

Striving toward Best Practices in Capacity Development



The George Wright Forum

The GWS Journal of Parks, Protected Areas & Cultural Sites
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Origins

Founded in 1980, the George Wright Society is organized for the purposes of promoting the application of knowledge, fostering communication, improving resource management, and providing information to improve public understanding and appreciation of the basic purposes of natural and cultural parks and equivalent reserves. The Society is dedicated to the protection, preservation, and management of cultural and natural parks and reserves through research and education.

Mission

The George Wright Society advances the scientific and heritage values of parks and protected areas. The Society promotes professional research and resource stewardship across natural and cultural disciplines, provides avenues of communication, and encourages public policies that embrace these values.

Our Goal

The Society strives to be the premier organization connecting people, places, knowledge, and ideas to foster excellence in natural and cultural resource management, research, protection, and interpretation in parks and equivalent reserves.

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On the cover: Increasing the skills of protected area managers and administrators is critical to boosting the effectiveness of protected areas. The cover photos illustrate capacity-building sessions referenced in or alluded to in the set of articles beginning on p. 135. Clockwise from upper left: A training session on the water in Koh Kong Province, Cambodia; bog walk in Harz National Park, Germany; survey being administered outside of the Torfhaus visitor center, Harz National Park; lecture during training session at An Thoi, Vietnam. All photos courtesy of Thomas E. Fish.

SOCIETY NEWS, NOTES & MAIL

GWS members step up support in response to post-conference appeal

As we reported in the last issue of *The George Wright Forum*, the 2013 GWS Conference on Parks, Protected Areas, and Cultural Sites delivered a high-quality experience to those who were able to attend. Unfortunately, the ranks of attendees were slashed by US federal travel restraints and the overall budget cuts known as “sequestration.” The consequent drop in revenue, coupled with the likelihood of reduced conference attendance by US federal employees in the future, poses a major long-term challenge to the Society, one which are diligently working to address.

In the short term, we appealed to GWS members to consider an extra donation to help make up a portion of the shortfall in conference income. And step up you did—in a big way! All told, we received more than \$14,000 in donations in response to the appeal. It’s a tangible marker of the depth of feeling that exists within the GWS community, and we are very grateful for your support. Here’s an honor roll list of people who contributed to the appeal between April and mid-July:

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John Case	Coalition of NPS Retirees	Tom Cobb
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Jerry Rogers	Jim Roth	Dave Schirokauer
Paul Schullery	Richard & Judy Sellars	Richard Smith
Kathy Tonnessen	Steven Underwood	Michael Whatley
Mike Yochim	Terence Young	

A big thanks to all these generous donors!

Unopposed for re-election, Kennedy and Parsons will serve second terms

In the last issue of the *Forum*, we published a notice of the 2013 Board of Directors election, and invited nominations for candidates. Two seats on the Board were up for election, both being held by incumbents who were seeking re-election to a second three-year term: Barrett

Kennedy and David Parsons. No one stepped forward to challenge Kennedy and Parsons, so, pursuant to the GWS by-laws, the Board in late July found that it is the sense of the membership that the two incumbents should be declared re-elected by acclamation. Therefore, there will be no balloting this fall.

Browning new graduate student liaison to the Board

In June, Matthew Browning, a PhD candidate in the Department of Forest Resources and Environmental Conservation at Virginia Tech, was named the new graduate student representative to the Society's Board of Directors. After earning degrees from Oberlin and Yale, Browning's dissertation work at Virginia Tech will focus on the value of nature centers to local communities. Among his previous positions are stints as a park ranger at Mount Mitchell State Park in North Carolina, a teacher in Boone, North Carolina, and an intern at Neal Smith National Wildlife Refuge in Iowa. The graduate student representative functions as a non-voting Board member, serving on committees and doing the work of the Society just as elected and appointed Board members do. Browning will hold the graduate student representative position through his expected graduation date of May 2015. He succeeds Carena van Riper, who is wrapping up her PhD at Texas A&M University.

Considerations of Culture, Community, Change, and the Centennial

M. Melia Lane-Kamahele

The first two thousand years have brought us to the edge of tradition. The next two thousand require that we step over.

— *Imaikalani Kalahale*, 1998¹

TRADITION IS A FUNNY THING. It can be enriching and constraining, a brake on change and a platform upon which to create innovations. And, it operates on a vast range of time scales. Those of us who work for the National Park Service are about to invest a great deal of time, effort, and money into celebrating a tradition that goes back a mere hundred years. Those of us who work for the National Park Service in the tradition of public service and representing the public trust, and who also happen to be members of an indigenous community, celebrate traditions that go back many hundreds, even thousands, of years. My frame of reference is from the perspective of a Native Hawaiian woman, wife, mother, aunt, and sister who also happens to be a career federal employee with the National Park Service, proud to wear the green and grey. So I have more than a passing interest in how NPS traditions intersect with those of my people and our places, and of Native people generally.

As NPS celebrates its centennial in 2016, we will be comparatively young as an organization, not even half as old as America itself. In Hawai'i, where I currently reside, we have immigrant communities that have been contributors to the history and development of these islands for more than 100 years, reflected in their families, cultural traditions, and businesses, over multiple generations. So it is perhaps arrogant of us, the NPS, to think that we are the only game in town, and that we do management of park lands and special places best. We do

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a good job, but we can, and must, do better. In 2016, I will celebrate 30 years on the job, decades that seem to have raced by at the speed of light. As my career has unfolded, I have come to realize that as an organization we must change to survive. We need to be more humble, to step back and put ourselves in perspective as we hurtle toward our next century. That perspective must include a willingness to look at other traditions and adopt insights from them whenever and wherever they could be valuable. In this essay I will explore ways NPS can do this, focusing on Native Hawaiian examples but with the understanding that the principles could be applied to all indigenous and other local communities that have a long association with particular places.

A voyaging canoe and a found generation

I am a myriad of parts that have come together and blended in an amazing process over many years, one that has defined and shaped my life, perspectives, and thoughts. As an adoptee I grew up away from Hawai'i on the West Coast, in a city that was paternalistic, colonial, cold, hard, racist, and rainy. Upon graduating from high school (where I was one of six minority students in a graduating class of 1,200!), I returned to Hawai'i to attend the University of Hawai'i at Mānoa, working on a BA as a geography major with a Hawaiian studies minor.

During this time (the mid-1970s) the "Hawaiian Renaissance" was underway. At the forefront was the work of the Polynesian Voyaging Society and its double-hulled sailing canoe, *Hōkūle'a*, whose journeys continue to help define and redefine what it meant and means to be Hawaiian. The 1976 Hawai'i-Tahiti voyage of *Hōkūle'a* was undertaken to prove that Pacific Islanders could and did navigate the open ocean relying only on the wind, waves, and stars, and it sparked a cultural reawakening for my generation of baby boomers and for new generations that followed. Now, it is possible to attend school and get an education from preschool through a PhD entirely in the Hawaiian language, celebrate hula on an international stage through venues like the Merry Monarch Hula Festival, and see fine contemporary examples of traditional arts and crafts reflective of a high level of societal development. Our Hawaiian language and culture are grounded in place and tradition, yet are dynamic, changing, and adapting to ensure our survival.

The idea that my ancestors undertook voyages across the vast Pacific Ocean to Tahiti and beyond, and then safely returned to Hawai'i, was fascinating and reassuring to me. It complemented my understanding of Hawaiians as sailors, voyagers, and explorers on journeys to new places and cultures. Researching my MA thesis about the Hawaiian community who had integrated into a small area of southern British Columbia between 1810 and 1869, and how their lives helped shape and support the developing industries of trade, lumbering, fishing, farming, and mining, helped to validate the discovery process about myself and the rich maritime heritage of my ancestors. The lessons taught by this community, whose experience resonated so much with my own, helped me as I struggled with what it meant to be part-Hawaiian, what it meant to be adopted, and how to be part of something that I didn't really understand and feel comfortable with for a long time.

In hindsight, it has taken me many years to attain some level of personal comfort with my heritage and respect for the immense tradition and *kuleana*² we each carry. I promised that my child would never grow up feeling as awkward and culturally alone and isolated as I had.

My son attended Hawaiian language immersion school and was educated in a culturally competent and appropriate setting that utilized the Hawaiian language and incorporated a sense of place and culture to facilitate holistic, integrated, complementary learning. He is grounded and confident, and bridges two worlds with ease and grace; as he prepares to embark on a maritime career, he is blending Native Hawaiian seafaring traditions and culture with modern navigation and change.

Upon completion of my graduate degree, specializing in historic geography and cartographic production, I entered the work force in the Honolulu private sector for several years. While I had good mentors and learned a lot of good skills and much about the business of landscape architecture and land planning, I was always uncomfortable philosophically and morally with the tasks—land planning, developing, and building subdivisions and luxury resorts were not for me. When a classmate from my college cartography program called to share that he was moving into a permanent NPS position on the mainland and inquired if I would be interested in his job as a cartographic technician at the National Park Service office in Honolulu, I was thrilled and applied. That was more than 25 years ago.

I Ulu No Ka Lālā I Ke Kumu³

So let's get back to thinking about tradition, change, culture, community, and the centennial as they relate to NPS. It is an organization founded on a military tradition, uniforms, chain of command and all. The mission of the National Park Service is, in a nutshell, the non-impairment of the resources in special places in perpetuity for the enjoyment of everybody.⁴

As this is written, the national park system has just expanded to include more than 400 units. As we move into the next century of the agency it will become more important for us to expand and shift the foci of these units, and those yet to be created, to deliberately include people, places, and events within a larger continuum of meaning that goes beyond each park's enabling legislation.

For example, at Kalaupapa National Historical Park on the island of Molokai, the focus is Hansen's Disease (leprosy): the history, places, and people that are part of the story. What has not been formally recognized, interpreted, or included by NPS until fairly recently is the story of the larger Native Hawaiian community and families who were removed from their traditional lands to make way for the original Hansen's Disease Settlement, established in 1866 at Kalawao. Their stories are an integral part of the larger processes that have shaped, and continue to influence, how the park is managed and a range of future strategic planning efforts. We need to do better at making, supporting, sustaining, sharing, and expanding those connections.

When national park units in Hawai'i were created beginning in 1916, the paternalistic intention of NPS (which, it must be remembered, was modeled on the military) was to preserve Hawaiian environments, culture, and history in encapsulated, delineated areas of the landscape—with dotted artificial boundary lines, operating within statutes, laws, regulations, policies, and directives that were completely foreign to Native Hawaiians. The process set aside places and resources and created somewhat isolated pockets that serve, as we now know, as treasured spaces that are loved to death. Though well-intentioned, the creation of park units has also divided indigenous communities and separated them from their lands. We need to

find better ways to connect communities, culture, and traditional landscapes and seascapes back together.

Fortunately, NPS park planning processes are undergoing rapid change. Planning is now shifting away from general management plans that cost a great deal of time and money and toward smaller, more versatile modules such as foundation statements and state-of-the-park reports. In this transition, it is critical that Native Hawaiian biocultural⁵ perspectives be integrated into the process so that plans and their documentation are representative compilations of collective community perspectives.

Consider, for example, what a culturally appropriate foundation statement might look like in a Hawaiian context. Foundation statements are intended to capture the essence of what the park is all about. Rather than using a written template, for Hawaiian parks the foundation statement could instead be represented through the Native oral tradition of *oli*, elaborate chants composed to record important information.⁶ *Oli* can be about a place, and are composed by the community that is, in fact, the basis for the place. In this conception of foundation statements, we would let the paper and Web versions be complementary processes, not the primary means of delivery. As Native Hawaiians and Pacific Islanders, we should be bolder and assert our methods of expression that capture and share the Western planning tradition in culturally appropriate, alternative ways.

Even well-established NPS management models are in transition. Nowhere is this more evident than in the recently completed final general management plan and environmental impact statement for the South Unit of Badlands National Park. In this groundbreaking document and in the framework and process, NPS recognizes a government-to-government relationship and an equal partnership with the Oglala Sioux, moving away from the previous paternalistic model of park management on behalf of somebody, and toward forming the nation's first tribal national park, led by the tribe. By embarking on formal co-management agreements, NPS's playing field is shifting.

What does that mean for national park units in Hawai'i and elsewhere in the Pacific? While Native Hawaiians are not federally recognized, there is no reason that we cannot work to bring co-management options to our parks that support and respect our culture. Each of the 11 national park units in the Pacific are being challenged to find ways to integrate diversity, be relevant and respectful of traditional learning and knowledge, and encourage change. Described here are only a few examples, but there are numerous examples that reflect varying stages of this transition and set the tone for a new cross-cultural paradigm in our communities.⁷

Pu'ukoholā Heiau⁸ National Historic Site now operates under a management model that is community- and culturally based. In August 1991, the Hawaiian community reaffirmed its commitment to the *heiau* for seven generations to follow and started down a path to educate, immerse, communicate with, and engage people with the process of integrating native Hawaiian culture, values, and protocols. The group celebrated the bicentennial of the consecration of the *heiau* by Kamehameha the Great. A ceremony of unification, *Ho'oku'ika-hi*, reunited and reconciled two clans representing the descendants of the great Hawaiian chiefs. In 2009, a magnitude 8.6 earthquake severely damaged the Pu'ukoholā Heiau site. Restoration work was completed using traditional methods of dry-laid masonry, i.e., stacked

stone without mortar, integrated with ceremonial protocols by members of the Hawaiian community who came together from across the Pacific. Communities reasserted their right to engage, be accountable, and be culturally appropriate and respectful, acknowledging their collective past, present, and future.

Kaloko-Honokōhau National Historical Park honors the Honokōhau Settlement, and was brought to life as a park unit in 1974 through the *Spirit of Kaloko-Honokōhau Report*,⁹ prepared by the community to ask Congress to establish a park unit that would perpetuate Native Hawaiian culture, community, resources, and spirit. Furthermore, it was a process that brought the park to life through the voice of the indigenous community in their own words and based on tradition and the need to perpetuate culture through the intangible linkage of people, community, and landscape. The federal government authorized and appropriated funds that allowed land acquisition for the park to occur. A number of innovative approaches were implemented, including proposed management based on the *ahupuaʻa*¹⁰ system, live-in cultural preservation programs that were compatible with NPS management policies, and hiring preferences that targeted a population who had the cultural competencies to provide stewardship and management.

Public Law 95-625 was signed by President Jimmy Carter on November 10, 1978, establishing the park in order “to provide a center for the preservation, interpretation, and perpetuation of traditional native Hawaiian activities and culture, and to demonstrate historic land use patterns as well as to provide a needed resource for the education, enjoyment, and appreciation of such traditional native Hawaiian activities and culture by local residents and visitors.” Over many years the park has transitioned from a quiet shoreline area with fishponds, a fishtrap, and many archeological and cultural sites to an urban park being squeezed between housing, roads, shopping centers and other development on three sides, much like a *kīpuka*¹¹ in the middle of a lava flow.

As the vision for the park from the *Spirit Report* is being implemented, the goal to reunite the Hawaiian community with the lands forming the park and the activities of past generations is now coming alive through the completion of the repairs to Kaloko fishpond and its main seawall. Masons who practice the tradition of dry-laid masonry are in charge and are training new generations as masons and stewards of the ponds. The restoration of fishpond aquaculture programs, the dream of a Cultural Live-in Center, and the use of Aimakapa Fishpond as wetland habitat for native and endangered species are all supportive of the park’s mission.

As the first Native Hawaiian employee of the park, I spent a year on the ground learning about the park’s resources, researching and assembling background data for planning. It was an opportunity to bring together my personal and professional sides and make a contribution towards the future of the park. With the support of many people, mentors, and leaders, I worked in a job that represented a new generation of park planning and management staff. We must do more of this kind of encouragement to ensure that we set the direction for a new century of leadership. For all of our Pacific parks, the answers to future challenges of sustainability and empowerment will come from new generations of stewards and *konohiki*¹² of the area as they implement biocultural management through the integration of the best of traditional ecological knowledge, respectful cultural protocols, and Western science.

Haleakalā National Park, on the island of Maui, has a long history: it was established in 1916 as part of Hawai'i Volcanoes National Park, within one week of the creation of the National Park Service.¹³ The park has active resources management and interpretive/education programs that are led by local community members and lineal descendants of the area and a robust next-generation leadership program, which was one of the “lamps along the path” cited in *Imperiled Promise*, the 2011 review of the NPS history program, as an example of what the National Park Service is doing right. Through a cooperative agreement the park is able to partner with a living farm run by a nonprofit organization, the Kipahulu 'Ohana, to support the restoration and adaptive reuse of *taro lo'i*¹⁴ and water systems such as *'auwai*¹⁵ in the coastal unit of the park. This process engages multiple generations in learning and sustaining the critical life arts and skills of farming, planting, and harvesting, strengthens ties to the land and the water, and perpetuates the next generation of farmers and cultural practitioners.

Pu'uhonua o Hōnaunau National Historical Park,¹⁶ established in 1955, has an entirely different relationship between park operations and the community: more established, intimate, and integrated, but also a teeming interface where NPS and Native Hawaiian traditions collide. The park has third-generation Native Hawaiian employees and, like all Pacific parks, is facing the challenges of management succession and leadership. In the next century, the relationship of the lands and area encompassed by the park will change to be more dynamic, interactive, and place-based, and leading this transition will be fourth-, fifth-, and sixth-generation NPS employees who are cultural and lineal descendants from the Honaunau area—who better to lead the park into the next century?

At **Kalaupapa National Historical Park** on the island of Molokai,¹⁷ which has long been held as the *piko*¹⁸ of Hawaiian culture and community, the next century will bring profound change to the park with the transition of the Hansen's Disease patient community, the variety of challenges in the management of the resources on the peninsula, and the integration of long-term strategic planning, which will have impacts on the local, regional, national, and international stages. Place-based learning, respectful use and appreciation of history and culture, the magnificent power and spirit and the environment—all of this will set the stage for the next chapters of the shifting and evolving co-management process. While the philosophical hope is that the peninsula and community remain as a “snapshot in time” and a living memorial to the pre-settlement Native Hawaiian population, the Hansen's Disease community, and the strength and lifelong contributions of two saints (Damien DeVeuster and Marianne Cope),¹⁹ ultimately this *wahi pana*²⁰ will once again reflect the values and expectations of a dynamic, changing island within an archipelago undergoing serious transition politically, economically, and culturally.

The **National Park of American Samoa** embodies integrated co-management in its basic structure: the indigenous community is in the lead role and NPS provides support. NPS does not own title to the resource base of the park (either terrestrial or marine); lands in the three units are leased over 65 years. The leased lands include some that are managed cooperatively and communally by the villages, the American Samoa government, and NPS, along with other partners, which share the unique stories and culture of *fa'asamoa*.²¹ In the next century of NPS, we will see further development of a distributed network of partners and programs from across the Pacific who remain actively engaged in collaborative resources management.

Conclusion

By the time of the NPS centennial in 2016, I will have spent more than half of my adult life as a civil service career employee working for the National Park Service. It has been a challenge, an honor, and a privilege to bring a Native Hawaiian perspective to the table, to represent new possibilities, and, many times, to be the only voice at the table to carry alternative, minority messages and perspectives for consideration—and to insert them loudly and often.

Whatever emotion you may feel toward the federal government or the National Park Service, whether you like us or despise us, I am comfortable with my role as a career employee. It has been challenging and multi-faceted. I have had to weigh the regulations and rules along with appropriate cultural considerations and protocol to resolve issues that in some cases required sensitivity, and in others, nerves of steel. I have balanced my way along the dotted line between tradition and the future and taken the big step over. That said, I have always gone back to fundamental, basic human instincts: truth, honesty, integrity, responsibility, accountability, and lots of communication to help guide and shape my responses. In time, the shifting role of NPS in the new century and in the parks in Hawai'i and the Pacific will reflect this change that I have represented, and there will be many more voices regularly at all the tables and conversations.

We will have succeeded in the next century of NPS if we simply follow our own rules and achieve our stated goals, which already commit us to respecting diversity, increasing relevancy, and achieving integration and community through communication and engagement. The letter of the law is in place, but we still need to challenge ourselves as an agency to move beyond our own traditions and create new ones. To give one more example, we will need to adjust and adopt our regulations on uniforms to allow employees to wear their family and traditional tattoos with pride while on duty, and to allow male employees to wear their hair as long as female employees; we need to have uniforms that represent who we are, like staff at the National Park of American Samoa with their NPS *puletasi*²² for the female staff and the dress shirt, badges, name plates, flat hats, Sam Browne belts, and the regulation green *lavalava*²³ for the male employees.

There will be many ways in which the crucial conversations about parks, places, and people occur. Let these interactions reflect the proud traditions and cultural expressions of Native peoples, such as through the Hawaiian traditional *ho'oponopono*²⁴ process, or the principle of *fa'amaulalo*²⁵ to accomplish a meaningful outcome, or the consultation with *kupuna*²⁶ and elders. In those exchanges we must strive to move beyond our comfort levels to listen, learn, and share. We must respect and integrate native Hawaiian culture and grow our next generations who will bear the *kuleana* of leadership and change.

When we as an agency find a way to change our culture and traditions to be truly inclusive and equal, and when we truly represent the diversity of the American public, we will have succeeded in the new century. It is my hope that when we accomplish that transition to fully empowered cooperative management, the National Park Service will be in a position to support Native communities in managing their own special places, in their own special ways, in perpetuity for the benefit of all.

Endnotes

1. Imaikalani Kalahahele is a celebrated poet, playwright, performance and visual artist, musician, and activist who has also dedicated much of his life to organizing exhibitions and readings for the Hawaiian arts and literary community. He is from Nu‘uanu, O‘ahu, and currently lives in Kalihi. In 2002, he published *Kalahahele* with Kalamakū Press. Kalahahele’s artwork has been exhibited at the Bishop Museum and the Hawaii State Museum of Art. He has also designed book cover art for fellow poet Joe Balaz’s *Ho‘omānoa: A Contemporary Anthology of Hawaiian Literature*, and for his own collection. His artwork and poetry has been featured in the Polynesian anthologies *Whetu Moana* and *Mauri Ola*, in issues of *‘Ōiwi: A Native Hawaiian Journal* and more.
2. *Kuleana*: Personal responsibility and obligation.
3. “The branches grow because of the trunk” (without our ancestors we would not be here). Mary Kawena Pukui, *‘Olelo No‘eau: Hawaiian Proverbs and Poetical Sayings* (Honolulu: Bishop Museum Press, 1983).
4. The National Park Service [Organic] Act, 1916: “...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations.”
5. Biocultural perspectives integrate place, traditional science, culture, and community to inform and complement each other.
6. Hawaiians devised various methods of recording information for the purpose of passing it on from one generation to the next. The *oli* were one such method. Elaborate chants were composed to record important information, e.g. births, deaths, triumphs, losses, good times and bad. In most ancient cultures, the composing of poetry was confined to the privileged classes. What makes Hawai‘i unique is that poetry was composed by people of all walks of life, from the royal court chanters down to the common man.
7. For more information about park units in the Pacific, see www.nps.gov.
8. *Heiau*: A temple or other place of worship that is strategically located and dedicated to a variety of entities and forms. Pu‘ukohola Heiau is significant because of its role in the unification of the Hawaiian Islands in 1791 by King Kamehameha I. Pu‘ukohola Heiau was declared a national historic landmark in 1962 and listed on the National Register of Historic Places as a national historic site in 1966. The park was established as a unit of the national park system in 1972.
9. For more information see www.nps.gov/kaho/planning.
10. *Ahupua‘a*: A traditional land division overseen by a *konohiki*, or land manager, usually extending from the uplands to the sea, that was managed to provide residents with a variety of products that could be consumed or traded.
11. *Kīpuka*: An area of land surrounded by one or more younger lava flows. They form when lava flows on either side of a hill, ridge, or older lava dome, and provide an ecological niche for plants and animals.
12. As noted above, *konohiki* were individuals who were designated as resource managers for specific areas that included resources stretching from the top of the mountains to

the shoreline and out into the ocean. Under a calendar based on fishing and harvesting they controlled access to, and the collection and use of, terrestrial and marine resources under a strict set of seasonally based guidelines.

13. See www.nps.gov/hale.
14. *Lo'i* are traditional, irrigated wetland ponds or terraces used to grow *kalo*, a staple root crop.
15. *Auwai* are ditch or canal systems to carry water from streams to *lo'i*.
16. See www.nps.gov/puho. The 420-acre site was originally established in 1955 as City of Refuge National Historical Park and was renamed on November 10, 1978. The name was changed by the Hawaiian National Park Language Correction Act of 2000 so as to observe the Hawaiian spelling. It includes the *pu'uhonua* and a complex of archeological sites, including temple platforms, royal fishponds, sledding tracks, and some coastal village sites. The Hale o Keawe temple and several thatched structures have been reconstructed.
17. Two tragedies occurred on the Kalaupapa Peninsula, located on the north shore of the island of Moloka'i. The first was the removal of indigenous people in 1865 and 1895. The second was the forced isolation of sick people to this remote place from 1866 until 1969. The removal of Hawaiians from where they had lived for 900 years cut the cultural ties and associations of generations of people with the *'aina* (land). The establishment of an isolation settlement, first at Kalawao and then at Kalaupapa, tore apart Hawaiian society as the kingdom, and subsequently, the territory of Hawai'i tried to control a feared disease. The impact of broken connections with the *'aina* and of family members "lost" to Kalaupapa are still felt in Hawai'i today. See www.nps.gov/kala/historyandculture/people.
18. The center of life connection, like a navel, which links people, places, culture, history, and tradition.
19. See www.nps.gov/kala. Both of these individuals gave their lives as members of religious orders serving at Kalaupapa with the Hansen's Disease patients.
20. *Wahi pana*: Sacred space; places that encompass significant meaning.
21. *Fa'asamoa* translates to describe "the traditional Samoan way" and integrates the socio-political and cultural aspects seamlessly.
22. A *puletasi* is a traditional item of clothing worn by women in American Samoa consisting of a long skirt over which is worn a fitted hip-length tunic with sleeves.
23. A *lavalava* is a traditional item of clothing worn in many Pacific islander communities. It is a rectangular piece of cloth tied at the waist resembling a skirt, worn by both males and females.
24. *Ho'oponopono* can be described as a process of mediation in which relationships are righted and realigned (made *pono*) through prayer, discussion, mutual respect, and forgiveness.
25. *Fa'amaulalo* is the Samoan concept of humility. Along with *faia* (relationships and connectivity between parties) and the power of *fa'aaloalo* (respect) are all considered highly regarded values of *ali'i* (hereditary chiefs) and qualities of leadership (Papalii Dr. Failau-

tasi Avegalio, Editorial, *Samoa News*, March 31, 2013).

26. *Kupuna*: Traditional elders who are greatly respected and bring wisdom, knowledge, and perspectives that guide, enrich, and complement all activities.

M. Melia Lane-Kamahele manages the National Park Service's Pacific Islands Office in Honolulu, Hawai'i.



Letter from Woodstock Rolf Diamant

Uncertain Footing on Hallowed Ground?

I HAD HOPED THAT THIS SUMMER EDITION OF MY LETTER FROM WOODSTOCK might focus on European protected areas after doing some hiking this June in Parc Naziunal Svisser, a national park located in the Engadine region of Switzerland. But as I returned to the US in early July, on the first day of the 150th anniversary of the Battle of Gettysburg, it was difficult to ignore the steady stream of related commentaries, news reports, interviews, and videos (courtesy of C-SPAN and YouTube) and not turn my attention closer to home.

The sesquicentennial of the American Civil War is presenting the US National Park Service (NPS) with a series of not-unexpected challenges as the four-year commemoration unfolds. Even before the commemoration got underway, as a harbinger of what was to come, there was internal disagreement in early NPS planning efforts over whether or not to brand the four years of associated activities with the theme “Civil War to Civil Rights,” a reflection of an on-going tension between an era of new scholarship and broader contextual interpretation of the war’s legacy and the acute sensitivity still associated with all things Civil War. Some of this tension was evident in the one of the largest and most publicized NPS sesquicentennial events, the 150th anniversary of the Battle of Gettysburg. It was particularly interesting to see how Gettysburg National Military Park (GNMP) carefully tried to strike a balance, acknowledging the new emphasis on historical context, larger meaning, and civil rights, while still providing ample programs and activities for Civil War living-history buffs and other battlefield enthusiasts.

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The commemoration's carefully staged signature event, "Gettysburg: A New Birth of Freedom," held on the evening of June 30, demonstrated, however, how challenging this can sometimes be. In her welcoming remarks, Joanne Hanley, executive director of GNMP's primary partner, The Gettysburg Foundation, carefully praised universal virtues of "courage, honor and sacrifice." It is hard to find fault with this sentiment but there is a risk that this kind of language can also, even today, be misinterpreted to suggest a "moral equivalency" in the purposes and objectives of the two armies—a recurring theme that resonated throughout early 20th-century veteran reunions. As one commemorative publication for Gettysburg's 50th anniversary in 1913 stated, "[T]he two noblest armies in the annals of mankind fought for principles which each believed to be just." While no one would question the bravery of all the soldiers—Union and Confederate—the principles for which their armies fought were profoundly different. As historian Alan Guelzo (author of *Gettysburg: The Last Invasion*) reminds us, the Army of Northern Virginia "was coming as the army of slavery." During their brief incursion into Pennsylvania, according to Guelzo, Lee's army hunted down and rounded up all the free black residents it could get its hands on, "marching them off to the Richmond slave pens so that they can be sold into slavery." Lincoln, of course, would later remind everyone in his Gettysburg Address that the virtue of sacrifice would be in vain, if not dedicated to "a new birth of freedom."

So it was encouraging to hear Director Jon Jarvis, on behalf of NPS, publicly and unequivocally endorse the effort to focus on this larger meaning for both Gettysburg and the Civil War sesquicentennial:

I would suggest we're also here to reaffirm the principles that demanded such terrible sacrifices in the summer of 1863.... The 'new birth of freedom' President Lincoln spoke of was not a finite event;... it was part of a process that continued long after the Civil War and which, today, requires our constant vigilance.

The choice of Doris Kearns Goodwin as a keynote speaker, rather than a military historian, seemed to suggest that the evening's event organizers, to their credit, wanted to include a historical perspective that was larger than the battle itself. The focus of Goodwin's remarks was on the nation's contemporary civil rights movements, rather than a more traditional battlefield narrative. She placed the meaning of Gettysburg, and in particular Lincoln's Gettysburg Address, in the context of the on-going struggle to achieve full civil rights for all Americans, including women and the LGBT community, as well as people of color. Goodwin also pointed out the obvious irony that this commemoration of American freedom was being staged only a few days after the Supreme Court struck down a critical enforcement provision of the 1965 Voting Rights Act.

In contrast to this exploration of the war's causes and its problematic legacy, many of the commemoration's extraordinary eleven-day (June 29–July 9) marathon of public programs and activities focused more closely on Gettysburg's battlefield stories. Along with guided walks and living-history programs, the park also offered a series of more in-depth talks and book signings by Civil War authors, historians, and NPS rangers. As stated in the official brochure, programs would "offer something for all ages and levels of interest."

My attention was drawn to one particularly high-profile public event, called “Pickett’s Charge Commemorative March,” that brought to the surface some issues that may continue to present a challenge to NPS at Gettysburg and elsewhere. Apparently, during past battle anniversaries, groups of re-enactors have attempted to mount their own unauthorized events within GMNP on the site of Pickett’s Charge in competition with other park-sanctioned anniversary activities. This year, on July 3, GMNP decided to organize its own battlefield crossing. The Pickett’s Charge Commemorative March offered visitors an opportunity to “walk in the footsteps of those that lived this terrible and tragic event” with national park rangers leading groups representing each of the nine assaulting Confederate brigades in a mile-long advance to Union lines where visitors could also assemble. According to publicity materials, “The rangers, volunteers and living historians will help each group form up in line of battle at approximately the same location the real brigade formed 150 years earlier.” When the nine rebel groups reached “Union lines” buglers would end the march with the playing of “Taps.” Interviewed before the event, one park official, perhaps hopefully, suggested that the march would be reverential in tone. “This is a commemorative march,” she said, “We’re trying to be respectful.”

On the day of the march, 20,000 to 25,000 visitors gathered to view the event from the Union battle line on Cemetery Ridge, while another 15,000 people swelled the ranks of the nine attack brigades (originally 12,000 soldiers.) At the front of each brigade were uniformed rebel re-enactors. It was difficult to distinguish the “living historians” sanctioned by GNMP from hundreds of other re-enactors (bringing with them numerous Confederate battle flags and banners) who decided to participate and to some extent try to make the event their own. In one video I watched (I want to be clear I was not there in person) a re-enactor noncommissioned officer led hundreds of enthusiastic march participants in practicing “a proper rebel yell.” And yell they did, as the unwieldy formations, one by one, made their way under waving flags across the open fields.

People obviously enjoyed themselves, experiencing the spectacle of the event, the camaraderie of their brigades, and the adrenaline-fueled rush of the charge. Notwithstanding the playing of “Taps” at the program’s conclusion, it seemed more of a recreational event than a “respectful commemorative march.” Perhaps sounding “Taps” was enough to shift the tone, but I think it remains an open question as to whether an event like this can offer more opportunity for reflecting on the battle’s larger meaning.

It may be, however, that the program became just too large—and, given the dynamic of the re-enactors—too difficult to manage as originally conceived. Or perhaps there were too many conflicting objectives from the beginning. If the event was to become, for all intents and purposes, a re-enactment of the charge, what then were uniformed park rangers doing in the middle of it? I’ve asked myself why I found this disorienting and unsettling. One reason is that NPS rangers seemed out of place in this tableau—appearing not in their traditional role of interpreters but rather as participants being swept along with thousands of park visitors under Confederate colors and amid choruses of rebel yells. (It should be noted that the 150th Gettysburg National Civil War Reenactment, organized independently of NPS, was staged July 4–7 on a farm just outside the national park.)

The other reason for my unease is the issue of flags. It appears that NPS guides were originally to have crossed the battlefield marching under plain blue flags identifying each of the nine rebel brigade commanders. But given the crush of people—living historians, re-enactors and visitor/participants—perhaps it was inevitable that uniformed NPS personnel would be repeatedly photographed and filmed intermingled with others advancing across the field with Confederate flags. For re-enactors, their military flags, like their weapons and uniforms, are an accepted part of a battlefield setting—seen in the context of a specific time and place. However, the addition of 21st-century NPS rangers in the picture changes that context, at least for me. The scene is no longer July 3, 1863, and the rangers were therefore marching alongside flags that are now not only associated with the battle but also with a conflicted and painful legacy of slavery, white supremacy, and the nation’s long struggle from “Civil War to Civil Rights.”



This photo of Pickett’s Charge Commemorative March appeared in several newspapers. © 2013 Jason Plotkin; reprinted by permission of the York Daily Record / York Sunday News.

I realize that there are very different perspectives on this event. A GNMP ranger wrote in his personal blog, “The Pickett’s Charge Commemorative Walk [sic] was one of the most amazing experiences of my life. I did not hear a single visitor complaint from the crowd of thousands.” Some 40,000 people, indeed, had a safe, totally engaging day at Gettysburg, a huge logistical and programmatic accomplishment.

These reservations I’ve expressed are from the perspective of someone from the outside looking in—at a lot of digital images. But in our media-driven culture, images, as well as content, can have considerable public impact. The National Park Service, an organization committed to greater inclusion and relevancy, may hopefully draw some constructive lessons from Pickett’s Charge Commemorative March that may minimize or avoid perceptions, particularly of its own people and brand, which could be interpreted as being inconsistent with these objectives.

That said, it is only fair that these personal observations should be considered in the larger perspective of all that has been achieved by GNMP since the Gettysburg Tower came tumbling down. On several recent visits I have been impressed by both the depth and quality of the park's exhibits and visitor programs. GNMP has worked with top national historians and scholars, setting the bar for NPS as a whole, on interpreting the causes and consequences of the war. The GNMP visitor center's museum is particularly successful in explaining post-war reconciliation in the painful context of suppressed Reconstruction, segregation, and the long struggle for civil rights. The NPS Civil War sesquicentennial effort has also found its footing, creating a remarkably thoughtful and content-rich webpage, and, in collaboration with Eastern National and leading scholars, an outstanding series of very readable publications.

The Organization of American Historians' 2011 report *Imperiled Promise: The State of History in the National Park Service* recommends rigorous program evaluation and open dialogue between interpreters and historians, inside and outside NPS, on ways visitors can gain a deeper understanding of complex, and often conflicting, interpretations of history (for more, see *The George Wright Forum*, vol. 29, no. 2, 2012). Hopefully we can all reflect on what can be learned from the 150th anniversary of the Battle of Gettysburg. Organizing this commemoration was an extraordinarily difficult undertaking and GNMP should be commended for how successfully it was managed overall. However, as the Pickett's Charge Commemoration March demonstrates, GNMP, NPS, and all Americans may still have more work to do. In a recent radio interview, historian David Blight thoughtfully summed up the challenge before us:

Gettysburg is a good example of the power of place in memory.... The power of place is where we also learn to reflect on long-term meaning and not only the authenticity of the fight.

A handwritten signature in black ink, reading "Roy Dammant". The signature is written in a cursive style with a large, stylized initial "R".

The Heart of the Matter

New essential reading on parks, protected areas, and cultural sites

Managing Outdoor Recreation: Case Studies in the National Parks, by Robert E. Manning and Laura E. Anderson. Cambridge, MA: CABI, 2012.

Reviewed by Robert G. Dvorak

ALL THOSE WHO HAVE HAD THE OPPORTUNITY to enter Yellowstone National Park through its north entrance have been met with the unmistakable Roosevelt Arch. Its message represents to all visitors a critical mandate of the national park system: “For the benefit and enjoyment of the people.” However, this is not the only imperative for the national park system and its managers. The 1916 Organic Act also dictates that these parks are to be managed “in such manner and such means as will leave them unimpaired for the enjoyment of future generations.” Therein lays the challenge for those managers that must preserve, protect, and administer our national parks in response to the nearly 300 million visits that occur annually. How do we provide for public enjoyment of the national parks while protecting park resources? More specifically, how can we manage outdoor recreation within the national parks in a systematic and scientific way?

In their new book, *Managing Outdoor Recreation: Case Studies in the National Parks*, Robert E. Manning and Laura E. Anderson strive to make information on successful recreation management approaches more accessible to both professionals and students. They propose a systematic approach for identifying and implementing appropriate outdoor recreation management practices. This approach is grounded in the relevant scientific and professional literature and represents Manning and Anderson’s fundamental belief that outdoor recreation should be “managed by design, not by default.” It intends to provide a mechanism for addressing the broad range of management problems across the diverse units of the US national park system.

Part I of *Managing Outdoor Recreation* draws on the scientific and professional literature to create a foundation for a systematic approach to outdoor recreation management. It begins with an important review of several conceptual frameworks, such as the dual mission of public use and preservation in parks, parks as common property resources, and the operationalization of carrying capacity in a recreation management context. Manning and Anderson continue by describing the concept of limits of acceptable change, the identification of indicators and standards of quality, and how these concepts integrate into a threefold framework that

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considers the environmental, social, and managerial components of any park and outdoor recreation context. The review of these frameworks reminds us of the challenges of managing recreation in a park and natural resource context, and how these challenges should be met by practices that are both adaptive and objective-focused.

Following these conceptualizations, the next chapters examine the impacts of outdoor recreation and illustrate several management practices and strategies to address and mitigate these impacts. Impacts to park resources are described; specifically, effects on soil, water, vegetation, air, and wildlife. Manning and Anderson also consider impacts that have become increasingly more important in parks and natural area protection, such as those to soundscapes, the night sky, and historical and cultural resources. Impacts to the visitor experience are also examined. Issues related to crowding, visitor conflict, and depreciative behavior are discussed to understand how the quality of the experience in parks can be degraded. Lastly, the various impacts of recreation on facilities and park services are profiled. From attraction sites like Old Faithful in Yellowstone National Park, to the trails, interpretive facilities, campsites, and roads within parks, recreation use has recognizable and documentable effects on park infrastructure.

The authors acknowledge that a variety of management practices have been created to prevent and mitigate the impacts of recreation on park resources, visitor experiences, and park facilities. Many of these practices have been found to be effective. However, it is both important and useful to organize these practices into a classification system that can illustrate the diversity of alternatives and management objectives available to managers and planners. Manning and Anderson illustrate such a classification system based on four basic strategies: increasing supply, reducing the impact of use, increasing the durability of the resource/experience, and limiting use. Within these basic strategies, a range of potential tactics and practices exist. The authors organize these practices into six basic categories: information/education, use rationing and allocation, rules/regulations, law enforcement, zoning, and facility development/site design/maintenance. This classification system is supported by an extensive review of the literature and relevant examples of empirical research. To the reader, this is a clear strength within this section of the book, as the conceptualization of each tactic and practice may be considered for its appropriateness within various recreation management contexts.

In closing Part I of the book, Manning and Anderson propose a management matrix as a systematic and comprehensive way of thinking about managing the potential impacts of outdoor recreation. This structure of this matrix includes the 16 problems of management concern (resource, experiential, managerial) and the six categories of management practices within the four management strategies (increase supply, reduce impacts of use, increase durability, and limit use). In this manner, the matrix creates 96 interactions between the problems and potential practices. Collectively, it represents 384 potential ways in which management practices might be used to address problems (and these options are extensively described throughout the appendices of the book). To illustrate an example, a park may be facing the problem of impacts to wildlife due to recreation use. To address this problem, managers may select the strategy of “reducing the impact of use.” Within this strategy, an appropriate practice may be to inform and educate recreation users about this problem. These information and educational efforts may focus on promoting alternative times to visit that minimize

wildlife impacts, informing visitors about acceptable/unacceptable behaviors, and promoting alternative sites to disperse use.

The matrices that Manning and Anderson propose might best be described as a “taxonomy” of potential recreation management actions. At first glance, it may appear overly reductionistic and lacking freedom. However, this is not the apparent intent or utility. The authors are very clear the focus of this systematic approach is targeted at outdoor recreation, not all management aspects within a park or protected area. While interactions between range and resource management do exist within a park planning and management context, their approach is predicated on a belief that prescriptive planning that is issue- and objective-driven is necessary for professional outdoor recreation management. Such an approach also provides the means for explicit consideration of all possible management practices that apply to the range of outdoor recreation management problems.

The book continues in Part II by illustrating how these management matrices can be utilized. A series of 20 case studies within the US national park system are presented, each selected to represent as many of the 16 categories of management problems and the four management strategies and related practices as possible. This compilation is of immense value to the park planner, manager, outdoor recreation instructor, and student. Not only are the “crown jewels” of the national park system represented, but also what could be considered the “crown jewels” of issues related to outdoor recreation in parks. From winter use in Yellowstone National Park to river management on the Colorado River in the Grand Canyon, the case studies represent some of the most controversial and iconic problems that managers have faced in the last 25 years. In addition, many important issues and contexts that are often overlooked or ignored are featured. Threats to underwater resources in Biscayne National Park are described. Efforts to manage the quality of the night sky at Chaco Culture National Historical Park are examined. The development of a shuttle system in Zion National Park is investigated. In each of these cases, the impacts from outdoor recreation are explored and addressed utilizing diverse management practices and tactics.

The approach taken for each of these case studies is also very refreshing and accessible to the audience. Instead of relying heavily on philosophical debate, each case study focuses on the “on-the-ground” actions taken by managers and the results of these decisions. The context of the issue and location are also adequately given, allowing the reader to consider the success of management practices and potentially how such actions and their implications may be applied to similar issues and challenges.

In the final part of the book, Manning and Anderson reflect on lessons learned and provide a series of principles for managing outdoor recreation. They begin their reflection by re-emphasizing the dual mission of parks for providing public enjoyment while protecting park resources and the quality of the visitor experience. They also repeat the importance of a management-by-objective framework, which constitutes a rational, transparent, and traceable means for managing outdoor recreation. An important theme that emerges within these principles, though, is the importance of professional judgment in decision-making. Despite the application of the matrix that Manning and Anderson propose, its intent appears not meant to absolve management of the value-based judgment and decisions for which they are responsible. Circumstances and nuances regarding any outdoor recreation issue still

frame the context of management, “and after reasonable efforts to inform themselves, managers must ultimately exercise their professional judgment” and select those actions which are most appropriate. The authors further caution management of the temptation to rely on those management practices that are familiar, administratively easy, or commonly used. They also encourage that management should focus on the impacts of recreation use, not the use itself. A focus on the latter favors use limitations, generally seen as a management option of “last resort.”

Consideration of the systematic approach and matrices presented in *Managing Outdoor Recreation* does raise several interesting topics of debate. First, despite best intentions, what are the risks to flexibility and creativity in advocating for such a management approach? While the authors do caution against relying on those practices that are familiar or easy, does such an approach encourage the acceptance of “default” management actions? Are such tendencies a greater risk to the neophyte professional or student of outdoor recreation management? It may be worth greater reinforcement that responsibility falls upon managers, planners, and educators alike to embrace inventiveness and flexibility within the iterative, adaptive process of a management-by-objective framework. Second, could the matrices consider other factors that influence and are related to the quality of the visitor experience? While crowding, conflict, and depreciative behavior are issues that influence visitor experiences, other aspects of the experience can be threatened through recreation use. Experiences have been considered as emergent, dynamic, and meanings-based. Individuals’ identities and values influence these meanings and are associated with both the lived experience and the specific outdoor context. Such concepts are not immediately represented in the current matrices, but are important considerations in both outdoor recreation and protected area management. In fairness, these were not necessarily within the scope of this text and integrating meanings and the emergent, lived experience within Manning and Anderson’s systematic approach may be possible. These considerations may be most appropriate and best represented within the framework when management goals and objectives are being formulated, as a means to further represent the visitor experience, meanings, and values associated with a given protected area.

Manning and Anderson conclude by reminding us that outdoor recreation “should be managed by design, not by default.” This text makes an important contribution in furthering this principle of outdoor recreation management. For both recreation professionals and students alike, it is an accessible resource that articulates and demonstrates diverse options and actions available to managers and practitioners. The included cases studies provide concrete examples of management in action, while the framework and principles described are critical concepts that all professionals and student should investigate and understand within their professional practice. Thus, *Managing Outdoor Recreation* is an important contribution in the ongoing professional practice of outdoor recreation management in parks and protected areas.

Simply “Being There”: A Legitimate Point on the Geotourism and National Park Visitor Opportunity Spectrum

John Watson

Context of this paper

THE CONCEPT OF “GEOTOURISM” HAS ONLY EVOLVED OVER THE PAST DECADE OR SO. It has an increasingly strong focus on the geological science of landscape and rock features as well as an inherent and fundamental desire for visitors to understand and learn about what they are observing, for example through interpretation and guiding.

Many of the world’s protected areas, especially national parks, were originally established on the basis of their outstanding scenery and geological features. It is not surprising, therefore, that geotourism is also focused very much (though not exclusively) on and around such protected areas.

This paper was originally presented in April 2010 at the 2nd Global Geotourism Conference held at Mulu World Heritage Area, Malaysia. It was subsequently re-produced in the *Australasian Cave and Karst Management Association Journal* in September 2010 (Watson 2010b) after interest in the paper’s content was expressed by a number of attendees at the geotourism conference who also attended ACKMA’s 2010 annual meeting, which was likewise held at Mulu in the following week.

Although the opportunity spectrum approach used to be frequently applied by protected area planners and managers, it seems to be less well known nowadays, including by those involved in the development and promotion of tourism. On a broader level beyond geotourism per se, the paper therefore also reinforces the desirability of maintaining the option of minimal or no site interpretation for *any* visitors to national parks who, for various reasons, want simply to “be there.”

The paper is presented here in its original form for a “geotourism audience” but with some minor amendments including two additional references (Watson 1997; 2010b).

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Introduction

When asked why he was wanting to climb Mount Everest, George Leigh Mallory is reputed to have said, “Because it is there!” (*New York Times*, 19 August 1923). These words have since become immortalized in the mountaineering literature and further afield. Even those who have become legendary for their exploits at more modest altitudes, such as Alfred Wainwright, lover of hill walking in the English Lake District, embody a not dissimilar sentiment for high places. When asked which was his favorite mountain, he would reply, “The one I am on at the time” (cited in Griffin 1963: 118).

In neither case is there mention of geology or science, of achievement, adventure, or personal challenge, or of strong individual preference for one site above another—the main desire is simply “being there” in a naturally wild place, high in the landscape, and, in Wainwright’s case, preferably alone. Wainwright did, however, express a preference for the final resting place of his ashes, on the diminutive peak of Haystacks, but significantly, in an area that was looked down upon by a full circle of so many of his beloved higher Lakeland peaks (Wainwright 1966).

Within natural landscapes there are many places that are simply awe-inspiring in their own right. They include features such as spectacular waterfalls, lakes, active lava flows, wild and atmospheric coastal cliffs including deep zawns, gorges and canyons, mountain summits and narrow ridges, geysers and other thermal features, and even some desert landscapes. Many sites are naturally noisy and some have unique smells, often associated with volcanic activity, geothermal activity, or the sea. A range of human senses may be triggered—sight, sound, smell, and touch (when rock climbing for example). The reports written by early

Figure 1. Backpacker at Tiger Leaping Gorge, China. Photo courtesy of Julia Watson.



explorers and discoverers of places like Yosemite Valley, Yellowstone, and the Himalayan peaks bear testimony to the impacts that simply sitting and viewing the scenery made on them. Sometimes, timing and situation may combine to make “magic moments,” in what are generally considered to be less-spectacular landscapes in a global context:

We were facing east. After a short desultory conversation we fell still—not a word was spoken for an hour. We drove from our heads every thought of self and simply observed the scene detachedly, allowing it, and nothing else, to flow into us....

— *W.H Murray, on watching the sunrise from the final peak after a moonlit winter snow traverse of the Aonach–Eagach Ridge, Glencoe, Scotland, 1951*

Moments such as these are rarely, if ever, forgotten.

Similar awe-inspiring experiences also occur in the subterranean world of caves. This may be through their sheer size, sometimes accompanied by the sound of rushing water, or their incredible underworld atmosphere—places like the outstanding caves of Sarawak, the subterranean gorges of Skocjanske Jame in Slovenia, or the vast underground chambers of the Western Australian Nullarbor, which starkly contrast with the even more vast, largely featureless plain above. However, it is often the near-view array of spectacular speleothems, such as those typically found in highly active cave systems in the South West Region of Western Australia, that strongly triggers a visual response. Here the silence and darkness are combined with magical displays of crystals and flowstones, sometimes reflected in spectacular pools of clear still water.

The conscious preservation of silence may also be a very powerful adjunct to the appreciation of natural beauty in heavily visited outstanding landscapes and can be maximized through the use of quiet transportation systems, well-designed walking paths, and the encouragement of respectful and sensitive visitor behavior. Hamilton-Smith (1979) was particularly impressed by this management approach at the Plitvice Lakes in Croatia in the late 1970s.

Figure 2. Classic view from Sgurr na Stri (464m elevation) looking towards Loch Coruisk and the skyline ridge of the Black Cullin of Skye—one of the finest contemplative mountain views in Britain. Photo courtesy of the author.

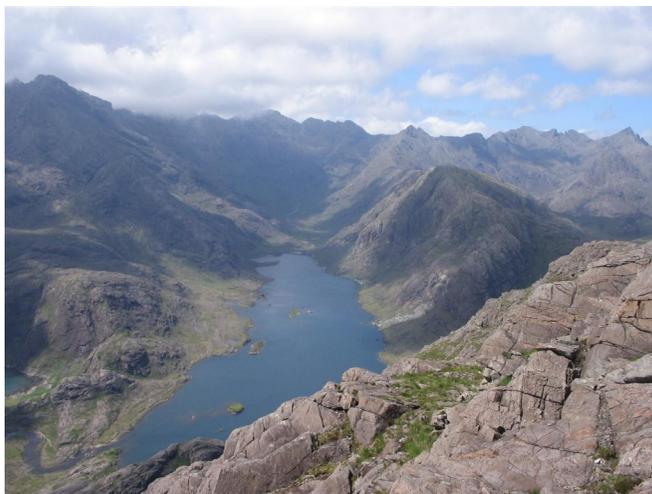




Figure 3. A spectacular restricted-access cave chamber in southwestern Australia where speleologists must remove overalls, helmets, and boots before entering and keep strictly to narrow clear polythene pathways and defined sitting locations. Photo courtesy of Ross Anderson.

Around the world there are hundreds of thousands of people who strive to experience similar enjoyment of natural beauty and sense of place through simply “being there,” whether it is to escape the increasing pressures of today’s society, to delight in a feeling of freedom, or simply to soak up the wonders of nature and wild landscapes or to experience the spectacular subterranean world. Many of these visitors are also independent travelers, avoiding organized tours where possible and wishing to appreciate and learn from their experiences at their own pace and in their own time frame. If they seek interpretation or education then self-guiding will probably be preferred, or simply the ability to obtain pre- or post-visit information, but only if they wish. In the context of cave visitation, this concept has been described by Hamilton-Smith (2007) as “self-timing” rather than self-guiding.

On the other hand, there are of course many other people who seek to visit our wild places, but within a range of comfort zones or safety nets that may include provision of comfortable accommodation, the use of local guides, and reliance on “interpreters” to help them understand the evolution of the various landforms and landscapes that they are viewing.

However, the two broad groups of people discussed above should not be considered as distinct or separate entities, but rather as representing the opposite ends of a *range* of visitor aspirations with regard to the degree of “interpretive education” that they may wish to have provided or, on the other hand, that they may wish to completely avoid.

Furthermore, as individuals we may well opt for different types of experiences across this range at different times, in different locations, according to weather conditions or at different stages of our lives. It is a matter of preference based on opportunity and personal inclination at the time. Our challenge as managers and tourism providers should therefore be to cater for the range of interpretation preferences by allowing geotourists access to the choices that *they* prefer ... and not what we think they should automatically be given.

The recreation opportunity spectrum concept

At a broader outdoor recreation level, the importance of providing opportunities for visitors to exercise their personal choices has been developed through concepts such as the recreation opportunity spectrum (Stankey and Clarke 1979). The spectrum recognizes the legitimacy of a range of outdoor settings that may provide for a variety of recreation activities and experiences, from the remote, natural, and undeveloped end of the scale through to the heavily used, greatly modified, and highly developed end. In areas such as national parks or other protected areas, the opportunity spectrum is often used as a planning tool to help identify different areas or zones that are then deliberately managed to retain their naturalness or, conversely, to allow for development. The terminology used varies from agency to agency but generally speaking it will include facilities or recreation development zones, natural landscape zones, and wilderness zones.

Facilities or recreation development zones tend to be located around historical “honeypots” where infrastructure has typically been in place for many decades. They are often very close to outstanding natural features that may have led to the park’s designation in the first place. They typically include everything from visitor accommodation, interpretation/visitor centers, shops, transportation hubs, and park management facilities such as ranger housing and workshops.

Natural landscape zones tend to occupy the bulk of the park, with provision of more limited and more basic infrastructure in natural settings.

Wilderness zones are usually located within the core areas of the park and are therefore “buffered” from outside influences. They generally have only minimal, if any, infrastructure provided. Visitor information in wilderness zones is also minimal and restricted to the provision of essential safety information only, or critical information required to help protect wilderness and biodiversity values. *Interpretation and “education” signage is deliberately excluded.* Hence, if an educative component is to be an *essential* prerequisite for a geotourism experience, then it would appear that geotourism cannot occur in such wilderness areas, even if they contain outstanding geological features or landscapes, whether above or below ground.

Sometimes the size, location, or historical development of parks may mean that it is not possible or appropriate to provide for the full range of zones and visitor opportunities within one protected area. In such cases it may be possible to recognize a “spectrum of parks” which, in a broader regional context, may collectively provide for the full range of opportunities. Such a concept has been applied through a regional management plan for the South Coast Region of Western Australia (Department of Conservation and Land Management 1992;



Figure 4. The coastal core area wilderness zone of Fitzgerald River National Park, Western Australia, viewed across the bay from Point Charles. Photo courtesy of the author.

Watson 1997). In that region the opportunities for wilderness are restricted to a few of the larger and more remote parks, such as the Stirling Range (about 116,000 ha) and Fitzgerald River national parks (about 330,000 ha), whereas well-developed roads and visitor facilities are only practical or are historically already present in other areas such as the much smaller Torndirrup National Park (about 4,000 ha) near Albany. As Albany is the major population centre of the region and the original first British settlement in Western Australia, Torndirrup National Park also has a very high recreational visitation from local residents as well as other park visitors, with just under half a million visits per annum in total. The same regional management plan also recognized a range of different levels of education and interpretation focus across the spectrum of parks.

Application to geotourism: The geotourism opportunity spectrum

There has already been some application of the recreation opportunity spectrum to tourism as distinct from natural area management. For example, Butler and Waldbrook (2003) discussed the concept, but focused mainly on how, after their initial discovery, natural tourism sites tend to evolve both socially and physically due to increasing visitor numbers and resultant site impacts. This has been practically demonstrated in the evolution of the American national parks system, where uncontrolled commercial development began to outstrip the very limited protective management capacity until strong formal legislation provided for protection so that the natural environment would remain “untrammelled” and the means were also provided to adequately staff parks throughout the system.

“Tourism” has been around for a very long time, from at least as early as the late 3rd century BC when the Romans are known to have visited the Parthenon at the Acropolis in Greece. In Europe, a new focus on tourism visits to natural places emerged in the 18th and 19th centuries as attention through “The Grand Tour” switched from the great architecture of previous generations more towards an interest in “natural architecture” as evidenced in caves, mountains, lakes, and other spectacular natural features. There was a new quest for understanding and a demand grew for scientific and geological interpretation of these outstanding landscapes and features, especially in the 19th century. However, 20th- and 21st-century

tourism has evolved to include a much broader interest in plants and animals and different social cultures, including art, music, language and, more recently, the gastronomic delights of food and drink.

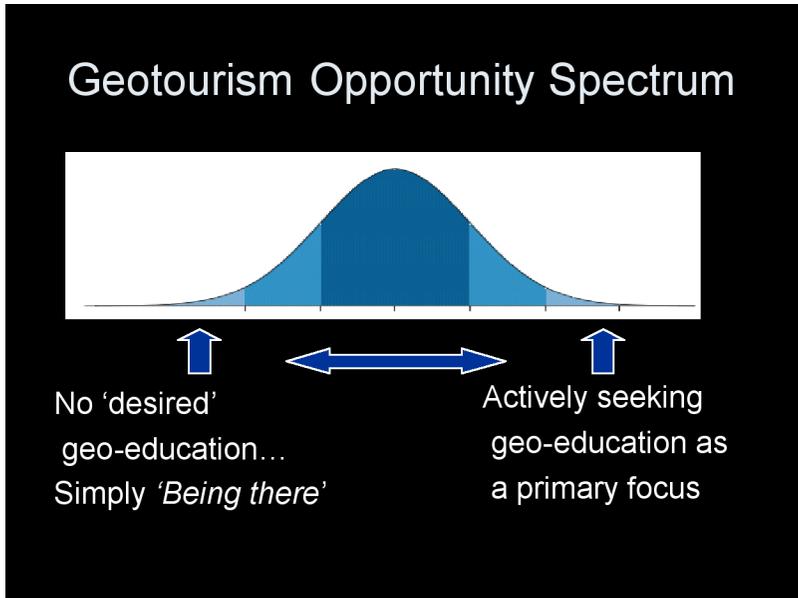
As noted above, the current concept of geotourism is very new and has a strong focus on geological science as well as a learning component:

Geotourism is a form of natural area tourism that specifically focuses on geology and landscape. It promotes tourism to geosites and the conservation of geo-diversity and an understanding of earth sciences through appreciation and learning. This is achieved through independent visits to geological features, use of geo-trails and view points, guided tours, geo-activities and patronage of geosite visitor centres (Newsome and Dowling 2010).

This may be fine for most people, however, as indicated in the earlier part of this paper, there are many visitors who may *not* wish to be “educated” about the geological science of the sites they are visiting, but simply want to “be there” and experience the setting in their own way and in their own time. In some cases, notably those of rock climbers and scramblers, who come into the most intimate contact with the rocks and geology, it is impractical and dangerous to be distracted by interpretation. They need to be fully focused on moving safely across cliff faces and other rocky terrain without falling off (Watson 2010a)!

However, by applying a geotourism opportunity spectrum approach to the educative component of geotourism we can accommodate freedom of choice for all visitors and allow not only for an intense focus on geological interpretation and understanding at one end of the spectrum but also a minimalist preference at the other end. This should deliver a “win-win” outcome by extending the embrace of geotourism across the full range of visitor preferences.

Figure 5. Geotourism opportunity spectrum.



Closing comments

What is “education” anyway? It seems that educators themselves are unable to arrive at a universally acceptable definition. Suffice it to say that most standard dictionaries will include at least one definition of education as being “an enlightening experience”; for example: “His visit to India was an education” (Reader’s Digest 1988). According to the American educator David Gardner: “We learn simply by the exposure of living. Much that passes for education is not education at all but ritual. The fact is that we are being educated when we know it least.” Or Albert Einstein: “The only thing that interferes with my learning is my education.”

In this context, the awe-inspiring views, magical moments, and other experiences referred to earlier in this paper are one form of “meaningful education” and hence “simply being there” can indeed be regarded as a legitimate stand-alone component within geotourism.

Having begun this dissertation on the mountain tops, let us give the final few words to John Muir, the Scottish-born American naturalist, author, and early advocate of the preservation of wilderness:

Climb the mountains and get their good tidings. Nature’s peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop off like autumn leaves.

— *John Muir (1901)*

Acknowledgments

Sincere thanks to Gil Field (Department of Environment and Conservation, Perth) and to Elery Hamilton-Smith (Charles Sturt University, Melbourne) for most valuable discussion, encouragement, and comments on earlier drafts of this paper. I thank my daughter, Julia Watson, in particular for confirming the importance of “simply being there” to the young, independent traveler market. Ross Anderson and Jay Anderson (leader of the IUCN World Commission on Protected Areas’s Caves and Karst Specialist Group) provided the beautiful picture of an outstanding cave chamber in South West Australia.

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Striving toward Best Practices:
Innovations in International Protected Area Capacity Development
Eick von Ruschkowski and Thomas E. Fish, guest editors

Introduction

Thomas E. Fish and Eick von Ruschkowski

THE EFFECTIVENESS OF PROTECTED AREA MANAGEMENT is—amongst other things—dependent on the skills of the managers and the administrators responsible for this task. In many countries, protected area management is not something you are able to take as a degree program, but the qualifications and tools needed for this job are rather acquired by specific training courses or, especially in areas with limited financial and human resources, simply by life experience.

Capacity development does not imply that it is as simple as sending First World experts to some remote area in the Third World, in the sense of the traditional approach of technology transfer. We have learned that local approaches that reflect cultural differences may be more successful in the long run. At the very beginning of a process, capacity development means that, based on a needs assessment, the decision was made that certain capacity needs should be addressed by creating training programs in specific subject fields—governance or leadership capacity, managerial skills, marketing and communications, strategic planning, to name but a few. In protected area management, complex issues such as climate change adaptation and mitigation, the implementation of the Convention on Biological Diversity (CBD), adapting to demographic change and declining financial resources pose many challenges to the managers today and into the future. Hence, capacity development is needed at all different educational and career stages, including those of laymen and experts, from local to global geographical levels, in industrialized as much as in developed countries, in rural and urban settings, and across a number of scientific disciplines and management contexts. Therefore, it is not at all surprising that capacity development will be an primary theme at the 6th IUCN World Parks Congress, “Parks, People, Planet: Inspiring Solutions,” which will be held in Sydney, Australia, in November 2014.

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With a scope as broad as that illustrated above, we are able to provide only a very limited glimpse at capacity development activities in protected area management at the interface of academia and practice worldwide. We are aware that there are a number of people active in the field, so the nucleus for this special issue was a collaborative session at this year's George Wright Society Conference in Denver. Rather than attempting to create something that would be more representative on a North American or even global level, and then fail as it can by no means be all-inclusive, we have tried to bring authors together that cover the many facets of capacity development: topic-related issues such as climate change, capacity building for protected area managers in developing countries, short special training courses geared towards university students or people in local communities, and coordinated efforts to arrive at some level of consistency for necessary competencies, content development, professionalization, and information resource accessibility.

The intention is to give those of you who are interested in the subject some ideas of what is going on where at the moment, hoping to provide some ideas of what others could start elsewhere in the future, too. You will also notice that the content of the papers varies—some are more like technical reports, others present scientific data on needs assessment or the requirements for successful capacity development measures. In some cases, the focus is more explorative as capacity development efforts are still in the early stages.

As the guest editors, we would like to thank the George Wright Society for allowing us to pursue the idea of creating this special issue. Also, we would like to thank the authors for reporting. Of course, we are very interested in your perception of this issue, so we would appreciate and welcome your feedback!

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The IUCN Protected Area Capacity Development Program

David Reynolds and Nigel Dudley

Introduction

PARKS AND PROTECTED AREAS PLAY A CRITICAL ROLE not only in contributing to the conservation of cultural and natural resources, but also in securing ecosystem services such as clean water, contributing to food security, promoting health and economic well-being, mitigating the effects of climate change, and protecting against natural disasters.

To be effective in providing biodiversity conservation, ecosystem services, and other benefits, protected areas must practice good management and governance, be well-connected, and have management integrated across the wider landscapes and seascapes. For this to happen, protected areas need a well-trained workforce that has access to the most current ideas and best practices developed through decades of lesson-learning around the world.

Global management effectiveness assessments have found that large numbers of protected areas are inadequately managed, resulting in loss of cultural and natural resources and related essential ecological services. The combination of a rapid increase in the number and size of protected areas, a funding squeeze on many protected area agencies, and a shortage of training opportunities for protected area rangers means that there is a serious global lack of capacity in managing protected areas. With this in mind, the International Union for Conservation of Nature (IUCN), with the support of its commissions and members, is developing a comprehensive and worldwide program to strengthen the capacity of protected area professionals to achieve and maintain high standards of effective management and equitable governance.

The IUCN WCPA Protected Area Capacity Development Program

Since its beginnings in 1948, IUCN's World Commission on Protected Areas (WCPA) has been a leader in providing protected area capacity development knowledge products to park and protected area professionals. The organization has focused its capacity-building efforts in three main areas: (1) the production of key "knowledge products" such as the IUCN protected area management categories and the framework for assessing protected area manage-

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ment effectiveness; (2) a series of best practice guidelines on management; and (3) tailored courses, presentations, and personal capacity-building programs. Although working primarily in English, key documents and presentations have been widely translated into a range of languages.

In 2012 the IUCN Global Protected Areas Program and WCPA developed a strategy to provide a focus for IUCN's protected area capacity development actions so that energies and resources are used as efficiently as possible to achieve stated goals. These efforts are taking place against the backdrop of a global program to build and consolidate protected area networks. Countries are working together to increase by 2020 the total area of terrestrial and inland water protected areas by 17% and of coastal and marine protected areas by 10%, as called for by the strategic plan of the Convention on Biological Diversity (CBD).

The vision of the IUCN WCPA Protected Area Capacity Development Program is to assist countries to more effectively and equitably manage their systems of protected areas and to meet their commitments under the CBD Program of Work on Protected Areas and the year 2020 Aichi Biodiversity Targets, agreed to by the CBD's Conference of Parties in Nagoya, Aichi Prefecture, Japan, in 2010. This strategic vision aligns with IUCN's organizational vision of "a just world that values and conserves nature."

This strategy will link together and provide a common direction to the three broad components of protected area capacity development in which IUCN has expertise: (1) the education and training of protected area professionals and higher level government decision-makers; (2) the production of knowledge products such as books, best practice protected area guidelines, technical briefs, and electronic-learning modules; and (3) the creation of tools that help achieve high standards for protected area management effectiveness.

The WCPA lead for this effort is Eduard Müller, vice chair for education and learning. David Reynolds is the protected area capacity development lead for the IUCN secretariat's Global Protected Areas Program. Reynolds is a career US National Park Service employee who has been assigned to the IUCN for three years through November 2014.

Education and training

The 9th Conference of Parties for the CBD invited the IUCN WCPA and other relevant organizations to support the strengthening of national and regional capacity-training institutions through the development of an open curriculum framework to increase the capacity of protected area professionals and assist countries to meet their needs under the CBD Program of Work for Protected Areas.

In response, the Global Partnership for Professionalizing Protected Area Management (GPPAM) has been created by WCPA and IUCN's Global Protected Areas Program. GPPAM is a major component of IUCN's Protected Area Capacity Development Program. GPPAM will provide competency standards and leading-edge, open-source curricula for three levels of protected area professionals: (1) senior administrators, system directors, and planners; (2) chief park wardens, superintendents, and protected area managers; and (3) rangers and field staff. GPPAM will also implement advanced training through accreditation of protected area training institutions and will establish a certification program that assesses and certifies on-the-job performance of protected area professionals based on core

competencies. It coordinates with existing protected area professional associations so that services for the entire career of protected area professionals can be ensured. The intent is that GPPAM will set global standards for these areas. IUCN is working closely with partner organizations, such as the American Museum of Natural History, to draw together specialists from around the world in order to provide timely and accurate information for practitioners.

GPPAM addresses the full-life-cycle development of protected area professionals. It innovates by moving beyond training programs alone to coordinate courses into a larger professional certification system that serves the needs of both young and veteran protected area professionals throughout their careers. It will provide incentives to protected area staff to pursue the new learning opportunities.

The proposed training elements of the program build on verified on-line and in-person protected area curricula developed by IUCN WCPA by providing secure funding and on-site training throughout the world. Working with both United Nations Educational, Cultural, and Scientific Organization (UNESCO) World Heritage sites and Man and the Biosphere Program sites (i.e., biosphere reserves) will provide a range of training models from iconic, highly protected reserves to parks and protected areas that are integrated with multi-use activities. The initiative will be led by IUCN through the WCPA education and learning work group and the Global Protected Areas Program.

The proposed certification elements build on the existing Western Indian Ocean Certification of Marine Park Professionals Program. This certification program will be modified for terrestrial protected areas and exemplifies a regional model to ensure local ownership.

Knowledge products

Since its inception, IUCN WCPA has produced many highly regarded and well-used publications for protected area staff. Working in close association with United Nations agencies, convention secretariats (such as those of the CBD and World Heritage Convention), and partner organizations, IUCN WCPA will continue to develop guidelines, technical publications, and other materials to support capacity-building. Since 1998, IUCN WCPA has produced nineteen best practice guidelines. These publications remain in high demand, but there is a need to revise and update some of them. New guideline topics for emergent themes now in production include climate change, urban protected areas, invasive species management, protected area governance, and social assessment of protected areas. There is a policy to produce each publication in English, French, and Spanish, the three official languages of IUCN. In addition, various publications have been translated into a variety of languages, and there is a demand for more as countries develop their protected area systems. Publications are available in printed form and electronically, making them freely available to anyone with internet access. In addition to detailed best practice guidelines, a range of shorter summary technical notes are also available.

Management effectiveness

For the last decade, IUCN has placed increasing emphasis on management effectiveness of protected areas, alongside efforts to build the global protected areas network. This has included developing a standard framework for assessments along with a range of tools for both

rapid and more detailed assessments on site. Now, an initiative has been created by IUCN WCPA to develop, pilot, assess, and then launch a new global standard for effective and equitable protected area management: the *IUCN Global Green List of Protected Areas*. The Green List is part of the requested response by IUCN to assist parties to the CBD to achieve *quality* of area-based conservation measures, especially protected areas that contribute towards the Aichi Target 11 requirements, and to agree to and measure standards of good management.

Through the Green List initiative, IUCN and collaborating partners will develop global standards and matching guidance that can be used to assess and recognize effectiveness and equity in protected area management. Participating countries will be able to apply local context and criteria for the Green List assessment process, but the benchmark will be a consistent and credible set of IUCN Green List global standards. The intended aims of the Green List are to recognize and reward effective and equitable protected area management, and thereby:

- provide an incentive for improved policies and governance arrangements that will enable and catalyze more effective and equitable protected area systems;
- stimulate investment in capacity and leadership that enable effective and equitable management of protected areas; and
- allow participating countries to recognize and report on the *quality* of progress in the implementation of their national protected area systems towards meeting CBD Aichi Target 11 commitments.

The 6th World Parks Congress 2014 and protected area capacity development

The IUCN WCPA, along with the Australian national and New South Wales governments, will hold the 6th World Parks Congress in Sydney, Australia, November 2014. Convened by IUCN every ten years, the congresses have been held since 1962, and have been instrumental in influencing the way in which the world has viewed and managed systems of protected areas. Up to 5,000 participants are expected to attend. The US National Park Service is leading one of the eight congress “streams” related to climate change and is co-leading a “Healthy Parks, Healthy People” stream with Parks Victoria. There will be extensive media coverage during and after the congress.

The Australian hosts and organizers of the 2014 World Parks Congress are working to ensure that protected area capacity development will be a major legacy of the meeting. The congress will be the venue for launching protected area programs and projects that have been in development since the last one a decade ago. Products to be launched include the IUCN WCPA Protected Area Capacity Development Program components described above. The planners will reinforce the congress’ legacy by requiring its capacity development-related sessions to be training-oriented and to have plans for post-congress activities. This will ensure the featured products will continue to be developed as the countries of the world work toward the 2020 targets under the Convention on Biological Diversity. Those targets are:

By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are *conserved* through *effectively and equitably*

managed, ecologically representative and well-connected systems of *protected areas* and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

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The State of Human Dimensions Capacity for Natural Resource Management: Needs, Knowledge, and Resources

Natalie R. Sexton, Kirsten M. Leong, Brad J. Milley, Melinda M. Clarke, Tara L. Teel, Mark A. Chase, and Alia M. Dietsch

Introduction

THE SOCIAL SCIENCES HAVE BECOME INCREASINGLY IMPORTANT in understanding natural resource management contexts and audiences, and are essential in the design and delivery of effective and durable management strategies. Yet many agencies and organizations do not have the necessary resources and staff to effectively address the human dimensions (HD) of natural resource management. We draw on the textbook definition of HD: how and why people value natural resources, what benefits people seek and derive from those resources, and how people affect and are affected by those resources and their management (Decker, Brown, and Siemer 2001). Clearly articulating how HD information can be used and integrated into natural resource management planning and decision-making is an important challenge faced by the HD field. To address this challenge, we formed a collaborative team to explore the issue of HD capacity-building for natural resource organizations and to advance the HD field. We define HD capacity as activities, efforts, and resources that enhance the ability of HD researchers and practitioners and natural resource managers and decision-makers to understand and address the social aspects of conservation.

Specifically, we sought to examine current barriers to integration of HD into natural resource management, knowledge needed to improve HD capacity, and existing HD tools, resources, and training opportunities. We conducted a needs assessment of HD experts and practitioners, developed a framework for considering HD activities that can contribute both directly and indirectly throughout any phase of an adaptive management cycle, and held a workshop to review preliminary findings and gather additional input through breakout group discussions. This paper provides highlights from our collaborative initiative to help frame and inform future HD capacity-building efforts of natural resource organizations and also provides a list of existing human dimensions tools and resources.¹

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Human dimensions needs assessment

In September 2012 researchers from the US Geological Survey, Fish and Wildlife Service, and National Park Service collaborated on an HD training and resource needs assessment. The goal was to better understand the HD capacity of the two latter agencies, as well as that of the Bureau of Indian Affairs, Bureau of Land Management, Bureau of Ocean Energy Management, Environmental Protection Agency, National Oceanographic and Atmospheric Administration, US Forest Service, and several state fish and wildlife agencies. The objectives of the assessment were to better understand the following from the perspectives of HD experts and practitioners of the participating agencies:

- overall HD capacity;
- capacity to provide HD tools, resources, and training to their staff;
- currently available HD trainings and resources; and
- prioritization and satisfaction with available training and resources.

For this assessment, the term “social science capacity” was used (as opposed to HD capacity) and was defined as:

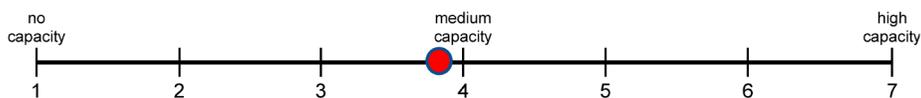
- staff who are knowledgeable about social science;
- the availability of social science training and resources;
- support for social science from management; and
- other factors that contribute to the agency’s ability to incorporate social science into the decision-making process.

A total of 60 HD experts and practitioners were asked to complete a web-based survey with fixed-response and open-ended questions. Survey participants who could assess the HD capacity of their respective organizations were identified through a network sampling approach in which known HD experts recommended colleagues, and those colleagues in turn recommended others for participation. Thirty-two respondents representing 12 federal and state natural resource agencies completed the survey, for a 53% response rate.

Respondents were asked to rank the overall social science capacity of their agency and how they would like to see that capacity change over time (Figure 1). On average, respondents rated their agencies as having slightly-less-than-moderate capacity overall, and specifically for providing training and resources to their staff. Respondents most often cited a lack of specialized staff as a limitation to their agency’s HD capacity. Other reasons included financial constraints, lack of expertise among current staff, and a general lack of awareness of the need for social science on the part of management and scientists from disciplines outside of the social sciences. Respondents indicated they would like to see a moderate to significant increase in HD capacity over time.

Respondents were also asked to rank the relative importance of three different types of social science training courses and the need for external and internal training offerings. A course on interpreting social science data was identified as most important, followed by a course on “What is social science?” and training on how to conduct social science research. Finally, respondents indicated that the greatest need was for internal training and resources (as opposed to those provided by external entities) that are specifically geared toward their

Current capacity



Desired future condition

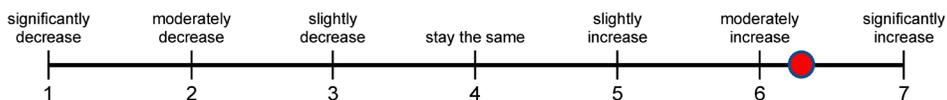


Figure 1. Current social science capacity and desired future conditions.

agency's mission. The results of this needs assessment present a strong case for increasing HD capacity within the surveyed agencies.

Human dimensions framework

In preparation for the workshop, we realized that there is no common framework for talking about the range of disciplines and activities involved in HD practice. HD researchers and practitioners acquire sound information through application of theories and qualitative and quantitative methodologies from various social science disciplines. These include (but are not limited to): sociology, anthropology, psychology, political science, economics, communication, history, ethics, and philosophy. Information can be applied to many aspects of natural resource management, from situation analysis, planning, decision-making, program/intervention implementation, policy development, informative communication, education, audience research, and evaluation. Because natural resource management inherently involves value judgments about desired resource outcomes, HD information can inform all stages of an adaptive management cycle. Stages of most management cycles include identifying issues, planning management actions, implementing actions, and evaluating outcomes (Figure 2).

One of the challenges faced by HD researchers and practitioners is explaining how the variety of social science disciplines can be applied and integrated toward particular management goals. Our framework identifies two main classes of HD activities: (1) foundational information needed to better understand context and audiences; and (2) functional areas in which HD is applied to management issues (Figure 3).

The *foundations* are the social science disciplines that create a basic understanding of the natural resource management context and internal and external audiences. This information aids selection of the appropriate data or tools to address the particular management issue. Foundational information can be applied directly to management; for example, by describing stakeholder preferences for management outcomes or approaches, or by assessing what types of data are needed to evaluate outcomes.

The foundational information also can inform a suite of management actions directed towards people that support the various stages of the management cycle. These *functional applications* are fields of study in and of themselves, with their own theories and communi-

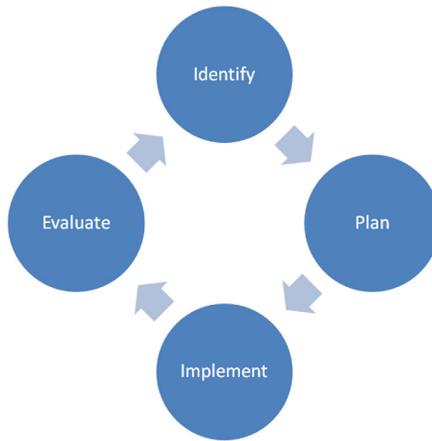


Figure 2. Basic stages in an adaptive management cycle.

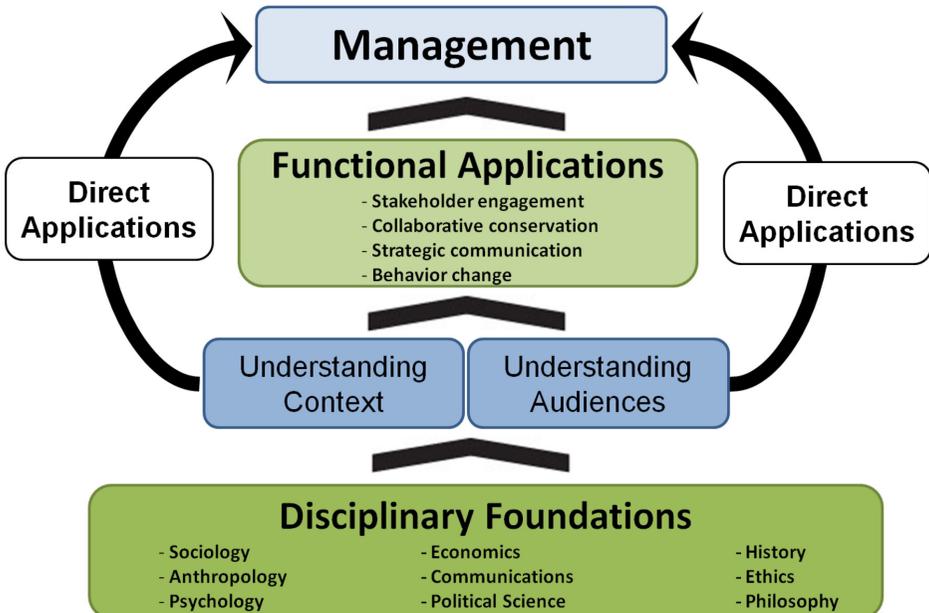


Figure 3. Framework for human dimensions of natural resources.

ties of practice informed by social science information. This framework identifies some of the key functional applications we think are most utilized by managers. There is overlap between the areas, and it is not an exhaustive list, but it offers a starting point from which to consider how functional applications apply to natural resource management.

We believe this framework will improve managers' capacity to identify the social elements of a management issue early in its development and help frame problems broadly

enough to effectively address the human dimensions of the subsequent management activity. Both foundational and functional applications of this HD framework can contribute to each stage of the management cycle, with some functional applications better suited for certain stages than others and some contributing at multiple stages of the management cycle.

Human dimensions capacity workshop overview

In late September 2012, we held a workshop entitled “The State of Human Dimensions Capacity: Current Needs and Training Opportunities” during the conference “Pathways to Success: Integrating Human Dimensions into Fisheries and Wildlife Management.” Thirty-six HD researchers and practitioners, as well as natural resource managers from state and federal agencies, nongovernmental organizations, and academic institutions, were in attendance. The objectives of the workshop were to better understand the state of HD capacity among natural resource agencies and professionals, vet the HD framework we developed, and identify important needs, knowledge, and resources to strengthening that capacity within and across agencies.

We provided participants with background information on the HD field and the types of methodologies, information, and insight that HD can bring to natural resource management. We then presented the HD framework. Reactions to the framework were generally positive, with overall agreement that, with refinement, it was a useful schematic to describe the breadth of expertise and disciplines encompassed by the field. Participants expressed a desire to develop a more cohesive identity for the broader field, as well as improve managers’ capacity to recognize the need for HD research and practice. Participants noted the need to (1) identify HD needs of a management issue early in the process and (2) frame problems more comprehensively to effectively address the human dimensions of management activities. We also provided an overview of the needs assessment results from our earlier survey work, and highlighted several key HD tools and resources available to managers, planners, and decision-makers.

We then asked participants to identify their three greatest HD-related management challenges and to categorize each challenge under the most closely associated foundational or functional area of the framework. We then framed breakout group discussions around the five areas with the greatest number of management challenges identified: understanding audiences, stakeholder engagement, collaborative conservation, strategic communication/behavior change, and organizational capacity. For each topic, participants were asked to identify: (1) specific needs and constraints; (2) knowledge, skills, and abilities required to address the needs and constraints; and (3) available tools and resources. Outcomes of the breakout groups are summarized below. Resources identified by the groups are included in the human dimensions tools and resources list (see endnote 1).

Breakout group outcomes

Understanding audiences. The more we know about our audiences, the more knowledge we have to contextualize the management issue. Workshop participants broadly acknowledged that an understanding of different audiences is critical to natural resource management success. Increasingly, different stakeholders are engaged in natural resource management con-

versations and decision processes; reaching beyond traditional networks of stakeholders (e.g., hunters and anglers in the case of state fish and wildlife agencies) is vital to effectively representing diverse public opinions. Participants easily identified some key constraints to understanding audiences such as changing constituent bases, changing demographics, diverse and often conflicting interests of stakeholders, and cultural communication challenges.

When asked to identify the knowledge, skills, and abilities necessary to understand audiences, workshop participants noted that communication skills and an ability to build effective relationships with stakeholders were essential. Participants also noted that building relationships with various audiences must be based on trust, and that such relationships can take considerable time and effort to initiate and maintain. The crucial first step in this process of building relationships is an ability to *accurately* identify the stakeholders involved in a given process/issue, ensuring no interest is ignored. Participants articulated that understanding audiences minimizes the likelihood of both excluding key stakeholders and/or making incorrect assumptions about different interest groups. Furthermore, this understanding and inclusion brings greater transparency to decision-making processes, making public involvement more meaningful.

While participants generated a substantial list of needed knowledge, skills and abilities, they recognized the many existing resources to better understand audiences. A suggested reasonable starting point was simple demographic data available from various levels of government (e.g., data supplied by the US Census Bureau). Existing groups that are already involved in an organization's processes were also identified as potential key resources when identifying other stakeholders to bring to the table.

Stakeholder engagement. Engaging individuals or groups of individuals who have an interest or “stake” in the outcome of management actions is an important part of natural resource management. The engagement approach depends on the context and type of decision to be made. Over time, there has been a shift away from the expert model of decision-making, where stakeholder input is accepted but not actively sought, to a more dialogue-based mutual learning approach to public input. These approaches exist on a continuum that has been described by several authors and organizations, including Arnstein (1969), the International Association of Public Participation (2007), and Leong et al. (2009).

Participants in this discussion group focused on ways to engage the public, including “non-traditional” stakeholders, in organization activities and how to integrate HD information more readily into planning and decision-making processes. There was a clear recognition that non-traditional stakeholders matter and that it is important to engage them. Finding the appropriate starting place on the engagement continuum was also an expressed need—how to engage stakeholders in meaningful ways without the organization or managers being perceived as having already made a decision. Participants also expressed the need to bring together opposing stakeholder groups to resolve conflict and develop acceptable policy. Lastly, some participants indicated that they need to be able to more effectively report HD information related to stakeholder engagement to their organization's leadership.

When participants were prompted to list the knowledge, skills, and abilities to address the above-mentioned needs, the following comments emerged: understanding how to appropriately use HD information, effective communication and public engagement skills. and an

ability to use social science methods and tools to identify and better understand the diversity of stakeholder groups (including emerging publics and non-traditional stakeholders). Additionally, several participants alluded to the need for a change in organization “culture” to acknowledge the value of HD and cultivate a more holistic understanding and acceptance of diverse perspectives.

Several information sources, tools, and training opportunities were identified to inform effective stakeholder engagement and conflict management. The Association of Zoos and Aquariums was mentioned as an organization actively involved in working with diverse and non-traditional groups. Several stakeholder engagement tools and resources developed by various federal agencies (including the Forest Service, Environmental Protection Agency, and National Oceanic and Atmospheric Administration) and by the International Union for the Conservation of Nature were identified. Key conflict management and stakeholder engagement training sessions were identified, including those offered by the US Institute for Environmental Conflict Resolution, the Human–Wildlife Conflict Collaboration, and the Institute for Participatory Management and Planning.

Collaborative conservation. Collaborative conservation involves a deliberate and inclusive process of individuals or groups coming together to respond to an important conservation issue. It is one approach to stakeholder engagement, and an outcome of developing conservation partners to maximize efficiency in achieving management objectives. It draws from stakeholders’ knowledge of the management context to identify common interests and complementary activities. This approach is becoming increasingly important as natural resource management emphasizes landscape-scale efforts beyond administrative boundaries (e.g., Department of the Interior initiatives such as Landscape Conservation Cooperatives, Joint Ventures, and America’s Great Outdoors, or Conservation International’s Sustainable Landscapes).

Workshop participants were generally in agreement that collaborative conservation is needed if managers are to be successful in the future given the realities of budgetary constraints and staffing shortfalls, and the myriad 21st-century threats to fish, wildlife, and their habitats (e.g., drought, climate change, invasive species, and large-scale habitat fragmentation and loss). The importance of coordinating resource management across organizational boundaries through effective partnerships was reiterated several times by workshop participants. Participants also identified constraints to building a culture of collaborative conservation, such as difficulty in obtaining support and permission from management to operate collaboratively, resistance within agencies to working with outside entities, the time that collaboration actually takes, and a lack of understanding of the best strategies for collaboration.

The knowledge, skills, and abilities necessary for collaborative conservation identified by participants included an understanding of the mission of other partners and the common goals of those involved with the collaboration. It is also important to identify the benefits to working collaboratively, when this approach makes the most sense, and how to effectively collaborate. Effective communication skills are key to these efforts. It was also noted, however, that capacity to collaborate is sometimes dependent upon the willingness of management to support the idea.

The list of resources generated by workshop participants fell into two broad categories: training and facilitation. Under training, several private firms and public entities were mentioned; one notable example was the National Park Service's facilitator training. Colorado State University's Center for Collaborative Conservation was mentioned several times as an effective agent for facilitating successful partnerships.

Strategic communication/behavior change. Effective communication plays an important role in many aspects of natural resource management. We adopted the term "strategic communication" to emphasize the importance of setting clear communication objectives, recognizing that goals of raising awareness, changing attitudes, or changing behaviors are all best achieved through very different theoretical approaches, types of messages, or other incentives. Because much of the interest in strategic communication among participants centered on behavior change, we combined these areas into one breakout group for discussion.

In the context of strategic communication and behavior change, participants identified the following needs: public meetings that encourage more meaningful involvement from a diverse array of stakeholders, greater organizational openness to social marketing approaches and promotion of resource stewardship through interpretation that focuses on developing emotional bonds with resources, and the need for evaluation of effectiveness of communication activities.

Participants identified methods and integration as the keys to communicating strategically or affecting behavior change. Participants believed that trainings in effective communication were needed for *all* managers. Some of the desired skills included how to segment audiences, identify drivers of behavior, use social science data to craft effective messages, utilize multiple approaches to create behavioral change, and identify appropriate metrics for both front-end and summative evaluation. Participants also discussed the importance of skills to address communication timing, including understanding the potential consequences of poorly timed communication. To integrate strategic communication into management, participants focused on the need for a situation analysis that could determine the appropriate strategic communication approach, based on objectives. They emphasized development of measurable goals and objectives, so that success can be easily evaluated. They also desired a diagnostic tool that relies on available data to better understand an audience or create messages that influence behavior. Participants reiterated that for integration to occur, managers first must recognize the need for audience analysis and assessment, as well as the importance of targeted information and timing of information. To achieve behavior change, managers also must recognize that information alone may not be adequate. Better utilization of marketing, understanding of incentives and motivations, links to policies and enforcement, and creation of alternatives may be as (or more) important as crafting informational messages.

Suggested resources included books such as *Communication Skills for Conservation Professionals* (Jacobson 1999), the National Audubon Society's "Tools of Engagement" planning guide, and a range of university and extension resources for evaluation and environmental education. In addition, a number of social marketing resources were identified, as well as suggestions to learn from other activities targeting specific types of behavior change, such as political campaigns. Other suggestions included communicating messages through broader mainstream media, such as National Public Radio.

Organizational capacity. For any dimension of natural resource management, there are skills, techniques, and resources that help organizations accomplish their mission. Organizational capacity for HD can help facilitate communication with outside partners, define roles in collaboration, and navigate laws and policies, especially those directed towards engaging with the public (e.g., National Environmental Policy Act, Federal Advisory Committee Act, Privacy Act). Social science inquiries can help assess organizational capacity for engaging with stakeholders and applying HD information to management.

Workshop participants revealed several key constraints to investing in the organizational capacity necessary to address HD problems. Many participants indicated they are operating in an institutional culture that is unfamiliar with, and may even be suspicious of, the HD field. They expressed the need to gain more internal support and recognition so that the social sciences are valued and used integrally in conservation work by managers and decision-makers. Participants expressed both the need for more HD expertise in their organizations as well as a broader understanding by decision-makers of the tools and methods that can be applied to natural resource management. Participants additionally felt that HD should be considered early in the process so that more effective integration of HD information into planning and decision making can occur.

Workshop participants identified the following knowledge, skills, and abilities for organizational capacity: more strategic communication to articulate benefits of integrating HD information into management and decision processes, HD training, and a common framework for HD and integration. Comments suggested that HD researchers and practitioners need to better communicate the value of the social sciences and how their application, along with that of the biophysical sciences, can help to inform decisions. Demonstration through case study examples, developing clear messages about the role of HD, and cultivating champions who can help promote HD application were suggested ways to achieve this. Additionally, participants mentioned the importance of HD training for biologists and organization leaders. Incorporating HD curricula into existing biologically oriented training may be one approach. Lastly, a successful social-ecological framework to more effectively describe HD and how it can be used is important to organizational capacity.

Several resources to inform organizational capacity were mentioned by participants, including case studies highlighted on the website HD.gov, publications on sociological-ecological frameworks, blue-ribbon panel reports from the National Oceanic and Atmospheric Administration, and opportunities such as the “Pathways to Success: Integrating Human Dimensions into Fish and Wildlife Management” conference and the annual meeting of the Association of Fish and Wildlife Agencies.

Human dimensions tools and resources

Managers and HD practitioners are often interested in learning more about available HD resources and where to find them. Resources range from journals to websites to working groups; here, we describe some of those key resources. The website HD.gov is intended to serve as a clearinghouse of HD information geared mainly toward federal employees. This website will contain methods, tools, data, publications, and laws and policies related to a host of HD issues. Another opportunity for building HD capacity exists through the Society for

Conservation Biology's Social Science Working Group (SSWG), which was established in recognition of the importance of social factors in conservation. The SSWG is a global network of conservation professionals dedicated to strengthening conservation social science and its application to conservation practice. The group offers training and maintains a website of resources and tools for conservation practitioners wanting to know more about how to integrate the social sciences into their work.² The Human Dimensions of Natural Resources Conservation broadcast series is a webinar series covering various aspects of HD with guest speakers from US agencies and academia.³ The Audubon Society's Tools of Engagement planning guide offers resources on how to best engage people in conservation work, including a downloadable toolkit for assistance in this area.⁴ Finally, journals such as *Society and Natural Resources*, *Human Dimensions of Wildlife*, and *Environment and Behavior* have become well-known sources for examining relationships between humans and the environment.

These and many other tools and resources can be found in Colorado State University's human dimensions tools and resources list (see endnote 1). The list is organized by the following themes or topic areas:

- Demographics
- Economics
- Socioeconomics
- Land use, human uses, and the environment
- Attitudes, beliefs, and values
- Stakeholder participation, collaborative planning, and conflict resolution
- Principles, practices, and methods

Within each topic area, resources are organized to provide general guidance, secondary data sources, and selected publications. This resource list, although not exhaustive, provides managers, planners, and decision-makers with useful starting points for understanding and addressing their HD-related issues.

Conclusion

Conservation issues in the 21st century largely involve competing ideas about the importance of natural resources and perceptions of risks and benefits associated with them. Often, sole reliance on biophysical science is not sufficient to understand and resolve these types of conflicts. Natural resource managers typically trained in the biophysical sciences increasingly desire guidance to effectively incorporate social considerations into the management and decision-making process. At the same time, HD practitioners often lack the institutional support, and in some cases the skills, necessary for integrating their research into natural resource management. There is need for a common understanding of HD among researchers and practitioners, and among natural resource managers and decision-makers, in order for HD needs to be met.

Our efforts in developing a framework for HD applications, facilitating discussions about the current state of HD capacity among natural resource organizations, and compiling a set of existing HD-related resources are a first step in informing future directions relative to

HD capacity building. These efforts corroborated the need for (1) a more cohesive identity for the HD field that includes functional applications to which practitioners can relate, and (2) capacity-building efforts to improve managers' skills in identifying the HD elements of a management issue early in its development, and framing problems more broadly to address HD considerations in management activities. Our hope is that these efforts will lead to a dialogue that results in a clearer understanding of HD research and practice, thereby improving systematic consideration of HD information in our conservation decisions. This approach can ultimately aid in maximizing the likelihood of both acceptance and effectiveness of conservation actions in achieving the desired outcomes.

Endnotes

1. See <http://warnercnr.colostate.edu/docs/hdnr/hdnru/HDResourceList.pdf>.
2. See www.conbio.org/groups/working-groups/social-science.
3. See http://distancelearning.fws.gov/players/human_dimensions.html.
4. See <http://web4.audubon.org/educate/toolkit/>.

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Building Capacity to Enhance Protected Area Management Effectiveness: A Current Needs Assessment for the Asian Context

A.W. Don Carlos, T.L. Teel, M.J. Manfreda, and V.B. Mathur

Introduction

EFFECTIVELY MANAGING THE WORLD'S GROWING SYSTEM OF PROTECTED AREAS is a key challenge for global biodiversity conservation in the 21st century. An expanding array of external threats continually tests the abilities of protected area professionals to maintain the integrity of the protected area units and systems for which they are responsible (Chape, Spalding, and Jenkins 2008). Demand for resources (e.g., clean water, timber, grazing, wildlife products) for both subsistence and commercial use puts pressure on protected areas in all regions. Global-scale environmental change (e.g., climate change, desertification, invasive species) and localized catastrophic events (e.g., earthquakes, tsunamis, hurricanes, and typhoons) add further complexity to the task of ensuring a robust and resilient system of landscapes and seascapes devoted to conservation. Finally, there is an increasing recognition of the need to view protected areas within the context of regional economic development and human livelihood concerns. All of these factors taken together suggest that the modern protected area professional must rise to the challenge of a truly integrated approach to management that applies principled decision-making based on the use of sound science from a wide range of ecological and social science disciplines.

This need for an interdisciplinary, systems-thinking protected area management paradigm that embraces complexity and promotes adaptation to changing conditions is illustrated in the context of protected area management within the vast Asian region. Approximately 12% of the terrestrial landmass (World Database on Protected Areas 2011) and 2% of marine areas in Asia have been established as protected areas. Recent growth in establishment of protected areas in Asia reflects an increasing recognition of the vast extent of globally significant biodiversity hot spots, endangered species, and unique landscapes present in the region. Asian protected areas are juxtaposed with a very diverse mosaic of human communities that represent more than half of the world's population. While economic development

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is proceeding at rapid rates in several of the region's 24 nations, very high levels of poverty also exist, with six countries (Bangladesh, Bhutan, Cambodia, Lao PDR, Myanmar, Nepal) categorized as least-developed countries (LDCs) (United Nations Conference on Trade and Development 2012). Population densities across the region are 1.5 times the global average, leading to elevated pressure on natural ecosystems (IUCN 2011). Relationships between humans and natural resources are also complex and varied across the region. For example, in India alone 91 "eco-cultural" zones have been identified where distinct patterns of culturally based land use systems are evident (Singh 1992). These areas are inhabited by 4,635 different ethnic communities, speaking 325 languages/dialects (Singh 1992). Promoting protected area benefits such as biodiversity conservation, provision of ecosystem services, and carbon sequestration is particularly challenging in such a diverse socioeconomic, cultural, and ecological context.

For decades, global forums such as the International Union for Conservation of Nature (IUCN) World Parks and World Conservation congresses, the Convention on Biological Diversity Conference of Parties, and others have focused considerable attention on the need to improve management effectiveness for protected area systems to enhance their sustainability as a mechanism for conservation. This was one of the key messages to emerge from the most recent World Parks Congress in Durban, South Africa, in 2003 (Sheppard 2004). Recent literature has also highlighted the importance of monitoring management effectiveness indicators for protected areas to inform the development of appropriate interventions to improve success (Hockings et al. 2006; Leverington et al. 2010; Mathur et al. 2011). Where such effectiveness evaluations have been performed, deficiencies in management (e.g., lack of skilled staff, inadequate administrative practices) have often been identified as a central point of concern (McNeely, Harrison, and Dingwall 1994; Hockings 2003; Appleton 2003; Mathur et al. 2011). Expertise of protected area professionals has been found to be lacking in several key areas, including natural resource management principles, research and monitoring techniques, general leadership and communication skills, and the ability to understand and provide adequate opportunities for the involvement of local stakeholders in management decisions (Hockings et al. 2005).

Capacity building to enhance leadership skills and technical abilities for adapting to change has long been applied in the global development context. The process of building capacity can be focused at individual, institutional, and societal levels (Lusthaus, Adrien, and Morgan 2000). Within protected area management, capacity-building initiatives often target individual managers and aim to promote professional development through building on existing knowledge and experience and providing new concepts and tools to address contemporary challenges. This approach was a focal point of discussion during the 2003 World Parks Congress. One of the recommendations emerging from a workshop stream entitled "Developing the Capacity to Manage Protected Areas" pointed to the need for enhanced national and international collaboration in capacity development activities. Specifically, participants suggested that IUCN and its World Commission on Protected Areas (WCPA) should promote the sharing of best practice experience among a suite of global partners and thereby enhance the ability of protected area managers worldwide to develop appropriate responses to change (IUCN 2005).

Promoting collaborative partnerships and the sharing of institutional knowledge to build capacity for effective protected area management remains a salient point of discussion leading up to the next IUCN World Parks Congress in 2014. To contribute to this discussion, this paper is intended to provide a brief overview of current needs for protected area capacity building in the Asian context. This effort grew out of an on-going multi-institutional capacity-building partnership between Colorado State University (CSU), USA, and the Wildlife Institute of India (WII). A brief overview of this partnership and its goals and activities will be followed by a presentation of the results of an expert panel session on protected area management in Asia that was conducted at the IUCN World Conservation Congress in Jeju, Republic of Korea, in September 2012. These results will be discussed in the context of identifying cross-cutting issues, capacity-building themes, and opportunities for expanded partnerships to enhance protected area management effectiveness in Asia and beyond.

A partnership to build capacity for effective protected area management in India and the USA

In 2008, CSU and WII entered into an international memorandum of understanding to facilitate collaborative conservation research and outreach efforts that make the best use of expertise and resources available at both institutions. The partnership has resulted in several collaborations to explore and address global conservation challenges. Initiatives have included thematic workshops and conference sessions in both countries, student and faculty exchanges, cooperative research, and capacity building for protected area and wildlife management. The broad goals of this partnership include the following:

- Promote cooperation between institutions;
- Share benefits of institutional knowledge and accomplishments;
- Encourage collaborative research and outreach initiatives; and
- Enhance professional development by facilitating increased understanding between the parties and their respective countries.

One particular effort carried out under this partnership that is of most relevance to this paper is a jointly developed and implemented training program for Indian Forest Service (IFS) officers. The IFS Mid-career Training Program is designed to provide professional development training for IFS officers currently serving in a variety of natural resource capacities throughout India, including the management of protected areas. The goal of the program is to enhance the technical competencies and leadership skills that are needed to address the complex challenges of resource stewardship in a changing world (Indira Gandhi National Forest Academy 2013). A collaborative assessment of needs for this program identified areas where partner institutions could provide specific expertise to promote more integrated, multi-disciplinary approaches to protected area management. Indian institutions carry out specific training modules on topics such as wildlife and biodiversity conservation, environmental impact assessments, management principles (personnel, etc.), and project implementation, monitoring, and evaluation. Foreign institutions provide complementary training to enhance integrated thinking about contemporary issues.

For example, CSU's Department of Human Dimensions of Natural Resources has delivered training modules focused on integrating social considerations and the application of social science concepts and methodologies to inform conservation planning and decision-making. These sessions provide problem-based instruction focused on case examples from USA and India to illustrate the applied utility of the social sciences. Specific cases include landscape-scale conservation initiatives involving multiple stakeholders, planning and management that are focused on relations between protected areas and local communities, and human-wildlife conflict mitigation approaches that incorporate an understanding of social factors to enhance effectiveness. More detailed overviews on the design, content, and implementation of this program are provided in a recent publication in the *Journal of Park and Recreation Administration* (Teel et al. 2013) and annual summary reports on the CSU-led training efforts (Don Carlos and Teel 2010; Don Carlos, Teel, and Clarke 2011; Don Carlos, Teel, and Adams 2012).

The CSU-WII partnership provides one example of a model framework for international collaboration to enhance protected area management effectiveness through capacity building. Both institutions share a commitment to expanding such efforts in a broader geographic and cross-cultural context. Participation of the CSU-WII team in the 2012 IUCN World Conservation Congress was focused on exploring challenges and opportunities relevant to protected area capacity building in this region. The following section discusses the process and outcomes of an expert panel discussion on this topic that was developed and facilitated by CSU and WII representatives.

Assessing capacity building needs for effective protected area management in the Asian context: Process and results

The CSU-WII team organized a panel of global protected area management specialists with a particular focus on experience within the Asian context. Participants represented several global conservation organizations, including IUCN's Global Protected Areas Program, WCPA, and Species Survival Commission (SSC), as well as the United Nations Development Program-Global Environmental Facility. Also on the panel were IUCN country representatives and other protected area specialists representing several Asian nations, including Thailand, Japan, Nepal, Bangladesh, Sri Lanka, and Lao PDR. The event was formatted as a round-robin panel presentation followed by a facilitated discussion that took place in the WCPA Protected Planet Pavilion. Participants were contacted ahead of time and asked to prepare a short presentation that highlighted the 3-5 most critical capacity-building needs to enhance protected area management effectiveness within their respective countries or Asia as a whole. Participant comments on protected area capacity-building needs were documented by CSU-WII facilitators. Specific needs identified by panelists were transcribed and analyzed to identify predominant capacity-building thematic topics and sub-themes. In total, 101 comments from 20 different panelists were coded under 16 topic areas (Table 1). Sub-themes reflect more specific contextual information regarding a particular topic.

General natural resource management skills and communication skills were the most commonly mentioned needs for protected area professionals in Asia (13 mentions each, Table 1). Needs associated with natural resource management skills were focused on planning,

Table 1. Thematic topic areas identified as critical capacity-building needs to enhance protected area management effectiveness in the Asian context. The needs assessment was conducted as part of a special expert panel discussion on protected area capacity building at the IUCN World Conservation Congress in Jeju, Republic of Korea, September 2012.

Thematic Topic Areas and Sub-Themes for Capacity Building to Enhance Protected Area Management Effectiveness in the Asian Context	Number of Mentions
General natural resource management skills	
- Planning	13
- Research, inventory, and data management	
- Tools (e.g., Geographic Information Systems and Remote Sensing)	
Communication skills and promotion of benefits of protected areas	
- Raising awareness of protected area values (e.g., biodiversity, intrinsic, economic/ecosystem services)	13
- "People skills" (e.g., personnel management)	
- Promoting benefits of capacity building	
Participatory management	
- Stakeholder/community relations and involvement	12
- Addressing poverty and livelihood concerns	
- Incorporation of local and traditional knowledge	
Monitoring and management effectiveness evaluation	7
Collaboration and partnership building	
- Sharing information	7
- Trans-boundary cooperation	
- International and multi-institutional training alliances	
Adaptation strategies to promote resilience of protected area systems in the face of climatic change	7
Training program design and delivery	
- Remote and electronic	6
- Regionally/locally focused content and languages	
- On-site workshops	
Connectivity issues	
- Enhancing linkage of protected areas at landscape and system scales	5
Ecological restoration	
- Assessment and implementation	5
- Disaster recovery	
Mitigation of human-wildlife conflict	5
Invasive species	4
Resource protection and law enforcement	
- Illegal resource use	4
- Anti-poaching	
Integrating protected area conservation with development goals	
- Agricultural sector	4
- Tourism sector	
Sustainable funding mechanisms	3
Policy formulation and implementation	3
Tourism and visitor management	3

research, inventory, and data management, as well as the application of technological tools (e.g., Geographic Information Systems). Comments on the need for better communication skills were primarily focused on the ability of protected area professionals to raise awareness (e.g., among policy-makers and/or the general public) about the value of the protected areas they manage, including biodiversity conservation and the provision of ecosystem services. These comments also included several mentions of the need to better communicate the benefits of specific training and capacity-building efforts. Other communication skill needs identified by the panelists included interpersonal communication techniques relevant to personnel management and team building. The need to build capacity for improved participatory management practices was also one of the most commonly mentioned topics (12 mentions). Stakeholder and community relations and the need to integrate poverty and livelihood considerations into decision-making were common sub-themes under this topic. Understanding indigenous cultures and the incorporation of local and traditional ecological knowledge was also mentioned by several of the panelists.

The next most commonly mentioned needs (identified by seven panelists each) for protected area management in Asia were related to mainstreaming efforts to monitor and evaluate management effectiveness, fostering greater collaboration and partnership building, and enhancing the understanding of adaptation strategies to promote the resilience of protected area systems in the face of global climate change. These needs were followed by a focus on the design and delivery aspects of capacity-building initiatives (6 mentions). Under this topic, panelists emphasized the need to take advantage of available technologies to enhance the impact of training efforts through remote and electronic delivery. Another sub-theme under training design focused on contextualizing programs using a workshop model and locally relevant content and languages.

Remaining capacity-building needs were mentioned by approximately one-fourth or fewer of the panelists. These included connectivity issues within protected area systems, ecological restoration skills, and techniques for addressing human-wildlife conflict in and around protected areas (five mentions each). Invasive species management, resource protection/law enforcement, and integrating protected area management with other sectors such as agriculture and tourism were each mentioned by four panelists. Sustainable funding mechanisms, adequate policy formulation and implementation processes, and tourism/visitor management were the least-mentioned topics that were raised by more than one panelist.

Discussion and conclusions

Results of the Asian protected area management capacity-building needs assessment presented here reflect those of previous efforts. For example, a survey was conducted in 2010 on the future direction of WCPA in Asia (Shadie 2011). Input provided by 127 WCPA and other protected area officials in the region suggested the following six capacity needs as top priorities: climate change adaptation, co-management and use of traditional knowledge, natural resource management, planning, sustainable development, and human-wildlife conflict. Participants in the Jeju 2012 needs assessment reiterated all of these themes as critical to enhancing protected area management effectiveness in Asia. The focus on certain topics, such as general natural resource management principles, participatory management, and climate

change adaptation, suggests the continued centrality and importance of these themes to inform the development of future capacity-building efforts in the region.

A cross-cutting issue that emerged from this discussion was the importance of incorporating social science considerations in protected area capacity building. Several themes, such as participatory management, communication skills, collaboration/partnership building, and human-wildlife conflict, illustrate a need to build capacity among Asia's protected area professionals to integrate the social sciences into management practice. While this trend is not specific to the region (Mascia et al. 2003), the challenges facing protected areas in Asia are strongly indicative of the need for a greater focus in this area. Such an emphasis could enhance the understanding of the complex social-ecological systems that characterize modern protected area sites and networks and better equip managers to approach problem solving from a multi-disciplinary perspective.

Developing innovative mechanisms to enhance protected area management effectiveness in the face of accelerated change continues to be a key challenge for the global conservation community. Building capacity among protected area managers has been consistently identified as a promising means by which to address this challenge (Child 1994; Appleton et al. 2003; Bonine, Reid, and Dalzen 2003; Mathur et al. 2011). Periodically assessing the capacity needs of protected area managers is critical to informing the development of targeted interventions that maximize efficiency and impact. Such interventions can also be enhanced by forming collaborative partnerships that utilize specific expertise offered by a wide range of conservation organizations.

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Visitor Management in Brazil's Protected Areas: Benchmarking for Best Practices in Resource Management

Robert C. Burns and Jasmine Cardozo Moreira

Introduction

RECREATIONAL PLANNING WITH A FOCUS ON NATURE-BASED RECREATION ACTIVITIES, along with mitigating their potential impacts on natural resources, is a challenge for recreation planners and professionals in many protected areas around the world (Eagles et al. 2002; Moore and Driver 2005; Manning 2011). The case of protected areas in Brazil is somewhat unique, in that little outdoor recreation research has been undertaken, while protected areas are of critical value to the Brazilian people. This paper compares Brazilian protected areas with those in the United States and Central Europe. We will focus on key underlying differences in the legislation that creates the protected areas, and comparisons of how visitor management is different and how that impacts management and visitor perceptions. The objective is to identify key issues that could be addressed in future joint activities on both research and management levels.

Benchmarking Brazilian protected areas

Why focus on comparing South American, North American, and European protected area settings? First, we gain an intimate understanding of how protected areas are classified and managed in other countries, the challenges they face, and how they deal with and solve management and planning problems. This allows for a better reflection of how different managers approach the planning process. Secondly, resource managers and researchers gain an understanding of how diverse cultures deal with similar issues. Alternative strategies may be implemented to reach a similar end result: better management of protected areas. Additionally, a shared understanding can be used to enhance adaptive management and collaborative planning processes by providing "best practice" examples. Communication can be enhanced between protected area managers worldwide, particularly with respect to visitor use dynamics and impacts. Managers can better understand and share similar methodologies, which can result in cross-boundary comparisons of not only problems and issues, but also of how

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various solutions have been effective (or ineffective) in different places, and why (Table 1). The goal of building capacity is inherent in this process. Having a clear understanding of how resource managers of similar protected areas work, potentially in very different settings, allows the managers to benchmark with one another and understand what works and what does not.

As the potential for activity-induced conflict increases, comparative studies on an international level can help to advance both science and practice of recreation management. However, comparisons are only useful when the basic conditions, managers' values, and frameworks under which management makes decisions are known (von Ruschkowski et al., in press). These are often derived from legislation and policies, and they set the tone for protected area management. Local managers must still interpret and implement management processes, but by making use of best practices methods, and understanding others' reactions to similar problems, they are effectively provided with additional tools with which to make decisions.

Protected areas in Brazil

The preservation of protected areas in Brazil has sometimes taken place at the expense of local populations. This phenomenon has occurred globally, with local people bearing the brunt of the negative impacts related to the designation of protected areas (Schmidt-Soltau and Brockington 2004). Over the past decade, however, trends have been noted that indicate a greater reliance on a "balance between top-down preservation and bottom-up sustainable development, which is the result of local social movements" (Bicalho 2011). In 2000, Brazilian protected areas were strengthened by the Sistema Nacional de Unidades de Conservação (SNUC) (Silva 2005). The SNUC created two broad categories for Brazilian protected areas. The first of these requires that the setting be strictly protected, with biodiversity conservation as the principal objective. This includes national parks, and is roughly equivalent to the International Union for Conservation of Nature (IUCN) category II. The second category is focused on sustainable use, which allows for varying forms of exploitation, with biodiversity protection taking a lesser role. This includes Brazilian national forests, various reserves, and areas of particular ecological interest (Silva 2005). Together, these protected areas account for nearly 70 million hectares, or nearly 8% of Brazil's total land area (Rylands and Brandon 2005).

Table 1. Differences noted among three case study locations regarding social carrying capacity assessment (modified from Burns et al. 2010).

Nation / Region	Central Europe	Brazil	USA
Methods	Quantitative	Quantitative	Quantitative
Bias	Ecocentric	Ecocentric	Anthropocentric
Use of frameworks	Very few applications	Very few applications	Heavily relied upon
What drives research	Ecological needs	Ecological needs	Litigation
Settings of parks and protected areas	Mostly developed to highly developed	Remote wilderness to highly developed	Remote wilderness to highly developed
Tools used	Cameras and visitor counters	Very few tools used	Visitor counters

However, a unique challenge within the Brazilian system is the relatively minor discussion of the role of visitors to protected areas in the enabling legislation. Not all of the 68 national parks in Brazil are open for public visitation, and management planning for those parks that do allow it is limited. In some cases, no visitors may enter a national park without the use of a guide. One of the challenges related to Brazilian protected areas lies within the reason for the enabling legislation—as many protected areas were developed primarily to protect natural resources. Many of the protected areas were designated to slow deforestation, while the role of recreation visitation was not truly considered. Thus there has been a slow transition toward viewing a protected area as a setting that should be managed for visitor use.

The legal basis and history as benchmarks:

The cases of Austria, Germany, and the United States

Looking at the Brazilian parks, some similarities in terms of their recent history may be found in many European countries. For many of these nations, the development of protected areas is a relatively new phenomenon. For example, the earliest named national park in Germany (Bayerischer Wald) was developed in 1970, and the two most recent (Eifel and Kellerwald-Edersee) were established in 2004. Overall, its 14 national parks cover just over 1 million hectares, equivalent to 0.54% of the country's terrestrial land mass. Similar to the situation in Brazil, most of the German national parks are considered to be in a state of development, with the objective of reaching initial legislative or other objectives within a time frame of 20 to 30 years (e.g., by phasing out existing uses and initiating measures to speed up processes that lead to more natural states of vegetation). The German parks were developed with the main objective to protect nature, but also to allow for environmental science, education, and public experience of nature. The legal basis for national parks is provided within the federal nature conservation act, but the actual mandate for designation and implementation lies with the German federal states. This creates an interesting situation of a combined federal–state management process, which may include both pros and cons. The alignment of federal and state agencies may allow for a more supportive funding structure for protected areas; however, the coordination and synchronization of efforts may be stymied. All parks are now recognized under IUCN category II, with the objective to meet all criteria within the above-mentioned transition period. German parks have no fees, although concessionaires do operate in and near them.

Austria, a closely linked neighbor to Germany, has seven national parks, covering nearly 3% of the total territory. Similar to Germany, Austrian national parks are in IUCN category II, and are co-managed by both federal and state entities. Nearly all Austrian parks are fee-free, with the exception of boating in specific areas in the Gesäuse National Park.

In the United States, by contrast, the first national parks were designated fairly early in the nation's history, with Yosemite, Yellowstone, Sequoia, Mount Rainier, Glacier, and Crater Lake national parks designated in the latter part of the 19th century or early in the 20th century. Among others, the most important enabling legislation for US national parks were the Antiquities Act of 1906 and the Organic Act of 1916, which created the National Park Service and allowed for funding. These acts mandated protective status for the parks and allowed for the conservation of scenery, natural and historic settings, and wildlife, as well as

outdoor recreation. A total of about 28% of the land mass of the US is considered as protected areas, with about 8% designated as part of the US national park system.

Benchmarking visitor management: European and US models

While most US national parks were created in the early part of the 20th century, most European protected areas were designated much more recently. For this reason, it is logical to benchmark the Brazilian protected areas with similar European protected areas. European social science research on visitor management in nature-based recreational settings has traditionally focused on understanding the impacts of use levels on the natural resource. Therefore, the European approach has relied heavily upon visitor monitoring, and several countries have established standardized visitor monitoring programs (Arnberger 2006; Burns et al. 2010). This approach successfully provides indicators to natural resource managers. Nevertheless, valid long-term data about overall visitation are not available for many locations. While data on additional variables that are useful for developing social carrying capacity models (e.g., trip characteristics, sociodemographic variables, and recreation activities) have been regularly collected, variables reflecting the quality of the recreation experience, such as crowding perceptions, have rarely been measured. Germany's national parks serve as a prime example here. Due to the 14 parks' recent history, research and management activities focus mainly on natural resources, whereas socioeconomic issues (e.g., tourism, recreation, and conflicts between different user groups) are considered to a much lesser extent (von Ruschkowski 2010). A similar situation is reported for Austria (Arnberger and Muhar 2008). However, during the past decade, interest in these variables has increased and recent efforts to provide valid and long-term data on overall visitation, visitor preferences and satisfaction, and even crowding perceptions are reported for several German, Swiss, and Austrian protected areas (Arnberger 2006). Several areas have applied integrated visitor monitoring concepts combining monitoring data with survey data. However, in many cases research on crowding is driven by interested researchers and not by park administrations, as they have not yet identified it as a prior management goal.

Most US federal natural resource agencies tend to manage by using one of the traditional frameworks designed by US researchers and proved in the country's national parks and forests. These frameworks have also addressed the quality of the recreation experience. These frameworks typically include the recreation opportunity spectrum (ROS), visitor impact management (VIM), limits of acceptable change (LAC), and the visitor experience and resource protection framework (VERP) (Stankey and Lime 1973; Graefe, Kuss, and Vaske 1990; National Park Service 1997). Much of the North American research conducted using the above-mentioned frameworks focuses on user crowding, conflict, trip characteristics, sociodemographics, and satisfaction. Only in recent years have the variables associated with visitor use monitoring been included in understanding North American social carrying capacity (Manning 2011). These frameworks have been applied over several decades and are very common to US national park managers.

Over 30 years of natural resource research in and outside of the United States has revealed many similarities in problems and distinctly different approaches to addressing them.

European research tends to focus on land use in an ecocentric manner, while the US body of literature is often more anthropocentric in scope. Nearly all European parks are recent additions to the world's loosely held collection of protected areas, and are often a means to minimize social use after hundreds or thousands of years of such use. Conversely, the approach to managing most US protected areas is to provide access for social use. Whereas social carrying capacity seems to be treated as a separate research topic in the United States, recent European efforts focus on the combination of socioeconomic data with ecological data, although only a few studies (mostly from Alpine habitats) exist. Thus, more studies and a better emphasis on the integration of both research fields should be the focus of future research. Visitor satisfaction data and conclusions are also needed as key pillars of park management to convey the message about overused areas where the intentions for displacement lead to more potential conflicts, as the Austrian study shows. Especially in densely populated areas, park managers have the difficult task of finding compromises between land user interests and natural resource protection on a daily basis. In such cases, it is even more important to have sound knowledge about visitors' intentions, because only this will provide for solid and transparent decision-making (Burns et al. 2010). It is assumed here that one of the reasons why the topics of crowding and social carrying capacity in general are pursued with a lesser emphasis in Europe is that (besides the different legal situation) the actual occurrence of crowding would actually lead to consequences through management actions. These would include the limitation of visitor numbers or restrictions on certain recreational activities—in other words, measures that are not popular with visitors and users. This is more complicated when—because of the overall dense situation in Central Europe—protected areas are urgently needed for daily recreation.

Visitor use restrictions, such as special-use permits for certain recreational activities, are very much an exception in most European protected areas. In the United States, many efforts to cap visitor impacts are spurred by lawsuits, followed by the need for more litigation. It remains questionable whether management frameworks provide an answer to these unsettled cases. As such frameworks more or less do not exist in Europe, protected and recreational areas can make their decisions without any methodological restrictions, thus providing a test bed for new, even unconventional, methods to measure social carrying capacity or crowding.

Additionally, on a meta level, no quality standards for collecting visitor use data in Germany or Austria currently exist, thus making it impossible to guarantee standardized methods for visitor counts (Sievänen et al. 2008), while standardized approaches are used, for example, by the US Forest Service. One additional crucial point is the long-term perspective. While in the United States the management frameworks require long-term monitoring efforts regarding social aspects, in most of the Central European countries this long-term perspective is not taken; long-term monitoring is applied only for ecological issues.

Although management frameworks to address the impact of visitor use on natural resources (VIM, VERP, and LAC, among others) exist, the topic of addressing social carrying capacity has been rather neglected in Austrian and German protected area management. As visitation to the national parks is high, even by international standards, social science research (visitor satisfaction, crowding, etc.) needs to be included in the management stan-

dards for Austrian and German national parks. Thus, researchers are required to identify and define valid methods, quality standards, and criteria in order to ensure integrated approaches that are implemented on an individual basis (Burns, Arnberger, and von Ruschkowski 2010).

Conclusions

Brazil's array of protected areas is more than impressive—in scope, in sheer beauty, and in diversity (Janer 2010). With more than 300 protected areas, including 68 national parks, one could argue that Brazil has made an adequate supply of natural resources available to its recreating public and tourists. The resources have been inventoried and most protected areas either have a management plan in place or under consideration. Inevitably, new protected areas will be created, either out of a desire to protect environmentally sensitive ecosystems, or as a result of legislation or political will.

What is unknown, however, is the demand that will be placed on Brazil's protected areas over the next 20–30 years. With estimates suggesting tourism will increase twofold over the next 20 years, it is imperative that demand be understood such that managers can begin to focus on protected areas in a way that will sustain the future of their settings and also account for visitor use (Hall et al. 2012). There are many forces that have the potential to influence the scope of tourism demand on these natural resources. Brazil, as one of the so-called BRIC nations (Brazil, Russia, India, and China), has become a global economic power. It is expected that this economic power will move Brazil forward in many different ways, most outside the scope of this paper. Over the next few years, Brazil will host the 2014 FIFA World Cup and the 2016 Summer Olympics. That Brazil is hosting two of the world's largest and most important international sporting events is evidence of the emerging global importance of the nation. Opportunities and challenges abound, and there will be an immense financial investment into protected area infrastructure, including about \$15 billion into the Parques da Copa (Palhares 2012). The hundreds of thousands of visitors drawn by these worldwide events will have an impact on Brazil's protected areas. However, it is the residual effect—the emergence of Brazil as a nation that is more and more easily accessible—that has the potential to have a long-lasting effect on its protected areas. If tourism does indeed increase significantly over the next 10–20 years, Brazil's protected areas must be prepared to provide quality experiences to visitors.

Future research

Transportation and access to protected areas is a challenge in the United States, and less so in Europe. The challenges associated with access and transportation in Brazil cannot be understated. Although a lack of access does help, in some ways, to protect sensitive ecosystems, this issue must be addressed. With a relatively low level of visitor use in Brazilian protected areas, it can be surmised that crowding and conflict may not be a critical issue in these settings. However, in order for Brazil's protected areas to be relevant to its citizens, an effort to provide for adequate access should be undertaken. When citizens have access and feel the natural resources are indeed "theirs" rather than belonging to the government, a sense of place and relevance can be developed.

In conclusion, a systematic, broad-based visitor management plan, one which can be benchmarked against other visitor management systems, is suggested. Resource managers

and researchers may want to focus on understanding visitor use monitoring, working together to develop park management plans that will be effective for managers and allow access for visitors. Additionally, marketing should be an important concept in the management plans of Brazil's protected areas. Marketing efforts should be matched to the existing infrastructure so potential visitors to protected areas have realistic expectations.

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Marine Protected Area Management Capacity Development: Assessing and Responding to Local and Regional Needs

Thomas E. Fish and Anne H. Walton

Introduction

MANY CHALLENGES AFFECTING COASTAL AND MARINE ECOSYSTEMS are exacerbated by limitations in local and regional capacity for conservation planning and management. Observable effects of rapid economic development, consumptive resource use, and global environmental change require new approaches to maintain ecosystem processes and ensure delivery of ecosystem services, vital for ecological integrity and human populations. Marine protected areas (MPAs) are widely considered an effective tool for supporting natural and cultural heritage conservation objectives. MPA management encompasses a wide range of content knowledge, process skills, field applications, stakeholder engagement, and political savvy. On-going establishment of regional protected area networks in many parts of the world has prompted a growing need for capacity development across a broad suite of competency areas.

Targeting coastal and marine resource management professionals from protected areas, provincial agencies, and conservation organizations, the International MPA Capacity Building Program (IMPACBP) works with partners at a regional “seascape” scale to develop local and regional capacity for designation, implementation, and management of MPAs and MPA networks. The conceptual definition of seascape derives from the IUCN Protected Area Management category V, protected landscape/seascape (Dudley 2008), following the definition as “large multiple-use marine areas, defined scientifically and strategically, in which government authorities, private organizations and other stakeholders cooperate to conserve the diversity and abundance of marine life, and to promote human well-being. Seascapes typically have high biological diversity, ecological and economic connectivity, and aesthetic and cultural values. Seascapes may include government-authorized protected areas for addressing special management needs, and provide an opportunity for government agencies to coordinate their efforts voluntarily to secure more effective regional management programmes” (Bensted-Smith and Kirkman 2010: 6). Working at a seascape scale requires consideration of

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complex local, provincial, national, and transnational relationships, regulatory frameworks, social and cultural dynamics, institutional arrangements, and levels of commitment. The IM-PACBP emphasizes the challenge and necessity of balancing heritage resource conservation and sustainable use at multiple scales. The instructional approach helps prepare managers and their partners to assess current and future needs; identify target resources (e.g., habitats, species, cultural assets, livelihoods); define program objectives; select, plan, and implement management interventions; and evaluate management effectiveness. On-going evaluation actions during the training program life cycle inform programmatic planning and operations toward achievement of stated capacity development objectives over a multi-year period.

Capacity development demand

Broad recognition exists that to meet and maintain global conservation goals, development of the requisite knowledge, skills, and abilities (i.e., competencies) is necessary at individual, organization, sector, national, and trans-national scales. The joint Global Environment Facility (GEF) and United Nations Development Program (UNDP) Capacity Development Initiative (CDI) was established in 1998 “with a focus on meeting and sustaining global environmental objectives, as framed by the Rio Conventions on biodiversity, climate change, and desertification and drought” (Bellamy and Hill 2010: 7). GEF, UNDP, and the United Nations Environment Program (UNEP) followed with guidance and support for countries to assess their own national capacity, in the context of the Rio conventions, through implementation of the National Capacity Self-Assessment (NCSA) (GEF 2001; 2003). In their analysis of 119 countries that completed their NCSA (out of 153 that were funded), Bellamy and Hill (2010) identified five priority capacity development needs to: “achieve and sustain global environmental outcomes [as]: 1) public awareness and environmental education; 2) information management and exchange; 3) development and enforcement of policy and regulatory frameworks; 4) strengthening organizational mandates and structures; and 5) economic instruments and sustainable financing mechanisms” (p. 9). Additionally, Bellamy and Hill’s synthesis of NCSA activities revealed that most countries (75%) list capacity development as a national priority.

Capacity development has become a top priority for leading conservation organizations globally (e.g., FAO [Food and Agriculture Organization of the United Nations], GEF, IUCN [International Union for Conservation of Nature], OECD [Organization for Economic Cooperation and Development], UNDP, UNEP, UNESCO [United Nations Educational, Cultural, and Scientific Organization], WWF [World Wildlife Fund]), driving the development and delivery of training in many parts of the world. Capacity development is also widely discussed within scientific, political, economic, and national security forums, as professional development for protected area managers and their conservation partners enhances the ability to meet specific national and regional objectives (Parthemore and Rogers 2010; Steinbruner et al. 2012). Government natural resource and development donor aid agencies and conservation organizations at multiple levels are working diligently to establish effective capacity development strategies in response to the recent growth in protected areas and the resultant need for well-trained protected area site managers and staff. The US Ocean Commission recommended that “the United States should increase its efforts to enhance long-term ocean sci-

ence and management capacity in other nations through grants, education and training, technical assistance, and sharing best practices, management techniques, and lessons learned” (US Commission on Ocean Policy 2004: 455).

The term “capacity” can be defined many ways. In the context of the IMPACBP, the following definition most closely aligns with the overarching aims of the program: “[T]he process by which individuals, groups, organizations, institutions and societies increase their abilities to: (1) perform core functions, solve problems, define and achieve objectives; and (2) understand and deal with their development needs in a broad context and in a sustainable manner” (OECD 1995; UNDP 1998: 6). There are also different levels at which capacity development occurs: individual or micro-level (e.g., site manager, staff team), meso-level (e.g., community, program, sector), and macro- or system-level (e.g., agency, nation, MPA network) (UNDP 1998; GEF 2010). The capacity typology best suited for the orientation of the IMPACBP stems from combined approaches informed by GEF (2003) and UNDP (2009) capacity development approaches (Table 1) (GEF 2011: 8–9).

Developing regional capacity

Most natural and cultural heritage resource stewardship decisions and actions are made at a local scale. In the absence of clear national policies, many managers and local governments look for examples of effective management measures or develop their own approaches, frequently making decisions under scientific uncertainty. Programs that bring managers together to share and learn from each other can be very valuable, as this provides opportunities

Table 1. Capacity development and assessment typology (adapted from GEF 2011).

Measurable Capacities	Description
Capacities for engagement	Capacities of relevant individuals and organizations (resource users, owners, consumers, community and political leaders, private- and public-sector managers and experts) to engage proactively and constructively with one another to manage a global environmental issue.
Capacities to generate, access and use information and knowledge	Capacities of individuals and organizations to research, acquire, communicate, educate about, and make use of pertinent information to be able to diagnose and understand global environmental problems and potential solutions.
Capacities for policy and legislation development	Capacities of individuals and organizations to plan and develop effective environmental policy and legislation, related strategies and plans—based on informed decision-making processes for global environmental management.
Capacities for management and implementation	Capacities of individuals and organizations to enact environmental policies and/or regulatory decisions, and plan and execute relevant sustainable global environmental management actions and solutions.
Capacities to monitor and evaluate	Capacities of individuals and organizations to effectively monitor and evaluate project and/or program achievements against expected results and to provide feedback for learning and adaptive management, and to suggest adjustments to the course of action if necessary to conserve and preserve the global environment.

to showcase strategies that work among peers. Such forums provide structured settings for sharing data, approaches, scenarios, and expertise related to MPA management challenges and offer opportunities for managers to engage in dialogue about best practices that could be replicated in multiple sites across a region or MPA network. These forums also foster dialogue pertaining to emerging issues, new information, and capacity-building needs, and help forge partnerships between regional actors, protected areas, and agency staff in regional seascapes who are challenged with making decisions under uncertainty about the resources under their charge.

Beginning in 2005 in the South China Sea regional seascape, the IMPACBP held its first such workshop and subsequently developed the first seascape-scale capacity-building program. Since then, the IMPACBP has developed capacity development programs in eight different places, with more than 100 courses completed and over 2,500 participants from dozens of countries (Table 2). The IMPACBP serves as a partner in global marine conservation, with mission-driven efforts that result in: (1) networks of more effectively managed MPAs around the world; (2) enhanced visibility of and value to the US system of MPAs; and (3) enhanced protection and increased expertise and experience for US and international MPA practitioners in building their own capacity for effectively managing coastal and marine resources. The IMPACBP works within a regional spatial context to provide a knowledge base for developing local and regional capacity and expertise in designation, planning, management, and evaluation of MPAs. The program works in partnership with experts from many countries to develop modules encompassing a range of protected area skills.

The development of a seascape-scale capacity development program follows a semi-structured ten-step process. In addition, prospective seascapes must satisfy several minimum selection criteria. As a first step, an area must be identified as a priority region for

Table 2. Regional seascapes involved in the International MPA Capacity Building Program.

Regional Seascapes	Countries Involved*
Coral Triangle (Bird's Head Seascape)	Indonesia, Philippines
Eastern Tropical Pacific Seascape	Colombia, Costa Rica, Panama, Ecuador
Gulf of California	Mexico
Mediterranean (MedPAN South)	Albania, Algeria, Croatia, Egypt, Lebanon, Libya, Montenegro, Morocco, Syria, Tunisia, Turkey
Oceania	American Samoa, Fiji, Kiribati, Western Samoa
South China Sea	Cambodia, China, Vietnam
Western Indian Ocean	Comoros, Kenya, Madagascar, Mauritius, Mozambique, Reunion, Seychelles, Somalia, South Africa, Tanzania
APEC (Asia-Pacific Economic Cooperation)	Australia, Brunei, Canada, Chile, China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russia, Singapore, Taiwan, Thailand, United States, Vietnam

* not all currently active

marine conservation and MPAs. In addition, as a criteria for selection, there must be in place a policy framework appropriate for implementation of MPAs, and satisfactory documentation from the appropriate authority (e.g., government agency) in support of MPA capacity development activities (e.g., for MPA, provincial, or nation staff participation). The second step is the establishment of on-the-ground partnerships to support program development and implementation, along with documented commitment from partners to support implementation of the program for a minimum of three years. There must also be physical and institutional infrastructure suitable for supporting a multi-year training program. Next comes the establishment of an engaged and representative (e.g., MPAs, local government, nongovernmental organizations, other stakeholders) regional advisory board, which is essential to support and inform coordination of the program throughout its life-cycle. Once the advisory board is in place, the group works to identify the suitable target audience(s) for conducting a regional needs assessment. The results of the needs assessment then guide several next steps: defining program objective(s), designing the training program (e.g., courses, content, delivery, venues), and creating an implementation plan, communication strategy, and monitoring and evaluation framework.

Training curricula in each seascape are developed in accordance with results of comprehensive needs assessments conducted with regional MPA representatives, yet there exists a substantial amount of common ground, in terms of course content, across different geographical areas (Table 3). Content is adjusted for relevance by location, as appropriate. Training materials are drawn from a wide selection of content resources and delivery techniques appropriate for adult learners. The program structure fosters a nonthreatening learning environment, where all participants are encouraged to share their own experiences and offer examples drawn from their respective MPAs. The training program follows a student-in-residence format, where each participant is required to attend all scheduled daily classroom and

Table 3. International MPA Capacity Building Program training subject-matter areas.

Training Subject-Matter Areas	
<i>Resource Management</i>	<i>Skill Development for Mentors (TTT*)</i>
Sustainable Tourism Planning	Facilitation Training
Sustainable Fisheries Management	Communication Skills
Climate Change Adaptation Planning	Conflict Management
MPA-101 Management Fundamentals	Interactive, Participatory Training Skills
Marine Spatial Planning	
MPA Management Plan Development	<i>Targeted Programs</i>
Stakeholder Engagement	Developing Network-wide Monitoring Programs
Sustainable Financing	Developing Network-wide Education and Outreach Programs
Law Enforcement	Needs Assessments and Capacity-Building Program Design

*Train-the-Trainer

field activities and participate in team exercises and group presentation development outside the classroom. The course format includes classroom instruction, individual and group work, and field exercises involving local resource-dependent communities (i.e., in the context of sustainable economic development and resource protection for adjacent protected areas). Participants come primarily from local, provincial, and national natural resource agencies/ministries, and conservation organizations, with select experts from academic institutions or private industry to present location-relevant environmental, economic, and resource use information. Courses last 1–2 weeks, during which each participant has several opportunities to lead team exercises and represent their group (e.g., by being a rapporteur). Instructors, mentors, and team leaders meet each evening to debrief the day's activities, identify problems or challenges, and discuss plans for the following day.

Program content development must be flexible and adaptable to address capacity gaps for dealing with new and emerging issues and stressors. For example, climate change-related stressors, such as sea-level rise, increased storm intensity and frequency, altered hydroperiod or freshwater flows, prolonged drought, population and phenological shifts, and other temperature-driven effects have been identified as imminent threats to many coastal and marine protected areas. To effectively prepare for climate change impacts, managers require basic understanding of changing natural and social processes, and specialized knowledge of their effects on local natural and cultural resources, as well as the impacts to local communities, human activities, and livelihoods. While mitigation measures to address such impacts are necessary, a critical need also exists for capacity development for the many complex aspects of adaptation planning.

Training program development

Instructional design for the IMPACBP draws upon effective adult learning approaches to foster content and instruction responsive to identified learner, programmatic, and regional management needs (Hunter 1994). The IMPACBP employs the analysis, design, development, implementation, and evaluation (ADDIE) instructional systems design model (Branson et al. 1975) as the foundation for the development of each seascape training program (Figure 1).

Following the ADDIE model structure, the program employs evaluation measures during all phases of program development and implementation to inform mid-stream progress and course corrections. The IUCN protected area staff guidelines recommend development of a monitoring and evaluation plan using “SMART” (i.e., specific, measurable, achievable, relevant, and time-oriented) indicators to guide assessment of program actions and effectiveness throughout the project life-cycle (Kopylova and Danilina 2011: 73). The front-end evaluation, or needs assessment, provides a broad range of information to guide the capacity development program. The needs assessment process includes working with seascape partners to identify the appropriate target audience(s), surveying regional partners (e.g., through 100-item questionnaire), conducting field visits and group interviews, identifying areas of expertise and capacity gaps, and developing training objectives to drive curriculum development and program design for a multi-year program term. Formative evaluation measures, such as daily debriefings with instructors, mentors, and student team leaders, and post-training assessments for students, mentors, and trainers, are used to gauge delivery pace

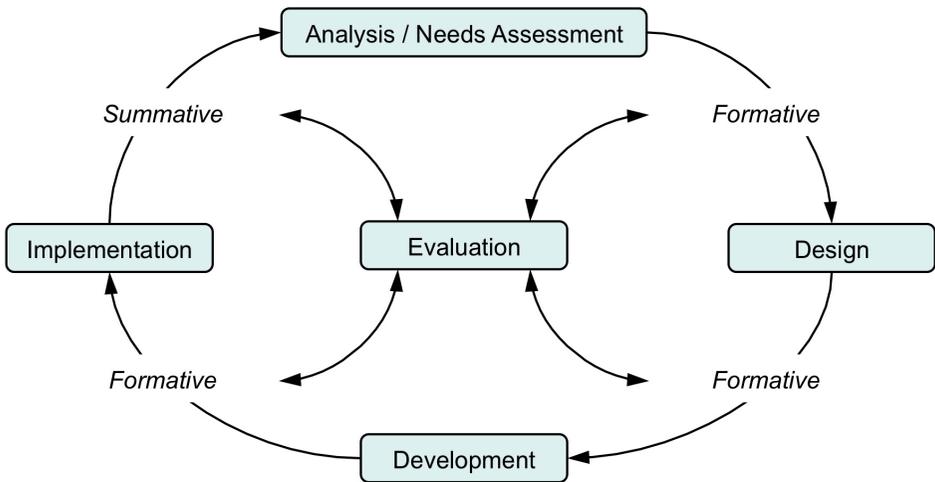


Figure 1. ADDIE instructional design model (adapted from Branson et al. 1975; NOAA 2006).

and format appropriateness, content comprehension, and other adult learner requirements to inform necessary changes to course schedules or instructional materials. At the end of the multi-year program term, a summative evaluation is conducted to assess the effectiveness of the program toward meeting specific learning objectives, bridging MPA knowledge and competency gaps, fostering long-term collaborative learning (Feurt 2008), and bolstering regional capacity for the MPA network.

The IMPACBP uses a “train-the-trainer” model for enhancing regional capacity during the program life-cycle and into the future. Regional MPA professionals, interested in becoming mentors, are identified from the seascape protected areas and allied agencies and regional conservation organizations. Mentors serve as student team liaisons; conduct program coordination activities (e.g., classroom and field exercises); assist with simultaneous translation during content delivery, small group activities, and discussions; and make themselves available as regional contacts for post-training projects and technical assistance. As mentors become familiar with the training course content and activities, they are encouraged to take a more active role in overall program coordination. Mentors also play a key role in organizing and maintaining on-going communication among participants. Establishment of social networks to foster on-going communication and collaborative learning are essential for keeping members of the group connected once they return to their own MPA sites.

The course design and curricula include a variety of instructional methods (e.g., lectures, role play, games, case studies, hands-on exercises) to foster interactive and engaging learning and to accommodate different learning styles. Participants are encouraged to bring their own experiences and challenges into the classroom to share and learn among the group. All teaching materials are prepared in both in English and in the language of the participants to enhance the learning experience across different English proficiency levels. Field exercises and guided visits to nearby protected areas are arranged with local managers and community leaders to highlight on-the-ground management issues and allow interaction with local

stakeholders. Mentors and student team leaders have shared responsibilities for planning and implementing their respective group field exercises. Daily debriefings and evening sessions are also used for more in-depth planning for external activities and guest presenters.

MPA management planning

The overarching process structure of the training program comprises foundational landscape carrying-capacity planning frameworks from the US—for example, the limits of acceptable change framework (Stankey et al. 1985)—along with elements drawn from other salient planning, management, and assessment material (Eagles et al. 2002; Pomeroy et al. 2004; Hockings et al. 2006; IUCN-WCPA 2007). The combination of resources provides students with fundamental concepts, theory, and practical field applications, coupled with locally or regionally relevant case study or field-based examples, where practicable. The dominant framework stems from the contexts of iterative protected area planning, ecosystem-based and adaptive management, and management effectiveness assessment. The process includes standard protected area management planning steps as reflected in Figure 2—setting objectives; determining key biophysical, sociocultural, or managerial assets; selecting indicators; establishing management targets for resource conditions (e.g., standards, thresholds, desired conditions); inventorying current resource conditions; selecting and implementing management actions; and evaluating the effectiveness of management through monitoring.

In the end, management of protected areas exists within a framework of informed trade-off decisions. The operational concept derives from the predominant management principle of balancing two competing goals—natural/cultural resource protection and sustainable use—where managers recognize and ultimately decide, aided by the best available information, which goal must outweigh, or constrain, the other. For example, one might consider the competing goals of providing access to a particular natural site, while maintaining an acceptable level of resource conditions. When monitoring indicates an unacceptable change in resource conditions, a management decision must be made regarding which goal will be compromised, and the resultant cost of such a decision. Decision support tools can be employed to aid in the decision-making process through careful consideration of desired and existing resource conditions, threats, management interventions, and associated social and/or ecological ramifications.

While international capacity development continues to be an emerging area, combining elements of assessment, planning, technology transfer, and evaluation science, there are several broad collaborative efforts already underway. One is the Global Partnership for Professionalizing Protected Area Management (GPPAM), coordinated through the IUCN World Commission on Protected Areas (see Reynolds and Dudley, this issue), with the objective of “increasing effective management of protected areas by addressing capacity development needs of national governments toward achievement of CBD Programme of Work on Protected Areas goals and targets” (IUCN-WCPA 2013). The efforts of the GPPAM are organized in four main areas: (1) competence standards for protected area professionals at site, system, and sector levels, published on-line; (2) open-access protected area capacity development curricula for adoption by education and training institutions worldwide; (3) a pilot certification program implemented for site-level protected area professionals; and (4) a mentorship

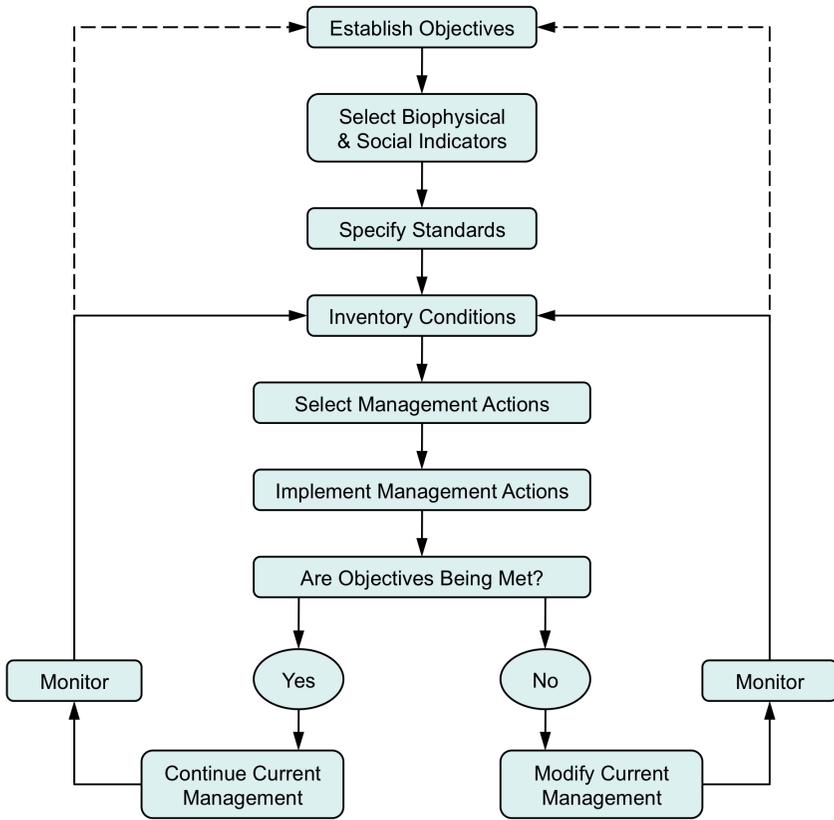


Figure 2. Protected area management planning framework (adapted from Hammitt and Cole 1998; Leung and Marion 2000).

program for protected area staff with on-the-job training assignments and position exchanges.

The capacity needs and best practices will continue to evolve as the diverse community of protected areas grows and changes over time and as new information is brought to light with regard to the effects of particular human activities, climate change, natural hazards, and other natural or social stressors on coastal and marine protected areas—and their coupled natural and human systems. There is tremendous value in examining differences and similarities in a cross-cultural context (i.e., observing and recording differences between different MPA geographies), where unique opportunities exist for much learning and improvement toward best practices, as well as potential for not repeating painful mistakes. Building strong partnerships and institutional bridges today will help address capacity needs for protected areas and other conservation actions tomorrow.

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Climate Change Communication Campaign Planning: Using Audience Research to Inform Design

Jessica Thompson, Shawn Davis, and Karina Mullen

Project description

IN 2011, MORE THAN 280 MILLION PEOPLE VISITED US NATIONAL PARKS and over 42 million visited national wildlife refuges. Public lands represent some of the most widely visited and revered landscapes in the country. Climate change impacts can be seen in many national parks and national wildlife refuges throughout the country (Bentz et al. 2003; Millar et al. 2004, Moritz et al. 2008; Salazar-Halfmoon 2010) and the phenomenon has been recognized as the greatest challenge ever faced by public land management agencies (Delach and Matson 2010). With nearly a century of experience in environmental communication practice and natural resource interpretation, US National Park Service (USNPS) and US Fish and Wildlife Service (USFWS) managers recognize the potential for America's public lands to serve as natural learning laboratories and represent a unique opportunity to provide millions of visitors with meaningful, place-based climate change education.

The Place-based Climate Change Education Partnership (CCEP) was a strategic campaign planning project funded by the National Science Foundation and conducted in partnership with USNPS, USFWS, and the National Parks Conservation Association. The goal of the campaign planning effort was to develop climate change communication tools and resources for interpretive staff at national parks and national wildlife refuges across the country. Our team worked directly with more than 400 USNPS and USFWS employees and partners at 16 national parks and wildlife refuges in five regions across the country (northern Colorado, the Puget Sound in Washington state, the Kenai Peninsula in Alaska, Washington, DC, and southern Florida). Campaign planning activities included: (1) a comprehensive literature review of climate change communication research, (2) interviews and surveys with agency managers and front-line staff (35 interviews, 847 surveys), (2) interviews and surveys with members of the target audience—park and refuge visitors (359 interviews and 1,481 surveys), (3) five regional workshops, and (4) 15 site visits and focus groups with agency staff. These research activities were also opportunities to assist with institutional capacity and

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infrastructure-building to provide resources for climate change communication and engagement within both agencies.

Theoretical perspectives driving the communication campaign

The theoretical framework for this endeavor is based on a combination of social science and education-based theories: (1) place attachment, (2) place-based education, (3) free-choice learning, and (4) norm activation theory (the full theoretical model is detailed in Schweizer, Davis, and Thompson 2013). These four theoretical threads explain that people form bonds to places (Altman and Low 1992), and parks and refuges are no exception. These bonds function by enabling people to develop an intimacy with the land, stimulating an effective learning environment in which to perceive changes to the landscape (Thomashow 2002). In addition to being situated in a particular place, authentic learning also follows the desires and motivations of each individual learner and typically involves discussion with others (Falk and Dierking 2002; Falk 2005; Heimlich and Falk 2009). The place-based communication context facilitates the maintenance and deepening of personal norms for performing pro-social and pro-environmental behaviors necessary to mitigate the impacts of climate change locally. National park and wildlife refuge visitors' understanding of climate change is activated through four variables of engagement: (1) problem awareness, (2) ascription of responsibility, (3) perceived outcome efficacy, and (4) one's ability to help.

Practical lessons gained from the campaign research

Survey and interview results revealed a population of visitors who care deeply about America's public lands and natural landscapes and this audience differs significantly from the broader American public in regards to (1) their knowledge and opinions on climate change, (2) willingness to take mitigating actions, (3) perceptions of climate change impacts, and (4) desire for climate change education, communication and engagement.

Results from the surveys show a disparity in staff perceptions of visitors' thoughts regarding climate change. For example, only a small fraction (<9%) of park and refuge staff believed that their visitors were very or extremely concerned about climate change whereas subsequent surveys with visitors indicated that a majority of the audience (56%) was very or extremely concerned (see Figure 1). This disconnect illustrates that a lack of knowledge about an organization's target audience often serves as a perceived barrier to discussing controversial issues, like climate change on federal lands. Through focus groups and staff interviews, our team identified the pervasiveness of this misconception, which hindered effective communication planning and prevented staff from engaging visitors in conversations about climate change and local impacts. One NPS interpreter explained: "For me, interpreting climate change impacts is like interpreting the Civil War. I hope I never have to do it because I'm certain that half the group will be neo-Confederate nay-sayers...."

To segment our target audience (park and refuge visitors), we conducted a k-means cluster analysis. We used the same survey questions and similar audience segments as the Yale Project on Climate Change's (YPCC's) "Six Americas" studies: "alarmed," "concerned," "cautious," "disengaged," "doubtful," and "dismissive" (Maibach, Roser-Renouf, and Leiserowitz 2009). Results indicated that a substantially higher proportion of park and refuge

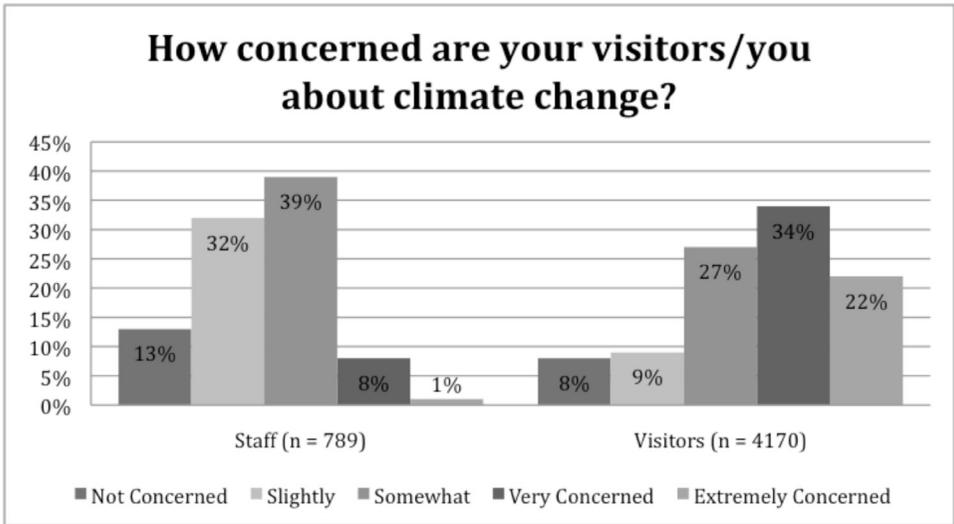
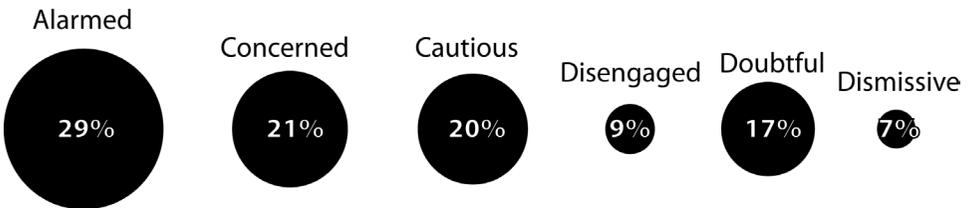


Figure 1. Comparison of staff (n = 789) perceptions of visitor concern regarding climate change and visitors’ (n = 4,170) reported climate change concerns.



January–December 2011 • n = 4,136

Figure 2. National parks and national wildlife refuges “Six Americas” audience segmentation (adapted with permission from Schweizer et al. 2013).

visitors (29%) fall into the “alarmed” category (see Figure 2) relative to the American public (Leiserowitz et al. 2011). According to the most recent YPCC Six Americas study, 39% of the American public is either “alarmed” or “concerned” about climate change (Leiserowitz et al. 2011); therefore, the fact that 50% of park and refuge visitors were grouped in the “alarmed” and “concerned” categories suggests that this audience may be more knowledgeable, concerned, and engaged with climate change than the average American.

Visitors’ willingness to change behavior was measured with a single-item indicator. Respondents were asked to respond to the question “How willing are you to change your behaviors in this park/refuge to help reduce the impacts of climate change?” Response options consisted of “extremely willing,” “very willing,” “somewhat willing,” “slightly willing,” and “not willing” (see Figure 3).

In addition to concern about climate change and willingness to take mitigating action, the audience research assessed visitors’ awareness of climate change and its site-specific im-

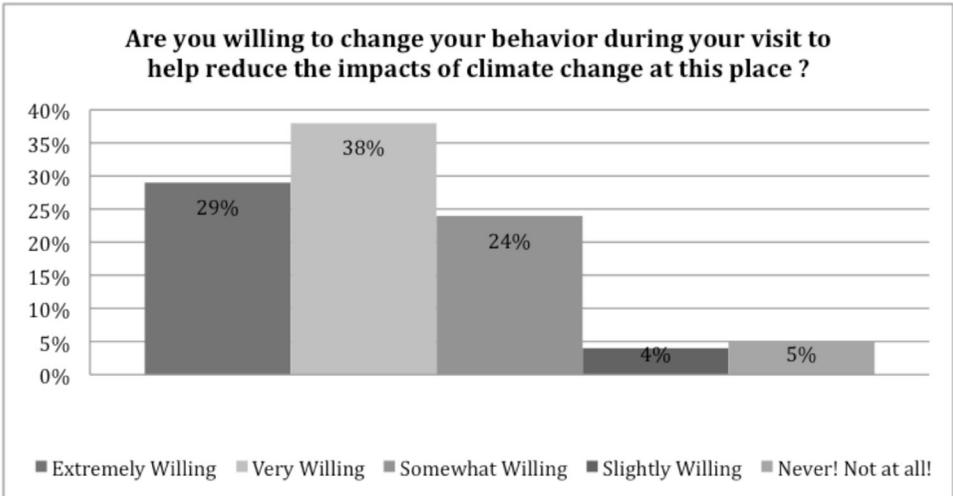


Figure 3. Visitor (n = 4174) willingness to take mitigating actions while visiting the park or refuge.

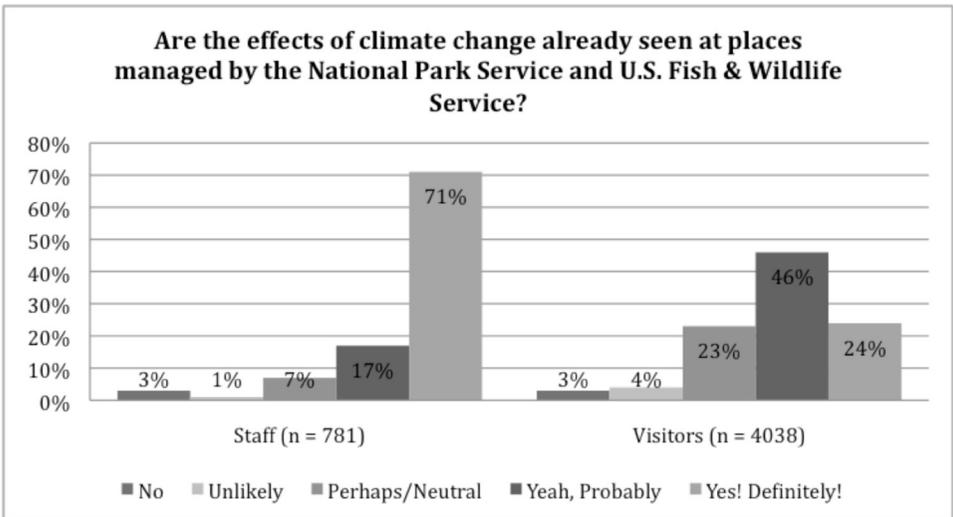


Figure 4. Comparison of agency staff and visitor perceptions of climate change impacts.

pacts, as well as their self-reported knowledge about this issue. Visitors were asked several questions including “Do you think climate change is happening?” and “What do you think is the cause of climate change (human, natural, both)?” In addition, two questions on the survey measured visitors’ ability to notice climate change impacts while visiting parks and/or refuges (see Figure 4).

Finally, several questions were used to measure visitors’ desire to learn and how they would like to learn about climate change impacts. Visitors rated their level of agreement with the following statements: “I would like to learn more about climate change impacts in our

national parks/refuges” and “I would like to learn more about climate change impacts in this park/refuge.” Additionally, in both the interviews and surveys visitors were asked to provide an example of how they would like to discuss climate change or to select all of the communication media in which they would like to learn about climate change. When provided a list of 12 learning methods, survey respondents identified websites as the most preferred method (46%) followed by trailside exhibits (42%) and indoor exhibits (38%). Visitor interviews revealed more scattered interests, with trailside exhibits ranking highest (26%) followed by ranger/interpretive programs (18%) and brochures (16%); a visitor at Kenai Fjords National Park suggested the use of trailside exhibits to

[P]oint out the different birds that used to be here or the mile posts where the glacier has been the past 100 years. I don't think you really need to preach at people but show them what's going on. I like subtle.

In addition to identifying preferred methods of learning, 78% of surveyed visitors believe informing visitors of actions they can take is particularly salient and important to communicate in parks and refuges. Articulating interest in action-oriented outreach, a visitor at Biscayne National Park explained:

I guess the whole thing about climate change is that it feels so overwhelming ... what am I supposed to do about it? It's easier to do nothing. So saying things that you can do [into outreach] that people feel are do-able [is a good idea].

As recommended by this visitor, it is critical that place-based climate change communication and engagement activities focus on bioregional principles and practices, and identify specific actions that visitors can do—today—to slow the impact of climate change.

Walk-away insights for climate change communication planning

Lessons from this multi-methodological audience analysis and communication campaign planning research, led us to suggest three principles for our agency partners to consider as they develop regional climate change communication campaigns: (1) use place as a medium, (2) connect that place to emotional and social meanings through (3) empowering messages about specific actions visitors can do to reduce the impacts of climate change.

Based on our research, teams of agency-leads from each region designed a suite of place-based strategic communication actions/activities to deepen their audiences' understanding of climate change processes and impacts. For example, four of the specific engagement activities developed during the course of the project included: (1) regional, climate change youth leadership summits with community service and citizen science components, (2) cross-jurisdictional interpretive “climate change” trails, which included consistent message and signage design throughout the region, (3) mobile media applications and downloads for information about site-based climate change impacts, and (4) *changing landscapes*-themed communication and interactive repeat photography website.

We advocate the development of messages with a systems-based explanation in order to highlight the local changes and impacts observed at each park or refuge and how those impacts are connected to individual decision-making and behavioral choices—no matter how

far away the visitor lives. Coupling meaningful social interaction with experiential, place-based learning opportunities is a way to foster community and facilitate a deeper understanding of climate change impacts.

Case study: Climate change communication in Alaska

An example of a climate change communication campaign based on research from the Place-based CCEP is the development and implementation of “Making Sense of History: Understanding Landscape Change in Alaska.” Colorado State University (CSU) and the Southwest Alaska Network (SWAN) partnered to create this interactive, repeat-photography website based on survey and interview data from the Place-based CCEP and parks’ research on climate change communication. Through this website, people visiting the parks are able to learn about specific changes happening in the area and what landscapes looked like historically, and personally visit and observe these places in the present. An additional advantage of building a website is enabling people who are interested in the parks, but unable to physically journey to them, to see and explore how the land is changing. To develop an effective climate change communication tool through this website, we incorporated several key findings from our research that correlate with other findings from the field of communication:

1. Visitors generally want to learn about climate science, but prefer to engage with the information by choice and discover without having facts forced upon them (Cone et al. 2011; Kubeck 2011), which confirms the main premises of Falk’s free-choice learning theory (Falk 2005):

... so combining visual and actual experience, then we come up with our own judgments (visitor at Kenai Fjords National Park, personal communication, June 21 2011).

2. Photographs comparing historic landscapes with what visitors now see are powerful tools that leave a lasting emotional impression and encourage visitors to learn more about what they’re seeing (Byers 2007):

If there was a sign in front of something you could visibly see and you had a before and after picture that shows the changes you can’t deny but can physically see (visitor at Kenai Fjords National Park, personal communication, June 23, 2011).

3. Visitors are interested in learning through hands-on activities, particularly if what they are doing is contributing to data collection that will help park scientists but that does not necessarily require days or months of training (Ottinger 2009; Newman et al. 2011), which also confirms the underlying principles of place-based learning theories:

Anything that would help our community learn more about what’s going on and also help my understanding of what’s out there if I’m trained that gives me more information. Plus I’m a teacher, I don’t teach science but it helps me, it empowers me with more information and I can talk to my students about it so that’s kind of a trickle down to the community too (visitor at Kenai Fjords National Park, personal communication, June 21, 2011).

4. Incorporating technology is essential to engage a diverse audience, even in Alaska where cell phone service and internet accessibility are variable (Newman et al. 2010):

I'd like to learn through a website, I'm always on the internet, even traveling...
(visitor at Harpers Ferry National Historic Park, personal communication, May 27, 2011).

The design incorporates all of these elements into a clean, engaging, and interactive repeat-photography website for visitors of all ages to explore. Images of the parks are the centerpiece of the site and are prominently displayed on each page. Site visitors are encouraged to upload their own photos of the parks that match the location of historic photos to add to the on-line database. They can compare any two photos on the site as well as comment on changes they are observing in their photos and those of other users.

Connecting web users to the science—climate and otherwise—being conducted in the parks was an integral part of the site design. Links to current research projects of park scientists studying coastal change, glaciers, plant communities, and more are readily available, as are photos, short biographies, and videos of scientists in action. As it was important to the development team to include many aspects of science in the parks, not every research project is dedicated to climate science; however, each page shows how climate science is related to most studies being conducted in the parks. Site visitors are provided with resources that encourage them to learn more about climate change and climate science and with links to information on how to get involved with other citizen science programs near their homes.

“Making Sense of History” launched in July 2013. Website visitors are invited to take a brief on-line survey to share their opinions to help improve the site design, as well as to better understand if and how it is encouraging visitors to think and learn more about climate change. Based on nationwide interest in repeat photography and citizen science as tools to learn about climate change, we are currently exploring ways to engage with other national parks and protected areas in similar initiatives. Our long-term vision is to enable managers and interpreters of public lands across America to be able to add their location to the website, upload historic photos, and easily create their own repeat-photography citizen science page.

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Training Future Decision-Makers in Park Management: Transatlantic Capacity Building through the EU's ERASMUS Programme

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Introduction

EFFECTIVE MANAGEMENT OF NATURAL RESOURCES AND RECREATIONAL ACTIVITIES in protected areas is an important issue for landscape and environmental planners worldwide, requiring complex strategies, knowledge, and competencies. The areas concerned range from large, pristine wilderness areas to small urban parks, from areas with strict nature protection to those with sustainable resource extraction, according to the IUCN protected area management categories (Dudley 2008). Conflicts are common wherever different land use or recreational activities occur in the same area or where upper-level administrative decisions affect local communities (Pretty and Pimbert 1995). In order to successfully address these issues, future managers and planners need to acquire a profound knowledge of the application of ecological and sociological methods and the ability to work in multi- and interdisciplinary environments. Students in the fields of environmental planning, natural resource management, and related disciplines are the future leaders in this professional community and thus a core target for capacity-building measures early on.

An understanding of the potential impacts of human activities on particular natural resources, together with sophisticated knowledge about visitor numbers, demographics, preferences, and behaviors in specific protected area settings, is vital for managing the quality of resource conditions and recreational experiences (Eagles et al. 2002; Kajala et al. 2007). For example, in many countries, recreational activities are considered one of the primary drivers of the decline of threatened species and habitats (Czech 2000; Scherfose 2009). Examining such an issue provides an opportunity to explore the potential of often-demanded integrated and interdisciplinary science and management approaches in the context of protected areas (van Riper et al. 2012).

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The European Union's Lifelong Learning Programme as a framework

With a budget of nearly €7 billion for the current European Union (EU) funding period from 2007 to 2013, the European Commission-administered Lifelong Learning Programme (LLP) funds a range of actions, including exchanges, study visits, and networking activities. Projects are intended not only for individual students and learners, but also for teachers, trainers, and all others involved in education and training. The LLP's objective is to enable people at all stages of their lives to participate in stimulating learning experiences, as well as providing support to further develop the education and training sector across Europe (European Commission DG Education and Culture 2013a). LLP is an integral part of the EU's strategic framework for education and training, which emphasizes countries working together and learning from each other by achieving four strategic objectives:

- Making lifelong learning and mobility a reality;
- Improving the quality and efficiency of education and training;
- Promoting equity, social cohesion, and active citizenship;
- Enhancing creativity and innovation, including entrepreneurship, at all levels of education and training (European Commission DG Education and Culture 2013b).

Measures (called "activities" in EU jargon) vary by specific education objectives, of which the ERASMUS¹ Intensive Programme (IP) funding scheme served as the format to develop what is now being called the "International Summer School on Global Challenges in the Management of Parks and Protected Areas."

An IP is a short study program that brings together students and teaching staff from higher education institutions of at least three participating countries. It can last from ten continuous full days up to six weeks of subject-related work, with the objective to encourage efficient and multinational teaching of specialist topics that might otherwise not be taught at all. Also, it enables students and teachers to work together in multinational groups, hence creating special learning and teaching conditions not available in a single institution, and to gain new perspectives on the topic being studied (European Commission DG Education and Culture 2013c). In order to obtain funding, one institution has to serve as the coordinator, whereas the other consortium partners provide local contact persons to manage the program. The funds are based on flat-rate payments for both participating students and teachers, covering travel to the IP location plus lodging and food. Additionally, the coordinating institution receives a small amount of funds to supplement the organizing costs borne by the institution. Participating students usually also pay a minimal fee to bolster the rather meager subsistence rates. In our specific case, the course fee is €125 per student which, in relation to a two-week course, can be considered quite low.

Building an international network

Knowing that creating and maintaining international collaborative networks in the academic sector requires a lot of time, patience, and dedication, the initial network was founded between West Virginia University (USA), the University of Natural Resources and Life Sciences in Vienna (Austria), and Leibniz University of Hannover (Germany), based on an existing

research collaboration. The objective was to develop an international teaching experience in the field that would focus on the management of natural resources and recreation in parks and protected areas. From the beginning, it was clear that the initial course in 2011 would be held as a pilot course, with only these three institutions involved to reduce “teething” problems and plans to mature the curriculum later on. After a successful test run, an application was filed to the EU to obtain funding for a three-year period from 2012 to 2014, complemented by a grant from the United States Department of Agriculture (USDA) for the years 2011 and 2012 in order to initiate US participation early on.

The product: The International Summer School on Global Challenges in the Management of Parks and Protected Areas

Partners and student selection. For the first EU-funded course in 2012, two new partners were invited: Mendel University in Brno (Czech Republic), and Wageningen University (Netherlands). In 2013 and 2014, the University of Catania (Italy) and the Swedish University of Agricultural Sciences in Umeå will be added, respectively. Thus, in its final funding year, the network will contain at least seven universities altogether. Every participating EU university has a contingent of six students and one to two teachers, which are covered by ERASMUS. Adding the US partner, the overall size has doubled from 18 to 36 student slots. Potential candidates must apply through their local institution’s coordinator and are selected based on their grades, a curriculum vitae, and a letter of motivation.

Course format and objectives. The objectives of the IP course were derived from a needs assessment based on exchanges among the network partners and practitioners in the field. Thus, the curriculum was developed from a managerial perspective rather than purely on a theory-based, academic approach. The guiding principle is to help students develop an understanding for the complexity of protected area management and how disciplines other than their own are required to develop solutions for the most imminent challenges in this field. For the involved lecturers, the objective is to develop and enhance teaching methods in a European and transatlantic context and to disseminate and publish the findings from the course. Topics covered are habitat management, wildlife conservation, recreational and visitor planning, environmental education, and human dimensions of ecosystem management.

The concepts, methods, and tools that are taught and applied during the program include ecological (e.g., habitat and species mapping and monitoring), geographical/digital (e.g., application of GIS, computer-based simulation) and sociological (e.g., visitor counts and surveys, conflict management) techniques and skills. Scientists and practitioners from all relevant disciplines have contributed to the course.

In total, students spend twelve teaching days (plus one day each at the beginning and the end as travel days) in two surroundings: a two-day acclimatization phase starts out in seminar style at the Leibniz University’s campus, with all participating students and lecturers contributing to the program. This is followed by an eight-day field seminar in Harz National Park, about one hour south of Hannover.

Harz National Park provides a unique setting: It is one of the country’s most frequently visited parks with a rather small overall size (246 square kilometers). Since its designation in 1990, many former land uses (e.g., logging and mining, the latter with a history of more than

3,000 years in the area) have been discontinued. The forest, heavily altered by human activities, is now in transformation from a plantation-style spruce forest to beech-oak communities. Until 1990, the former Iron Curtain also ran through what is today the park's core zone, implying that the area does not only contain valuable natural resources, but also cultural and historical resources. Although the park is located in an area where tourism has been present for more than 100 years, the exact number of visitors (estimated between three and five million a year) remains unclear due to a lack of accurate visitor counting procedures and due to the geographical dispersion of ingress and egress points.

On site, students work on actual planning and management challenges provided by the park's administration. The topics include habitat management, wildlife conservation, recreational and visitor planning, environmental education, and landscape architecture and design. Whereas the tendency in 2011–2012 was rather leaning to focus on the underrepresented social sciences, the mix of collected data will be more interdisciplinary in 2013–2014, reflecting the overall objective.

Methods of teaching. The acclimatization phase and the final day in Hannover resemble a traditional seminar-style approach. All lecturers are involved in moderating topic-related sessions with an individual length of 90 minutes to three hours. This approach is intended to familiarize students with the different topics and to help them develop their own research program that they would like to carry out in the field under supervision from the teachers. Throughout the course, students have to participate in an active manner (e.g., by giving presentations about protected area management in their home countries or in the field studies), thus creating an awareness for differences and similarities in managerial approaches or cultural/social differences between the countries. During the field phase, participants implement the work projects and thus gain hands-on experience with the methods and tools that are being used. After the full week on site, final presentations are given to Harz National Park managers, so the students' work receives instant feedback from practitioners in the field.

Organizational aspects. The organizational approach and structure developed within the partnership to manage the project can be split up into the content and the logistics. Whereas the latter is mostly in the hand of the coordinating institution, the former is mostly decided upon in a bottom-up effort. While the general topic is clear and individual thematic responsibilities are assigned to the lecturers, the exact contents and the format used in order to deliver the content (i.e., the didactical approach) is at the discretion of the individual lecturers. Among the students, one person from each university delegation is also appointed to the role as a student coordinator.

Evaluation and course adaptation. The philosophy behind the course concept is that constant feedback loops will help to improve the program every year. Therefore, feedback sessions are part of the course. Also, the teacher-student ratio of about 1:6 helps to create an atmosphere where informal feedback is also common. Finally, the EU does require a formal evaluation at the end of the course. Without adding any individual questions, the EU standard questionnaire already contains more than 70 items. Many of these concern student demographics, operational or organizational aspects, but open-ended questions leave room for detailed critique of the course contents. In 2011 (pilot course) and 2012, 16 and 27 questionnaires were returned, respectively. Thus, the overall sample size is still too small to

draw conclusions, but it allows to point out some observations. Notably, about three quarters of the participants were female. The main motivation for participating was evenly distributed among academic, cultural, and linguistic reasons. Eighty-one percent of the participants ranked their satisfaction with the course as “high” or “very high.” Sometimes, evaluation results may be contradictory or adverse. For example, in 2011, students had remarked that they considered the acclimatization phase too short with insufficient cultural activities. In reaction, the program was changed in 2012, adding an additional day to address this issue. In the following evaluation, students criticized the extended cultural program. This anecdote illustrates that even in the third year, the program and the curriculum are still a test bed. Most importantly though, the students in the 2011 and 2012 courses came to the conclusion that the topics being addressed in the IP course were both important, but also of value for the advancement of their individual careers. Because of their comments, the field research phase, where students actually apply methods and tools, has been increased from five days (2011) to eight days (2013).

Outcomes and impact on park management

As the course title implies that it is based on case studies of current management challenges in a national park setting, one of the most important contributors to both the organizers’ and the students’ satisfaction is the question of whether the program has an actual impact on park management at Harz National Park. One important issue at the study site is the management of visitors at one of the park’s tourism hot spots—Torfhaus (Figure 1), where the existence

Figure 1. The Torfhaus visitor center area serves as the sample site for visitor-related activities during the ERASMUS IP course. Photo courtesy of Eick von Ruschkowski.



of the national park was assumed not to be a major contributor to the motivation for the visit. The park operates a large visitor center at this site. A consideration was that visitor services offered at the center could be better targeted to meet visitor (and park) needs by gaining a better understanding of visitor demographics and motivations. Hence, the IP group designed and implemented a study to assess visitor characteristics. Since 2011, the sample size of the visitor survey has grown (n=1,456), giving the park managers valid data, such as the visitors' awareness of the national park (96.8%) and the fact that many (94.8%) still would have come if the park did not exist. Cross-tabulation and other bivariate analysis revealed that 3.5% of the survey visitors could be considered "true" national park visitors, in the sense that the park's existence played a very important role in the decision to come to the area and that they would not have come if the national park did not exist. About 70% of the sample stated they were day visitors, whereas the average length of stay for overnight guests was about six days.

Foreign visitors made up about 8% of the sample; on the other hand, no so-called non-traditional users (e.g., minorities or non-native residents) were encountered at all. Given that 18.6% of Germany's population has an immigrant background (Statistisches Bundesamt 2007), this result was noteworthy. Overall, the survey results were presented to the park managers who consider this information important for long-term planning, especially for interpretive services offered by the park.

Additionally in 2012, three design proposals were developed by the students to improve the overall appearance of the parking lot and visitor center area as an entrance to the national park (Figure 2). Some elements of the proposals were considered and actually implemented by the park in early 2013 (Figure 3), indicating the significance of the results to the park administration. On a micro level, a summative evaluation of the permanent exhibits in the visitor center was launched to identify popular exhibits and areas where the connection between the park and its visitors can be intensified. Activities by the IP group will complement park assessment activities through the 2013 field season.

Lessons learned and outlook

The ERASMUS Intensive Programme funding scheme provides a great opportunity to implement a curriculum that reflects the current training needs for future protected area managers in Europe and beyond. In this specific case, funding has been confirmed for the 2014 course already. However, the funding guidelines require a shift in the coordinating role after three consecutive years of funding. On the one hand, this ensures constant innovations in the course's structure and the curriculum; on the other, specific niches where a teaching need exists are in constant danger of being lost, as the funding is not sustainable in the long run. A specific concern is the discrepancy between the rather well-endowed budget for lecturers and the minimal sufficiency rates for students. Although probably intended to attract teachers to the program, it is safe to assume that students usually have the tighter budget to live on.

These noted shortfalls are being reflected in the results of a recent public consultation contracted out by the EU in preparation of a new program in the field of education and training for the next funding period from 2014 to 2020 (GHK 2013). Experts stated that future programs should aim at fostering long-term stable partnerships and making learning for sustainable development an urgent theme, something the developed course would fit well

Torfhaus area design

TorfHaus 



Harz National Park is one of five German National Parks. The Torfhaus area functions as the main entrance of the National Park and has different facilities like restaurants, restaurants and a visitor centre. The place is situated near a road and attracts many people.

However, the space needs a redesign because it can be made better and the place has some changes in the near future because of the road. There is construction work going on to build a restaurant, hotel, lodge and infrastructure with shops. This design aims to make the Torfhaus area a better place where visitors enjoy their stay and can be informed about the natural area.

Strengths and Weaknesses of the area

- View on Mount Brocken
- Attractive place to make pictures
- Endless Land
- Not a clear main entrance
- Facilities like shops are blocked (view and visitor centre)
- Large, empty, unmade and crowded
- Arrival from the parking
- Not much rest places

Design goals

- Make an entrance to the National Park
- Organize the traffic
- Take people from the parking place to the visitor centre
- Make rest places
- Increase human scale
- Make the best out of the view

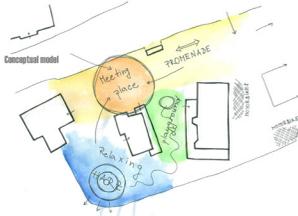


Conceptual model

Trees will divide the area from the road rest to reduce the noise and to make it a place on its own. To guide the visitors from the parking place to the visitor centre a promenade will be made where they can walk between trees. This will give human scale to the parking lot as well. In the promenade some information about the area can be given or nature experience shops related to providing information can be given.

No traffic is allowed in front of the visitor centre to make this a safer and quieter place and to invite people to stay longer. Lanes in the square connect different facilities. Some lanes cross the street to make a cross-over for pedestrians who like to go to the (new) tourist information and shop.

The view to Mount Brocken from the front of the visitor centre are opened up. This means that the monument with the three stones need to be replaced and the watchtower has to be removed for removed as well. At the back of the visitor centre form the logs of Harz National Park in combination with level differences an amphitheater. This place provides a place to sit and rest and to enjoy the view.



The amphitheater sits in a place with landscape where people can stand and take their pictures. In the background the watch tower is integrated which may attract many people to take a picture there. This is a very old building.



The space between the visitor centre and the new restaurant is proposed for adding to make it a rest place for families. The kids can play in a rest area that leads from the road to the visitor centre. There is a small stream which runs near the place and leads to the amphitheater and to which children can play.



The shape of the amphitheater is inspired by the logs of Harz National Park. The level difference and different steps make it a place to sit, rest and enjoy the view on Mount Brocken. In the logs there are some beds for people who are different heights so they can be used in the National Park.



The promenade which guides visitors from the parking to the square in front of the visitor centre because the Harz is a nature park the trees are not planned in a row but in a natural way. The square in front of the visitor centre where people can meet each other. The trees make a distance between the large and entry road and the human scale area around the visitor centre.

Harz National Park

Figure 2. Student proposal for the redesign of the Torfhaus area from the 2012 course to improve the visitor experience.



Figure 3. Actual site of the visitor area in July 2013 after student proposals were considered during the planning process. Photo courtesy of Eick von Ruschkowski.

into. Additionally, it was suggested that ERASMUS should be widened to countries that are of strategic importance to Europe, namely the USA, Canada, Brazil, China and Japan.

Overall, the ERASMUS IP on Global Challenges in the Management of Parks and Protected Areas is currently in its second official cycle. Feedback from participants, but also from managers in the field, indicates that the contribution to capacity building in this field at this specific educational level is valuable. A full evaluation will be completed after termination of the third cycle in 2014. At that time, a questionnaire will also be sent out to alumni to determine whether the project has made a long-lasting impact on the participants or proven helpful in their individual career advancement.

The results from the courses will not only make a contribution to enhance management on site in Harz National Park, but also to academia. In particular, the data from several program-related surveys are currently being analyzed and will be published in peer-reviewed journals. Aside from the benefits of teaching in an international context, this outcome provides some added value for the involved lecturers.

Areas to improve the program also remain in the context of the didactical approach and the use of new media. Students have proven to be very advanced in using modern information technology and social media, whereas the E-learning platforms used by their institutions do not always allow for formal interaction with the partner institutions' networks.

A specific additional enrichment to the program has resulted through international enrollment at all the partnering universities. Participants from non-EU and non-US countries (e.g., Indonesia, Tanzania) have had a chance to participate and have contributed additional facts and perspectives. Because of the interdisciplinary approach of the IP, students always found a topic that allowed them to relate the program to their home institutions, where a variety of programs (e.g., environmental planning, landscape architecture, wildlife management and ecology, recreation planning, media design, forestry, etc.) was represented.

The program's success is partially reflected by the fact that several other European and US institutions have expressed interest in this program, as well as universities from Africa and South America. As the EU requires a shift in the coordinating role after three years, potential continuation and changes in the format will have to be discussed among the existing partners in the network, taking these expressions of interest into account. One of the core issues that comes with the increased popularity is how to maintain a group size that is manageable even with limited resources. Current member institutions are exploring ways to achieve a long-standing program to support capacity building through this international field school approach.

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Endnote

1. For "EuRoPean Community Action Scheme for the Mobility of University Students." The name recalls that of the great Dutch Renaissance humanist Desiderius Erasmus.

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Starker Leopold's Second Thoughts on the Leopold Report: A Recently Discovered Transcript of a 1975 Speech

Preface

David M. Graber

WILDLIFE MANAGEMENT IN THE NATIONAL PARKS, the report to Secretary of the Interior Stewart Udall by his “Advisory Board on Wildlife Management” in 1963, is arguably the single most influential advice ever given to the National Park Service (NPS) regarding the management and conservation of nature. The “Leopold Report,” as it quickly became known for its primary author, A. Starker Leopold, would reverberate for decades in the very guiding philosophy of NPS. Asked to solve a problem of how to handle excess elk in Yellowstone National Park, Leopold led his colleagues to propose what should be the fundamental goals, policies, and practices of nature management in all national parks.

The Leopold Report, the work of academicians and scientists, is nonetheless notable for its bold, simple, clear language. The words best remembered and most discussed are these: “As a primary goal, we would recommend that the biotic associations within each park be maintained, or where necessary recreated, as nearly as possible in the condition that prevailed when the area was first visited by the white man. A national park should represent a vignette of primitive America.” In 1963, before continental drift was accepted as factual, before paleo-climatology and paleo-ecology had become established sciences, when ecosystem homeostasis still appeared plausible for the most part, and when the role native people had played for thousands of years on the American landscape was largely ignored, a “vignette of primitive America” offered powerful and understandable guidance to park managers.

By the 1980s, however, as the science of ecology had come to see most ecosystems in endless flux, and as Native Americans had achieved a measure of respect as ecosystem architects themselves, those same words had begun to make the report appear dated, albeit still highly influential. Moving past the canons of the Leopold Report and its vignette of primitive America was not so easily accomplished. Consequently, as a former graduate student of Leopold's, I was persuaded by a park superintendent, a chief of resources management, and a

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park scientist to arrange a meeting with Starker to express our concerns to him. He heard us out over lunch, expressed his sympathy for our situation, and told us that if we needed a new Leopold Report to write it ourselves!

Last year, Bob Barbee, a career NPS employee who served as a superintendent of several parks in the West and as a regional director, came across a talk given by Starker to the superintendents of the agency's former Western Region in 1975, during the period I was his graduate student. It appears to have been tape recorded, transcribed into typescript a week later by a "T. Allen," and then heavily pen-corrected by persons unknown. It caught the attention of some of us immediately because in it Starker recants his famous "vignette of primitive America" words, finding them "too narrow ... and restrictive," implying "stopping the clock." In its place, he proposes maintaining the natural biological and geological processes and accepting system dynamism.

There are a number of other interesting nuggets in this talk. Leopold speculates about the possible presence of wolves in Yellowstone and whether they have the critical mass to recover packs. Discussing the importance of fire in western systems that we need to learn to live with, before NPS had fully embraced fire as an integral process, he predicts that one day Yellowstone will experience "a big one" that will prove politically challenging, as indeed it was in 1988. He discusses the trade-offs of development in 100- or even 500-year flood plains, anticipating Mount Rainier National Park's washout of the Carbon River Road and the ensuing discussions of whether it would be sensible to replace it. Leopold urges the cessation of artificial fish stocking, which took place in many parks the following decade. He calls for the removal of ungulates and rabbits from the Channel Islands (among other places), which began in earnest several years later and was finally fully accomplished in 2012. This isn't to suggest that these progressive conservation ideas were known only to Leopold, or that they were entirely unfamiliar to the assembled park superintendents.

The fine teacher that he was, Starker knew how to rope in this audience with stories that served to illustrate his points, often peppered with the names of NPSers well known to his audience to provide them with the sense of being insiders. He knew full well what preoccupied these men most of the time as he closed with his big pitch:

I'm fully aware of the day-to-day pressures that are on you as superintendents and the sort of things I'm talking about by and large are not the daily pressures. The things you have to cope with are people, and all the problems concerning the facilities, the arrangements made for your visitors. In dealing with this problem, however, for goodness' sake constantly keep in mind that the park itself and the natural value that you are trying to preserve is going to be far more important 10 or 20 years from now than how well you handled your tourist traffic in 1975. As we look back on the administration of these areas, the important thing is going to be the preservation of the values in the park and not the development and preservation of the facilities for people to see them.

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“What We’re Talking about Here are Dynamic Processes that Don’t Stop”: A Speech to the National Park Service Western Region Superintendents’ Resource Management Seminar, April 28, 1975

A. Starker Leopold

I CAME HERE TO TALK ABOUT MANAGEMENT; PARK MANAGEMENT. I got involved in this thing in the Yellowstone situation of the early 1960s, which is really an outgrowth of mismanagement policies in the past of that park. Namely, the predator control that’s been referred to by Howard¹ already, that permitted the unusual and abnormal growth of [the] elk population which was destroying some of the resources of the park, particularly the carrying capacity for other species within the park: mule deer, white-tailed deer, and others. Biologists pointed this out to park management several times and finally Lon Garrison,² recognizing that a problem did arise, took the bull by the horns and sent his own boys out there and shot 4,500 elk.

This created a tremendous political rhubarb, as you can readily imagine. The principal pressure being that people with the states of Montana and Wyoming, they wanted to get in and do the elk shooting. If there are too many elk, why, let us shoot them, we got a lot of good shots. Two governors, four senators, and God knows how many congressmen got involved in this thing and brought tremendous pressure on President Kennedy, who called Udall³ in and said, do something about this. Udall, being an excellent administrator, appointed a committee.⁴

The committee, then, had the thing on its hands, and that was our gain. As we look[ed] this situation over, it was perfectly clear that the particular step that Garrison took, an attempt to rectify a management error by management on his part, was sound in our view, but in order to put this in the context of the whole park problem, the board [i.e., the committee] felt that we couldn’t just give back a report on the elk situation in Yellowstone, but rather try and paint a broader picture of what we consider good park management, and then relate the elk

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situation to this. It was an opportunity, in other words, for us to depict some of the broader goals of park management, and so we did so and you have all read this report.

Just a few humorous details about that report, when it was to be given publicly at the North American Wildlife Conference in Detroit in March 1963, and Udall was to be there to receive it, and respond to it. I got a copy of the report to him about a week or so before the conference and he read this thing over and (inaudible) read it over and here we were talking about letting fires burn in national parks and it scared the devil out of him. The night before the presentation he phoned me and said he was awfully sorry he couldn't come because Kennedy had given him some kind of an errand to do. And we laughed about this later. He knew and I knew that this wasn't the case at all. Politically, this looked like dynamite to him. So he sent one of his henchmen out who responded to this report.

It caught a lot of conservation organizations a little bit flat-footed and there was an awful lot of talk in the cocktail hours the next day or two. Tony Smith of the National Parks Association⁵ and Dave Brower of the Sierra Club⁶ and many others were pinning us down as to the scope of management that we envisioned, which is of course quite a departure from the basic idea of park preservation, which had been the guiding philosophy.

Finally, however, it was obvious there was going to be no strong political adverse reaction, so Sec[retary] Udall accepted this thing graciously and not only that, but implemented it. George Hartzog came in then as the new director [of the National Park Service] and he said, "This is it, take it and do something with it." Now ten years later, I can reconsider this whole sequence and the report itself, and give you my evaluation of it with the advantage of some more mature judgment.

By and large, I think the basic concept is still pretty sound. I would change, however, one very important key sentence in that report, and this had to do with the basic goal of park management which read, "As a primary goal we would recommend that the biotic associations within each park be maintained or where necessary recreated as nearly as possible in the condition that prevailed when the area was first visited by the white man...." Now that was too narrow and too restrictive, and the phraseology was bad. In other words, it implied stopping the clock. And what we're talking about here are dynamic processes that don't stop. Biotic associations change, constantly, naturally. You can't just reverse the clock and set a given pattern, of vegetation we'll say, which may have been existing at the time that the first mountain man visited the park area.

I would change that wording in this way—this is very rough, but, "As a primary goal, we would recommend that the natural biological and geologic processes under which the area evolved, be permitted to function in a manner to perpetuate the ecosystem as first observed by the white man." The important thing is not a static fixed pattern of plants, animals, canyons, and so on; it is a series of natural processes that go on constantly—erosion, plant succession, fire which sets back succession, these are the things that really must be perpetuated if an area is to retain some semblance of naturalness.

For example, you could find that when such-and-such a park was first visited, there was a stand of aspen on some hillside. The implication wasn't that that stand of aspen be replaced on that hillside; rather that somewhere in the park the processes that produced aspen be permitted to function, and with the aspen comes certain birds and mammals and so on. With

this basic change, however, which is not a change in our thinking but an improvement in our wording, I would say that the concept, the idea of active management of a park to achieve these goals and to maintain this goal is still pretty sound.

Let me give you an example of what I mean by “processes.” This one came to my attention only last Friday. We had a seminar in our little wildlife group over at the University,⁷ and as a guest Michael Norton-Griffiths, who’s been working in the Serengeti and Tanzania for the last five years or so.⁸ I had worked with Michael in the Serengeti [National Park] when he was laying out a plan, a study of the whole park and some attempt to understand the ecosystem and the biomass of animals and the plants on which they depend. And he has now completed a phase of this study and this was the subject of his seminar. Basically it was this: When [the] study began in the Serengeti, which is less than ten years ago—the park had been set up earlier but actual biological investigation really began fairly recently—there were about a quarter of a million wildebeest, and the usual assortment of predators that preyed on them. This was considered normal. There were relatively few elephants; the park was not surrounded by a lot of intensive farmland at that time, it was sitting out pretty much in a wild country that had been that had been maintained that way by the Masai. And so the concept of protection was applied to this ecosystem, as it existed.

One of the things that bothered the administration then, and still does, is the frequency of fires that occurred in the park, set, some of them by lightning, but many by the neighboring herdsmen who burn to improve their grazing. And fires were definitely changing the ecology of this park. That is to say, the sequence of burning was so frequent and so intense that the bush areas, the forest areas, were giving way to more and more grassland. Now the original Serengeti was made up of a big central plain in the center of the park with a bush or forest area in the north and a rather dry strip of bush to the south. And the forest was retreating as a result of these fires, [it was] absolutely physically impossible to stop the fires, [there was] too big an area with that tall grass, [so] that no way could the administration stop this. Here was a process going on induced in part by people, I admit; to that extent it was not completely natural.

But in monitoring this situation over a period of years, going back to scattered data that were available earlier, Dr. [Norton-]Griffiths came up with this idea: that the park was certainly expanding in grassland, decreasing in forest, and if this process continued indefinitely, you would lose a tremendously important part of the park, namely the forest itself, and those species dependent upon it. What actually was happening was that the sequence of fire was decreasing because, under protection, the wildebeest and zebra population had gone up from a quarter of a million to a million and the impact of these grazers upon the grass was consuming the fuel that carried the fires—the fires were smaller, and less intense than they had been. The tendency then of this growing mass of herbivores was to have a counter effect on the fires and to permit the development of scrub, that is to say, woody plants, in areas where for a sequence of years they had been essentially burned out.

But working conversely to this trend of increasing scrub was an increasing elephant population, forced into the park by harassment on the outside. Elephants push down the trees, eat the brush during the dry season; every time they push a tree down, it opens that area up to grass which then accelerated the fire situation. Here you have two sets of native animals,

one tending to, by virtue of its grazing, decrease the intensity of fire; the other one tending to increase the spread and intensity of the fire.

Now, once you understand this complex system—oh, I hasten to say he looked carefully at the weather records as far back as they go, and none of this could be attributed to change in rainfall, this had something to do with animals in relation to plants in relation to fire. As a manager, then, what issues might you have to face up to? The conclusion that Norton-Griffiths came to was, leave the ungulates alone. These are migratory herds, they swing out a hundred miles over the park seasonally following rainfall, following green grass; the predators never catch up with them. The predators are unable to control the herd of big ungulates on the Serengeti. But sooner or later, that herd—which is now a million of the two principal species plus goodness knows how many of the lesser ones, gazelles and so on—sooner or later a severe drought is going to come. There is going to be a massive die-off. This could be next year; it could be 15 years from now. This probably is what's gone on for thousands of years in the past, a long steady build-up of these ungulates and then periodic crashes induced by climate. The ungulate herd then will be controlled by a climatic catastrophe, and there is nothing that a manager need do or can do about regulating this process.

The only thing that is within the realm of management here is the element [of] population, which is indeed compressed in the sense that the elephants used to wander in and out freely all over this country, now by virtue of the developing farms and grazing interests around it, forcing the elephants to concentrate in the park. It may be that some elephant control will be necessary to maintain the balance of these forces. Now this is a more complicated system, I admit, than most of us have to face, and has long-term implications which are different than the year-to-year implications. I give this example, however, [because] sometimes it's perhaps a little easier to be objective about somebody else's park than it is about your own, but here is a case of somebody else's park in which, once the good solid research is done on the processes, then the management suggestions become fairly clear.

Looking at our own system here, what are some of these processes—natural or man-induced—that we face in our own parks to perpetuate what we might call a “natural system”? I won't try and go through all of them, but let me go through a few with examples.

First of all, one of these processes is of course predation, [the] development of large predators that to some extent help us control populations of the ungulates, and this in turn has ramifications in the flora. In terms of what we know now about predation on big animals, large ungulates, in our own country as well as the experience from Africa and other places, we realize that predation is only truly effective in regulating big herbivores when those herbivores are resident in local areas. Large migratory herds are never actually regulated by predation. The example that falls within our own sphere here is of course the caribou and the wolf in Mount McKinley [National Park]⁹ and any of the parks that are going to be developed by the Service in the future. Those migratory herds of caribou are preyed on indeed by wolves. But it isn't going to be the wolf that regulates the caribou number. On the other hand, when you have non-migratory prey such as deer, or moose, animals that may move very locally, that don't make these big swinging, vagrant types of migrations, predation can be an effective tool to encourage the regulation of herbivores, and the regulation of herbivores is certainly one of the responsibilities that we have in maintaining a natural situation in the park.

In the case of areas where the large predators have been eliminated or reduced so low that they can't seem to take off again, get going, it may necessary for us as administrators to reintroduce some of the large predators. Actually, some of you may be aware that Jack Anderson¹⁰ was exploring around and considering the possibilities of reintroducing the wolf in Yellowstone, as a help in handling some of the excess elk. He actually sent out a letter to several of the wolf authorities—Durward Allen,¹¹ Pruitt in Canada,¹² and several others—asking the question, how do you reintroduce wolves? No one has any idea really how to do this successfully. And right when this was being considered and all of us were slapping [out] an awful lot of letters about how to do it, suddenly the wolf showed up in Yellowstone Park. A very small number, we have no idea, and there is no assurance of how they got there; some people—Glen Cole, the chief biologist there, believes they were there all the time; another possibility is that they just wandered across Montana and settled in there. But it's a long way across Montana from existing wolf range. We just don't know.

But the wolves so far are not numerous enough to be of any particular help in handling the elk, but hopefully they will increase and become so. For reasons that we don't understand, the mountain lion, which was never completely exterminated in Yellowstone, is not increasing adequately. Mountain lions are still darn scarce in that park. Yet they have been protected now since the policy of the Park Service was changed back in the mid-1930s. Some people, including Maurice Hornocker at the University of Idaho, [who] is certainly one of the authorities on mountain lions, proposed that we capture and reintroduce enough lions [to] get a viable population going in the park. I myself am dubious about this; I'd rather give the native lions a chance to get started, and they are increasing slightly.

But the manipulation of predators in order to achieve this balance of ungulates to their range is a possibility in many areas. Now I'm talking about native predators, obviously—not exotic.

Oh, one other point on predation: within the Yellowstone there are a lot of different herds of elk, some of them are migratory; the big northern herd, the one that was bugging Garrison, comes out of the Lamar [Valley] and the whole northern part of the park and goes down across to the north of the Gardner River; the only effective regulation of that big herd now is hunting, public hunting outside the park, when the herd moves far enough across the Gardner so that hunting is possible. Within the park, however, there are little resident populations of elk, one of them on the Gibbon River, a small herd that doesn't migrate, it just stays there. The current thinking of Anderson and his biologists is that that herd could be effectively regulated by predators—that there is no need to artificially attempt to control that herd; in actuality in the springtime, when the snow melts and the herd has been through a tough winter, many of those elk are so slow, so weak that the grizzly bears emerging from their winter hibernation, or sleep, can actually catch them, and this goes on every year. You get a certain amount of effective predation from grizzlies. Goodness knows it would be far more effective if additionally we had some wolves and some mountain lions. There is a difference, in other words, between the relationships between predators and elk depending on which herd you're talking about: are they migratory, or are they resident? And this differentiation has to be worked out and applied to many other populations of ungulates, including deer, on some of our own part.

Another process, of course, is fire in relation to plant succession, and I won't dwell on that one. I think we've pushed that one pretty hard. The concept of letting some natural fires burn, or in other places where necessary or desirable, actually prescribing and setting fires to attempt to re-establish these natural processes is by this time well known to you and I won't dwell on it. It is the one area of management in which I think the parks are making the most progress right now in relation to all of these other things that I am talking about.

This isn't always easy, of course; take the 1974 fire in Grand Teton, and Gary's¹³ concern with that one. He let it burn because that was the policy that they had developed. It laid a pall of smoke down on the lake, obscuring the Tetons all summer long. Needless to say, Gary got an awful lot of static on that one and you all have heard of it; and he was beginning to get pretty uneasy by September. He took a couple of us up in an airplane, Nathaniel Reed¹⁴ and myself, we flew that fire, turned out to be just about a week before the snowfall that put it out. And Gary was wondering if he could hang tough, and really stick with it because the pressure was beginning to ricochet through the halls of Congress by that time, but bless his heart he did it. He didn't put that fire out. It was put out naturally.

This, however, created enough stir in Congress that there may be repercussions which are going to have effects on all of you in your own problems of "let burn." One of these days a big one is going to take off. Jack Anderson in Yellowstone has set aside three very large areas and said, any natural fire that starts there, we'll let burn. Last year there were six of them going and when we flew the Teton fire we went and had a look at all of these; they were all just poking along, a few acres, none of them took off. A big one will take off some day. Then again I imagine the Park Service will suddenly come under intense criticism by preservationists, or possibly by the Forest Service if they feel that the fire may be endangering adjoining forest. It's easy enough for us to sit here and talk of these principles of management; when it comes to the politics of actually doing them I don't mean to imply that it's going to be easy. But I do think that, in this particular regard, a natural fire is part of a natural system of a park, [and] we are going to have to hang tough, and not yield to political pressure and go backwards to the policy of protection that we've had in the past.

Natural erosion and deposition is another process. We're all familiar with examples—you'll have a really classic one from Paul Godfrey¹⁵ later this morning—concerning the process of the beach erosion and deposition in [Cape] Hatteras [National Seashore]. To attempt to counteract these natural processes, to attempt to stabilize beaches that are basically, fundamentally unstable, is a policy that we have been following in the past that obviously leads to nothing but more expense and more trouble and ultimate defeat.

There are other types of problems though, for example, flash floods that we know from past history have come down in certain types of terrain, particularly in the arid Southwest; and, to attempt to build buildings, to permit campgrounds, otherwise to utilize areas subject to flash flooding leads only to danger and ultimate tragedy, as for example happened this last year in Lake Mead [National Recreation Area].¹⁶ We had a classic case a few years ago when a flash flood came down Bright Angel [Creek] on the north side of Grand Canyon. Apparently it was a 300–400-year flood because it took out some Indian dwellings that were high on the side of the hill and had been there an awful long time. And Lyle McDowell¹⁷ and I and [a] couple of others were sent down by Hartzog to take a look at this thing. Well, there

was some building along Bright Angel and they knew the trail and the water line exposed to this flood (inaudible) torn out by it. The question is, what do you do about it. Contrary to the general policy that I'm enunciating perhaps, we agreed that on the basis of a 500-year flood you could rebuild that trail, and rebuild that water line and figure that some time in the next 500 years you're gonna lose her again. It was the only logical place for people to walk across Grand Canyon and the only logical place to bring water needed on the other side. The trail and the pipe line did not basically affect the natural scene very much. It was simply an artificial area, a development that permitted some people to get in there. This technique in planning has to take into account that whenever you put anything, any type of structure of development or road in an area subject to flash flooding, you're going to lose it someday. In many cases it's far better not to put it there at all; sometimes you have to.

Exotic animals and plants constitute a process which is not natural but man-induced, but nevertheless, the implications in the management of natural areas are tremendous. Some of the most severe repercussions of exotics are from the herbivorous animals, including the ungulates, the hoofed animals, such as goats, sheep, particularly in Hawaii and some of the Channel Islands; the burro; and wild horse and cattle where they still exist. The elimination of these large ungulates is within the realm of possibility. It's tough. I recognize the problems that are faced in Hawaii, for example, keeping the goats and sheep out of those national park areas, [the] political as well as biological difficulties of eliminating them, they're feasible. There are some problems that are going to be even more difficult, such as the rabbits on some of the Channel Islands that [Channel Islands National Monument] Super[intendent] Ehorn¹⁸ has got to face up to. It's easy to kill 99.5% of the rabbits but, by golly, it's awful hard to get that last one. And this may be a perennial, a never-ending problem. To save the flora and some of the native beauty and interest, the rabbit has to be taken out. Yet there are many, many exotics in our parks that don't have that much of an adverse effect. And it would be impossible to eliminate [them all,] such as some of the Mediterranean grasses; we're not out to try and eliminate *Bromus tectorum* from all the western parks, that would be utterly impossible. You do the best you can. You certainly try hard on those exotics that can be eliminated, even at great expense and difficulty. And I'm speaking mostly here of ungulates.

Howard has already brought up the question of trout and this is a tough one. We have willy-nilly spread non-native species of trout all over the West, in lakes and streams. Now what are we going to do about it? Where you have a native trout population and can protect it from exotics, such as there are [in] areas that we have that are still stocked with pure golden trout in the southern Sierra Nevada; in Yellowstone, Jack Anderson has part of his system that is pure cutthroats, the lake itself and the river down as far as the falls. The obvious thing to do there is to do everything possible to protect these native populations of fish [and] absolutely preclude any introductions that would complicate this system. That's easy enough. But when it comes to established exotics such as the rainbow trout, which is spread in every park throughout the West now, although it was native only on the Pacific slope of the Sierra, or the brown trout brought from Europe, I don't think it's feasible nor within the realm of managerial wisdom to set out and try to exterminate these things merely because they weren't there [originally]. In the first place, you couldn't do it, and secondly you'd create an insurmountable set of public relations problems. When it comes to high-country lakes, where fish

can only be maintained by constant restocking, and this is the situation Howard referred to, I think there we could make a very good case for simply saying, there will be no further restocking in national park waters. Where fish have become established and can maintain themselves, we're not going to attempt to destroy that, and as I say you probably couldn't do it anyway. But we don't need to compound the problem by continuing to restock.

The question of feeding wild animals—this is again a disruptive process in many ways. Bears are our most troublesome ones of course, and as many of you are aware, you get bears that become bums, they hang around, begin to rip up cars, tear up camps, damage not only property but people. When you try to [do] something about it you offend the public. In Yellowstone today, all garbage feeding of the grizzlies has been terminated despite a big ruckus about it, [and] the fact is, it's done and very successfully. The black bears that used to line the roads and beg are invisible; they're gone, they have been eliminated systematically. But you sure have to ask yourself some questions about this; people now drive all the way out from Des Moines, arrive at Yellowstone, [and ask,] "Where are all those bears that I've seen in all the posters?" and they aren't there. There's just as many black bears in Yellowstone as there ever were, but they're wandering up there on the hill, they're not lining the road. It is a hard public relations problem but nevertheless an essential sound step in resource management, in my opinion. And any feeding of any type of wildlife, including water fowl in national parks, bears are the worst, but any other type, I think, is a mistake and we should back away from it ourselves and enforce this regulation of non-feeding on the public in order to try to preserve that natural scene.

There are many other forces that I could mention. Volcanism, and avalanches: obviously you aren't going to manage volcanism, it's gonna manage itself. Avalanches are going to occur, the question is what do you do with them after they've happened. [Do] [y]ou clean it up and make it look tidy, or do you use this as an educational tool for the public, a bunch of flattened trees? I've seen this on Rainier and I know it occurs in many other parks. My inclination is that these should be interpreted to the public as perfectly normal natural phenomena that always have occurred and always will.

In achieving all these managerial objectives, you have compromises to make every foot of the way. You do the best you can to restore the original fauna and flora knowing that in some cases it is never going to be possible to achieve it in whole. But we certainly can be criticized if we don't attempt to achieve this in part. I'm fully aware of the day-to-day pressures that are on you as superintendents and the sort of things I'm talking about by and large are not the daily pressures. The things you have to cope with are people, and all the problems concerning the facilities, the arrangements made for your visitors. In dealing with this problem, however, for goodness' sake constantly keep in mind that the park itself and the natural value that you are trying to preserve is going to be far more important 10 or 20 years from now than how well you handled your tourist traffic in 1975. As we look back on the administration of these areas, the important thing is going to be the preservation of the values in the park and not the development and preservation of the facilities for people to see them. That is going to follow naturally. Parks are not going to be sealed off from people, but it [is] awfully easy, I believe, to let yourself get trapped into the situation where you are so busy with day-to-day affairs that some of these more general responsibilities, that I view as yours, are easily lost track of. Our

National Park Service, as Howard said, should be a pace setter for park management for the whole world—other countries and state parks as well—and the philosophy and policies that apply to management of the natural values in the park are in the long run going to be things that I think will be viewed by the world as achievement in the administration of our national park system. Thank you very much.

Endnotes

1. Howard Chapman, the director of the Western Region at the time.
2. Career NPS employee Lemuel A. “Lon” Garrison was superintendent of Yellowstone National Park from 1956 to 1964.
3. Secretary of the Interior Stewart Udall.
4. The committee was officially known as the Special Advisory Board on Wildlife Management. Chairing the board was A. Starker Leopold, the eldest son of noted conservationist Aldo Leopold. A respected zoologist, professor of wildlife management, and assistant to the chancellor at the University of California–Berkeley, Leopold was joined on the board by other prominent scientists and conservationists: Professor Stanley A. Cain of the Department of Conservation at the University of Michigan; Ira N. Gabrielson, formerly of the US Fish and Wildlife Service (USFWS) and president of the Wildlife Management Institute; Thomas L. Kimball, executive director of the National Wildlife Federation; and Clarence Cottam, former assistant director of USFWS and director of the Welder Wildlife Foundation. The board soon became known as the “Leopold Committee,” and its final report, the “Leopold Report” (http://en.wikipedia.org/wiki/Leopold_Report)
5. Anthony Wayne Smith, president of the National Parks and Conservation Association (now known simply as the National Parks Conservation Association).
6. Actually, in 1975 David Brower was the executive director of Friends of the Earth, which he had founded in 1969 after resigning as Sierra Club executive director following a disagreement with the board of directors (http://en.wikipedia.org/wiki/David_Brower)
7. The University of California–Berkeley.
8. Norton-Griffiths spent five years in Serengeti National Park, Tanzania, where he designed and implemented the Serengeti Ecological Monitoring Program (<http://www.mng5.com/what.htm>). He went on to become an environmental consultant in Kenya.
9. Now called “Denali National Park and Preserve.”
10. Superintendent of Yellowstone National Park from 1967 to 1975.
11. Professor at Purdue University and one of the originators of the long-running study of moose and wolves at Isle Royale National Park.
12. Probably William O. Pruitt, Jr., authority on boreal ecology. In 1975 he was on the faculty at the University of Manitoba (<http://passages.winnipegfreepress.com/passage-details/id-158565/>).
13. Gary Everhardt, superintendent of Grand Teton National Park from 1972 to early 1975, at which time he was elevated to the NPS directorship (<http://www.cr.nps.gov/history/hisnps/NPSHistory/directors.htm>).
14. Assistant secretary of the interior for fish, wildlife, and parks from 1971 to 1977 (<http://www.aapra.org/Pugsley/ReedNathaniel.html>).

15. Paul Jeffrey Godfrey, associate professor of botany at the University of Massachusetts–Amherst and NPS research biologist. See his paper “Barrier Beaches: Special Management Problems,” given at the 1982 George Wright Society conference and published later that year in *The George Wright Forum* (vol. 2, no 4, pp. 12–16); online at <http://www.georgewright.org/024godfrey.pdf>.
16. Nine people were killed in a flash flood that struck Eldorado Canyon in Lake Mead National Recreation Area on September 14, 1974.
17. Head of operations for NPS, and an advocate for wildland fire (<http://sportsillustrated.cnn.com/vault/article/magazine/MAG1086197/3/index.htm>).
18. William H. Ehorn became superintendent of Channel Islands National Monument in June 1974 and served in that position into the 1980s (<http://www.nps.gov/chis/plan-yourvisit/upload/CHIS-25th-booklet-website2.pdf>). Channel Islands was redesignated as a National Park in 1980.



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