Overview of Research Projects for NSF-REU 2009 Summer Program

From Tahoe to Pyramid Lake: Natural Resource Issues in the Sierra Nevada and Great Basin Region

Sponsored by the University of Nevada, Reno Academy for the Environment and Great Basin Institute

The REU program of the Academy for the Environment and the Great Basin Institute links nationally recruited undergraduate students with accomplished academic scientists to further our scientific understanding of the Lake Tahoe-Truckee River-Pyramid Lake watershed within the eastern Sierra Nevada bioregion. This program encompasses a wide range of research experiences in socioeconomic and natural resource science. Participants will be exposed to diverse scientific inquiries and technologies to gain insight into the manner in which science informs land use policy, management and conservation initiatives. The overarching goal of this program is to explore the interdisciplinary intersections of the various subfields in the sciences that are required for adaptively managing watersheds.

Our research projects are situated within a biologically diverse watershed, a unique ecological system that provides varied and compelling research opportunities in mountain, desert, and riparian communities. The desired outcome of our collaborative research will bridge students, faculty, and natural resource managers in a collective effort towards enhancing our scientific understanding of regional conservation issues in an applied context.

Research Projects

Studies of the impacts of nonnative introductions and cultural eutrophication on the Lake Tahoe ecosystem (Sudeep Chandra, Natural Resources and Environmental Science Department, UNR)

Policy analysis and program evaluation, policy implementation strategies, GIS work evaluating private landowner decisions, and policy outreach working with public and private sector decision-makers in the Lake Tahoe Basin (Derek Kauneckis, Department of Political Science, UNR).

Econometric analyses of visitation and recreation data for Lake Tahoe (Klaus Moeltner, Department of Resource Economics, UNR).

Field surveys of the ecological goods and services provided by, and at risk, in the Lake Tahoe Basin (Kim Rollins, Department of Resource Economics, UNR).

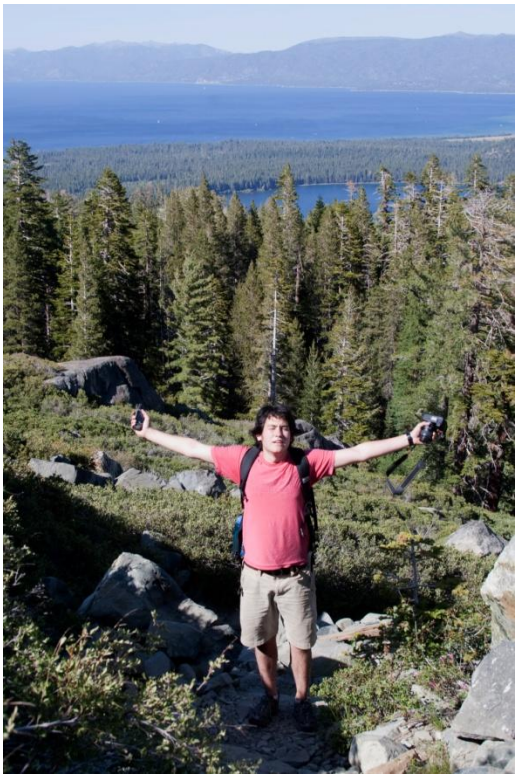
Using historical photographs of the South Lake Tahoe area, team members will spend time in the Tahoe basin finding the exact location that these photographs were made, and using digital technologies, make an identical contemporary image according to pre-established techniques. The project includes GPS recording and digital sketchbook processes (Peter Goin, Department of Art, UNR).

Studies using rainfall simulators to understand how land management affects runoff and erosion from small watersheds in Nevada (Laurel Saito, Natural Resources and Environmental Science Department, UNR).

Installing instrumentation and improving methods for collecting precipitation and runoff data to enhance the sparse precipitation network in the Great Basin, including in the Truckee River watershed, by instrumenting wildlife water developments (guzzlers) (Laurel Saito, Natural Resources and Environmental Science Department, UNR).

Influences of urbanization on bird diversity along the Truckee River. Students will conduct breeding bird surveys and use GIS to analyze effects of urban development and other human activities on avian community structure and composition at the landscape level (Peter Weisberg, Natural Resources and Environmental Science Department, UNR).

Fremont cottonwood establishment and distribution: a comparative study across the Truckee, Carson and Walker rivers. Students will use remote sensing, aerial photography and/or tree-ring research to explore the historical and modern-day influences of agriculture, river regulation and restoration on the occurrence of this ecologically important tree species (Peter Weisberg, Natural Resources and Environmental Science Department, UNR).



Sampling wildlife diversity and distribution in the Tahoe Basin and along the Truckee River as part of restoration monitoring (Lynn Zimmerman, Great Basin Institute, and Ecology, Evolution and Conservation Biology Program, UNR).