

Jornada researchers collaborate on Mongolian rangeland monitoring project



Jeff Herrick, left, a Jornada Experimental Range scientist affiliated with NMSU, records vegetation and soil data in far western Mongolia during the summer of 2009. This was the first of three summer field data collection campaigns in that country, part of a multi-year rangeland monitoring project he and several colleagues are involved in. Also pictured is Mongolian Society for Range Management botanist Ganaa. (NMSU photo by Justin Van Zee)

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When representatives of the Swiss Development Corporation contacted Jornada Experimental Range scientists six years ago about participating in a Mongolian rangeland monitoring and assessment project, Jeff Herrick and his colleagues thought it would be no big deal.

“SDC contacted us and asked if we would be willing to help out by hosting a Mongolian Research Institute of Animal Husbandry professor and then undertake a first visit to Mongolia to advise them on rangeland issues,” he said recently.

Herrick, a JER soil scientist with adjunct appointments in New Mexico State University’s Department of Animal and Range Sciences and Department of Plant and Environmental Sciences, has been involved in the Mongolia initiative ever since. And the SDC, an agency similar to this country’s USAID, has continued to provide major funding for the expanding project.

Herrick’s colleague Brandon Bestelmeyer is a JER ecologist affiliated with the biology department in NMSU’s College of Arts and Sciences, as well as the above departments in the

College of Agricultural, Consumer and Environmental Sciences. He explained that the overarching purpose of the JER/NMSU project has been to help the Mongolians gain a broader view of current best practices in rangeland evaluation and restoration and to help them set up a system to support their nationwide efforts to address rangeland issues.

The work has important economic and social implications for the former Soviet republic bordering northern China, where one third of the population relies heavily on livestock and the rangelands they inhabit. Domesticated herd animals include sheep, goats, cows, horses and Bactrian camels. Among other things, those animals provide meat and dairy products to a population with a meager vegetable and fruit supply.

Bestelmeyer says that much of the current rangeland degradation in Mongolia is the result of a breakdown of traditional grazing management practices. Improving the rangeland management practices by today's herders is likely to be the government's primary strategy to stem rangeland degradation and make recovery efforts feasible.

Herrick, Bestelmeyer and a handful of other colleagues have worked with various governmental agencies, educational institutions and nongovernmental organizations, especially Mongolia's National Agency for Meteorology, Hydrology, and Environmental Monitoring and the Mongolian Society for Range Management, to develop appropriate tools and methodologies for the Mongolian situation.

Stopping environmental degradation and initiating recovery efforts is far from simple, according to Bestelmeyer. In addition to systematic monitoring of the land and extensive analysis of the monitoring data, it is crucial that management decisions by the government entities be acceptable to all parties, including the herders who rely on healthy rangelands for their livelihoods.

The JER/NMSU team has introduced standardized techniques for measurement of soil and vegetation properties that were developed in the Chihuahuan Desert at the Jornada over the last two decades; Herrick and other project participants are the authors of the 2005 "Monitoring Manual for Grassland, Shrubland and Savannah Ecosystems."

The team has also provided a sophisticated tool for recording data and analyzing it – the Database for Inventory, Monitoring and Assessment – and worked with the Mongolians to adapt it to their particular context.

And they have suggested a theoretical framework for interpretation to help researchers and policy makers better understand the extent of a site's degradation, predict whether a site can return to a healthy state, and develop optimal site management strategies for the future.

Between 2009 and 2011, Jornada scientists were involved in three summer "field campaigns" in Mongolia, getting the monitoring and assessment system set up and training people to use it.

Justin Van Zee, JER soils biologist and project manager for Herrick's plant-soil studies and monitoring research, coordinated all three field campaigns and was the JER team member who spent the most time in Mongolia.

Van Zee said that during the campaigns, Jornada and MSRM technicians traveled throughout the country collecting soils and vegetation data in five different ecological zones and re-measuring sites that are part of an existing countrywide monitoring program administered by NAMHEM.

The traffic has been two-way: the project has continued to involve Mongolian visitors, with three delegations of students and scientists spending time at NMSU for various sorts of training.

Ericha Courtright is an NMSU college assistant professor and project manager for Herrick's soil and monitoring studies.

“When I came into the project in 2009, they had collected the first year of field data, and the Mongolians had entered it into our database, the DIMA,” she said. “I came in to help them make changes to the database and also help them better understand how to use it.” In addition to working with the three groups of visitors, she did database training in Mongolia during trips in 2010 and 2011.

Other JER and NMSU participants in the project have included Kris Havstad, JER supervisory range scientist; Laura Burkett, a JER range technician; and Jeb Williamson, a GIS specialist and NMSU research assistant professor.

The Mongolia project promises to benefit the JER and NMSU researchers, and by extension, the constituencies they serve.

“The international work, including Mongolia, provides us with opportunities, and financial support, to test out new approaches, often at different scales than we are working on here. We then bring these back and adapt them for use in the U.S.,” Herrick said.

“We’re just doing what scientists and extension workers have always done – building on what we learn from one project or interaction to improve the next. The difference is that we’re now doing it globally.”