

## Example uses and policy references of WHCWG products

Last updated April 2013

### Statewide Analysis Products

**Bureau of Land Management.** WDFW provided least-cost corridors and HCAs layers for BLM Washington land management plan revision planning on approximately 500,000 acres. (*Brian Cosentino, 2012Mar*)

**U.S. Fish and Wildlife Service.** The Washington Statewide Analysis is being used in several programs to inform decisions. Programs include Habitat Conservation Plan development, federal project conservation planning assistance, Section 6 Coordination with states, including land acquisition to promote conservation objectives, Recovery initiative grant reviews, and in our participation in sage-steppe conservation partnerships such as the Arid Lands Initiative. Applications occur throughout Washington State. (*Jessica Gonzales 2012Apr; Karl Halupka, 2012Mar*).

**U.S. Forest Service.** Results and products from the statewide analyses are being used to address ecological connectivity in land management planning. The Okanogan-Wenatchee National Forest and the Colville National Forest are in the process of revising their land management plans on approximately 5 million acres, and are addressing ecological connectivity as one of several significant issues. Information from the statewide analysis on Habitat Concentration Areas and key linkage areas has been very useful. In addition, the final report provides a tremendous resource that summarizes information about connectivity planning and is being referenced in the environmental analyses that will accompany the revised land management plans. (*Bill Gaines, 2012Mar*)

**Washington Department of Fish and Wildlife.** Statewide Analysis. Model validation analysis for Greater Sage-Grouse. Genetic analysis of Greater Sage-Grouse in the Moses Coulee population indicates that this population is genetically distinct from the population on the Yakima Training Center as there is little genetic exchange between the two populations. This finding emphasizes the importance of augmentation efforts for the YTC population. (*Michael A. Schroeder, 2012Mar*)

**Washington Department of Fish and Wildlife. Statewide Analysis.** Connectivity modeling products for Greater Sage-Grouse. The connectivity analysis was used to argue against placement of a new powerline on the north side of the YTC rather than the south side (the north side would add additional resistance to the connection between the Moses Coulee and YTC populations. (*Michael A. Schroeder, 2012Mar*)

**Washington Department of Fish and Wildlife.** WDFW will use WHCWG state and Columbia Plateau product information in the near future to inform decision making for land conservation and prioritizing restoration projects on WDFW lands. (*Lauri Vigue, 2012Mar*)

**Washington Department of Transportation.** Habitat networks from the statewide analysis are being used to inform transportation corridor plans and mitigation strategies for highway improvement projects. To aid decisions on where to invest in highway improvements to benefit wildlife and improve safety (including the Environmental Retrofit or “I4” program), the statewide and Columbia Plateau habitat networks will be used, along with other information, to rank segments of the state highway network as high, medium or low priority for investing in habitat connectivity infrastructure. (*Kelly McAllister, 2012May*)

**Washington Department of Ecology.** The April 2012 Washington State Integrated Climate Change Response Strategy was prepared by the Washington Department of Ecology (Ecology) in collaboration with the state departments of Agriculture, Commerce, Fish and Wildlife, Health, Natural Resources, and Transportation. Chapter 5 of the report focuses on adaptation strategies for Ecosystems, Habitats, and Species. One of the strategies within this chapter, Strategy B-1, is to “Conserve habitat necessary to support healthy fish, wildlife, and plant populations and ecosystem functions in a changing climate, and protect connectivity areas between critical habitats to allow the movement of species in response to climate change.” Actions to accomplish this strategy include “Identify opportunities and priorities for habitat connectivity, such as buffers, wildlife corridors, and a connected network of conservation areas in Washington. This action builds on the work of the Washington Wildlife Habitat Connectivity Working Group and the Western Governors’ Wildlife Corridors Initiative.”

**Western Transportation Institute.** Provided Statewide “Plus” GIS base layers to the North Cascades carnivore landscape genetic analysis project. (*Brian Cosentino, 2012Mar*)

**Western Electric Coordinating Council.** Provided statewide and Columbia Plateau connectivity layers for focal species habitat concentration areas and linkages, landscape integrity core areas and linkages, and climate gradient core areas and linkages for transmission planning. (*Joanne Schuett-Hames, 2012May*)

## Climate Connectivity Products

**Environment Canada.** Statewide Climate Gradient Corridors analysis use: to be included as part of a project looking at climate impacts on ecosystems, species, and parks in the Okanagan Valley, British Columbia (and possibly also the Thompson River drainage). (*Meade Krosby, 2012Mar*)

**Environmental Protection Agency.** Statewide Climate Gradient Corridors analysis use: (1) as an additional data layer to identify “green infrastructure,” i.e., areas of high ecological importance that need to be avoided as part of the PSRC Transportation 2040 Prioritization Tool for the environmental criteria, and (2) pointing to the analysis when reviewing and commenting on Federal projects pursuant to NEPA/CAA S. 309 for EPA, particularly transportation projects that may negatively affect these habitat corridors critical to species movement under current and potential future climate change scenarios. (*Meade Krosby, 2012Mar*)

**Washington Department of Ecology.** The April 2012 Washington Integrated Climate Change Response Strategy highlight’s the work of our Climate Subgroup for taking a look at connectivity through a climate lens.

**Hells Canyon Preservation Council.** Statewide Climate Gradient Corridors analysis use: to inform their work regarding a) a large windfarm proposal in an area that acts as a wildlife corridor between the Wallowas and Blue Mountains, and b) the integration of wildlife connectivity into the Blue Mountains Forest Plan Revisions. (*Meade Krosby, 2012Mar*)

**Sierra Club.** Statewide Climate Gradient Corridors analysis use: included as part of their “Climate-Informed Conservation Blueprints for Washington” analysis (completed by EcoAdapt), aimed at highlighting and prioritizing areas and actions likely to increase the success of their regional conservation efforts. (*Meade Krosby, 2012Mar*)

**See also under Statewide Analysis:** Western Electric Coordinating Council.

### **Columbia Plateau Analysis Products**

**Arid Lands Initiative.** Multiple ALI partners used connectivity maps and other data layers to select three potential priority geographic areas to implement ALI conservation strategies, and to guide discussions that led to the selection of one priority area, considered a Proof of Concept area. The ALI’s goal for this Proof of Concept is to “*Demonstrate that working together collaboratively, the public and private partners of the Arid Lands Initiative can measurably increase conservation outcomes, reduce regulatory uncertainty to the land manager, and maintain or improve economic viability.*” (*Sonia Hall, 2012Mar*)

Four ALI partners – TNC, WDFW, BLM and WDNR – submitted a preproposal to the Wildlife Conservation Society’s Climate Adaptation Fund to request funding for restoration that would enhance connectivity for wildlife in the face of climate change. The WHCWG’s Columbia Plateau and statewide climate corridors analyses were used to support the selection of the restoration sites. Should they be invited to submit a full proposal, the support for the selection of these sites will be refined based on the Columbia Plateau climate-corridors report. (*Sonia Hall, 2013Apr*)

**Andrew Gregory and Paul Beier, Northern Arizona University. Evaluating current connectivity for wildlife in Douglas County.** These researchers have identified nearly 100 landscapes globally that contain de facto conservation corridors (landscape configurations that resemble conservation corridors in size and context, but which exist as a quirk of the way the landscape was developed) and plan to test conservation corridor efficacy. One of these study landscapes is the Moses Coulee–Mansfield Plateau area. They are using the connectivity products to inform the species they select to focus on in this landscape. As this is within the ALI’s Proof of Concept area, this study will provide useful baseline information on the effectiveness of arid lands linkages in Douglas County. This is a key portion of proving the ALI concept: after multiple years of ALI conservation action, monitoring of relatedness between populations can be compared to this baseline evaluation to determine impact of those actions on connectivity. (*Sonia Hall, 2012Mar*)

**Washington Department of Fish and Wildlife.** Columbia Plateau analysis and HCA Map layer: (1) Washington ground squirrel population health is likely ultimately tied to habitat connectivity. In 2012 WDFW is initiating Washington ground squirrel occupancy modeling and population trends and the foundation for much of the sampling is the HCA map layer. (2) WDFW is working with USFWS to develop methods to reintroduce Washington ground squirrels. Within the next few years, the HCA map layer will be used in conjunction with historic

presence data to determine strategic reintroduction sites which we hope will serve as stepping stones to link populations that lack genetic exchange. (*Rich Finger, Jim Watson, 2012Mar*)

**Washington Department of Fish and Wildlife.** Columbia Plateau Analysis - including HCA and Linkage Map layers. There have been no formal surveys for either of the two jackrabbit species in WA. So partially as a result of the findings of the Statewide and Columbia Plateau Analyses, WDFW in 2012 is initiating a Presence/Absence Survey for both the white-tailed and black-tailed jackrabbits in areas based on the modeling results from these two Connectivity studies. Searches will be made in the HCA and linkage areas identified in the analyses. (*Howard Ferguson, 2012Mar*)

**Washington Department of Fish and Wildlife.** Columbia Plateau Analysis. Connectivity products for Greater Sage-Grouse. Each spring district biologists conduct intensive surveys to search for “new” leks. The modeled resistance surface is being used to guide these efforts. We are also using this product to consider potential translocation sites. The connectivity models are also being used to support the establishment of “core areas” needed to influence management decisions. (*Michael A Schroeder, 2012Mar*)

**Washington Department of Fish and Wildlife.** Columbia Plateau Analysis. Linkage network for Sharp-tailed Grouse. The linkage network for Sharp-tailed Grouse has one habitat concentration area that is “centrally” located with linkage pathways connecting to seven other habitat concentration areas. The Washington Sharp-tailed Grouse Working Group has targeted this habitat concentration area for future translocation. (*Michael A Schroeder, 2012Mar*)

**Washington Department of Fish and Wildlife.** Columbia Plateau Analysis. Sharp-tailed Grouse layers used in support of the WDFW recovery plan for this species. (*Derek Stinson, 2012May*)

**U.S. Fish and Wildlife Service.** The USFWS is developing national guidance as follows: “Technical Guidance for Selecting Species for Designing Functional Landscapes.” The Columbia Plateau connectivity analysis focal species selection process was selected as a case-study for this guidance and associated training endeavors. (*Karl Halupka, 2012July*)

**Sage-Grouse Conservation Objectives Team.** Connectivity products for Greater Sage-Grouse were considered when core and recovery areas were designated for Washington State. Sage-Grouse Conservation Objectives Draft Report, August 1, 2012, Available from [www.fws.gov/mountain-prairie/species/birds/sagegrouse/](http://www.fws.gov/mountain-prairie/species/birds/sagegrouse/) (*Michael A. Schroeder, 2012Oct*)

**Western Governors’ Association Crucial Habitat Assessment Tool.** The linkage network for Greater Sage-Grouse in Washington State has been included in the draft product (*Michael A. Schroeder, 2012Oct*)

**See also under Statewide Analysis:** Western Electric Coordinating Council; Washington Department of Transportation.

## Connectivity Analysis Tools

### Linkage Mapper

**Linkage Mapper** is now downloaded over 50 times per month and has an active user group. It is being used for conservation planning in the US, Mexico, Australia, Europe, Uganda, and other

parts of the world, and is now taught in at least two graduate-level conservation planning classes. (*Brad McRae, 2012Mar*). Example users include:

**The Nature Conservancy** is using Linkage Mapper in at least three large landscape planning efforts in the United States, including a longleaf pine conservation prioritization initiative spanning Florida, Alabama, and Mississippi (*Brad McRae, 2012Mar*).

**The Snow Leopard Conservancy** is using Linkage Mapper to identify corridors for Snow Leopard conservation across Mongolia (*Rodney Jackson, 2012Mar*).

**The Sempervirens Fund** is supporting an effort to apply Linkage Mapper for multiple species conservation planning in the Santa Cruz Mountains of California (*Tanya Diamond, 2011Dec*).

**Washington Department of Fish and Wildlife.** Applied the Linkage Mapper toolkit (version 0.6.3) and modeling procedures demonstrated by the WHCWG to a western gray squirrel (WGS) reintroduction project in Thurston County, Washington State. Funding support was provided by Wildlife Conservation Society Wildlife Action Opportunities Fund. Dispersal connectivity was modeled between three potential WGS release sites: Joint Base Lewis-McChord, West Rocky Prairie Wildlife Area, and the Scatter Creek Wildlife Area. WGS resistance values developed by the WHCWG Statewide “Plus” project were adapted for this effort. Model results indicated a high degree of connectivity between the release sites except for the linkage crossing the Interstate 5 freeway. (*Brian Cosentino, 2012Mar*)

**University of Washington** professor Joshua Lawler, with support from Brad McRae and Sonia Hall (The Nature Conservancy) offered a conservation planning course in the winter quarter of 2012. Students in this course tested Linkage Mapper’s barrier analysis tool, and an approach to include restoration cost in prioritization of agricultural fields to restore to enhance connectivity in Douglas and Grant counties, Washington. A manuscript based on this work is in preparation (*Sonia Hall, 2012Sept*)

## Model Validation Products

**Conservation Science Institute.** Provided map of draft black bear genetic output from program STRUCTURE for a presentation at the International Grizzly Bear Commission’s North Cascades subcommittee meeting. (*Robert Long, 2012Oct*)