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***Western Regional Wildlife Decision Support System:
Definitions and Guidance for State Systems***

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Western Regional Wildlife Decision Support System: Definitions and Guidance for State Systems

Background and Introduction

One of the primary tasks of the Western Governors’ Wildlife Council is to establish a useful and consistent source of mapped biological information that decision makers and the public can use to identify and better understand crucial wildlife habitat and corridors. The Western Governors’ Association’s 2008 report, *Wildlife Corridors Initiative*, recommended each state create a Decision Support System (DSS) to assist in this effort. State DSSs would be used to compile information; assure data quality; and make the data, models and analyses available at scales useful to anyone analyzing proposed energy, land use, and transportation projects or examining climate adaptation strategies¹.

This paper focuses on DSSs that would be developed and used by individual states, while promoting the prospects for and benefits of integrating systems and their component information across jurisdictions. This paper includes definitions of crucial habitat for wildlife and presents guidelines that states can use to develop regionally compatible DSSs. Crucial habitat definitions have been refined further from that included in the *Wildlife Corridors Initiative Report* to help states prioritize habitat and corridors within their boundaries in order to meet a state’s conservation objectives. These refined definitions are a necessary first step to achieve the compatibility and consistency of categorizations for species across state boundaries.

With established definitions, states can begin the process of assembling important data, analyzing and prioritizing that data by category based on habitat conservation needs, and turning that data into a useful tool. These steps are outlined in this paper, and the Council is expected to enhance the recommendations for each step.

This paper was developed in part by state wildlife agency representatives designated by each Council member to serve on the Science and/or DSS Subgroups. The Science Subgroup had several conference calls from July through September of 2009 to further refine the definitions of “crucial habitat” and “wildlife corridors” from those initially developed in the *Wildlife Corridors Initiative Report*. The Science Subgroup also developed guidelines for compiling and analyzing compatible information for a DSS. Significant work completed by Montana’s Fish, Wildlife and Parks’ staff as part of their “Crucial Areas and Connectivity Assessment” was utilized as a starting point for the Science Subgroup’s discussions. The DSS Subgroup held weekly

¹ The Wildlife Council home page and the *Wildlife Corridors Initiative Report* can be located at: <http://www.westgov.org/wga/initiatives/corridors/index.htm>.

conference calls in June 2009 to create a valuable compilation of information from the *Wildlife Corridors Initiative Report* and to expand that information to include recommendations for DSS components. The Science Subgroup considered and incorporated their work, much of which was influenced by the efforts of state wildlife agencies and WGA to map sensitive wildlife habitats as part of the ongoing Western Renewable Energy Zones initiative².

Going forward, it is anticipated that a public meeting of the Wildlife Council on October 4-6, 2009, in Helena, Montana will generate feedback that will be considered by the Council. Next steps to further refine and and/or expand this document will also be determined in Helena. One important element that will further inform this document is the implementation of wildlife study pilot projects that may be funded by the U.S. Department of Energy in early 2010. As part of its response to a DOE funding opportunity, the Western Governors' Association recommended at least eight pilot studies recommended by the Council and covering 18 states be funded to analyze and develop plans for the Western regional transmission system. These pilot proposals will be reviewed and discussed at the Council's October meeting.

Crucial Habitat³ and Important Wildlife Corridors Definitions

The *Wildlife Corridors Initiative Report* contains definitions for crucial habitat that were a starting point for consideration by the Science Subgroup. The Science Subgroup made minor clarifications to the original definitions. The definitions are:

Crucial habitats are places containing the resources, including food, water, cover, shelter and “important wildlife corridors,” that contribute to survival and reproduction of aquatic and terrestrial wildlife and are necessary to prevent unacceptable declines, or facilitate future recovery of wildlife populations, or are important ecological systems with high biological diversity value.

Important Wildlife Corridors are a subset of crucial habitats that provide connectivity over different time scales (including seasonal or longer) among areas used by animal and plant species. Wildlife corridors can exist within unfragmented landscapes or join naturally or artificially fragmented habitats, and serve to maintain or increase essential genetic and demographic connection of aquatic and terrestrial populations.

² <http://www.westgov.org/wga/initiatives/wrez/index.htm>.

³ Crucial habitat as used by the Western Governors' Wildlife Council should not be confused with a legally defined critical habitat designation. Critical habitat is determined by the U.S. Fish and Wildlife Service or the NOAA Fisheries Service to be habitat necessary for species listed under the provisions of the Endangered Species Act.

More refined, actionable definitions for subsets of crucial habitat, including important wildlife corridors, are presented on page 6 of this document.

Categories of Crucial Habitat Conservation, Including Important Wildlife Corridors

The conservation of crucial habitat, including important wildlife corridors, is recognized by the Western Governors as an important goal for state, local and federal governments that can benefit from the adoption of compatible and consistent conservation categories across state and other jurisdictional boundaries. The Western Governors' Wildlife Council will encourage each state adopt the following categories of crucial habitat conservation. These categories would then be populated as determined by each state. Other habitat categories, besides crucial habitat, may be defined by states as resources are available.

Category 1: Aquatic or terrestrial habitats, including wildlife corridors, that are rare or fragile and are essential to achieving and/or maintaining wildlife species viability or diversity. The habitat contains a unique combination of location or composition or complexity of the habitat or corridor which cannot be duplicated, and is therefore considered irreplaceable and not a candidate for mitigation.

Category 2: Habitat, including wildlife corridors, which is limiting to a fish or wildlife community, population, or metapopulation. Loss of any of this habitat or corridor could result in a significant local or population-level decline in species distribution, abundance, or productivity. The habitat or corridor is essential to achieving and maintaining fish and wildlife target population or management objectives. Restoration or replacement is difficult, or may be possible only in the very long term.

Category 3: Habitat, including wildlife corridors, that contributes significantly to the maintenance of fish or wildlife communities, populations, or metapopulations. Loss of a significant portion of the habitat or corridor could result in local or population-level declines in species distribution, abundance, or productivity. Impacts can be minimized or reduced, and habitat or corridors restored or replaced by utilizing appropriate best management practices.

Other Habitat Categories

The following categories represent common habitat or otherwise insufficiently understood habitat that can be mapped to provide a full landscape perspective, but are not anticipated to be indicative of crucial habitat. The Western Governors' Wildlife Council recognizes that some states may, as resources allow, choose to analyze and map these other categories in a compatible manner with other states.

Common Habitat: Habitat which is relatively common, generally less limiting to fish and wildlife communities, populations, or metapopulations, and generally better suited for land use conversion. Large-scale or cumulative impacts to species or habitat could result in declines in species distribution or abundance, however, the loss may be difficult to measure. Impacts from individual projects or land use actions can be minimized, and habitat restored or replaced, so that effective habitat function or species distribution or abundance is maintained.

Habitat Significance Unknown: Lands likely to have significant wildlife values, but for which there is insufficient data or a lack of information about the importance of the habitat in meeting conservation objectives.

Guidance for Compiling Compatible Information for Analysis and Display

The Western Governors' Wildlife Council recommends that states utilize the steps below as they begin to identify or reclassify crucial habitat and wildlife corridors, map those areas, and develop a system for displaying the information. These steps were established recognizing that the Council may not yet have enough information to recommend the full execution of each step. Details for Step One, compiling raw information, have been substantially developed at this point. The Council has listed relevant information for states to include in their DSSs, highlighting the minimum data that should be analyzed to identify or reclassify crucial habitat, including wildlife corridors, in each state. Recommendations for a regional approach to Steps Two and Three have not yet been fully discussed. The Council has identified significant challenges associated with both the analytical and information delivery steps, and will consider how to devote additional resources to addressing these challenges. It is anticipated that further development of these steps will in large part be assisted by efforts of the multi-jurisdictional wildlife pilots proposed by WGA for funding by DOE.

Step One: Identify types and layers of information valuable in crucial habitat, including important wildlife corridors (aquatic and terrestrial)

The list below describes information that each state should consider including in their DSS. This inventory will help develop the necessary technical components of a regionally comparable and compatible system, and will form the target information necessary for states to perform analyses in Step Two. This list represents examples of possible data sources that could be used to help delineate crucial habitats and corridors, but is not meant to be comprehensive.

The list includes both species and habitat data, understanding that in some instances known species occurrence data is used as a surrogate for identifying habitat. When mapping crucial habitat, states should address, at a minimum, the needs of important economic or recreational species, and of those species identified as “Species of Greatest Conservation Need” in State Wildlife Action Plans or other comparable assessments. Additionally, states may want to identify habitat and corridors representing intact ecological systems and large tracts of unfragmented lands.

1. Habitat for “Species of Concern”

- Species of Greatest Conservation Need (within State Wildlife Action Plans or similar assessments)
- Locations of Federally or State Listed Species (Threatened or Endangered)
 - Including Candidate Species
- Species protected under a signed Conservation Agreement
- Other species of special concern lists (county/state/federal)
- Key or Priority Habitat boundary delineations from CWCS/SWAP
- Plant and Animal species with special protective-rankings (e.g., NatureServe's Natural Heritage global ranks)
- Important restoration habitats needed to restore function or resiliency for target populations of fish and wildlife [further Council discussion may be necessary]

2. Areas of Significance for Species of Economic and Recreational Importance: This category provides for species consideration if not otherwise included as Species of Greatest Conservation Need.

- Sport Fish Quality Habitat: areas recognized as important to meeting biological requirements of fish species regulated by harvest
- Game Animal Quality Habitat: areas recognized as important to meeting biological requirements of game species regulated by harvest, such as winter concentration areas or important breeding areas

3. Connectivity or Linkage Assessment: Areas described explicitly for aquatic or terrestrial wildlife habitat connectivity.

- Major animal movement corridors or pathways (documented)
- Landscape connectivity zones

4. Native and Unfragmented Habitat: Areas that are contiguous, possess a high degree of intact core areas or diversity of natural habitat, or supply ecological function to meet wildlife objectives. These areas are unfragmented, or relatively unfragmented, by transportation routes, human habitation, industrial infrastructure, or other human-caused disturbances.

- Natural Vegetation Classification habitat maps
- Ecological systems of concern
- Plant communities of concern (Heritage Rankings)

5. Terrestrial or aquatic native species richness: Areas where species composition represents a native, intact community and where habitats are associated with a relatively high and distinctively described species assemblage.
 - Aquatic species distribution maps
 - Ecoregional Assessments – Biodiversity Areas
 - Audubon Important Bird Areas
 - Gap-ReGap species composite maps
 - Christmas bird count and breeding bird survey data
6. Riparian and Wetland Habitat: Areas that represent unique environments and function to support animal and plant diversity with respect to wildlife objectives and connectivity.
 - Spring/Seep/Cienega Locations
 - National Wetlands Inventory
 - National Hydrologic Database
 - Wetland components from State Comprehensive Outdoor Recreation Plans
7. Valued Lands: Lands that are protected or designated for their wildlife or aquatic values.
 - Protected Areas Database (PAD)
 - Priority Areas Identified from Ecoregional Analyses
 - Dedicated conservation lands locations
 - Outdoor Recreation Priority/Favored Areas

Step Two: Once input data is determined, states will consider analysis of information (methodology, modeling, and prioritization) to rank areas as crucial habitat and wildlife corridors.

The Western Governors’ Wildlife Council will address identifying and applying possible commonalities to the state analysis or ranking processes. Among other items, individual states will have to consider the following challenges as they develop the analytical (and spatial) maps for crucial habitat, including wildlife corridors:

- Prioritization or ranking models that can be utilized to assist the analysis;
- Appropriate scale of mapping;
- Data compatibility with neighboring jurisdictions;
- Use of best available science in GIS format;
- Development of consistent protocols (e.g., standards for defining and collecting data for shared use); and,
- Identification of state-specific targets for spatially explicit analytical outcomes.

States may develop management recommendations to accompany their analysis as a parallel effort or separately once the analysis and mapping step is completed.

Step Three: States develop the Decision Support System as a tool to help deliver the information to appropriate users.

There will be many technical considerations involved in developing a tool that is user-friendly and transparent. Emphasis should be placed on an information delivery system that promotes ready access and stimulates early consideration in planning by users, with or without the need for direct agency staff contact. States will need to address the following challenges when working to develop a platform that can be compatible across the region:

- Systems must be capable of “talking to each other” across jurisdictions.
- Data quality must be assured.
- Data, models and analyses must be built at useful scales to provide relevance to land use projects.
- Transparency and public input must be accommodated.
- Evaluation is needed on an ongoing basis to ensure efficacy of DSSs to meet conservation objectives.

Next Steps and Conclusion

The Wildlife Council understands that additional resources and effort are necessary to achieve its goal of developing compatible state-based wildlife Decision Support Systems across the Western states. Among other things going forward, the Council will examine the structure of the subgroups, especially as to the best way to include the science and technical expertise of state wildlife agency staff. How to integrate outside science and technical expertise, as well as customer perspectives, into work of the subgroups should also be considered.

Finally, the resources WGA is requesting from the DOE for state wildlife agencies to conduct wildlife pilot studies will be invaluable in testing, on-the-ground, the regional framework that is beginning to be developed in this paper. It will be imperative for the Council to ensure that lessons learned from these pilots are well understood, integrated into efforts to develop a regional framework, and shared across the region.