Revisiting DO-100: Supporting Interdisciplinary Stewardship in Rebuilding the National Park Service

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It has been ten years since National Park Service Director's Order 100, *Resource Stewardship for the 21st Century* (DO-100), was issued, and nine years since it was rescinded. DO-100 provided a framework for National Park Service (NPS) resource stewardship in an environment of "continuous change." It reaffirmed our responsibilities under the NPS Organic Act and identified the nature of the challenges we were experiencing and would continue to face in our second century.

Drawing on recommendations from the National Park System Advisory Board's report *Revisiting Leopold: Resource Stewardship in the National Parks* (2014), DO-100 focuses on:

- Integrating natural and cultural resource programs, functions, and funding mechanisms, where beneficial to resource stewardship;
- Emphasizing ecosystem management: resilience, connectivity at land/seascape scales, and life-cycle stewardship;
- Adopting the precautionary principle—when an action, activity, or emerging condition raises plausible or probable threats of harm to park resources and/or human health, NPS managers will take actions that err on the side of caution; and
- Promoting adaptive management—a flexible decision-making strategy that can be adjusted in the face of uncertainties (DO-100, Section 4).

It did not anticipate the unprecedented challenges currently facing NPS and other federal conservation agencies—funding and staffing cuts and restrictions on research, resource management and interpretation—that are significantly impacting the ability of NPS staff to carry out the resource stewardship required by the 1916 Organic Act, as amended.

This essay focuses on DO-100's emphasis on an interdisciplinary approach to resource management. The other areas of emphasis—adaptive management, the precautionary principle, and ecosystem management—all depend on the availability of the best data to meet the complexity of resource stewardship in an environment of continual change and competing priorities for the resources of lands of the National Park System. In addition, while this essay focuses on NPS, and a premise that it remains intact, the value of interdisciplinary resource stewardship is relevant to protected areas in general.

THE EVOLUTION OF INTERDISCIPLINARY STEWARDSHIP IN NPS

Looking to a future opportunity to rebuild the federal conservation agencies and programs that are being severely impacted by the current administration, the policies of DO-100 should be reviewed and incorporated where appropriate into the "refounding" discussions. DO-100 incorporated lessons learned from more than 100 years of stewardship of the National Park System, as well as recent recommendations for meeting the challenges of the next century.

Science and scholarship have informed NPS management to some degree since the establishment of the earliest parks. Early explorations, mapping, collecting, and analysis preceded and informed the 1916 Organic Act. At the time of its passage, Secretary of the Interior Franklin K. Lane confirmed the value of science when used to ensure preservation of visual landscapes. The first park naturalists incorporated the findings of scientific research into interpretive programs and publications such as Yellowstone's *Nature Notes*.

At the national level, in 1930, the NPS Branch of Research and Education incorporated natural, cultural, and interpretive programs. It was expanded in 1931 with establishment of the Division of History and again in 1932 when the Wildlife Division was created, led by George Wright, to evaluate park ecosystems. The Historic Sites Act of 1935 confirmed and expanded the role of NPS in preserving and restoring park resources through research and education activities.

Over the next three decades both the natural and cultural programs continued to evolve administratively and in scope, largely independent of each other. However, the policy to base resource management on science and scholarship had been established. Ecosystem-level research and management was seen as fundamental for natural resources; thematic contexts and criteria for evaluating significance and integrity guided both internal and external preservation programs.

In the years between 1963, when the Leopold Report was published, and the 2014 *Revisiting Leopold* report, new legislation, new programs, new parks, and research trends in academia fostered interdisciplinary collaboration within NPS

OVERLEAF **Tunnel View of Yosemite Valley, Yosemite National Park, California.** GEDAVIS & ASSOCIATES

as well as with associated communities. Complying with new project review and consultation requirements under the 1966 National Historic Preservation Act (NHPA) and the 1970 National Environmental Policy Act (NEPA) resulted in new levels of engagement with communities associated with or interested in park resources. Interdisciplinary reviews involving cultural resource disciplines were required by NPS for NHPA compliance. NEPA reviews required consideration of cultural impacts. The integration of NEPA and NHPA by the Council on Environmental Quality in 2013 further encouraged interdisciplinary planning.

New NPS cultural resource programs—Cultural Anthropology (1981) and Cultural Landscapes (1991)—provided interdisciplinary frameworks for documenting, planning, and managing park resources. The provisions of the 1980 Alaska National Interest Lands Conservation Act, for example, led to NPS using an interdisciplinary team to engage with the resident communities. Traditional subsistence practices and the peoples' knowledge of the land and its resources were incorporated into management of the new parklands. At Cuyahoga Valley National Park, authorized in 2000, long-standing NPS practices of buying out private holdings and clearing the newly held properties of their structures, were replaced by a planning process that drew from both natural and cultural disciplines to work with the resident community to support retention of historic infrastructure and traditional practices, while addressing extreme environmental challenges. The multi-year process leading to removal of the Elwha River dams in Olympic National Park restored both native fish runs and traditional sites of importance to the Elwha Tribe. Representatives of both NPS natural and cultural resource programs, the Elwha Tribe, and multiple public and private partners were involved in the project.

Title II of 1998 National Parks Omnibus Act (P.L. 105-391) authorized an inventory and monitoring program to support NPS resource stewardship—both natural and cultural—that was science- and research-based. It provided an important legal mandate in support of NPS research and interdisciplinary collaboration. The Cooperative Ecosystem Studies Unit (CESU) program was authorized to provide access to academic expertise for both natural and cultural resource projects and supported "the integration of study results into management decisions" (P.L 105-391, Title II, sec. 206). Congress further appropriated new base funding for NPS resource stewardship. These funds were used to establish the NPS natural resources inventory and monitoring program. A similar increase to support a cultural resources inventory and monitoring program was proposed in the 2013 Cultural Resource Challenge (CRC) but was not included in the NPS Centennial budget.

Opportunities for collaboration on addressing major issues such as sustainability and climate change at a national level have often been limited by politics, leadership, and funding. The Resource Stewardship Strategy (RSS) program was impacted by the lack of cultural resources staff and funding to fully participate. Support for interdisciplinary programs varied regionally. Initiatives such as the integration of park resource data through GIS platforms, interdisciplinary planning and resource management teams, and collaboration with traditional communities have been more successful. The CESUs provide important access to academic expertise for both natural and cultural resource projects. The cultural landscape program serves as an important interdisciplinary lens for documenting the resources of park lands, from designed landscapes such as Meridian Hill Park, to the vernacular landscapes of Ebey's Landing National Historical Reserve, to the Yosemite Valley, an ethnographic landscape reflecting thousands of years of human occupation and management.

DO-100 AND INTERDISCIPLINARY STEWARDSHIP: RECOMMENDATIONS

The experiences of NPS over recent decades have demonstrated that interdisciplinary stewardship of natural and cultural resources is a concept that should be fundamental to understanding and developing effective strategies for resource management in an increasingly complex world. We need to understand the complexity of forces—both human and environmental—that have shaped the

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lands NPS manages, through science and research and consultation with the communities that have previously occupied and managed those lands. Data gathered through an interdisciplinary research program provides more comprehensive support for defensible decision-making under the precautionary principle and guidance for adaptive management. An interdisciplinary approach to resource stewardship fully aligns with the laws and policies that govern our management of the parks, including the Organic Act, as amended, the Redwoods Act, and Title II of the 1998 Omnibus Act (PL 105-391).

Section 4.2 of DO-100 provides specific direction on how a strong interdisciplinary resource stewardship approach could be implemented.

> The NPS will take the following actions to integrate natural and cultural resource programs, functions, and funding mechanisms, where beneficial to resource stewardship:
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> - Create incentives for funding projects … that integrate perspectives and disciplines from natural and cultural resources;
> - Require existing and future Resource Stewardship Strategies to consider natural and cultural resource integration concepts;
> - Co-locate natural and cultural resource operations where possible and when beneficial to resource stewardship; and
> - Utilize opportunities through Cooperative Ecosystem Studies Units (CESUs), Research Learning Centers (RLCs), [and] additional NPS programs and partners to support integrated natural and cultural resource projects.

These recommendations are all valid for consideration in future "refounding" discussions as paths to "a strong interdisciplinary resource stewardship approach" and are potentially adaptable to multiple configurations of partnerships with other conservation agencies.

However, the NPS experience to date suggests that funding and leadership issues, and coordination at the planning and operations level, need to be further addressed to achieve the level of integration that best serves our stewardship responsibilities. The imbalance in funding between the natural and cultural resources programs has limited the participation of Cultural Resources staff in joint efforts such as the RSS park plans. A posting on NPS's Inventory and Monitoring website in 2020 stated that 12 basic natural resource inventories had been completed by 2016 for the units of the National Park System. The lack of a similar timeline of inventory and monitoring data for cultural resources has, and will continue to, limit opportunities for interdisciplinary analysis and planning to respond to a continually changing environment, and increase the potential for loss of these irreplaceable resources.

To further support interdisciplinary resource stewardship:

- The natural and cultural resource programs should be led by a deputy director who can make the case at the national level for collaboration, direct resource allocations, identify opportunities, and represent this approach and programs with other agencies. This position could be filled by the natural and cultural program managers on a rotating basis to ensure equal representation. An interdisciplinary advisory group would advise the position.
- The funding and staffing imbalances between cultural and natural resources programs must be addressed to ensure that the data available for collaborative efforts is comparable in scope and currency.
- Strategic planning to address major issues such as climate change should be interdisciplinary from inception.
- Consultation with associated communities and interested parties should be required as integral to planning and management activities by NPS policy, regardless of the future status of NHPA and NEPA.
- Opportunities for sharing research both internally and in other public and private forums should be encouraged. This is a role that the George Wright Society played for several decades in its biennial conferences and was invaluable for promoting interdisciplinary dialogue and action.
- The current attacks on science and research by the administration threaten the integrity of our research,

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management, interpretation, and education programs. If the CESU agreements are affected, restoring those agreements will need to be a priority. In addition, other pathways for access to critically needed expertise will have to be identified that are shielded from political interference, possibly through a legislatively authorized advisory group drawn from representatives appointed by relevant professional societies.

Interdisciplinary resource stewardship will be increasingly important to support responding to "continuous change," engaging with partners beyond our boundaries, promoting adaptive management, and applying the precautionary principle. A commitment to science and scholarship, drawing from both the most current scholarship and the knowledge of associated communities, is already present in the NPS corps of resource managers, interpreters, and educators. We must also continue to work together to steward not only the resources we manage but also to collaborate with public and private partners and with associated communities in sustaining their cultures and telling their stories.

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