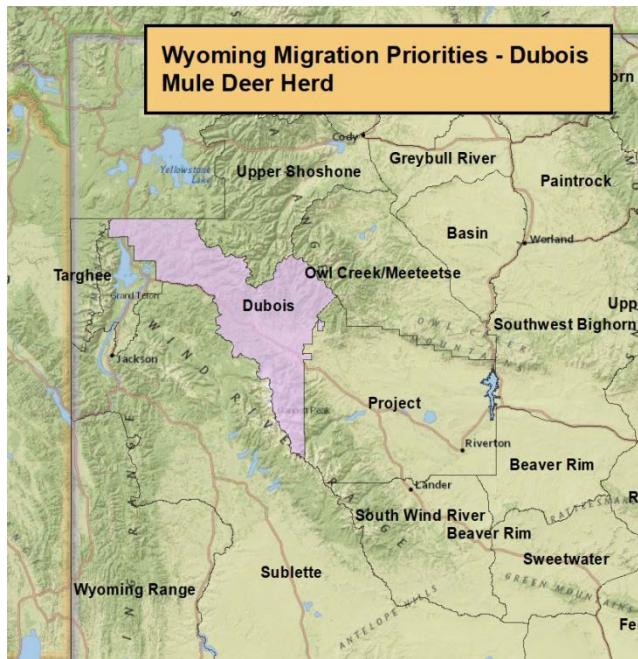
Habitat projects are adequately funded in the Big Piney-LaBarge area by the Wyoming Wildlife and Natural Resource Trust Fund (WWNRT). The 10-year project implementation on the south end of the Wyoming Range is only partially funded (\$1 million, of an anticipated \$6 million total by the BLM). Over \$3,300,000 has been allocated for habitat treatments, shrub planting, invasive species control, fence modifications, monitoring and additional research in this mule deer herd unit.

Other Issues for awareness:

Additional deer winter ranges and migration corridors are suspected between LaBarge and Kemmerer (LaBarge Creek and the Ham's Fork River), but not confirmed with GPS telemetry to define movements and habitat use. The BLM committed funding for this work that will be initiated during the 2018-2019 winter, with results anticipated in 1-2 years. These movements will be included in the Wyoming Range data set for further analysis.

#3 Wyoming Migration Corridor Priority:

Dubois Mule Deer (Lander Region)



Why the area selected as a priority:

An analysis of WYDOT crash and Wildlife Vehicle Crash (WVC) data from 2010-2015 show that U.S. Highway 26/287 from approximately milepost 45 to milepost 75 consistently has a high frequency of mule deer-vehicle collisions every year. This stretch of highway was ranked as the highest priority within WYDOT District 5 at the 2017 Wyoming's Wildlife and Roadways Summit (Lutz et al. 2017). Deer-vehicle collision rates, according to WYDOT's data, are highest in the fall (mid-October to mid-November), somewhat lower through the winter and early spring (January-April), and low in the summer and early fall (June-September). Traffic volume along this stretch of highway is relatively low. Annual average daily traffic is about 1,700 vehicles, with fall and winter months averaging about 1,100 vehicles daily. The high number of collisions relative to traffic makes this area one of the worst in the state in terms of risk to drivers.

Spatial Location:

The area is located in northwestern Wyoming starting in Fremont County near the town of Crowheart westward to the higher elevations of Togwotee Pass in the Teton Wilderness and Mount Leidy Highlands in Teton County.

Habitat Types:

Habitats are best described as mule deer first move during the fall from the mountains into foothill and riparian habitats within the upper Wind River Basin. This is an area of diverse habitats including mountain big sagebrush, mixed conifers, aspen, juniper and riparian communities associated with the Wind River and its tributaries. Agriculture fields consist primarily of alfalfa and native grass hay production.

Important Stopover areas within the corridor:

Recent research on the Sublette mule deer herd indicates that mule deer spend 95% of their migration period in a series of stopover sites, where they congregate to feed and replenish energy stores in areas where forage is especially nutritious. This appears to be very similar in the Dubois herd as seasonal mule deer movements overlap with delineated crucial winter range habitat.

Landownership:

Migrations occur primarily on USFS and BLM lands. Winter ranges are primarily on BLM, WGFD Wildlife Habitat Management Areas (WHMAs) and private lands.

Land Uses:

USFS and BLM lands are primarily managed for wildlife habitat and have been removed from mineral and oil/gas leasing. Also, conservation easements are in place protecting habitats on some private lands. WSAs on BLM lands also provide management emphasis for wildlife habitats. Wyoming Game and Fish Commission lands on the Whiskey Mountain, East Fork and Spence/Moriarity WHMAs protect wildlife habitats. Small acreage ranches (ranchettes) and small hay meadows are prevalent in this area.

Risk/Threats:

Increased traffic volume on this stretch of highway is resulting in unacceptable wildlife mortality (primarily mule deer, but also includes bighorn sheep, moose, elk and white-tailed deer). Also, continued development of ranchettes is a concern.

Are the Risk/Threats Immediate or Long-term:

Increasing traffic volume, wildlife vehicle collisions, and mitigations are both short and long-term.

Actions necessary to reduce or eliminate risks/threats:

We propose:

- 1) Purchase and deploy portable (3 sets) of Variable Messaging Signs (VMS) for use only when wildlife are in the area to warn drivers during key periods of the year when wildlife and motorists are at most risk.
- 2) Implement reduced speed limits seasonally from milepost 46 to 73 using (5 sets) permanent, changeable speed limit signs and overhead messaging signs during the critical time of the year to increase wildlife and motorist safety. Place overhead signs at milepost 44 eastbound and at milepost 73 westbound. Place speed limit signs at mileposts: 56, 58, and 65 for both lanes. Night-time speed limits would be reduced (e.g., from 70 to 55 or 60 mph.) from October 15 to April 30.
- 3) Mow vegetation in the Right-of Way (ROW) and consider nonpalatable seed mixes for reclamation.
- 4) WYDOT will conduct an assessment of the ROW slopes and, where feasible, decrease them to enhance motorist sight distances of wildlife.
- 5) WYDOT and WGFD encourage landowners to reduce vegetative cover along ROW fences
- 6) WYDOT will continue to use de-icing agents that are least attractive to wildlife.
- 7) WYDOT and WGFD will work with landowners to construct wildlife friendly fences.
- 8) WGFD will assess habitat enhancement such as water sources and vegetation treatments away from the ROW to decrease deer need to cross the highway.
- 9) Consider crossing structures.

Current efforts (what is the activity; who is conducting the work; and partners involved):

The WGFD and WYDOT are planning to implement the 9 steps listed above. Presently, nearly \$70,000 for Variable Messaging Signs has been secured. The two agencies have also engaged with the Dubois Community about the need to mitigate wildlife vehicle collisions.

Cost of current or needed habitat treatments; road crossings etc.:

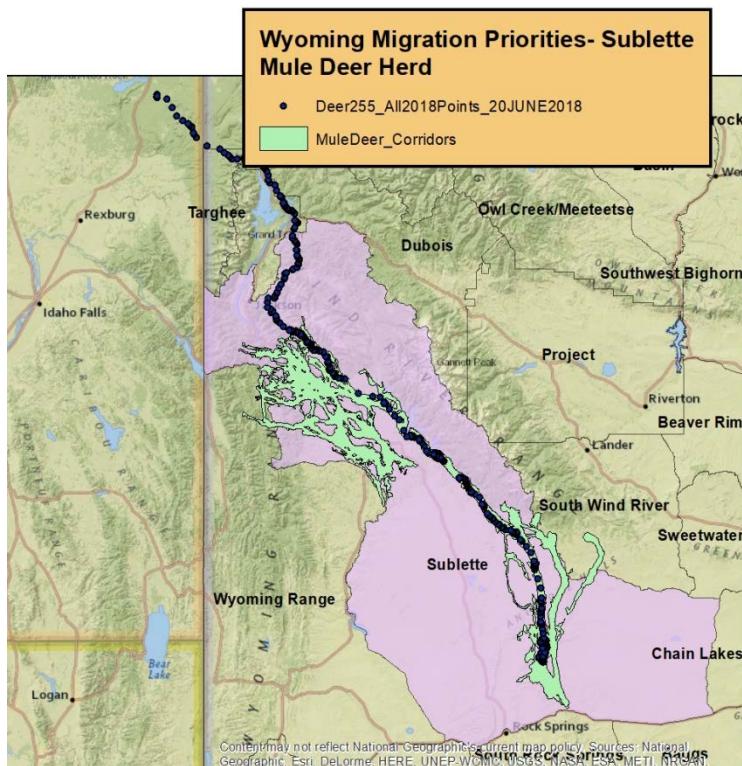
Variable Messaging Signs cost \$115,000.00 and we are developing the budget for the speed limit change. A total of \$52,000 has been allocated for aspen treatment and cheatgrass control in the Dubois herd unit.

Other Issues for awareness:

U.S. Highway 26/287 from approximately milepost 45 to milepost 75 has high traffic volumes seasonally and there is considerable local interest (Dubois citizens) to work collaboratively to mitigate wildlife/vehicle mortality.

#4 Wyoming Migration Corridor Priority:

Sublette Mule Deer



Why the area selected as a priority:

Migration in this herd unit is complex and dynamic with some mule deer migrating extensive distances (150+ miles). Animals migrate between high elevation summer ranges to several distinct winter range complexes. GPS based telemetry studies have demonstrated that not only do individual mule deer have a strong fidelity to the same winter ranges every year, they also use the same migration corridors and summer ranges. Proactive management is necessary to assure persistence of this migration corridor as mule deer cross a mix of land ownership and land-use patterns. During additional collaring efforts mule deer movements have been documented into Idaho. This migration corridor will be periodically evaluated as additional animal movements are documented.

Spatial Location:

The Sublette mule deer herd migration corridor is approximately 150 miles in length and encompasses lands in western Wyoming with one radio collared animal traveling into southeast Idaho (a distance of over 240 miles).

Habitat Types:

Habitats are best described as mule deer first begin moving during the fall from the mountains into foothill habitat within the upper Green River Basin (an area of diverse habitats including mountain big sagebrush, mixed conifers, aspen, and riparian communities) then moving through foothill and basin habitats (typified by Wyoming and mountain big sagebrush communities interspersed with areas of antelope bitterbrush and mixed-mountain shrubs with serviceberry and chokecherry), and then finally into sagebrush dominated winter range habitat (sagebrush habitat with isolated aspen stands and limited acreages of bitterbrush). Much of the winter range habitats can be characterized by sagebrush and desert shrub basins, rocky outcrops and canyons, and diverse topography. Aspen communities are often isolated with limited regeneration due to low precipitation, conifer encroachment and ungulate browsing pressure. The southern reaches of the corridor receive wild horse use.

Important Stopover areas within the corridor:

Recent research indicates that mule deer spend 95% of their migration period in a series of stopover sites, where they congregate to feed and replenish energy stores in areas where forage is especially nutritious. In many instances these mule deer stopover sites overlap with delineated crucial winter range habitat due to the extensive movement into and through some winter habitats to access winter habitats elsewhere within this herd unit.

Landownership:

During migration, mule deer in the Sublette herd cross a mix of land ownership patterns. In the extreme northwest portions of the corridor mule deer cross private lands, USFS, designated Wilderness areas and National Park Service lands. In the central portion of the 160 mile corridor animals cross private lands, OSLI, Wyoming Game and Fish Commission and BLM lands.

Land Uses:

Federal lands not designated as Wilderness or managed by the National Park Service are managed for multiple use. Common uses include, livestock grazing, motorized recreation, and energy development. Some of the BLM lands are designated as ACEC, SRMA and SMA. The Sublette Mule deer herd migrates through the Greater Sand Dunes, Steam-boat, and South Pass Historic Landscape ACECs, as well as the Steamboat Mountain SMA, Scab Creek WSA, Scab Creek SRMA, and the Wind River Front SMA. Mule deer also migrate through parcels that have been leased for oil and gas or areas with ongoing energy development. State lands, managed by OSLI are managed primarily for “long-term growth in value” and “optimum, sustainable revenue

production” to generate funds for public schools. Accordingly, the primary uses of these lands are livestock grazing and energy development. Private lands along the corridor are primarily used for agricultural purposes and urban development.

Risk/Threats:

Portions of the Sublette corridor are intact and functioning. Numerous conservation projects have been completed to address fencing, bottlenecks and habitat concerns. Additional efforts focusing on conservation and land use will benefit mule deer in the future. Habitat conditions and range use are important factors due to the arid conditions and the advanced seral stages of some plant communities. Invasive plant communities in portions of the corridor may decrease habitat functionality. Increasing traffic volumes on some highway segments and on popular secondary roads may result in these areas becoming a larger barrier to mule deer movements. Wildlife crossing areas on several roadways impact seasonal movements of deer. Right-of-way fences are a concern in some areas and these fences become a greater barrier for late migrants as deeper snow conditions make it more difficult for deer to cross right-of-way fences. Fence permeability near subdivisions and Wyoming Game and Fish WGFD elk feed grounds will also be an important factor for maintaining corridor function. Habitat features in the southern portions of the corridor as well as in the more mesic habitats in the western portion of the corridor are also favored recreation areas. Protection of these vital habitat features from human recreation, unregulated motorized access and overuse by ungulates would enhance their long term persistence on the landscape.

Are the Risk/Threats Immediate or Long-term:

Habitat management including managing late seral and invasive plant communities is an immediate and long term threat. Managing public access and recreation are long term as is urban development and oil and gas leasing. Preparing for increasing traffic volume, wildlife vehicle collisions, and wildlife crossing structures is long term.

Actions necessary to reduce or eliminate risks/threats:

Overall, managers believe the risks mule deer face can be addressed through maintaining relationships with private landowners, oil and gas operators, NGO's, local county governments, federal land managers, the public, and continuing to collaborate with stakeholders to ensure mule deer migration remains unimpeded as much as possible.

Current efforts (what is the activity; who is conducting the work; and partners involved):

The WGFD is working with UW, WYDOT, the Sublette County Conservation District, local Conservation organizations, BLM, USFS, OSLI and numerous land owners. The Conservation Fund recently purchased and donated a 364 acre parcel of land (Luke Lynch WHMA) in a bottleneck area to the Wyoming Game and Fish Commission. The Department in collaboration

with the Governor's Office, Office of State Lands and Investments and BLM have been working on mitigation measures to reduce impacts of oil and gas leasing.

Cost of current or needed habitat treatments; road crossings etc.:

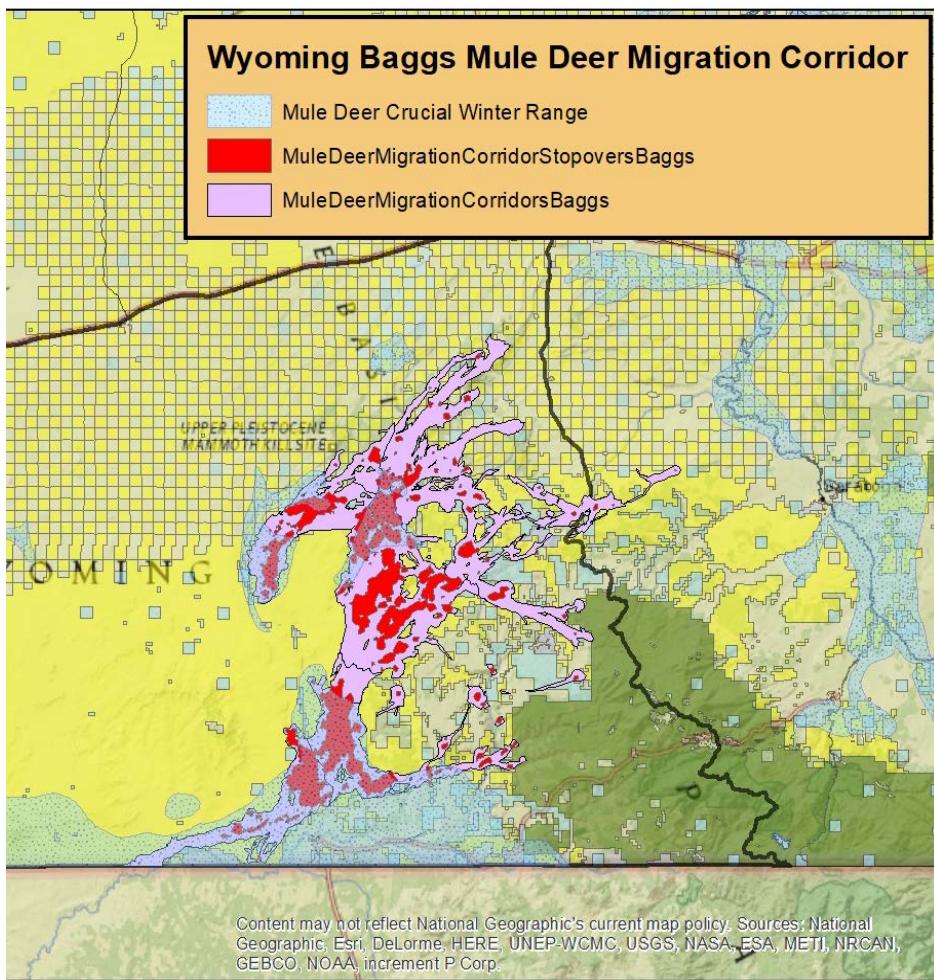
While a lot of work has been completed in this herd unit, regional personnel continue to work with stakeholders to improve seasonally important habitats, fence modifications and land use planning. Over the last five years \$5,900,000 has been expended on projects including noxious weed control, modifying fences to meet wildlife friendly standards and, habitat treatments. During the next several years, another \$1,500,000 has been committed working on fence replacement, habitat projects and noxious weed control.

Other Issues for awareness:

Additional collaring efforts are being made to identify short distance migrants in the southeastern portion of the herd unit and to further document animal movements to southeast Idaho.

#5 Wyoming Migration Corridor Priority:

Baggs Mule Deer (Green River Region)



Why the area selected as a priority:

The Baggs mule deer herd is one of the more popular and robust deer populations in Wyoming, supporting a significant amount of deer hunting on an annual basis. It has become increasingly popular as nearby herds have shifted to more conservative management. Despite a liberal annual hunter harvest, the population has changed in response to habitat conditions. The migration corridor for this herd is only 50 miles long in Wyoming compared to the Wyoming Range and Sublette mule deer herds. An additional 40 miles of this corridor occurs in Moffat County, Colorado, and is used during severe winter weather. The corridor is narrow and confined to transitional and winter ranges, becoming more complex and braided in higher elevation summer habitats. Winter severity influences migration length, with some deer moving only 30-40 miles

during mild years. The WGFD recently designated the Baggs migration corridor. Local managers will begin working with stakeholders on a risk assessment in late 2018.

Spatial Location:

The Baggs mule deer migration corridor spans from the western slope of the Sierra Madre Mountains in Carbon County, Wyoming, and moves southwesterly to the extreme southeast corner of Sweetwater County and 40 miles into Moffat County, Colorado near the town of Maybell.

Habitat Types:

Mule deer habitats are dominated by mixed mountain shrubs, aspen, and mesic alpine habitat types on summer ranges to more xeric mahogany-sagebrush-juniper habitats in lower elevation winter ranges. Significant areas of beetle killed conifer occurred in summer range, some of which is falling and opening the canopy for more productive aspen habitat. Healthy aspen occur within this mountain range in Wyoming, and mountain shrub communities tend to be in climax to decadent condition. The aspen component within the herd unit is prolific throughout mule deer transition and summer ranges, depending on location. The mixed mountain shrub component includes serviceberry, antelope bitterbrush, and mountain mahogany and is key to the viability of this mule deer herd.

Important Stopover areas within the corridor:

Recent research on the Sublette herd indicates that mule deer spend 95% of their migration period in a series of stopover sites, where they congregate to feed and replenish energy stores. It appears that a similar foraging behavior is exhibited by mule deer in the Baggs herd unit and stopover habitats have also been identified as point data are evaluated using the Brownian Bridge movement model.

Landownership:

During migration, mule deer in the Baggs herd cross a variety of jurisdictions ranging from summer habitats on national forest to lower elevation transition and winter ranges managed by the BLM. Some private and state managed lands are also within the corridor.

Land Uses:

Energy development, both traditional oil and gas and newer sources such as wind and solar are the main industrial land use, along with traditional ranching.

Risk/Threats:

Energy development, specifically oil, natural gas, wind and solar energy are ongoing developments in this herd. Continued coordination with the BLM, OLSI and energy developers will remain a priority to minimize disturbance in migration corridor habitats.

Are the Risk/Threats Immediate or Long-term:

Increased energy development, both traditional oil and gas and newer sources such as wind and solar remain long term issues in this herd.

Actions necessary to reduce or eliminate risks/threats:

To insure that there are no significant declines in mule deer distribution and abundance, it will be important to maintain habitat function of mule deer seasonal ranges. Upon corridor designation geospatial data will be available to the federal land managers and public to encourage the development of an acceptable plan for avoidance, minimization, rectification and/or restoration to maintain habitat function prior to project development. Habitat projects at the landscape scale are planned in the herd unit.

Current efforts (what is the activity; who is conducting the work; and partners involved):

The WGFD is working with local officials, BLM, USFS, Colorado Division of Wildlife, UW, WYDOT, the Little Snake River Conservation District, local sportsmen groups, conservation organizations, OSLI and numerous private land owners.

Cost of current or needed habitat treatments; road crossings etc.:

A total of \$270,000 has been allocated for habitat projects in the Baggs mule deer herd unit for FY 18 and FY 19.

Other Issues for awareness:

None known

Research Needs

The WGFD has also identified three research priorities in Wyoming including the Carter Mountain Pronghorn Herd and the Powder River/Pumpkin Buttes Mule Deer herds and the Sublette Pronghorn data set analysis project. The Carter Mountain Pronghorn herd traverses several State Highways in an area locally known as Antelope Alley. Wildlife/vehicle collisions are a concern and managers would like to document fine scale movement patterns and begin working on conservation measures for this pronghorn population. Mule deer in the Powder River/Pumpkin Buttes herds cross Interstate 90. Current knowledge regarding movements for this mule deer herd is based on general field observations and wildlife/vehicle collision data.

The Sublette pronghorn herd has been identified for further analysis. Over 300 pronghorn have been collared in this herd unit and preliminary analysis to identify corridors has proven to be very problematic. This is because pronghorn do not seasonally move through the landscape in the same manner as mule deer. Present analytical models used to identify movement corridors are based on mule deer migration patterns. Field managers are currently working with researchers and the University of Wyoming to find alternative methods to analyze GPS data and identify pronghorn migration corridors.

1 Wyoming Research Priority

Carter Mountain Pronghorn (Cody Region)



Why the area selected as a priority:

This herd crosses 2-4 state highways and multiple fences along the pronghorn's 40+ mile migration. However, no telemetry studies have been conducted on this herd to definitively map migration corridors and identify barriers. WYDOT's crash and WVC data from 2011-2015 show

2.4-4.6 vehicle/pronghorn collisions per mile on U.S. Highway 120 between mileposts 62 and 65.5 (Lutz et al. 2017). At the 2017 Wyoming Wildlife and Roadways Summit, this crossing was identified as one of the highest priorities in WYDOT District 5. The right-of-way fence in this key stretch was modified to help thousands of migrating pronghorn negotiate the highway crossing.

Spatial Location:

The Carter Mountain Pronghorn Herd migrates approximately 40 miles from the east slope of the Absaroka Mountains (specifically Carter Mountain) east to the interior of the Bighorn Basin.

Habitat Types:

Summer range on the side of Carter Mountain is best described as diverse with open plains of mountain big sagebrush mixed with aspen and riparian communities. In the winter, pronghorn move down in elevation to the Bighorn Basin to use Wyoming big sagebrush, saltbush, and other desert species.

Important Stopover areas within the corridor:

Important crossings occur along Dry Creek at U.S. Highways 120 and 14/16/20, but others are unknown due to lack of telemetry data.

Landownership:

In the summer, the Carter Mountain pronghorn herd can be found on a mix of state, USFS, BLM, and private lands on the east slope of Carter Mountain. As the herd migrates east off of private land, most reside on a mix of BLM and state lands. Fences are designed to keep pronghorn from entering private croplands during migration.

Land Uses:

Federal lands not designated as Wilderness or managed by the National Park Service are managed for multiple use. Common uses include livestock grazing, motorized recreation, and energy development. Pronghorn are thought to migrate through oil and gas parcels and areas with ongoing energy development (Oregon Basin Oil Field.) Private lands along the corridor are primarily used for agriculture and urban development.

Risk/Threats:

Highway and right-of-way fencing are currently the most visible threats. Thousands of pronghorn cross U.S. Highway 120. During severe winters, pronghorn also attempt to cross U.S. Highways 14/16/20, 32 and 310. Old fencing in the interior of this herd unit away from roads is also limiting animal movements and is a threat. Habitat conditions and range use are critical on

winter range due to arid conditions and the invasion of cheatgrass. Improved migration data, would outline bottlenecks, and obstacles.

Are the Risk/Threats Immediate or Long-term:

Wildlife/vehicle collisions and modifying existing fence are both immediate and long term issues. Managing invasive plant communities is an immediate and long term threat. Managing public access and recreation are long term as is urban development and oil and gas leasing.

Actions necessary to reduce or eliminate risks/threats:

Managers recommend the construction of an overpass on U.S. Highway 120 to help thousands of migrating pronghorn cross a busy state highway. Deployment of dynamic messaging signs on U.S. Highway 14/16/20 near pronghorn crossings, especially in severe winters would also help reduce risks. The deployment of GPS collars on pronghorn to identify movement corridors and barriers is a high priority for managers. Removing old fences in the interior of this herd unit, and continue modifying right-of-way fencing have also been identified to help reduce risks.

Current efforts (what is the activity; who is conducting the work; and partners involved):

The WGFD is working with the WYDOT and the BLM - Cody Field Office- to modify existing right-of-way fences to be more wildlife-friendly. These agencies also identified specific highway crossings where specialized fences called "goat bars" were installed on U.S. Highway 120 to help pronghorn cross.

Cost of current or needed habitat treatments; road crossings etc.:

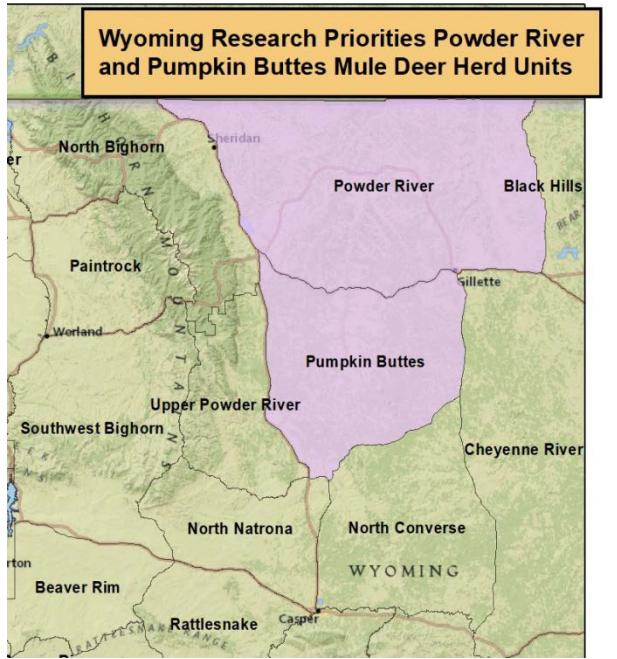
Managers would like to radio collar 40- 50 pronghorn in the herd unit and monitor movements for 3 years at a cost of \$175,000 (*Note: This research priority project will be funded using USFWS funds as a result of SO3362*)

Other Issues for awareness:

Wildlife managers have kept some fencing in place to prevent migrating pronghorn from entering agricultural lands where they cause crop damage.

#2 Wyoming Research Priority:

Powder River Mule Deer & Pumpkin Buttes Mule Deer (Sheridan Region)



Why the area selected as a priority:

These 2 herd units border one another on the I-90 corridor with excellent deer habitat within the identified area. Although no migration corridors have been documented in this area, daily movement is common and seasonal movement may occur although no detailed studies have been conducted. This stretch of highway ranked highest in WYDOT District 4 for priority to address vehicle deer collisions (Lutz et al. 2018).

Spatial Location:

The area of concern includes a 24-mile stretch of I- 90 between Buffalo and Gillette extending from milepost 81 to 105 including lands adjacent to the interstate. Suspected movement patterns for mule deer occupying this area are up to 5-15 miles either side of I- 90.

Habitat Types:

Habitats include sagebrush grassland. Cottonwood riparian habitat occurs along the Powder River. Mule deer seasonal range includes Yearlong and Winter/Yearlong range.

Important Stopover areas within the corridor:

No identified stopover areas

Landownership:

Lands adjacent to I- 90 include a mix of fee title, BLM and OSLI lands.

Land Uses:

Current land uses include livestock grazing (primarily cattle), oil and gas development and recreation.

Risk/Threats:

The majority of habitat is functioning as desired but I- 90 is a significant mortality factor with 8 mortalities per mile documented over a 5-year period. A better understanding of how traffic affects deer movement would enhance management efforts.

Are the Risk/Threats Immediate or Long-term:

Risks and threats are immediate as mule deer mortality rates due to vehicle/deer collisions continue.

Actions necessary to reduce or eliminate risks/threats:

Signing is one option to alert motorists to deer activity. Right-of-way fencing is considered the only effective method to reduce collisions with underpasses needed to facilitate deer movements.

Current efforts (what is the activity; who is conducting the work; and partners involved):

The WGFD and WYDOT are coordinating on a signing project to inform motorists of high deer activity in this area. A project to install LED border signs is being developed. Existing overhead Dynamic Message Signs are already being used to inform motorists.

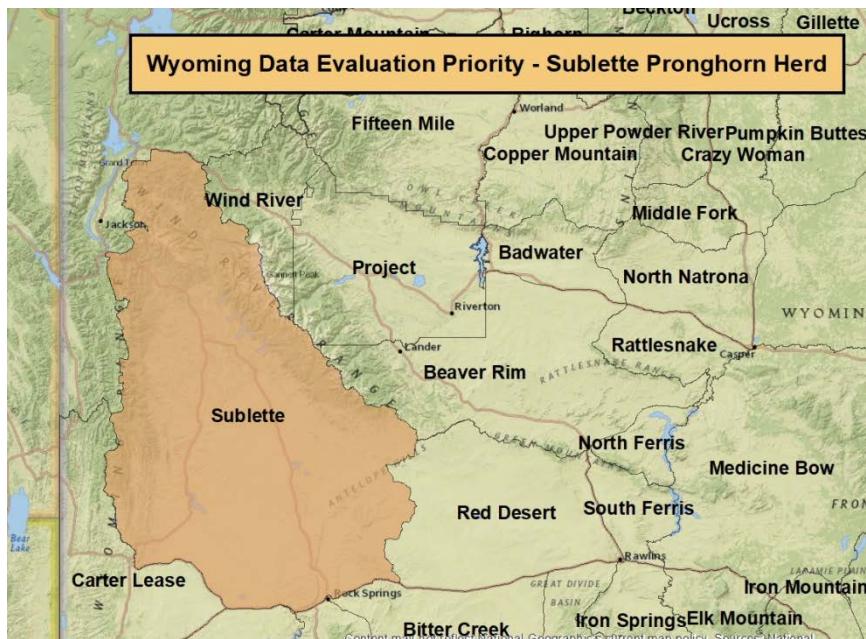
Cost of current or needed habitat treatments; road crossings etc.:

Deer proof fence is being considered but is dependent on securing funding. Understanding deer movement patterns would better facilitate underpass installation. Managers would like to capture 25 -30 mule deer on seasonal ranges in this herd unit and monitor movements for a 3 year period to further identify movement corridors. Managers are requesting \$125,000 to initiate this study (*Note: USFWS will provide funding as requested as a result of SO3362*)

Additional funding would be sought through other sources to complete this study.

#3 Herd Unit prioritized for further data analysis:

Sublette Pronghorn (Pinedale Region)



Why the area selected as a priority:

Pronghorn within the Sublette herd unit represent one of the largest pronghorn populations in North America. Individuals migrate upwards of 170 miles between winter and summer ranges, crossing private, state and federal lands, including many public land jurisdictions (OSLI lands, two BLM districts, USFS and National Park Service lands). Pronghorn GPS collaring studies have focused on 2 areas in this herd; the segment summering north of the town of Jackson in Grand Teton National Park (GTNP), and within the central portion of the herd unit near Pinedale. Studies in and around GTNP have identified pronghorn movements into and out of the Jackson Valley (few animals winter in Jackson). Studies on BLM lands in the central portion of the herd were conducted to evaluate the effect of large energy projects (natural gas), including the Pinedale Anticline and Jonah energy developments. These large scale energy developments and future planned projects (e.g., Normally Pressured Lance) have created significant disturbances to pronghorn migration corridors and winter ranges. It is unknown how Sublette pronghorn will respond to these developments.

Although a large data set has been collected on this population, pronghorn movements are not consistent with mule deer and additional analysis to identify migration corridors is needed.

Spatial Location:

The migration corridor, while not officially adopted by the WGFD, has been extensively mapped using GPS studies from over 300 individual animals in the Sublette pronghorn herd collared

from 2006-2017. Preliminary analysis indicates that pronghorn forage and move on the landscape differently than mule deer. However, efforts have been made to evaluate pronghorn migrations and portions of the herd summer in Grand Teton National Park and winter as far south as Rock Springs, a nearly 170 mile long migration. The federally protected “Path of the Pronghorn” was formally designated in 2008, but this segment of the Sublette pronghorn migration corridor only includes USFS managed lands. Seasonal movement to southern winter ranges needs to be analyzed and identified in this herd unit. Other portions of this herd summer near Bondurant, and along the foothills of the east slope of the Wyoming Range and foothills of the west slope of the Wind River Range, and winter at lower elevation sagebrush-steppe ranges of the Upper Green River Valley from Pinedale south to Rock Springs.

Habitat Types:

Sublette pronghorn encounter a variety of habitat types during their annual migrations. Migrations vary in length, from long distance (i.e., Jackson to Rock Springs), medium distance (i.e., Bondurant to Pinedale), to short distance (i.e., north Pinedale to south Pinedale) movements. Migration distance influences habitat types encountered by migrating pronghorn in the Sublette herd with shorter distance migrants (resident pronghorn) remaining on winter ranges yearlong. Generally, winter range is characterized as low precipitation zones sagebrush and desert shrub communities with varying topography. Transition range includes sagebrush-dominated winter range with interspersed bitterbrush and rabbit brush, to highly productive summer ranges in higher precipitation zones. Summer ranges include areas of high precipitation with increased herbaceous vegetation and sagebrush dominated habitats, although some pronghorn can be found very near (or moving through) aspen and conifer stands. Habitats in the southern ranges are undergoing industrial development and are negatively impacted by feral horse use.

Important Stopover areas within the corridor:

Preliminary Brownian Bridge movement modeling of GPS collared animals in the Sublette pronghorn herd indicate that there is some overlap of current winter ranges and additional winter range habitats will need to be mapped in the future. Undoubtedly, as more GPS collar data are collected in the southeast portion of the herd, additional seasonal range information will be updated.

Landownership:

During migration, pronghorn in the Sublette herd cross a mix of land ownership. In the extreme northwest portion of the corridor, pronghorn cross private lands, USFS and National Park Service lands. In the central portion of the 170 mile corridor animals cross private, State, Wyoming Game and Fish Commission, and BLM lands. During the winter, animals can be found on private, State and BLM lands.

Land Uses:

Federal lands not designated as Wilderness or managed by the National Park Service are managed for multiple use. Common uses include livestock grazing, motorized recreation, and energy development (wind, solar, natural gas, coal). Pronghorn migrate through leased oil and gas parcels, and areas with ongoing energy development. The world's largest deposit of trona is also found within this herd unit. OSLI lands are managed primarily for "long-term growth in value" and "optimum, sustainable revenue production" to generate funds for public schools. Accordingly, the primary uses of these lands are livestock grazing and energy development. Private lands along the corridor are primarily used for agriculture and urban development. Some BLM lands heavily used by pronghorn in the Sublette herd are designated as ACECs or WSAs. A significant amount of land within this herd unit is managed under the National Historic Trails system.

Risk/Threats:

The 2008 designation of the 'Path of the Pronghorn' gave federal protections to USFS administered lands along the northwestern portion of the herd, and is an example of some of the work that has been accomplished to date to conserve Sublette pronghorn. Efforts to designate an 'official' migration corridor for Sublette pronghorn using the Wyoming Game and Fish Commission's policy have proven difficult given the foraging and movement behavior of pronghorn. Additional efforts to analyze movement patterns will help managers to focus conservation efforts to benefit pronghorn in the future. Habitat conditions and range use can influence habitat in areas with low productivity and advanced seral stages of some plant communities. Invasive plants may decrease habitat functionality in portions of the corridor. Increasing traffic volumes on some highway segments and on popular secondary roads may become a barrier to pronghorn movements. Wildlife crossings on several roadways impacts seasonal pronghorn movements. Highway overpasses north of Pinedale along Highway 191 have increased pronghorn passage in a critical bottleneck (Trapper's Point), but a high-use crossing of Highway 189 north of Marbleton remains to be addressed. Right-of-way fences are a concern in some areas, especially where existing 'sheep'-style net wire fences are a major impediment to pronghorn crossing the highway, or becoming trapped within the highway right-of-way. Fence permeability near subdivisions and along the high use crossing of Highway 191 on the west end of Pinedale impedes migration within the Sublette pronghorn herd. Additional threats include competition with feral horses, periodic drought, solar, wind and traditional energy developments.

Are the Risk/Threats Immediate or Long-term:

The existing and future energy development within the central and southern portions of the Sublette pronghorn herd could pose an immediate and long-term threat. There is a direct loss of habitat associated with energy infrastructure that reduces forage, and indirect effects such as pronghorn avoidance of energy infrastructure where high development densities occur reducing

pronghorn use of those habitats. Not managing late seral habitats and untreated invasive plants are also both immediate and long term threats. Preparing for increasing traffic volume, wildlife vehicle collisions, and wildlife crossing structures are all long term. Managers expect that this herd will be impacted as development, traffic, noise, and human presence increase.

Actions necessary to reduce or eliminate risks/threats:

Several actions are necessary to reduce threats to this herd. Using current data, managers would like to analyze movement data, update important season ranges and document migration corridors. Gathering more GPS collar data in the southern portion of the Sublette pronghorn herd will also help to identify pronghorn migrations and identify potential barriers. An official Sublette pronghorn migration corridor should be designated and a risk assessment completed to determine specific threats to corridor segments. A detailed predictive model should be developed to assess the impacts of both current and proposed energy development on herd-level population demographics, caused by direct and indirect habitat losses, including losses to crucial winter, migration, stopover and winter/year-long ranges. Managers will continue to collaborate with energy companies, private landowners, NGO's, local governments, federal land managers, sportspersons and the general public to ensure pronghorn migration remains unimpeded for the conservation of this herd.

Current efforts

The WGFD is working with the University of Wyoming (UW) to conduct more research on pronghorn in the southern portions of the Sublette herd. The WGFD is also working with UW to map migration corridors for the herd, and with WYDOT to prioritize highway crossings statewide. In addition the WGFD is working with the Sublette County Conservation District, local Conservation organizations, BLM, USFS, OSLI and numerous land owners on fence modifications or removal and other projects to conserve Sublette pronghorn.

Cost of current or needed habitat treatments; road crossings etc.:

Costs will be assessed as site-specific mitigation projects are developed.

Other Issues for awareness

Based on preliminary analysis it appears that pronghorn move through the landscape at a different pace and with less fidelity than mule deer and therefore a more thorough review of existing datasets and methodology are needed to identify seasonal habitats and corridors are needed.

Current Activities

Habitat and Management Actions – Projects

Ungulate Migration Corridor Strategy: The WGFD spent several months working with the public and stakeholders to develop a strategy for conserving ungulate migration corridors. The culmination of that inclusive process was a vote by the Wyoming Game and Fish Commission to adopt the strategy at their January 2016 Commission meeting. Migration corridors are considered “vital” under Commission policy and the vote adds key components of corridors, bottlenecks and stop-over areas, to this classification. The migration corridor strategy includes proactive measures to conserve migration routes by examining potential threats and having Game and Fish and partners review and comment on projects on a case-by-case basis. (WGFD, 2016)

State Policy Developed for Conservation of Migration Corridors WGFD has formally designated three corridors to date the Sublette Mule Deer, Platte Valley and Baggs Mule Deer Corridors with the Wyoming Range probably coming later this year. This designation means Game and Fish will now do an assessment of the corridor and develop proactive management actions to conserve and enhance areas within the corridor. This will be done in consultation with stakeholders. Going forward when commenting on federal surface projects, Game and Fish will recommend measures to conserve the corridor based on the best available science (WGFD, 2018).

Used SO 3362 (Appendix B) and state policy with Governor

U.S. Secretary of the Interior Ryan Zinke and Wyoming Governor Matt Mead announced the Department will prioritize the conservation of a mule deer migration corridor in southwest Wyoming through both deferred lease sales and special lease notices. The Bureau of Land Management (BLM) will defer nearly 5,000 surface acres from potential oil and gas developments that intersect the designated Sublette mule deer big game migration corridor in southwest Wyoming. Additionally, a special lease notice will be attached to the remaining parcels. (BLM, 2018)

Standardized Wildlife Range Definitions WGFD revised their standard range definitions to include suspected migrations corridors, stopovers and bottlenecks for migration.

Wyoming Migration Initiative

The Wyoming Migration Initiative is a model for catalyzing science-based conservation and management of wildlife corridors. Founded in 2012 as a project of the Wyoming Cooperative Fish and Wildlife Research Unit, the initiative works with collaborators to collect data needed to effectively conserve migratory wildlife. (Kauffman, 2016)

Wyoming Wildlife Roadways – Collaborative effort initiative between Wyoming Game and Fish and Wyoming Department of Transportation to reduce wildlife vehicle collisions (Lutz et al. 2017).

Platte Valley Mule deer -The WGFD is working with WYDOT, Carbon County Conservation District, local Conservation organizations, BLM, U.S. Forest Service (USFS), and Office of State Lands and Investments (OSLI) to influence improvements/protections where possible. However, underpasses/overpasses in many cases are cost prohibitive for conventional funding sources. The BLM advises they are potentially a decade away from completing a travel management plan in this area.

Wyoming Range Mule Deer Study (2013-Ongoing): Habitat enhancement work in cooperation and collaboration with federal land management agencies, livestock grazing permittees, and private landowners has been ongoing. The WGFD is currently working with WYDOT and others to address wildlife crossings throughout the herd unit, with particular focus on a crossing structure near Dry Piney Creek and U.S. Highway 189. The BLM has committed to an evaluation of deer movement and habitat use between LaBarge Creek and the Ham's Fork River to improve data for the Wyoming Range mule deer migration corridor. These efforts included collaborations with; the University of Wyoming (UW), WYDOT, local governments, local NGOs, BLM, USFS, OSLI and individual land owners. The WGFD is currently evaluating geospatial data to designate the Wyoming Range Corridor and will begin working with stakeholders on a risk assessment.

BLM Wyoming is working collaboratively with the Wyoming Game and Fish Department and UW and USFS to identify the nutritional carrying capacity of mule deer winter range and mule deer population dynamics in the Wyoming Range in western Wyoming.

Dubois Mule Deer Study (2016-Ongoing): The WGFD and WYDOT are planning to implement the steps listed in the previous section. Presently, nearly \$70,000 for Variable Messaging Signs has been secured. The two agencies have also engaged with the Dubois Community about the need to mitigate wildlife vehicle collisions.

BLM Wyoming is working collaboratively with the WGFD, UW, and the Wyoming Governor's Big Game License Coalition to identify migration routes, migratory timing, summer habitat use, and road crossing and collision patterns of a trophy mule deer herd in western Wyoming.

Sublette Mule Deer The WGFD is working with UW, WYDOT, the Sublette County Conservation District, local Conservation organizations, BLM, USFS, OSLI and numerous land owners. The Conservation Fund recently purchased and donated a 364 acre parcel of land (Luke Lynch WHMA) in a bottleneck area to the Wyoming Game and Fish Commission.

Baggs Mule Deer The WGFD is working with local officials, BLM, USFS, Colorado Division of Wildlife, UW, WYDOT, the Little Snake River Conservation District, local sportsmen groups, conservation organizations, OSLI and numerous private land owners.

Research Projects

Carter Mountain Pronghorn The WGFD is working with the WYDOT and the BLM - Cody Field Office to modify existing right-of-way fences to be more wildlife-friendly. These agencies also identified specific highway crossings where specialized fences called "goat bars" were installed on U.S. Highway 120 to help pronghorn cross.

Powder River and Pumpkin Buttes Mule Deer The WGFD and WYDOT are coordinating on a signing project to inform motorists of high deer activity in this area. A project to install LED border signs is being developed. Existing overhead Dynamic Message Signs are already being used to inform motorists.

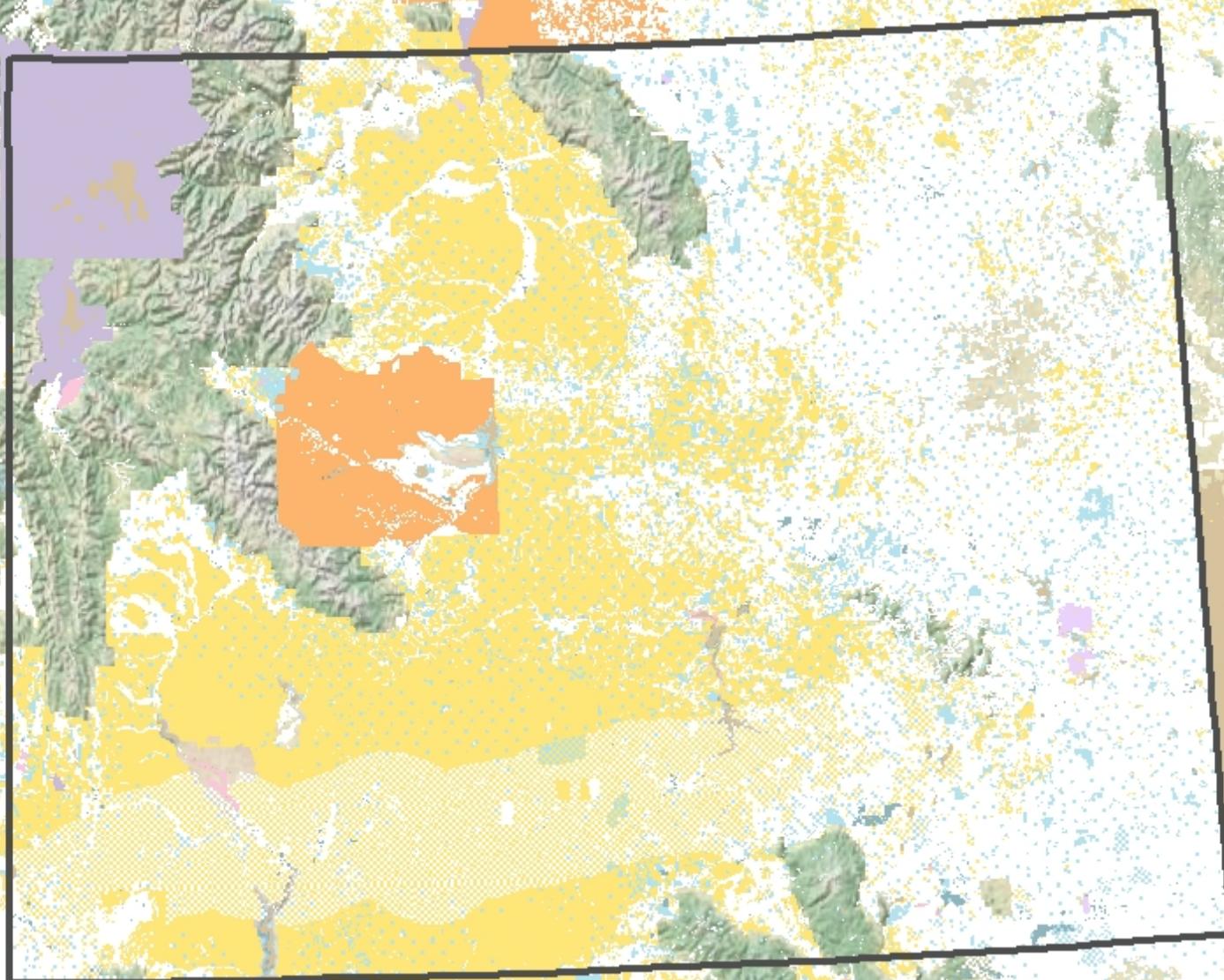
Sublette Pronghorn data analysis - The WGFD is working with the UW to conduct more research on pronghorn in the southern portions of the Sublette herd. The WGFD is also working with UW to map migration corridors for the herd and with WYDOT to prioritize highway crossings state-wide. In addition the WGFD is working with the Sublette County Conservation District, local Conservation organizations, BLM, USFS, OSLI and numerous land owners on fence modifications or removal and other projects to conserve Sublette pronghorn.

BLM Wyoming is working collaboratively with Wyoming Game and Fish Department, Wyoming Department of Agriculture, Wyoming Department of Environmental Quality, and WEST Inc. to monitor pronghorn movement and distribution in the Pinedale Anticline project Area.

Literature cited

- BLM. (2018). *BLM Press Release*. Retrieved from Bureau of Land Management:
<https://www.blm.gov/press-release/interior-secretary-ryan-zinke-and-governor-matt-mead-work-together-conserve-big-game>
- Kauffman, M. N. (2016). *Wildlife Management Institute*. Retrieved from
<https://wildlifemanagement.institute/outdoor-news-bulletin/november-2016/wyoming-migration-initiative-coalition-designed-inform>
- Lutz, D., K. Keel, C. Riginos, H. Copeland, B. Rudd, and A Withroder. 2017. Wyoming's Wildlife and Roadways Initiative – A Roadmap Forward. Wyoming Game and Fish Department and Wyoming Department of Transportation. Cheyenne, WY
- WGFD (2018). *Wyoming Game and Fish Department*. Retrieved from Migration Corridors:
<https://wgfd.wyo.gov/Wildlife-in-Wyoming/Migration-Corridors>

Appendix A Landownership



Legend
Wyoming
Bureau of Land Management
National Park Service
US Forest Service
Indian Reservation
US Fish and Wildlife
Bureau of Reclamation
Department of Defense
State
Local Government
Private
Bonneville Power Administration
Coast Guard
Former Home Administration
Federal Aviation Administration
General Services Administration
HUD
US Geological Survey
Undetermined
No Value

APPENDIX B: Department of the Interior Secretarial Order 3362: Improving Habitat Quality in Western Big-Game Winter Range and Migration Corridors

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.

ci. 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.