- 12. National Park Service, *Climate Change Response Strategy* (Fort Collins, CO: NPS Climate Change Response Program, 2010), 14–15.
- 13. National Park Service System Advisory Board Science Committee, *Revisiting Leopold: Resource Stewardship in the National Parks* (Washington, DC: National Park System Advisory Board, 2012), 11–12.
- Senate Subcommittee on National Parks, "Impacts of Climate Change to National Parks," Senate Hearing 111-239, October 28, 2009 (Washington, DC: US Government Printing Office, 2010).
- 15. Here I part company with Richard J. Hobbs et al. ("Guiding Concepts for Park and Wilderness Stewardship in an Era of Global Environmental Change," *Frontiers in Ecology and the Environment* 8 (2010): 483–490), who argue that "naturalness" is outmoded as an organizing goal for protected areas. Space constraints prevent me from arguing against this position in detail. Suffice it to say that I do not think that the components of "naturalness" that Hobbs et al. continue to see as valid management goals, such as "ecological integrity" or "historical fidelity," are any more amenable to preservation through adaptation programs, nor do I believe that we can jettison "naturalness" as a goal for the parks and still "manage with humility," as they advise. There is nothing humble about accepting human domination of the national parks.
- 16. For a good account of these developments see Alfred Runte, *National Parks: The American Experience*, 4th ed. (Boulder, CO: Taylor, 2010).

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## **Revisiting Leopold – More Frequently**

THIS THIRD "LETTER FROM WOODSTOCK" looks at the recently released *Revisiting Leopold: Resource Stewardship in the National Parks*, which is appended to this issue of *The George Wright Forum*. The report is a product of the National Park System Advisory Board's Science Committee and its recommendations are currently under review by the National Park Service (NPS) and other interested parties.

*Revisiting Leopold* is both encouraging and, at times, disappointing. The most important outcome of this Advisory Board report is its unequivocal recognition that national parks are increasingly subject to continuous, potentially destabilizing, anthropogenic-triggered changes and that many of these changes are at scale and have impacts that reach far beyond existing park boundaries. "Significant uncertainty exists," the report warns, "regarding responses of park ecosystems and historical resources to these conditions." To its credit, the report also emphasizes how essential comprehensive cross-boundary cooperation, as well as broad public understanding and engagement, will be to any conservation response.

It is worth noting that the pages of *The George Wright Forum* have provided a valuable platform for sharing practical park-based experiences with environmental change and advancing the kind of pioneering thinking that undergirds many of the Science Committee's observations. In a series of provocative *Forum* articles, current and former NPS resource managers and researchers have been challenging the long-held canon that parks can be managed in a way that guarantees resources remain largely unimpaired or unchanged over time. The traditional "hands-off" approach to natural area and wilderness stewardship was questioned by David M. Cole and colleagues in their article "Naturalness and Beyond: Protected Area Stewardship in an Era of Global Environmental Change" (*The George Wright Forum*, vol. 25, no.1, 2008): "The key challenge to stewardship of park and wilderness ecosystems is to decide where, when, and how to intervene in physical and biological processes to con-

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serve what we value in these places." As William C. Tweed declared in his article "An Idea in Trouble: Thoughts about the Future of Traditional National Parks in the United States" (vol. 27, no.1, 2010), "The concept that a 'fence of law' can be erected around a portion of an ecosystem and that the area contained within that hypothetical fence can be maintained forever 'unimpaired for future generations,' can no longer be defended." And Sarah Stehn, in her article "Keeping Up with the Mountain: The Challenge and Prospect of an Adjusted Management Paradigm" (vol. 27, no.1, 2010), made the case that the tremendous challenges facing national parks transcend science: "Recognized as not just an ecological challenge but as a cultural and intellectual one, the scope of climate change and its effects requires developing a shared vision among multiple agencies and regional groups...." Stehn acknowledges the need for additional partners "from outside the normal realm of operation(s)...."

*Revisiting Leopold* was intended to serve as a timely response to many of the issues raised in the *Forum*, and the report does represent a foundational step in the right direction. However, it is still a foundation that needs to be extended. Seemingly on the verge of recognizing that new thinking and greater management flexibility are needed now and in the future, the report authors also seem reluctant to depart from more traditional resource management objectives. This reticence on the part of the Science Committee perhaps should not come as a surprise. David J. Parsons noted in his *George Wright Forum* review (vol. 28, no.1, 2011) of William Tweed's recent book *Uncertain Path: A Search for the Future of National Parks* that Tweed predicts "transitioning from a largely 'hands-off' management approach to a more aggressive 'hands-on' one is sure to be a politically dangerous process that will be opposed by many of those who have traditionally been the parks' biggest supporters."

For example, there are a few sections of the report where the committee's choice of words seemingly contradicts otherwise forward-thinking intentions. In the same sentence, the report calls on NPS to "formally embrace the need to manage for change" and also "to the maximum extent possible to maintain or increase current restrictions on impairment of park resources." Implicit in managing for change should be an understanding that an "unimpaired" standard for park stewardship, as envisioned by the original Leopold report, may no longer be realistic or achievable in many national parks. To double down on holding the line on change and strict unimpairment may in the long run be counterproductive; or, as Cole and his co-authors state, "According to resilience theory, attempting to prevent or resist change is likely to increase the risk of larger future change.... As change and uncertainty increase, managers are less likely to possess the requisite knowledge to specify desired future conditions. Attempts to achieve long-term objectives, as conditions change, could lead to loss of biodiversity, decreased resilience, and ecosystem degradation."

At first read, the Science Committee's assertions that NPS managers "need to embrace more fully *the precautionary principle*" and that "stewardship decisions reflect scienceinformed prudence and restraint" seem reasonable enough. That is, as long as the precautionary principle is not applied in such a way that it unintentionally discourages necessary interventions and a degree of trial and error as park resource managers try to grapple with problems they have never before encountered. Cole and colleagues predicted that "managers may need to anticipate and guide change, to actively transform systems rather than let them passively degrade—to create novel ecosystems in new places, for the purpose of protecting something of value and enhancing system resilience.... Managers need the flexibility to respond to deliberate experimentation and effectiveness monitoring."

The report's observation that the division of national parks into "natural parks" and "cultural parks" is "artificial" and does not advance effective resource management is particularly commendable. However, the authors go on to develop interpretations of "cultural and historic authenticity" that would benefit from broader consultation and cooperation with cultural resource management professionals.

And lastly, while *Revisiting Leopold* correctly recognizes that "investing in science is essential, but it is only one element in preparing NPS stewardship for the future," it is easy to lose sight of the enormity of the challenge facing NPS in working and partnering effectively outside park boundaries. Large landscape-scale initiatives require a sustained commitment of people and resources over time if meaningful and lasting conservation outcomes are to be achieved. Years ago when my NPS colleague Drew Parkin and I arrived in the small, rural community of Jackson in the White Mountains of New Hampshire to organize a Wild and Scenic River study on the Wildcat River, Parkin, sizing up the political opportunities for conservation, presciently suggested we'd better invest our time "in counting (and cultivating) the selectmen as well as the fish." In addition to enhancing its science capacity, NPS will have to also significantly scale up its capacity in social science, cultural competencies, community planning, new models of governance, and sustainable development.

Over the next several months, as NPS reviews the Science Committee report and gathers comments, there is an opportunity not only to improve it but perhaps as importantly to envision a ongoing process of feedback and refinement. In this new era of uncertainty and continuous change, NPS may need to more frequently revisit the practice of resource stewardship—continually testing assumptions and objectives and adapting investments and strategies—in a struggle to perpetuate the high purposes and values of national parks in an increasingly challenging global environment.

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