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Cover: Look who's part of a National Park? Five of the 500 or so cattle who will continue to be part and parcel of the nation's newest National Park. (See story pp. 4-5. Photo by Mike Nicklas.)

Coordinated Rangeland Resource Management

— A Necessity for Great Basin National Park

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Congress created Great Basin National Park (GRBA) in 1986 to preserve a portion of the Great Basin ecosystem for the benefit and inspiration of the people. Like all national parks, Great Basin has a fundamental preservation responsibility. But unlike most national parks, Great Basin is also charged, through its enabling legislation, to provide for continued livestock grazing. Integrating livestock grazing into a preservation management strategy is a complex natural resource management challenge. To meet the challenge, the park has undertaken a research study to evaluate the rangeland resources in GRBA and develop a comprehensive range management pro-

gram to balance consumptive grazing with natural resource preservation.

The management of any ecosystem is complex. Within natural ecosystems, the dynamics of plant and animal components vary in time and space. Long and short term variations in climate, cycles in animal populations, and changes in species distribution all occurred prior to the arrival in North America of European man and his influences. Superimposed on these natural cycles today, are past and present human impacts.

Equally confounding are the park's political boundaries which have no relationship to natural ecosystem boundaries nor to livestock and wildlife use boundaries. Resource management in the park can affect areas outside the park and management outside the park can substantially affect the resources within.

As if this were not enough, several organizations and individuals are involved in rangeland management issues. Four ranchers, descendants of the original area settlers, and one corporation, are permitted to graze livestock on seven allotments (grazing units) which are at least partially within the park. There are 615 cattle and 3000 sheep grazing in different areas of the park on a rotational basis from mid-June to mid-October each year.

The ranchers are responsible for moving livestock on and off the allotment and within the allotment. Their ranch management operations can greatly influence livestock distribution and use within the park. All allotments are co-managed with the Forest Service (USFS). Boundaries between the park and USFS lands rarely coincide with natural ecosystem boundaries.

Several of the allotments are bounded on the lower edge by land managed by the Bureau of Land Management (BLM). These boundaries again are not natural boundaries of an ecosystem. Mobile species such as deer, bighorn sheep, and mountain lion, which are managed outside of the park by the Nevada Department of Wildlife (NDOW), readily move between these areas. Grazing systems, which transcend agency boundaries, are interdependent using these lower lands for part of the fall and winter forage, and upper mountain lands, such as are found in GRBA, for summer forage.

Because of the interrelationships involved, successful implementation of a rangeland resource management plan requires communication and cooperation between NPS, USFS, BLM, NDOW, and the ranchers as well as the general public.

In addition to the present impacts of man on the resources at GRBA, past impacts continue to influence what is seen today. By the early 1880s livestock grazing in the Great Basin Province occurred year-round on a first-come, first-serve basis. Stockmen relied on the native forage to such an extent that they did not grow supplemental hay for their livestock until after the severe winter of 1889-90 took its toll of their herds. By 1918, there were 1.2 million sheep and 500,000 cattle on Nevada range alone. Compare this to the 1989 use of 87,000 sheep and 490,000 cattle.

Excessive use of resources during the initial period of settlement, combined with fire suppression, created circumstances that paved the way for long term vegetation changes. Pinyon pine has greatly expanded its distribution and densities. Seedlings, which were able to establish during the turn of the century in overused

areas and survive due to subsequent suppression of fire, have now matured and monopolize many rangeland sites. These trees eventually out-compete most understory species. The loss of the understory species results in increased erosion and decreased species diversity.

Such changes affect adjacent plant communities indirectly, because forage used by wildlife and livestock becomes more limited and animals are forced to concentrate on the remaining adjacent plant communities which in many cases are sensitive riparian areas.

Range Management Research

Rangeland management at GRBA is based upon coordinating, cooperating, and communicating with agencies and individuals that are not part of the NPS. It requires proactive management to address resource problems stemming from a sequence of events set in motion over 100 years ago and perpetuated through the artificial suppression of fire. To address these issues GRBA has begun a range management research project through the Rangeland Resource Department at Oregon University.

This project calls for assessing the present plant community structure and dynamics within the park; evaluating the present livestock grazing systems and patterns of use; evaluating the physiological pattern of pinyon growth to assess the ability of pinyon to expand upward into adjacent plant communities; initiating long-term climatic and vegetative studies; and evaluating the history and role of fire in maintaining the present plant communities.

Other aspects which need to be addressed to complete the resource analysis are riparian community structure and dynamics; effects of management alternatives today on vegetation structure, with consideration for perturbations in the system due to man's past activities; and wildlife population response to the creation of the park.

Given the diverse ecology and complex administration of interrelated resources, coordinated planning is a necessity. Coordinated rangeland resource management planning is a process by which concerned parties work together, relying on one another's expertise to develop and implement plans for the management of all major resources and ownerships within the area of concern (Anderson and Baum 1987). As such, it not only becomes the basis for current management but serves to maintain flexibility needed for successful modification in the future.

In the interest of advancing the interactive coopera-

tion needed, GRBA has instigated formal meetings, provided assistance to the permittees during livestock moves, offered assistance to USFS in range evaluation and monitoring for joint allotments, and mixed informally at community functions.

For this effort to work, it has been imperative that communication with individuals and organizations involved be completely open and direct. In GRBA's case the process seems to be working. What we see resulting from his effort is a management system that takes into account the complexity of rangeland management and the differences in the goals and objectives of the individuals and agencies involved. This approach should lead to effective cooperation, coordination, and communication, and facilitate proper range management.

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References

Anderson, E.W. and R.C. Baum. 1987. Coordinated resource management planning: Does it work? *J. Soil and Water Conservation*. May-June:161-166.



Near the summit of 13,065-foot Wheeler Peak (right) is the southernmost permanent rock glacier in the U.S.