

Managing to Give Nature a Chance

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[Ed. note: This is a counterpoint to the preceding paper by Freilich and Cafaro, “When it’s Better Not to Manage National Park Service Resources.” Both papers attempt to capture the extremes of an argument.]

My task is to speak to managing to give nature a chance. The debate: to manage resources, or to leave nature alone. Philosophical debate? Maybe. For my agency (the National Park Service) this debate may strike at our deepest beliefs, our corporate creed, our organizational religion, *per se*.

If you see Jerry Freilich’s position as saying, “Don’t mess with Mother Nature,” or, as a puritan cleric might say, “Thou shalt not sin,” then I will take the posture of the fire-and-brimstone preacher. “But you have sinned. The earth is a mess, humans, and you are responsible. Look at all that you have done to all of the Gardens of Eden. Out—into the wilderness! Do research, find the path of righteousness. Then you shall manage, and you may carry that burden for eternity.”

Fun, and yes, this is a philosophical argument.

But why should there be a need to manage in a protected area? If a place is protected, then natural processes should be in control. And that’s not a philosophical point. In the national parks, we manage for unimpaired. We manage for wild.

But unimpaired? Are they? A few examples from my own experience:

Grand Canyon and the Colorado River, and managing for natural conditions: What does “natural” mean with the context of an upstream dam? After I transferred to Grand Canyon I was asked to manage NPS involvement in the Glen Canyon Environmental Studies, the interagency research program that brought changes to the operations of Glen Canyon Dam. One of the things I did first was caucus my colleagues from Glen Canyon, Lake Mead, and other National Park Service offices, including national natural resource divisions. When I asked for what we should manage the Colorado River in Grand Canyon, I was told by several colleagues that we should manage for natural conditions. But how—with a dam sitting upstream? The Colorado River is now a cold, sediment-starved river, rather than a warm, sediment-laden one. Its flows are now more defined by within-day variability than by within- and between-year variability. The National Park Service may be successful in seeking to preserve and maintain important fluvial and ecosystem values, but not the natural system that existed pre-dam.

And fire, the age-old example: After years of fire suppression there have been consequences. Fuel loads and plant community structures are (or were, in many cases) altered.

The outside world controlled predators, and often so did we, and the story is the same for critters that affected the beauty of the parks, including forest insects.

It is that period that marks much of the early history of resource management in the national parks.

A varied history of managing natural resources in the national parks

First period of our history: We saw ourselves as protecting the parks, standing at the boundary, assuming that if we protected them they could take care of themselves, but we put out fires, we killed predators, we exterminated forest insects, all in the name of protecting them.

The second period: We often associate this with the time following the Leopold Commission's findings in the 1960s, over 40 years into NPS history. Their recommendations: to recognize that we need to manage wildlife populations (including ungulates, which we are still struggling with managing well today). They recommended that we recognize fire as an important ecosystem process. They gave us that mission we embrace, of restoring primitive America to the way it looked before the arrival of Europeans.

So we began to embrace not just protecting resources, but also re-establishing natural processes, to allow natural processes to prevail.

Fire has risks, so we needed prescribed burning in some locations to reduce fuel loads and restore forest structure. Doing so would allow us to teach fire to play nice again before we removed its curfew. Now, in many ecosystems, we have removed that curfew, and that important natural process does prevail.

We ceased treating many of the forest insects, stopping our pouring of insecticides into the ecosystem.

But for wildlife we were timid—about re-establishing predators, and about managing population numbers. And in being passive about managing wildlife populations we were effectively managing to allow those populations to grow and to impact their habitats. As Jim Agee says of passive management of wildland fire, “A choice to do nothing is a choice of action, not always with a desired outcome.”

The third period of our history is essentially where we are now. We have many examples of our willingness to re-establish natural processes, to re-establish predator populations, to restore fire regimes, to restore biodiversity, etc.

We have also completed many inventories of natural resources, and we are preparing vital signs monitoring plans for each of our networks of natural area parks. We recognize that we have to understand, and we endeavor to manage to give nature a chance.

And we manage because there are statutes on the books, from the Endangered Species Act to the Clean Air and Clean Water acts. We are responsible for taking action if needed.

Yes, there are threatened and endangered species in the national parks, and we must manage for recovery. We have invasive species—both plants and animals—and we must manage to eliminate and/or control them.

So, yes, we manage resources, and we play triage. We consider what effects we can or should manage. We consider what falls outside the realm of our capacity (our expertise, our science, our funding levels). We consider what we should not do, considering what we do not know, and we consider what we should do, considering what we do know. And, we consider other realities. I believe it is David Mech who tells us that wolves have to be managed to be tolerated.

But, if we manage for awhile, can we not move the parks to a point where the agency can back off and allow natural processes to do it all? That would be ideal, but national parks are

not buffered from outside influences, and the prospect of erasing past human influences is diminishing.

A period of unprecedented challenges

Unfortunately, we are entering a new period, one with great uncertainties, and one with unprecedented challenges.

Consider climate change and its looming effects: range shifts; changes in assemblages, both plants and animals; changes in disturbance regimes—fire, flood, disease, and insect.

Changes in disturbance regimes: In the West, average fire seasons are two-thirds longer than they were 20 years ago (about 200 days, compared with 120 days) and there are nearly four times as many large fires, and they burn about five times longer, consuming seven times as much forest (Westerling 2006). Patterns of precipitation may change: less rain in some locations; in others, more rain instead of snow. With changes in disturbance regimes come opportunities for invasion—both plants and animals—and opportunities for disease—in plants and animals. West Nile virus, as an example, may spread and increase in influence.

Mountain pine beetles are devastating the piñon pine in New Mexico. White pine blister rust in the northern Rockies is expanding, creating additional opportunities for mountain pine beetle. The implications for the ecosystem go beyond loss of forest, and may include impacts upon grizzly bear. Without winter cold to limit their distribution and effects, populations of mountain pine beetle are exploding, and in some areas, they now reproduce twice a year, rather than once.

Consider globalization and its challenges: Plant pathogens—every dominant tree species in the east is under attack, and the same is true of many of the tree species of the west.

Mission: Unimpaired

Unimpaired is our mission in the National Park Service, but what will “unimpaired” mean in the context of all this change? What will we mean by “wild”? What about “natural”? Will “natural” be defined by policy, or by science? We face tremendous challenges. Challenges bigger than we are, certainly bigger than any one national park.

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There is much we don't know. We are entering a period for which we have no experience, and disturbance regimes that are different than what were typical for these ecosystems. But, do we know so little that it is wisest to back away and let the climate change and globalization reshuffling begin, taking us along any path to any possible outcome? Or, do we manage for biodiversity and to preserve our natural heritage?

We manage.

Some might argue that this is the same perspective that drove our earliest history in NPS resource management. I would argue it is not. Our management direction today is shaped by research, policy, and experience. Then it was largely shaped by individual actions and the norms of the day, including the thinking at the time concerning fire, predators, forest insects and all manner of things. Still, we are not yet prepared to manage park resources in the context of this future change, and we will make some mistakes.

We need new kinds of research. If we will have changes in patterns of climate, range shifts, and changes in assemblages, then we need research on adapting systems to buffer them from the extremes of disturbance regimes. We need research to help us put brackets on variability to drive our management actions, including actions to adapt systems. We need to plot possible successional pathways, to give us contexts for discussion of policy, revisions of policy, and discussions of priorities for management action.

However, our perspective is fairly limited: 10, 20, 50 years. We need a better understanding of the long-term variability within the system. We don't want to over-react, and we want to have a context for understanding the changes we are seeing. Thus, we need more research in paleoecology. We need more work on leading-edge and rear-edge populations. We need research on all kinds of possible management actions. We need to forecast change, and adapt to it. We need to bank seed and genetic material, and prepare for the opportunity to restore populations and communities. We need to partner with those who face the same challenges.

To “preserve unimpaired” in the future will imply some complexities of management that far surpass protecting the parks from the visitor, and standing at the boundary and preserving what's inside.

Conclusion

I started with the point that this could be seen as a philosophical debate. I would like to conclude with a point I borrow from Richard Dickerson, in his comments to a Young Earth creationist, someone who believes the earth is only 6,000 years old. He reminded them that most people of faith also believe in evolution, and that their position—against teaching evolution—was intellectually destructive, discouraging the next generation of young people from going into mainstream science.

The same may be true of those who argue there is no role for management in national parks, that the nature of parks is that they do not need our help or intervention. This is an entirely philosophical position at this point, and potentially intellectually destructive. If embraced too literally—rather than accepted as a challenge, to sharpen our thinking, to give us humility in our role, to give us restraint—then we discourage the next generation of young people from entering important areas of mainstream science.

We face challenges few of us have trained for, and we need young people with new training and new thinking now more than ever. Without that knowledge, we will be ill-prepared to do what we need to do—and we may be tempted to do more than we should.

But we should be prepared to manage to give nature a chance.

References

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