Drylands are complex ecosystems that occupy 41% of the world's land and comprise 38% of the global population. Scarcity of water constrains primary production and nutrient cycling, affecting production of vegetation with impact on livestock and humans (1). Rangelands in the United States characterized by low and variable precipitation, nutrient-poor soils, and high spatial and temporal variability in plant production, are part of these drylands ecosystems.

These rangelands have provided food and fiber for much of the 20th century, but a series of economic, social and environmental factors have been decreasing the provision of ecosystem services in the last decades (2).

The fragility of these ecosystems requires careful use of resources and constant adaptation of land management and restoration techniques. The line between degradation and sustainable land management in drylands is fine and in constant change (3). People are taking action to control desertification and restore damaged landscapes all over the world.

The San Simon watershed is one of the most dramatic examples of intervention in the Southwest with hydraulic structures, grazing management, grass reseeding and prescribed burning as early as the 1800’s. Since the 1930’s several governmental agencies, such as the Bureau of Land Management (BLM), the Civilian Conservation Corps (CCC) and the Natural Resources Conservation Services (NRCS) have applied several methods to restore rangelands former productivity, stop soil loss, flooding, shrub proliferation and improve the goods and services provided by public lands. The combination and temporal and spatial coincidence of land management interventions is so intricate that sometimes it is difficult to know exactly what type of management has worked and what has not. At the same time, the seasonal and yearly variability in precipitation and temperature in these regions makes it more difficult to discern the outcomes of these interventions from other controlling factors.

Despite the difficulty of definitive assessments, evaluating management actions is an important a way to increase our capacity to learn from the past, help to produce recommendations to manage these
vulnerable ecosystems and adapt future techniques and decision making to the uncertain future (4). But, too often past efforts are not assessed, and even when they are, local perspectives are not considered and valuable knowledge is lost or not shared. Experience has shown that such evaluations fail to address local concerns and later lack of public support. Each local stakeholder has a unique interpretation of changes. Therefore, many perspectives can improve an environmental assessment.

Participatory environmental assessment can also increase awareness and educate stakeholders to take a leading role in future decisions, while leading to social learning, mobilization, engagement and empowerment to respond to challenges of degradation and change (5, 6, 7, 8). The possible natural and human-related changes initiated more than a century ago in the U.S. Western native grasslands are expected to increase with precipitation and temperature trends related to climate change. As the current and future conditions become more uncertain and difficult to predict, resource managers will need up-to-date, relevant, and rapidly information, extensive training and methods for more collaboration between local actors, decision-makers and scientists (9). Public participation in environmental assessment and decision-making for future land management is also an important two-way communication path of sharing complexities faced by science in an uncertain future, while ensuring feedbacks for adaptive management plans (10).

This is the approach followed by the international project Prevention and Restoration Actions to Combat Desertification-PRACTICE. This international group of researchers believes there are no absolute best practices since: 1) land management objectives and people’s views change 2) the ecological complexity of drylands makes it difficult to identify action effects and 3) actions can be good in responding to one objective but might not respond others. On the basis of linking science to society in a learning process, the final goal of this initiative was to develop and test an integrated and participatory
evaluation protocol that might significantly contribute to improving the investments applied to stop desertification.

My PhD research under the supervision of Dr. Barron J. Orr, is part of this larger project. This research was awarded funding through the Sustainable Agriculture Research & Education (Western SARE) Graduate Student Project Grant program (GW12-064; FRS 4000380) and the U.S. Bureau of Land Management and endorsed by the Gila Watershed Partnership.

We hope to evaluate some of the land management actions in the San Simon watershed using information obtained from scientific studies and the expertise and knowledge of local people who have participated in the mitigation and restoration actions and/or have been affected by them. During the past 12 months and with the help of a team of graduate students from the University of Arizona, we started to gather information from BLM files and maps to define the scope of the assessment.

With this information we selected and then mapped a combination of five land management actions. To date we have completed the design of the research protocol and instruments that will be used to collect the information (interviews, participatory tools and field based monitoring). The research protocol will be presented to the Human Subjects Protection Institutional Review Board of the University of Arizona for approval and then the project will begin.

We have also carried out a first round of biophysical measurements including plant composition, total soil carbon content, biomass of woody vegetation and vegetation pattern. This information is still preliminary and is currently being analyzed. The following steps include short interviews with participants interested in sharing their opinion about these actions, and assessment of information collected using remote sensing and field-based methods.

The study will take approximately 12 months including the collection of field data and the final analysis once all our work in the San Simon watershed is complete. The participants will be only contacted on three occasions and for a couple of hours each time. After the approval of the research protocol we will start contacting those who wish to participate in this collaborative experience.

References
The Syfert Wildlife Watering Facility – The problems with the float valve regulating the water level is now fixed, and the water is maintaining a consistent level. The motion activated camera will be purchased soon, so that we can all enjoy pictures of the wildlife enjoying their new watering hole!

ADEQ Clifton Restroom Facility – This grant application, which will hopefully be awarded in April, will reduce the E.coli level in the San Francisco River that has resulted from the large numbers of people recreating along the San Francisco River, where there are no public restrooms. In collaboration with Phil Ronnerud, the Greenlee County Engineer, and John Schempf, the Clifton Town Manager, the GWP changed the application’s configuration to allow for a sewer-connected system instead of a vault-and-haul system, which ADEQ felt was not a sustainable solution to the problem.

The AWPF Apache Grove Project – Mr. Barney, the landowner for the Apache Grove project, is having some issues with regrowth of the tamarisk, as well as other non-native species cropping up.

The National Fish and Wildlife Foundation – We applied for a grant to develop a template for a youth engagement pathway that can be used throughout the state. This pathway will begin early in high school, and continue through community college, and will include experiential activities, training and participation in youth conservation corps programs through local community colleges. The pathway will culminate in a youth summit that would identify opportunities for careers, internships, or service options with the BOR, BLM, FS, or other agencies and organizations to prepare for the next steps in an academic or career pathway. We also will be working with the Friends of the Verde River Greenway and Ironwood Tree Experience.
Be Prepared... the meaning of the motto is that a scout must prepare himself by previous thinking out and practicing how to act on any accident or emergency so that he is never taken by surprise.

- Robert Baden-Powell

Wednesday, April 10, 2013 at 7 p.m. – A Special meeting of the GWP starts with a buffet dinner then continues with an exercise to collect all of the significant events in our watershed and record them as part of our watershed’s legacy. Our regular meeting will continue after the exercise.

Saturday, June 1, 2013 at 10 a.m. – The GWP will be holding our 1st Annual Water Festival at the Safford City Hall lawn.

Our partners include:
Arizona Department of Agriculture
Arizona Department of Environmental Quality
Arizona Department of Transportation
Arizona Department of Water Resources
Arizona Game and Fish Department
Arizona Geological Survey
Arizona State Land Department
Bureau of Land Management
City of Safford
Town of Thatcher
Town of Pima
Town of Clifton
Town of Duncan
Gila Valley NRCD
Eastern Arizona College
Farm Bureau
Freeport McMoRan Copper and Gold Inc.
Graham County
Greenlee County
Gila Valley Irrigation District
Natural Resource Conservation Service
University of Arizona Cooperative Extension
University of Arizona NEMO Project
U.S. Fish and Wildlife Service
U.S. Forest Service – Apache
Sitgreaves and Coronado Forests
U.S. Bureau of Reclamation
And many community members

Get involved in your watershed

For more information, contact Jan Holder at the Gila Watershed Partnership, 711 S. 14th Avenue, 85546, 520-419-0374, email-watershedholder@gmail.com