



Department of the Interior
**Secretarial Order 3362: Improving Habitat Quality in
Western Big Game Winter Range and Migration Corridors**
Implementation Progress Report

August 2020





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Introduction

On February 9, 2018, at an event in Salt Lake City, Utah, the Secretary of the Interior signed Secretarial Order 3362, “Improving Habitat Quality in Western Big Game Winter Range and Migration Corridors” (Order) (Appendix A). The Order has attracted considerable attention and created momentum for management and conservation of migration corridors and winter range. As of May 2020, the Department of the Interior (Department) has entered Year 3 of implementation and our approach over the past 2 years has established the solid foundation necessary for successful future endeavors.

The Order is focused on species under the management authority of state fish and wildlife agencies, so it directs the appropriate bureaus within the Department to engage western states collaboratively and cooperatively. More directly, the Order recognizes state authority to manage big game species. The Department’s role in implementation stems from its management responsibility for millions of acres of land across the West, strong scientific and technical capabilities, and ability to bring forward other resources to help facilitate wildlife habitat conservation activities across multiple states. The Order is focused on conserving, enhancing, restoring, or improving the condition of priority big game winter range and migration corridor habitat. Ultimately, the habitat conservation activities resulting from the implementation of the Order will provide positive benefits to big game populations and numerous other wildlife species.



C. Stemler

Secretarial Order 3362

Background

The American West is rapidly changing because of human populations from across the country that are moving 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 (big game). Additionally, changes have occurred across large swaths of land not impacted by residential development. The habitat quality of these important areas may not be serving the needs of big game due to impacts from other factors such as invasive species and intense fires.

The Department has a responsibility, given its large landholdings, to be a collaborative neighbor and steward of the resources held in its trust. The Bureau of Land Management (BLM) is the largest land manager in the United States 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 in the West on behalf of the American people. 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 can work closely with the western states on big game winter range and migration corridors found on lands managed by the Department and through voluntary private lands programs.

Purpose

The overarching purpose of the Order is for the Department and its respective bureaus to develop collaborative partnerships with the states of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming to enhance and improve the quality of Rocky Mountain elk (elk), mule deer (deer), and pronghorn antelope (pronghorn) winter range and migration corridor habitat. The partnerships are to be developed in a manner that recognizes state authority to conserve and manage big game species and all actions are to respect private property rights. Through scientific endeavors and land management actions, big game species and a host of other species will benefit from these collaborative partnerships.

Order Directives

The Order directed the BLM, NPS, and FWS to take numerous actions within various timeframes. Some of those actions included:

- Identify an individual to serve as the coordinator for the Department.
- Provide the coordinator with information on past and current bureau conservation/restoration efforts on winter range and migration corridors; considerations of winter range and corridors included in appropriate bureau land (or site) management plans; bureau management actions used to accomplish habitat objectives in these areas; the location of areas that have been identified as a priority for conservation and habitat treatments; and funding sources previously used and/or currently available to the bureau for winter range and migration corridor conservation/restoration efforts.
- Identify one person in each appropriate unified region to serve as the liaison for the Department for that unified region.

- Work with the coordinator and each regional liaison to discuss implementation of any land use plans already established that are consistent with this Order. 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 and establishes a clear direction forward with each state.
- 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 range and migration corridor habitat.
- Provide a report at the end of each fiscal year 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.
- Assess state wildlife agency data regarding wildlife migrations early in the planning process for land use plans and significant project-level actions that the bureaus develop.
- Evaluate and appropriately apply site-specific management activities, as identified in state land use plans, site-specific plans, or Action Plans that conserve or restore habitat necessary to sustain local and regional big game populations.
- 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.
- 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.
- 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 instances where winter range or migration corridors span jurisdictional boundaries.

The Order directed the USGS to do the following:

- 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.
- 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.



Implementation

How can landscape-level habitat conservation be effectively implemented across 11 different western states? The approach that was adopted for the implementation of the Order is based on the fundamental principles of a conservation paradigm successfully applied by the Migratory Bird Joint Ventures (joint ventures) across the country.

The joint ventures were formed over 30 years ago to address the long-term declines in waterfowl populations and corresponding habitat loss. The joint ventures are voluntary and self-directed partnerships consisting of representatives from state and Federal Government, nongovernmental organizations, and—in some instances—private landowners and industry. Each joint venture is focused on a specific geographic area, and the partnership builds the scientific data and tools to direct nonregulatory habitat conservation to the most important areas for priority birds within a vast landscape. The success of this partnership approach and its resulting impact on birds are evident across the United States, Canada, and Mexico.

Overarching Philosophy, Vision, and Approach

Using joint ventures as the guide, the overall philosophy for the implementation of the Order is to approach efforts in a voluntary, nonregulatory, and nonthreatening manner. The Department and its bureaus (we) support the use of science to discover the most important area(s) for big game and for the respective state fish and wildlife agency to determine the highest priority areas within their state. Once defined, habitat conservation activities are focused in these priority areas for the greatest impact on target species and other wildlife.

A vision statement, a measure of success, and operational principles or “touchstones” guide implementation of the Order:

Vision: Big game winter range, stopover, and migration corridors will be protected, conserved, and/or well managed to help sustain robust herds across western states for decades to follow.

[Note: The vision statement does not suggest an all or none approach, but rather reads, “protected, conserved, *and/or* well managed.” This is an important distinction since the habitat management approach (or approaches) most appropriate and necessary for the long-term productivity of one priority corridor or winter range area may not be the most effective approach for another area or even for multiple areas within the same state.]

Measure of Success: Meaningful actions are taken that are congruent with state-identified priorities and have lasting and measurable positive impacts for big game populations of elk, mule deer, and pronghorn across western states.

Touchstones

- Respect state authority to manage wildlife, namely elk, deer, and pronghorn.
- Respect the rights of private property owners.
- Be pragmatic! Move forward with implementation recognizing this Secretarial Order cannot be everything to everyone.
- Remain focused on state-identified priority migration corridors, stopover areas, or winter range while working closely with partners to address identified actions.

- Follow a thoughtful plan and approach to guide actions strategically and effectively in a respective area rather than having multiple scattered efforts that amount to little cumulative impact.
- Fully embrace the conceptual and legal directive of “multiple-use” lands, as applicable. This includes recognizing traditional and legal land uses.
- Seek collaboration, not polarization, by actively and positively engaging landowners, industry, conservation partners, and others through one-on-one interactions.

Request to State Fish and Wildlife Agencies

The states have a long history with Federal Government programs and initiatives related to wildlife. Their experiences have included a spectrum of interactions, from full input and engagement to instances where their involvement was only sought after a new program was implemented. Further, they recognize that initiatives can start and then stop through the changing of Administrations. These past experiences can sometimes hinder the formation of trustful partnerships. Understandably, the approach used to implement the Order was sensitive to this dynamic and the overarching tenor of developing strong Federal–State partnerships.

At the outset, the coordinator engaged in discussions with several state agency directors and their staffs. These discussions focused on the Order, plans for implementation, and how best to approach all 11 states. The coordinator followed up these conversations by sending a letter to each director of the 11 respective state fish and wildlife agencies to gather information for the steps ahead. The letter primarily requested the state’s priorities for migration corridors and/or winter range areas and associated research projects. Specifically, each state was asked to provide its top 3–5 priority corridors and/or winter range areas and top 2–3 research priorities (see Appendix B for excerpts from these letters).

The approach of capping the number at five migration corridors or winter range areas was a deliberate effort to focus conservation impact and funding effectiveness. Limiting the initial request to only 1–3 corridors or winter range areas may have created a more efficient starting point. However, this limitation would have reduced the opportunity to engage a broader range of agencies and organizations in partnership, which ultimately would have resulted in less habitat conservation across the West. In addition, states may not have had the data necessary to accurately map their 3–5 corridors or winter range areas, so we asked that they provide a proposal for at least their top research priority. We also offered the opportunity for each state to partner with the USGS for data analysis and/or mapping support. The information provided by the 11 states in response to the letter created the content for the plans that help guide implementation of the Order.



Mark Penninger

Action Plan

Every joint venture establishes an implementation plan to direct conservation activities within their area of responsibility. The plan is developed with partner input, and the final version is approved by the respective management board that oversees the joint venture. Each approved plan guides conservation within the respective boundaries for 5–15 years before being updated.

We adopted the conceptual approach of an implementation plan and created the idea of a Secretarial Order 3362 (SO3362) State Action Plan (Action Plan). We developed and shared an Action Plan template to establish a level of structural consistency and flow across individual states. The purpose for the Action Plan was to create a document that would provide focus, facilitate partnership development, inform grantmaking programs, and ultimately serve as a tool to accomplish habitat conservation. The Action Plan was developed by using the information and priorities provided by state fish and wildlife agencies, along with relevant Federal and contextual information to complete the document. Each version of the Action Plan was approved by the director of the respective state fish and wildlife agency. The first versions of the Action Plans were finalized and approved in October 2018. Similarly, the second versions of the plans were finalized and approved in or before October 2019. Version 2 of each Action Plan can be found at: <https://www.nfwf.org/programs/rocky-mountain-rangelands/improving-habitat-quality-western-big-game-winter-range-and-migration-corridors/state-action-plans>.

Liaisons

We identified five people to serve as liaisons and assigned each of them responsibility for at least two states. The states falling under each person's purview, as well as each person's respective bureau, are as follows:

- WA/OR – FWS person based in OR
- CA/NV – FWS person based in NV
- ID/MT – NPS person based in MT
- UT/CO/WY – BLM person based in UT
- AZ/NM – BLM person based in NM

The liaisons do not directly report to the coordinator, but rather serve in this capacity as a collateral duty assignment. They are integral to the implementation of the Order since they serve as the point of contact with government and nongovernment partners at the local level within their assigned states. They also conduct outreach to the public. Their other responsibilities are varied, yet minimally, they include working with the respective states to develop and update the Action Plans. In addition, liaisons coordinate among partners to develop habitat projects and facilitate implementation of the Action Plans.

Creation of Habitat Conservation/ Management Funding Opportunities

The coordinator collaboratively engaged the National Fish and Wildlife Foundation (NFWF) to develop the Improving Habitat Quality in Western Big Game Winter Range and Migration Corridors grant program (<https://www.nfwf.org/programs/rocky-mountain-rangelands/improving-habitat-quality-western-big-game-winter-range-and-migration-corridors>). The program seeks to provide grants to protect, restore, or enhance winter range and

migration corridors. It also provides grants for working cooperatively with private landowners and state highway departments on fencing projects. This grant program includes a mixture of funding provided by the Federal Government and private companies. To be eligible for a grant, the applicant must include a signed letter of support from the director's office of the state fish and wildlife agency in the state where the proposed project is located. Further, the project must address conservation needs as identified in the respective Action Plan. These requirements help to ensure further collaborative partnerships with the states and focus limited funding on projects in priority areas.

In addition to the NFWF grant program, the FWS Partners for Fish and Wildlife (PFW) program established an internal grant program of \$1.5 million per year for voluntary projects on private lands located within state-defined priority migration corridors or winter range areas. Proposals are developed by PFW field staff working in partnership with landowners, staff from the respective state wildlife agency, and others. Similar to the requirement of the NFWF grants, all of the proposals must have a signature from an authorized representative of the respective state fish and wildlife agency. Additionally, a new step was added in Year 2 that required a landowner's (or land manager's) signature on all proposals.



Mark Penninger

Accomplishments

These partnerships have made meaningful progress on the implementation of the Order in the first 2 years. Exceptional cooperation and collaboration with the states continues as we enter Year 3 of implementation. All 11 states engaged from the beginning, and we successfully collaborated to develop Action Plans for each state. Several nongovernmental conservation partners have fully engaged and made migration corridors and winter range a priority in their organizations as well.

We have addressed numerous directives in the Order during Year 1 and into Year 2 of implementation. Additionally, the Department has provided over \$6.4 million to support state-identified priority research projects and over \$1 million for data analysis and mapping assistance. The Department and partners provided almost \$10 million in direct funding for habitat-related projects, and matching funds surpassed \$30 million. These overall numbers exclude staff costs, matching funds beyond those supporting the grants funded through the NFWF, or programmatic funding provided by the bureaus at field-level offices for migration-related research or habitat projects in state-defined priority areas.

Response to Directives

The Order includes 14 specific directives for bureau action. Many of the actions in the directives were promptly addressed, whereas others remain ongoing or dependent on other steps being completed first. The overarching directive emanating throughout the Order is for the appropriate bureaus to work in close partnership with the western states. There are countless examples of bureaus within the Department working cooperatively with states long before the issuance of this Order. The approach we are using to implement the Order builds on those cooperative interactions but strengthens partnership opportunities through expanded focus and close coordination.

The following is the status of completion for each of the directives:

Sec. 4a.(1): With respect to activities at the national level, the BLM, FWS, and NPS were to identify an individual to serve as the coordinator for the Department. The coordinator was to 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.

Status – The FWS hired a coordinator in May 2018. The coordinator used various methods to identify current efforts focused on big game winter range and/or migration corridors. Some of those methods included arranging meetings with agencies and nongovernmental organizations, conducting extensive reading of reports and other materials, and most notably gleaning information from the state fish and wildlife agency responses to the annual request letter.

Sec. 4a.(2): With respect to activities at the national level, the BLM, FWS, and NPS were to provide the coordinator with responses to five items to identify if any conservation or management actions have been taken or were currently underway related to winter range and migration corridors. The intent was to understand the level of effort prior to issuance of the Order.

Status – The FWS, BLM, and NPS provided reports to the coordinator. The reports shared examples of how each bureau was engaging state wildlife agencies in research and habitat projects related to big game species. However, these projects were not necessarily located in the 1–5 priority corridors and/or winter range areas later defined

(and which continue to be defined in several states) in the Action Plans. Consequently, the output from this directive would be more useful if the same questions are asked of the bureaus 3–5 years after implementation of the Order.

Sec. 4a.(3): With respect to activities at the national level, the BLM, FWS, and NPS were to review if sufficient land use plans were already established that were consistent with this Order. If plans were found sufficient, the bureaus were to work with the coordinator and each regional liaison to discuss implementation of the plans. If land use plans were not already established, the bureaus were to work with the coordinator and each regional liaison to develop an Action Plan that summarizes information collected and establishes a clear direction forward with each state.

Status – The decision was made to establish state-specific Action Plans, so we would have a document that reflected state fish and wildlife agency priorities. The Action Plans are adaptable documents that continue to evolve as new data are collected and analyzed. Focused habitat conservation/management projects will arise as states continue to scientifically define their priority migration corridors and/or winter range areas and identify habitat management needs within those areas.

Sec. 4b.(1): With respect to activities at the state level, the BLM, FWS, and NPS were instructed to identify one person in each appropriate unified region to serve as the liaison for the Department for that unified region. The liaison was to coordinate at the state level with each state in their region, as well as with the liaison for any other regions within the state.

Status – The Deputy Secretary issued a memo to the respective Assistant Secretaries seeking nominations for liaisons. We selected at least one liaison from each of the three identified bureaus to expand the diversity of viewpoints and to engage the respective bureaus. The selected liaisons remained at their current duty station, so this constraint required an effective approach to divide 11 states among the five liaisons (with each liaison having a minimum of two states). Ultimately, most liaisons were assigned two states, with one liaison assigned three states, by using their duty station and other logistical considerations as assignment factors. As a result, delegating liaison responsibilities by using the Department of the Interior unified regions (each region contains more than two states) was not a viable option as called for in this directive. The individual liaisons have held numerous meetings and maintained contact with the respective state fish and wildlife agencies to assess where the Department can work in close partnership.

Sec. 4b.(2): With respect to activities at the state level, the BLM, FWS, and NPS were to 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.

Status – The response is ongoing. To fully respond to this directive, the bureaus need an understanding of the scientifically defined 1–5 priority migration corridors and/or winter range areas in each state before rigorously evaluating how land under each bureau’s management responsibility can contribute to the habitat conditions in these priority areas. Many states know the locations of the winter range areas for their big game herds. The actual corridors used to travel between ranges are less precisely known in a number of states. Nevertheless, where applicable, bureaus have started to address this directive. For example, in Colorado, the BLM Uncompahgre Field Office Resource Management Plan includes a number of management actions focused on

conserving and enhancing big game habitat within this priority area as defined in the Colorado State Action Plan [priority #3, Uncompahgre (West–Central Colorado)].

Sec. 4b.(3): The BLM, FWS, and NPS were instructed to 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.

Status – The BLM has provided the required reports.

Sec. 4b.(4): The BLM, FWS, and NPS were directed to assess state wildlife agency data regarding wildlife migrations early in the planning process for land use plans and significant project-level actions that the bureaus develop.

Status – This item was essentially addressed in the development of the respective Action Plans. The states provided (and several states continue to develop) their top 1–5 priority corridors or winter range areas. Once identified, the bureaus and partners can then review the Action Plans to see where these priority areas lie across the landscape. Some of the 11 states mentioned in the Order are further along in their efforts to identify migration corridors, while other states may only be able to provide important movement habitat rather than migration corridors for a variety of reasons.

Sec. 4b.(5): The BLM, FWS, and NPS were instructed to evaluate and appropriately apply site-specific management activities, as identified in state land use plans, site-specific plans, or Action Plans, that conserve or restore habitat necessary to sustain local and regional big game populations through measures that *may* [italicization added] include one or more of the listed conservation measures or activities.

Status – The response is ongoing. Grants provided through the NFWF, project funding by the PFW, and financial support provided directly by field stations have funded numerous habitat projects responsive to the activities provided in this directive. Examples of the types of projects funded include those that restore or enhance degraded habitat by removing encroaching trees from sagebrush communities, treat invasive grasses or reseed areas damaged by fire, and replace woven wire fence with three-strand wildlife-friendly fencing. Other management activities have included taking actions that limit disturbance and minimize or avoid oil and gas development in priority migration corridors and/or winter range areas as requested by respective state fish and wildlife agencies. For instance, as requested by the state of Wyoming, the BLM deferred lease parcels or applied a special lease notice on some 90 parcels consisting of almost 60,000 acres of land where priority migration corridors or winter range exists.

Sec. 4c.(1): The USGS was directed to 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.

Status – The USGS, through research staff from the Wyoming Cooperative Research Unit (unit), partnered with the Western Association of Fish and Wildlife Agencies Mule Deer Working Group and other partners to lead four training workshops across the West. The Crucial Habitat Assessment Tool (CHAT) program manager participated in three of the workshops and shared information on the purpose and use of CHAT.

The target audience for the workshops was primarily state and Federal biologists. The purpose of the workshops was to share new migration research and analysis techniques. More importantly, the unit staff trained participants on how to use new software to analyze their Global Positioning System (GPS) big game movement data.

It is also noteworthy that the FWS Science Applications program provided funding directly to a state fish and wildlife agency so they could upload their data into CHAT. Additional funds were provided to support other CHAT activities as well.

Sec. 4c.(2): The USGS was instructed to prioritize evaluations of the effectiveness of habitat treatments in sagebrush communities, as requested by states or land management bureaus, and to identify needs related to developing a greater understanding of locations used as winter range or migration corridors.

Status – The USGS has conducted research and evaluations of habitat treatments in sagebrush communities (e.g., "U.S. Geological Survey Sagebrush Ecosystem Research Annual Report for 2019," Circular 1459) with a focus on sage-grouse. Some of the findings in the report are applicable to big game habitat restoration and enhancement. The USGS or FWS Science Applications program should have opportunities to support or conduct specific evaluations of habitat treatments or conservation needs in the priority areas as requested by the states or land management bureaus.

A primary focus of the USGS in the implementation of the Order was to establish the Corridor Mapping Team (team). The team consists of USGS and state wildlife agency biologists/researchers. The goal of the team is to provide technical assistance for corridor analysis and mapping. Further, the team helps individual states troubleshoot unique issues and ensure consistent methods/mapping is occurring across state boundaries. The unit filled two new spatial analyst positions to help meet the goal of the team. In addition, the USGS has provided necessary funding and support to every state that accepted the invitation for assistance (which was most of the states).

Sec. 4d.(1): Responsible bureaus within the Department were instructed 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.

Status – On March 29, 2018, the BLM issued Instruction Memorandum 2018–057, titled "Designation of 3356 and 3362 Coordinators." On November 15, 2018, the BLM issued Information Bulletin 2019–005 titled, "Secretarial Order 3362: Site-specific Management Activities to Conserve or Restore Big Game Habitat." On June 11, 2018, the BLM issued an Instruction Memorandum 2018–062 titled, "Addressing Hunting, Fishing, Shooting Sports, and Big Game Habitats, and Incorporating Fish and Wildlife Conservation Plans and Information from Tribes, State Fish and Wildlife Agencies, and Other Federal Agencies in Bureau of Land Management (BLM) National Environmental Policy Act (NEPA) Processes."

Sec. 4d.(2): Responsible bureaus within the Department were to 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.

Status - In Year 1 of implementation, the BLM's 11 state offices contacted their respective fish and wildlife agencies to either create new or update current memorandums of understanding (MOUs). This effort continued into the second year of implementation and to date, all but four states have expressed a desire to revise their existing MOUs. Those states not wishing to update or initiate an MOU felt other vehicles for cooperation could be used instead of an MOU. Also, the BLM signed a national MOU with the Association of Fish and Wildlife Agencies and the Western Association of Fish and Wildlife Agencies that establishes a framework for collaboration and communication to improve fish and wildlife management on lands managed by the BLM and to help fulfill needs identified in the Order.

Sec. 4d.(3): Responsible bureaus within the Department were directed to 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.

Status – The implementation of this directive is ongoing. The first step is to fully understand the location of the top 3–5 priority migration corridors and/or winter range areas within each respective state. Once this information is known, an analysis of overlapping land use plans should occur.

Sec. 4e.: This directive requires applicable Senior Executive Service performance plans to have a standard related to implementation of actions identified in the Order.

Status – The directive serves as an accountability measure for leadership positions in the Department. To date, a thorough assessment of each applicable Senior Executive Service performance plan has not been conducted to ensure the required language is included.

Research

Developing robust science creates the foundation for effective and efficient landscape-level habitat conservation. The improved accuracy and detail provided by GPS tracking technology have greatly enhanced the ability to understand animal movements. The output from scientific research that deploys GPS and other mathematical advancements is fundamental to fully realizing the intent of the Order, so the Department provided funding to the states for this purpose. The goals of the research funding were to assist the states in their efforts to identify priority corridors, support data analysis and mapping, and identify movement corridors that either cross or are impeded by highways.

As noted earlier, each state was asked to provide their top 2–3 research priorities. We established a \$300,000 cap on the total amount each state could request annually for research proposals due to available funding. In the first 2 years of implementation, we provided over \$6.4 million (FWS Science Applications program provided \$5.6 million and the BLM Branch of Wildlife and Special Status Species Conservation provided \$875,000) to state fish and wildlife agencies to fund 41 state-defined priority research projects. Specifically, in Year 1, over \$3.2 million was used to support 18 priority research projects, with 13 having a focus on mule deer, five on pronghorn, and four on elk (some projects have more than one species of focus). In Year 2 of implementation, we again provided \$3.2 million to fund 23 research projects, with

13 having a focus on mule deer, six on elk, and five on pronghorn (some projects have more than one species of focus) (Appendix C).

Mapping

The USGS has made important financial contributions and provided technical assistance for the implementation of the Order through the Corridor Mapping Team and outreach efforts by the USGS Wyoming Cooperative Fish and Wildlife Research Unit. The unit contacted each state identified in the Order to determine their need or interest in technical assistance for analysis or mapping. All but two states took advantage of this opportunity. In addition, team members are providing mapping assistance to some tribal nations. The USGS has provided over \$1 million for the analysis of big game movement data and/or for corridor mapping. These investments have been used to hire postdoctoral researchers, highly skilled temporary employees, or contractors.

Habitat

Overall, a total of 73 habitat-related projects were funded through 27 NFWF grants and 40 PFW project-specific proposals in the first 2 years of SO3362 implementation. Projects were funded in all 11 states to address habitat conservation, restoration, or enhancement activities. Specifically, grant funding supported eight habitat conservation easements totaling over 39,000 acres (one easement was on 30,000 acres). We funded a total of 39 fence-related projects (replacement with wildlife-friendly designs, fence removal, and highway fencing) to address 326 miles of fence. Twenty-one funded projects specifically focused on invasive species (pinyon/juniper/grasses) and nonnative grass treatments covering a total of 302,287 acres. Five projects will restore or enhance 14,455 acres with improved management and/or fire rehabilitation within the state-defined priority areas. Lastly, the state fish and wildlife agencies in Idaho and Washington will benefit from increased capacity, as nongovernmental partners received NFWF grants to hire a coordinator to work in those states. The role of the coordinator will vary by state but duties will include efforts to do the following: develop and implement conservation projects; promote available landowner programs provided by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) and other outlets; and liaise with other state agencies and partners on habitat or transportation-related projects.

Funding for the habitat conservation, enhancement, or restoration projects is primarily provided by the BLM (\$4 million) and FWS (\$3 million), along with the NRCS and two industry partners. Additionally, a private foundation has directly supported a conservation easement project separate from the grant programs.



Other Accomplishments

Over the past 2 years, Department field-level offices supported or completed numerous other research and habitat-related projects focused on big game. For example, in addition to the amounts previously mentioned, in both fiscal year 2018 and 2019, the BLM provided nearly \$500,000 for research projects undertaken by state and nongovernmental partners to understand elk, mule deer, and pronghorn seasonal habitat use and movement corridors across several western states. Additionally, the BLM has completed hundreds of habitat restoration, enhancement, and fencing projects in big game winter range areas. As the states continue to provide more focus and definition to their five priority corridors and/or winter range areas, the ability to target habitat conservation projects will increase. In Year 1 of implementation, the first iteration of the Action Plans showed only one state with clearly defined migration corridors and a few states with specific winter range areas. In Year 2, the second iteration of the Action Plans showed four states with some level of defined migration corridors and several additional states showing winter range areas.

The Order has created a high degree of attention, excitement, and momentum on the topic of migration corridors. For instance, several state-level actions have occurred over the past year, including the passing of policy resolution 2019–08, “Wildlife Migration Corridors and Habitat,” by the Western Governors’ Association in June 2019. Secretarial Order 3362 is specifically mentioned in the resolution, as are several of the actions we are undertaking through its implementation. Further, in July 2019, the Western Association of Fish and Wildlife Agencies established the Wildlife Movement and Migration Working Group. The working group will help to increase communication, coordination, information sharing, and collaboration on wildlife movement and migration issues among the members and partners of the Western Association of Fish and Wildlife Agencies. Secretarial Order 3362 is prominently discussed on the first page and throughout the working groups charter. Additionally, a representative from the BLM, FWS, and USGS is invited to serve alongside the state fish and wildlife agency participants on the working group.

The interaction between wildlife and highways is a longstanding issue across every state in the country. Countless research papers have been published on this topic, and mitigation strategies have likewise occurred in numerous states. We asked the 11 state fish and wildlife agencies to identify the risks or threats to their priority migration corridors and/or winter range areas. Perhaps not surprisingly, the most prevalent topic reported by the states was the risk/impact created by highways. We recognized this convergence as an opportunity to help address a significant issue through the implementation of the Order. Accordingly, we approached a conservation partner to discuss possible steps forward. The outcome of those discussions resulted in over 80 wildlife and transportation professionals, along with other participants from 11 state fish and wildlife agencies and 12 state departments of transportation gathering for the Ungulates and Highways Workshop (<https://sites.google.com/view/big-game-and-highways-workshop/>) in late January 2019. In other transportation-related activities, the September 2019 International Conference on Ecology and Transportation included a session titled “Wildlife and Transportation Agency Partnerships to Address Wildlife Connectivity in the Western United States.” The session specifically focused on the implementation and opportunities brought forth by Secretarial Order 3362. Lastly, research funding has been provided to the states through implementation of the Order to support projects specifically focused on big game movements and highway interactions. For example, several states, including Wyoming, Utah, Arizona, Nevada, Idaho, and California, received funding specifically to examine big game movements and their intersection with highways.



Future Actions

State Action Plans

The Action Plans are dynamic documents that guide implementation at the state level. The states continue to refine and focus their Action Plans through annual updates. As each state's respective Action Plan begins to rest on a complete foundation, we do not envision an annual update, unless a state fish and wildlife agency specifically chooses to do so. Otherwise, we expect revisions to occur at 5- to 10-year intervals or earlier if circumstances warrant. The 11 respective states are currently in the process of updating their Action Plans, so we expect to receive version 3 of these plans in September 2020.

The foundation for implementation of the Order is the priority migration corridors and/or winter range areas. Consequently, once these areas are defined or refined, they remain priorities throughout the implementation of the Order. It would be inefficient to begin making conservation investments in a priority area only to have that priority removed in subsequent updates to an Action Plan before completing all the possible habitat projects.

Research

No new research funding is provided in Year 3 of implementation. However, some research projects not solicited through the Action Plan revisions may be funded by collaborative partnerships at the state or local level. Most states received up to \$600,000 in total research funding over the past 2 years to help address data gaps in their understanding of elk, deer, and pronghorn movements. Funds are also used to collect fine-scale movement data on specific herds or to help address data analysis and mapping needs. The funded research projects are slated for a minimum of 2 years of study, so we will not see the results from the first round of projects for at least 3–4 years. Each research project requires a commitment of staff time and resources from the state fish and wildlife agency, so we want to remain mindful of the workload faced by the states. Consequently, in Year 3, we will coordinate with each state to understand the status of their big game migration corridor or winter range knowledge. This pause will allow us to assess future research needs that will continue to fulfill the purpose of the Order. Additionally, we would like to engage each state, where applicable, and develop a stronger understanding of the priority habitat conservation, restoration, or enhancement activities needed within currently defined priority migration corridors and/or winter range areas. Ultimately, research funding may be required in the future to conduct site-level assessments of habitat conditions and conservation needs.

Mapping

The USGS Corridor Mapping Team is helping states with movement data analysis and corridor mapping. Most of the states have taken advantage of this opportunity and actively participate on the team. However, if states have additional specific analysis/mapping needs to help define or refine their 1–5 priority corridors or winter range areas, assistance from the team continues to be available. The USGS also developed and is publishing a report that provides a detailed examination of the mapping work they have conducted in partnership with the respective states.

Habitat

The primary purpose of the Order is to enhance and improve the quality of elk, mule deer, and pronghorn priority winter range and migration corridor habitat. Once each state determines their priority corridors and/or winter range areas and the conservation needs within those areas, partners can pursue the most crucial habitat projects in the most important places. To facilitate these habitat projects, there will again be an opportunity to access habitat

conservation project funding through the NFWF Improving Habitat Quality in Western Big Game Winter Range and Migration Corridors grant program. It is difficult, if not impossible, to predict the amount of grant funding that will be available in future years. Nevertheless, we anticipate increased opportunities to fund projects in Year 3 since new funding partners have joined in the implementation effort. Additionally, the PFW will fund and administer their internal grant program again in Year 3 by providing another \$1.5 million for voluntary projects on private lands. Both funding opportunities will be available beginning in the late summer of 2020 and extending into the fall.

Expanded Partnership

We will continue efforts to expand the number of partners involved in the successful implementation of the Order. For example, increased participation by the U.S. Department of Agriculture, namely the Forest Service, can create a more comprehensive partnership. Several state fish and wildlife agencies have cited potential habitat projects on national forests, so we anticipate many collaborative opportunities. Additionally, we anticipate the next version of the applicable Action Plans to include mention of the Forest Service shared stewardship agreements established over the past 2 years with a number of western states. Further, the NRCS is a partner in the NFWF grant program, providing funding for technical assistance in the states. The NRCS also administers landowner programs that focus on land conservation, restoration, and enhancement. The activities supported by these programs are pertinent to the implementation of the Order.

Even though there is some engagement with tribes through research/mapping and project funding on tribal land, more can be done. A necessary step forward will be to develop an understanding of where tribal lands intersect with state priority migration corridors and/or winter range areas. An additional step might be to explore research/mapping needs as they relate to big game migration corridors and/or winter range areas. The USGS Wyoming Cooperative Fish and Wildlife Research Unit has been working with the respective tribes in the Wind River Reservation of Wyoming on a big game movement research project, so perhaps their approach is an example to follow with other tribes. The Western Association of Fish and Wildlife Agencies' newly formed Wildlife Movement and Migration Working Group has tribal representation to increase collaboration on tribal lands. The Department will have opportunities for further collaboration with tribes since the USGS, FWS, and BLM are participating in this working group.

Transportation

The interaction between big game and highways will remain an important topic. Several highway overpass/underpass fencing projects have been funded, as have several research projects, through the implementation of the Order. It is likely that similar projects will be considered for funding in the future. Based on the success of the inaugural workshop, an Ungulates and Highways Workshop II may further advance projects and partnership opportunities since this topic continues to garner attention.



Summary

The Order was signed in February 2018 and implementation commenced in May 2018. Over this period, we developed and implemented a process to help meet the intent of the Order. Some of the actions taken included providing funding to support state fish and wildlife agencies' priority research projects for elk, mule deer, or pronghorn. Additionally, the NFWF established a grant program for corridor and winter range habitat projects and the PFW program created an internal grant process for private land projects. Despite our progress, it is important to recognize that it takes time to implement science-driven habitat conservation across 11 states. The Order certainly has created much attention and excitement. However, we recognize that failing to exercise patience, along with not following a thoughtful and considered approach, will create insurmountable setbacks as we proceed.

Building cooperative and collaborative partnerships is paramount to achieving the measure of success for the Order. The most important partnerships are with the states, so we approached implementation being mindful and respectful of the state authority to manage big game species. The states provided the priorities, not the Federal Government. The Federal Government provided the framework for implementation, selected a coordinator to oversee implementation and liaisons to engage agency and nongovernment organizations at the state level, and contributed vital fiscal and technical resources. The states provided substantial staff time and resources to compile the necessary information for the Action Plans, created a process for selecting their priorities, developed research proposals and conducted projects, and worked closely with partners on habitat proposals and projects. Working together, we now have 11 individual Action Plans that help guide and focus conservation activities on some of the most important areas for big game within each state. Even though the focus is on 1–5 priority corridors and/or winter range areas, we are not suggesting that other areas within



a particular state are more or less important than those listed in the Action Plans. Instead, we are consciously recognizing that cumulative conservation occurs most effectively when resources and attention are focused on a limited number of priority areas.

We anticipate following our established approach to implementation as we proceed into Year 3 and beyond, although we acknowledge that the ability to improve and adapt are key to continued success. Mindful of our desire to improve, we need to develop a stronger communications and outreach effort. Private landowners are critical to big game habitat management in the West. In fact, many winter range areas are located on private land. Notwithstanding the positive attention on wildlife movement and migration corridors, winter range habitat is equally essential for sustainable big game populations. Therefore, it will be important to have more proactive and focused outreach and communications with landowners to understand their acceptance of, or concerns about, the Order and its implementation. It is also important to have similar outreach and communications with tribal nations. Native American tribal land is found throughout the West, with vast holdings in some states such as Arizona and New Mexico. Regardless of how we proceed with increased communications and outreach efforts, it will remain critically important that we consult with the respective state fish and wildlife agency as we move forward.

The Department has provided leadership and funding for an issue that is important to a broad constituency. In response, the state fish and wildlife agencies have welcomed the attention and funding to address much-needed research and habitat conservation projects in their states. As we look ahead, it is important to acknowledge that an effort of this scale requires a broad array of committed partners and diverse funding sources for its long-term success. Further, it needs a willingness among all interested parties to work collectively toward agreeable outcomes.



C. Stemler



Appendix A: Secretarial Order 3362



THE SECRETARY OF THE INTERIOR
WASHINGTON

ORDER NO. 3362

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

Sec. 1 Purpose. This Order directs appropriate bureaus within the Department of the Interior (Department) to work in close partnership with the states of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming to enhance and improve the quality of big-game winter range and migration corridor habitat on Federal lands under the management jurisdiction of this Department in a way that recognizes state authority to conserve and manage big-game species and respects private property rights. Through scientific endeavors and land management actions, wildlife such as Rocky Mountain Elk (elk), Mule Deer (deer), Pronghorn Antelope (pronghorn), and a host of other species will benefit. Additionally, this Order seeks to expand opportunities for big-game hunting by improving priority habitats to assist states in their efforts to increase and maintain sustainable big game populations across western states.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Measurable outcomes; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

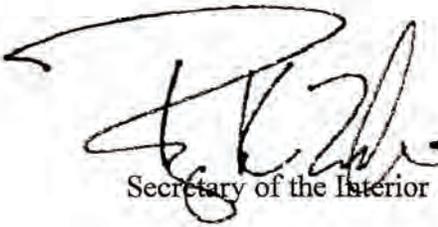
(3) Consult with State wildlife agencies and bureaus to ensure land use plans are consistent and complementary to one another along the entire wildlife corridor in common instances where winter range or migration corridors span jurisdictional boundaries.

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

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

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

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



Secretary of the Interior

Date: FEB 09 2018

Appendix B: Excerpts from Letters to State Fish and Wildlife Agencies

Year 1

In Year 1 we wanted to develop the foundation for implementation. The following excerpt is from the Year 1 letter sent on June 14, 2018:

"We now seek information directly from each individual state identified in the SO in order to begin addressing priorities as they relate to deer, elk and pronghorn migration corridors, winter range, and data needs. With that in mind, please provide the following information:

Top 3–5 priority migration corridors (linkages between seasonal habitats) and/or winter range areas. For each priority please include the following:

- *Why the area was selected as one of your priorities*
- *Spatial location*
- *Habitat types*
- *Important Stopover areas within the corridor*
- *Landownership*
- *Land Uses*
- *Risks/Threats (are they immediate or long-term; what actions are necessary to reduce or eliminate)*
- *Current efforts (what is the activity; who is conducting the work; partners involved).*
- *Cost of current needed habitat treatments; road crossings; etc.*
- *Other issues for awareness*

Top 2–3 research priorities for big game movement data, analysis, or mapping. Our goal is to work with you to help fill some of your most important gaps by leveraging the science capacity of the Department and developing partnership opportunities. In addition, the USGS Cooperative Research Units, in particular the Wyoming Unit, has extensive expertise on movement data analysis and corridor mapping and they are available at your request.

To be realistic and avoid unnecessary work, we are asking you submit only one actual proposal (no set format) for 1 of your 3 research priorities. Additionally, please limit your funding request to no more than \$300,000. For the other priorities, please submit the following:

- *Specific need (i.e. data collection, analysis, mapping)*
- *Details of the "need"*
- *How responding to the "need" will facilitate immediate progress*
- *Technical assistance (whether technical assistance is the "need")"*

Year 2

In Year 2, we sought the continued refinement of the information states submitted in Year 1. The following excerpt is from the Year 2 letter sent on April 26, 2019:

“We are requesting you revisit your top 1–5 priority corridors, stopover areas, or winter range areas identified in your State Action Plan. The overall goal is to scientifically link these areas to priority elk, mule deer, or pronghorn herds. If possible, it would help to narrow the scope and not submit hunt units or other large polygons as your priorities unless that is your best available information. If you choose to provide these large areas, please describe how this landscape will be evaluated to identify the most essential corridor within the area. Further, it would be helpful to understand why (i.e., lack of necessary data to identify the actual corridor, stopover, or winter range areas) you are submitting a large area and not a focused priority corridor or winter range. Please recognize that it is very difficult for grant proposal reviewers and partners who may be considering habitat conservation activities to understand where to target limited resources in the most important area(s) when all they have to assist them is a large landscape.

If you lack or need additional scientific data to identify or better define where your migration corridor or winter range areas exist across your state, we are providing you with another opportunity this year to request funding for your respective research priorities to fill these knowledge gaps. See below for more details.

With all of this in mind, please provide the following information for the State Action Plan revision:

Top 1–5 priority migration corridors (linkages between seasonal habitats), and/or winter range areas. *From our perspective, the objective is to create opportunities for habitat conservation activities in your highest priority corridors/movement linkages or winter range areas. If you do not have migration corridors/movement linkages or winter range areas identified, please consider sharing movement corridors that either cross or are impeded by highways. Alternatively, if work is underway to define your priority corridors or winter range areas, please feel free to omit this step.*

Please attempt to address the following in your submission:

- *Why the area was selected as one of your priorities*
- *Spatial location*
- *Habitat types*
- *Important Stopover areas within the corridor*
- *Landownership*
- *Land Uses*
- *Risks/Threats (are they immediate or long-term; what actions are necessary to reduce or eliminate)*
- *Actionable habitat projects (NEW for Version 2)*
- *Current conservation efforts (what is the activity; who is conducting the work; partners involved; and what are the remaining costs to complete work).*
- *Cost of current or needed projects (e.g., habitat treatments, road crossings).*
- *Other issues to be aware of associated with your priority areas*

Top research priorities for big game movement data, analysis, or mapping. Our ongoing approach is to work with you to help fill data gaps to identify priority migration/movement corridors or winter range areas by leveraging the science capacity of the Department of the Interior and developing partnership opportunities. In addition, in response to SO3362 the USGS Wyoming Cooperative Research Unit established a Corridor Mapping Team to help states with movement data analysis and corridor mapping and are available to assist at your request. In addition, they welcome other team members.

Please submit a research proposal (no set format) for your respective research priorities on mule deer, elk, or pronghorn. Like last year, please limit your funding request to no more than \$300,000. New this year, we are requesting you to consider your research need by asking the following questions in sequential order:

1. Do we need research to collect data for identifying a priority herd movement corridor, stopover, or winter range (i.e., new data and associated equipment and deployment costs)?
2. Do we need financial support to conduct data analysis or mapping?
3. Do we need research to discover movement corridors that either cross or are impeded by highways?"

Appendix C: Funded Research Projects in Year 1 and Year 2 of Implementation of SO3362

2018/2019 Funded Research Projects

(Funding provided by the U.S. Fish and Wildlife Service and Bureau of Land Management)

State	Project	Amount
Utah	Documenting Big Game Winter Range and Migration Corridors Use (Chalk Creek/Kamas Project)	\$99,360
	<ul style="list-style-type: none"> - The Utah Division of Wildlife Resources (UDWR) is concerned about the effects that roads, development, and vegetation change are having on mule deer in the area. Additionally, the limited winter range that is in this region is being reduced due to housing development and juniper encroachment. The UDWR will capture and collar 60 mule deer to better understand the location of migration corridors and winter range so they can work with landowners and other agencies to preserve migratory movements and to improve and protect winter ranges. 	
	Lake Mountains Migration Corridor – Mule Deer	\$66,000
	<ul style="list-style-type: none"> - The movement corridor is at risk due to rapid housing development that is occurring in the area. The UDWR will mark 40 mule deer with GPS collars to document deer movements in this area and accurately define the migration corridor. With data, it will be more likely that mitigation will be put in place to preserve the corridor. 	
	Documenting Big Game Winter Range and Migration Corridors Use (Zion Project)	\$132,480
	<ul style="list-style-type: none"> - This area is also experiencing rapid growth and development. St. George is the fastest growing metro area in the United States with a 4% annual growth rate. Additionally, the area is a popular vacation hot spot, as Zion National Park is one of the most visited parks in the country. As a result, traffic volumes are increasing substantially. The UDWR will capture and collar 80 mule deer to document use of seasonal ranges and migration corridors in an effort to conserve them before they are lost to development. 	
Wyoming	Carter Mountain Pronghorn	\$175,000
	<ul style="list-style-type: none"> - 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. The Wyoming Game and Fish Department (WGFD) will radio collar 40–50 pronghorn in the herd unit and monitor movements for 3 years to delineate migration corridors and barriers. 	
	Powder River Mule Deer and Pumpkin Buttes Mule Deer	\$125,000
	<ul style="list-style-type: none"> - The stretch of Interstate I-90 where these herds live is ranked as the highest priority in Wyoming Department of Transportation District 4 to address vehicle–deer collisions. The WGFD will collar 25–30 mule deer on seasonal ranges to monitor movements for a 3-year period to further identify movement corridors. 	

Montana	Delineation of Seasonal Ranges and Migratory Corridors of Madison Valley Pronghorn and Identification of Gaps in Statewide Knowledge of Pronghorn, Elk, and Mule Deer Seasonal Core Use Areas and Migration Corridors	\$300,000
	<ul style="list-style-type: none"> - The project will delineate seasonal ranges and migratory corridors to improve the management of the pronghorn, inform land use planning decisions, and ensure the long-term conservation of the population and its critical seasonal ranges and migratory corridors. Additionally, it will conduct data analyses of existing datasets on elk, deer, and pronghorn; coordinate with Montana Fish, Wildlife, and Parks staff around the state toward identification of future priorities; and implement fieldwork for existing priorities. 	
Nevada	Mapping Crucial Migration Corridors for Pronghorn	\$282,975
	<ul style="list-style-type: none"> - Nevada Department of Wildlife will capture and collar up to 60 pronghorn in two separate herds in northern Nevada that are known to have extensive migration movements. The information from the GPS collars will be used to delineate migration corridors and stopover locations and to quantify the amount of time spent in crucial winter habitats. Data will be analyzed using Brownian Bridge Movement Models (BBMMs). 	
New Mexico	Northcentral Deer, Elk, and Pronghorn Seasonal Movements	\$300,000
	<ul style="list-style-type: none"> - The New Mexico Department of Game and Fish (NMDGF) will identify the following: important seasonal movement pathways for deer, elk, and pronghorn in the north-central landscape, including the timing and magnitude of movements; if movements are weather dependent; and if distances moved, routes traveled, and stopover areas are consistent across years. <p>By identifying the specific movement corridors, overwintering areas, timing, and magnitude of migration, the Department can more effectively work with stakeholders to plan for and improve deer, elk, and pronghorn movement across the north-central landscape.</p>	
Arizona	SR 77 Overpass between Catalina Mountains and Tortolita Mountains – Mule Deer	\$56,000
	<ul style="list-style-type: none"> - The Arizona Game and Fish Department (AZGFD) will collar a total of 20 mule deer to gain important knowledge about planning effective highway crossing structures by evaluating if animals are using the whole corridor as intended and moving between mountain ranges. More importantly, the AZGFD can learn about how animals are using the land near the overpass to better inform decisions about how much land must be protected on both sides and to help secure parcels near this crossing structure that are still in jeopardy of being sold, which could close off this corridor. 	
	San Francisco Peaks Seasonal Mule Deer Movement	\$42,000
	<ul style="list-style-type: none"> - The AZGFD will collar a total of 15 mule deer to identify movement corridors in relation to transportation structures (highways) and exurban development in and around the Grand Canyon and Flagstaff. 	

Proposed Path of New Interstate 11 (I-11) – Mule Deer Movement **\$169,000**

- The AZGFD will collar a total of 60 mule deer to gather the data it lacks in preparation for the new Interstate 11, which will traverse much of the state from the northwest to southeast. This unique opportunity will allow for learning animal movements before the highway is built or improved to facilitate and plan for landscape permeability in places where wildlife has traditionally crossed the proposed I-11 route.

Idaho **Statewide Mapping of Elk and Mule Deer Winter Ranges, Movement Corridors and Stopover Locations.** **\$300,000**

- Idaho Fish and Game's (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 1,600 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 four neighboring states concerning elk and mule deer movement patterns, the task becomes even more complex with the need for coordination.

California **Identification of Important Road Crossing Locations and Mapping Crucial Migration Corridors for Mule Deer in California** **\$192,000**

- The California Department of Fish and Wildlife (CDFW) will collar up to 100 deer from five herds known to cross the U.S. Highway 395 corridor to delineate specific crossing locations and estimate the impacts of roadkill mortality on Highway 395 in Mono County, California. Data collected from this study will be used by CDFW and Caltrans engineers to target high-risk crossing locations for the construction of wildlife crossing structures (underpasses and overpasses) and fencing.

Identification of Important Road Crossing Locations and Mapping Crucial Migration Corridors for Roosevelt Elk in Northwest California **\$107,989**

- The CDFW will capture and collar up to 60 Roosevelt elk that are known to move across Highway 101 in northern California. The information from the GPS collars will be used to delineate site-specific crossing locations, migration corridors, and stopover locations and to quantify the amount of time spent in crucial winter habitats.

Washington **East Slope Cascades Mule Deer Movement Corridors** **\$300,000**

- The project will mark 100 mule deer with GPS collars to collect high-resolution, long-term movement data for mule deer in Chelan and Kittitas Counties in the East Slope Cascades Mule Deer Management Zone sufficient for identification of habitats and important landownerships within the highest use corridors and stopover locations important to migratory mule deer.

Colorado	North Park Mule Deer Herd Corridors	\$90,500
	<ul style="list-style-type: none"> - The project will mark a minimum of 40 doe mule deer with GPS collars to assess habitat use and timing/pattern of migration for the North Park herd for which there is Colorado-specific movement data for the herd. This information would improve understanding of seasonal habitat use and migration patterns and allow greater understanding of the changes that have occurred in mule deer wintering distribution, the proportion of mule deer migrating out of the herd unit to Wyoming and Middle Park, the specific corridors used by mule deer during these migrations, and the out-of-area winter ranges used by these deer. 	

	San Juan Basin (Southwest Colorado) Deer/Elk Corridors	\$181,000
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- The project will apply satellite transmitters to a minimum of 40 doe deer and 40 cow elk to assess habitat use and timing/pattern of migration. This information would improve understanding of seasonal habitat use and migration patterns and provide greater understanding of the changes that have occurred in wintering distributions of deer and elk, the proportion of these populations that migrate out of the herd unit to New Mexico, and the specific corridors used by deer and elk during these migrations. The winter range is primarily privately owned (51%), the Southern Ute Tribe owns 20%, and the remaining 28% of winter range is publicly managed.

Oregon	Evaluate Distribution and Movements of Pronghorn in Southeastern Oregon	\$290,000
	<ul style="list-style-type: none"> - Data are lacking for pronghorn movements across most of southeastern Oregon. Consequently, this project will include the capture and fitting of 100 pronghorn with GPS collars, in cooperation with the states of Idaho and Nevada, to identify specific seasonal pronghorn distribution and ranges in southeastern Oregon; identify location and timing of pronghorn migration corridors; and identify potential barriers to pronghorn migration and movement. 	

2019/2020 Funded Research Projects

(Funding provided by the U.S. Fish and Wildlife Service and Bureau of Land Management)

State	Project	Amount
Utah	Boulder Mountain Project	\$172,400
	<ul style="list-style-type: none"> - Currently, little is known about migration timing and the locations of migration corridors for mule deer in this area. Population movements appear to be rather complex, as deer that share the same summer range have the option to move to over 15 different winter ranges. The UDWR will mark 100 mule deer (60 does, 40 bucks) to monitor the movements in this population to describe migratory corridors and determine the relative importance of those winter ranges to the population. 	
	West Desert Project	\$50,000
	<ul style="list-style-type: none"> - Pronghorn are a major concern in this area because it is likely that I-80 is a barrier to their movements, but the information is currently lacking to demonstrate the need for wildlife crossings in this area. Tracking data are needed to detect barriers and plan mitigation projects that connect populations. The UDWR will mark 30 pronghorn to 	

collect movement data and after 2–3 years of data collection, the data will be analyzed to define migration corridors and movement barriers.

Currant Creek Project

\$77,600

- The UDWR has limited information on the movements of mule deer in the Currant Creek area, so migration corridors have not been mapped. The UDWR has a critical need for corridor maps because of the high number of deer–vehicle collisions in the area. Currently, the Utah Department of Transportation is installing wildlife fencing on U.S. 40 to reduce wildlife–vehicle collisions. The fencing bisects a large block of mule deer summer range, and it is being installed without knowledge of the locations of mule deer migration corridors. The funding for this project will be used to fit 45 mule deer (25 does, 20 bucks) with GPS tracking collars to gather the necessary data to map migration corridors for this herd.

Wyoming

Sublette Pronghorn

\$125,000

- Pronghorn within the Sublette herd unit represent one of the largest pronghorn populations in North America. Research funds will be used to collar 50 pronghorn within the southern half of the Sublette pronghorn herd where little to no GPS information exists on pronghorn movement. The Draft Sublette Pronghorn Migration Corridor will be revised and updated once this data collection effort is complete and additional BBMM analysis has been completed. Data analysis will be completed through the partnership with the Wyoming Migration Initiative and USGS.

Medicine Bow Pronghorn Herd-Shirley Basin

\$40,000

- Substantial seasonal pronghorn movements occur from summer range in northern Shirley Basin to crucial winter–year long range in Bates Hole. Bates Hole likely supports some of the highest wintering densities of pronghorn in North America. This project will collar 30–40 pronghorn within the Medicine Bow pronghorn herd. Movements will be evaluated for migratory, nomadic, and nonmigratory behavior, and the potential for a future corridor designation process will be determined once data have been analyzed.

Platte River Mule Deer

\$50,000

- The WGFD will collar 25 mule deer within the Platte Valley mule deer herd. The Platte Valley mule deer migration corridor will be revised and updated once this data collection effort is complete and additional analysis has been completed. This data may become important for assessing locations of highway crossing structures.

North Bighorn Mule Deer

\$85,000

- There has never been a detailed study of mule deer in the northern Bighorn Mountains, and consequently, seasonal ranges and migration corridors have not been delineated using GPS technology. The WGFD will identify vital and seasonal habitats through GPS collaring of 80 female mule deer to target habitat enhancement and barrier removal projects on the ground. This effort may include aggressive invasive plant treatment, aspen enhancement, conifer removal, riparian enhancement, highway crossing structures, or fence conversions.

Montana Ungulate Movements and Spatial Ecology in Montana \$300,000

- The main objective of the Devil’s Kitchen elk project is to mark 50 cow elk with GPS collars to provide the needed data to delineate current seasonal ranges and movement corridors to better inform conservation and management of elk in this area.
- The main objective of the Carbon County mule deer project is to mark 30 doe and 10 buck mule deer to provide needed data to delineate current seasonal ranges and movement corridors, identify connections between this population and adjacent mule deer populations, and better inform conservation and management of mule deer in this area.

Nevada Augmentation of Existing GPS Radio Collars in Priority Herds \$150,000

- Up to 80 GPS radio collars will be purchased to augment the existing research that the NDOW has identified for mule deer and pronghorn using the BBMM approach. These data from the collars will be used to monitor use of habitat treatments, and use of newly constructed wildlife safety crossing structures and for future refinements to priority corridor delineations.

Mule Deer Use of Highway Crossing Structures \$50,000

- Data will be collected to assess the use by mule deer and other wildlife of installed highway crossings.

Competitive Interaction Between Wildlife and Feral Horses \$50,000

- Funding will be used to purchase and process high-resolution satellite imagery that will be used to quantify daily Normalized Difference Vegetation Index (NDVI) and surface water using a modeling approach to predict conflict areas between mule deer, pronghorn, and feral equids.

New Mexico Game Management Units 5B and 51B in the North-Central Landscape \$177,000

- Although it is known that deer and elk in Game Management Units 5B and 51B make seasonal movements in response to snowpack and seasonal conditions, the direction and magnitude of movement is largely unknown. Because the direction, magnitude, timing, and stopover areas of this population’s migration are unknown, the NMGFD will mark 30 elk and 30 mule deer with GPS collars to delineate migration corridors.

Northern Sangre de Cristo (Deer, Elk) \$123,000

- There is evidence that portions of these herds migrate south from Colorado into New Mexico in the northernmost part of the landscape. However, the direction, magnitude, and timing of migration are largely unknown. The NMDGF will collar 30 elk and 30 mule deer with GPS to help delineate migration corridors and winter range areas.

Arizona South I-40 Mule Deer and Elk Movements \$176,000

- Some 30 mule deer and 30 elk will be marked with GPS collars to gather data necessary to delineate migration routes and winter range. This information will then inform habitat project implementation activities.

Interstate 11 Traffic Corridor and Linkage Validation**\$123,000**

- There is a need to provide research data to understand the potential I-11 impacts on wildlife, particularly impacts on migration corridors. The AZGFD will mark 40 mule deer with GPS collars to develop a complete picture (coupled with past data collected) of mule deer movements along a gradient of habitats prior to I-11 construction and to validate existing connectivity assessments.

Idaho**McArthur Lake Landscape Elk Connectivity and Mountain Valley Pronghorn Winter Range and Movement Studies****\$299,980**

- The project will capture and fit a sample of 40 elk with GPS radio collars; deploy a grid of 119 trail cameras across seasonal ranges and along U.S. Highway 95 (US95) and railroads rights-of-way to assess behavior at those structures; monitor radio-collared elk movements and seasonal ranges over 2 years, including US95 highway and railroad crossings, with radiotelemetry and trail cameras; and incorporate project data into IDFG's ongoing SO3362 project to delineate and map elk seasonal ranges, movement routes, and stopover areas.
- Capture and fit a sample of 60 pronghorn with GPS radio collars to delineate and map pronghorn seasonal ranges, movement routes, and stopover areas within the study areas.

California**Collection, Compilation, and Analysis of New and Historical Movement Data****\$300,000**

- Funding will provide the staff necessary to implement the following research priorities: data collection and compilation (inventorying existing spatial data and developing a statewide database to allow staff to enter and query capture and telemetry data); analysis (using a model to identify migration routes across the landscape and mapping migration routes of ungulates across California); and delineating critical ranges, including fawning/calving/kidding areas, winter and summer concentration areas, stopover locations, and linkages between these areas.

Washington**East Columbia Gorge Mule Deer Management Zone****\$300,000**

- This project will capture and put GPS collars on 100 adult mule deer does to gather high-resolution, long-term movement data for mule deer in Klickitat County in the East Columbia Gorge Mule Deer Management Zone sufficient for identification of habitats and important landownerships within the highest use corridors and stopover locations important to migratory mule deer. These baseline data will delineate mule deer migratory corridors prior to any future events that may adversely affect habitat quality or connectivity.

Colorado **South Park Elk Herds** **\$113,400**

- This research project will monitor elk movements in South Park by deploying 40 GPS radio collars on elk. A telemetry project in South Park was conducted in the 1990s to better understand elk movements, and it identified several winter migration corridors. Initiating this new telemetry project offers an opportunity to compare current location and movement data to previous data. In addition, the new data will provide the opportunity to interpret the impacts of land use change over the past 20 years on elk migration and habitat quality.

Colorado Front Range Mule Deer **\$135,600**

- The Front Range is experiencing rapid land use changes from human developments and demands for data to inform management actions is growing. Colorado Parks and Wildlife’s understanding of mule deer movements along the Front Range is limited. Specific corridors and priority habitats used by mule deer still need to be identified. The project will deploy 40 GPS collars and monitor deer movement over 3 years to identify specific migration corridors, stopovers, summer and winter ranges, highway crossing locations, and other critical habitats. This data will also be useful for siting wildlife crossing structures in cooperation with the Colorado Department of Transportation.

Oregon **Understanding Movements of Roosevelt Elk** **\$250,000**

Southeast Oregon Pronghorn Study **\$50,000**

- Data describing seasonal habitat use and movements of Roosevelt elk in western and southwestern Oregon are incomplete or completely lacking. Eighty cow elk will be fitted with GPS collars to provide necessary data to fill significant data gaps. The pronghorn funding is going to augment the research project funded and initiated last year.

