Conserving Our Collective Heritage—The Paradox of Integrated, Yet Distinctly Different Management of Cultural and Natural Resources

Denis Davis, National Park Service, Intermountain Region, P.O. Box 25287, Denver, Colorado 80225; denis_davis@nps.gov

Introduction

Most parks are a mixture of natural and cultural resources. Envision the historic site that requires the adjacent farmland or forest and cliffs to maintain the historic landscape setting. Or the large natural area laced with historic patrol cabins, concession lodging, fire lookouts, or archeological ruins. The mixture creates a greater whole than either one alone. Together they forge the connection between people and places. Together they reflect how the land and its people and culture are intertwined in an intimate union. Our goals for both are the same: the conservation of our collective heritage. Because our goals are the same for cultural and natural resources, the mantra of recent years has been integrated or holistic management, but is this even possible? How do we most effectively plan, interpret, and manage mixed cultural and natural resources?

Integrated Planning and Interpretation for Mixed Natural and Cultural Heritage Resources

First, let's examine planning. Good planning requires that we bring diverse interests and disciplines together to solve problems and set agreed-upon goals. This is imperative with mixed cultural and natural heritage resources. Each has different needs that must be considered in planning. Where do we manicure the formal grounds of the cultural landscape and where do we allow natural ecological processes to unfold? Where do we control the rain and runoff to prevent damage to ruins or historic buildings, and where do we stand back to allow the rain and runoff to flow naturally? Where are "wild" animals problems to be controlled so they don't damage the cultural landscape or historic structures, and where are they cherished elements of natural diversity? Good planning has to answer these questions.

Good interpretation requires that we examine and explain complex subjects to diverse audiences so they understand relationships and meanings of mixed heritage resources. Understanding the interconnectedness and depth of a subject requires that it be interpreted from various perspectives. Natural resources may be interpreted alone and the cultural story may be interpreted alone, but the richest story is the interplay of people and places. Why was this fort or lighthouse built at this location? What was used to heat this home? What did the Indians eat here and from what did they make their lodges? Did it matter what time of year the pioneers crossed this trail? Does this architecture use the local climate to help heat and cool the building? Are human activities affecting visibility, acid precipitation, water quality, and wildlife migrations? How global is air pollution and is global warming real? Are the glaciers retreating naturally or faster due to human activities? What can we do to help preserve our park and planet? As John Muir said, "When we try to pick out anything by itself, we find it hitched to everything else in the Universe." Accordingly, the most intriguing stories of our collective heritage require our full attention to both cultural and natural history, and their interplay.

Mixed Heritage Resources in the Light of Ecological Succession

If we must plan and interpret the resources of our collective heritage together, can we manage their day-to-day operations together? Before directly answering this question there are three concepts that need to be examined.

The first concept is ecological succes-

sion. Prior to human civilization, the natural world was a mosaic of plant and animal communities in various stages of ecological succession. Some regions with few disturbing forces had areas that stayed near their mature, latter stage of ecological succession. These areas would have been at climax, a fairly stable state that persists as long as the climate remains consistent. But most regions were a mosaic of natural communities in various stages of ecological succession resulting from fires, floods, storms/hurricanes, avalanches, changes in predator–prey or herbivore–vegetation relationships; or changes in diseases, parasites, or insects that affected other plants or animals. In essence, the natural forces that dramatically changed an ecological community would send it back to an earlier stage of succession with less diversity and less stability. Powerful forces drive natural communities and keep ecological succession moving toward greater diversity and stability, toward climax.

The second concept is the human influence on ecological succession. Stone Age humans burned large areas to improve hunting success and forage, and to clear travel routes. Then humans with agricultural and engineering skills totally altered the natural ecological patterns. As humans mold the environment to suit their needs, they usually move ecological communities to early stages of succession and/or retain them there. Clearing a forest to make a meadow for cows moves the ecological community from a state of complexity and diversity to a much simpler and less diverse ecological community in an earlier stage of succession with higher productivity. Converting that meadow to a wheat field or a village makes it even less complex and moves it to an even earlier stage of succession. Mined lands and densely developed cities are in the earliest stages of ecological succession, with natural communities that are very low in diversity and stability. Generally, human-altered landscapes are in early stages of ecological succession, and it takes a great deal of energy and work to keep those landscapes there.

There are exceptions to this generalization, such as a botanical garden in a city, or a naturally occurring un-diverse community, such as some deserts, where humans make it more diverse by bringing in water. But here again, it takes a great deal of human energy and work to keep that landscape in a different level of succession than would occur without human intervention.

The third concept is the interplay of these first two concepts where cultural and natural resources are mixed or adjacent to each other. Where our goal is the preservation of natural systems, we must strive to allow ecological processes to work unimpaired. Where our goal is the preservation of cultural resources, we must strive to maintain that landscape by fighting or modifying natural processes.

In other words, to preserve natural landscapes we strive to allow natural processes and ecological succession to proceed unimpaired. The natural communities will be diverse and relatively stable, trending toward the mature or climax stages of ecological succession. Natural resource management is often focused on combating the impacts from human activities that destabilize the natural community, reduce its diversity, and send it back to earlier stages of ecological succession. By contrast, to preserve cultural landscapes we are fighting ecological succession to keep the area in an early stage of succession. We are fighting the forces of nature that would otherwise reclaim that cultural landscape and move that area along on its path of ecological succession.

It is for this reason that we often manufacture the distinction between "natural" and "cultural" resources, despite the fact that our collective natural and cultural heritage are parts of a greater whole. Additionally, the distinction occurs because the effects of human-altered landscapes on ecological succession are so visually dramatic and require so much effort to maintain in their early stage of succession. Most "cultural" and "natural" landscapes stand in such clear contrast to one another that anyone can distinguish them apart. Accordingly, we humans have categorized cultural landscapes as something different from nature, even though they are clearly integral with nature. Although the distinction

is contrived and the goal of preserving our collective heritage resources unimpaired is the same for both, it is relevant and useful terminology because the distinctions and needs between natural and cultural resources are so dramatic when considered in the light of ecological succession.

When we refer to a cultural landscape that we intend to preserve, we inherently understand that we will have to put energy and resources into maintaining it unimpaired as a farm, house, formal garden, field, road, or whatever it is. To most of us this is just preserving our cultural heritage. When we refer to a natural landscape that we intend to preserve, we inherently understand that we will have to put energy and resources into ensuring that its natural processes proceed unimpaired. To most of us this is just preserving our natural heritage. What is so dramatically different in park management is *how* we actually go about preserving those two types of resources.

Managing Our Collective Heritage Resources

We have found powerful meaning and great value in natural areas. To preserve our natural heritage we have trained employees to protect the natural processes by minimizing or eliminating the influences of human activities that impair them. This active management is an intervention into natural processes. Our natural resource staff must be diligent in understanding the obvious and subtle influences that human activities have. Acid rain and other airborne pollutants can devastate an ecosystem. Human introduced or exotic species can dramatically alter natural systems. Blister rust fungus introduced from Europe has decimated the white pines or five-needled pines throughout North America, notably in Mount Rainier, Glacier, and Yellowstone national parks. The balsam woolly adelgid from Europe destroys true fir forests in North America, for example at Great Smoky Mountains National Park. Eurasian knapweeds in many of our western national parks and Asian kudzu in many of our southeastern national parks invade and dominate landscapes. Introduced wild pigs destroy vast acreage with their rooting at Great Smoky Mountains, Cumberland Island National Seashore, and in our Hawaiian parks. Threatened and endangered species often require management actions or human intervention to preserve them from extinction. Runoff from mining spoils, sedimentation from logging, or polluted runoff from development can alter or destroy aquatic ecosystems. These disturbances from human activities are destabilizing the ecological communities and setting them back to earlier stages of ecological succession. So, we have professional staff ready to do their duty, ready to preserve or intervene in natural processes, often by combating the impacts from human activities.

At the same time we have found powerful meaning and great value in many human activities, including historic structures, landscapes, and events. To preserve our cultural heritage we have trained employees to protect those cultural resources from the natural processes that would otherwise destroy them or alter their historic context. Our cultural resource and maintenance staffs must be diligent in combating the persistent natural processes that inherently produce change or destruction of cultural resources. Roofs must be maintained to keep rain out of buildings, and runoff must be kept away from building foundations. Buildings must be maintained and actions taken to keep rats, mice, woodpeckers, skunks, squirrels, snakes, and other animals out of buildings. Historic grounds and landscapes must be maintained or they are taken over by "wild" shrubs and forest. A number of historic structures at Cumberland Island, including the Plum Orchard Carriage House and Dungeness Recreation Building/Bachelors Quarters, are rotting away in ruins covered by vegetation and inhabited by wildlife because their exterior envelopes were not maintained. White Grass Ranch at Grand Teton National Park has been saved from the brink of destruction by clearing the site and stabilizing the structures. Pueblo Indian ruins throughout the Southwest have to be stabilized to keep them from being lost to the forces of nature. There are professional staffers ready to do their duty, ready to preserve cultural resources

by combating the destructive effects of natural processes.

When there are cultural and natural resources mixed together, as collective heritage resources, the overarching objective is to steward them all in perpetuity. Both cultural and natural heritage resources merit preservation and require equal consideration. One does not top the other. Yet when it comes to *how* their preservation is accomplished, diametrically opposed management objectives and activities exist side by side, diametrically opposed management strategies and tactics are advanced side by side. This paradox can lead to great stress for those who have to manage the resources.

The fundamental and essential ingredients for successful management of mixed resources are effective staff communications, and integrated planning that produces distinct management objectives for cultural and natural resources and clearly defined boundaries to distinguish where those objectives should be applied. An integrated planning process must involve all of the interested and affected public, government representatives, organizations, and especially park staff. Effective communications in conjunction with integrated planning involving all affected parties are needed to build a common understanding of the opposing interests, goals, and needed management between the adjacent natural and cultural heritage resources. Clearly defined management objectives or desired future conditions for given areas will benefit both the cultural and natural heritage resources. Those will be quite different for cultural and natural resources, which beg for clear geographic delineation. Clearly defined zones or areas distinguishing the cultural and natural resources will dramatically improve the management of the resources.

With that boundary on a map it becomes relatively easy for the maintenance employee to know where to mow the lawn, tend the ornamental shrubs, and cut down unwanted tree seedlings that grew from seed blown in from the adjacent natural area. All these maintenance activities keep the landscape in an early stage of ecological succession. Likewise, the maintenance worker knows where to stop his or her maintenance activities and let those naturally generating tree seedlings grow unfettered. This allows the process of ecological succession to proceed naturally. However, the boundary is an imperfect device. For example, when wild animals from the natural area degrade the cultural landscape; the cultural, natural, and maintenance staffs must rely upon their effective communications to solve the problems. All need to work together effectively. But generally, distinct management zones with clearly defined boundaries solve many problems about which management strategies and tactics should be applied where.

Conclusion

All of our park resources inherited and stewarded in perpetuity are heritage resources. Where there are intermixed cultural and natural heritage resources, they need to be planned in full cooperation of all parties, and interpreted in an intimate, integrated fashion. However, they must be managed with distinctly different strategies and tactics. Natural resources will generally be managed to allow their natural processes to function as unimpaired from human impacts as possible. Their stage of ecological succession will ebb and flow over time as the forces of nature alter an area, but the plant and animal communities will be trending toward diversity, complexity, and stability of the middle to latter stages of succession. And cultural resources will be managed to preserve them from the forces of nature that would otherwise destroy them or alter their historic context. The cultural landscape's stage of ecological succession must be maintained to preserve it, and it will usually be in the early stages of succession. For mixed natural and cultural resources, integrated planning and interpretation are essential, but their divergent preservation needs will require distinctly different management approaches and activities. The conservation of our collective heritage resources demands this complex and paradoxical management.