

Management and Change in Natural Areas

Stephen D. Veirs, Jr.

THE GEORGE WRIGHT SOCIETY
and
USNPS COOPERATIVE PARKS STUDIES UNIT
UNIVERSITY OF CALIFORNIA
Davis, California

Yellowstone, the first national park, was set aside as a pleasuring ground for people in recognition of its magnificent natural and scenic attributes. In time, the U.S. National Park Service was formed to "conserve the scenery and the natural and historic objects and the wild life [in the national parks] and to provide for the management of the same, in such manner and by such means as will leave them unimpaired for the enjoyment of the future generations." For many years parks and similar preserves were set aside and protected from modern human consumptive influences, such as poaching and timber harvest, and from the effects of natural processes, such as fire and predation by carnivores. In doing so, it was thought all would be well.

Now we understand that well-intended protection does not produce an "unchanging vignette of primitive America" (Leopold et al. 1963) or such a thing anywhere else on earth. Our smallest natural areas are mere fragments of ecosystems surrounded by change, cut off from migratory avenues, exposed to edge effects, deprived of natural processes which reset their ecological clocks. Our largest, most remote areas are subject to air pollution, modification of natural fire regimes, and losses of their top predators to past hunting, pesticide use, and habitat conversion. In the infancy of ecology and conservation, park managers were largely innocent of the knowledge truly

necessary to manage and protect the resources of the natural areas in their charge according to the mandate of the USNPS Organic Act quoted above; much less were they able to predict the landscape and global changes resulting from modern growth in human population, industrialization, and energy conversion.

Yet, more than sixty years ago, enlightened biologists were recognizing many of the changes being wrought upon natural-area parks by human land-use practices in and around U.S. national parks. George M. Wright, in whose name a non-profit society for protected-area professionals was founded in 1980, was a young American student of Natural History at the University of California at Berkeley. In 1927, Wright was an assistant park naturalist in Yosemite Valley. There he recognized the problems of tame deer, garbage bears, predator removal, and the effects of hunting and trapping along the park boundary. He recognized, even then, that parks are not islands that can stand aloof from the rest of the world. With his own funds, and with the sanction of the USNPS director, Wright undertook a wildlife survey of the national parks, publishing the results in the first two monographs of a series entitled *Fauna of the National Parks of the United States* (Wright, Dixon, and Thompson 1932; Wright and Thompson 1934). Wright, in these two seminal publications, described wildlife problems in the parks related to direct and indirect historical human influences, the failure of parks as independent biotic units because of the lack of complete habitat, external influences and encroachment, and direct conflict between humans and animals within the parks. Wright was killed in an auto accident soon after these works were published, the Great Depression deepened, fire control became a well-established policy in U.S.

forests, and the parks were put to sleep for World War II. Our understanding of the important role of natural change in parks languished, but the rate of modern world change accelerated.

Today the managers of natural-area parks have no shortage of concern about changes in the world around them. The hue and cry of conservationists, ecologists, preservationists, climatologists, and zealots are heard everywhere.

What can be done? We used to think that parks were the changeless baselines against which we could measure the changes in our environment. But the parks are changing around us in subtle and not-so-subtle ways: assailed by human use, habitat conversion, introduction of non-native species, disease, pollution, pesticides, etc. In most cases, we know little about the more subtle changes because we have inadequate descriptions of our park resources and the natural processes that dominate them. Our inventories are old and incomplete. We monitor few biotic or physical attributes of our parks. How can we recognize changes that take place on a longer time scale than the typical protected-area manager's tour of duty or career?

Park managers must develop methods to inventory and monitor the resources of their parks and the systems of which they may be a part. They must obtain baseline information using valid scientific methods against which physical and biological changes can be measured. While these baselines are being established and monitored, managers must foster research designed to understand the role of specific processes such as fire, drought, competition, grazing, and migration in the successional patterns of their parks. They may also need to determine the scene they wish to present and perpetuate. Will it be early succession, climax, or a dynamic of

both? Will it be a "historic" scene or will it reflect the aboriginal indigenous human scene? Will they attempt to restore long-extirpated predators? It's a tough, complicated business.

Park managers can no longer make environmental decisions about their preserves from the saddle of their horses. They need the assistance of scientists and technologists. They need good scientific advice based upon valid research and historical information. In a more perfect world, we would have better resource allocation; limits on the growth of human population, resource consumption, and environmental alteration; and money left over for research. In the absence of a more perfect world, what can be done by the park manager of limited means and almost limitless problems (or questions, at least)?

In the U.S., the National Park Service is attempting to understand the magnitude of their problems and deal with them in a time of limited resources. They are in the process of surveying the existing state of knowledge regarding the natural resources of the parks. They are mapping out methodologies and policies for inventorying and monitoring the resources of the parks. [See the article by Ruggiero, Stohlgren, and Waggoner in this issue]. They are strengthening the resource management planning process and they are providing central-office project-funding to resolve natural resource management and research needs beyond the scope of individual park areas. They are funding a global climate change research program [see the article by Comanor and Gregg in this issue] and are obtaining working geographic information systems that can be used for resource analysis. But these efforts may not help you at your park. What can park managers do to help themselves?

In my work at the USNPS Cooperative Parks Studies Unit at the University of California at Davis, I have come to realize that many subject-area specialists in universities and elsewhere can assist park managers to quickly assess what may be known about the resources and resource problems of a park, an ecosystem, or a region. They just need to be asked. We use a loose procedure called a "scoping session" to bring together knowledgeable scientists and park resource managers for anywhere from two to five days. This yields a quick assessment with recommendations for needed resource management and research projects with suggested priorities. The material provided is employed in preparation of the park resource management plan, a document which I feel is essential to the operation of any natural area. Such a plan includes a brief assessment of the resources of the area, the state of knowledge of the resources, and the research and resource management actions needed to restore or perpetuate natural or near-naturally-functioning park ecosystems. Park managers in developed and developing regions can assist themselves by providing some form of inexpensive facilities at the reserve which will accommodate volunteer teams of researchers or technical experts willing to share their knowledge and skills with the field area manager and staff. The manager also needs to make known the availability of such facilities. Perhaps IUCN could assemble a registry of such scientific support facilities, no matter how spartan they might be. Similarly, parks in developing regions might adopt a sister-park relationship with the resource management and research staffs of developed nations with similar biotas, whether montane, marine, grassland, or deciduous forest. Perhaps the professional park societies, such as the George Wright Society or IUCN through its Commission on

National Parks and Protected Areas and *Parks* magazine, could be helpful in arranging partnerships that would accommodate sharing information and expertise.

You as park managers can be creative in your approach to sharing the scarce commodities you need to do your job well in this day and age. Yet you cannot push sand uphill. You must also be a player, a counselor, an advocate, and a practitioner

in the modern political scene which shapes the allocation of human and natural resources, and which formulates population and energy and conservation policies. Unless the effects of global changes driven by human population, energy use, and pollution are moderated, the managers of natural areas will have rather less to oversee than they have today.

REFERENCES

- Leopold, A. S., S. A. Cain, C. M. Cottam, I. N. Gabrielson, and T. L. Kimball. 1963. Wildlife management in national parks. *Transactions of the North American Wildlife and Natural Resources Conference* 28:28-45.
- Wright, George M., Joseph S. Dixon, and Ben H. Thompson. 1932. *Fauna of the National Parks of the United States No. 1*. Washington: Government Printing Office.
- Wright, George M., and Ben H. Thompson. 1934. *Fauna of the National Parks of the United States No. 2*. Washington: Government Printing Office.

