



Monitoring Rangelands

This project has provided tools that help landowners and land managers assess the ecological status of rangelands and make management decisions that support the sustainability of healthy rangelands.

Who cares and why?

Rangelands in the western U.S. form a vast and varied landscape that provides important habitat for wildlife, grazing land for economically-important livestock, and recreational opportunities. Ecological processes that occur on rangelands generate clean water to drink and air to breathe. Periodically assessing the general ecological health of rangelands is key to supporting the long-term sustainability of rangelands. Since 1974, the USDA has been charged with conducting a “comprehensive assessment of present and anticipated uses, demand for, and supply of renewable resources from the nation’s public and private forests and rangelands.” The Natural Resource Conservation Service (NRCS) conducts a similar inventory of private rangelands across the nation. However, interpreting rangeland conditions has always been controversial, especially when debates over public policy and resource allocation occur. Furthermore, collating assessments of private lands with those from various public land units into a cohesive national report has been difficult because different agencies have used different criteria. A single, unified method for assessing rangeland condition is clearly needed, but identifying a method that accurately measures rangeland health across a broad spectrum of climate, geology, soil types, and ownership patterns is complicated.



Rangelands include grasslands, shrub lands, deserts, alpine communities, marshes, and other ecosystems, including the juniper-dominated landscape above. WERA-040 researchers have standardized specific descriptions of the various ecological sites that occur on rangelands, making it is easier to evaluate rangeland health. Photo by Mike Borman, Oregon State University.

What has the project done so far?

During the past five years of the WERA-040 project, participating scientists have developed new science-based approaches and models for assessing, monitoring, and managing rangelands. In particular, researchers have formulated and standardized detailed descriptors for various ecological processes and features that are being assessed. They have also designed models that track and forecast rangeland conditions given different potential land use or management options. Another focus has been developing methods for determining whether or not ecological processes are working properly within various rangeland ecosystems. These tools have been designed to work for many different agencies, in all types of rangeland ecosystems, and for rangelands in all states of health. Data collected by WERA-040 researchers have been used to set thresholds for ecological processes and features and recommend specific management options. WERA-040 researchers and Extension professionals have hosted successful symposia and published many papers to share the latest information and technology among various conservation organizations, state and federal land managers, legislative authorities, the agriculture industry, and private landowners.

Impact Statements

Helped private landowners and public land managers make informed decisions by improving means of assessing rangeland resources and making monitoring data more readily available.

Increased adoption of monitoring guidelines in western states, helping land managers spot degrading conditions before they become too serious.

Protected the sustainability of western rangelands by developing models that can be used across the western U.S. to design more adaptive management plans.

Raised awareness about possible restoration options for rangelands of all conditions.

Provided detailed information on the status and sustainability of natural resources that rural communities rely on for economic progress. For example, increased implementation of rotational grazing practices in North Dakota has generated about one million dollars per year for North Dakota producers.



WERA-040 research and outreach has helped rangelands professionals sharpen their skills for identifying ecological sites on rangelands. Photo by Bobbie Davis, NRCS.



Knowing what types of ecological sites are present on rangelands helps guide management practices and helps land managers recognize threats and damage to these ecosystems. Photo by Mike Stirling, NRCS.

What research is needed?

One focus for future research is understanding how vegetation treatments affect the movement, distribution, and quality of water resources on different ecological sites. Researchers also need to verify the models and ecological site descriptions used to predict transitions between vegetative states.

Want to know more?

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