

# Great Northern LCC Activities & Accomplishments 2014

Together, community members—landowners, businesses, organizations, and agencies—in the rural Salmon River Valley of central Idaho are conserving working lands and fish and wildlife habitat.

Photo: M McFadzen

## Vision

*A landscape that sustains its diverse natural systems to support healthy and connected populations of fish, wildlife, and plants; sustains traditional land uses and cultural history; and supports robust communities.*

## Five years ago, the Great Northern Landscape Conservation Cooperative

held its first Steering Committee meeting in Bozeman, MT. One of the key outcomes from the meeting was the need to develop a shared vision. Since this time, the GNLCC partnership has created that vision and has been working across jurisdictions to achieve it by using shared science and capacity, and identifying measurable outcomes for conservation targets.

The activities and accomplishments in this 2014 fiscal year report highlight the partnership's efforts in implementing new projects and supporting research and organizational capacity. Highlights include the approval of the five-year Science Plan, Partner Forum implementation, and projects and tools that are contributing to large landscape conservation in the Great Northern.

# LEADERSHIP AND COORDINATION

## ■ Steering Committee and Advisory Team Activities

The Great Northern Landscape Conservation Cooperative continues to initiate and expand partnerships across boundaries and jurisdictions. Two Steering Committee meetings were held in 2014. In May, Parks Canada and the Province of Alberta hosted the meeting in Waterton Lakes National Park, Alberta, and in October, the Heart of the Rockies Initiative hosted the meeting in Salmon, Idaho. Both meetings showcased local flavors of collaborative and farsighted conservation efforts. Non-governmental organizations, government agencies, recreational businesses, and landowners shared their experiences and ideas on community-based conservation at the landscape scale. The GNLCC is providing the framework and context for how these local efforts meet conservation needs and leverage effectiveness at broader scales.

Steering Committee meeting discussions and results included:

- Approval of funding to test the GNLCC business model of shared landscape outcomes for two pilot projects: Aquatic Integrity and Connectivity.
- Approval of funding for science and capacity projects.
- Approval of the five-year GNLCC Science Plan, which describes a process to link science priorities to landscape goals through adaptive management.
- Acceptance of the US Forest Service Region 6's proposal to add dryland forest, and white-headed and Lewis's woodpeckers as targets to the GNLCC Strategic Conservation Framework.
- Agreement on the need to incorporate social, cultural, and economic goals into the Science Plan.



Throughout 2014, the Advisory Team guided GNLCC decisions and initiatives. The Advisory Team led the development and implementation of the Shared Landscape Outcomes pilot projects (see page 5). These two projects are test cases for using shared capacity and science to link to real landscape-scale outcomes (e.g. management decisions, measurable objectives, applied conservation). The Advisory Team was also instrumental in the development and review of the Science Plan, in evaluating funding proposals, and in assessing national, regional, and local opportunities for the GNLCC.

*GNLCC Steering Committee meeting, Salmon, ID: Left: Community members share their conservation success stories; Right: Sonia Hall provides an update on the work of the Arid Lands Initiative. Photos: S Bischke*



Working to achieve the GNLCC collective landscape vision, the Steering Committee and Advisory Team implement guidance from four documents:

**STRATEGIC CONSERVATION FRAMEWORK** - Describes a collective landscape vision that is structured by an overarching landscape integrity goal, four sub-goals, 31 conservation targets, and three stressors; and maps the interrelationships among conservation targets to allow partners working at all scales (local, regional, and national) to understand how their science and conservation efforts tier to GNLCC priorities and contribute toward the goals.

**SCIENCE PLAN** - Explains how to apply the Strategic Conservation Framework through an adaptive management approach and describes how the partnership intends to synthesize ecological science and conservation practice across spatial and ecological scales—from fine filter, species-specific conservation targets through coarse quantifications of landscape integrity—to derive repeatable measures of conservation outcome effectiveness.

**COMMUNICATIONS AND OUTREACH STRATEGY** - Describes four goals that aim to enhance collaborative landscape conservation and the objectives, audiences, and tactics / tools to reach those goals.

**GOVERNANCE CHARTER** - Provides the organizational structure and function of the partnership including purpose, goals, guiding principles, membership, and operations.

# VISION

## Landscape Integrity

- Maintain large, intact landscapes
- Conserve landscape connectivity
- Maintain hydrologic regimes
- Promote landscape-scale disturbances

## Conservation Targets

### 4 Ecological Processes

- Terrestrial connectivity
- Natural fire regimes
- Aquatic connectivity
- Insects & forest pathogens

### 11 Ecosystems & Habitats

- Riparian corridors
- Alpine
- Riverine
- Subalpine
- Wetlands
- Woodland
- Alpine lakes
- Dry forests
- Uplands
- Sage shrub / grasslands
- Pothole lakes

### 16 Species

- Whitebark pine
- White-headed woodpecker
- Salmon
- Lewis's woodpecker
- Steelhead
- Pygmy rabbit
- Cutthroat trout
- Pronghorn antelope
- Bull trout
- Mule deer
- Trumpeter swan
- Grizzly bear
- Greater Sage-grouse
- Canada lynx
- Burrowing owl
- Wolverine

## STRESSORS

CLIMATE CHANGE, LAND USE CHANGE, INVASIVE SPECIES

## ■ Partner Forum Implementation

The GNLCC Partner Forums are self-directed alliances of conservation practitioners (e.g., agencies, organizations) that share landscape conservation challenges in an eco-geographic context. Partner Forums are the constituency of and provide feedback to the GNLCC partnership. Below are some of the Partner Forum 2014 highlights.

### ROCKY MOUNTAIN PARTNER FORUM



Photo: G Tabor

- Finalized an operational charter outlining the goals, role, structure, and priorities of those that participate; established a leadership team; conducted interest surveys; and initiated a newsletter to disseminate news to the forum.
- Continues to focus on climate adaptation in cold-water ecosystems with many groups linking their efforts through the Northern Rockies Adaptation Partnership, at a workshop hosted by the Crown Roundtable, and at a RMPF workshop on decision tree analysis in management planning.
- Invested in the GNLCC connectivity pilot project with plans to apply results to local issues.

### SAGE STEPPE PARTNER FORUM



Photo: BLM

- Hosted an 8-part webinar series on emerging science in the sagebrush biome. Archived recordings cover topics from climate and fire effects on sagebrush and wetlands to greater sage-grouse and songbird response to various disturbances.
- GNLCC staff made extensive developments (architecture, automation, and user web tool) for the Conservation Efforts Database (CED; see page 10), an online tool designed to capture the great work many organizations are doing to counter threats to greater sage-grouse. The CED is populated with over 6,000 projects containing data that will be critical to the 2015 listing decision.

### COLUMBIA BASIN PARTNER FORUM



Photo: G Holmberg

Determined the need for two primary tasks:

- First task is to develop a key partnership matrix: the "Landscape-Scale Conservation Program Matrix" will summarize larger-scale, multi-party collaborative programs doing work in the Columbia River Basin portion of the GNLCC.
- The second task is to draft a list of key indicators of landscape-scale ecological health and resiliency. The results will be used to identify how existing monitoring can inform landscape-scale indicators and where important landscape-scale indicators are not yet being appropriately monitored.

### CASCADIA PARTNER FORUM



Photo: C Gunnell

- Focused on four new priority issues within Cascadia: aquatic and terrestrial ecological connectivity, grizzly bear, and salmon.
- Worked to bring relevant science and information to access management planning in landscapes throughout Cascadia on both sides of the border.
- Hired two fellows to assist in research and synthesizing information.
- Brought partners together from throughout the landscape at the WildLinks workshop to discuss relevant issues.

## ■ Shared Landscape Outcomes Pilot Projects

In 2013, a core group of GNLCC members self-organized and developed ideas to test the GNLCC business model of working across broad landscapes and jurisdictions for shared outcomes. In 2014, the Steering Committee expressed their support to fund the Shared Landscape Outcomes pilot projects that address two GNLCC goals and stressors: Aquatic Integrity - Invasive Species and Connectivity - Land Use Change. The objectives of these GNLCC-scale management projects are to increase collaborative capacity, build on project-level science investments, deepen multi-agency and multi-jurisdictional cooperation, and demonstrate GNLCC relevance to current and broader socio-political-economic realities.

GNLCC Advisory Team members are leading these projects with a diversity of collaborators. Highlights from the projects are described below.

### Aquatic Integrity - Invasive Species

Starting in the Columbia River Basin, this project seeks to provide key landscape scale support to the ongoing Aquatic Invasive Species (AIS) network of partners in their prevention of Dreissenids (zebra and quagga mussels) in the Northwest. Portland State University, the Pacific Northwest Economic Region, and the GNLCC Columbia Basin Partner Forum are developing an agenda of research priorities that will guide planning efforts and direct pending funding. The establishment of research priorities has been identified as a need for the AIS strategy, which also includes perimeter defense and quick response coordination. In 2015, Portland State University will convene a workshop on behalf of the GNLCC where national and international AIS experts will discuss and further develop this research agenda.



Zebra mussels. Photo: USFWS

### Connectivity - Land Use Change

This project is developing a GNLCC-wide connectivity strategy that can be shared among partners for a coordinated approach to inform management actions with applied science. Several GNLCC partners are participating on the Leadership, Technical, or Managers team, developing a GNLCC-wide Connectivity Atlas, and holding a workshop for managers in Bozeman, MT, April 2015. Some of the workshop outcomes include helping managers:

- become familiar with existing landscape connectivity science and map products, including identifying gaps
- understand the diverse partnerships required for effective connectivity conservation, and begin to form those partnerships
- review and learn from case studies of successful connectivity projects; and
- generate recommendations to the GNLCC Steering Committee around short-term priorities and a long-term strategy to maintain and enhance connectivity.

**DATA BASIN**

Get Started | Explore | Create | Community

DATA BASIN | GALLERIES | GREAT NORTHERN ECOLOGICAL CONNECTIVITY DATA ATLAS

### Great Northern Ecological Connectivity Data Atlas

Created by GNLCC Connectivity Atlas Data Coordinator

**About**  
Welcome to the GNLCC Great Northern Ecological Connectivity Data Atlas.

This data atlas was created as part of the Great Northern Landscape Conservation Cooperative (GNLCC) Ecological Connectivity Project. The project is designed to support achievement of the following GNLCC goal: Conserve a permeable landscape with connectivity across aquatic and terrestrial ecosystems, including species movement, genetic connectivity, migration, dispersal, life history, and biophysical processes.

This atlas compiles connectivity data currently available across the GNLCC as a resource for managers in identifying important areas for action. It is the first step in a project that is likely to be on-going and part of a larger landscape conservation design effort for the GNLCC.

\*\*\*Note that the data represented in this atlas vary in resolution, extent, accuracy, methodology, and available descriptions and metadata prior to interpreting these data. Please contact the Data Coordinator or individual data providers for more information.\*\*\*

## SCIENCE, TOOLS, AND CAPACITY SUPPORT

The GNLCC is strategic and purposeful in funding science and capacity that meets the needs of the partnership. These projects support the shared landscape conservation goals and targets of the GNLCC Strategic Conservation Framework.

### ■ Funded Projects

Sixteen projects received funding in fiscal year 2014: Thirteen were newly funded and three received funding in previous years. These tables provide a snapshot of project key deliverables which include science, tools, and capacity.

#### Projects funded for first time in fiscal year 2014

Project Title	Key Deliverables
Core Habitat Identification and Fine Scale Habitat Use of Grizzly Bears in the US Northern Rockies and Southern Canada	<ul style="list-style-type: none"> <li>Integrated grizzly bear population level habitat models for each of the South Selkirk, South Purcell, and Cabinet Mountains</li> </ul>
Landscape Conservation Design in the Columbia Plateau Ecoregion: Prioritizing, Classifying, and Assessing Resiliency of Riverine Systems in the Columbia Plateau	<ul style="list-style-type: none"> <li>Database that synthesizes different freshwater and riparian landscape assessments</li> <li>Riverine priority area maps and data used in the synthesis, published using web mapping services</li> </ul>
Identifying Conservation Corridors and Transboundary Linkages for Wolverines in the Canadian Crown of the Continent Ecosystem	<ul style="list-style-type: none"> <li>Preliminary density estimates and occupancy models of wolverine distribution</li> <li>Map of regional genetic connectivity and fine-scale population structure of wolverines and areas of gene flow</li> </ul>
Linking Strategic Science to Collaborative Management Outcomes for Three Priority Indicators Across the Crown of the Continent Ecosystem	<ul style="list-style-type: none"> <li>Quantifiable Human Modification Index</li> <li>Functional connectivity model of grizzly bears</li> </ul>
Integrating Landscape Conservation Design into Partner Actions in the Columbia Plateau Ecoregion	<ul style="list-style-type: none"> <li>Map and associated GIS layers indicating which priority actions to pursue in which priority areas of the landscape conservation design</li> <li>Integration of conservation priorities into management plans</li> </ul>
Informing Implementation of Connectivity Conservation Decisions for Greater Sage-Grouse & Focal Species in Sage-steppe Ecotypes	<ul style="list-style-type: none"> <li>Washington-specific habitat model based on occurrence data and GPS telemetry data</li> <li>Columbia Plateau resistance model using fine-scale spatial and temporal GPS telemetry data</li> </ul>
Informing Connectivity Conservation Decisions in the Transboundary Okanagan-Kettle Subregion	<ul style="list-style-type: none"> <li>Operational-scale linkage assessment for 2 linkages including the role of the linkage for wildlife, factors impacting connectivity, scenarios for connectivity conservation and restoration, and metrics for measuring progress</li> </ul>
Strategic Conservation Planning for Management Applications in Cascadia	<ul style="list-style-type: none"> <li>Development of conservation design plan for four species targets in Cascadia and in relation to greater GNLCC objectives</li> <li>Evaluation of existing information and develop new analyses on impact of roads to habitat values tied to conservation targets</li> </ul>
Collaborative Efforts to Inform the Science, Management and Policies of First Foods of the Cayuse, Walla Walla and Umatilla	<ul style="list-style-type: none"> <li>Report on traditional use of huckleberries to inform the historical distribution, and historical use of and plant community compositions</li> <li>Literature review of existing scientific knowledge of huckleberry species to produce recommendations for future research</li> </ul>

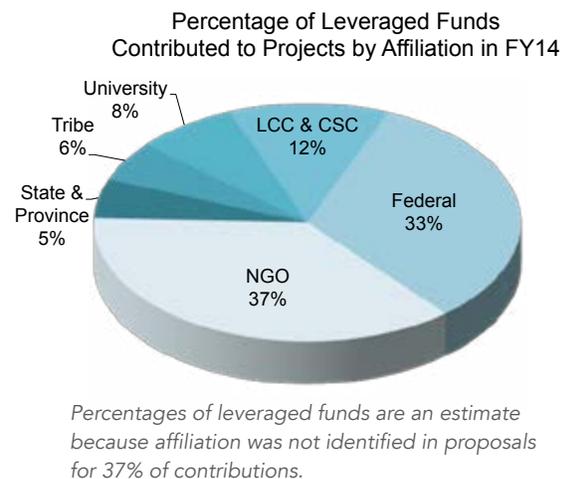
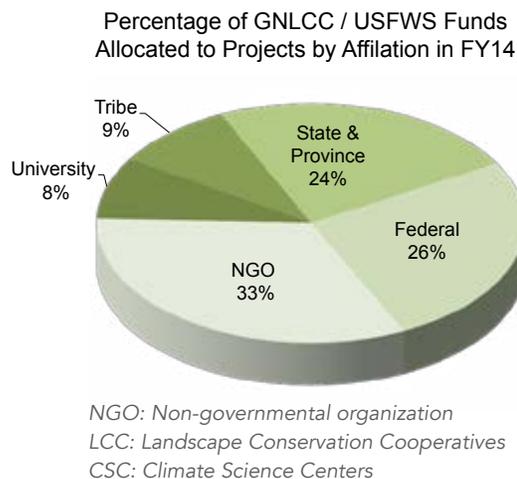
Project Title	Key Deliverables
Connecting Tribal and First Nation Adaptive Management and Climate Related Activities in the Crown of the Continent	<ul style="list-style-type: none"> <li>Comprehensive list of contact information from each tribe</li> <li>Comprehensive description of tribal activities and research related to climate change</li> </ul>
Confederated Salish and Kootenai Tribes Climate Change Strategic Planning	<ul style="list-style-type: none"> <li>Summary of activities to implement Climate Change Strategic Plan and of continued research of Traditional Ecological Knowledge and its application to climate change adaptation and mitigation planning</li> </ul>
Cross Cultural Capacity Building: Landscape Conservation and Climate Change Adaptation with the Blackfeet Nation	<ul style="list-style-type: none"> <li>Brochure designed for a public/agency audience</li> <li>Educational presentations/workshops targeted at current Crown of the Continent partners</li> </ul>
Exploration of Issues, Potential Partnerships, and Resources for Landscape Level Assessments Through Attendance at GNLCC Steering Committee Meetings	<ul style="list-style-type: none"> <li>Confederated Tribes of the Colville Reservation will have their scientists attend GNLCC Steering Committee meetings to explore mutual interests, learn about resources for landscape level assessments, and discover opportunities to expand research and mitigation efforts</li> </ul>

### Projects funded in previous years and in fiscal year 2014

Project Title	Key Deliverables
Facilitating Climate Change Adaptation Planning and Implementation Through the GNLCC Rocky Mountain Partner Forum	<ul style="list-style-type: none"> <li>Results of climate change vulnerability assessment for selected natural resource priorities</li> <li>Workshop detailing a menu of adaptation strategy options for selected natural resource priorities</li> </ul>
Helping Managers Implement a Method to Prioritize Conservation and Identify Climate Adaptation Strategies for Yellowstone Cutthroat Trout	<ul style="list-style-type: none"> <li>Map (with spatially explicit database) displaying priority areas for conserving Yellowstone cutthroat trout, ranked threats to each high-priority population, and priority conservation actions that could be implemented to reduce threats</li> </ul>
Predicting Effects of Climate Change on Aquatic Ecosystems in the Crown of the Continent Ecosystem	<ul style="list-style-type: none"> <li>Vulnerability assessments for bull trout and cutthroat trout</li> <li>Workshops to present decision support tools to managers and provide hands-on training</li> </ul>

### Funding Allocation & Leveraging

Through a competitive process in fiscal year 2014, GNLCC/USFWS allocated \$653,000 to support landscape conservation science and capacity. These funds leveraged \$1,347,000 in matching/in-kind funds. The diagrams to the right show the breakdown of funding allocated to projects by affiliation and leveraged funds by affiliation.



## ■ Feature Projects

These projects are featured as examples of the work that was completed in 2014 or are a continuation of previously funded work.



### A Science-based Decision Support Tool for Prioritizing Mitigation of Road Impacts on Western Governors' Association Wildlife Corridors

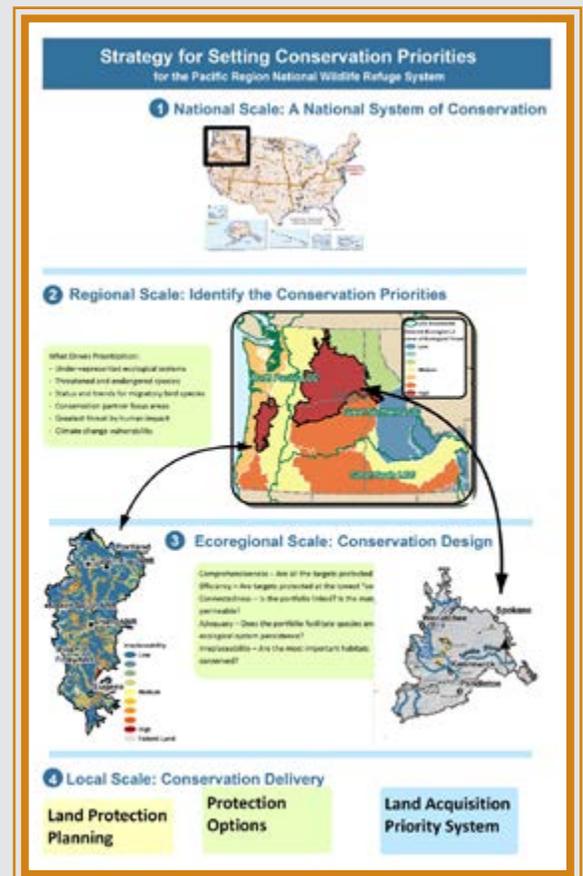
A web-based mapping tool that brings together spatial data to help practitioners focus efforts to engage in the mitigation process at sites that matter most to their perspectives and missions, which may be driven by risk to wildlife, risk to carnivores, connectivity value, or both.

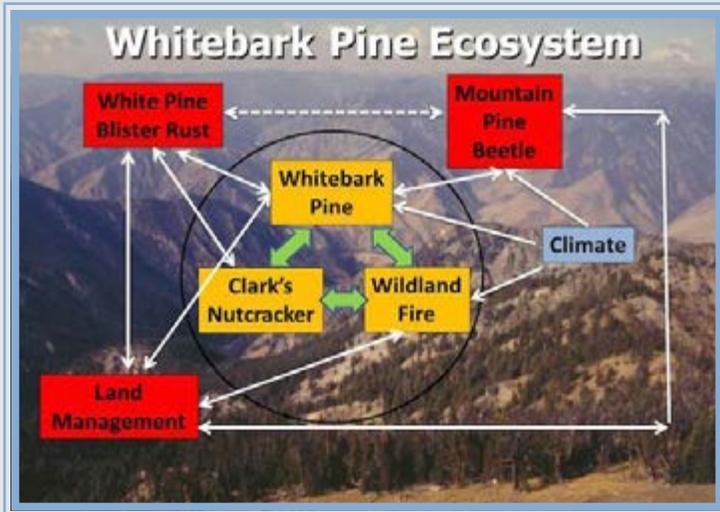
### Integrating Landscape Conservation Design into Partner Actions in the Columbia Plateau Ecoregion

Based on a spatial analysis of biological priorities in the Columbia Plateau Ecoregion conducted by the Arid Lands Initiative (ALI) and funded by the GNLCC in 2012-13, this collaborative effort is now working on implementation of conservation actions. In 2014, multiple partners used the spatial priorities to guide their efforts. Here are some examples:

- Targeting existing programs, such as Natural Resource Conservation Service's Agricultural Conservation Easement Program and Sage Grouse Initiative
- Incorporating ALI priorities into their own planning efforts, such as the Bureau of Land Management's Resource Management Plan update, a nomination of the Columbia Plateau as a BLM Healthy Lands Initiative Focus Area

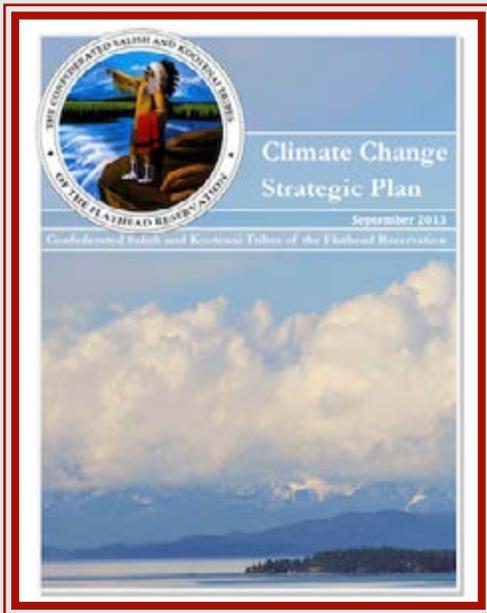
The partnership is now building on these efforts by assessing and agreeing on which partners are best positioned to implement priority actions, and designing a package of actions to be implemented over the next few years that will most effectively contribute towards a functional, well-connected system of arid lands and associated freshwater habitats.





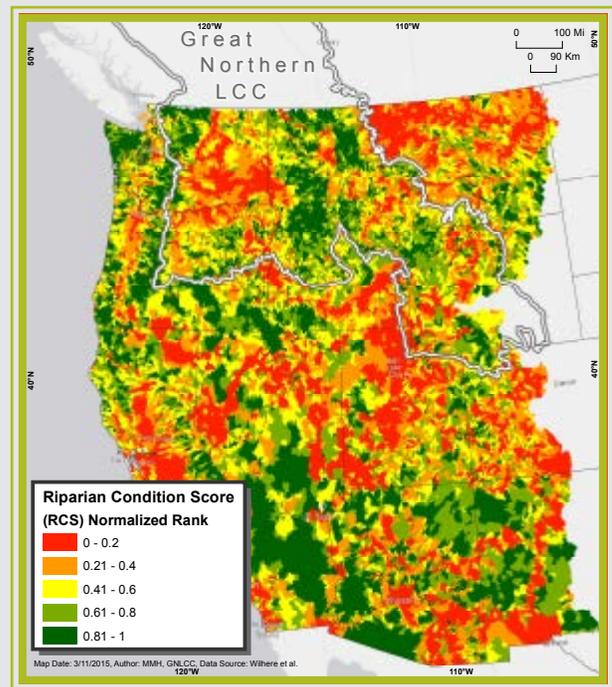
### Developing Management Guidelines for Creating Resilient Whitebark Pine Ecosystems in the Northern Rocky Mountains Using Spatial Simulation Modeling

A restoration guide for managers that presents protocols, guidelines, and considerations to plan, design, and implement successful whitebark pine restoration treatments.



### Confederated Salish and Kootenai Tribes Climate Change Strategic Planning

With support from GNLCC in 2012, the Confederated Salish and Kootenai Tribes (CSKT) completed a Climate Change Strategic Plan. In 2014, CSKT received additional funds to develop an implementation plan to measure and monitor progress. They will also continue to research Traditional Ecological Knowledge and its application towards climate change adaptation and mitigation planning.



### Incorporating Ecological Integrity and Stream-network Connectivity into the Western Governors' Assessment of Aquatic Crucial Habitats in Washington and Oregon

An index of ecological integrity and stream network connectivity for the entire western US that can be used for the visualization and assessment of aquatic habitats. Currently, Oregon and Washington have these data available on the Western Governors' CHAT.

## LC MAP SUPPORTS NEW NEEDS

Building upon the base functionality of information collaboration and analysis in a secure environment, the Landscape Conservation Mapping and Analysis Portal (LC MAP; ScienceBase) has evolved to support several new needs of GNLCC partners. Here are two examples:

- The Conservation Efforts Database (CED) is an information system used to document and track conservation actions across large, multi-jurisdictional landscapes. Public and password protected web, database, and GIS modules are completely housed within the LC MAP environment. Developed to support the 2015 Endangered Species Act status review for greater sage-grouse, the potential of the CED will expand as traditional and emerging management needs and research questions are

addressed. Development and programming of the CED was a collaborative effort with the GNLCC, US Geological Survey, and US Fish and Wildlife Service.

- GNLCC is working with five states, other LCCs, and federal agencies to integrate the delivery of state Crucial Habitat Assessment Tool (CHAT) data and related federal data. Collaborator ingenuity combined with LC MAP capabilities is resulting in new approaches to improve data integration. Some of the tasks that collaborators are addressing include, real time (or near-real time) secure data integration, collaborators' data policies, improving metadata update and management, and spatial data edge matching.

## CONSERVATION EFFORTS DATABASE

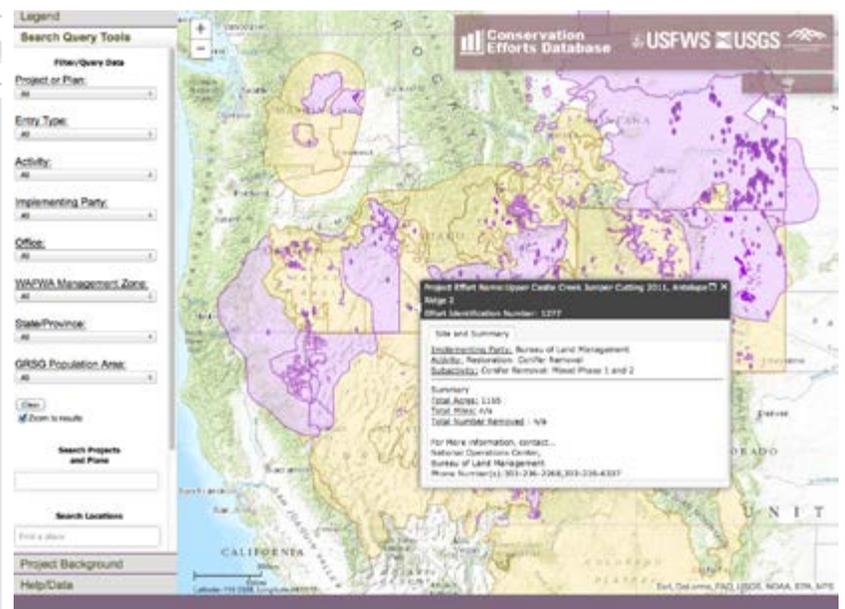


**SAGE-GROUSE CED**

- ENTER DATA
- BATCH UPLOAD DATA
- QUERY DATA (NEW!)
- SUMMARY DATA
- INTERACTIVE MAP

Highly customizable and adaptable web-based data entry allows multi-user editing to any authorized data provider with an internet connection.

The public interactive map allows front page access for quick perusal of conservation efforts by powerful filter options and pinpoint identification of information.





# Great Northern Landscape Conservation Cooperative

## Steering Committee



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