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### **Archeology and Prehistoric Human Ecology of Red Butte Creek**

Brain Coddling, Tom Flanigan, and Kate Magargal, *Anthropology*

**Summary:** Humans have been intrinsically tied to the ecology of western North America for at least 14,000 years (Grayson 2011). Known only through their archaeological record, past populations along the Wasatch Front interacted dynamically with their local environments and adapted to a myriad of changing conditions well outside the historic range of variation. Unfortunately, the archaeology of RBC is poorly known. Without this record, we have neither a window into the lives of past people and their local adaptations, nor an understanding of the potential impacts degrading these cultural resources. As a natural laboratory, the prehistoric record in RBC may prove an insightful microcosm for understanding regional prehistory more broadly. As a campus initiative, undertaking work to fill in these gaps could provide valuable education and training opportunities for undergraduate and graduate students.

### **Increasing Public Awareness of Red Butte Canyon and Creek Through Photos**

Erin Gamertsfelder and Mark Chynoweth, *Biology*

**Summary:** The Sekercioglu lab uses motion-activated camera traps as a noninvasive approach to document species that are present in Red Butte Canyon Research Natural Area (RNA) and along the creek that runs through research park on the University of Utah campus. The use of camera traps in this area tells us not only what species of mammals are present in the canyon, but what species are making their way into the Wildland-Urban Interface. This project was funded to print a poster and photos to engage and inform the public on the species that inhabit Red Butte Canyon. The photos can be used to help explain the ecological importance of the canyon, and what animals rely on the creek for a water resource.

### **Evaluating and Mapping Student Preferences for Trail Features and Potential Uses in the Red Butte Creek Riparian Corridor**

Matthew Brownlee, *Parks Recreation and Tourism*

**Summary:** The purpose of this research is to identify, evaluate, and map University of Utah student preferences for a) general trail features, b) potential trail routes, b) indicators of quality, c) trail access, and d) potential uses in the Red Butte Creek riparian corridor located southwest of Bonneville Shoreline Trail and northeast of Foothill Drive. This purpose aligns with the research objective: To spatially map social preference data in order to outline, compare, and propose the three most socially desirable trail routes in the RBC.

### **Mapping Red Butte Creek Bank Geomorphology, Erosion, and Slope Stability for Sustainable Planning**

Nathan Anderson and Brenda Bowen, *Geology and Geophysics*

**Summary:** The relatively uncontrolled stormwater drainage into Red Butte Creek from outfalls that drain the University of Utah campus and Research Park properties has resulted in extreme erosion along the banks of the creek. Ongoing cross-campus efforts are under way to do more with this segment of the Red Butte Creek riparian corridor to promote opportunities for incorporating the creek into the

academic mission of the University. As these plans take shape, it is important for us to have a detailed understanding of the history of bank failure and erosion, and to have a map of where the erosion is the most significant and where risk may be the greatest for future failure.

### **Integrating Science, Education, Outreach, and Conservation through Hands-on Bird Ecology Research in the Red Butte Creek Riparian Corridor**

Joshua Horns, Evan Buechley, and Jordan Herman, *Biology*

**Summary:** This project contributes to our understanding of avian ecology and migrations in Red Butte Research Natural Area (RBRNA) and will enable analysis of the distributions, migrations, and demographics of the species constituting the RBRNA bird community. Bird-banding programs are vital for conservation education and public outreach. The hands-on nature of bird banding makes it possible for students, decision-makers, journalists, and other locals to observe birds up close, learn about conservation challenges, and make personal connections to biodiversity. A central component of this project is to promote interest and hands-on involvement in biological research and conservation by students and the general public.

### **Transport and Transformation of Reactive Nitrogen in Soils and Flowpaths of Red Butte Creek Watershed**

Samantha Weintraub, *Geology and Geophysics*

**Summary:** The Wasatch Front Range is a hotspot for nitrogen deposition within the Western U.S., yet the fate of this additional nitrogen is poorly understood. In fact, despite years of research, our understanding of the fundamental controls on how reactive N moves through complex, soil-mantled landscapes is far from complete (Lovett and Goodale 2011). Better integration of hydrologic and biogeochemical perspectives (Lohse et al. 2009) could advance our understanding of this high-priority research area.

### **An Exploration of the Ecological Roles of Lichens in Red Butte Creek**

Autumn Amici, *Biology*

**Summary:** Lichens - mutualistic associations between algae and fungi - are remarkable organisms found in diverse biomes around the world. Although lichens have been studied extensively in some parts of the world, the composition of lichen flora and their ecological roles in northern Utah have not been well-studied or communicated. There have been numerous studies on vascular plant diversity, vertebrate ecology and diversity, nutrient cycling and water quality in Red Butte Creek and Canyon (RBC), but one gap is the study of lichens. Our long-term goal is to contribute to our scientific understanding of the ecological roles of lichens, and communicate that to many audiences.

### **Original Artwork Based on the Biodiversity of Wildlife in and Around Red Butte Creek**

Claire Taylor, *Environmental Humanities*

**Summary:** I propose to create a series of art pieces related to the biodiversity, specifically the wildlife, in Red Butte Creek Canyon. The artwork would speak to the importance of upper Red Butte Creek as a wildlife refuge due to its status as a research natural area. The work would also highlight the need for having a protected riparian ecosystem in an area where natural ecosystems are heavily used and often exploited. See Taylor's Red Butte Creek art here

<http://www.owlandcoyote.com/#/redbuttecreek/>