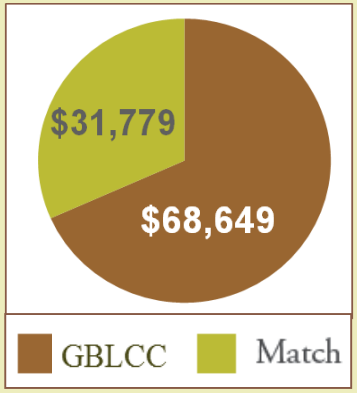
Using soil climate and geospatial environmental characteristics to determine plant community resilience to fire and fire surrogate treatments

This project associates site-measured soil climate and other soil variables, and geospatially-derived site environmental characteristics with perennial herbaceous and cheatgrass cover in treated and untreated Great Basin wooded shrublands.

The project team will:

- Use vegetation and soil data already collected in SageSTEP and tree shredding studies.
- Develop models to indicate potential vegetation response to tree reduction treatments both for current and projected climate conditions for a wide range of sites.
- Develop ranges of key attributes associated with less to more resilient sites.
- Publish a guide on the SageSTEP website on how to use our models and findings as decision support tools.



2014

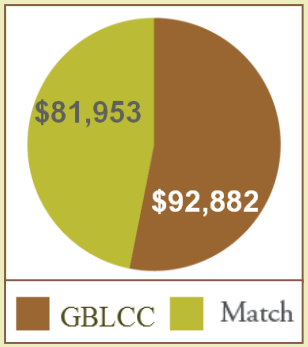
Dr. Bruce Roundy, Brigham Young University

Landscape connectivity of a sagebrush obligate: functional continuity of habitat for the pygmy rabbit

This project quantifies functional landscape connectivity of the pygmy rabbit, a sensitive, sagebrush ecosystem obligate, through integration of landscape genomic data with statistical modeling of habitat quality and connectedness.

The project team will:

- Use models to forecast the distribution and landscape connectivity of this species under various climate change scenarios.
- identify those critical areas with greatest potential to facilitate distributional shifts in response to climate change.
- Further refine the predictive capabilities of these models.



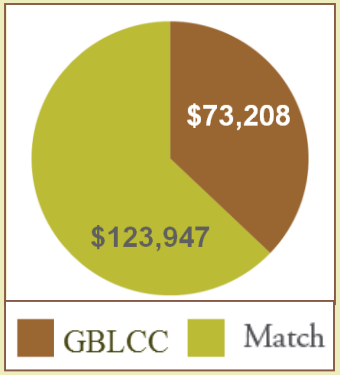
2014

Dr. Marjorie Matocq, University of Nevada Reno

Cheatgrass Stand Failure in the Great Basin: Fungal Pathogens, Carbon Dynamics, and Fungistasis

This project proposes to test the hypothesis that soil fungistasis (suppression of fungal pathogens by soil microbes in carbohydrate-limited soil) and its alleviation through natural carbohydrate augmentation (e.g., cheatgrass litter, leakage from cheatgrass roots) are the principal processes mediating patterns of cheatgrass die-off and recovery in die-off-prone areas.

The project team will use laboratory, greenhouse, and field manipulative experiments to examine the effect of soil carbohydrates on cheatgrass disease incidence.



2014

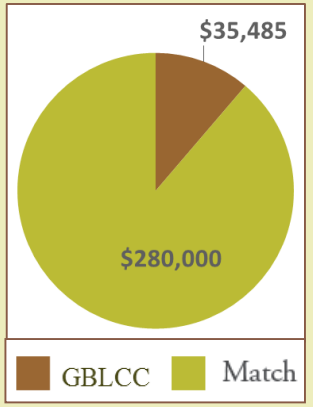
Dr. Susan Meyer, USFS Rocky Mountain Research Station

Assessment of Impacts of Feral Horses and Livestock Grazing on Sage-grouse and their Habitats: Long-term trends in sage-grouse demography and habitats on the Sheldon-Hart Mountain National Wildlife Refuge Complex and adjacent lands

This project takes advantage of historical patterns of grazing by both feral horses and livestock and new data to assess sage-grouse population dynamics and habitats under all combinations of grazing by nonnative ungulates.

The project team will:

- Use historical sage-grouse data collected from Hart Mountain before and immediately after livestock were removed in the early 1990s, and historical data from Sheldon before the irruption of feral horses in the mid 2000s.
- Add data from Hart Mountain (no nonnative ungulates for 20 years), Sheldon (no livestock but substantial feral horse impacts), and BLM land south of Sheldon NWR (grazed by both feral horses and livestock).

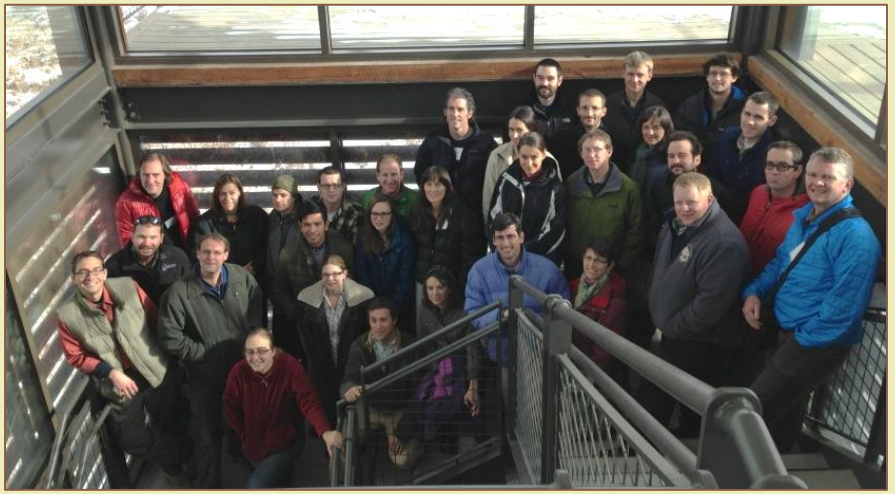


2014

Dr. James Sedinger - University of Nevada Reno

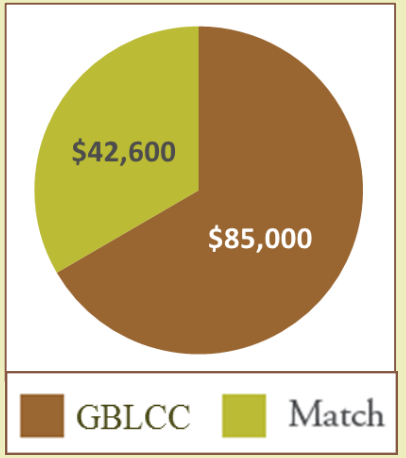
Forecasting changes in sagebrush distribution and abundance under climate change: integration of spatial, temporal, and mechanistic models

The goal of this project is to forecast the effect of climate change on the distribution and abundance of big sagebrush in order to inform conservation planning, and sage grouse management in particular, across the Intermountain West. The novelty of the work will be the synthesis of models based on spatial, temporal, and mechanistic relationships between climate and sagebrush cover.



The project will:

- Culminate in a working group meeting, bringing together land managers and researchers to draft management recommendations.
- Take advantage of mechanisms already in place to efficiently disseminate this report to management agencies.



2014

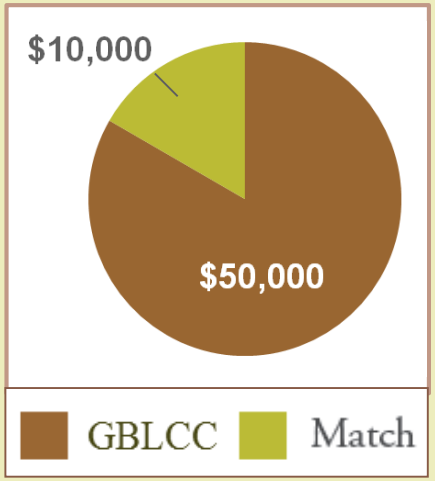
Dr. Peter Adler, Utah State University

Walker River Paiute Tribe TEK project

The Walker River Paiute Tribe has vast Traditional Ecological Knowledge (TEK) 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.

To address these challenges, the project team will:

- Develop a Walker River Vision document which will include TEK of the traditional 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.
- Develop a pilot project along the Walker River on the reservation by planting willows and other traditional plants to determine best practices for re-vegetation.



2014

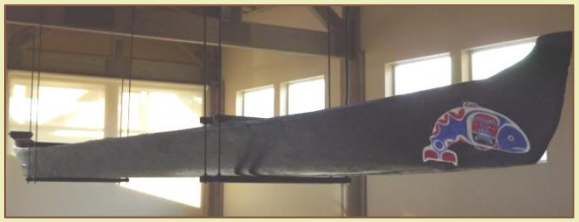
Marlene Begay, Walker Rive Paiute Tribe

Understanding Native cultural dimensions of climate change in the Great Basin

Tribes are disproportionately affected by climate change because their economies, traditions, and even identity are heavily reliant on place-based natural resources. Changes in these resources may result in associated shifts and adaptations in tribal cultural traditions. Observations by tribal elders should lead to better understanding of how the nuances and dimensions of tribal culture in the Great Basin are affected by climate change, what contributes to vulnerability to a changing climate, and the adaptive capacity of these communities to ecological shifts.

To address these challenges, the project team will:

- Explore tribal cultural relationships and practices connected to resources and other aspects of nature that are potentially affected by climate change.
- Interview elders with two tribes in the Great Basin in order to learn how a changing environment has affected aspects of tribal culture.



2014

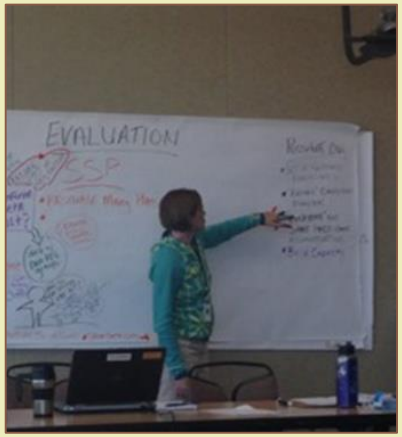
Dr. Phillip Mote, Oregon State University

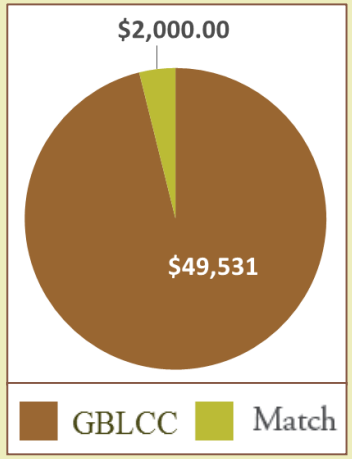
Using Narrative Stories to Understand Traditional Ecological Knowledge in the Great Basin

This pilot project uses a method of naïve interviewing with tribal youths to gather narrative "micro stories" from elders and key tribal members and then answering a series of carefully constructed questions that allow participants to apply context and meaning to their stories. These questions can then be analyzed quantitatively using correlational statistics to identify key themes and patterns across the narrative dataset.

This approach has several advantages including:

- It uses tribal members to gather the data.
- It provides a link between the generations to raise awareness about environmental concerns and TEK.





2014

Dr. Tamara Wall,
The Board of Regents of the Nevada system of Higher Education