



Great Basin Landscape Conservation Cooperative

2016 Annual Highlights



Letter from the Coordinator, Rick Kearney

Persistent droughts, increased rangeland wildfire risk, invasive weeds—these conservation challenges and more continued to grip the Great Basin in 2016. As we have seen, these threats do not respect jurisdictional boundaries, and to address them effectively we must take a holistic, landscape-scale approach. The Great Basin Landscape Conservation Cooperative (LCC) provides scientific resources, tools and support needed to make this happen.

Our successes and accomplishments in 2016 reflect the values we hold. Throughout the year, we built on lessons from our existing work, forged new partnerships, proactively sought opportunities to make a difference and leveraged resources for maximum impact. It was a busy and fruitful year, with several memorable highlights!

- **The Department of the Interior identified the Great Basin LCC as a primary source of science in the Integrated Rangeland Fire Management Strategy.** We played an integral role in developing the Rangeland Fire Science Plan and, in collaboration with other partners, helped develop an online science information portal for managers tackling rangeland fire across the Great Basin.
- **We invested over \$1 million to support new research projects and a new traditional knowledge initiative.** As a result, teams of researchers and managers will work together to provide science-based information and tools to address conservation threats facing the Great Basin.
- **By promoting collaboration and partnership, we maximized conservation efforts and helped harness the resources, energy and ideas of the Great Basin conservation community.** More than 500 people attended the 2016 Great Basin Consortium Conference, co-hosted by the Great Basin LCC. In addition, the Northwest Basin and Range Synthesis Project brought together managers, scientists and private citizens to identify shared priorities across a common landscape.
- **We continued our ongoing support of Great Basin tribes,** which included supporting a climate adaptation training workshop for tribes in Fort

Hall, Idaho and a new initiative to build capacity for climate vulnerability assessments, one of the most complex and inaccessible components of the climate planning process.

- **The 2016 webinar series was our most popular yet with nearly 600 people tuning in to learn about pressing conservation topics in our region.** In addition to the seven webinars in the series, which showcased Great Basin LCC supported research, we co-hosted three webinars with other LCCs and organizations on topics relevant to the Great Basin and beyond.

We are proud of the work we accomplished last year and will carry forward this momentum as we continue to address conservation needs. To help structure this process, our Steering Committee adopted a new five-year Strategic Plan in April 2016. The Strategic Plan defines the future priorities and direction of the Great Basin LCC and identifies key goals for the next five years. These objectives are organized within four strategic areas:

1. Landscape focus
2. Collaboration and maximizing conservation efforts
3. Tribal partnerships
4. Information sharing

Keep reading to learn more about our activities and achievements from the past year, and how they fit within the Strategic Plan.

Looking forward, the Great Basin LCC enters 2017 with optimism and determination, ready to continue our ongoing efforts while constantly exploring innovative ways to tackle the most difficult conservation challenges in our region. While the challenges our landscape faces are great, so too is the resolve and dedication of the Great Basin conservation community of which we are a proud member.

Sincerely,

Rick Kearney
Great Basin LCC Coordinator

Who We Are

The Great Basin 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 (NGOs), 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

Our Vision

Great Basin landscapes that sustain natural and cultural resources now and in the future.

Our Mission

The Great Basin LCC supports landscape-scale conservation, promotes science, and enables management based on traditional knowledge and science so human and ecological communities can respond and adapt to climate and land use change.

“*The Great Basin LCC has a pretty good sense of what they're trying to do. It's feasible, and they are focused and effective at making it happen.*”

– Erica Fleishman,
University of California Davis

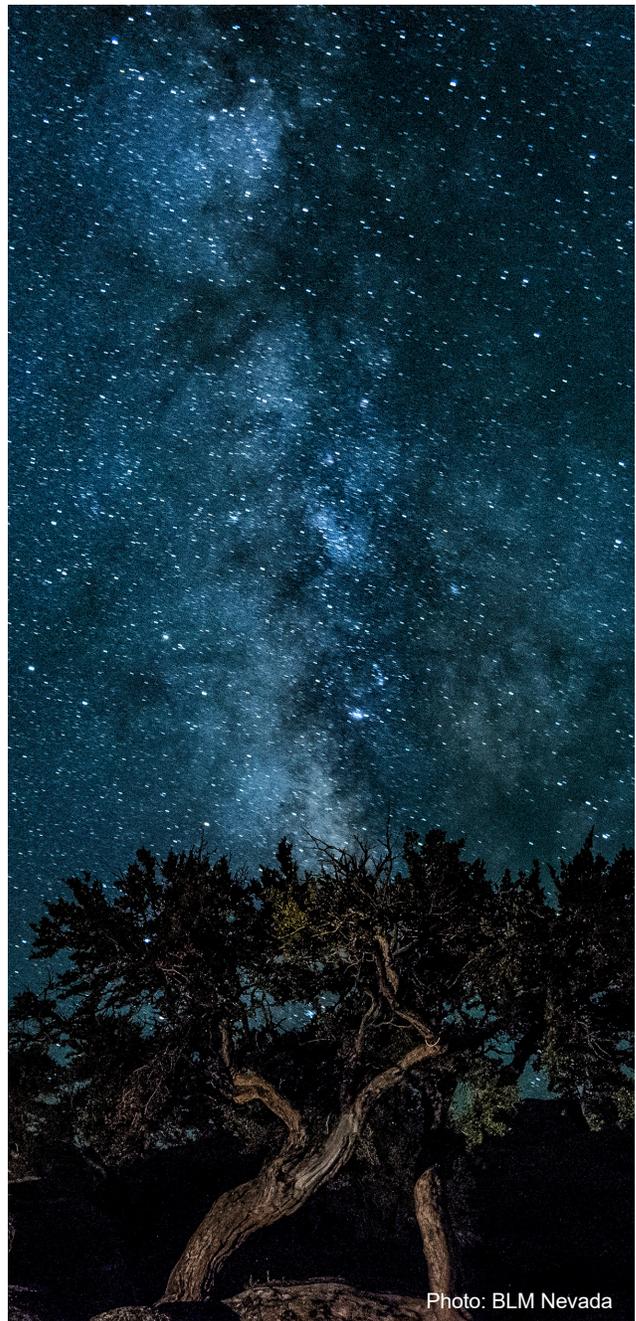


Photo: BLM Nevada

Pine Forest

Objective 1: Landscape Focus

The Great Basin LCC aims to help Great Basin communities develop mutually agreed upon landscape-scale conservation strategies and deliver conservation actions guided by those strategies.

Throughout 2016, the Great Basin LCC supported projects and initiatives tackling some of the most critical landscape-scale challenges facing the region, including increased wildfire risk, drought, invasive plants and sagebrush conservation.

Addressing Rangeland Fire Prevention, Management and Restoration

Climate change, intensified drought and invasive annual grasses increase the risk of larger, more intense rangeland wildfires across the Great Basin. In 2015, Department of the Interior Secretarial Order 3336, Rangeland Fire Prevention, Management and Restoration, called for the development of a comprehensive, science-based strategy to reduce the threat of large-scale rangeland fire in the West. The resulting Integrated Rangeland Fire Management Strategy (“Strategy”), released in 2015, sets out a series of action items for achieving the goals of the Secretarial Order.



Photo: BLM Nevada

A controlled burn in Alpine County, CA

“The Great Basin, as I have always said, is living on the edge. We’re addressing that through the LCC. I really think [this work] prepares us for management into the future looking at climate change, looking at large landscapes and the effects of large fires. That’s where we need to be if we’re going to make a difference in the future.”

– Mike Pellant,
Bureau of Land Management

The Department of the Interior identified the Great Basin LCC as a primary source of science for the Strategy. Our partnership continues to support cutting-edge research that will aid fire prevention, management and restoration efforts, such as conducting large-scale research and demonstration projects for control of cheatgrass and other invasive annual grasses. Great Basin LCC staff also served on the writing team for the Actionable Science Plan, an action-oriented blueprint for acquiring scientific information to support the Strategy.

Recognizing the need to share information about this landscape-scale effort, the Great Basin LCC collaborated with the Great Northern, Plains and Prairie Potholes, and Southern Rockies LCCs to host a webinar about the resources and science developed in response to the Strategy. The September 2016 webinar presented the scientific tools and methods developed as part of the Science Framework for Secretarial Order 3336. Working with the Great Basin Fire Science Exchange and other partners, the Great Basin LCC also supported the creation of an easily accessible online source of science-based tools, information and resources for managers across the Great Basin. The Strategy will help guide federal, state and local priorities for years to come, and the Great Basin LCC is proud to have a prominent role in this important program.

2016 Great Basin LCC Supported Projects

In 2016, the Great Basin LCC invested over \$1 million to support teams of researchers and managers working together to provide science and tools to deal with the region's greatest conservation threats. Following a competitive proposal process, the Great Basin LCC identified six projects addressing five critical conservation needs, as well as one traditional knowledge initiative. We also identified two additional strategic conservation opportunities through coordination with our partners and the broader conservation community. The 2016 supported projects include:

- A multi-scale, resilience-based framework for restoring and conserving Great Basin wet meadows and riparian ecosystems
- A synthesis of existing knowledge and identification of knowledge gaps around seed transfer in the Great Basin
- Quantifying the combined effects of climate, fire, and treatments on the connectivity and fragmentation of wildlife populations across the Great Basin
- Effects of spring cattle grazing on sage-grouse demographic traits
- Measuring the regional impacts of pinyon and juniper removal on insect, bat and reptile communities
- Multi-scale assessment of wildlife response after juniper removal in a sagebrush steppe landscape
- Creating near real-time maps of cheatgrass die-off events
- Characterizing sagebrush trends over a thirty year period, 1984-2014
- Building tribal capacity for climate change vulnerability assessment

Controlling Cheatgrass and Other Invasive Grasses with Bacteria

Controlling the spread of invasive grasses is a critical part of managing wildfire risk and conserving sagebrush habitat. The Great Basin LCC is supporting research into the use of *Pseudomonas fluorescens*, a soil bacteria, to prevent the spread of cheatgrass, a fast-growing invasive plant gripping much of the Great Basin. This project supports researchers working with the U.S. Department of Agriculture, U.S. Fish and Wildlife Service and the Great Basin Institute to determine the efficacy of *P. fluorescens* on test plots within Greater Sage-grouse biologically significant areas. Early results are promising, and the research team thinks the bacteria may work well as a complement to herbicide, inhibiting cheatgrass re-growth after initial herbicide treatment.

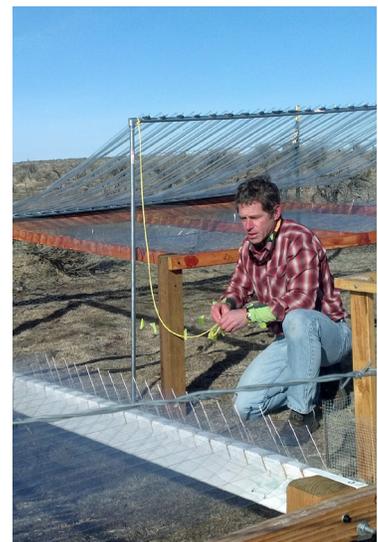
Sagebrush Habitat Conservation and Rehabilitation

Building on work from previous years, the Great Basin LCC continues to support research into sagebrush habitat conservation and rehabilitation. In partnership with the Western Association of Fish and Wildlife Agencies' (WAFWA) Fire and Invasives Team and the Bureau of Land Management, the Great Basin LCC supported the development of a strategic, multi-scale approach to manage threats to sagebrush ecosystems, Gunnison Sage-grouse and Greater Sage-grouse in the eastern range using resilience and resistance concepts. The approach is described in a report published by the U.S. Forest Service Rocky Mountain Research Station in December 2016.



Photo: Deeneg

Cheatgrass



Great Basin LCC Research Ecologist, Matt Germino, in the field

Objective 2: Collaboration and Maximizing Conservation Efforts

The Great Basin LCC seeks to make the Great Basin more resilient to climate change and other landscape-scale stressors through increased collaboration, optimized conservation investments and efforts aligned to a common vision.

In 2016, the Great Basin LCC led multiple efforts that brought together scientists and natural resource leaders to develop collaborative solutions to conservation challenges and leverage resources for maximum impact.

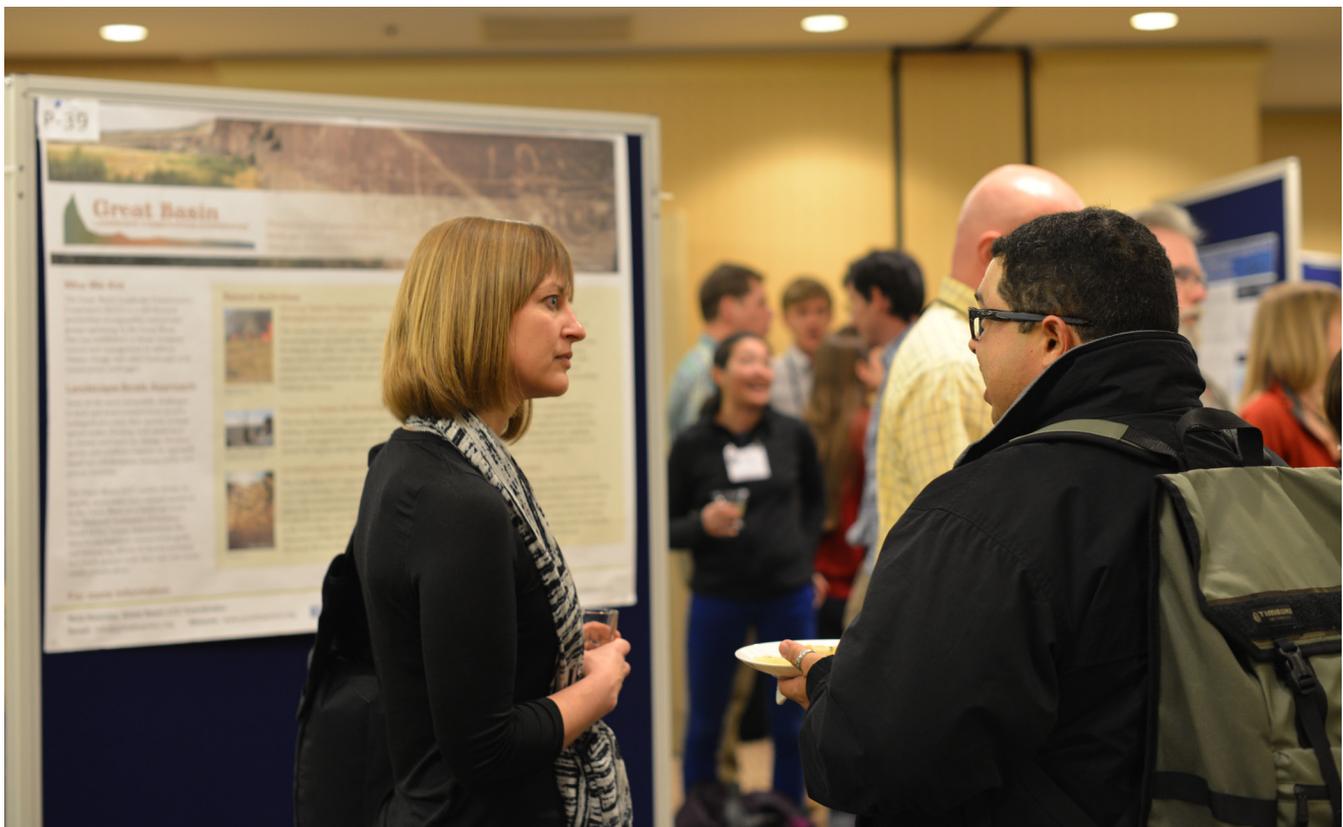
All Hands, All Lands: The 2016 Great Basin Consortium Conference

In February, more than 500 managers, scientists, academics and private land owners from across the West attended the 2016 Great Basin Consortium Conference in Salt Lake City, Utah to share their latest research and discuss how to work together to improve sagebrush conservation. An additional 200 people viewed the proceedings online via live broadcasts. The conference was organized by the Great Basin Consortium, of which the Great Basin

LCC is a member, in partnership with WAFWA and Utah State University. Session topics included the incorporation of traditional knowledge into resource planning and management and a summit focused on tackling invasive weeds, as well as a poster session where researchers highlighted their work.

“ I think bringing together groups from all over the Great Basin— from a myriad of different types of organizations—to not only develop the research and the science that’s needed, but to move it to the management agencies in an effective way...is what will save the Great Basin in the future. ”

— Maureen McCarthy,
Great Basin Cooperative Ecosystem
Studies Unit



Individuals in a conversation at the February 2016 Great Basin Consortium Conference

Northwest Basin and Range Synthesis

The Great Basin LCC continued to support the Northwest Basin and Range Synthesis in 2016. The Northwest Basin and Range is a biological hotspot for migratory birds and Greater Sage-grouse, is a stronghold for pronghorn antelope, and supports many other wildlife species and their habitats. 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 over 60 existing plans and assessments have been identified for the region. This project synthesizes these efforts to distill and focus attention on shared priorities across the landscape.

In 2016, the Synthesis formed a Steering Committee comprised of members from land management agencies, non-governmental organizations and other groups working on conservation efforts in the Northwestern Great Basin. The Steering Committee has determined priorities and direction for the Synthesis, shared knowledge of ongoing conservation work and identified opportunities for outreach. In addition, 50 people participated in two webinars organized by the Synthesis in 2016, one focused on identifying shared conservation priorities and another highlighting opportunities for engagement with the project. Levi Old, Project Coordinator for the Synthesis, and the Steering Committee are organizing a Symposium to be held in Lakeview, Oregon, February 14-16, 2017.

Great Sheldon-Hart Mountain Collaborative

The Great Basin LCC supports the Greater Sheldon-Hart Mountain Collaborative, a partnership among the U.S. Fish and Wildlife Service, Bureau of Land Management, Summit Lake Paiute Tribe and others focused on restoring sagebrush shrub and native perennial grass communities in the Northwest Great Basin high desert. The Greater Sheldon-Hart Mountain landscape is one of the few large, intact sagebrush-steppe ecosystems remaining in the West, covering approximately 4 million acres of land managed by several different federal, state, tribal and private landowners.

Much of this area has not yet experienced the damaging landscape-scale fires that have caused extensive conversion to invasive plants in other areas, and invasive plants are currently at low to moderate levels. Therefore, a proactive, collaborative approach to managing these invasive plants and promoting landscape resilience helps ensure conservation of these lands for the future. The Collaborative is increasing on-the-ground delivery of fuels treatments to reduce the risk of damaging wildfire and increase resistance and resilience to invasive species across the region.

Great Basin Climate Forum Series

The Great Basin Climate Forum, co-sponsored by the Great Basin LCC in partnership with the California-Nevada Applications Project and the Desert Research Institute, provides information on recent and current climate conditions in the Great Basin. In 2016, the Forum hosted a series of workshops focused on using spatially-based scenario planning to inform climate resiliency and adaptation strategies in the region. A workshop held in March focused on planning for the Northeastern Great Basin, and a full-day Forum meeting in April discussed planning for the Northwestern Great Basin as well as a general review of current climate conditions and expected impacts in 2016.

“ [The sagebrush conservation effort] is really an unprecedented undertaking. We're working across a huge landscape of the West. We're sharing the best available science. We're taking all of that and we're translating it into an action plan, or really many action plans, to protect, restore and preserve the landscape. It really truly is an all hands, all lands strategy. ”

— Janice Schneider,
Assistant Secretary of the U.S.
Department of the Interior

Objective 3: Tribal Partnerships

The Great Basin LCC strives to encourage sharing and integration of traditional knowledge and contemporary science, as appropriate, to further Great Basin conservation priorities and land stewardship.

In 2016, the Great Basin LCC continued its ongoing support of several traditional knowledge projects while undertaking new efforts to work with tribes in the Great Basin on shared conservation priorities.

Tribal Climate Adaptation Training in Fort Hall, Idaho

Since 2013, the Great Basin LCC has supported three climate adaptation training workshops in partnership with the Institute for Tribal Environmental Professionals, including one in Fort Hall, Idaho in 2016. The workshops equip tribal professionals with skills to proactively plan and assess climate change preparedness needs. Attendees receive templates, resource lists and other materials at the trainings while participating in small and large group discussions, a field trip and other activities. In total, 65 individuals from 34 tribes have participated in the three trainings.

Building Tribal Capacity for Climate Change Vulnerability Assessment

In partnership with the USGS Northwest Climate Science Center, the Great Basin LCC is building capacity for climate vulnerability assessments, one of the most complex and inaccessible components of the climate planning process. This project will address limited tribal capacity for vulnerability assessment by providing guidance and data tailored to the needs and capacities of Northwest and Great Basin tribes. This includes online resources, downscaled climate data and climate change summaries crucial for tribal decision-making, and support for tribal staff through the vulnerability assessment process via workshops, a webinar and a tribal Climate Technical Support Desk. Together, these activities enhance tribal and regional resilience to climate change and related threats.



Tribal climate adaptation training workshop in Fort Hall, ID



Photo: BLM Nevada

Desert rock art

Objective 4: Information Sharing

The Great Basin LCC aims to increase communication and understanding about science, management and cultural resources by making this information accessible and discoverable to the broader conservation community.

In 2016, the Great Basin LCC promoted information sharing through several outlets, including online tools, publications, webinars and more.

2016 Webinars

The Great Basin LCC hosted a seven-part webinar series in 2016 showcasing cutting-edge science supported by the LCC. Each webinar provided an opportunity for land managers and scientists working in the Great Basin to discuss their latest research and how to incorporate the research into on-the-ground efforts.

Topics included:

- The importance of direct feedback in developing useful climate-related tools and resources
- Understanding Native cultural dimensions of climate change in the Great Basin
- An assessment of current climate monitoring for land management applications in the Great Basin
- Measuring, modeling and mapping patterns of water availability across landscapes in a time of increasing drought
- Using archaeological data to plan a Greater Sage-grouse conservation effort
- Predicting climate change impacts on big sagebrush populations
- Functional continuity of habitat for the pygmy rabbit

The Great Basin LCC also co-hosted three webinars with other LCCs, agencies and organizations. These collaborative webinars shared information about challenging, landscape-level conservation issues that go beyond the Great Basin. The presentation topics included:

- Developing a Science Framework for Secretarial Order 3336 (co-hosted with the Great Northern, Southern Rockies, and the Plains and Prairie Potholes LCCs)
- Quaking Aspen Management (co-hosted with the California, Desert, Great Northern, Southern Rockies, and the Plains and Prairie Potholes LCCs)
- An Overview of the Protected Areas Database of the US System (co-hosted with the Great Northern, Southern Rockies and Desert LCCs)

In total, around 600 participants attended the webinars, giving an average rating of four out of five stars. Recordings of all Great Basin LCC webinars are available online at <http://greatbasinlcc.org/webinar-series>.

What Participants Said About Great Basin LCC Webinars

“ This webinar was excellent for taking some very complicated data and presenting it in a way that was understandable. ”

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

“ [We] found it very informative and would like to continue to participate for technical information that is valuable to land management. ”

“ I really enjoyed the webinar and would love to see more. ”

Great Basin Fact Sheet Series

The Great Basin LCC collaborated with several groups to produce the Great Basin Fact Sheet Series, published by the Great Basin Fire Science Exchange. The series includes 14 fact sheets on topics ranging from invasive annual grasses to grazing management to seeding and transplanting techniques. Each fact sheet is reviewed by both managers and scientists with expertise on the information addressed. Download the fact sheets at <http://sagegrouseinitiative.com/category/great-basin-factsheet-series>.

Great Basin Weather and Climate Dashboard

The Great Basin Weather and Climate Dashboard is an online tool to help stakeholders locate the weather and climate information they need to make decisions related to the current drought in the Great Basin. The Dashboard is a joint effort among NOAA's Western Regional Climate Center, the California–Nevada Applications Program, the USDA Farm Service Agency and the Great Basin LCC. Visit the Dashboard at <http://gbdash.dri.edu>.

NW Climate Science Magazine

The NW Climate Science Magazine features stories about research, collaborations and adaptation efforts that are helping the region prepare for the conservation challenges of the future. This magazine is produced in partnership with the Northwest Climate Science Center, PNW Climate, and the Great Basin, Great Northern and North Pacific LCCs. The 2016 issue, released in October, features work supported by the

Great Basin LCC, including a story on the Northwest Basin and Range Synthesis project and recent research on the role of beavers in restoring river watersheds. Read the 2016 issue at <https://nwclimatescience.org/nw-climate-magazine>.

2016 Virtual Public Forum

More than 230 people participated in the 2016 Great Basin LCC Virtual Public Forum, which ran from Jan. 25 to Feb. 8. The purpose of the Public Forum was to:

- Inform and engage the Great Basin conservation community in the work of the Great Basin LCC
- Provide members of the conservation community an opportunity to collaborate on important landscape-scale issues
- Receive input on integrating traditional knowledge and contemporary science
- Collect suggestions for new Steering Committee members
- Gather feedback on future webinar speakers and topics
- Collect feedback on the Great Basin LCC Strategic Plan

The Public Forum received 60 comments or recommendations from visitors. The feedback informed the development of the latest five-year Strategic Plan, the 2016 webinar series and strategies for increasing the impact of our work going forward.



Photo: BLM Nevada

Diana's Punchbowl, Battle Mountain

Organizational Leadership

Steering Committee

The direction and priorities of the Great Basin LCC are established by a Steering Committee. This group consists of 24 representatives from government agencies, tribes, NGOs and consortium partners from the five-state Great Basin region. The Steering Committee is led by a three-member Executive Committee.

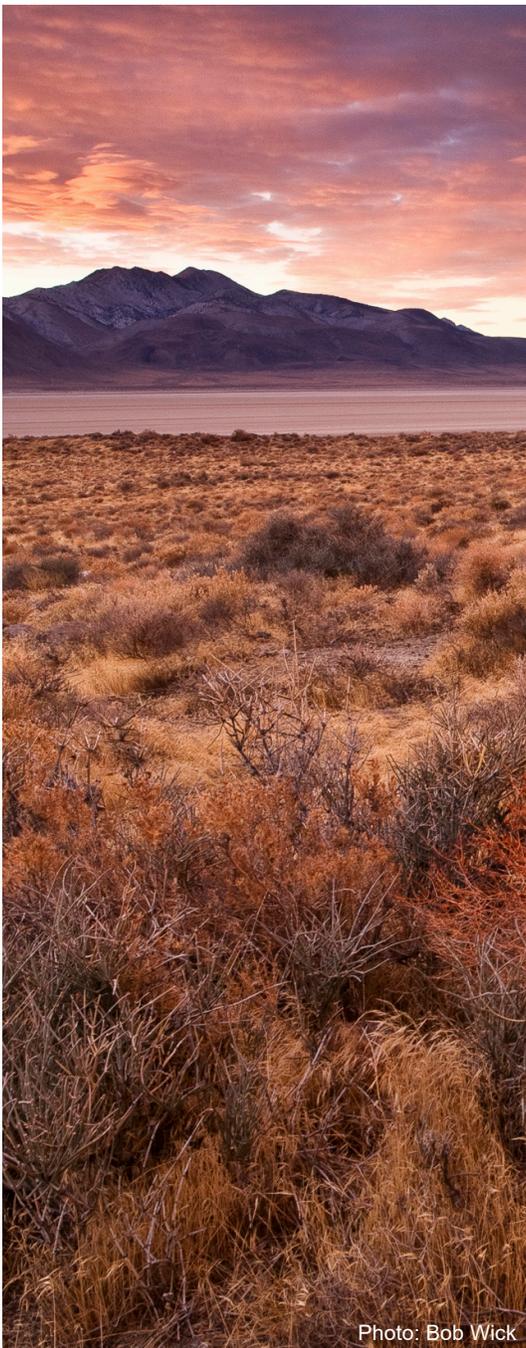


Photo: Bob Wick

Great Basin Desert Sunset

Great Basin LCC Staff

In addition to its Steering Committee, the Great Basin LCC has four staff members. In 2016, Dr. Todd Hopkins stepped down from his position as the Great Basin LCC Science Coordinator after five years to become the Coordinator of the Peninsular Florida LCC. The new Science Coordinator, Dr. John Tull, joined the Great Basin LCC in January 2017.



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Photo: BLM Nevada

Showy Goldeneye

Publications from Great Basin LCC Projects and Staff

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Cheatgrass