Landscape Conservation Cooperative Project Funding

Desert Landscape Conservation Cooperative (DLCC)

University of Arizona, Supporting Watershed Management Planning for People and the Environment in the DLCC
Funding Opportunity Announcement
Reclamation Funding: $150,000
Applicant Funding: $150,000

The University of Arizona and the Gila Watershed Partnership will develop decision support tools for application to watersheds throughout the DLCC. The decision support tools proposed are 1) a baseline assessment of watershed conditions that includes potential impacts of climate change and 2) scenarios to address impacts of future watershed management scenarios identified by stakeholders. These assessments and scenarios will inform stakeholders in the Upper Gila River Watershed about projected impacts of water resources decisions and support their efforts to initiate a watershed plan. Project deliverables will assist the DLCC region with a step-by-step guide to developing baseline assessments and scenarios for human and environmental water needs in the context of climate change.

Desert Botanical Garden, Inc., From Genotype to River Basin: The combined impacts of climate change on bio-control on a dominant riparian invasive tree/shrub (*Tamarisk spp.*)
Funding Opportunity Announcement
Reclamation Funding: $149,269
Applicant Funding: $151,911

The Desert Botanical Garden, the Biological Pest Control Program, the Riparian Invasive Research Lab and Northern Arizona University will determine how the tamarisk leaf beetle combined with climate change will affect tamarisk populations throughout the DLCC region. The project will determine 1) if climate warming coupled with the tamarisk leaf beetle will reduce the negative impact of tamarisk on water resource management in western North America, 2) assess whether some tamarisk populations are more susceptible to the combination of climate change and tamarisk leaf beetle and 3) evaluate how genetic change in the tamarisk beetle species will enable beetle colonies to expand in the lower Colorado River Basin and extend the period of active feeding, thereby changing riparian vegetation in this region.

The Nature Conservancy, Defining Ecosystem Water Needs of the Upper Gila River and Assessing the Impacts of Climate Change
Funding Opportunity Announcement
Reclamation Funding: $129,887
Applicant Funding: $132,871

The Nature Conservancy will define ecosystem water needs and assess the impacts of climate change and proposed new water diversions, through the Arizona Water Settlements Act (New Mexico Unit), on hydrologic processes, riparian vegetation and aquatic habitat and associated wildlife species in the Upper Gila River in

New Mexico. The project will synthesize existing scientific literature and ecological analyses to evaluate the probable ecosystem impact of diversions under changing climate conditions.

Arizona Game and Fish Department, A Landscape Approach for Fisheries Database Compilation and Predictive Modeling
Funding Opportunity Announcement
Reclamation Funding: $99,661
Applicant Funding: $108,584

The Arizona Department of Game and Fish and the University of Washington will produce a defensible data set and decision tool for the conservation of fish and other aquatic and riparian species in Arizona. The AZGF will also offer neighboring states the expertise and knowledge gained in this project. The project will compile and geo-reference fish observation data into a Geographic Information System. This new spatial database will then be used to develop a decision tool that can be used to forecast the spread of invasive species across the landscape.

Alamosa Land Institute, Alamosa Creek and the Canada Alamosa Community: Aligning ecological restoration and community interests through active experimentation
Funding Opportunity Announcement
Reclamation Funding: $35,113
Applicant Funding: $35,113

The Alamosa Land Institute and Canada Alamosa Community will develop new information about local needs and ecological conditions in the agricultural community of Canada Alamosa and test the effectiveness of traditional resource management practices combined with restoration techniques supporting sustainable economic development. The Alamosa Land Institute will analyze existing example projects and the potential for demonstrating efficiency of restoring a riparian buffer within the existing Alamosa Creek channel and along irrigation ditches, planting field distractor crops and wind breaks and supporting habitat for pest predators. The project will result in the development of a model that can be used for scientific and agency support for local land managers to develop additional resource management tools that are designed to maximize ecosystem services.

Arizona State University, Effects of Bio-control and restoration on wildlife in southwestern riparian habitats
Funding Opportunity Announcement
Reclamation Funding: $90,337
Applicant Funding: $90,469

Arizona State University, Northern Arizona University, Utah Division of Wildlife Resources, University of California and Western Foundation of Vertebrate Zoology will determine if the introduction of the bio-control agent (tamarisk leaf beetle, Diorhabda spp.) as an insect consumer and defoliator of salt cedar influences wildlife populations and communities via alterations to food resources and/or habitat. The investigators will

take advantage of an existing program that introduced the beetle over the past two years by tracking changes in amphibian, reptile and avian communities.

Northern Arizona University, Assessing Evapotranspiration Rate Changes for Proposed Restoration of the Forested Uplands of the DLCC
Funding Opportunity Announcement
Reclamation Funding: $135,332
Applicant Funding: $136,734

Northern Arizona University and staff from the Salt River Project will assess the hydrological responses of forest thinning through detailed measurements and modeling of evapotranspiration. The primary research question is if new forest restoration treatments provide significant and lasting changes in evapotranspiration which benefit other components of the hydrologic budget. The validated modeling approaches for estimating ET that will be produced by the project will be useful to land managers for predicting impacts of vegetation manipulations on surface and groundwater availability.

U.S. Forest Service, Rocky Mountain Research Station, Modeling Woody Plant Regeneration and Debris Accumulation Under Future Streamflow and Wildfire Scenarios in the DLCC
Statement of Interest
Reclamation Funding: $51,840
Applicant Funding: $52,000

The U.S. Forest Service, Rocky Mountain Research Station will evaluate the effects of climate change and wildfire scenarios on the density of woody vegetation, snags and wood debris in the Middle Rio Grande basin and develop a tool that may be applied to other regions to project changes in tree density, snag density and amounts of woody debris over time. The information from this project will allow managers to make decisions regarding fuel reduction activities and water delivery with an awareness of how these decisions will affect the vulnerability of riparian obligate wildlife species.

U.S. Geological Services - Southwest Biological Science Center, The Impact of Ecosystem Water Balance on Desert Vegetation: Quantification of historical patterns and projection under climate change
Statement of Interest
Reclamation Funding: $98,244
Applicant Funding: $118,109

The U.S. Geological Survey, Southwest Biological Science Center will explore climate change impacts on vegetation across the Desert and Southern Rockies LCCs using historical monitoring data collected from 23 sites across the Sonoran, Chihuahuan, Mojave and Colorado Plateau deserts for 30-50 years. This data will then be combined with ecosystem water balance model simulations to establish features of water availability critical for plant species response. Results will allow managers to identify species and communities at risk under future climate scenarios based on predicted changes in plant water availability.

U.S. Forest Service - Rocky Mountain Research Stations, Vulnerability of Riparian Obligate Species in the Rio Grande to the Interactive Effects of Fire, Hydrological Variation and Climate Change
Statement of Interest
Reclamation Funding: $89,940
Applicant Funding: $89,933

The Grassland, Shrubland, Desert Program of the U.S. Forest Service, Rocky Mountain Research Station intends to evaluate the interactive effects of fire and climate change on the presence and long-term persistence of native and non-native species within Rio Grande riparian and wetland habitats. Decision support tools and maps will be produced that will help resource managers identify conditions and locations where biodiversity will be most affected by future changes and identify needs with respect to species conservation and invasive species management.

Southern Rockies Landscape Conservation Cooperative (SRLCC)

Arizona Department of Game and Fish, A Landscape Approach for Fisheries Database Compilation and Predictive Modeling
Funding Opportunity Announcement
Reclamation Funding: $99,661
Applicant Funding: $108,584

The Arizona Department of Game and Fish and the University of Washington will produce a defensible data set and decision tool for the conservation of fish and other aquatic and riparian species in Arizona. The AZGF will also offer neighboring states the expertise and knowledge gained in this project. The project will compile and geo-reference fish observation data into a Geographic Information System. This new spatial database will then be used to develop a decision tool that can forecast the spread of invasive species across the landscape.

Colorado State University, National Wetland Inventory Mapping for the Colorado Portion of the SRLCC
Funding Opportunity Announcement
Reclamation Funding: $73,187
Applicant Funding: $74,370

The Colorado Natural Heritage Program of Colorado State University will use its expertise in wetland mapping to digitize original National Wetland Inventory maps for the Colorado portion of the Southern Rockies LCC. The project will complete the remaining 316 quads within the Southern Rockies LCC that lack digital wetland data. They will utilize automated image processing techniques to digitize scanned versions of the original NWI maps and convert them into geo-referenced polygonal data.

Arizona State University, Effects of Bio-control and Restoration on Wildlife in Southwestern Riparian Habitats
Funding Opportunity Announcement
Reclamation Funding: $90,337
Applicant Funding: $90,469

Arizona State University, Northern Arizona University, Utah Division of Wildlife Resources, University of California and Western Foundation of Vertebrate Zoology will determine if the introduction of the biocontrol agent (tamarisk leaf beetle, Diorhabda spp.) as an insect consumer and defoliator of salt cedar influences wildlife populations and communities via alterations to food resources and/or habitat. The investigators will take advantage of an existing program that introduced the beetle over the past two years by tracking changes in amphibian, reptile and avian communities.

New Mexico Office of the State Engineer, Improving Crop Coefficients for the Middle Rio Grande
Funding Opportunity Announcement
Reclamation Funding: $150,000
Applicant Funding: $151,641

The New Mexico Office of the State Engineer is planning to improve crop coefficients for the Middle Rio Grande by assessing actual crop water use through the use of remote sensing technologies that estimate the evapotranspiration of individual crops within the basin. The results from this project will provide local, state and federal water managers with a better estimate of future water demand estimates from decision-making models based on climatic change and other water limiting factors by improving the accuracy of the calculation of water used by crops.

The Nature Conservancy, Evaluation of Decision Support System Platforms and Tools for Integrated Water Management in the Colorado River Basin
Funding Opportunity Announcement
Reclamation Funding: $69,216
Applicant Funding: $103,094

The Nature Conservancy will evaluate alternative decision support platforms and tools for incorporating ecological flow into water management for the Colorado River Basin. The project will result in recommendations for a decision support platform that links coarse and fine scale tools and for improving the Colorado River Simulation System as the central analytical tool for basin-wide water supply planning. This will build on the Colorado River Basin Water Supply and Demand study that is being led by Reclamation.

U.S. Forest Service - Rocky Mountain Research Station, Modeling Woody Plant Regeneration and Debris Accumulation under Future Streamflow and Wildlife Scenarios in the SRLCC
Statement of Interest
Reclamation Funding: $51,840
Applicant Funding: $52,000

The U.S. Forest Service - Rocky Mountain Research Station will expand cottonwood population models with data gathered from the Middle Rio Grande in New Mexico, into an applied science tool. This tool will model and predict changes in density of vegetation under various streamflow and wildfire scenarios. The model created will be useful to the Southern Rockies LCC by creating a code that will run model simulations after variables in density, tree species present and wildfire probability are entered by the user.

U.S. Geological Service - Fort Collins Science Center, A GIS-Based Evaluation of Fremont Cottonwood Stand Dynamics in the SRLCC
Statement of Interest
Reclamation Funding: $37,400
Applicant Funding: $37,400

The U.S. Geological Survey, Fort Collins Science Center is proposing to generate GIS-based evaluation of Fremont cottonwood stand dynamics in the Southern Rockies LCC. The first objective is to make the full data set available to the Southern Rockies LCC in a GIS platform suitable for additional spatial data analysis. This data will provide a baseline through which researchers in future years can assess changes in floodplain land cover and land use. They also plan to develop and apply a model of Fremont cottonwood stand dynamics in the Southern Rockies LCC, focusing on "survivorship" of stands made up of old trees. This part of the project will give water and riparian resource managers a better understanding of the urgency with which restoration or other management activities should be undertaken in order to maintain a specific amount and/or spatial configuration of mature cottonwood woodland.

U.S. Geological Service - Southwest Biological Center, The Impact of Ecosystem Water Balance on Desert Vegetation: Quantification of historical patterns and projection under climate change
Statement of Interest
Reclamation Funding: $62,413
Applicant Funding: $99,375

The U.S. Geological Survey, Southwest Biological Science Center will develop an applied science tool that would help resource managers understand how desert vegetation may be impacted by climate change as a result of changes in the water available in desert soils. The project will leverage an existing historical data collection effort that recorded soil water availability and productivity of different desert plants at test sites located throughout the desert southwest. The project will combine this observed data

into statistical models that would allow researchers to forecast climate-induced shifts in plant species performance by understanding past relationships between soil water availability and plant species abundance through time and space.

U.S. Forest Service - Rocky Mountain Research Station, Vulnerability of Riparian Obligate Species in the Rio Grande to the Interactive Effects of Fire, Hydrological Variation and Climate Change
Statement of Interest
Reclamation Funding: $89,940
Applicant Funding: $89,933

The U.S. Forest Service, Rocky Mountain Research Station will conduct a risk analysis for riparian obligate species in the Rio Grande area of New Mexico with regards to wildfire, climate change and the effect of the aforementioned on streamflow. Under a few different climate change scenarios and a selection of target species, the team will produce several maps geared to resource managers displaying vulnerability of certain species under certain scenarios. The study will also result in a vulnerability analysis for various species regarding fire and climate change scenarios.