



2016 ANNUAL REPORT

GREAT NORTHERN Landscape Conservation Cooperative

Our 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.

The Partnership A network of U.S. federal, Canadian provincial and federal, Tribal Nations, state, academic, and conservation organizations working to achieve a collective landscape vision. The partnership implements a regional approach to address conservation issues across boundaries and jurisdictions by sharing data, science, and capacity.



Government
of Alberta



Environment
Canada



USGS
science for a changing world



USDA
NRCS
United States Department of Agriculture
Natural Resources Conservation Service



A Growing Partnership

In the formative years, the Great Northern LCC developed a Strategic Conservation Framework (2012) to provide a broad-brush view of how the partnership shares a collective landscape vision and goals. The framework lists 31 conservation targets—a compilation of common species, habitats, and ecosystem process—identified by Steering Committee (SC) organizations. With seven years under our belt as a growing partnership, the SC determined the need to refine our focus. The SC has been working to: 1) Identify high-level direction; 2) Improve SC function and effectiveness; and 3) Improve SC representation of the Great Northern conservation community through re-engagement or adding new members

To determine high-level direction and refine conservation investments for the next five years, a group of SC members worked with the Advisory Team and staff. Through a series of interactive online sessions known as the GNLCC Crosswalk Process, the team prioritized the five conservation goals and associated landscape stressors. This process identified a clear need to focus on two goals and associated stressors: 1) Ecological Connectivity goal with consideration of land use change and climate change; and 2) Aquatic Integrity goal as it is affected by climate change. The next steps focused on direction-setting for these two goal / stressor priorities using the Open Standards

for the Practice of Conservation. Comprehensive conceptual models were built and a series of results chains (flowcharts with steps to achieve goals) were synthesized. The results of these exercises are integrated in GNLCC’s FY17 funding. The Advisory Team and staff continue to refine conservation priorities through this effective process.

The SC continues to work on improving its function and engagement to ensure the GNLCC partnership is responsive and inclusive of the conservation community. One aspect of this is finding the right representation for the myriad private lands within the Great Northern. Also, the SC has indicated an interest in exploring how to best represent land-use industries like ranching, mining, and timber.

In 2015, Goal 5 - People and Cultures, was approved by the SC. This goal gives greater emphasis to the need to work with and support, through capacity, local communities in their conservation work. Connecting and partnering with people and cultures, whether tribal, rural communities, land-use industries, or locally focused partnerships, are important first steps to a successful landscape-scale effort. The FY17 funding guidance and future activities will integrate the People and Cultures goal as well as the other four Strategic Conservation Framework goals.

NEW COLLABORATORS

Cabinet-Purcell Collaborative

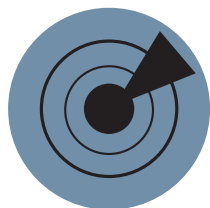
The GNLCC attended the 10th annual Cabinet-Purcell Collaborative (CPC) meeting in Sandpoint, Idaho, in 2016. The collaborative is a US-Canada transboundary initiative supported by the Yellowstone to Yukon Conservation Initiative. The CPC began as an effort to connect diverse partners interested in grizzly bear and habitat conservation. Over the years, it has grown into a collaborative of conservation groups, agencies, tribes, First Nations, and scientists working on strategies that improve connectivity of wildlife movements between the US and Canada. GNLCC is pleased that the CPC has joined the Connectivity Project, which aims to link areas in our geography to ensure ecological connectivity for priority species including grizzly bear.

Yakama Nation

For the past two years, GNLCC has been supporting the Yakama Nation and other tribes in their efforts on climate change and landscape planning by providing small capacity grants. This funding provided some key start-up resources that they have leveraged into a larger Bureau of Indian Affairs grant for climate adaptation planning. The Yakama Nation’s Department of Natural Resources is in the early stage of developing a department-wide Climate Adaptation Plan that integrates Yakama Traditional Ecological Knowledge with current science and vulnerability assessments. The Yakama Nation plans to link this work with efforts supported by GNLCC and other partners in eastern Washington, to strengthen cross-jurisdictional landscape and climate planning.

Supporting Partners for a Shared Vision

For seven years, the GNLCC has invested in strategic science and capacity—aimed to bridge boundaries and organizations—to reach shared landscape goals. Although it can be difficult to track the outcomes of a network model of collaboration, GNLCC partners are seeing on-the-ground results of invested dollars in collaborative, locally-led, science-based land management initiatives that share a collective vision for the land.



5 Landscape Goals
31 Conservation Targets



\$7 million invested



\$18 million leveraged



736 shared science products



**Locally Led, Functioning Lands,
Robust Communities**

PRICELESS!

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

Landscape Goals

Connectivity
Aquatic Integrity
Intact Lands
Resilience
People & Cultures

Conservation Targets

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

PARTNER FORUM UPDATES

Partner Forums provide a means to network the Great Northern LCC partnerships on regional conservation needs. These four forums continue to evolve to the meet needs of participants.

Cascadia

The Cascadia Partner Forum is a network of natural resource practitioners working in the Cascade Mountains of Washington and British Columbia. Building the adaptive capacity of the landscape and species living within it, this forum participates in the GNLCC and North Pacific Landscape Conservation Cooperative. In 2016, they continued efforts to coordinate their network, while focusing on several specific conservation targets in Cascadia and inventorying spatial priorities. Successes include:

- Completion of an initial spatial priorities inventory for Cascadia that is available on Data Basin
- Establishment of a transboundary Canada lynx working group
- Initiating conservation planning discussions in two important landscape-scale linkages for Cascadia
- Hosting the annual WildLinks gathering to foster connections and information sharing

Columbia Basin

The Columbia Basin Partner Forum held multiple workshops this year to focus on prioritizing common species and habitat interests among partners through a crosswalk effort of regional programs and partners, with the GNLCC priorities and goals. A work plan was developed for the upcoming year focused on completing vulnerability assessments for climate change and landscape-scale stressors for focal species and habitats within the Columbia River Basin. The forum continues to engage with tribal entities in implementation of climate adaptation plans and collaboration of information needs to support these efforts. Accomplishments include:

- Completion of Conservation Partner matrix identifying partners, programs, goals, and focal interests, and information needs within the Columbia River Basin
- Crosswalk of key indicators of landscape-scale ecological health and resiliency
- Poster presentation at Northwest Climate Science Conference

Rocky Mountain

The Rocky Mountain Partner Forum is a community of practitioners interested in conservation efforts throughout the Rocky Mountains. The partner forum aims to share information and foster collaboration among members. Some of the 2016 accomplishments include:

- Completed a cold-water ecosystem decision support framework for climate adaptation and presented the information to 170 webinar attendees, and via e-mail announcements and website postings
- Offered webinars on these topics: climate change adaptation of cold-water ecosystems, the Cabinet-Purcell Collaborative, the Blackfoot Drought Response Plan, and planning for connectivity on national forests
- Curated a seasonal newsletter that included upcoming events, webinars, and project highlights from across the region
- Maintained partner forum website including updates on newly released reports, resources, and partners

Sage Steppe

The Sage Steppe Partner Forum is now part of a larger Inter-LCC sage steppe initiative. GNLCC supports a US Fish and Wildlife Service (USFWS) and Western Association of Fish and Wildlife Agency (WAFWA) partnership, and the development of a biome-wide Sagebrush Conservation Strategy.

- Science projects funded by the initial Inter-LCC/ WAFWA partnership were completed in 2016. Published science includes, sage-grouse population trend estimation; fuel break design models; juniper encroachment; and vegetation maps for the sagebrush system.
- USFWS and WAFWA convened a multi-agency team that identified priority sagebrush obligate species and funded research exploring disturbance vectors (i.e., grazing, juniper removal). GNLCC staff provided technical support to prioritize the science.
- USFWS Region 6 Science Applications identified Dr. Patricia Deibert as the new lead for the Sage Steppe Partner Forum.
- GNLCC staff supported delivery of the Western Invasive Weed Summit report and the Integrated Rangeland Fire Management Strategy Actionable Science Plan.

Connecting For Conservation

ECOLOGICAL CONNECTIVITY PROJECT

Wildlife species are becoming increasingly isolated in patches of habitat, surrounded by an altered landscape. The distribution of wildlife continues to shrink, in part because of habitat loss, degradation, and fragmentation. Climate change can exacerbate the problem where fragmented habitats are less resilient to change. For these reasons, GNLCC is focusing on effects of land-use change and climate change on ecological connectivity, which is one of the partnership's five main goals.

To support local partnerships, the GNLCC kicked off in 2014, the Ecological Connectivity Project

with a region-wide workshop where participants shared their needs, actions, and priorities for connectivity. From the outcomes of the workshop, a framework was devised to align region-wide approaches and support partnerships that are working on terrestrial connectivity and wildlife needs. The project is led by an inter-organizational Leadership Team that is working to improve communication, outreach, and coordination among partners across the region.

Project partners identified 11 focal areas where ecological connectivity work is already happening or

where it may benefit from GNLCC support. Collectively, the focal areas can work to bring their ecosystem or species approach within the larger GNLCC-wide context, by developing tools and data to inform management decisions, and by facilitating information sharing.

Already, several local groups have expanded their work to align with or include neighboring focal areas. This connectivity work is also a fundamental part of a Landscape Conservation Design (LCD), of which GNLCC is supporting LCDs in the Columbia Plateau, Crown of the Continent, and High Divide.



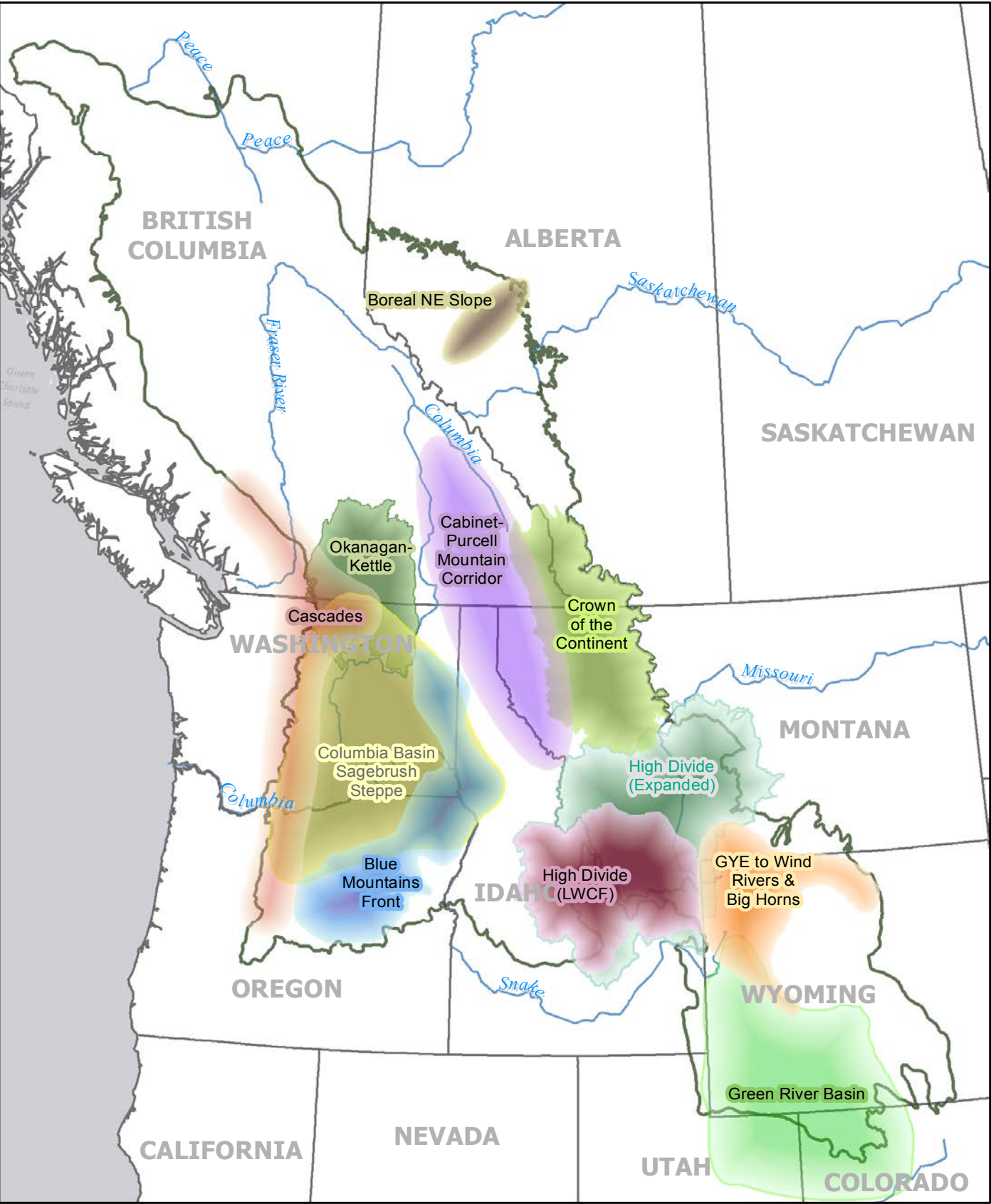
Grizzly bear. Eric Johnston/NPS

Focal Areas Map

The map to the right displays the focal areas of the Ecological Connectivity Project within the Great Northern LCC boundary. Focal areas are where local partnerships are working in a landscape context to bring their connectivity work together, have a community of practice, and where possible, align and integrate their work.

- Learn more about the Connectivity Project: <https://sites.google.com/site/gnecoconnectivity>

Focal Areas of the Ecological Connectivity Project

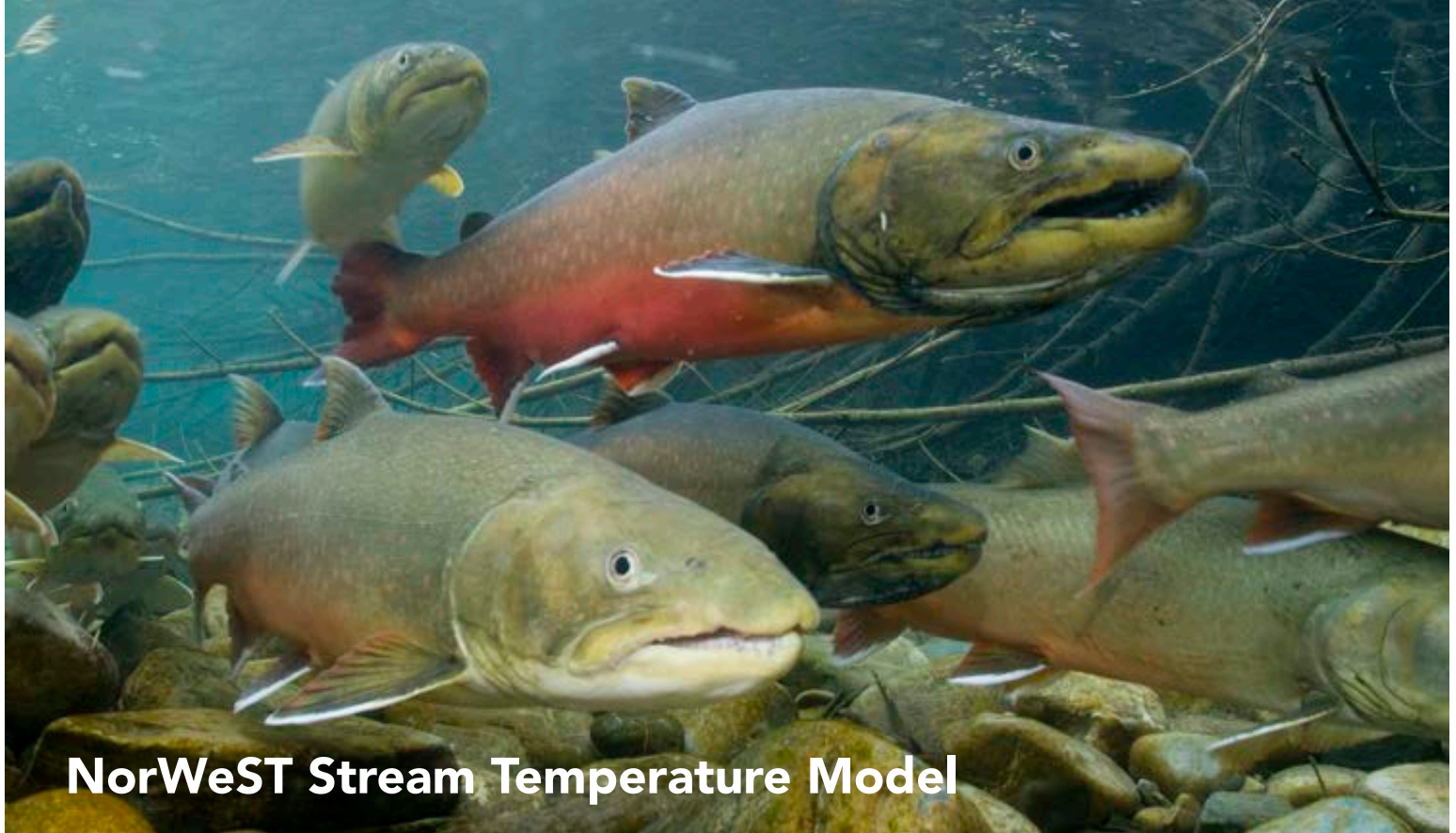


Investing in Science

FROM SCIENCE TO ACTION

The GNLCC allocates and leverages funding to support science and capacity to meet the shared goals of the partnership. This approach has allowed our partners to study and identify new ways to maintain and enhance landscape integrity across the vast GNLCC geography.

Science products help inform and empower resource management practitioners to implement actions for on-the-ground conservation. The following two examples show how landscape-scale conservation outcomes are being achieved through the broad GNLCC partnership.



NorWeST Stream Temperature Model

The GNLCC-supported NorWeST Stream Temperature model is guiding and supporting conservation planning across the northwestern US and beyond:

- US Fish and Wildlife Service is using NorWeST models in support of the Bull Trout Recovery Plan, which describes actions needed to conserve and enhance threatened bull trout throughout their US range. Models allow fish recovery specialists to accurately prioritize populations and habitats for conservation and restoration using the incredibly rich data models.
- Climate vulnerability assessments in the Cascades, Northern Rockies, and Intermountain region have been able to generate precise estimates using the NorWeST model.
- Four US National Forests are using the stream temperature models to guide Forest Plan revisions.

Through support from other Landscape Conservation Cooperatives and conservation partners, NorWeST is extending to the southwestern US, the Black Hills, and beyond.

Bull trout. J Sartore



Columbia Plateau Landscape Conservation Design

The GNLCC-supported science and tools are being used in the Columbia Plateau Landscape Conservation Design (LCD). Conducted by US Fish and Wildlife Service Region 1 and partners of the Arid Lands Initiative, this LCD is informing landscape-scale decisions that support partner agency mission's and leads to meaningful on-the-ground conservation outcomes:

- Natural Resource Conservation Service's Sage Grouse Initiative is using the spatial design to designate grasslands of special significance and strategically invest in easements most likely to benefit sage-grouse and other sagebrush dependent species.
- Bureau of Land Management used the same data to route two powerline corridors (Pomona Heights to Vantage in WA and Boardman to Hemingway in OR) to protect connected habitats for sage-grouse and Washington ground squirrel (respectively).

Greater sage-grouse. T Koerner/USFWS

LANDSCAPE SCIENCE PRODUCTS

These products, which became available in 2016, are the results of GNLCC efforts to provide science that informs resource management at the landscape scale. Products are developed in collaboration with scientists and managers.



A Three-Step Decision Support Framework for Climate Adaptation

This decision support framework provides guidance on using available climate science to set conservation goals and select among a menu of climate adaptation strategies for cold-water species.

Gravel-Bed River Floodplains are the Ecological Nexus of Glaciated Mountain Landscapes

An interdisciplinary review describes the importance of these ecosystems in sustaining regional biodiversity and landscape-scale ecological integrity.

Evaluating Future Success of Whitebark Pine Ecosystem Restoration Under Climate Change Using Simulation Modeling

Study results inform the development of guidelines that address climate change impacts for planning, designing, implementing, and evaluating fine-scale restoration activities.

Restoration Handbook for Sagebrush-Steppe Ecosystems with Special Emphasis on Greater Sage-grouse

A three-part handbook guides wildlife and habitat managers in developing strategies to prioritize where and how to invest in sagebrush steppe ecosystem restoration efforts.

Landscape Conservation Cooperatives: Working Beyond Boundaries to Tackle Large-Scale Conservation Challenges

A look at how the LCC Network model is implementing conservation at landscape scales across jurisdictional boundaries.

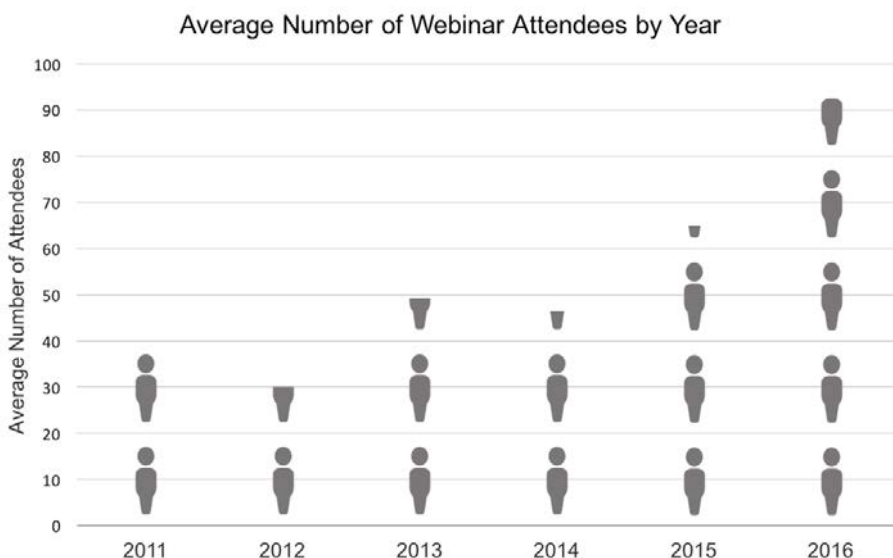


North Fork Flathead River, MT. B Petrashek

- Learn more about these products: <http://greatnorthernlcc.org/node/927>
- View all GNLCC supported science: <http://greatnorthernlcc.org/strategic-science-support>

SCIENCE WEBINARS

GNLCC's monthly science webinars continue to be valuable to a broad audience. Due to high registration numbers, we increased webinar capacity this year to accommodate more attendees. We hosted 15 webinars and co-hosted several more with other LCCs. Webinars were presented by GNLCC project scientists as well as other collaborators conducting landscape-scale work within the region and the West.




2016 Webinars

- Hierarchical population structure in greater sage-grouse provides insight into management boundary delineation
- America's Inventory of Parks and Protected Areas: An overview of the PAD-US system
- The Cabinet-Purcell Collaborative—A Trans-border Conservation Network
- Factors influencing seasonal migrations of pronghorn across the northern sagebrush steppe
- University of Montana's Wildlife Biology Program: Advancing wildlife and landscape conservation through science applications
- Dreissenid mussel research priorities—understanding biology and environmental tolerances for effective management
- Big sagebrush ecosystem response to changing climate and disturbance
- Using resilience and resistance concepts to manage threats to sagebrush ecosystems and sage-grouse
- Sharing the balance of stewardship—the Blackfoot Drought Response Plan
- Inter-LCC greater sage-grouse research projects: Results and applications to inform landscape-scale management
- Planning for connectivity on national forests under the 2012 Planning Rule
- Completing the loop: Combining occupancy modeling, crowd-sourcing, and eDNA sampling to inventory bull trout across their U.S. range
- Climate change adaptation—from concept to standard practice
- Ranking watersheds for climate change resilience using historical snowpack data



● View webinar recordings and slides:
<http://greatnorthernlcc.org/webinars>



To learn more about the Great Northern LCC,
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