IDAHO 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 -

Many wildlife species must migrate each year to survive as individuals and populations. Land uses such as residential and energy development, fences, roads, and largescale habitat changes due to wildfire or noxious/invasive weeds degrade winter range and disrupt migration routes that allow animals to move from one place to another. Such effects can not only reduce wildlife population growth but can also reduce the harvestable surplus of game species available for hunting, leading to decreases in hunting opportunity and hunters, resulting in an adverse impact to Idaho's economy and cultural values.

Idaho's big game populations, particularly mule deer, elk, and pronghorn antelope provide many examples of extensive migration. For example, mule deer migrate over one hundred miles to and from Wyoming and Idaho seasonal ranges. From the Pioneer Mountains, pronghorn travel over 100 miles to the Beaverhead Mountains and back. Elk and deer migrate from Yellowstone National Park across U.S. 20 to the Sand Creek desert of Eastern Idaho. Elk across Idaho migrate from high elevation summer ranges in all of Idaho's mountains to milder winter ranges of lower elevation south and west facing slopes to increase their survival during winter months. Many of these routes cross multiple jurisdictions including Bureau of Land Management (BLM), USDA Forest Service (USFS), state, and private lands as wildlife navigate bottlenecks due to topography, human development, and other factors. Idaho Department of Fish and Game (IDFG) and other partners are now only beginning to understand the full scope of how and where movement and migration help sustain native wildlife. It is important for IDFG and stakeholders to manage and conserve the wildlife, their important migration and movement pathways, and associated seasonal habitats such as winter range.

Secretarial Order 3362

U.S. Secretary of the Interior Ryan Zinke signed Secretarial Order 3362 (Appendix A), on February 9, 2018 (SO3362), to improve habitat quality and western big game winter range and migration corridors for antelope, elk, and mule deer. The order fosters improved collaboration with states and private landowners and facilitates all parties using the best available science to inform development of management guidelines that helps ensure that robust big game populations continue to exist. Priority states currently include Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

SO3362 directs appropriate bureaus within the Department of the Interior (Department) to work in close partnerships with the above-mentioned states to enhance and improve the quality of biggame 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 and working with states in their efforts to increase and maintain sustainable big game populations across western states.

The United States Department of Agriculture (USDA), through the USFS and USDA Natural Resource Conservation Service, 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 the plan area.

Federal Lands in Idaho

Idaho has over 34 million acres of federal lands, nearly 64% of the state. Much of that land supports Idaho's native species, provides excellent hunting opportunities, and supports winter habitat and migration pathways for elk, mule deer, and pronghorn. The BLM manages over 12 million acres of public lands in Idaho for multiple uses. The BLM undertakes various conservation and restoration efforts that benefit big game, winter range, and migration and movement, such as fence removal, invasive weed treatments, and native vegetation seedlings. The U.S. Fish & Wildlife Service (FWS) manages seven national wildlife refuges in Idaho, totaling 87,698 acres. Most of these refuges allow hunting during some portion of the season and provide habitat for big-game species. The National Park Service (NPS) manages seven national park units in Idaho (totaling 508,196 acres), including a portion of Yellowstone National Park and Craters of the Moon National Monument that anchor priority wildlife movement and migration routes. The NPS employs route mapping, invasive species treatments, and helps address wildlife mortalities due to vehicle collisions to conserve and restore big game winter range and migration routes. Idaho has sixteen national forests, and they cover more than 20 million acres - more than any other state except Alaska. Most national forest lands that are legally accessible via a public road, navigable waterway, or adjacent to state or federal land are open to hunting. IDFG and USFS biologists collaborate to identify forest management prescriptions conducive to continued use by large numbers of migratory elk and deer.

Transportation

To facilitate understanding and cooperation between their respective and sometimes overlapping state responsibilities, IDFG and the Idaho Transportation Department (ITD) entered into a Memorandum of Understanding in 2015 to increase public safety, promote wildlife passage, and reduce wildlife mortality due to vehicles. As a result, IDFG and IDT are working together on efforts that include monitoring studies measuring wildlife crossing and movement information to utilize in environmental assessments, developing data about wildlife roadkill and passage, recommending best management practices for transportation projects, and more effectively and efficiently exchanging information to inform actions. Other cooperative efforts include: 1) developing a statewide map and database of important "wildlife linkage" areas in relation to Idaho's transportation network and 2) developing a statewide online wildlife-vehicle collision database tool to document and monitor wildlife mortality caused by vehicles.

Consistent with SO 3362, IDFG has identified five priority big-game winter range and migration routes, as follows (in no order of priority):

PRIORITY BIG-GAME WINTER RANGE AND MIGRATION ROUTES -

Smoky Boise Complex – Winter Range – N of I84 Boise to Mountain Home and US 20 Cat Creek Summit to Hill City

Why this Area was selected: Safety due to wildlife-vehicle collisions. Largest mule deer herd in the state. The area provides and important south aspect winter range for elk and mule deer in the Bennett Mountains and north of I84. It includes summer range in the Upper Boise River – Smokey Area areas and migration areas across US 20.

Spatial location (Figure 1): SE of Boise and north of I84 between Boise and Mountain Home, Idaho. There are migration and movement areas between Cat Creek Summit and Hill City on US 20.

Habitat types: Primarily sagebrush steppe in the Owyhee Uplands ecological section.

Important stopover areas within the corridor: Winter range of south facing Danskin Mountains and foothills to the north of I84. Upper Camas Prairie and the lower Solider Mountains

Landownership: Private, BLM, USFS, and state.

Risks/Threats: Wildfire, increasing development pressures, land use changes, recreation, noxious weeds, increasing vehicle traffic.

Current efforts: Public access agreements with private landowners. Range restoration efforts in cooperation with BLM and NRCS.

Cost of current or needed habitat treatments/road crossings, etc.: Unknown.

Other issues for awareness: High growth rates in Idaho threaten existing winter ranges close to the growing Treasure Valley, Mountain Home, and Magic Valley as per BSU project growth report.

Figure 1: General depiction of the Smoky Boise Complex Area. Note: this general area depiction does not represent any specific winter range or big game migration or movement.



US 20/SH87 Complex – Ashton to Montana State Line

Why this Area was selected: Safety due to wildlife-vehicle collisions with elk, deer, bison, moose, bears, antelope, wolves - big game migration and movement.

Spatial location (Figure 2): Extreme corner of NE Idaho and adjacent to Yellowstone NP.

Habitat types: Forested and sagebrush steppe habitats. Yellowstone Highlands ecological section.

Important stopover areas within the corridor: Snake River Plain, Yellowstone NP, USFS lands west of Yellowstone NP

Landownership: National Forest – 66%, Private – 17%, State – 6.5%%, National Park – 5.3%, BLM – 3.2%.

Risks/Threats: Highway expansion and improvement, land development, increasing tourism and vehicular traffic.

Current efforts: Proposed wildlife crossings and fencing in coordination with upcoming IDT US 20 improvement projects.

*Cost of current or needed habitat treatments/road crossings, etc.***:** Unknown. Among the range of alternatives for NEPA evaluation, there are 4 overpasses, at least 3 underpasses, and fencing as part of the proposal.

Other issues for awareness: Roadkill and radio telemetry data used to confirm migration/movement areas. There is local community support for alternatives that do not include overpasses and fencing.



Figure 2: General depiction of the US 20/SH87 Complex Area. Note: this general area depiction does not represent any specific winter range or big game migration or movement.

US 95 McArthur Lake – Elmira to Naples

Why this Area was selected: Safety due to wildlife-vehicle collisions with elk, deer, moose, bears - landscape wildlife migration and movement.

Spatial location (Figure 3): Northern Idaho between Bonners Ferry and Sandpoint, Idaho

Habitat types: Forested valley habitats. Bridge between Okanagan Highlands and Flathead ecoregions.

Important stopover areas within the corridor: 1400-acre McArthur Lake Wildlife Management Area

Landownership: Predominately state and federal ownership and management except for private timber company lands (with Forest Legacy Program (FLP) easements) and private land in the valley bottom.

Risks/Threats: Highway development, increasing vehicular traffic, railroad traffic, land use.

Current efforts: Conservation easements on corporate timberlands, wildlife management areas and enhancement and management, proposed wildlife crossings. Partners include Idaho Department of Lands (IDL), The Nature Conservancy (TNC), IDFG, and Hancock and Molpus timber companies.

Cost of current or needed habitat treatments/road crossings, etc.: Proposed to expand bridge over Deep Creek and install wildlife overpass. Estimated cost > \$4M.

Other issues for awareness: Railroad adjacent to highway presents some obstacles and mortality threat to wildlife, especially in winter. More than \$11m already invested in conservation easements on 8000+ acres east and west of US 95.

Figure 3: General depiction of the US 95 McArthur Lake – Elmira to Naples Area. Note: this general area depiction does not represent any specific winter range or big game migration or movement.



US 30 Rocky Point, mile post 443 – 447

Why this Area was selected: 6000 – 8000 mule deer use US 30 migration route to and from winter range twice/year. Safety concerns due to wildlife-vehicle collisions.

Spatial location (Figure 4): Extreme SE Idaho in the Bear Lake basin.

Habitat types: Primarily sagebrush steppe habitats with forested habitats in the higher elevations in the Bear Lake ecological section.

Important stopover areas within the corridor: Winter ranges directly south of US 30. Summer range extends north on the Caribou National Forest.

Landownership: Predominately private, BLM, FWS Bear Lake National Refuge, and state lands.

Risks/Threats: Increasing commercial truck traffic, land use.

Current efforts: ITD and IDFG cooperative effort to protect wildlife movement via conservation easements on private land and building wildlife underpasses and fencing.

Cost of current or needed habitat treatments/road crossings, etc.: Estimate >\$5M for 4+ wildlife underpasses plus fencing plus conservation easement on private land.

Other issues for awareness: Railroad adjacent to highway presents some obstacles and threat to mule deer and antelope. Commercial truck traffic does not create human collision safety problems but results in substantial deer mortality which leads to other incidental wildlife mortality such as12 eagles killed by vehicles as they fed on road killed deer.



Figure 4: General depiction of the US 30 Rocky Point Area. Note: this general area depiction does not represent any specific winter range or big game migration or movement.

Interstate 15 – Market Lake to Montana border

Why this Area was selected: Migrating elk, antelope, and mule deer. Migration blocked by interstate and driver safety problems due to wildlife-vehicle collisions.

Spatial location (Figure 5): Snake River plain in eastern Idaho to Montana border.

Habitat types: Primarily sagebrush steppe in the Snake River Basalts ecological section.

Important stopover areas within the corridor: Snake River Plain, Idaho National Laboratory, Craters of the Moon National Monument, Camas Creek

Landownership: Predominately BLM, US Department of Energy (DOE), NPS Craters of the Moon National Monument and Preserve, and state.

Risks/Threats: Wildfire, increasing vehicular traffic, noxious weeds, land use changes.

Current efforts: Radio telemetry information collection on migratory and resident mule deer, elk and antelope.

Cost of current or needed habitat treatments/road crossings, etc.: Unknown.

Other issues for awareness: 115 is felt to be a barrier to traditional east-west migration and movement of elk, antelope and deer.

Figure 5: General depiction of the Interstate 15 – Market Lake to Montana border Area. Note: this general area depiction does not represent any specific winter range or big game migration or movement.



In addition, IDFG identified the following Research Priorities Related to the Management of Wildlife Migration and Movement and Winter Ranges-

1) Statewide mapping of elk and mule deer winter ranges, movement routes and stopover locations.

Overview. IDFG proposes to expand current efforts aimed at delineating the winter and summer ranges of ungulate species across Idaho. In tandem, IDFG will increase its efforts to identify movement routes and stopover locations that are connect these ranges (Sawyer et al. 2011). Both of these efforts will build off of already successfully implemented projects across the state while expanding into less well studied areas through the incorporation of GPS location data. GPS data collection efforts began in the fall of 2016 and now consist of several collaborative projects throughout adjacent states (UT, WY, MT, and NV) and approximately 750 deployed collars per species of interest. This work provides seasonal ungulate range information for parts of Idaho in which we have historically lacked information, while at the same time serves to 'update' our current models by capturing changes in vegetation and structure (e.g., fire and human development). We also propose financial resources for assisting with integration of movement routes into the Western Association of Fish and Wildlife Agencies (WAFWA) Crucial Habitat Assessment Tool (CHAT).

In the past (2016-2017), IDFG has conducted resource selection with elk and mule deer in order to identify 1) winter and summer ranges and 2) movement routes. Such analyses often required GPS-collared seasonally-mobile species with annual individual ranges sometimes exceeding 100 miles. To this end, IDFG has deployed GPS collars on elk and mule deer since 2004 and maintains a database for elk and mule deer that contains a total of over 2.8 million locations. These data are easily cross-referenced with data on individual physiologic condition collected during animal capture. Migratory behavior can be determined from an individual animal's location data. We can then assign a migration type and seasonal habitat following process known as net squared displacement (NSD, Bunnell et al 2010). NSD analysis identifies if an individual is migratory, and what type of migration the individual has exhibited. Further, this analysis may be used to identify the specific locations used in winter range, spring migration, summer range and fall migration in a scientific and reproducible manner. The NSD analysis provides the necessary classes of spatial behaviors from which winter range, movement routes, and stopovers can be identified, a required step for the topics presented below.

Winter range analyses. Where the winter ranges of elk and mule deer are sympatric, we will use winter range locations and resource selection function analysis (RSF) to evaluate environmental covariates that may potentially influence the probability of mule deer and elk use across regional scales. For winter range estimation and delineation, prior analysis has found that snow condition, elevation, aspect, slope, and vegetation composition are critical determinants of winter range. The resulting maps of predicted high quality winter range will then be cross-checked with IDFG's winter survey efforts (1999-present) to verify occupancy of predicted use in relation to habitat quality.

Movement path analyses. Locations from migratory individuals identified within the NSD analysis will next be used to elucidate important spring movement paths through the use of Brownian Bridge Movement Models (BBMM, Horn et al. 2007, 2011). From these individual annual migration paths, stopover locations will be identified following a criteria based on intermittent areas of increased use (Sawyer et al. 2011) and areas of a low and

sustained rate of movement. All BBMM movement paths will be coalesced (and normalized for individuals producing multiple BBMM paths across several years) by region and overlain in a manner that prioritizes those paths that are used by multiple individuals and those representing larger populations as indicated from winter surveys. The above data and analyses can then be used in a resistance surface or least-cost path framework to predict migration routes for areas where animals have not been radio-marked (Wade et al. 2015)

Stopover Site Analyses. Finally, we will use the results of the movement route analysis and stopover analysis along with an RSF analysis to identify environmental covariates associated with the spring movement routes and stopovers locations within them. Additional covariates pertaining to vegetation type and phenology stage will be used within a regional analysis across population within a region. Phenological covariates such as such as season, peak growth date, and seasonal maximum will be derived from NASA Modis NDVI (MOD13Q1 v6 & MYD13Q1 v6). Past western US studies have indicated that these seasonal phenology metrics influence ungulate migration timing and spatial occurrence (Kauffman, Middleton etc.). When completed, this movement route analysis will allow us to assess the viability of identified routes in light of habitat disturbances (fire and anthropogenic development). This information, in conjunction with that derived for the winter range analysis, will identify those routes of high management priority based on risks according to IDFG mandates and priorities.

Conclusion. Analyses of elk and mule deer winter range, movement routes and the stopover locations contained within will provide an objective and systematic framework from which IDFG can identify areas requiring increased (or decreased) support and management. The results of this analysis will directly inform the decision making process. For example, our results will offer insight about how mitigating infrastructure and restoring habitats will improve ungulate seasonal movements (e.g. fire, invasive species, transportation) using scales that benefit local and landscape views. In addition, an understanding of population interconnectivity will be integral for any sound disease-related management decision making between Idaho and adjacent states (Brucellosis & Chronic Wasting Disease).

Funding Need and Products: IDFG's primary need is increased capacity to complete and update seasonal range (winter and summer) models, migration route and stopover analyses, and resistance surface predictions of migratory paths in Idaho. The resulting product will not only be predictive models of seasonal range and mitigation routes, but the automation of these analyses to be updated each year with minimal personnel effort. IDFG is currently collecting locating data from 1600 GPS collared deer and elk daily, requiring considerable personnel time just to process the incoming locations. Considering that IDFG currently has projects and data exchanges with 4 neighboring states concerning elk and mule deer movement patterns, the task becomes even more complex as the need for coordination between IDFG and surrounding regions increases. To expedite these analyses we request 2 research associates for 2 years to complete these analyses and develop software and underlying code to periodically update models with new location data and changing habitat covariates. We will complete the Brownian Bridge Movement Models and update of the seasonal range models within 1 year for all of our GPS collared individuals. The prediction of migration routes and software development will be completed at the end of 2 years. We will also request increased computer processing upgrades (dedicated server) to handle these CPU intensive models. We also request capacity to assist with integration of migratory information, in coordination with other western states, into the WAFWA CHAT.

The budget for this research effort will include:

2 Research Associates	\$49,000/year + 37% benefits = \$67,130 each x 2years =	\$268,520
Travel	\$ 8,280	
Computer Server	\$19,200	
CHAT support	\$ 4,000	
Total	\$300,000	

Additional Research Priorities For Idaho Department of Fish and Game

2) McArthur Lake Landscape Connectivity

- (a) Animal movements in northern Idaho between the Selkirk and Cabinet mountain ranges are not well defined. Winter range for elk, white-tailed deer and moose exists in the valley bottom (in vicinity to McArthur Lake WMA) where roadkill data has indicates significant mortality related to Highway 95 and railroad transportation corridors that run directly through this area.
- (b) GPS collars will be deployed on white-tailed deer, elk, and moose for the purposes of identifying movement routes across highway 95 and railroads within a multiple use, dense multiple stewardship landscape with multiple transportation needs and increasing development.

3) Pronghorn antelope winter range estimation, movement route identification, and stopover identification.

- (a) Idaho has quantitatively identified seasonal ranges and migratory paths for less than 20% of Idaho's pronghorn populations. Most of these populations exist at low density with little known concerning the influence of migration on population dynamics. This need will provide a means from which Idaho can identify many of these critical areas for pronghorn across Idaho.
- (b) Data collection and analysis. We will capture and place GPS collars in pronghorn populations lacking identified migratory information (Stanley, Sand Creek east of 15 Upper Snake, Fairfield – Bliss, and Owyhee).
- (c) This work will dovetail well with the current research on pronghorn vital rates and population estimation techniques in coordination with Utah State University. Combining these efforts would provide the full picture of population dynamics in many of our pronghorn populations.

CURRENT MANAGEMENT ACTIVITIES -

Smoky Boise Complex

• BLM Boise District Elk and Pony Fire Complex Emergency Stabilization and Rehabilitation (ESR) project to improve winter range of elk, mule deer, and pronghorn damaged by the 2013 Elk and Pony Fires. Rehab of ~51,000 acres included rangeland drill seeding and aerial seeding of forbs, sagebrush, alfalfa, and native grasses, and seedling planting of bitterbrush. Partners included the USFS, IDF and Idaho Department

of Lands. A seasonal restriction to motorized vehicles was established to protect big game during the winter months for a period of two years.

- BLM Boise District completed the Paradigm Fuel Breaks Project to reduce the number of large wildfires within the southern portion of the Smoky Boise Complex. By reducing the size of fires that burn in this area, sagebrush and other species important for big game winter range would be able to re-establish where they have been lost. Fuel breaks provide firefighters with more options for safely engaging wildfires and compartmentalize areas to help keep fires small. Elk mule deer, and pronghorn benefit.
- BLM Boise District completed the Cold Fire ESR project to improve winter range of elk, mule deer, and pronghorn damaged by the 2015 Cold Fire. Approximately 1,700 acres were treated by rangeland drill seeding and aerial seeding.
- BLM Boise District and FWS cooperated on the Breeze Post-fire ESR. The ESR improved vegetative conditions on approximately 1,100 of the 1,820 acres burned. All BLM land burned is being treated (1,110 acres).
- Construction of a highway overpass on SH 21 at MP 19.32. The work will be funded by a grant from the Idaho Federal Lands Access Program. The project will be funded by \$2.9M in funding from the grant plus 7.34% in match provided by partners including IDFG, Rocky Mountain Elk Foundation, Yellowstone to Yukon, Center for Large Landscape Conservation, Boise National Forest, and Idaho Deer Alliance. The project is scheduled for construction in 2021.
- Coordination with ITD to reduce wildlife vehicle collisions on Highway 20 that occur primarily as a result of mule deer migration to and from winter and summer ranges. Current efforts are limited to driver warning signs. Long-term needs include the consideration of incorporating wildlife underpasses and overpasses as well as fencing modifications through this priority area.

US 20/SH87 Complex

- The Idaho Falls BLM District has an active Land and Water Conservation Fund (LWCF) program in the Henry's Lake Area of Critical Environmental Concern. For the last 10+ years the District's Upper Snake Field Office has been working with landowners and partners to conserve important big game habitat in that migration route. Acquisition of conservation easements is ensuring big game habitat remains healthy for future generations.
- The Upper Snake BLM Field Office has removed three miles of old fencing from the Henry's Lake area.
- ITD has recently proposed the following projects for US-20 from Ashton north to the MT-ID state line: Ashton Hill Bridge to Dumpground Road, US-20 Chester to Montana Safety Corridor Plan, Targhee Pass (Jct. 87 to MT state line), A019 (913,606,711), and A014. Efforts continue to incorporate wildlife crossings and reduction of wildlife-vehicle collisions into these projects. Providing for wildlife migration and movement across US-20 is currently limited by funding and cooperative partnerships including locally. Ongoing coordination with Montana Fish, Wildlife and Parks is focused on cooperative management actions across the state line.

US 95 McArthur Lake – Elmira to Naples

• Reducing roadkill and providing for wildlife movement across the valley has been identified as a priority. To date, current efforts have provided more than \$11M in Forest Legacy and partner funding to acquire more than 8,000 acres of Forest Legacy conservation easements. ITD has proposed that U.S. 95 be straightened at the north end of IDFG's McArthur Lake WMA, where it crosses Deep Creek. This proposed highway improvement provides opportunity to install wildlife crossings in concert with ITD's proposed project. An existing and heavily used rail line also parallels US-95 at the site. Coincident with addressing driver safety and wildlife connectivity on US-95, discussions with the rail line about decreasing wildlife mortality and improving crossings will occur either separately or concurrently. Collaborative efforts include development of partners and additional funding support.

US 30 Rocky Point, mile post 443 – 447

- The FWS is working with ITD and IDFG to understand deer migration and allow safer deer movement in this area.
- IDFG and ITD have entered into an agreement to design, engineer, and construct a wildlife crossing along US-30. Included in the agreement will be effort to develop an easement or agreement with the private landowner to protect the migration route on either side of the crossing. Capacity building efforts are ongoing to develop partners and funding.

I15 – Market Lake to Montana border

- The NPS Craters of the Moon National Monument staff is advancing understanding of pronghorn migration between Carey and Arco, ID, using wildlife cameras.
- BLM Idaho Falls District
 - Fence Modification. Since 2013, approximately 10 miles of fence have been modified in the Table Butte area to allow for the safe passage of big game. Another 5 miles of fence modification is planned over the next two to three years. The fence modification efforts included or will include the removal of net wire and replacement with four-strand wire, with a high smooth bottom wire, to facilitate pronghorn passage.
 - Shrub Plantings. The Upper Snake Field Office has planted 500,000 sagebrush plugs in the area over the past 5 years to enhance wildlife habitat.
 - Fence Reconstruction. Approximately 25 miles of fence in the priority area (and an additional 55 miles outside of the area) was burned in the 100,000 acre Grassy Ridge fire in 2018. The fire encompassed much of the Sand Creek area, which provides winter range for significant numbers of big game each year, including 4,000 to 5,000 elk, 2000 mule deer, and 500 moose. The majority of the burned fencing was not up to wildlife-friendly standards prior to the fire but will be constructed to wildlife friendly standards over the next few years to facilitate the safe passage of big game.

- The FWS is restoring cottonwood shelterbelts on the refuge which will improve habitat for migrating big game species on the Camas Refuge Cottonwood Regeneration Project.
- Ongoing efforts to define and understand elk, mule deer, and pronghorn movements are being undertaken by IDFG. Historical and practical experience currently define seasons and locations of I15 wildlife crossings, seasons of use, potential stopovers and winter and summer use areas. Cooperative data analysis with Montana Fish, Wildlife and Parks is also needed as is design and engineering of potential crossing structures.

CURRENT IDFG-LED RESEARCH ACTIVITIES

- 1) Assessing Habitat Change, Connectivity, Barriers to Movement for Wildlife This is a long-term project to evaluate the effects of habitat change on species survival and landscape connectivity. Subprojects include: 1) evaluation of population level effects of wildlife-vehicle collisions and the effectiveness of mitigation efforts, 2) evaluation of landscape connectivity for multiple species and potential barriers to movement, and 3) evaluation of large-scale agricultural landscape habitat changes (i.e., CRP vs ag vs native) and how populations are influenced. This is a major research project requiring a full time research biologist as project lead. The project has the potential to be a multicollaborator project, incorporating funding and expertise from IDFG; Montana Fish, Wildlife, and Parks; Heart of the Rockies (NGO); and the High Divide Collaborative. This research will help better predict impacts of development (urban, roads, habitat modification), increasing the reliability information used in consultation with other agencies and private landowners. FY18 Accomplishments: Idaho State University graduate project investigating the effects of agriculture landscape change (active agriculture vs CRP vs CRP-SAFE) on Columbian sharp-tailed grouse lek abundance and habitat quality metrics. The student has developed a draft project proposal, outlined resource needs (e.g., remotely-sensed products), and began field work in spring of 2018.
- 2) Deer and Elk Seasonal Range Modeling This project is using all of the GPS location data collected to date to model seasonal ranges, transitional ranges, migration routes, and calving/fawning habitat. It has produced first draft winter and summer resource selection models for the entire state and will update and refine these models as needed with input from field personnel and addition of new covariates and GPS data (~1800 animals/year). FY18 Accomplishments: Developing methods to estimate if, where, and when cow elk give birth based on analysis of GPS-location data. Will use this information to develop a calving habitat model for Idaho. Also are working on analyses of population spatial structure (especially for elk), updating covariates with more accurate information, and further scenario prediction (for example bad winter vs good winter or infrastructure development assessment). Also, High Divide (MT-ID) Collaborative elk seasonal ranges have been estimated using methodologies consistent with those used in Idaho.
- **3)** *Pronghorn Population Monitoring* This project is continuing the development of a reliable technique for monitoring status and trend of Idaho's low density pronghorn populations. Specifically, it is investigating the use of non-invasive sampling techniques to monitor pronghorn population parameters via fecal sampling. Fecal sampling will provide a method of determining pregnancy rates, measuring physiological stress, and quantifying nutritional condition. Fecal genetic mark-recapture will be used to validate

survey efforts for estimating population size. The project will elucidate factors that may be limiting pronghorn populations, provide insight on the physiological measures influencing pronghorn productivity, and provide parameters useful for population modelling. *FY18 Accomplishments:* The graduate student completed two semesters of graduate coursework, began collecting historic pronghorn survey data from regional offices, developed a draft study proposal that is currently going through review and revision by the committee, and prepared to initiate the first season of field work (summer 2018).

4) Mule Deer and Elk Population Modeling - Research is focused on developing a web-based integrated population model (IPM) for mule deer and elk. The IPM and associated web-based interface (PopR) contains modules for aerial survey sightability models and radio collar survival estimates along with annual estimates of population size. The final product from this research will include a nutrition-based carrying capacity estimate for each mule deer PMU or elk zone and provide a scientific basis to evaluate population or harvest goals. FY18 Accomplishments: Continued to refine the IPM interface and the interaction between the interface and IDFG databases. Have added predictive models of winter fawn survival from remote sensing data, including a tool to remotely download the information needed to predict fawn survival without the need for radio collars. The elk model will be completed pending adjustments to our statewide databases.

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<u>APPENDIX A:</u> 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. <u>With respect to activities at the national level</u>, 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 biggame 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. <u>With respect to activities at the State level</u>, 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. <u>With respect to science</u>, 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. <u>I further hereby direct the responsible bureaus and offices within the Department to:</u>

(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. <u>Heads of relevant bureaus</u> 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: