



Photo: BLM Nevada

Great Basin Landscape Conservation Cooperative

2015 Annual Highlights



Who We Are

The Great Basin Landscape Conservation Cooperative (LCC) is a partnership among public and private groups working to meet large-scale conservation challenges across five states. We promote management based upon science and traditional knowledge that enables human and natural communities to respond and adapt to ongoing change.

Our partners include a variety of groups committed to conservation, such as Native American tribes, universities, non-governmental organizations, and federal, state and local government agencies.

What We Do

The Great Basin LCC brings together researchers, planners and managers to develop solutions for the most vexing problems in natural and cultural resource landscape-scale conservation. We do this by:

- Working across political and organizational boundaries to create opportunities for collaboration on important conservation issues.
- Developing science-based information and tools for managers.
- Helping partners to integrate traditional knowledge into their plans and strategies.
- Building synergy among public and private conservation programs by providing a forum where partners can coordinate their activities.

Key Accomplishments

In 2015, state and federal government agencies came together in an unprecedented level of collaboration to develop plans for the restoration of habitat and reduction of threats to the Greater Sage-grouse. As a result of these plans, the U.S. Fish and Wildlife Service concluded the bird did not warrant protection under the Endangered Species Act. The Great Basin LCC was deeply involved in providing science support and geospatial services for the joint federal-state planning effort.

Other key accomplishments include:

- Working Towards Rangeland Fire Prevention, Management and Restoration
- Advancing Sagebrush Restoration Science
- Combatting Invasive Weeds
- Supporting Traditional Knowledge
- Addressing Climate Change
- Sharing Information

Learn more about each of these accomplishments on the following pages.



Photo: BLM Nevada

Disaster Peak and wildflowers

Working Towards Rangeland Fire Prevention, Management and Restoration

The Great Basin faces intensified drought and climate change coupled with invading annual grasses. These elements create conditions that lead to larger, more intense rangeland fires which devastate the sagebrush-steppe ecosystems and wildlife.

Recognizing the need to address this issue on a large-scale, the Department of the Interior has issued a new Integrated Rangeland Fire Management Strategy. This strategy plays a critical role in establishing policies and approaches to prevent and suppress rangeland fire and to restore sagebrush landscapes impacted by fire across the West. Federal agencies manage almost 75% of the land in the Great Basin and need a coordinated strategy for managing the threat of fire. That strategy includes a Coordinated Science Action Plan which assigns the Great Basin LCC as a lead or co-lead on seven different priority action items.

These action items include:

- Develop or identify an online science delivery system with the Great Basin Fire Exchange to allow easier access to published science products and other science information.
- Develop an actionable science plan of prioritized research needs.
- Conduct large-scale research and demonstration projects for control of cheatgrass and other invasive annual grasses to identify and advance effective strategies for preventing the spread of invasive species and support large-scale rangeland restoration.
- Develop and maintain an inventory of research commitments and capacity.
- Review existing research prioritization and strategy efforts to identify science needs for the Great Basin.
- Identify available funding sources to support the action plan and implement new research in 2017 and beyond.
- Conduct periodic reviews and updates of the science action plan.



BLM Nevada fire crews addressing fires.

Advancing Sagebrush Restoration Science

Advancing sagebrush restoration science continues to play an important role in Greater Sage-grouse and sage-steppe ecosystem recovery.

Improving Sagebrush Seeding and Outplanting Success

The Great Basin LCC partnered with Idaho Department of Fish and Game to study factors that influence sagebrush seeding and outplanting success, and to identify sagebrush seed sources following the 2015 Soda Fire.

Researching the Effects of Altered Fire Regimes and Fuel Treatments

With support from the Joint Fire Science Program, the Great Basin LCC is working with university researchers to examine the effects of altered fire regimes and fuel

treatments on Greater Sage-grouse and other sagebrush obligate species in the Owyhee Uplands, the White Mountains, and the Sheeprock Range.

Connecting Landscape-Scale Issues to Greater Sage-grouse Recovery

The Great Basin LCC supported modeling of current and future interactions among cheatgrass cover and biomass, precipitation, and fire across the Great Basin. This modeling also included current and future cover of sagebrush and herbaceous vegetation. The researchers are using these models to examine how new fire regimes might impact sensitive-status birds, such as the Greater Sage-grouse. The research focuses on three areas: the eastern Owyhee Uplands, Bodie Hills-Pine Nut Mountains and east-central Great Basin.

Combatting Invasive Weeds

Non-native weeds have aggressively invaded the Great Basin. Annual grasses, such as cheatgrass, increase threats of fire and push out native plants important for sage-steppe ecosystems. Previous efforts to control invasive weeds have been disjointed. As with all landscape-scale concerns facing the Great Basin, the Great Basin LCC plays a unique role bringing together partners and researchers to tackle the issue at a large scale.

Supporting Projects Addressing Cheatgrass Dieoffs

One project supported by the Great Basin LCC examined the phenomenon of complete stand failure (or die-off) of cheatgrass resulting in the absence of the invasive grass for one or more growing seasons. The project sought to determine if the phenomenon presented an opportunity for restoring native species. Researchers found native grasses had a higher success rate in the recent die-offs when compared to seedings in sites that did not die-off. The findings indicate that restoring native diversity in highly-invaded systems can be facilitated by targeting die-offs for reseeding efforts.

Developing a Tool for Resistance and Resilience

The Great Basin LCC partnered with the Western Association of Fish and Wildlife Agency's Fire and Invasives Team to develop an implementation tool for a resistance and resilience report, *The Wildfire, Invasive Annual Grasses and Conifer Expansion Assessment*. This successful effort supported resistance and resilience efforts in the eastern portion of the Greater Sage-grouse habitat range.

Paving the Way for Collaborative Work Tackling Invasive Weeds

Great Basin LCC staff helped co-author the report, *Invasive Plant Management and Greater Sage-Grouse Conservation: A Review and Status Report with Strategic Recommendations for Improvement*. The report provided 11 recommendations on information management and science; leadership, coordination and communications; policy and regulation; and program management and operational capacity. One of these recommendations was to hold an Invasive Weeds Summit; that Summit gathered 240 leading federal, state and local government leaders; along with private ranchers; scientists; and conservationists. The group will create a regional action plan providing short- and long-term goals at a landscape scale.

Evaluating Impacts of the Exotic Brome-Grasses

Much of the non-native invasion stems from a suite of exotic grasses in the Bromus genus. Research ecologist and Great Basin LCC staff member, Matt Germino, acted as lead editor for a new book addressing the Bromus grass invasive weeds in the West. His book, *Exotic Brome-Grasses in Arid and Semiarid Ecosystems of the Western US*, uses a unique ecoregional and multidisciplinary approach to evaluate the invasiveness, impacts and management of the large Bromus genus.



Photo: Deeneg

Cheatgrass



Photo courtesy of Matt Germino

Anne Halford, Restoration Ecologist, holding a sagebrush seedling before planting.

Supporting Traditional Knowledge

Tribes are disproportionately affected by climate change because their economies, traditions and identities are heavily reliant on place-based natural resources. Changes in these resources may result in related shifts and adaptations in tribal cultural traditions. The Great Basin LCC supported several projects aiming to address traditional knowledge, climate change and adaptation.

Tribal Climate Adaptation Trainings

A three-day workshop brought together 44 tribal members to introduce the adaptation planning process. The trainings delivered templates, resource lists and other materials intermixed with small and large group discussions, a field trip and other activities.

Understanding Native Cultural Dimensions of Climate Change

Research by Oregon State University explored tribal cultural relationships and practices connected to resources and other aspects of nature that are potentially affected by climate change. The project interviewed elders with two tribes in the Great Basin in order to learn how a changing environment has affected aspects of tribal culture.

Using Narrative Stories to Understand Traditional Ecological Knowledge

This pilot project used a method of naïve interviewing with tribal youth to gather narrative “micro stories” from elders and key tribal members and then answer a series of carefully constructed questions that allow participants to apply context and meaning to their

stories. The team will analyze questions quantitatively using correlation statistics to identify key themes and patterns across the narrative dataset.

Walker River Paiute Tribe Traditional Ecological Knowledge

The Walker River Paiute Tribe has vast traditional ecological knowledge of the local area relating to plants, wildlife, fish and water. Due to the rapid rate of climate change and the impacts it has had on the reservation and gathering areas, the Tribe has not been able to keep up with the changes. This project developed a visioning document including traditional knowledge of plants, wildlife, fish and water located on the reservation and traditional hunting/gathering areas of the Agai Dicutta Numa (Walker River Paiutes) for use in future resource management planning and cultural sustainability. The project also developed a pilot program that planted willows and other traditional plants to determine best practices for re-vegetation.

Presentation at Native American Fish and Wildlife Society Southwest Regional Conference

Great Basin LCC staff presented at the 29th Annual Native American Fish and Wildlife Society Southwest Regional Conference. There, staff presented key steps for effective climate adaptation: identifying the problem; determining vulnerabilities; investigating options; evaluating risks and costs; and taking action. Participants learned about successful climate partnerships and support the Great Basin LCC can offer.



Photo: BLM Nevada

Mt. Irish Petroglyph Park

Addressing Climate Change

Intense climate change in the Great Basin means less rain for perennial native plants, increased risks of wildfire, alterations in wildlife foraging and much more. The Great Basin LCC strives to tackle climate change on a landscape level.

Great Basin Climate Forum Series

The Great Basin Climate Forum, co-sponsored by the Great Basin LCC, covered recent and current climate conditions in the Great Basin, and resource management decisions and issues affected by climate. Members of the public, private resource managers and professionals, tribal members, and interested organizations attended the forum. A second Climate Forum, held in December, addressed possible impacts from the developing El Niño event.

Scenario Planning in the Great Basin Region

Addressing climate change can be a challenge because of the inherent uncertainty surrounding the effects of climate change on hydrological, ecological and climatological systems in the Great Basin. To support decision making, the Great Basin LCC sponsored a pilot project exploring how two scenario planning approaches might be used with existing management planning processes and data sources, and how to begin prioritizing adaptation strategies. Following the pilot project, the LCC is supporting a larger and broader project that will hold a series of workshops across the Great Basin.

Assessment and Inventory of Climatological Monitoring Stations for Climate Adaptation

The Great Basin lacked data on weather and climate stations compared to surrounding areas. This project created an assessment summarizing the state of climate monitoring, identified areas where observation coverage is acceptable and where there are gaps in monitoring based on present future climates.

Sharing Information

The Great Basin LCC seeks to enhance communication and information sharing about science, management and cultural resources in the Great Basin. In order to address pressing conservation challenges, important scientific findings must reach resource managers in a timely and relevant manner.

The Great Basin LCC hosted a six-part webinar series to showcase cutting edge science supported by the LCC. Each webinar presented key findings from recent work, focusing on its application to Great Basin conservation, and included a question and answer session with the speaker. Topics included:

- Evaluating species management guidance and monitoring programs for the Great Basin
- Cheatgrass die-offs as an opportunity for restoration
- Challenges and opportunities with shrub restoration in the Great Basin: Climate adaptation and planting techniques
- Characterization of montane ecosystems, their microclimates, and wildlife distribution and abundance across the hydrographic Great Basin
- Desatoya Mountains Project and the Porter Canyon Experimental Watershed
- Pyramid Lake Paiute Tribe's climate change adaptation planning

In total, almost 500 participants attended the webinars, giving an average rating of four out of five stars.

More Webinars in 2016

The 2015 Webinar Series received ample positive feedback and requests for more. The Great Basin LCC is happy to announce a new webinar series starting in spring 2016! The next series will bring together land managers and scientists to discuss the latest research, and how to incorporate it in on-the-ground efforts.

What Participants Said About Great Basin LCC Webinars

“ Keep up the good work. Lots of good questions and discussion. ”

“ Excellent way to keep up on emerging research - especially in times of zero travel budgets. ”

“ I liked that it was to the point, informative, and not stuffy. ”

Northwest Basin and Range Conservation Project

The Northwestern Great Basin ecoregion is one of the most intact ecosystems in the west. It is also a biological hotspot for migratory birds, Greater Sage-grouse and a stronghold for pronghorn antelope. However, altered fire regimes, invasive species, water scarcity, development and climate change threaten the integrity of this landscape. Several efforts are ongoing for individual species, specific threats or sub-geographies, and more than 60 existing plans and assessments have been identified for the region. This project aims to pull the pieces together to create a holistic view of shared priorities on the landscape.



Pronghorn Antelope

Led by the Great Basin LCC's Science Coordinator, Todd Hopkins, and the U.S. Fish and Wildlife Service Landscape Ecologist, Tom Miewald, the project seeks to synthesize existing landscape planning and science and to develop a shared conservation vision for stakeholders in the region. This project will address landscape-scale conservation actions for priority species, habitats and ecosystems to support an ecologically connected Northwest Basin and Range Landscape.

Principles

- Utilize an open, non-regulatory stakeholder-based collaborative planning effort.
- Include adaptation strategies which incorporate climate change and other future changes.
- Complement or augment existing planning and local knowledge.
- Promote landscape-scale connectivity and ecological and physical processes to maintain functionality.
- Incorporate fire-resiliency, a primary disturbance regime in the region, to support current wildland fuels related efforts.

Products

The products will be information that stakeholders at all levels and in all sectors can voluntarily apply to their management actions. It will facilitate landscape understanding of the value of lands, waters, and wildlife resources that may be affected by management actions. Products will include:

- Shared set of conservation priorities for the ecoregion.
- Maps of priority places for species and habitats: core areas and connectivity zones.
- Climate change assessment and adaptation strategies for conservation priorities.
- Shared strategies for implementing conservation action on the ground.
- An online resource and outreach plan to help partners use and apply the adaptation strategies and conservation options.
- An adaptive management framework for continued collaborative conservation into the future.

The Great Basin LCC hosts information on the project online at: greatbasinlcc.org/nw-basin-range



Wildlife in the Basin and Range National Monument

What Others Say about the Great Basin LCC

“ ITEP has been working closely with the Great Basin LCC to plan and deliver two Climate Change Adaptation Planning trainings for tribes in the Great Basin. The relationship with and support from the Great Basin LCC has helped ITEP build capacity of tribes to move forward with planning for the impacts of climate change. ”

– Susan Wotkyns,
Institute for Tribal Environmental Professionals



Photo: BLM Oregon

Sage grouse

“ The California Department of Fish and Wildlife has been a part of the Great Basin LCC steering committee since its inception, and has had the opportunity to watch it grow and flourish over the past several years. This has been an exciting year for the GB LCC as it has not only continued to support meaningful science and collaborative work in the Great Basin, but has further honed its own purpose and focus as an entity to ensure that the LCC is nimble, adaptive, and responsive to the needs of stakeholders in this region while striving to protect natural and cultural resources. We are proud to be a part of the Great Basin LCC community and look forward to continuing this great work! ”

– Armand Gonzales,
California Department of Fish and Game



Photo: BLM Nevada

“ As the Western Association of Fish and Wildlife Agencies (WAFWA) Coordinator for the Fire and Invasive Initiative I have been working with the Great Basin LCC on developing decision support tools and various reports on fire and the status of work on invasive plant species in the west. The Great Basin LCC has provided both staff support and dollars for projects. ”

The Great Basin LCC has been a contributor to WAFWA led work on Greater Sage-grouse (GRSG) in the Great Basin that contributed significantly to the Not Warranted listing by the USFWS this last September. ”

– Ken Mayer,
Western Association of Fish and Wildlife Agencies

Organizational Leadership

Mission

The Great Basin LCC enhances understanding of the effects of changing climate and other natural and human impacts across the region and promotes the coordination of science-based actions to enable human and natural communities to respond and adapt to those conditions.

Steering Committee

The direction and priorities of the Great Basin LCC are established by a Steering Committee. This group consists of 23 representatives from federal agencies, tribes, state representatives, non-governmental organizations (NGO) and consortium partners from the five-state Great Basin region. The Steering Committee is led by a three-member Executive Committee. In 2015, the Great Basin LCC Steering Committee approved the eight science and TEK projects for funding and supported the development of science and traditional ecological knowledge priorities.

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Selected 2015 Publications from Great Basin LCC Projects and Staff

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