

Introduction to the Sierra Nevada Science Symposium Proceedings

Appropriately interpreting and applying scientific knowledge in natural resources management require an efficient and effective means of information dissemination. Yet, it proves more difficult each year to keep up with the flow of scientific information. As a result, turning research results into knowledge that managers and policy makers can readily access and use becomes ever more challenging.

The complex and vexing land and resource management issues in the Sierra Nevada that require the best possible scientific information and guidance have increased dramatically in recent years. The days of the Sierra Nevadan landscape serving as a limitless resource are becoming a distant memory. Growing numbers of interest groups, with local to national concerns and influence, are weighing in on a variety of issues that land and resource managers must now address.

The Sierra Nevada ecoregion is famous for its vast forests, diverse montane features, and spectacular landscapes of granite. Water, timber, recreation, and grazing have all been important commodities garnered from the natural resources of the Sierra Nevada. And many less economically tangible values have been and remain treasured products of the region. The dominant question for those who develop policy and manage the Sierra Nevada is -- how can we allocate and manage finite resources to meet the diverse demands of an expanding society?

Nearly two-thirds of the roughly 20,000,000 acres within the Sierra Nevada ecoregion are under federal land management. Most of this acreage comprises national forests; some at the lower elevations is managed by the Bureau of Land Management; and the National Park Service manages some of the most recognizable landscapes at Yosemite and Sequoia and Kings Canyon national parks. Although there is a rapidly urbanizing landscape in the foothills of the Sierra Nevada, particularly along major transportation corridors, the bulk of the privately owned lands in the Sierra Nevada are managed as rangelands (at lower elevations) or timberlands (at middle elevations). Most of the Sierra Nevada remains in a relatively wild condition; however, demands for resources from these lands are coming from many different places.

These land ownership and management patterns, considered in the context of the distributions and abundances of existing resources, set the stage for the current management challenge. As various demands for the resources of the Sierra Nevada multiply, we see rapid escalation in conflicts over use of the resources and the attendant need to seek solutions. The Sierra Nevada Ecosystem Project (SNEP) in 1996 provided the first major milestone in assembling scientific information to help address a wide array of management challenges by highlighting management issues, reviewing existing scientific information, and calling for further research and data. In the years since the SNEP report (Sierra Nevada Ecosystem Project. Final Report to Congress. Status of the Sierra Nevada. Wildlands Resources Report, Number 38, Centers for Watershed and Wildland Resources, University of California, Davis. 1996.) management issues have continued to crystallize, while new research has

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made additional contributions to the body of science available to managers and policy makers.

The organizers of the Sierra Nevada Science Symposium 2002 intended the gathering to be a forum for bringing forward current scientific research findings on key resource and land management issues of the Sierra Nevada, while simultaneously continuing efforts to communicate the salient findings to managers and policy makers. We believed that, since release of the SNEP report, substantial new scientific information had become available and fruitful new discussions could occur.

Key issues in the Sierra Nevada have not changed dramatically since the SNEP report, although certainly some issues have grown to represent greater and more immediate management challenges than others. Accordingly, the organizing committee identified five major topic areas that could serve well to organize the forum and focus attention. The first session addressed fire and physical processes as a focal topic. Certainly, fire and fuels management has been a prime concern in the Sierra Nevada, where fire exclusion and vegetation manipulations over the past 100 years have changed fuels loadings and fire hazards dramatically. The second session revolved around recent findings in climate change and the concomitant responses of landscapes and biotic resources. New scientific insights in these areas have raised a suite of concerns and management questions. The third session focused on the basics of forest ecology as a fundamental science that informs many other related scientific issues. How do these incredibly complex systems function? How do they respond to a suite of natural and anthropogenic disturbance agents? How can or will future management regimes influence trajectories of forest structure, composition, and function? The symposium's fourth session specifically addressed perhaps the most sensitive suite of ecosystems in the Sierra Nevada -- aquatic, riparian, and wetland systems. These ecosystems are generally considered to be among the most disturbed components of the Sierra Nevada. What is their condition, and what are the needs and prospects for their rehabilitation? Finally, the fifth session addressed the marquis issue in any ecological system or region—its biodiversity. The biota of the Sierra Nevada is generally believed to be more intact than that in many other ecological regions; however, there are warning signs and management concerns that need attention. We have the potential to stave off collapse of biological communities at this juncture; where are the problem areas and what will it take?

We also believed that it would make sense to provide a policy and institutional response for each session, one that would give a practical response to the array of scientific findings reported in each session. Our continuing goal is to make all possible efforts to bridge the gap between the research community and the management and policy community for the overarching goal of better stewardship of the Sierra Nevada. This symposium was one small—but, we believe, worthwhile—contribution to this end. Given the results and feedback received, we expect that it will be time to sponsor another such event in 2007.

We thank the many people who made this effort possible, especially the presenters and authors whose contributions are contained within this volume.