

Strategies for sustaining multiple ecosystem services from rangelands

K. M. Havstad¹, J. R. Brown², J. E. Herrick¹, D. P. C. Peters¹,
E. L. Fredrickson¹, B. T. Bestelmeyer¹, and R. Pieper³

¹USDA-ARS Jornada Range, Las Cruces, NM 88003-8003, USA, khavstad@nmsu.edu; ²USDA-NRCS, Las Cruces, NM 88003-8003, USA; ³New Mexico State University, Las Cruces, NM 88003-8003, USA

Key words: resource assessments, participatory approaches, outcome probabilities

Introduction The application of natural resource science to both management needs and policy formation has been spotty, at best. Interestingly, rangeland science had an early history of closely supporting management needs and USA rangeland policies during the early 20th century. This history of support unraveled during the mid part of the 20th century as the science failed to address increasingly relevant socioeconomic factors, and rangelands were sought to provide other services beyond food and fiber. Recently, rangeland science has again been coupled to management and policy. Sustaining any combination of goods and services from rangelands requires that linkages among science, management and policy be well established and functional. An analysis of this history of the coupling, uncoupling and then recoupling of rangeland science with both management and USA rangeland policies may provide useful insights for sustained use of these resources.

Discussion Science related to our natural resources is a disparate network of people often frustrated by a lack of clarity of the relative importance of socioeconomic drivers upon resource conditions, and uncomfortable relationships between scientists and resource managers. In addition, connecting science and policy requires both that policy makers understand science, and that scientists understand political landscapes and limits to the application of science to policies and their formation. There are 4 major obstacles that constrain reconnection of science, policy and management of natural resources: 1) an increasing knowledge base, 2) a dynamic boundary between science and policy, 3) uneven stakeholder participation, and 4) uncertainty associated with the science (Joyce, 2003). Our experiences are that scientific linkages to policy and management can be established even when working on subjects rarely considered by the general public. Critical lessons learned from an historical review of the uneven utilities of rangeland science over the past century include the need for ecological complexity to be consistently well articulated, and for stakeholders to participate throughout the research process. Scientists have to communicate probabilities of outcomes or expressions of the variability of results in order to be useful to either management or policy. This is a key manner in which scientific complexity is conveyed.

Conclusions The integration of science into management and policy is no longer open to question. Key to that integration is the process with which the public community, from local to national or global in scale, can participate, monitor and control the interactions of information, resource use and resource status as a result of management and policy. Rangeland scientists are making strides to again re-couple research to inform management and policy by providing a means to describe complex conditions and estimating effects of management in a manner that can be understood and used by the public.

Reference

Joyce, L. A., 2003. Improving the flow of scientific information across the interface of forest science and policy. *Forest Policy and Economics* 5, 339-347.