PUBLIC LANDS LEGISLATIVE INITIATIVE

UtahStateUniversity

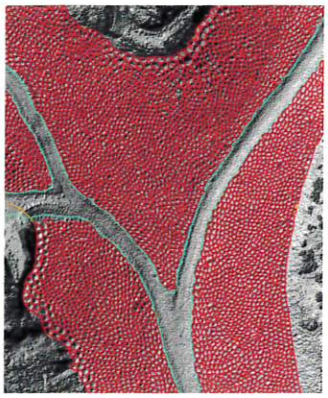
State appropriations for the USU Public Lands Initiative were approved in 2018 and are managed by the Utah Agricultural Experiment Station. Researchers use the funding, in concert with required matching funds, to work on issues linked to many aspects of public lands management.

COLLEGE of AGRICULTURE and APPLIED SCIENCES

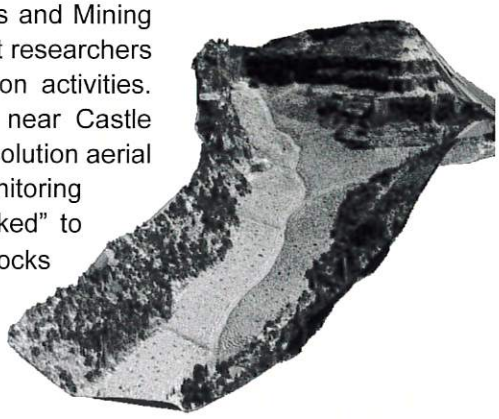
S.J. & JESSIE E. QUINNEY COLLEGE of NATURAL RESOURCES

UTAH AGRICULTURAL EXPERIMENT STATION

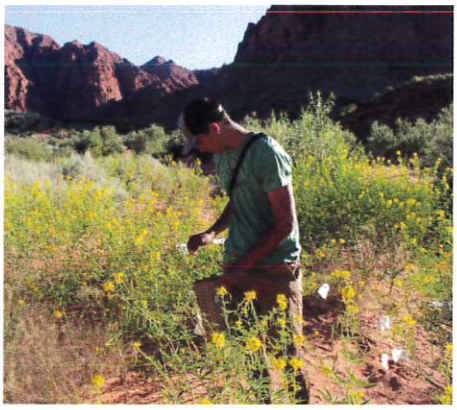
Unmanned Aerial Systems to Monitor Mine Reclamation Success in Central Utah



In collaboration with the Utah Division of Oil, Gas and Mining and PacifiCorp, USU faculty and graduate student researchers are developing methods of evaluating reclamation activities. Working at the Wilberg-Cottonwood Mine area near Castle Dale, the researchers have collected ultra-high resolution aerial images and topographic data that will aid in monitoring changes in the landscape which has been "pocked" to produce thousands of micro-watersheds. The pocks are intended to curb erosion as they trap water to supports reseeding efforts and encourage plant growth across the landscape.



Pollinator Management on Public Lands



This project is part of the initiative's ongoing collaboration with researchers at Southern Utah University.

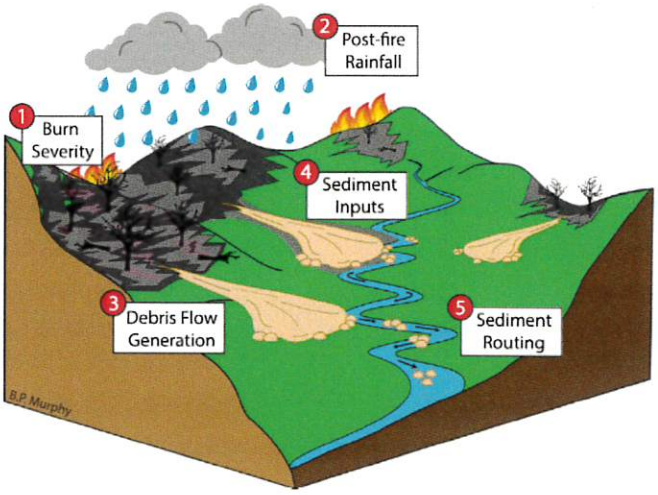
Funding for the project began in mid-July, 2019, and three students were hired to assist three SUU faculty members. They are collecting seed of plants that contribute to regional economies and that aid landscape restoration efforts as part of the Bureau of Land Management's Seeds of Success program.

The team has collected and is identifying more than 600 bees, developed and field-tested a prototype acoustic recording unit, and collected an estimated two million native plant seeds in conjunction with a student-led Seeds of Success team.

Utah Forest Institute Fire Severity Analysis

The Utah Forest Institute's faculty and technicians at USU are at work on a Fire Atlas of Utah, and have completed burn severity analysis from satellite data for 238 Utah fires. The researchers developed procedures and software so that trained undergraduate student researchers can continue to develop fire severity maps from Landsat data. The Fire Atlas of Utah will quantify fire and characterize fire "norms" within Utah's major plant communities. The institute is also leveraging federal funding to monitor trends in burn severity. All this will support better planning and resource management.

Assessing Vulnerability of Reservoirs to Post-Wildfire Sedimentation



A new modeling framework developed for this project by USU researchers has been received as a major advance in tools used to predict post-wildfire sedimentation in reservoirs. The work has been presented at academic conferences, stakeholder meetings, and to representatives of the U.S. Forest Service, Natural Resources Conservation Service, Utah Division of Fire, Forestry and State Lands, and Salt Lake City Public Utilities. Research team members are determining how their work best aligns with resource managers' goals and needs. They leveraged their state funding to be awarded a large collaborative grant from the National Science Foundation which will provide three additional years of funding and allow the faculty and student researchers to analyze all 133 large reservoirs in Utah. In addition, the work funded by the Public Lands Initiative resulted in a peer-reviewed paper that is ranked among the 20 highest impact papers ever published by the American Geophysical Union's prestigious journal *Earth's Future*.

Developing Decision-Support Tools for Managing Wild Horses and Burros

The abundance of wild horses and burros on public lands causes wetland degradation, soil compaction, and spread of noxious weeds. In collaboration with the Universities of Wyoming and Nevada, the BLM, NASA, and the U.S. Geological Survey, USU researchers are integrating satellite imagery with soil and climate data to develop a habitat monitoring tool that will provide information for decision makers by identifying sites where habitat restoration is needed most and is likely to succeed. The data will help in prioritizing sites for horse removal, rangeland restoration, and native wildlife conservation.

The Berryman Institute at USU organized a Free-Roaming Equids and Ecosystems Sustainability Summit that created a network of stakeholders committed to the goal of "healthy herds on healthy rangeland," and to communicating the urgency of addressing current and projected ecological degradation caused by wild horses and burros on federal, state, and tribal lands in fragile, high desert ecosystems with limited water. Summit delegates continue to collaborate and integrate sound science with local knowledge, human perceptions, and values, and are developing management plans that can be implemented compassionately, judiciously, and expeditiously.

Institute of Outdoor Recreation and Tourism

With funding from the Public Lands Initiative, five regional workshops around the state were held with land managers and representatives of city and county governments and businesses dependent upon outdoor recreation and tourism. The workshops have identified region-specific challenges and opportunities associated with increased outdoor recreation participation and tourism throughout the state. **Information on outcomes of these workshops is online at utahsmostvisited.com.**

Effects of Rabbits on Rangeland Condition: A Grazing Study in the Henry Mountains

Thirty-four percent of Utah's farm income is generated from beef cattle production. Disappointing sale weights of animals coming off rangeland affected by drought have a substantial impact on producers' gross income. Increases in the frequency and severity of droughts in the southwestern U.S. are forecast, meaning every factor that impacts the quality of Utah's rangeland must be scrutinized to support science-based management decisions. Several species of rabbits (mainly cottontails and jackrabbits) have been found to consume more than a third of annual grasses on public grazing allotments in the Henry Mountains. Coyotes could reduce the rabbit population, but also endanger cattle and bison, especially calves, that graze public allotments.

The USU team is analyzing data gathered in cooperation with the Bureau of Land Management and will develop management tools to help balance greater economic stability and environmental sustainability.

See more about these and other projects supported by the USU Public Lands Initiative at UAES.usu.edu/publications/pli

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