

The George Wright Forum

The GWS Journal of Parks, Protected Areas & Cultural Sites

volume 35 number 1 • 2018

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On the cover: A visitor survey underway in Yellowstone National Park in 2006. A brief history of such endeavors leads off this issue's set of theme papers celebrating 125 years of social science in America's national park system. National Park Service/James H. Gramann photo.

SOCIETY NEWS, NOTES & MAIL

GWS2017 conference proceedings published

In January we published *Connections Across People, Place, and Time: Proceedings of the 2017 George Wright Society Conference on Parks, Protected Areas, and Cultural Sites*, the record of our conference last year in Norfolk, Virginia. Edited by Samantha Weber, the volume contains papers from across the spectrum of topics discussed at the meeting. This PDF publication may be downloaded for free at <http://www.georgewright.org/proceedings2017>. You can choose the whole book or individual papers.

GWS offers free teaching materials for introductory parks course

Are you an educator looking to introduce students to the exciting discoveries that await them in America's national park system? The editors of the critically acclaimed guidebook *A Thinking Person's Guide to America's National Parks*—GWS members Bob Manning, Rolf Diamant, Nora Mitchell, and Dave Harmon—have created a complete set of free teaching materials for a course titled “Introduction to America's National Park System: Managing the Natural and Cultural Heritage of a Changing Nation.” This 24-lesson course uses the book as the core text, and each lesson includes research questions that students explore via the National Park Service's website. The course covers the full variety of resources in America's national parks—and the challenges of managing them.

The teaching materials consist of:

- A syllabus for the 24-lesson course, including course objectives, class structure, research questions, and lesson-by-lesson readings from *A Thinking Person's Guide*. An extensive Sources list is included, full of ideas for supplemental readings and other sources of information. The syllabus is written for an undergraduate course, but can be easily customized for other levels of learners.
- A set of 24 PowerPoint presentations, one for each chapter in the book, with embedded captions. Most presentations contain 8–10 slides illustrated with photos from the book and explanatory captions. Almost every one of the over 350 photos in the book are included in the set. A Word document with all the captions is also included.
- Over forty sample exam questions covering all the major topics in the book.

All these materials are fully customizable. They can be downloaded free of charge at http://www.georgewright.org/teaching_with_tpg. All sales of *A Thinking Person's Guide* benefit the GWS, so spread the word!

A Note from Our Executive Director

Jennifer Palmer

Dear GWS friends,

WE FIND OURSELVES IN A PERIOD OF TIME where understanding human dimensions and our connection to nature is an ever-evolving process, yet one that is essential to the protection and management of the places we love. It has often been said that *Homo sapiens* tends to be the least studied animal when it comes to parks but as you will learn from this issue of *The George Wright Forum*, that is rapidly shifting. Today, social scientists work together to help us better understand who is visiting our parks, what inspires people to explore our protected areas, and how we can best manage our resources with the increasing demands on our natural world.

Each of us has our own unique relationship with nature—some of us choose to live amongst the trees every waking moment we can, while others feel more at home in a city and could never even fathom a minute in true wilderness. Some people go to parks for peace, solitude, and connection, while others view these places as a playground for recreation or adrenaline. Regardless of what calls us to the outdoors, protected places around the world offer us the chance to connect to nature in many ways. Yet managers and researchers are increasingly challenged to navigate this expansion of human use while protecting the ecological balance of these spaces. As social scientists take a closer look into the history, economics, anthropology, and cultural assumptions of our parks, they continue to explore new approaches and solutions to the complex issues we face today and will continue to face tomorrow.

On behalf of the George Wright Society, I would like to sincerely thank all of the contributing authors of this issue for their unique voice, vision, and ability to look at the human/nature interface through such an insightful lens.

Kind regards,



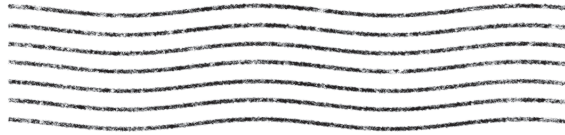
Jennifer Palmer, Executive Director
George Wright Society

The George Wright Forum, vol. 35, no. 1, p. 4 (2018).

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Letter from Woodstock
Rolf Diamant

Requiem for an Advisory Board

AS 2018 BEGAN, a lesser-known but impactful component of America's national park system, the National Park System Advisory Board, drew national media attention when 10 of its 12 members resigned to protest the refusal of the secretary of the interior to meet with them. Although the board and its activities do not often draw public attention, the mass resignation still "came as a shock," reported the *Los Angeles Times*, explaining that "few groups have been closer and more involved in Interior Department policy and management than the National Park System Advisory Board, an appointed and nonpartisan group established 83 years ago to consult on department operations and practices."

In fact, the idea of an independent advisory board to help guide US national park policy first surfaced in a 1911 letter from Frederick Law Olmsted, Jr., to J. Horace McFarland. McFarland, the leader of the fight against the proposed Hetch Hetchy Dam in Yosemite National Park, was drafting a bill to establish a professional national park service. Olmsted, who had inherited his famous father's landscape architectural practice, is perhaps best known in park circles today for insisting in his letter to McFarland that the park service legislation include a "general definition of purpose" for national parks ("to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment..."). Olmsted also argued for establishing a "deliberative body ... of overseers or commissioners in a position to safeguard ... a harmonious continuity of policy." Early drafts of the National Park Service (NPS) Organic Act did include provision for this advisory body. That language, however, was ultimately removed from the final version of the legislation that passed Congress in 1916. It has been suggested by historians that Department of Interior (DOI) officials (perhaps then as now) were generally uncomfortable with the idea of any independent board.

The newly established National Park Service was barely up and running before various iterations of Olmsted's idea resurfaced. In 1918, at the request of NPS leadership, the secre-

The George Wright Forum, vol. 35, no. 1, pp. 5–11 (2018).

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tary of the Smithsonian Institution, Charles Walcott, organized a National Park Educational Committee that included university presidents and representatives from leading conservation organizations. In 1928, a “board of expert advisors,” along the lines of Olmsted’s original proposal, was formally established for Yosemite National Park, with Olmsted himself appointed as the board’s first chair.

What was good for Yosemite was ultimately judged to be good for the nation. Seven years later, Congress passed the Historic Sites Act of 1935, responding to the 1933 Reorganization and expansion of NPS responsibilities for preserving cultural heritage. Section 3 of the act authorized the creation of a National Park System Advisory Board that would draw on the expertise of leading preservation thinkers and practitioners to provide advice on national parks, particularly NPS historic assets. Over the years the board’s charge was broadened to provide counsel on park operations and management as well as recommending designation of new national historic landmarks (NHLs) and national natural landmarks. Today, the board’s 12 members, who volunteer their time and expertise, are appointed by the secretary of the interior for terms of up to four years (renewable for a second four-year term) and represent a cross-section of disciplines and knowledge relevant to the increasingly complex opportunities and challenges facing NPS. The advisory board’s current charter specifies that:

At least six of the members shall have outstanding expertise in ... history, archeology, anthropology, historical or landscape architecture, biology, ecology, marine sciences, or social science. At least four of the members shall have outstanding expertise and prior experience in the management of national or state parks or protected areas, or natural or cultural resources management. The remaining members shall have outstanding expertise ... in another professional or scientific discipline, such as financial management, recreation use management, land use planning, or business management important to the mission of the National Park Service.

Board chairs have included publisher Alfred Knopf, author Wallace Stegner, historian John Hope Franklin, and most recently, former Alaska governor Tony Knowles. Eminent scientists and scholars have served on the board, including A. Starker Leopold, Sylvia Earle, and Bernard DeVoto, as have conservation leaders such as Lady Bird Johnson, Edgar Wayburn, and Marian Heiskell.

Board encounters

During my own NPS career, I began paying closer attention to the work of the advisory board when John Hope Franklin became its chair near the close of the Clinton administration. It was during Franklin’s brief but important tenure (1999–2000) that the board wrote its landmark report *Rethinking the National Parks for the 21st Century*. The report, a touchstone for contemporary park thinking, advocated that national parks reach “broader segments of society in ways that make them more meaningful in the life of the nation” and help build “a citizenry that is committed to conserving its heritage and its home on earth.” Franklin’s board declared that parks “should be not just recreational destinations, but springboards for personal journeys of intellectual and cultural enrichment.”

I had the good fortune as an NPS superintendent to work with a few later advisory boards, thanks in part to requests from my colleague Loran Fraser, who was formally charged with staffing the board for almost two decades (and who often informally served as its muse.) During the Bush administration, a time of relative DOI/NPS leadership inertia, I joined NPS colleagues assisting board working groups to advance a number of policy initiatives dealing with education, civic engagement, and national heritage areas. It was a particular privilege to lend an occasional hand to Dan Ritchie, the resourceful and politically adept chancellor of the University of Denver, who was then chair of the board's education committee. Ritchie convened gatherings with some of the nation's foremost thinkers and practitioners in the fields of education and the humanities, transforming his committee into a hub of new ideas and activity. In 2006, Ritchie's committee organized at Independence National Historical Park a symposium with leading scholars to address the declining state of historical literacy and civic engagement. Called Scholar's Forum: The National Park Service and Civic Reflection, the symposium highlighted the critical role of national parks as venues that provide "multiple opportunities to 're-enact' experiences and stories uniquely associated with places that can reconnect people to the natural world, to their own heritage, and often to their most deeply held values and aspirations." Participants challenged NPS to reinvigorate, in Ritchie's own words, "active citizen participation in America's civic life." Later that year, Ritchie also hosted the National Park Service Interpretation and Education Evaluation Summit at the University of Denver— a pivotal event in building a "culture of evaluation" to guide and strengthen park interpretation and education. In his introductory remarks to the gathering, Ritchie explained why this work was so vital:

The survival of the national park system in the 21st century depends on how it interacts with society and how much society values it. The Interpretation and Education Program is the primary means by which the National Park Service engages diverse publics with their national parks, provides access to meanings, establishes relevance, and connects people and communities to national heritage.

In 2008, I joined with Jon Jarvis as NPS liaisons to the National Parks Second Century Commission. The commission was an independent body convened by the nonprofit National Parks Conservation Association to develop a 21st-century vision for the National Park Service. Expanding on the foundational work done by Franklin and his board, the Second Century Commission's report affirmed that "our vision of the National Park Service and of the national parks in American life is animated by the conviction that their work is of the highest public importance ... creating an enlightened society committed to a sustainable world."

When Jarvis became NPS director in 2009, he asked me to assemble a small team of park superintendents to formulate an early action agenda for a newly reconstituted advisory board. Building on the continuity already established between the board and the commission, Jarvis and Fraser envisioned a reinvigorated, forward-looking National Park Service Advisory Board to tackle some of the national park system's greatest opportunities and challenges as NPS approached its 2016 centennial celebration. With this in mind, eight former Second Century commissioners—Linda Bilmes, Milton Chen, Rita Colwell, Belinda Faustinos, Car-

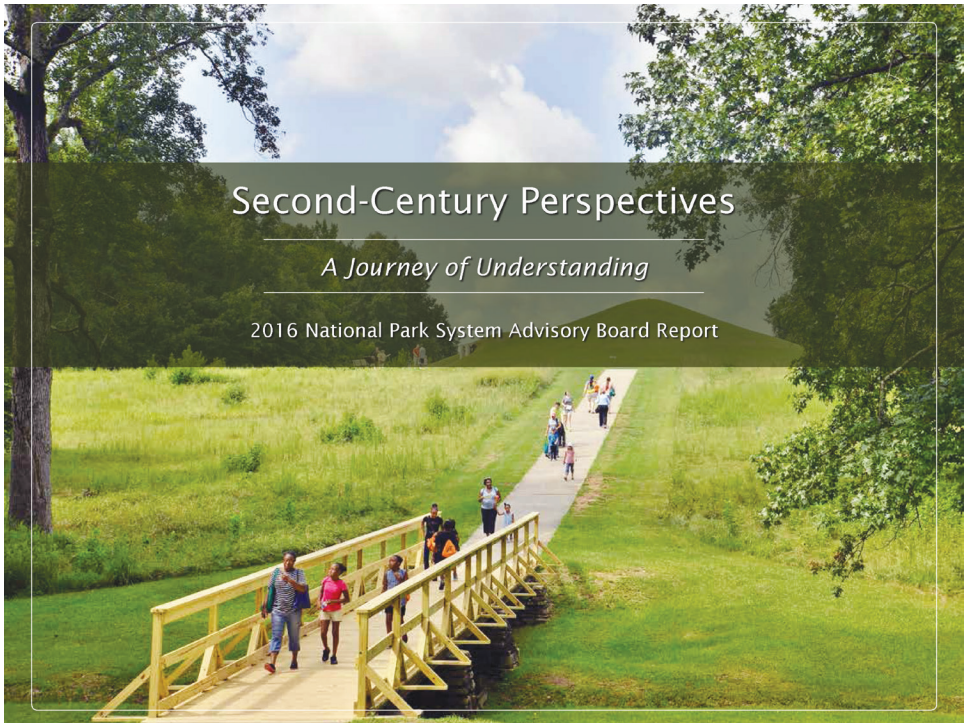
olyn Finney, Tony Knowles, Gretchen Long, and Margaret Wheatley—were appointed to the advisory board, with Knowles serving as the chair. The stage was thus set for the most productive period in the advisory board’s 75-year history.

A full plate

The board hit the ground running, with the core group listed above augmented by new board members Stephen Pitti, Judy Burke, Paul Bardacke, and Lenore Blitz. From 2009 to 2016—the year of the centennial—the advisory board focused on ways to strengthen the NPS role as resource educator and steward, expand relationships with diverse communities, and foster and sustain organizational change. NPS is very much an operational organization, often devoting a limited amount of time and resources to thinking about and planning for the future. The board was repeatedly called upon to help incubate new ideas and management approaches before NPS undertook a shift in policy or a significant operational investment—understanding that change has a greater chance of success when championed by respected professionals inside and outside of government.

Much was accomplished. The board’s education committee helped NPS broaden collaboration with a wide range of formal and informal educators to promote unexplored op-

Figure 1. Cover of the 2016 National Park System Advisory Board Report. The report is online at https://www.nps.gov/resources/upload/2016_NPSAB_Report_Final_9-6-16.pdf.



portunities for lifelong learning, professional development, research, and evaluation. I've previously written about *Revisiting Leopold: Resource Stewardship in the National Parks*, a report produced by the board's science committee. Taking climate change into account, *Revisiting Leopold* recommended that NPS manage natural and cultural resources "in a context of continuous change that we do not fully understand." The report strongly influenced the adoption of a new NPS policy directive, Director's Order 100 (DO-100), for basing resource management decisions on best available science, adherence to the law, and long-term public interest.

The board facilitated discussions about the agency's workforce culture and organizational renewal while encouraging newly formed NPS networks to share best practices and innovations. The board encouraged an independent economic valuation—for the first time taking into account factors such as carbon sequestration, watershed protection, education programming, and intellectual property—that estimated the value of the national park system to the American people at a staggering \$92 billion per year. The board also prepared designation of 59 new NHLs "that recognize the experiences of an increasingly diverse America" and encouraged NPS to prepare a new National Park System Plan, the first in 45 years. The plan, completed in 2017, identified significant gaps in the system and opportunities for new park partnership models, large landscape conservation, and expanded urban engagement.

One of the Knowles-led advisory board's greatest strengths was its ability to recruit outside experts—many of the best minds in their field—to work alongside NPS professionals. A multiplier effect was at work as well, as this talent pool extended far beyond the membership of the actual board itself. Board members used their extensive contacts and networks to enlist over 150 experts from schools and universities, professional organizations, conservation groups, and businesses to serve on board committees. Board working groups were staffed by a variety of NPS subject-matter specialists and practitioners with benefits flowing in both directions. NPS participation offered the board valuable perspectives and knowledge of programs from people with field experience. In return, the board ensured agency professionals had access to the best available scholarship and to new directions in their respective fields. NPS staff also engaged their board contacts in workshops, symposia, and professional development programs.

An empty plate

For almost a year following the 2016 election, the Knowles-led advisory board was, in effect, sidelined. During this period, repeated requests by the board to discuss the new administration's agenda for national parks were turned down. In August 2017, the Department of Interior rescinded DO-100. According to *E&E News*, NPS spokesperson Jeremy Barnum "provided a somewhat cryptic message when asked why the Director's Order was tossed.... Barnum stated that the order was rescinded 'to eliminate confusion among the public and NPS employees regarding current NPS policy in light of the Department of the Interior's new vision....' Mr. Barnum would not, however, explain what confusion had been created or what the 'new vision' was." By January 2018, *High Country News* reported, "with few options to make their voices heard, advisory board members decided to resign en masse." The deci-



Figure 2. Advisory Board meeting at Independence National Historical Park, November 2016. Left to right: Stephen Pitti, Judy Burke, Paul Bardacke, Milton Chen, Lenore Blitz, Loran Fraser, Margaret Wheatley, Carolyn Finney, Rita Colwell, Jonathan Jarvis, Belinda Faustinos, Tony Knowles, Gretchen Long. Missing from photo: Linda Bilmes. Photo courtesy of Margaret Wheatley.

sion of 10 of the 12 board members, including its chair, former governor Knowles, to resign, became national news. *Reuters* quoted a DOI spokesperson as saying that the department “welcomed” the mass resignation.

Looking beyond this derisive remark, there will come a day, not far off, when DOI/NPS leadership, putting aside partisan grievances, will retroactively recognize and thank the members of the departing Knowles advisory board for their extraordinary efforts and wide-ranging contributions to the national park system. Until then, members of this board depart with the gratitude of NPS employees, partners, and volunteers—and all who have benefited from the board’s endeavors—and with the deep appreciation and respect of many individuals who have worked alongside them.

The once and future board

Perhaps it is helpful to take a step back from this confrontation and consider how the advisory

board's role has changed over time. Over the past two decades the board has evolved to assist the agency in ways not necessarily envisioned when NPS or the board itself were created. Not all incarnations of the advisory board have been unqualified successes; some have been more effective than others. Recent boards have become increasingly impactful, strategically helping to advance major NPS goals. But we have also learned that a progressive evolution of board engagement and responsibility is neither inexorable nor irreversible. While the board itself is established by statute, it is only fully animated and empowered by the vigorous engagement of DOI/NPS leadership. Given current circumstances, the advisory board's immediate prospects are unfortunately not encouraging.

I believe, however, that the broad arc of history suggests that a fully engaged and respected board will be re-established at some point in the future. The board's charge will likely continue to grow as well, commensurate with the increasingly complex needs of our national park system. When that time comes, the advisory board will regain its voice as an effective and articulate advocate for the NPS mission and for the role of the national park system as an essential civic institution of American democracy.

A handwritten signature in black ink, appearing to read "Ray Dinnant". The signature is fluid and cursive, with a prominent initial "R" and a long, sweeping tail that extends to the right.

On the Path to Understanding:

125 Years of Social Science Research in America's National Parks

James H. Gramann, guest editor

Charting a Path: A Critical History of Social Science in America's National Parks

James H. Gramann

Introduction

THE YEAR 2018 REPRESENTS THE 125TH ANNIVERSARY of the first documented social science research in America's national parks. But few people know the origins of national park social science. Who conducted the first research? How did park social science evolve? Where should it be heading? The thematic articles in this issue address these questions.

As it matured in academic circles in the 19th century, American social science sought to harness the power of social statistics and historical research to discover underlying principles of progress. A major goal was to develop a general theory of what was widely perceived to be American exceptionalism. The country's leading academic social scientists hoped that their graduates would enter government service, contributing to an educated leadership and an expert civil service that could apply the laws of social progress to governance.¹ As it turned out, the graduates of university social science programs more often found employment in academic and social-service professions than in the federal bureaucracy. Perhaps as a result, the tools of social science—notably, social statistics and surveys—diffused into government, but with little of the academicians' theoretical underpinnings. Today, much of the social science conducted in national parks remains applied, although academic cooperators sometimes piggy-back theoretical concerns onto this work. But even the most pragmatic social science rests on theoretical foundations. For example, many studies of visitor enjoyment in national parks

The George Wright Forum, vol. 35, no. 1, pp. 12–21 (2018).

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are based on expectancy theories of recreation satisfaction that were developed over years of research by university and federal social scientists.

The beginnings

Not surprisingly, the first social science conducted in a national park reflected the federal government's emphasis on applied research. In 1893, Lieutenant Hiram M. Chittenden, an army engineer working on the road system in Yellowstone National Park (Figure 1), mailed a questionnaire to guests of the park's hotel at Mammoth Hot Springs. Chittenden's self-styled "statistical analysis" was motivated by a proposal from businessmen in Washington state to build an electric railway connecting Yellowstone's major attractions. Electricity for the train was to be generated by dams constructed at "suitable" locations on streams and waterfalls in the park. At the time, travel in Yellowstone was mostly by stagecoach, and dusty roads were a constant problem. During the summer of 1893, the concessioner at Mammoth—working with the Washington group—had collected signatures from hotel guests on a petition supporting the railroad. Because Chittenden believed that this did not represent the "actual opinion upon the subject," he drew one name from the hotel's guest register for each day of the season, attempting to represent geographical diversity, and mailed a questionnaire to each person in his sample. Of 120 questionnaires sent out, 100 were returned. The survey included three questions: "(1) What was the principal drawback to the enjoyment of your tour of the Park? (2) From the experience of your own tour would you advise your friends to visit the Park? (3) Assuming that there were a complete system of thoroughly macadamized or graveled roads in the Park, so constructed as largely to eliminate the mud and dust nuisance, and in which there should be no hills so steep that teams could not ascend them at a trot; and assuming also that there were a well-equipped electric railway covering substantially the same route, by which method would you prefer to



Figure 1. In 1893, during his first tour of duty in Yellowstone, US Army engineer Lieutenant Hiram M. Chittenden conducted the first documented social science in a national park. Photo courtesy Yellowstone National Park.

make a tour of the Park: by coach or by car?"² On this last question, Chittenden reported that respondents overwhelmingly favored stagecoaches, 147 to 29. (The 176 responses exceeded the sample size because other members of the respondents' travel groups volunteered answers, which Chittenden included in his tally.)

Bills authorizing the railway were introduced in Congress in 1894 and 1895, but died in committee.³ The House report included adverse comments from the secretary of the interior and from Captain George Anderson, Yellowstone's military superintendent.⁴ Given the command structure in Yellowstone during its military years, it's likely that Anderson knew of Chittenden's survey, and the results informed his response to Congress, along with his staunch opposition to other railroad proposals for the park.

As with Chittenden's study, much of the social science information collected by the National Park Service (NPS) after its creation in 1916 described park visitors. Initially, the major source of this information was a detailed form completed for each group entering through the parks' "check stations." These forms recorded such things as visitors' names, addresses, and modes of travel. For example, on July 26, 1920, Mr. R. Floodas of Pocatello, Idaho, arrived at Yellowstone's west entrance in an Oakland (a make of car). Two passengers and one Airedale accompanied him. He carried a firearm and paid an entrance fee of \$7.50.⁵ In fact, Yellowstone's 1921 travel report boasted that visitors to the park came from every state of the union and 13 foreign countries, "showing the tremendous National popularity of the Yellowstone."⁶

Such information had political value. It documented the growing attraction of national parks and underscored their patriotic role in encouraging citizens to "see America first." Visitation statistics also demonstrated to Congress that the parks were indeed national, justifying public investment in park roads, picnic areas, and auto-accessible campgrounds. In fact, by 1926 Yellowstone also recorded the occupation of visitors. According to Superintendent Horace Albright, the names and addresses of farmers (the most common occupation) were shared with the agriculture departments of Montana and Wyoming because both states hoped to recruit more farmers as residents. Today's privacy laws notwithstanding, this illustrates an early awareness of the value of park visitation data to neighbors and its role in building political support for the parks.⁷

In modern terminology, the use of check station data was a form of social monitoring, and it remains an important applied social science activity in national parks. Social monitoring is valuable for several reasons. In 1958, Assistant NPS Director Elvind Scoyen underscored the importance of visitation tracking for internal budgetary purposes and for regional promotion by common carriers, commercial enterprises, chambers of commerce, and civic groups.⁸ Social monitoring also informed park planning by documenting changing trends in visitation. For example, after World War II travel trailer use by the public increased rapidly, but many parks lacked good statistics documenting this trend. One exception was Yellowstone, which began monitoring trailer use in 1941. By 1946, the number of trailers towed by visitors had almost tripled, from 1,479 to 4,022.⁹ At Big Bend National Park, the superintendent asked the park's concessioner for more detailed counts of trailer numbers at that park's facility at Panther Junction, including lengths of stay and how many groups were turned away

because of “full house” conditions.¹⁰ Such information quantified an important trend and demonstrated the need to plan for an increasingly popular form of vacation travel.

Occasionally, visitor counts took unexpected turns. In 1924, the interior secretary’s office trumpeted the fact that all travel records for Yosemite National Park had been broken on the Fourth of July weekend, when 32,223 visitors arrived at the park in 960 private cars. But quick arithmetic in the superintendent’s office showed that each car must have carried 33.6 passengers! In fact, the original report was off by a factor of ten. A correction was sent to Washington, D.C., but only after the secretary’s press release had been issued.¹¹

As visitation increased, detailed record-keeping at park entrances proved impractical. By 1953, all parks had ceased collecting such data from arriving parties, including information on states and countries of origin. (This practice continued at campground registration stations, however.¹²) The earlier method was replaced by today’s traffic-counting system. Traffic counters record visitor numbers but not characteristics, although some parks conduct spot surveys to determine the number of persons per arriving vehicle. Despite this, counting mistakes occasionally occur. Anomalous numbers are flagged by computer routines in a central office and double-checked with field sources. Even so, accurate tabulations using traffic counters depend on several factors, including the person-per-vehicle ratio. At many parks, these ratios—which in less congested times were collected routinely—have not been updated in years.

Beyond visitor counts

The early social science in national parks was not limited to descriptions of the number and characteristics of visitors. In 1929, using contact information from check stations, Yellowstone mailed questionnaires to groups arriving by automobile and rail asking for evaluations of government and concessioner services.¹³ Other pioneering research delved into visitors’ motives. Yosemite offers a notable example. When NPS ranger Lemuel (Lon) Garrison transferred to Yosemite in 1935 from Sequoia National Park, he found it crowded with people and vehicles. Private cars were officially admitted to Yosemite in 1914, and by 1929 annual visitation approached half a million, with most of it concentrated in Yosemite Valley. Park planners dubbed the five auto campgrounds in the valley the “Yosemite slums.” In the 1930s, with camper counts reaching 20,000 on Fourth of July weekends, the campgrounds reportedly had a settlement density twice that of Pittsburgh, Pennsylvania. To park staff, the clear result was a negative visitor experience.¹⁴ But why would campers voluntarily subject themselves to such conditions?

Garrison held a psychology degree from Stanford University, and in 1937 and 1938 he surveyed more than 2,000 campers in Yosemite Valley hoping to discover information about their motives that might be used to encourage greater use of campgrounds outside of the valley. As he planned his research, Garrison consulted with his former professors at Stanford. This was an early example of university involvement in national park social science.

In contrast to the views of park planners, Garrison discovered that many visitors felt that the Yosemite Valley camps provided an enjoyable experience. Half of the campers said they preferred campgrounds that were “near the center of things” with many things to do. Al-

though the other half said they preferred a quiet and isolated campground, they still camped in Yosemite Valley. Garrison concluded that “those who prefer a quiet campground don’t know what they mean.” (Garrison also considered the possibility that visitors and park staff might have different perceptions of “quiet and isolated.”) Garrison went on to add, “It might be possible to increase the quality of use by a well thought out and aggressive educational campaign.” But to his disappointment, the camper survey was disregarded. Garrison later wrote that his report quickly disappeared “like a hard-boiled egg dropped into a bowl of soft mashed potatoes.”¹⁵

Valuing national parks

Economic research also played a key role in early park social science. When Yellowstone was established in 1872, supporters argued that it would pay for itself through income from concession leases, at least after costly roads and other infrastructure were completed. In effect, the economic value of the park to the nation could be measured by its operational surplus. Some national parks did report surpluses, including Yosemite in 1907 and Yellowstone in 1915 and 1916.¹⁶ But from the 1920s onward, federal appropriations outstripped park earnings, and deficits grew dramatically. By this accounting, the national parks had no economic value. Perhaps as a result, by the late 1940s the discussion of the parks’ economic importance shifted from their revenue generation to the income and employment realized in communities whose financial lifeblood flowed from a popular vacation destination on their doorsteps. A study conducted for Yellowstone after World War II illustrated this economic-impact approach to valuing parks. It employed a research strategy still in use today, calculating the contribution of park employment and visitor spending to the economy of the surrounding counties.¹⁷ Research such as this proved popular with park managers who used it to build support from local communities, state officials, members of Congress, and others concerned with the dollar value of travel to national parks.¹⁸

A common equation employed by NPS today is that for each dollar appropriated to the national park system by Congress, about ten dollars are returned to the economies of surrounding regions. However, this is not a complete accounting. As Adam Smith wrote in 1776, even as he defended public parks, they are causes of expense as well.¹⁹ Thus, a full accounting also would include the cost to local communities for the provision of infrastructure and services that park visitors require. At the same time, contributions from visitor and employee spending omit additional benefits of national parks that can be quantified economically. These include the income to local contractors and suppliers who service parks as well as bequest values and ecosystem-service values.

Workforce surveys

In 1918, concern grew in the Department of the Interior that thousands of federal workers in Washington, D.C., had interrupted their education when they accepted employment in the National Park Service and other Interior bureaus. In cooperation with local universities, the department considered offering tuition-free or low-cost evening classes, believing that many workers would welcome the chance to use some of their free time “in increasing their use-

fulness and efficiency in the Government service, and thus fitting themselves for promotion, and in furthering their own intellectual development.”²⁰ A committee led by the department’s Bureau of Education distributed a 17-item questionnaire to employees in the Washington area to determine their educational levels and the courses and schedules of greatest interest. Although the response was largely positive, it’s unclear that the courses ever were offered.

Other workforce surveys distributed by the Washington office gathered information on park operations. Sometimes this was done as input into planning uniform data-collection systems, such as that for visitor counting.²¹ A related use employed park staff as data collectors, for example by supplying them with forms for recording systematic observations of campground characteristics and use patterns without interviewing visitors themselves. As one administrator wrote in 1962, this allowed NPS “to pluck a maximum of feathers with a minimum of squawking.”²²

Workforce surveys continue to be an important adjunct to NPS’s social science activities. Those completed by federal employees as part of their work responsibilities not only supply useful information on such topics as commuting patterns and job satisfaction but, unlike “information collections” from the public, do not require prior approval by the Office of Management and Budget.

Resident peoples

With some exceptions, NPS-sponsored research engaging populations living in or adjacent to national parks has been less common than other social science research. This is true despite the fact that many impacts on park resources originate beyond their boundaries. However, one early example of research involving resident peoples occurred at Shenandoah National Park. Authorized by Congress in 1926 and dedicated ten years later, Shenandoah was carved out of a settled landscape in the Blue Ridge Mountains of Virginia. At the time, the only guide for national park creation was the “Yellowstone model.” This required that national parklands be free of most residents. Thus, a priority of the Department of the Interior in the early 1930s was to relocate people living inside the new park’s authorized boundaries. Prejudices of the day supported this action. National Park Service Director Horace Albright reflected prevailing attitudes when he wrote, “I maintain that the mountain people of low intelligence will have to be removed before we will open the road for general use. First, because many of these people are dangerous if they take a dislike to officers of the park or tourists and may do them bodily harm or kill them. Second, because they are inclined to be beggars and will be a nuisance even if they are not dangerous. Finally, Albright said, “their living conditions are so terrible” that they would bring NPS “unfavorable criticism” if too many visitors saw them.²³

Several studies of Shenandoah residents were conducted in the 1930s. One, by teacher Miriam Sizer, has since been largely discredited because of her obvious personal biases, but it included a recommendation that was to have far-reaching effects. In 1928, Sizer taught for two months at a one-room school located in the Skyland area of the future park. Because of her experience, she was hired by the commonwealth of Virginia to study the people of that region. A former instructor of adult “Americanization” classes in Norfolk, Sizer disparaged the mountain school for lacking an American flag, criticized her students and their parents for

not knowing the song *America*, and described the mountain people as “steeped in ignorance, wrapped in self-satisfaction and complacency, possessed of little or no ambition.”²⁴ But Sizer recommended repeatedly that residents be assisted in resettling to favorable locations outside the park.²⁵ Another study, an “Evacuation and Subsistence Homesteads Survey,” was supervised by realtor L. Ferdinand Zelker in 1932. According to historian Darwin Lambert, it provided the first fairly accurate picture of Shenandoah residents, including the findings that, although poor, the majority were of bright or average “mentality,” and that more than half had no equity in the land on which they lived, being tenants or squatters. These results were used by a committee headed by Virginia Tech rural sociologist B.L. Hummel to plan homestead communities for displaced residents outside the park. This was another early example of university involvement in national park research. Although the resettlement plan encountered legal and financial obstacles, park records indicate that, by 1938, 175 mountain families had been relocated to homestead communities. Others were evicted and their homes burned, while many left on their own. Life estates were granted to 42 elderly residents.²⁶

As construction of resettlement communities began, home economist Mozelle Cowden was hired as a “family adjustment specialist” to study the people of the region and to identify park families who would be good candidates for homesteading. According to Lambert, her job was to know the mountain people more thoroughly than they knew themselves. Cowden worked in this position until 1943, sometimes intervening on behalf of residents with park authorities.²⁷ In fact, the efforts of Hummel and Cowden can be seen as a predecessor of today’s applied anthropology in NPS, which examines connections between groups traditionally associated with parklands and the landscapes they consider essential to their cultural identity.

Contemporary trends and needs

The methods employed in the national parks’ early social science have been greatly refined since Chittenden’s pioneering survey. However, some aspects endure. Surveys remain a key social science tool, and early topics, such as transportation, crowding, visitor motives, valuation, and workforce issues continue to be relevant. Research on resident peoples is especially important in Alaska, where subsistence use of national parklands is vital to cultural identity, but it’s increasing in other regions as well. Monitoring visitor numbers and characteristics remains strategically and politically useful, and universities and other partners continue to contribute to park social science through cooperative research agreements.

But other things have changed in the 125 years since Chittenden’s original inquiry. These changes are producing new social science needs in the national parks. One need is for social science informed by historical and contextual depth. A second is for more social science that examines issues transcending park boundaries.

A feature of much contemporary park social science is its cross-sectional design. Visitor surveys represent a snapshot at one brief point in time, often one or two weeks during a park’s peak season. Typically, this cross-sectional approach seeks explanations for what visitors think and do in present conditions. Common “proximate” explanatory variables include

age, race, income, and attitudes. But this is like trying to understand a tree from its foliage, while ignoring the roots and the soil in which it grows.

“Distal” causes are more distant in time and broader in social context. They represent the cumulative impact of historical forces and social conditions on the present. Understanding distal causes can improve understanding of a current problem, just as understanding a tree’s growth is improved by knowledge of its soil and roots. Historical depth and social context might also suggest additional actions to address a problem.

Consider the relatively low visitation by peoples of color to national parks. Commonly cited proximate causes are inequities in income and knowledge about parks. But this disregards the roots of the pattern by ignoring who participated in the conversation about national parks when the idea first appeared in the 19th century, and—more to the point—who was excluded from that conversation. A reasonable hypothesis is that the historical legacy of racial exclusion is reflected in today’s disproportionately white visitation to national parks.

Fee-free days and information campaigns respond to proximate causes. They are important in many ways but don’t represent a comprehensive approach to the problem. Distal causes also must be addressed. One approach to overcoming the weight of historical exclusion is to engage peoples of color by supporting their own grassroots efforts to create a culture of inclusion. Cultural peers are more likely to understand the full effects of exclusion and how to overcome it. These peers include the many dedicated participants in organizations such as the Outdoor Afro movement.

Regarding transboundary issues, more questions than answers exist; thus, the need for additional social science is clear. The problem is how to protect national parks when their borders are porous, and every day the world outside parks become less and less like the desired conditions within. A related issue is the increase in partnership parks that require collaboration on a landscape scale across many geographical and institutional divides.

Population growth not only disrupts natural systems, it fragments social systems as well. As human populations increase, they become more complex, more diverse, and segregated into specialized roles and functions. One effect is multiple jurisdictions and interests with differing and sometimes incompatible goals for a landscape. This leads to a loss of common ground as a basis for transboundary collaboration.

An important barrier that hinders transboundary collaboration is differences between stakeholders in core values. Another is distrust. Value differences include: (1) conflicts over symbolic values shaping community identity, for example, the Old West vs. the New West; (2) differences in economic values shaping land-use decisions, such as more development vs. limited development; and (3) disagreements over the importance of ecosystem values driving park management, such as the priority given to protecting wilderness character or wildlife habitat.²⁸

Distrust is multidimensional. One form is a general predisposition to not trust specific entities, such as the federal government, independent of context. Another is distrust of specific processes, such as public involvement, social surveying, or science, independent of sponsors. A third is distrust based on personal incompatibilities between potential partici-

pants in a collaborative process.²⁹ Many other collaboration barriers exist, but more social science research on how to overcome value differences and distrust is particularly important if national parks are to build partnerships across fragmented social systems.

In sum, when the future of park social science is examined against an ever-encroaching and more diverse world, we see new needs added to the science already in place. We require social science informed by history. We need more anthropological studies of collaboration processes and what can be learned from successes and failures. We need long-term monitoring of social change in and around parks, including changes in who park visitors are and in levels of trust and distrust among park neighbors and stakeholders. And, because NPS can't do this alone, we need more healthy partnerships to extend the capacity of park social science.

Thematic articles

The thematic articles in this issue expand on several points raised above. Pettebone and Meldrum outline a proposed socioeconomic monitoring program to systematically track descriptive data on park visitors at a national scale. The Interagency Visitor Use Management Framework described by Cahill et al. responds to the priority needs of managers by providing timely and relevant information on issues created by park visitation. The article by Richardson et al. more fully describes current economic valuation studies conducted by NPS. Talken-Spaulling and Watkins discuss applied anthropological research engaging peoples with long connections to ethnographic landscapes that predate the creation of parks. The article by Sharp et al. describes an innovative social science "Park Break" program that continues the productive partnership between parks and universities. Finally, Scott and Lee provide an in-depth discussion of park visitation barriers among peoples of color. Thank you to all of these authors for their insightful contributions to this special issue.

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The Need for a Comprehensive Socioeconomic Research Program for the National Park Service

David Pettebone and Bret Meldrum

Introduction

This article describes various types of information that have been collected, and are currently being collected, that are relevant to a comprehensive socioeconomic monitoring program for the National Park Service (NPS), as well as current projects that address gaps in socioeconomic data. This summary illustrates the need for a comprehensive and systematic program to collect socioeconomic data for the US national park system.

In 2016, NPS recorded over 330 million recreation visits to its lands and waters, the highest recorded level of use in its history. This unprecedented visitation demonstrates the public's interest in national parks and coincided with NPS's centennial-year effort to increase public awareness of parks and public lands, particularly among youth and historically under-represented groups. Despite its apparent success in increasing overall use of park lands, it's difficult to measure the broader benefits and implications of these efforts because NPS does not currently collect comprehensive socioeconomic data, such as those on demographics, visitation characteristics, or spending. Thus, the agency is not able to document how the recent increase in visitor use actually addresses the broader concern to reach new and more diverse audiences. Similarly, inconsistent socioeconomic data limits our understanding of the economic benefits of park visitation and tourism to local communities and the nation (see Richardson et al., this volume).

The mission of NPS as stated in the Organic Act of 1916 is “to conserve the scenery and the natural and historic objects and the wild life [in the national parks] and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” Preserving large natural areas as parks for public enjoyment was a novel idea in the early 20th century, and logically the emphasis was on protecting

The George Wright Forum, vol. 35, no. 1, pp. 22–31 (2018).

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park environments in their natural state. However, the need for public support to advocate for a system of parks was not lost on Stephen Mather, the first NPS director. One of Mather's early initiatives expanded the road system within national parks to provide public access to the natural wonders within them and to build a constituency for a national system of parks (Sellers 1997). The success of this strategy persists to this day.

Visitation to national parks in 2016 represented a 19% increase from visitation five years earlier and a 156% increase from that of 50 years ago (National Park Service 2017). Despite the current surging interest in parks, the best available data suggest that the demographic makeup of park visitors has not changed appreciably in the last 50 years and does not represent the diversity of the American public (Weber and Sultana 2013; Krymkowski, Manning, and Valliere 2014). Specifically, NPS visitors tend to be disproportionately white and to have higher levels of education than the American public as a whole (Solop and Hagan 2002; Taylor, Grandjean, and Anatchkova 2011; Weber and Sulatana 2013a, 2013b).

The best available data for estimating the sociodemographic makeup of NPS visitation comes from two sources: (1) collections of studies from individual park units that were designed specifically to inform unit-level research and management questions; and (2) the Comprehensive Survey of the American Public (CSAP), conducted in 2000 and 2008. The first source, individual park studies, does not produce an accurate picture of NPS visitation nationally. Aggregating datasets from individual parks fails to describe NPS visitation as a whole because no study design was developed to ensure a representative sample of parks. Rather, there is over-representation of large, nature-based protected areas. In contrast, the CSAP studies did capture a representative sample of NPS visitors and non-visitors, but only provided broad generalizations about visitors and lacked detail about those going to particular parks or types of parks (e.g., Revolutionary War parks, Civil Rights parks, national monuments, etc.).

These points are not being made to dispute the data or the anecdotal evidence that national park visitation consists of a whiter and more educated population than the American public as a whole. Rather, it's because of these shortcomings in existing data that NPS requires a systematic and comprehensive program to monitor the socioeconomic makeup and effects of NPS visitation. In order to broaden support across the American public, NPS needs to elucidate and communicate the myriad of benefits it provides to all Americans. At the core of this need is to systematically understand NPS visitors, why they visit, and how visitation is changing in order to gauge if the goal of relevancy is being realized.

NPS socioeconomic research

Research that examines socioeconomic aspects of park recreation began in earnest in the mid-1960s with the publication of reports by the Outdoor Recreation Resources Review Commission (ORRRC) (Siehl 2008). A main purpose of the ORRRC was to estimate "population, leisure, transportation, and other factors" related to outdoor recreation. Since that time visitor surveys about outdoor recreation that include participant demographics and characteristics have become increasingly more prevalent and sophisticated and are conducted in parks by a wide range of disciplines across the social sciences.

A great deal of knowledge about outdoor recreation has been gained through studies in the last 50 years. However, the majority of social science studies for NPS are at the park-unit scale. A few national studies related to recreation and parks exist, including the National Survey on Recreation and the Environment (USDA–FS 2002); nationwide studies commissioned by the National Recreation and Park Association about the benefits of, and public support for, local parks (Godbey, Graefe, and James 1992; Mowen et al. 2016); a recent total economic valuation of NPS lands (Haeefele, Loomis, and Bilmes 2016); and the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (USFWS 2017). However, none of these were designed to capture data describing the population of NPS visitors and non-visitors.

Public use statistics data. Recreation visitation data have been collected at some national parks since before the creation of NPS in 1916 (see Gramann, this volume). For example, annual use data is available for Yellowstone starting in 1904 and for Yosemite and Grand Canyon starting in 1906. Visitor statistics became more detailed in 1979 when monthly use data began to be reported. These counts included estimates of recreation visitors, non-recreation visitors, concession lodging visitors, tent campers, RV (recreational vehicle) campers, concession camping, backcountry campers, and miscellaneous campers.

Today the System for Visitor Use Statistics (VUS) continues to compile visitation data for 385 NPS units on a monthly and annual basis. These numbers are a key input for economic analyses of visitor spending, economic contributions to communities and the nation, and job creation (Cullinane-Thomas and Koontz 2016). VUS data also are fundamental to park management and for a basic understanding of how people use parks; however, they provide little to no insight about who visits, what activities they participate in, or where they go. Questions of this nature require further inquiry through visitor use and survey research.

CSAP. The CSAP studies are the most comprehensive efforts to understand visitors and non-visitors to the national park system. Surveys of the American public were completed in 2000 and in 2008 and generally found broad support for NPS. This method of study continues to prove useful as a means to collect information regarding national park units from past and contemporary non-visitors.

Demographic findings from the 2008 CSAP showed that NPS visitors (defined as respondents who visited an NPS unit within the last two years) are more homogeneous than the US population as a whole. Table 1 shows the educational achievement of visitors, non-visitors, and all respondents, along with estimates of the US population in 2008 (US Census Bureau 2016). Over 53% of NPS visitors earned at least a university degree, compared with 34% of non-visitors. It's also noteworthy that over 43% of all survey respondents had attained a university degree, which is more than the US population as a whole (just over 29%). This may reflect particular interest of this demographic in national parks and/or public land management.

The 2008 CSAP report also showed that the vast majority (78%) of NPS visitors were white/non-Hispanic, compared with 66% of the US population as a whole (Table 2). In contrast, Hispanics (9%) and African Americans (7%) were underrepresented in NPS visitation. It's worth noting that the 2000 CSAP found that 4% of NPS visitation was composed of Af-

Table 1. Educational attainment from 2008 CSAP compared with 2008 US population.

Educational Attainment	NPS Visitor	NPS Non-Visitor	Study Proportion	US Population (2008)
Less than high school	2%	9%	6%	13%
High school graduate or GED	13%	25%	20%	31%
Some college	32%	31%	32%	26%
University degree	31%	23%	27%	19%
Graduate degree	22%	11%	16%	10%

Table 2. Race/ethnicity from 2008 CSAP compared with 2008 US population.

Race/Ethnicity	NPS Visitors	NPS Non-Visitors	Study Proportion	US Population
White, Non-Hispanic	78%	63%	70%	66%
Hispanic, any race	9%	17%	13%	15%
African American	7%	16%	12%	13%
Asian	3%	3%	3%	4%
American Indian/Alaskan Native	1%	1%	2%	1%

frican Americans, suggesting a slight increase in African American visitation between the two surveys. However, the increase was small enough to be caused by chance, and further study is needed to determine if the change was substantive (Taylor, Grandjean, and Anatchkova 2011).

Visitor Studies Project (VSP) and Money Generation Model (MGM). The closest any effort has come to systematically collecting socioeconomic data about NPS visitors was the University of Idaho’s Visitor Services Project (VSP), which operated from 1982–2014. The VSP provided park managers relevant information about visitors to support operational and managerial decisions (Machlis et al., 1984). In particular, the VSP sought to answer questions about: (1) the kinds of services, activities, and opportunities used by the public; (2) who visitors are, where they go, and what they do; and (3) the relationship between interpretive services and visitors. However, VSP surveys were designed to generalize to the park-unit level and were not intended to describe the national park system as a whole.

The Money Generation Model (MGM) was designed to estimate visitor spending at NPS units. Annual MGM studies began in 2003 to inform park units about these visitor spending effects. Two hundred seventy-five VSP and 65 MGM surveys were completed over the 30-year course of the VSP. Although the program surveyed a wide range of park units, a review of VSP reports shows that surveys over-represented studies units designated “National Park” (hereafter capitalized when used this way) compared with other NPS units. Eighty-six of 275 VSP surveys (31%) were conducted in National Parks; however, National Parks make up only 14% of all units in the national park system and accounted for only 25% of all visitors to the system in 2016. Park units were prioritized for VSP surveys based on planning forecasts for general management plans and other environmental compliance efforts. Parks also had the option to request a survey, and as a result VSP surveys tended to be done in larger parks that could afford the cost of the research.

The scope of questions and subjects in VSP projects expanded and evolved over time and included inquiries about visitor spending, activities, and demographics, and perspectives related to issues such as climate change. Three questions appeared consistently across all VSP studies: (1) group size, (2) group type, and (3) state of residence. Other questions appeared in the majority of studies, including age, country of residence, and park information sources used. However, many of these questions were asked in different formats over the years and confound temporal or aggregated analysis.

Questions about race, ethnicity, and languages spoken were not asked on VSP surveys until the late 1990s and were not included on all surveys. Our review of VSP studies from 2009–2013 reveals that 53 of 74 studies (72%) included questions about race/ethnicity. An aggregation of these shows that 5% of respondents were of Hispanic descent, 92% were white and non-Hispanic, 1% were American Indian/Alaska Native, 4% were Asian, 0.1% were Native Hawaiian/Pacific Islander, and 1% were African American. Although these data are not statistically representative of all NPS visitors, the findings corroborate the results from both CSAP studies: regarding race/ethnicity, NPS visitors represent a more homogenous population than that which characterizes the US as a whole.

Questions about visitor expenditures began to appear in VSP surveys in 1988. Once again, there was no consistent inclusion of these among VSP studies. The first of the MGM studies that looked specifically at visitor spending related to NPS units was published in 2003. After that, questions about spending became more common, and our review of VSP studies from 2009–2013 found that about 55% of surveys included questions about trip expenditures. (Some parks declined to include spending questions due to lack of space or because they felt that such information was not relevant to a park’s mission.) Visitor spending estimates are now conducted through the Visitor Spending Effects (VSE) program. The VSE provides both park-specific and national spending estimates (Cullinane-Thomas and Koontz 2017). This program is run cooperatively between NPS and the US Geological Survey (USGS).

Other socioeconomic research. Finally, numerous park-specific studies covering a wide range of topics have been completed by various researchers. These are too numerous and diverse to quantify, and there is no protocol for archiving these types of reports. Typically,

these studies are initiated at the park level and procured through cooperative agreements or by contract services. The NPS Inventory and Monitoring Program maintains a repository of documents in a platform titled “Data Store,” and among them are social science and socioeconomic reports. Although Data Store does not maintain a comprehensive collection of these studies, it provides some insights about where studies have been administered. A search of all park units using relevant keywords yields 2,311 relevant documents and journal papers (excluding planning documents). Of these, 1,294 are specific to individual national park units, with (for example) 152 documents specific to Acadia, 115 to Yosemite, and 97 Denali. Again, this suggests that NPS socioeconomic research tends to occur disproportionately in large, nature-based, iconic park units.

Social science needs assessment

To address the gap in systemwide socioeconomic data for NPS, a national social science needs assessment was conducted from 2008–2009 (Gramann et al. 2010). This effort was informed by more than 400 people from parks, regions, programs, and the Washington Office who participated in focus groups, surveys, and workshops. Objectives identified by the workgroup for an NPS socioeconomic monitoring (SEM) program included more comprehensive data about visitor use levels and characteristics, visitor experiences, services in parks and gateway communities, and demographics.

Current efforts

Based on the recommendations from the SEM needs assessment workgroup, the NPS Social Science Program (SSP) conducted a pilot SEM study and a third iteration of the CSAP, which is now titled the Comprehensive National Household Survey (CNHS). These two forms of public inquiry provide NPS with information about park visitors and the non-visiting public. Both of these research efforts are being conducted by a vendor through a contract.

A workshop was convened in November 2014 bringing together NPS staff, USGS collaborators, and research consultants to discuss strategies and sampling approaches to implement a SEM study for NPS. Fifteen parks were purposively selected to represent various types of units, levels of use, different types of settings (e.g., urban, rural, seashore, parkway), and difficulty of survey administration (i.e., parks with highly controlled entrances vs. porous and dispersed access). Results will help answer fundamental questions about a comprehensive SEM program, such as the necessity to collect data at all units or if estimates from a collection of indicator parks are sufficient. In addition to the pilot study, a national sampling approach has been recommended that will allow for bureau-wide aggregation of results on NPS visitors. This approach balances the needs for various scales of data across park, regional, and national contexts.

The SSP is also administering the CNHS, which as noted above is a third iteration of the CSAP. The CNHS was developed for the centennial of NPS in 2016. Key questions from the previous surveys have been retained, but additional questions cover topics such as youth engagement, relevancy, and NPS programs. The additional objectives of the CNHS beyond traditional socioeconomic inquiry are to understand the breadth and reach of NPS influence

and to determine how NPS messaging is being communicated and received beyond in-park visitors. The new format of the national survey will allow NPS to determine trends for key variables, such as the demographic makeup of visitors and non-visitors, and will establish baseline data to determine trends related to relevancy and youth engagement. Ideally, a nationwide survey such as the CNHS would be administered every five years to allow for a systematic monitoring of key trends.

Discussion

As NPS enters its second century, it's clear that the protection of federal land encompasses more than just natural resources management. Knowledge about socioeconomic factors is integral to understanding and addressing the agency's broader concerns to reach new and more diverse audiences and to understand and communicate the range of benefits provided by NPS lands and programs to local communities and the nation as a whole.

The US population is becoming more diverse racially, ethnically, and in age structure. By 2044, the US Census Bureau estimates that half of the population will be composed of minority groups (Colby 2015). The National Park Service needs to reach these new audiences to maintain relevancy with future US populations (Sultana and Weber 2013a) and to provide the benefits that NPS offers to people who have not realized these opportunities.

A current goal of NPS is to represent the nation's identity and the history of the country as a whole. A systematic, long-term SEM program will provide data to understand how various groups use, or do not use, NPS lands and services. For example, Weber and Sultana (2013a) have found that minority populations visit in higher proportions to smaller NPS units. This study developed an accessibility model of population centers to national park units, and results showed that African American accessibility was highly correlated to the year of establishment of NPS units, indicating that the national park system has expanded closer to African American communities. Comprehensive, systematic, and representative socioeconomic data would allow for greater insights into this type of social dynamic and provide guidance about how to serve various groups better.

The US population in 2016 was 323 million and the US Census Bureau estimates that the population will grow to 400 million people by 2051 (Colby and Ortman 2015). Such increases will likely lead to increased demands for parks and protected areas. The recent national report by Mowen et al. (2016) found that the American public views public parks as critical infrastructure and not as luxuries. These perspectives were found to be consistent across all demographics throughout the US. Information from consistent socioeconomic inquiries such as these can provide NPS managers with insights to determine how to best allocate scarce resources to address increased demands for parks and services.

The economic benefits of recreation and protected lands to local communities and the nation are also being recognized. The US outdoor industry is emerging as one of the country's most significant economic drivers, with an estimated \$667 billion spent each year (Allen, Kary, and Southwick 2013). In fact, NPS units are economic drivers in many local communities. Direct spending effects of NPS visitation to local gateway communities are estimated at \$18.4 billion and contributions to the national economy include \$19.9 billion

in value added, 318,000 jobs, \$12 billion in labor income, and \$34.9 billion in economic output (Cullinane-Thomas and Koontz 2017).

Parks and protected areas also provide other economic benefits. For example, in one study property values near wilderness areas were estimated to have experienced a 13% increase (Phillips 1999), and it has been found that in areas where national park units have been established, local property values have increased (Crompton 2001). More recently, companies such as Google and Nature Valley are harnessing information-sharing about parks and outdoor recreation. Information and pictures uploaded by users of outdoor places and activities are being used by these companies as online content. This virtual material has created a new type of marketable resource originating from park lands (Stinson 2017).

Conclusion

After 100 years of land management, NPS increasingly needs to know more about visitors and the broader societal benefits of its lands and programs. Moreover, as NPS evolves to become more representative of the history and demographic makeup of the US, the service needs systemwide socioeconomic data to assess progress towards its goal of relevancy and inclusion. However, the National Park Service still lacks fundamental socioeconomic information about the national park system as a whole. The majority of socioeconomic research is based on data from large, nature-based national parks, and it's likely that there is important data to be had about various user groups and benefits attained from visitation at other types of park units. The results from the SEM pilot study and the CNHS will provide important socioeconomic data for park leadership and the American public. These data will be most useful if they become part of a long-term SEM program and not just stand-alone inquiries. Long-term, comprehensive understanding of who visits all types of parks within the nation's park system, together with the associated benefits of this visitation, would support a broader dialogue about how NPS can best serve the American public.

The views and conclusions in this report are those of the authors and do not necessarily reflect policies of the National Park Service. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the National Park Service.

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Overview of the Interagency Visitor Use Management Framework and the Uses of Social Science in its Implementation in the National Park Service

Kerri Cahill, Rachel Collins, Susan McPartland, Aleksandra Pitt, and Rose Verbos

Overview

THIS PAPER PROVIDES AN OVERVIEW OF VISITOR USE MANAGEMENT (VUM) within the National Park Service (NPS) and describes the use of the interagency VUM framework and the associated role and applicability of social science. Social science is a particularly important contribution to informed and legally defensible decision making for managing visitor use. Proactively managing visitor use supports the ability of NPS to encourage access, improve visitor experiences, and protect resources. To guide its work in VUM, NPS is currently utilizing the first iteration of the framework, known as the *Visitor Use Management Framework, Edition One* (IVUMC 2016), which was developed by the Interagency Visitor Use Management Council. The framework is a flexible process for managing use that builds on lessons learned from previous approaches, and is shared by the six agencies that are members of the council (Bureau of Land Management, US Forest Service, National Oceanic and Atmospheric Administration, National Park Service, US Army Corps of Engineers, and US Fish and Wildlife Service). Successful implementation of the framework depends on public input, relevant data, and professional judgment.

The value of VUM

Recreation is fundamental to American culture. It connects people with nature and history, builds healthier minds and bodies, enhances bonds between family and friends, contributes to the quality of life and resiliency of local communities, and inspires and rejuvenates our

The George Wright Forum, vol. 35, no. 1, pp. 32–41 (2018).

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spirits (Driver 1976; Driver et al. 1999; Daniel 2010). Additionally, recreating in public spaces helps visitors to develop an understanding and sense of belonging to a real place and, thus, to act as citizen stewards of our collective natural and cultural heritage (Vagias and Powell 2010; Larson et al. 2011; Marchand 2015). As described by Richardson et al. in this volume, recreation and tourism also contribute greatly to local and regional economies.

Every year, people seek out public lands and waters to pursue a variety of recreational experiences. Planning for and managing this use is at the heart of the NPS mission to preserve in an unimpaired condition natural and cultural resources and values for the enjoyment, education, and inspiration of this and future generations. To ensure that people continue to benefit from expanding recreational uses, visitors, managers, and citizens need effective ways to sustainably manage those uses so these special places and the benefits they generate persist into the future. The VUM framework meets this pressing need and helps NPS maximize benefits for visitors while supporting the parks' purpose, significance, and fundamental resources and values. It allows managers to proactively protect resources, encourage safe and appropriate access, and improve experiences. It also supports sustainable operations and facilities. In contrast, unmanaged visitor use can inadvertently damage the very resources and values that attract people to these areas.

The Interagency Visitor Use Management Council defines VUM as the proactive and adaptive process for managing the characteristics of visitor use and the natural and managerial setting using a variety of strategies and tools to achieve and maintain desired resource conditions and visitor experiences (IVUMC 2016). Visitor use management is about more than just minimizing or mitigating the impacts that result from public use; rather, VUM includes the consideration and deliberate provision of a range of opportunities and settings in order to facilitate appropriate and high-quality visitor experiences. Opportunities include the recreational activities and educational programs that are available to visitors. Settings include the types, amounts, and conditions of natural and cultural resources, interactions among user groups, facilities that support visitor services, and the agency presence and regulations in an area. As a flexible and scalable process, VUM includes:

- Identifying desired conditions for resources, visitor experiences and opportunities, and facilities and services;
- Gaining an understanding of how visitor use influences achievement of desired conditions; and
- Committing to active/adaptive management and monitoring of visitor use to meet overall goals.

The increasing urgency for VUM

Recreation—the “who,” “when,” “how,” and, most notably, the “how much”—is changing rapidly in the United States. Visitors to parks have a wide array of interests and needs, expanding interests in new types of recreation activities, evolving expectations about the type and variety of visitor services provided in parks, and higher demand for quality services coupled with an increasing reliance on information technology.

Many public lands have seen a significant increase in visitation over the last several years. During the NPS centennial in 2016, over 330 million people visited national parks, which was a 7% increase from 2015. Some individual parks have seen increases as high as 60% over the last several years (Ziesler 2017). Parks across the national park system have identified VUM as one of their highest-priority planning needs. These needs are particularly acute for those parks with visitation changes that have been relatively sudden and dramatic.

Increasing visitation is a trend driven by many factors, including state and national marketing campaigns, low gas prices, rising international visitation to the United States, favorable weather patterns, and new ways to recreate. In some locations, the dramatic increases in visitation levels far exceed the conditions of use for which these areas were designed and traditionally managed. Park facilities and staffing levels have been challenged to keep pace with these changes, resulting in issues related to visitor and staff health and safety, resource protection, and the quality of the visitor experience. NPS leadership teams are working to address the needs associated with this increase in visitation. These changes also extend beyond park boundaries into adjacent communities. Given the dynamic nature of visitor use, it's more important than ever to look holistically at how best to provide desired visitor experiences and opportunities and protect resources, including partnering with nearby public lands.

The Interagency Visitor Use Management Framework

The National Park Service applies guidance developed and distributed by the Interagency Visitor Use Management Council. Formed in 2011, the council is designed to increase awareness of, and commitment to, proactive, professional, and science-based VUM on federally managed lands and waters. Providing a consistent approach to VUM better serves the public by creating seamless connections between lands and waters managed by different federal agencies.

The *Visitor Use Management Framework, Edition One* offers a broadly applicable process and toolkit for making decisions at a variety of scales. Its purpose is to provide cohesive guidance for managing public use on federal lands and waters using a process that can be incorporated into existing agency planning and decision making. The VUM framework can be applied across a wide spectrum of situations that vary in extent and complexity, ranging from site-specific decisions to large-scale, comprehensive management plans. It also may be used across several tiered planning efforts.

By using this framework, managers collaboratively develop long-term strategies for providing access, connecting the public to key visitor experiences, protecting resources, and managing use. The framework is also intended to provide a legally defensible, transparent decision-making process that meets law and policy requirements, ensures agency accountability, and provides sound rationales upon which to base management decisions and actions (IVUMC 2016). It includes four major elements (see Figure 1) for analyzing and managing visitor use. These are:

1. *Build the foundation:* Understand why the project is needed, and develop the project approach;

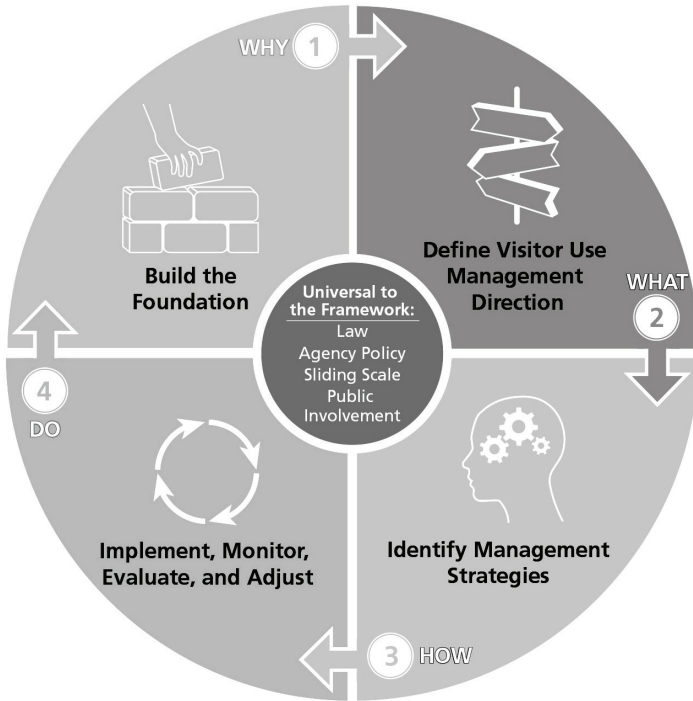


Figure 1. Overview of the Visitor Use Management Framework.

2. *Define VUM direction:* Describe the conditions to be achieved or maintained and how conditions will be tracked over time;
3. *Identify management strategies:* Identify strategies to manage visitor use to achieve or maintain desired conditions; and
4. *Implement, monitor, evaluate, and adjust:* Implement management strategies and actions, and adjust based on monitoring and evaluation.

Great effort is taken to describe how to flexibly apply the VUM process. Of particular importance is the sliding scale of analysis (described below), whereby the investment of time, money, and other resources is commensurate with the complexity of the situation and the consequences of the decision.

The concepts presented in the VUM framework are not new; the framework is the product of an evolution of earlier efforts, modified to reflect lessons learned. It follows all of the council agencies' planning and decision-making principles and illustrates how to specifically address VUM. It is consistent with previous efforts, such as the Limits of Acceptable Change and Visitor Experience and Resource Protection frameworks. Since it will be used by all agencies, the council's framework will enhance consistency in VUM on federally managed lands and waters (IVUMC 2016).

Application of the VUM framework in NPS

New operational strategies and planning projects are underway at many NPS units that make use of the VUM framework. These projects apply a range of strategies for managing use, including education (e.g., trip planning information, variable message signs about real-time conditions), engineering (e.g., additional facilities to meet demand, reinforcing/redesigning facilities to increase sustainability), and enforcement (e.g., no-parking areas, shuttle-only access, increased staff presence). Other strategies include changes to routine operations to more efficiently manage visitation to better protect resources and support visitor opportunities, reduce congestion, and provide high-quality transportation experiences. Examples include introducing attended parking and strategic timing and location of visitor programs to move use away from high-demand areas and times. Projects using the framework range from day-to-day decision making and special event management, to coordinated workgroup discussions and field assessments, to more formal planning and compliance projects.

With a recent update to the NPS planning framework, several parks have initiated focused, implementation-level plans specific to visitor use. These plans develop a collaborative vision to provide for and manage visitor use. Their purpose is to provide effective VUM consistent with law and policy requirements. A VUM plan can:

- Enhance opportunities to connect visitors to the park’s fundamental resources and values;
- Assess the appropriateness of new visitor activities;
- Help align public expectations with visitor opportunities;
- Minimize impacts to resources and experiences caused by visitor use;
- Manage visitor demand at popular destinations; and
- Balance trade-offs between different VUM strategies.

Visitor use management plans also address the requirements of the National Parks and Recreation Act of 1978, which mandates that NPS complete general management plans that include “identification of and implementation commitments for visitor capacities for all areas of the System unit” (54 U.S.C. 100502).

Maximizing visitor opportunities and minimizing resource impacts require a comprehensive and interdisciplinary approach. Developing a VUM plan may include collaborative opportunities with other NPS programs, including (but not limited to) commercial services, special park uses, congestion management and transportation, interpretation, and natural and cultural resource management. In addition, elements of the framework can be integrated into other types of plans, such as commercial service plans, wilderness plans, wild and scenic rivers plans, trails plans, and transportation plans.

The role of social science in visitor use management

The National Park Service is actively working to invite and welcome the next generation of visitors, many of whom may have different expectations and needs than current visitors. The agency continues to work toward being responsive to societal changes, improving visitor experiences, and developing new ways to connect with all members of the American

public. Additionally, many communities are looking toward tourism and recreation to boost local economic development. However, visitation increases have resulted in new demands on facilities and services, operational challenges, conflicts among visitors, new impacts on natural and cultural resources, and spillover effects on adjacent communities. The National Park Service, along with other federal land management agencies, is working to balance these changing dynamics with maintaining the authenticity and ecological integrity of their areas and associated desired conditions. The evaluation of these issues, needs, and their associated management strategies can be better informed by social science. Several applications where social science might benefit key elements of the VUM framework are discussed below. This is not intended to be an exhaustive list, but rather provides key examples of important milestones in the framework where social science can best contribute to decision making.

Social science applied to the VUM framework

Social science makes significant contributions to VUM decision making. Integrating social science into projects isn't only desirable for managers—it's required by agency policy. The *Director's Order on Information Quality Standards* (DO #11B; NPS 2002) states that “responsible management and interpretation of NPS resources and NPS technical assistance programs depend on authoritative information from scientific and scholarly activities. These activities, which include inventory, monitoring, research, assessment, and management projects, must be conducted to a high level of technical quality and accuracy to ensure that all information disseminated or utilized by the National Park Service complies with basic standards of quality that maximize the objectivity, utility, and integrity of information.” This is true of all phases of the framework.

Element 1—Build the foundation: Understand why the project is needed, and develop the project approach. Social science helps to better understand and define issues by providing more information (beyond park staff observations) about the current conditions of resources, values, or experiences from visitors' perspectives. It can be leveraged to better understand if there is a need to take action and refine research questions. Additionally, social science outputs, such as meta-analyses and research summaries, can provide valuable insight into trends in resource conditions and visitor experiences that can inform future management directions. More specifically, social science can identify project issues (i.e., problems, concerns, conflicts, obstacles, or benefits to be addressed) by providing information on relationships between visitor use and the existing condition of park resources and experiences. It can inform important questions, such as “Are visitor perceptions of their experiences with park programs and facilities changing, and if so, why?” and “Is there an increase in visitor use to an area that has also recently become an important wildlife feeding location?”

Social science is also a valuable input to determining the geographic and temporal scope of a project. The term “geographic scope” includes the physical locations where planning will occur and the issues that will be addressed for those locations (e.g., camping opportunities at a specific day-use location along a riverbank or for the entire river corridor). “Temporal scope” refers to whether or not project decisions may vary seasonally or by time of day (e.g., shuttle-only access for peak season or during the core hours of every day throughout the

year). Social science can help inform where and when issues are of most concern and what management actions might be most applicable and acceptable in different places and times.

Element 2—Define VUM direction: Describe the conditions to be achieved or maintained and how conditions will be tracked over time. Social science can provide insight into decision making about the desired conditions of experiences and resources from the visitors' perspective. Further, it can help articulate the relative need for activities, facilities, and services. For example, a visitor survey or stakeholder interview might test the public's interest in new visitor opportunities in a specific location within a park. Additionally, social science could inform the selection of indicators and thresholds for long-term monitoring purposes (see Pettebone and Meldrum, this volume). Research and associated monitoring can help identify meaningful and sensitive indicators of visitor perceptions, park resources, and operational considerations.

Element 3—Identify management strategies: Identify strategies to manage visitor use to achieve or maintain desired conditions. Social science also helps test the relative effectiveness or suitability of VUM strategies. This is sometimes done by monitoring pilot programs or by surveys that ask for visitors' perceptions of actions being considered by NPS or other land managers. Social science can also provide insight on, and potentially quantify, the relationship between amounts of use, types of use, and resource or experiential conditions. Knowledge of these relationships helps to clarify limiting attributes and refine the identification of visitor capacities. Social science can help evaluate whether the amounts and types of current visitor use are consistent with maintaining desired conditions. For example, a relevant study to inform potential visitor capacities might include evaluating visitors' acceptance of and preferences for different levels of use along a specific trail corridor. These data, when combined with observational data or GPS tracking of the levels and patterns of use, are particularly powerful for informing decisions addressing visitor capacity.

Element 4—Implement, monitor, evaluate, and adjust: Implement management strategies and actions, and adjust based on monitoring and evaluation. Social science can inform best practices for establishing and implementing monitoring programs. It can also be leveraged to help managers understand how and when to adjust management actions as a result of monitoring. For example, if monitoring reveals that the amount of off-trail use is increasing, the park might set up a study to evaluate educational techniques designed to influence visitor behavior associated with off-trail use. The results could inform additional management actions that might be implemented. Monitoring conditions after new changes are made helps determine if these strategies are successful or if additional actions are needed.

Best practices for integrating social science into agency decision making

As we have seen, social science contributes to all four components of the VUM framework. To be most meaningful, the data should be relevant, both topically and in timeliness. An evaluation of existing knowledge should be done at the outset of a project to illuminate relevant data sources. A key question is whether the data are still valid, or whether anything has changed that suggests that underlying assumptions for a study are no longer true. For example, motivations and behaviors of visitors change, as do their expectations. Updating

data early in the process can be very helpful by identifying trends to see if visitor preferences and perspectives have indeed changed.

New social science data collection also might be needed when the project team does not have enough information to inform management decisions. New studies might focus on understanding the root causes of current visitor use issues, the relationship of these issues to visitor use, and visitors' preferences for potential management actions or other possible solutions. New data collection should ensure that research questions target project issues, and adhere to the appropriate geographic and temporal scope.

It's also important to consider the timing of data collection and associated analysis. Due to the availability of funding and the urgency of specific information needs, teams are often conducting studies while a project is already underway. In these instances, it's particularly important to clearly define research questions and consider the timing of new data collection initiatives so managers will have the information they need to make informed decisions in a timely way. To ensure that data can directly influence management, presentation of information should be tied to how the park unit manages visitor use. Data should be presented in a way that is useful and that researchers, managers, and the public can all understand. For example, although five-minute increments for traffic levels may be relevant to a research question, this particular metric may not be useful for managers or understood by the public.

Sliding scale of analysis

All VUM issues should be assessed against a sliding scale of analysis. This involves considering the issue along four measures: issue complexity, impact risk, need for stakeholder involvement, and level of controversy and/or litigation potential. This assessment is key to targeting effective and efficient research questions to the most critical data needs. Use of the sliding scale occurs throughout the VUM framework and ensures that all stages of the process, including data collection, are commensurate with the complexity of the situation and the consequences of the decision (for more information see the second chapter in the *Visitor Use Management Framework, Edition One*). For instance, if the issues are not particularly complex, are well understood, and there isn't much controversy, then new data collection might not be needed. In this case, it might be better to invest in monitoring conditions that result from new actions. Alternatively, if the issue is complex, there is a higher level of controversy, and the risk of impact to resources from proposed actions is likely significant, then new data collection may be necessary. Existing and new social science can contribute to a more rigorous, well-documented analysis that supports the project decision.

Summary

Visitor use management is a flexible and scalable set of tools and strategies that supports appropriate access to valued public lands and waters, while ensuring the long-term viability of resources that make high-quality visitor experiences possible. For over 100 years, NPS has dedicated itself to its mission to preserve the natural and cultural resources and values of the national park system in an unimpaired state for the enjoyment, education, and inspiration of current and future generations. Managers of federal areas have faced increasing challenges in

dealing with visitor use, as visitation has continued to increase and demand for access and activities has changed. In response, managers and researchers have intensified their study and understanding of the complex issues of VUM over several decades and have identified numerous best management practices for promoting a world-class visitor experience while simultaneously preserving protected areas for future generations. Social science has been an important input into advancements for managing visitor use and continues to be a vital thread in the application of the *Visitor Use Management Framework, Edition One*. Given the dynamic nature of visitor use on public lands, a long-term investment and commitment to both social science and ongoing management practice is needed to be truly successful with visitor use management.

For more information on the council, visit <https://visitorusemanagement.nps.gov/>.

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For the Benefit and Enjoyment of the People: An Exploration of the Economic Benefits of National Parks

Leslie Richardson, Lynne Koontz, and Bruce Peacock

THE INSCRIPTION ON THE ROOSEVELT ARCH, “For the Benefit and Enjoyment of the People,” has welcomed visitors to Yellowstone National Park since 1903. Today it reminds us of the significant benefits that the American public receives from our national parks. These benefits may be personal (e.g., education, health), social (e.g., community identity, cultural resource protection), environmental (e.g., biodiversity protection), or economic. While all these provide valuable insights into the relationships between parks and people, the economic benefits may be the least understood.

Many benefits of national parks can be expressed in monetary values. Local communities benefit from job creation and business sales supported by park tourism. Park visitors benefit from the recreation and leisure opportunities in national parks. Outstanding features of many parks are shown virtually through webcams, allowing people to experience these from their own homes. Many people value the mere existence of national parks and their preservation for future generations. Significant methodological advancements in environmental and natural resource economics have resulted in the ability to determine the monetary value that the public assigns to these varied uses.

Of course, national parks can be a source of costs as well. These include operations and maintenance costs, and can include land acquisition costs and possible losses of local property tax revenue. A full accounting of both economic benefits and costs (i.e., net benefits) is most relevant to policy and management decisions. However, the costs associated with establishing and maintaining parks are better understood and often more straightforward to quantify than the benefits. Thus, the focus of this article is on the latter.

The George Wright Forum, vol. 35, no. 1, pp. 42–52 (2018).

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ISSN 0732-4715. Please direct all permissions requests to info@georgewright.org.

Recognition that national parks provide significant economic benefits to the American public is certainly not a new concept. In the late 1940s, the associate director of the National Park Service (NPS), A.E. Demaray, wrote to leading economists and analysts throughout the country. He explained the agency's interest in conducting a comprehensive economic study of the national park system and solicited their advice as to whether such an effort was worthwhile. Demaray explained that "it is believed ... that there are secondary or indirect economic benefits derived from these areas which are in excess of the economic returns and benefits that would accrue if the areas were used for other purposes" (NPS 1949: 2).

NPS economist Roy Prewitt reviewed the responses to the letter, consulted with other federal agencies, and presented a synthesis of what was then the state of the science. His report recognized the full range of economic benefits supported by national parks, but concluded that research methods were not yet sufficiently developed to estimate all relevant values (NPS 1949). Nevertheless, Prewitt's report did include a prescient discussion that led to the development of such methods, which are in common use today. Almost seven decades later, many of these values have been estimated to yield a comprehensive picture of the economic benefits of national parks.

This comprehensive picture is critically important to NPS. It positions the agency to better advocate for its mission by engaging audiences that are conversant with the economic justification of government programs. Further, these economic benefits demonstrate that national parks and NPS programs *create* significant value for the American public. They also demonstrate that the value placed by the American public on NPS's role to conserve park resources "unimpaired for future generations" is on a par with the value of on-site visitor use. In other words, economics has demonstrated a significant public demand for both prongs of the NPS mission as laid out in the 1916 Organic Act (see Neher et al. 2013; Haeefe et al. 2016a, 2016b).

The research methods used to estimate these benefits do not quantify or describe all relevant values of national parks. In addition to economics, other valuation systems include deep ecology and environmental ethics. What distinguishes economics is that it quantifies only those values for which people are willing to make tradeoffs, such as which parks to visit and how often. However, some values—those associated with nature, culture, sustainability, etc.—may not be amenable to economic valuation since they commonly do not involve willing tradeoffs. Therefore, economics does not displace other valuation systems, but instead offers an additional way to talk about national park benefits that is complementary to other means.

The economic benefits of national parks

Two broad categories capture the economic benefits of national parks: contributions to the economy and net economic values (Figure 1). Another characterization involves what are known as ecosystem services. These are the benefits that people derive from properly functioning ecosystems, such as water purification, flood regulation, and scenic views. These benefits are clearly relevant to national parks and surrounding communities and are captured by the categories described here.

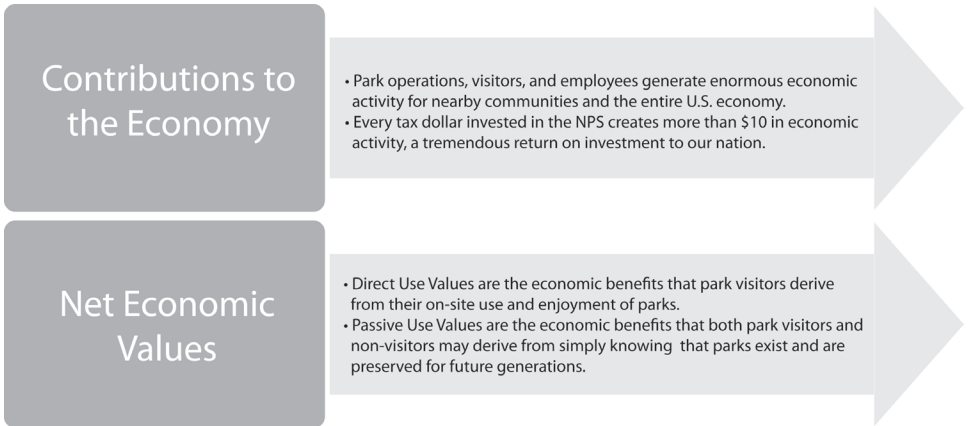


Figure 1. The economic benefits of national parks.

Contributions to the economy are the jobs, sales, tax revenues, and other positive economic activity generated by national park visitation and operations in local, state, and national economies. National parks contribute to economic growth and jobs across the nation through:

- Spending by NPS visitors in communities near parks;
- Local purchases of supplies and services for park operations;
- Employee payroll spending in nearby communities;
- Grants and payments to communities from NPS programs; and
- Restoration and construction activity from NPS infrastructure repair investments.

This category of economic benefits has traditionally been reported for visitor spending on an annual systemwide basis by NPS, originally as the Money Generation Model and now as Visitor Spending Effects (VSE; Cullinane-Thomas and Koontz 2017). The VSE model utilizes three key data inputs: (1) park-level annual visitation estimates compiled by the NPS Visitor Use Statistics Office; (2) profiles of visitor spending patterns in local gateway regions derived from survey data collected through the NPS Visitor Services Project (VSP); and (3) regional economic multipliers derived from the IMPLAN software (IMPLAN Group LLC) that describe the economic effects of visitor spending in local economies. Between 2003 and 2017, a total of 57 park surveys included the visitor spending questions necessary for VSE analysis. Data from these 57 studies were used to develop spending patterns for the surveyed parks. Non-surveyed parks were analyzed by classifying them into four types: parks that have both camping and lodging available within the park; parks that have only camping within the park; parks with no overnight stays; and parks with high day use. Generic spending profiles were developed for each of these park types. These profiles should be reasonably accurate for

many park units. However, a number of parks are not well represented by the generic profiles. For these parks, profiles were constructed using the best available data.

Results from the VSE reports are available online via an interactive tool at <https://www.nps.gov/subjects/socialscience/vse.htm>. Users can view year-by-year trend data and explore current-year visitor spending, jobs, labor income, value added, and economic output effects by sector for national, state, and local economies. Pilot studies are underway for expanded contributions analyses of park operational activities, including purchases of supplies and services from local businesses.

The second broad category, *net economic values*, describes the economic benefits of national parks that are received by individual people. Whether a good or service is traded in a market or not, economists measure how much that good or service is worth to an individual based on what they are willing to give up to get it. In monetary terms, this is measured by an individual's willingness-to-pay. *Net economic value*, also called consumer surplus, describes the economic benefit that consumers get when they can obtain a good or service for less than they are willing to pay for it. In competitive markets, prices provide a measure of marginal willingness-to-pay. Although the marketplace fails to adequately provide for public resources such as national parks, the absence of a market price does not indicate an absence of economic value.

Nonmarket valuation measures the net economic values people assign to goods and services that are not traded in markets, such as many of those supported by national parks.

Where competitive markets do not exist, economists employ nonmarket valuation approaches to measure these net economic values. Such values help explain behavior such as visitation. For instance, the economics literature shows that people generally participate in those activities that give them the highest net economic values. Therefore, these values can help us understand how people choose between activities, such as the decision to go on a snowmobile tour or a cross-country ski trek.

Consideration of such preferences can inform a variety of resource allocation decisions in national parks. For instance, the cost of a management action can be compared with the net economic values it provides to determine whether that action is justified on economic efficiency grounds. In addition, tradeoffs associated with competing park uses can be informed by evaluating the net economic values generated by each. At Cape Hatteras National Seashore, for example, the use of off-road vehicles (ORVs) must be balanced with the protection of important habitat for threatened and endangered species. Dundas et al. (2018) use a net economic value framework to evaluate the benefits and costs associated with the park's ORV management plan. The authors compare the expected loss in recreational fishing values—as well as losses in other ORV recreation values, increased congestion costs, and enforcement costs—to the potential gain in benefits associated with protecting coastal biodiversity. Results reveal relatively modest economic costs and a positive benefit–cost ratio, thus providing general support for the plan.

Within the broad category of net economic values are two subcategories that are particularly relevant to the NPS. First, *direct use values* are the economic benefits that people receive

from on-site use and enjoyment. Visitors receive these benefits while participating in activities such as sightseeing, hiking, and interpretive programs. When NPS first considered how to measure these values in the 1940s, of the leading economists that responded to Demaray's letter, only one discussed the possibility of doing so. Harold Hotelling, now widely recognized as a pioneer in the field of economics, thought it was indeed possible to quantify the direct use values supported by national parks. Building on the work of French engineer and economist Jules Dupuit, Hotelling discussed an approach in which visitor travel costs could be used to derive a demand curve and measure of consumer surplus for the service of a park. In his one-and-a-half-page response, Hotelling outlined the basic notion of the travel cost method, a revealed preference approach to nonmarket valuation that was further developed in the late 1950s and 1960s. At the time, however, Hotelling's suggestions were somewhat vague and largely ignored by NPS.

The National Park Service and US Fish and Wildlife Service actually had been tasked with estimating recreation values for the US Bureau of Reclamation in the 1940s, but struggled to find a satisfactory approach. Following World War II, visitation to national parks and other public lands skyrocketed, and the question of how to adequately measure recreation benefits became increasingly important for the management of federal lands. By 1962, Congress required that recreation be considered in benefit-cost analyses for water projects (Banzhaf 2010). Significant developments in nonmarket valuation continued throughout the 1960s as the concept of consumer surplus became established as the relevant measure of economic benefits. Today, the travel cost method is used extensively to value recreation opportunities on public lands. Examples of applications to national parks include the following (values have been inflated to 2017 dollars):

- Melstrom (2014) estimated the per person value of a visit to Stones River, Monocacy, and Fort Donelson national battlefields at around \$34, \$10, and \$11, respectively.
- The direct use value of a visit to Great Sand Dunes National Park & Preserve has been estimated at \$74 per person per day (Heberling and Templeton 2009).
- The value of a visit to Yellowstone National Park has been estimated at \$59 per person per day (Benson et al. 2013).
- A day of bear viewing at Katmai National Park and Preserve has been found to have a direct use value of \$301 per person (Richardson et al. 2017).

Yet what if a person doesn't visit a national park but still assigns a value to its existence or preservation for future generations? This is described by the second subcategory of net economic value, *passive use values*, which are the economic benefits individuals derive from national parks independent of on-site use and enjoyment. For example, an individual may never visit Glacier National Park, but would still be willing to pay money to ensure that the park's resources are protected for future generations. These benefits were formally recognized by economist John Krutilla in his seminal 1967 paper "Conservation Reconsidered." "When the existence of a grand scenic wonder or a unique and fragile ecosystem is involved, its preservation and continued availability are a significant part of the real income of many

individuals” (Krutilla 1967: 779). Krutilla made the compelling argument that accounting for only direct use values would underestimate the economic value of a place such as the Grand Canyon, and if there was a question regarding preservation, this could lead to a decision to not preserve the canyon (Boyle and Markowski 2003).

Passive use values play a clear role in conservation decisions surrounding national parks. Yet even with the recognition of these values, their estimation initially proved difficult. Unlike direct uses such as recreation, no observed behavior can be used to infer a measure of value. As a result, stated preference methods, such as contingent valuation, developed over time as a means to measure passive use values. These methods draw inferences about values from carefully designed scenarios of tradeoffs that people are asked to evaluate in survey settings (Flores 2017). For instance, individuals could be asked how they would respond when faced with a decision that involves trading off some of their income in order to maintain the quality of a park’s resources.

The importance of estimating passive use values came to the forefront as a result of the 1989 *Exxon Valdez* oil spill in Prince William Sound, Alaska. The following year, the Oil Pollution Act (OPA) was enacted, giving agencies such as NPS the authority to address the impacts of oil spills on natural resources. Part of this process involves determining the amount of monetary compensation, or “damages,” required to make the public whole for injuries to natural resources, highlighting a clear role for nonmarket valuation. The National Oceanic and Atmospheric Administration (NOAA) promulgated implementing regulations in 1996 (15 CFR Part 990). In developing those regulations, NOAA established a blue-ribbon panel of prominent economists and survey research experts to examine whether contingent valuation was sufficiently reliable to value natural resource injuries in damage assessments (NOAA 1993). The panel concluded that contingent valuation studies were indeed capable of producing reliable estimates of passive use values and provided a set of criteria for conducting such studies.

Although the *Exxon Valdez* oil spill affected three protected areas within the national park system—Kenai Fjords National Park, Katmai National Park and Preserve, and Aniakchak National Monument and Preserve—NPS had no spill response plan and no internal expertise to manage a damage assessment. As a result, opportunities to adequately assess injuries to NPS resources and recover appropriate compensation were lost (Kurtz 1995). In response, NPS created the Environmental Response, Damage Assessment, and Restoration Program in 1993 (Kurtz 1995; NPS 2005), now known as the Resource Protection Program. Enactment of the Comprehensive Environmental Response, Compensation, and Liability Act in 1980 and OPA in 1990 provided this new program the legal structure and tools to oversee the preparation of emergency response plans and assist parks that are impacted by oil spills or other hazardous substances. In addition, the Park System Resource Protection Act (16 USC 19jj), which was enacted in 1990 and re-codified as the System Unit Resource Protection Act in 2014 (SURPA; 54 USC 100721 et seq.), provided NPS with additional damage assessment authorities. By 2010, when the *Deepwater Horizon* oil spill—the largest in US history—occurred, NPS had both the legal authorities provided by OPA and an established program to administer them.

These disasters highlighted the need to better understand public values for impacted park resources, including those that arise independently of any direct use of parks. As noted by Boyle and Markowski (2003), if NPS fails to monetize passive-use value losses for damage claims or other policy applications, the public will not be fully compensated for changes to park system resources. As a result, these resources may degrade over time.

Individuals can assign both direct and passive use values to park resources. The term *total economic value* refers to the sum of both. Each of these components of value is certainly reflective of the NPS mission to preserve park resources unimpaired for the enjoyment, education, and inspiration of this and future generations. According to a recent study led by Colorado State University and Harvard University researchers, 95% of the American public said that protecting national parks for current and future generations is important to them whether they visit or not, and 81% would be willing to pay higher federal taxes to prevent cuts to national park units and ensure that the park system is protected and preserved (Haeefele et al. 2016a, 2016b).

Both visitor spending effects and net economic values were originally identified and discussed in the 1949 Prewitt report, but in different terms than are commonly used today. Together, they provide a comprehensive picture of economic benefits that is important to NPS. Until recently, NPS has been able to describe only part of this picture—that related to visitor spending effects. Now, with recently published estimates of net economic values, the entire picture of economic benefits can be described on a servicewide basis. Further, advancements in interdisciplinary approaches and modeling of ecological production functions have improved economists' ability to value ecosystem services. For example, using years of monitoring data and sophisticated models of expected ecological outcomes, Richardson et al. (2014) quantified the economic value of several ecosystem services affected by planned restoration activities in the central Everglades, including climate regulation, commercial and recreational fishing, improved water quality, and additional supplies of water.

How does understanding these economic benefits help the National Park Service?

Understanding the economic benefits supported by national parks helps NPS at different levels. It provides the tools to communicate the substantial return on investment NPS provides the American public. This allows NPS to reach audiences that are conversant with the economic justification of government programs, and thereby better advocate for its mission. For example, the VSE analysis tells us that every tax dollar invested in NPS returns approximately ten dollars of sales to the national economy (based on the NPS FY2016 enacted total budget authority of \$3,376,725,000). The net economic value study by Haeefele et al. (2016a, 2016b), which estimated \$92 billion in total economic value, demonstrates that NPS parks and programs *create* significant value for the American public, rather than just transfer spending from one economic sector to another. This shows that every tax dollar invested in NPS returns approximately 27 dollars to individual people in the form of net economic value. Further, that study demonstrates that the value of NPS's role to conserve park resources "unimpaired for future generations" is on a par with the value for on-site visitor use (\$33.5 billion in passive use value for parks compared with \$28.5 billion in direct use value). In

other words, economics has demonstrated significant support by the American public for all aspects of the NPS mission, including the mandate to conserve park resources and values.

Understanding these economic benefits also helps NPS at an operational level. In that regard, economics can help explain the relationships between park resource impacts and both visitor and non-visitor preferences. That understanding allows NPS to design effective visitor use management approaches at the park level. For example, environmental impact analysis under the National Environmental Policy Act can include economic analyses to explore human impacts associated with the affected environment, as was done in the recently completed long-term experimental and management plan for operations of Glen Canyon Dam. Nonmarket valuation techniques were used to determine the public's values associated with changes in dam operations. Compared with the no-action alternative, the analysis revealed very little variation in direct use values across the action alternatives, but significant variation in passive use values. Results demonstrated an annual increase of nearly \$4.5 billion in total economic value for implementing the preferred operations alternative. This was the highest such increase of all alternatives considered (US Department of the Interior 2016).

Economic analyses also help agencies such as NPS describe the benefits and costs of proposed regulations, as is required by Executive Order 12866. One such analysis was conducted in 2005 to evaluate the economic values associated with seven alternatives for regulating snowmobile use in Yellowstone National Park (Mansfield et al. 2005). This analysis was instrumental in promulgating the park's 2013 Winter Use Plan. Decisions surrounding entrance fees and passes to national parks can also be greatly informed by economic research. When Congress authorized a new series of interagency passes for federal recreation lands, NPS commissioned a study to assist agencies in pricing the annual pass. Using the contingent valuation method, Aadland et al. (2008, 2012) surveyed households across the US to determine how much people would be willing to pay for this new pass and how the revenues collected by the various agencies would be affected at different prices. This study helped policy-makers set an initial price of \$80 for the new pass.

Economic analyses also help determine appropriate mitigation under the Clean Water Act and compensation for injuries to park resources caused by incidents such as oil spills. For instance, the 2015 settlement of the *Deepwater Horizon* oil spill was facilitated by the use of economic analysis. Net economic values are frequently used to determine lost or diminished visitor use services under SURPA. These examples all demonstrate various uses of economics by NPS at the operational level.

Based on a survey of the American public, the total economic value of NPS parks and programs is estimated at \$92 billion. This includes \$28.5 billion in direct use benefits of national parks, \$33.5 billion in passive use benefits of national parks, and \$30 billion for NPS programs that operate outside the national parks, such as the National Natural Landmarks and Historic Preservation Tax Incentives programs.

Source: Haefele et al. 2016a, 2016b

There also exist a wide range of potential future and expanded uses of economics. For instance, NPS is planning a formal socioeconomic monitoring (SEM) program that would provide a standard visitor survey instrument and a long-term, systematic sampling design for in-park visitor surveys (see Pettebone and Meldrum, this volume.) Full implementation of the SEM program would result in more parks having primary survey data for estimating visitor spending effects and direct use values of park visitation.

Additionally, there is interest in understanding more about the virtual use of national parks. In 2016 alone, the website nps.gov had 90 million different visitors and 556 million pageviews. People from around the world spend millions of hours each year watching the popular Katmai National Park and Preserve bear webcams, hosted on the website explore.org. This “virtual visitation” generates significant public benefits and provides another avenue for the NPS to reach new and more diverse audiences. Efforts are underway to determine the economic value of this use and, thus, the return on investment in NPS digital resources. Additional future uses of economics include identifying the factors of park visits and experiences that are relevant to an evolving American public (*positioning use*) and negotiating benefits-sharing agreements under NPS Director’s Order 77-10 (*operational use*).

Conclusion

The ability to estimate and describe the economic benefits of national parks provides NPS with tools to advocate for its mission and design effective visitor use management approaches for park-level issues. In those ways, economic analysis enhances NPS’s ability to accomplish its mission to preserve unimpaired the resources and values of the national parks and to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout the world.

For the first time, economic analysis has been used to provide a comprehensive picture of the economic benefits that national parks provide to both communities and individual people. That picture shows a substantial return on investment that the National Park Service provides to the American public, giving context and meaning to the phrase “For the Benefit and Enjoyment of the People” that is inscribed on Yellowstone’s Roosevelt Arch.

Views and conclusions in this report are those of the authors and do not necessarily reflect policies of the National Park Service. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the National Park Service.

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Applied Anthropology in the National Park Service's Second Century of Stewardship

Jennifer Talken-Spaulling and Joe Watkins

THE STORY OF ETHNOGRAPHY AND CULTURAL ANTHROPOLOGY in the National Park Service (NPS) is multifaceted. We find application of anthropology in resource management, park planning, tribal consultation, interpretation and education, and in understanding the social and natural challenges facing the parks of today. In 2009, Jacilee Wray edited a series of articles in *The George Wright Forum* titled “Ethnography in the National Park Service: Past Lessons, Present Challenges, Future Prospects.” Other foundational pieces include the 2001 “Stewards of the Human Landscape” issue of *Common Ground: Archeology and Ethnography in the Public Interest*, and the 2001 “People and Places: The Ethnographic Connection” issue of *CRM*. Building on these and other early NPS ethnographic work, the authors offer a glimpse into the ways that ethnography (and cultural anthropology more fully) aids the National Park Service in its relationships with communities and with its statutory and regulatory responsibilities. In this issue of *The George Wright Forum*, we look towards the challenges of park management in our second century of stewardship following the NPS centennial in 2016. We consider the engagement of cultural anthropology in contemporary practices such as landscape-scale conservation and collaborative management, and offer examples and challenges for today.

Foundations of the NPS Cultural Anthropology Program

In 1981, the National Park Service hired Muriel “Miki” Crespi to complete a policy on Native American relationships and to establish an applied anthropology program. In 1987, NPS Director William Penn Mott wrote a lead column for an ethnography issue of *CRM Bulletin* welcoming ethnography and cultural anthropology to the National Park Service (Mott 1987).

The George Wright Forum, vol. 35, no. 1, pp. 53–64 (2018).

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The new program was developed to provide information to the agency and its park units on the contemporary peoples and traditional communities associated with NPS cultural and natural resources. It was also charged with helping park units address requirements set forth in statutes such as the National Historic Preservation Act, the National Environmental Policy Act, the American Indian Religious Freedom Act, the Alaska Native Interest Lands Conservation Act, and, later, the Native American Graves Protection and Repatriation Act, to name but a few. Following Crespi's death in 2003, several professionals maintained the program in the national and field offices, and in 2012 NPS implemented a departmental reorganization. The supervisory cultural anthropologist position was moved within a new Office of Tribal Relations and American Cultures, under the management of Dr. Joe Watkins. A bureau cultural anthropologist, Jennifer Talken-Spaulding, came to the national office in 2015. The program coordinates with anthropologists and tribal liaisons in parks and regional offices to meet the needs of NPS.

The Cultural Anthropology Program continues to sponsor and conduct several kinds of research in order to identify traditionally associated groups and ethnographic resources in parks. The NPS *Cultural Resource Management Guidelines* define *ethnographic resources* as "a site, structure, object, landscape, or natural resource feature assigned traditionally legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it" (NPS 1998: Appendix A). A group is traditionally associated if: (1) its members regard the park's resources as essential to their group's development and continued existence; (2) the association has endured for at least two generations (40 years); and (3) the association began prior to the establishment of the park (NPS 1998: Chapter 10). Three useful research tools employed by the Cultural Anthropology Program include the ethnographic overview and assessment, traditional use studies, and rapid ethnographic assessments.

Ethnographic overview and assessment. The ethnographic overview and assessment is the most comprehensive background document for NPS managers. Aimed at existing information on resources traditionally valued by associated communities, the ethnographic overview and assessment may be derived entirely from existing documents, but it is often fleshed out through interviews with community members and other groups. The ethnographic overview and assessment may identify many groups associated with a park, and include recommendations for further in-depth research.

Traditional use studies. Traditional use studies fill in the data gaps identified by the ethnographic overview and assessment and satisfy the requirements of Alaska Native Interest Lands Conservation Act in relation to the traditions of Alaska Natives. This research typically requires a year of archival and field work with the collaboration of the traditional community. The anthropologist uses standard methodologies of ethnographic interviewing, participant observation, and seeking to understand the community from its own perspective.

Rapid ethnographic assessment. A third useful tool of many in the anthropologist's professional toolkit is the rapid ethnographic assessment. It employs interviews, observations, engagement of focus groups, mapping, and other documentary analysis techniques to provide information in advance of specific actions that have the possibility of impacting a group's

resources and traditions. A rapid ethnographic assessment may be completed where ethnographic data are needed to meet requirements under the National Environmental Policy Act. It is a focused tool, best completed in a matter of months.

Resonance of ethnographic landscapes and resources

The overview and assessment, traditional use study, rapid ethnographic assessment, and other baseline research provide an ethnographic foundation that still resonates today. In defining *ethnographic landscapes* as distinct from *cultural landscapes* and *landscapes of significance* as evaluated for National Register of Historic Places eligibility, Michael Evans, Alexa Roberts, and Peggy Nelson laid a foundation upon which many have added over the years. “Ethnographic landscapes within the NPS context” they note, “do not depend on National Register of Historic Places eligibility criteria for their existence, and importantly, are identified and defined by the cultural groups associated with them” (Evans 2001: 53). Whether it is an oral history project with Alaska Native elders in Denali National Park and Preserve that revealed previously unrecorded place names and historic hunting routes over a traditional landscape, or the identification of blended natural and cultural indigenous landscapes along the Captain John Smith Chesapeake National Historic Trail, our understanding of place-based significance has only grown over the years.

In 2001, NPS Northeast Regional Ethnographer Rebecca Joseph wrote about a particular type of ethnographic landscape, the living landscapes of American cities. Joseph noted that the diversity of people connected with urban national parks created challenges that ethnography could help meet. “Location does make a difference,” she said. “Urban national parks are integral parts of the built environment. They provide a laboratory in which to study the meaning of urban spaces through the knowledge of people who know them intimately” (Joseph, 2001: 29). With more than 80% of Americans living in urban areas, and many of the new NPS units established in the past 10 years in or near urban areas, today’s NPS is actively involved in understanding and engaging with urban neighborhoods and communities.¹

When Audrey Brown wrote about African American churches as ethnographic resources, and their deep significance to African American communities (Brown, 2001: 27), no one could have predicted the tragedies of recent church shootings and how central these same places are to healing within today’s communities. At a 2016 gathering of national heritage areas, a community leader from the Gullah/Geechee Cultural Heritage Corridor, which includes a church that suffered a shooting tragedy, said, “In these complex social eruptions, some of our heritage areas have [an] understanding of these things from the bottom.” He was reflecting on how cultural knowledge in place could be assembled in such a way that it would be transformative for public healing. He continued, “I am someone from the culture that wants to be a part of this [National Heritage Area] Alliance in a way that has [cultural] integrity” (personal communication, February 9, 2016).

The legacy NPS ethnography website (www.nps.gov/ethnography) provides access to many ethnographic resources, including a selected bibliography of ethnographic research conducted in parks up to 2007. The current NPS cultural anthropology site (www.nps.gov/

cultural anthropology) provides an updated description of the program and its role to “connect cultural communities with places that are considered essential to their identity.” Here you’ll find news, what we do, and links to current contacts.

Ethnographic contributions to national park management

The National Park Service centennial celebration in 2016 brought a resurgence of interest in connecting parks and people. The connection between traditional cultural communities and the places that are now managed by NPS runs deep. But why is there a resurgence of interest *now*? Expanded efforts to connect parks and people show maturity in a bureaucracy now 101 years old that seeks to engage and learn from people rather than “preserve” or remove them. People are not ethnographic resources, but the natural and cultural objects and places they value are. National parks have been called “America’s best idea” and the agency that manages them is now engaged in a multitude of interagency and international conservation and heritage initiatives. NPS works regularly with local, state, tribal, and other agencies within the federal family as well as with nonprofit partners and international organizations. The agency employs conservation professionals who realize that, to meet our goals for sustainability and adaptation in the face of a changing world, we must learn from and engage the communities in which our parks are embedded. Parks are no longer seen as islands, and they cannot be managed as such. Large landscape conservation cooperatives now engage upstream and downstream with agencies, states, local governments, nonprofit organizations, tribes, and local communities in conservation planning and scaled-up stewardship over multi-state regions.

The national park system has grown to reflect our multi-culture, multi-storied nation. In 2016, more than 330 million people visited the 376 park units that reported visitation figures.² A study by the US Travel Association indicates that the number of international travelers who visit national parks was expected to reach about 14.6 million in 2017.³ The two most-visited park units—Golden Gate National Recreation Area and Blue Ridge Parkway—each had more than 15 million visitors.

As a leader in cultural heritage preservation, the parks and programs of NPS aim to balance the conservation of the resources and places entrusted to us with the need for access by those millions of visitors and by those whose roots run much deeper. The National Park Service is not only, as former Director Jonathan Jarvis said, “in the forever business,” it is increasingly in the business of engaged stewardship and big-picture conservation.

Integrated management at scale

To meet the needs of integrated natural and cultural resource management on a large scale, the NPS Cultural Anthropology Program and the NPS Office of Tribal Relations and American Cultures support landscape-level collaborative conservation initiatives, research, and management. Actively engaged in providing information and technical support in relationship to new policies and legislation, such as Interior Secretarial Order 3342 on cooperative management with tribes and the Native American Tourism and Improving Visitor Experience (NATIVE) Act, the program is also involved in international efforts to support broader

nature–culture conservation goals.⁴ Working with other US land management bureaus—as well as Parks Canada and Mexico’s federal protected areas agency, CONANP (Comisión Nacional de Áreas Naturales Protegidas)—the NPS program is currently collaborating on a joint product to highlight best practices of engagement with indigenous communities in management of parks and protected areas.⁵ The Cultural Anthropology Program was also an active participant in the “Nature–Culture Journey” at the 2016 World Conservation Congress of the International Union for the Conservation of Nature. This broader engagement on local, regional, landscape, national, and international levels reflects the recognition highlighted in the statement from the Nature–Culture Journey “that our planet is at the crossroads and that there is compelling evidence that integrated nature–culture approaches improve conservation outcomes, foster cultural diversity, support the well-being of contemporary societies in urban and rural areas, and advance sustainability objectives” (Mitchell, 2017: 238).

In a 2016 article in *The George Wright Forum*, NPS Associate Director for Natural Resource Stewardship and Science Raymond Sauvajot wrote:

The traditional concept of a national park or protected area as a static expression of an ecosystem, a set of natural features, or a collection of cultural or historic objects has been replaced by a more dynamic perspective that recognizes natural and cultural resources as part of ever-changing environments.... To manage parks and protected areas successfully and ensure that resource values persist, park managers must understand landscape-scale phenomena; establish and maintain relationships with other agencies, organizations and stakeholders; and engage directly in conservation efforts at local, regional and even national and international scales (2016: 145).

How do we address and understand heritage on a landscape scale? For example, how can we learn more about the value of resources to communities along the Potomac Heritage National Scenic Trail when it stretches over 700 miles through three states and the District of Columbia? At this unit, NPS engaged with an anthropological team from Towson University to conduct a rapid ethnographic assessment, using traditional applied anthropological field methods combined with innovative methods of networked anthropology. The assessment employed social network analysis, web analytics, and link analysis to allow the researchers to identify networks of stakeholders and communities engaged with the trail resources and to understand the strength and connection of these links. Further, the team engaged directly with users along the trail using technology that anthropologists Samuel Collins and Matthew Durning term *multimodal anthropologies*. This method expands traditional anthropological practice to include constant engagement and reflection with the community, acknowledging “the centrality of media production to the everyday life of both anthropologists and our interlocutors” (Collins 2017: 142). Multimodal anthropology provides a way for NPS managers to gain an understanding of place-based expressions of heritage and value at scale.

Engaging new methodologies

This era of broad and integrated park management invites the application of new method-

ologies to understand the social systems parks function within. How can we make use of social science data alongside natural resource data sets? This challenge was recently tackled by a team of anthropologists and social scientists, engaged by the Appalachian Landscape Conservation Cooperative (LCC), in partnership with the National Park Service, to seek a new model for integrating cultural resource data into planning. The Appalachian LCC is a partnership of federal, state, nongovernmental organizations, tribes, and key members of regional partnerships who collaborate within the Central Appalachian Region, stretching from New York to Alabama, to research and act on environmental concerns that would be beyond the scope of any single agency.⁶ With Pennsylvania as their study site, the team looked at both tangible and intangible visual and cultural resources and developed a model that would help to identify existing and predictive “culturally significant hotspots as a means to guide sustainable and strategic conservation and landscape planning” (Mazurczyk et al. 2017: 9). Jointly funded by the National Park Service, Penn State University, the National Council on Preservation Education, and the Wildlife Management Institute, and relying on first-phase research completed by Clemson University, the team developed a framework to evaluate quantitative and qualitative aspects of visual and cultural resources. They adapted “principles and techniques used for assessing biodiversity and landscape scale conservation planning of natural resources,” standing the models next to each other to inform conservation planning and priority-setting within the multi-state conservation partnership (Mazurczyk et al. 2017: 5). They have continued to expand their scope and application to include West Virginia and Maryland.

Within large landscapes, long-standing traditional uses by associated groups are being recognized. In 2016, the NPS plant gathering regulation was published after over a decade of effort to develop legal means for federally recognized tribes to continue traditional plant gathering practices in parks without impairing natural resources.⁷ The regulation enables tribes and park managers to establish plant gathering and monitoring procedures through an agreement and a special-use permitting process. Here, shared ethnographic knowledge of ethnobotany and traditional association informed regulatory needs to acknowledge and provide for the persistence of traditional practices in parks (Figure 1). Together, common goals guide the conservation of plant species to include traditional use without impairment. Currently, two tribes and two parks are developing the first plant gathering agreements, although dozens of tribes and parks have inquired about the new rule over the past year.

An ethnographic overview and assessment of subsistence fishing on the Potomac and Anacostia rivers is documenting, for the first time, nonrecreational fishing along 47 miles of river shoreline across eight NPS park units in Virginia, Maryland, and the District of Columbia. Through a cooperative agreement between the NPS National Capital Region’s Cultural Anthropology Program and the University of Maryland, a research team lead by anthropologists Shirley Fiske and Don Callaway have used both qualitative and quantitative methods, along with GIS and mapping data, to test assumptions about who is catching, eating, and sharing fish from the Potomac and Anacostia rivers. Preliminary findings by NPS anthropologist Noel Lopez (2017) showed that these urban fishers gain a certain level of needed subsistence through the fish they catch and that the acts of learning to fish and sharing the



Figure 1. Biologists, Wabanaki traditional sweetgrass gatherers, and ethnobotanists are engaged in interdisciplinary research to study the ecological impacts and sociocultural dimensions of plant gathering in marshlands within Acadia National Park. NPS photo.

tradition are important (Figure 2). Contrary to the assumption that these urban fishers are predominately uneducated or have English as a second language (and thus may not understand the potential risks of eating fish from urban waterways), the team found that 90% speak English and 70% either hold a high school diploma or its equivalent, have some college education, or hold a bachelor's degree. These ethnographic data provide new knowledge about natural and cultural resources (the fish, the rivers, and the fishers) and is important to the many park managers who seek to engage with fishers regarding access and stewardship.

Challenges for the future

Applied anthropology continues to challenge park managers and the public to see through another's eyes. It tests assumptions and leads park staff to a greater understanding of the past and the present. For example, in her work in the NPS Southeast Region and with the University of South Florida, Antoinette Jackson provides a glimpse into "multiple ways of seeing ... segregation" (Jackson 2010: 80). Jackson argues for the need to use ethnography to inform heritage management plans, designations, and public interpretation in places



Figure 2. A subsistence fishing study along the Potomac and Anacostia rivers in metropolitan Washington, DC, revealed the importance of nonrecreational fishing to communities. NPS photos.

shaped by segregation. It must provide a “conscious critique of the systematic organization of segregation from a material and social-cultural perspective ... because segregation has played a critical role in shaping what is publicly acknowledged, remembered, and preserved [in the present] and what is forgotten, whispered about, or relegated to the status of *other*” (Jackson 2010: 85). This need was documented by Jackson’s ethnographic interviews for the Kingsley Plantation within the National Park Service’s Timucuan Ecological & Historic Preserve (Figure 3). Through interviews with descendants of Easter Bartley, who spent the first 50 years of her life as an enslaved laborer at the plantation, Jackson documented a complicated

history of post-Emancipation family life, inheritance, and loss that continues to influence the relationship of descendants to the site today. The descriptions underscore that Easter Bartley

is more than a property entry in the Kingsley family estate book, and more than a surviving picture in a National Park Service document. She lived and her negotiations of race and place in the past, along with the recounting and interpretation of her life and experiences by family members in the present, reveals the impact America's legacy of slavery and segregation continues to have over time (Jackson 2010: 89).

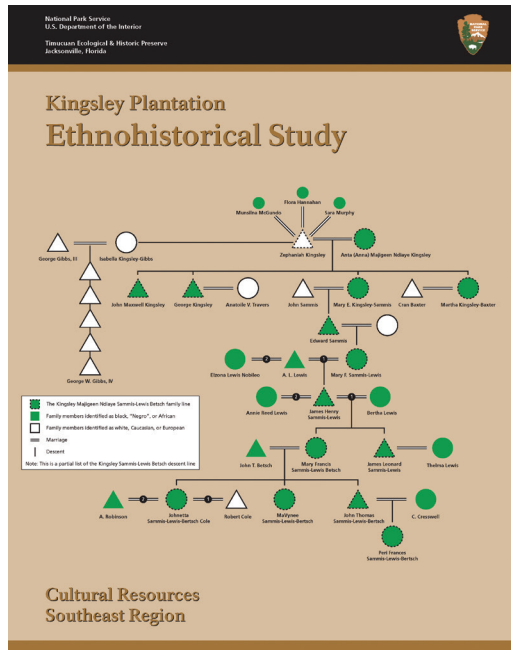
Similarly, we know that many Civil War battlefields, locations where soldiers on both sides met in terrible combat, were first and foremost family farms. In addition to Civil War-era national cemeteries, many sites in the national park system hold family cemeteries within their boundaries. The descendants of those families often maintain a connection to these hallowed places, which in some cases includes requests for burial within the cemetery or family reunions that continue at park sites today.

When ethnographic associations such as these are shared, the result is a broader and deeper knowledge of the depth of connection of contemporary people to parks and places of heritage. The future challenge and responsibility for resource managers is to see differently, and through engagement with interpretation, education, and visitor services provide the public with an opportunity to enter into these worldviews.

Contemporary park management requires not only timely professional research, but engaged dissemination of research results. The challenges that NPS (and other agencies) have of producing a report that few may read, or that may become inaccessible within a few years, is alleviated somewhat when we encourage, and require, many useful forms of dissemination. Story maps, social media posts, films, and on-site apps that geolocate the visitor within a heritage site and provide a relevant oral history clip or video are all innovative ways to reach numerous publics where they are.

Just as anthropology questions the “ethics of publishing our work behind paywalls” (Collins 2017: 144), so must NPS work harder to make its own social science and anthropological research easily searchable, retrievable, and accessible on many platforms. Today, the public can access NPS research on the

Figure 3. Ethnographic research, such as the Kingsley Plantation Ethnohistorical Study, offers critical information to park managers and communities.



Integrated Resource Management Applications (IRMA) portal, which is a step in the right direction.⁸ However, NPS-funded and maintained research is often not found through a simple Google search, and more needs to be done to provide digital access to appropriate (i.e., nonsensitive) research. Internally, NPS cultural resource program managers at the national level are coordinating an update, migration, and consolidation of the primary NPS cultural resource databases (for archeology, ethnography, cultural landscapes, and historic structures) into a single system. This will provide a secure, integrated, modern database that will allow access to the range of cultural resource data for resource managers at parks, regions, and the national level.

Conclusion

Cultural anthropology in the National Park Service offers unique tools to help us seek to understand more deeply the contemporary communities who hold places in the national park system dear. Applied anthropology moves beyond visitor statistics and the recreational value of parks to reach those with multi-generational ties to places that now happen to be managed by NPS (Figure 4). Although it continues to inform traditional programs of visitor services

Figure 4. NPS anthropologists and academic partners presented new research on applied anthropology in parks at the 2017 meeting of the Society for Applied Anthropology, Santa Fe, NM. Left to right: Jamie Lee Marks, Antoinette Jackson, Mark Calamia, Amy Craver, Janet Cohen, Mike Evans, Jennifer Talken-Spaulding, Noel Lopez, Amber Cohen. NPS photo.



and education, anthropology today is applied broadly to reaching people for whom parks are places of everlasting significance. The voices of traditionally associated people must be heard and integrated into park management if NPS is to achieve an engaged stewardship in its second century.

Applied anthropology in NPS brings skill sets for contemporary application, including understanding traditional associations, consultation, integration in park planning and management, and original research engaged with our academic partners. It recognizes that parks are places that have a deep history, that they are places shaped before humans and that they were valued by humans who came before us. They are places conserved through collaborative management and application of traditional ecological knowledge. Parks are places where cultures live.

We are standing on the traditions, work, and examples of those who came before us when the NPS Ethnography Program was established in 1981. We find many of the same themes in today's Cultural Anthropology Program, but today, over 30 years later, we have much more awareness and institutionalized support for the job. The NPS Cultural Anthropology Program continues to support connecting parks and people. What we do in the next 30 years, and the next 100 years, begins with what we do today.

Endnotes

1. See <https://www.nps.gov/subjects/urban/index.htm>.
2. See <https://irma.nps.gov/Stats/Reports/National>.
3. See <https://www.ustravel.org/press/study-more-overseas-visitors-choosing-us-national-parks>.
4. In October 2016, Secretary of the Interior Sally Jewell signed Secretarial Order (SO) 3342, "Identifying Opportunities for Cooperative and Collaborative Partnerships with Federally Recognized Indian Tribes in the Management of Federal Lands and Resources," to encourage cooperative management agreements and other collaborative partnerships between Department of the Interior resource managers and tribes. View the Secretarial Order online at https://www.doi.gov/sites/doi.gov/files/uploads/so3342_partnerships.pdf. The NATIVE Act (Public Law 114-221) was signed in September 2016. The act requires federal agencies with recreational travel or tourism functions to update management plans and tourism initiatives to include Indian tribes, tribal organizations and Native Hawaiian organizations. View the full legislation at <https://www.congress.gov/114/plaws/publ221/PLAW-114publ221.pdf>.
5. See <https://nawpacommittee.org/>.
6. See <http://applcc.org/cooperative/applcc-outreach/applcc-fact-sheets/appalachian-lcc-overview-fact-sheet/view>.
7. View the final rule, "Gathering of Certain Plants or Plant Parts by Federally Recognized Indian Tribes for Traditional Purposes," along with the Tribal Leaders' Guide, at https://www.nps.gov/history/tribes/final_rule.
8. See <https://irma.nps.gov/Portal>.

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Park Break: Engaging Students in Social Science to Inform Decision-making in Parks

Ryan L. Sharp, Aleksandra Pitt, and Rose Verbos

Introduction

THE GEORGE WRIGHT SOCIETY (GWS) is primarily concerned with bringing scholars and practitioners together to share their expertise about protected area stewardship. Although not explicitly included in its mission statement, GWS has grown to include future practitioners, and future scholars. Engaging the next generation of park managers and scholars is essential to the long-term viability of parks and protected areas, not just in America, but worldwide. Additionally, there is a need to include the voices of youth and diverse populations in protected area management. In 2007, the board of directors of GWS was keenly aware of these issues, and came together (primarily behind the leadership of board member Gillian Bowser) to create a program to help overcome some of these obstacles. Through the leadership of GWS and various other entities (e.g., US Geological Survey, Student Conservation Association, National Park Service), Park Break was born.

Simply stated, Park Break (PB) is a weeklong experience in a protected area (typically a national park) for graduate students to (1) learn about the complexity of park management, and (2) engage students in addressing a specific issue or problem facing the host park (for more information, see <https://www.georgewright society.org/students>). Students who have an interest in protected area management are recruited from universities around the United States. The only prerequisite is that the students be currently enrolled in an MS or PhD program at an accredited university, which provides a tremendous amount of flexibility for finding the best students that fit the particular needs of the host park. Furthermore, PB has targeted populations that have been traditionally underserved in the parks and protected area realm. This level of cultural and disciplinary diversity is a core strength of the program, and is often responsible for the new, fresh ideas that come out of the week-long sessions. This fact,

The George Wright Forum, vol. 35, no. 1, pp. 65–72 (2018).

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along with the ability to bring students in contact with the resource (i.e., a park), community members (i.e., stakeholders), and relevant scientists (e.g., biologists, social scientists), enriches their understanding (and the park's) of the complexity of protected area management. In this paper, we discuss the value of PB for students and the host parks, as well as the evolution of the program. We also highlight the student experience by focusing on the most recent outcomes, future possibilities, and lessons learned.

Since the first session in the spring of 2008, a variety of issues have been tackled, which is a strength of the PB model. The framework of PB is simple: bring bright, motivated students with fresh ideas to a park for a week to examine issues from a different perspective. The topic of each PB is extremely flexible and dependent on the host park's needs. One of the first PBs, in Acadia National Park, brought together students from universities across the country to discuss how civic engagement is a critical component of park management. Issues ranging from conservation policy (Delaware Water Gap National Recreation Area), to global climate change (Gateway National Recreation Area), to the wildland–urban interface (Indiana Dunes National Lakeshore) have been topics of discourse. These early PBs were mainly focused on student engagement and providing an experience that could facilitate their future involvement in protected area management, either through academic or practitioner endeavors.

Although there were tangible outcomes in the early PBs, they mainly focused on student reflection and efforts to publish their work (George Wright Society 2017). As PB has continued to progress, the focus has shifted to providing the host park with a usable product as a result of the work the students have been involved with while on-site. This product is based on the needs of the park, but has recently manifested itself as technical reports for the host park (Burroughs et al. 2016). As the PB idea continues to evolve, the value for park managers and students may also continue to evolve.

The value of Park Break for students and host parks

The PB program has proven to be valuable for the student participants. Many have gone on to careers in protected area management, and they attribute much of their current path to PB. Additionally, PB has acted as a meeting place to bring together like-minded, yet diverse, individuals. In fact, one student summed up the experience by stating, “Park Break is not just about a week in a park, it is intended to create an ongoing community of motivated young professionals” (Vezeau, Lindsey, and Mora-Trejos 2012: 376). Even though the program has tackled a variety of subject areas, PBs have been rated as successful by the participants. Mora-Trejos et al. (2011) compiled an early evaluation of the program. They found that 95% of the students they spoke with were happy with the overall experience. Students said they learned skills and ideas that would carry over into their future careers, that the experience provided a grounded perspective on conservation, and that they made lifelong connections with other professionals in the field. The on-site and immersive nature of the experience also yielded several dividends (discussed in the next section).

Students spend most of their time at PB gaining a thorough understanding of how a park “works” and the complexity of daily operations. This is a unique component of the PB program. Students often stay in park housing, eat meals on-site, and spend 8–10 hours a day with park managers discussing various issues related to the overall theme of the specific PB. Many

other programs do not offer this level of access to park managers to truly understand the parameters under which they work. Additionally, students have the extraordinary opportunity to interact and learn from a variety of protected area professionals, including wilderness rangers, park biologists, natural resource specialists, park planners, chiefs of resources and interpretation, cultural resource specialists, and park superintendents, to name a few. This is a rare and unique experience that, for most students, is the first time they have had this level of engagement with such a diversity of protected area managers. The reverse is often true as well: many managers and specialists have not had the opportunity to engage with students on this level.

The PB program is offered to graduate students working on research related to protected areas in some way, and students are selected based on their level of knowledge for the topic being explored by the host park. Often, students work on their research in isolation, disconnected from their peers and the ways their work may have real-world applications. The PB program provides students an opportunity to see the connection between research (i.e., academia) and application in a dynamic protected area management setting. This setting also fosters the relationship between researcher (i.e., student) and their research subject (e.g., park management). Students gain a deeper understanding of what questions to ask, how to ask them, and how to frame their questions to help park managers answer difficult, often complex problems. The success of the PB program in delivering high-quality experiences for students is clear, but just as clear are the host park's positive experiences.

The hosts for PB have stated that the experience provided them with new insights into existing issues. They've indicated that the students provided them with different ways to think about common problems, and that their efforts will help them with future planning processes. A host park manager who worked with students on understanding hydrological cycles in a park stated:

I can't even begin to tell you how much the park learned and the benefits we gained from this project—the students' work really helped us break new ground. We were able to accomplish things that would have taken us years to accomplish through another path. Having all that energy and knowledge in the room and in the field made for a great synthesis of ideas.

Another park manager, who has hosted multiple PBs (most recently related to social science), went so far as to say:

It was a very exciting and stimulating week here at the park that challenged my staff and myself with meaningful discussions about the major issues that not only faced the park, [but] the area, the park service and the environment in general. We did not have all the answers, and through these discussions it caused us as managers to reflect and re-evaluate our current management practices. I was very impressed with the caliber of students, and I know in the years since 2009, the students have gone on to accomplish many great things, including pika research, sustainability, planning, and some are in NPS careers themselves. I just hope that the students learned as much as I did as their host.

This last quote is of particular interest for this analysis, as it highlights the utility of a specific focus for a PB experience: social science.

The value of Park Break to social science research and protected area planning

To this point, PB has been discussed in terms of general organization, and general success of the program. However, as was discovered during the first social science-focused PB, this program has tremendous potential to provide protected area managers with tangible, immediately useful information to help with current and future planning efforts. Additionally, social science-focused PBs can deepen students' understanding of the applicability of this method of research, which can help them with their current studies and help inform future career decisions. The following case study at Great Sand Dunes National Park and Preserve (GRSA) in Colorado highlights the value of a social science-focused PB, and how the program can pay dividends to the host park or protected area.

Case study: Great Sand Dunes National Park and Preserve

Managers at GRSA have a long history of support for student involvement, and specifically the PB program. The park hosted a PB in 2009 focused on climate change that provided a functional foundation for the social science-based PB in the fall of 2015. As is the case with many of the successful PB programs for the past ten years, the staff at GRSA identified some potential avenues for student engagement. One of these related to the development of a backcountry and wilderness management plan. Park managers anticipated a future planning process that would rely heavily on the incorporation of social science in the decision-making process. It was at this time that staff at GWS and GRSA (along with financial and logistical support from the National Park Service Social Science Branch) came to the conclusion that a social science-based PB could be of real value to a future planning process. Students would be selected for the program based on their knowledge of parks, protected areas, park planning, and social science-related research to inform a social science needs assessment for GRSA. This project would yield a document that would provide the park with a roadmap of what social science information was needed to make informed decisions related to their backcountry and wilderness management plan.

The social science PB brought eight exceptional graduate students from universities across the country (e.g., North Carolina State University, University of Utah, Colorado State University, Clemson University) to GRSA for a one-week experience at the park. Additionally, staff members from the Social Science Branch of the National Park Service and faculty members from Clemson University and Kansas State University helped facilitate the experience. Throughout the week, the students met with park managers, local community members, and stakeholders (Figure 1), and visited key sites in and around the park, all the while contemplating the direction of the needs assessment. Through an intense effort over the final one and a half days of the PB session, the students as a group developed a Social Science Needs Assessment as the final product (Burroughs et al. 2016).

The Social Science Needs Assessment identified three research themes and associated key research topics: park visitors and experiences; relevancy, diversity, and inclusion (RDI); and natural resources in the park and preserve (Burroughs et al. 2016). Each research theme



Figure 1. Students at a Park Break hosted by Great Sand Dunes National Park and Preserve hear from a local rancher (and park stakeholder) about sustainable agriculture. Photo courtesy of Fred Bunch.

included key topics that would further the park's ability to make informed management decisions. The key research topics identified informational gaps for which social science research could be used to understand, and thus aid, manager decision-making in a complex environment. Following the publication of the Social Science Needs Assessment, many of the students from the PB hosted a panel discussion at the 2017 George Wright Society Conference that focused on advancing thoughts and practices of topics such as place-based conservation. The discussion with the audience following the panel session prompted an idea for a regionally focused visitor use monitoring protocol that would be coordinated between multiple park units during spring 2018. This advances the inaugural social science PB needs assessment from providing information to park managers to also providing mechanisms to monitor important park resources and understand visitor impacts at a regional scale.

Long-term benefits of social science-based Park Breaks

PB offers a range of benefits to all who participate, including park staff, faculty, and students. Park staff are able to connect directly with students and faculty to build connections and provide applied context for students' theory-based graduate research. The PB program also

provides managers an opportunity to inform students of the complexity of protected area management and how this knowledge can inform their careers as researchers or practitioners. Faculty benefit by mentoring students during the experience and acting as a bridge between research and practice. Additionally, faculty gain a more grounded understanding of park-based social science needs and what research can be done to address these needs. Students are able to see first-hand the daily operations of a park as they shadow and interview interdisciplinary specialists. This immersive experience provides opportunities for students to interact with a variety of park staff (Figure 2) and explore professional paths that could lead to a career in civil service. PB also contributes to career development through networking, developing a useful product for parks to use, and building communities of practice with other graduate students doing similar work. Finally, all who participate in PB benefit from the opportunity to understand place-based visitor use management issues; have engaging dialogue with stakeholders, park staff, and academics; and work together to identify real-world solutions that the park can implement.

While the research themes developed during this PB were specifically for GRSA, the outcomes of the social science-based needs assessment might be applied in a variety of other park settings. The following types of information, identified as a result of a research theme, could be considered in future decision-making in multiple settings. An accurate understanding of visitors through social science helps facilitate positive visitor experiences, as well as fostering resilient communities and increasing stakeholder involvement. The use of social

Figure 2. A ranger at Great Sand Dunes National Park and Preserve explains the role of water in shaping the dunes to Park Break students. Photos courtesy of Ryan L. Sharp.



science to maintain relevancy and increase diversity and inclusion could help parks meet agency directives; coordinate national, regional, and local RDI initiatives; reduce conflict between user groups; and inform management of existing barriers and constraints that prevent diverse user groups from visiting. The impacts of visitor use on natural resources gathered through social science data collection might inform future planning efforts and bring multiple agency partners together to develop comprehensive monitoring and planning initiatives. This could contribute to the socio-economic monitoring effort currently being developed by NPS (see Pettebone and Meldrum, this volume). The research themes generated during the GRSA PB are products of one PB experience, but in general, social science can be used to inform decision-making for natural and cultural resources, as well as visitor experience, across diverse settings and for many different resource management agencies.

Several lessons were learned from the inaugural social science-based PB. Having a clear goal in mind before the on-site portion of the program is essential. All members of the PB planning team met several times to clearly articulate that the primary outcome of the week-long experience would be a social science needs assessment to inform an upcoming Backcountry and Wilderness Management Plan at GRSA. Although this outcome may seem simple and practical, specifying it was essential for the success of the PB. The students were assigned reading to inform them of what the plan would look like and why it was being written. Without this clearly stated goal, and some upfront work done by the students, it would have been extremely difficult to complete such a complex task in a week's time. Due to the compressed nature of PB, intense planning for the management team is also required. A detailed itinerary for the week is essential; however, this suggestion comes with a cautionary tale. All PB programs, and especially the one highlighted in this paper, are intense and demanding experiences for all involved, often requiring students and organizers to be engaged for 12–14 hours a day, for five to seven days. There is a fine line between under-programming and over-programming. A common point of feedback from students after the PB programs had been completed was lack of time to explore the park on their own. Although there is much to be done during the PB experience, providing students some unsupervised time in the park would provide them with time to further connect with it, informally observe use patterns, recharge, and build relationships with their peers.

Social science-based Park Breaks: On the horizon

The potential for other parks and protected areas to take advantage of the social science-based PB model is limited by the individual agency's ability to allocate the necessary funding; however, education is a foundational point of many agency's missions (especially that of NPS). Beyond funding, one of the major obstacles to future social science-based PBs is simply knowledge of the program. Many managers are unaware that such an opportunity exists and are equally unaware of the potential benefits to their parks. For example, at the most recent (2017) GWS conference in Norfolk, Virginia, the groundwork was laid for a social science-based PB focusing on regional visitor use management at Joshua Tree National Park, Mojave National Preserve, and Death Valley National Park in California. Clearly, raising awareness of the program among protected area managers could lead to more opportunities in the future. We now have 10 years of successful PB programming to provide as examples

to managers. This track record clearly displays the benefits for the host park and the participating students. Additionally, there will be examples from two social science-based PBs conducted so far to serve as a successful blueprint for other parks and protected areas.

It is no secret that parks and protected areas struggle with budgetary and staffing issues. Managers must do more with less. These conditions make PB an ideal program to help alleviate some of these issues by bringing highly motivated, exceptionally bright, diverse students to a park to help answer questions that may otherwise fall away under the demands of everyday operations. The PB program does require funds to operate, but the payoff for the modest amount invested in this endeavor is exponential. The students who apply for PB want to help parks and protected areas and understand how the research they do can be applied to a real-world setting. They are interested in knowing the behind-the-scenes workings of large land management agencies. Perhaps most importantly, these students are interested in working with, or directly for, land management agencies to help improve physical and experiential conditions so these special places exist in perpetuity. The PB program, and especially the social science-based PBs, provide all of these opportunities for managers and students to work towards a common goal that benefits them both as well as the protected area.

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People of Color and Their Constraints to National Parks Visitation

David Scott and KangJae Jerry Lee

Introduction

THE UNITED STATES POPULATION is becoming more ethnically and racially diverse than in the past. More than one-third of all Americans can be classified as a person of color (Black, Hispanic, Asian, or Native American), and the proportion of ethnic and racial minorities is projected to increase in the future (US Census Bureau 2012). Hispanics are now the largest minority group in the United States, followed by African Americans, Asian Americans, and Native Americans. Demographers predict that the White population will become a numerical minority by 2050 (Colby and Ortman 2015).

Despite this population change, existing data suggests that people of color visit national parks far less than Whites. Using data from a national survey, Taylor, Grandjean, and Anatkova (2011) reported that 53% of non-Hispanic Whites polled could name a national park they had visited in the last two years. In contrast, only 32% of Hispanics and 28% of Blacks reported they could do so. Data collected by the National Park Service (NPS) Visitor Services Project (VSP) substantiate that people of color represent a comparatively small fraction of national park visitors.¹ Hispanics and Asian Americans each comprised less than 5% of visitors to national park sites surveyed, while less than 2% of visitors were African Americans. Critics within and outside NPS recognize that its long-term survival depends on making its parks more welcoming and relevant to constituents and a changing population (Wilkinson 2000).

Our goal in the remainder of this paper is to identify key factors that constrain national park visitation among people of color. We believe a constraints perspective will illuminate why people of color do not make greater use of NPS areas, particularly those parks that are remote and where outdoor recreation and scenery are major attractions. This brief review

The George Wright Forum, vol. 35, no. 1, pp. 73–82 (2018).

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will aid NPS staff and its partners as they continue to diversify the park service and create programs and offerings that are relevant to a broader spectrum of Americans.

Leisure constraints

We begin by defining *leisure constraints* and provide some principles about how constraints operate. Leisure constraints are those factors that limit people's participation in leisure activities, people's use of leisure services (e.g., visitation of national parks), and/or people's enjoyment of current activities or services (Scott 2005). This definition casts a wide net and suggests that constraints impact different facets of leisure participation and outdoor recreation. A key principle to understand is that leisure constraints influence both participation *and* preferences. Historically, most constraints studies have sought to explain non-participation in leisure activities or non-use of leisure services. The underlying assumption in these studies is that people have leisure preferences, but various factors (e.g., lack of time, access, resources) constrain their ability to act upon those preferences. These constraints were defined by Crawford and Godbey (1987) as *structural* and are assumed to be external and outside people's control. Crawford and Godbey advanced our understanding of leisure constraints when they postulated that there are also various factors that *inhibit the development of leisure preferences*. They defined these constraints as *intrapersonal*; they include personality needs, religiosity, reference group attitudes, prior socialization, and perceived skills and abilities (Scott 2005). Importantly, intrapersonal constraints result in people defining some leisure activities, services, and locales as inappropriate, uninteresting, or unavailable. It is highly likely that both structural and intrapersonal constraints figure prominently as to why people of color do not visit national parks as often as do Whites.

Another important principle is that leisure constraints are not insurmountable. Research indicates that many people participate in leisure activities or visit parks despite encountering constraints. Hubbard and Mannell (2001) documented that the presence of a constraint may trigger negotiation efforts. Research also shows that individuals who are highly motivated to participate in outdoor recreation activities are likely to work hard at negotiating constraints (White 2008). An important implication of this line of inquiry is that national park employees and their allies can create strategies to assist would-be visitors in their efforts to negotiate constraints.

Although a great deal of research has been conducted on constraints to leisure and outdoor recreation, relatively little has been done on factors that prevent people's use of national parks. Nevertheless, we believe that the corpus of knowledge on leisure constraints is readily applicable as to why people of color are less likely than other Americans to visit national parks. We argue that non-visitation can be boiled down to three sets of factors, discussed below: (1) limited socioeconomic resources, (2) cultural factors and boundary maintenance, and (3) discrimination and White racial frames. Scholars have explained that these factors are related to people's use of national parks (e.g., Weber and Sultana 2013), but they stop short of explaining *how* they actually constrain participation and the development of leisure preferences. By understanding leisure constraints, park managers will be in a better position to develop strategies for allaying the conditions that inhibit visitation (Scott 2013). Doing so

will mean that the benefits of visiting national parks will accrue to a broader cross-section of Americans.

There seems little doubt that these three factors work separately or in tandem to stymie national park visitation among people of color who express interest in national parks. They also impair the acquisition of early formative experiences that carry over into adulthood. White Americans, particularly those who are affluent, routinely pass on to their children skills, knowledge, and appreciation of the outdoors. They do this by providing them encouragement, instruction and equipment, and vacationing with them in national parks and other exotic destinations. Without formative experiences, people lack skills, knowledge, and appreciation of the great outdoors in general and national parks specifically. The absence of these skills often means that many people of color come to equate national parks and other outdoor areas as White spaces and off limits to them. Parenthetically, the last few decades have seen a general societal trend wherein children are increasingly disconnected from nature (Louv 2005). This situation is fueled, in part, by growing parental fears of strangers and the rise of electronic media. This growing trend may hit people of color the hardest as constraints to outdoor recreation have been most acute among them.

Limited socioeconomic resources. Low national park visitation and constraints to visitation among people of color in the United States can be attributed, in part, to limited access to socioeconomic resources (Floyd and Stodolska 2014). According to Taylor et al. (2011), affluent Americans are three times more likely to visit national parks compared with poor Americans. They also reported that 69% of Americans with household incomes of over \$150,000 said they visited one or more national parks in the past two years, compared with only 22% of Americans with household incomes of less than \$10,000. Studies also show that regardless of race or ethnicity, low-income Americans are far more constrained in their leisure compared with other Americans (Scott 2013). They are more likely to lack information about park resources, worry about safety, lack reliable transportation, and lack sufficient discretionary income to travel. Simultaneously, poorer Americans are often made to feel loathsome and inadequate by more affluent citizens and park and recreation employees (McCarville 2008).

Racial and ethnic discrepancies in income, education, and employment persist in the US (Shinew and Floyd 2005). Blacks earn far less income than Whites, even when two groups have the same educational level (Bowser 2007). The US Bureau of Labor Statistics (2011) showed that Blacks have the lowest labor force participation rate (68%) and the highest unemployment rate (16%) among any racial groups in 2010. Similar patterns are evident among Latino Americans (Stodolska and Shinew 2014). In sum, constraints to national park visitation among people of color stem in part from comparatively limited economic resources at their disposal.

Despite the presence of affirmative action efforts and antidiscrimination policies, the last few decades have actually witnessed increased economic inequality between Whites and people of color (Scott 2013). Moreover, many people of color, particularly African Americans and Hispanics, now live in chronic poverty and tend to reside in central cities and poorer suburbs where mobility is restricted (Massey 2007). Leisure and recreation opportunities in these areas are not only limited, but crime is a pervasive threat. Parents often confine and

restrict their children's freedom of movement and play to protect them from crime and negative peer influences (Outley and Floyd 2002). Not surprisingly, children who grow up in persistent poverty are often unable to acquire skills, knowledge, and appreciation of outdoor recreation activities and national parks (Erickson, Johnson, and Kivel 2009).

Cultural factors and boundary maintenance. Cultural factors also account for lower levels of national park visitation among people of color. Sometimes called the *ethnicity hypothesis*, the idea here is that differences in leisure participation and outdoor recreation preferences among ethnic and racial groups stem from differences in cultural norms, value systems, and socialization practices (Floyd and Stodolska 2014). Cultural factors provide group members a template about the kinds of leisure and outdoor recreation behaviors to which they ought to conform. In this regard, cultural factors both facilitate *and* constrain participation in different leisure activities. Indeed, outdoor recreation activities and environments have varying cultural relevance to different groups of Americans. Washburne (1978) is credited with introducing the ethnicity hypothesis to the literature in an effort to explain what he called "under-utilization" of outdoor recreation areas among African Americans. He observed that there may be "powerful forces within the community that discourage participation in 'white' activities" (p. 178). Central to this thesis is the idea that people participate in leisure activities, at least in part, to sustain their ethnic and racial identity. To the extent that members adhere to cultural norms, they engage in *boundary maintenance*, which is the process of actively constructing and highlighting ethnic and/or racial differences (Gramann and Allison 1999). Boundary maintenance insulates group members *and* prescribes which leisure activities and venues are *culturally relevant*. People of color might not participate in some outdoor recreation activities and avoid outdoor settings "because they do not reinforce an ethnic group's collective identity" (Floyd and Stodolska 2014: 13). Johnson and Bowker (2004) noted that, unlike Whites, many African Americans do not view wildlands as "therapeutic landscapes" that provide a respite from society ills. They went on to note, "for African Americans these same terrains may be what cultural geographers refer to as 'sick places' which evoke horrible memories of toil, torture, and death" (p. 60). In sum, while cultural factors provide opportunities for action, they also constrain outdoor recreation participation and national park visitation by thwarting the development of leisure preferences that define national park areas as relevant, appropriate, interesting, or available.

Discrimination and White racial frames. Lack of formative experience with outdoor recreation activities and national parks reinforces the belief that these recreation amenities and destinations are culturally irrelevant to people of color. The procurement of this belief is linked to discriminatory and exclusionary practices in the past and present. Indeed, members of dominant groups engage in boundary maintenance of their own which often results in their resisting the inclusion or assimilation of outsiders.

Discriminatory and exclusionary practices go back generations and have long constrained people of color in their efforts to visit parks or engage in various forms of public recreation. Prior to the Civil Rights Act of 1964, many people of color were legally barred from, or segregated at, public recreational sites, including national and state parks (Shumaker 2009; Lee and Scott 2016). Efforts to integrate recreation areas often resulted in physical

violence. Simultaneously, many conservationists who were instrumental in the establishment of national parks expressed little interest in encouraging minority citizens' visitation (Jordan and Snow 1992).

The impact of racial discrimination on leisure and outdoor recreation participation in contemporary America is well documented. Many people of color have noted that they routinely encounter acts of discrimination onsite or during their travels, which negatively impact their enjoyment and subsequent behavior (Lee and Scott 2017). Discrimination by other visitors is among the most frequently cited form of mistreatment, and may range from hostile stares to physical attacks (Sharaievska, Stodolska, and Floyd 2014). People of color also note that they have been the victims of discrimination from park and recreation workers. Professional staff may simply be inattentive to the needs and interests of people of color, which may embolden other visitors to engage in acts of hostility (Fernandez and Witt 2013).

Other researchers have acknowledged a more nuanced relationship between discrimination and outdoor recreation among people of color. Discrimination may actually stem from a variety of everyday interactions and unconscious assumptions (Young 1990) that are regarded by employees and stakeholders as legitimate and fair. Inequality is perpetuated over time, according to Scott (2014), by a variety of "practices and beliefs that are firmly embedded in the normal, everyday functioning" of how park and recreation services do business (p. 47). Although these practices are outwardly neutral, they "systematically reflect or perpetuate the effects of preferential treatment in the past" (p. 48). For example, researchers have documented that White managers of parks, forests, and wilderness areas often assume that the majority of visitors are Whites, so interpretive exhibits and stories in these areas tend to predominantly celebrate White Americans' history and heritages (Taylor 2000). Stories and contributions of people of color are often ignored or distorted (Loewen 1999; Lockhart 2006).

Central to the perpetuation of institutional bias is what Feagin (2013) called a *White racial frame*, which he defined as "an overarching white worldview that encompasses a broad and persisting set of racial stereotypes, prejudices, ideologies, images, interpretations and narratives, emotions, and reactions to language accents, as well as racialized inclinations to discriminate" (p. 3). The idea here is that Americans routinely and often unconsciously view White people and their behavior positively and represent *the* standard for evaluating what is good and moral. In contrast, people of color and their behavior are regarded with suspicion, stereotypes, and notoriety. A White racial frame permeates how Americans institutions operate, including park and recreation delivery. Since its inception, the NPS has codified appropriate behavior and ways of experiencing national parks that are rooted in 19th-century White middle- and upper-class ideas about respectability and decorum (Cosgrove 1995; Byrne and Wolch 2009). In a nutshell, national parks are to be used for education and inspiration. This view is reinforced by the media, including nature documentaries. Among staff and many visitors, this translates into a form of enjoyment that gives primacy to quiet contemplation of nature rather than noisy, active use of nature.

Throughout the United States, many public spaces are equated as White spaces. Despite civil rights laws that legally forbid the exclusion of people of color from public facilities, many parks and public areas remain the province of Whites and off-limits, at least unoffi-

cially, to people of color. Austin (1997–1998) observed that many White Americans have a *proprietary* attitude about the public places they occupy and rules for appropriate behavior. People of color who venture into White spaces, including national parks, may be treated rather coolly and, not surprisingly, feel unwelcome and remain on their guard (Carter 2008). Moreover, their behavior in White spaces often comes under severe scrutiny. Leisure among young African American males, in particular, is often viewed as pathological, disruptive, and a major source of disturbance in public settings (Austin 1997–1998). This has led to no small amount of racial profiling and monitoring in public parks and recreation areas. It can be surmised that many people of color in the United States are constrained from more fully accessing a wider range of outdoor recreation activities and NPS areas because of the existence of a firmly entrenched White racial frame.

A White racial frame makes it daunting for people of color to participate in outdoor recreation activities and visit parks where they are in the minority. Mikhail Martin, a young African American from Queens and co-founder of Brothers of Climbing, explained why so few Blacks participate in rock climbing: “In the black community, there’s this misconception that, ‘Oh, Black people don’t do that. Only White people do this.’ And they have every right to believe that, because their outlet to the world is what you see on the TV and internet, and if you don’t see any Black people, or any people of color climbing, you’re not going to think you can do it” (REI 2017). J. Drew Lanham (2013), a serious birdwatcher and African American, offered nine “rules” for African American birdwatchers. An abbreviated list is as follows:

- Be prepared to be confused with the other black birdwatcher.
- Carry your binoculars—and three forms of identification—at all times.
- Don’t bird in a hoodie.
- Nocturnal birding is a no-no.

Some White visitors are vociferous in their opposition to the NPS’s efforts to promote ethnic and racial diversity in the national parks. The following letter to the editor, published in *National Parks* magazine, blasted the NPS for what the writer regarded as a misguided initiative: “Your recent article . . . was way off target. To modify the National Park System to lure ethnic minorities would be a disaster and one more facet of our country that would be changed to please a few, ignoring the desires of the majority. . . . If minorities do not like going to the parks, it is their loss. But please don’t let us be duped into thinking it is our loss. Many of us look to the parks as an escape from the problems ethnic minorities create. Please don’t modify our parks to destroy our oasis” (Lucier 1994: 6). Three other letters were published along with this one and they too were critical of the NPS in its diversity efforts.

Conclusions

Despite NPS’s efforts to diversify its staff and create sites that reflect the history of all Americans, people of color are far less likely to visit many national parks compared with Whites and they face formidable constraints to visitation. We have argued that non-visitation can be boiled down to limited socioeconomic resources, cultural factors and boundary maintenance,

and discrimination and a White racial frame. These constraints limit visitation *and* the acquisition of leisure preferences that define outdoor recreation and NPS destinations as culturally relevant and appropriate. Is there anything the NPS can do to alleviate these constraints? We believe that service provision for people of color can be improved by ensuring that programs and facilities are affordable, accessible, culturally relevant, safe, and welcoming.

More specifically, we suggest that NPS initiatives and programs work toward ensuring that younger generations of Americans, particularly youth of color, establish a long-term relationship and gain in-depth experiences with national parks (Stanfield McCown 2011). Moreover, NPS must work harder at recruiting individuals from more diverse backgrounds, as nearly 80% of the NPS workforce is White (Partnership for Public Service 2018). Simultaneously, the agency needs to dissipate the conservative organizational culture that discourages new ideas and creates barriers for promoting diversity and inclusion (Santucci et al. 2014). A more inclusive workforce would give voice to the needs and constraints of people of color.

The biggest challenge facing NPS may be political. It is noteworthy that people of color are far more likely to visit parks that are relevant to their historical and/or cultural heritage. For example, data collected by VSP showed that Asian Americans comprised one-third of all visitors to Manzanar National Historic Site, a unit that interprets the internment of Japanese Americans during World War II (US Department of the Interior 2005). Likewise, Blacks made up 17% of all visitors to Booker T. Washington National Monument, a historical park established to honor the birthplace of one of the United States' most prominent African American educators and orators (National Park Service 1996). However, as we have noted, many Whites regard national parks and other recreation areas as White spaces. They might not want NPS and other agencies to highlight non-White legacies or reach out to minority communities. Given the widespread antipathy many people of color encounter in everyday life, NPS will need strong and influential allies and partners as they continue to seek to make the agency relevant to more Americans. Without allies and political support, NPS's effort to diversity will stall, and many people of color will continue to encounter formidable constraints to visitation.

Endnote

1. VSP studies were conducted on site at National Park Service units. Some VSP studies collected information about the ethnic and racial background of visitors. We examined hundreds of reports from 1982 to 2016 and found that 76 studies collected race/ethnicity data. VSP reports can be obtained at <https://sesrc.wsu.edu/national-park-service-projects>.

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Yellowstone's Howard Eaton Trail as Management Tool and Cultural Artifact

Judith L. Meyer

ON JULY 19, 1923—amid much pomp and circumstance—the National Park Service (NPS) opened a 157-mile bridle and hiking trail in Yellowstone National Park and named it the Howard Eaton Trail (HET). For the next half-century, NPS administrators used the HET to address the agency's need to provide public transportation and recreation options during the pivotal years when automobiles replaced horse-drawn vehicles as the primary means of transportation in Yellowstone and hiking replaced trail-riding as a recreational activity. In 1970, when the General Authorities Act defined the Park Service's mission as being more focused on nature preservation and ecological restoration, NPS made the decision to stop maintaining the HET, allowing nature to reclaim the path that had been maintained so assiduously for so many years. As a result, the HET went from being a useful and popular corridor for equestrians and hikers to being a cultural artifact, a conceptual historical marker encapsulating a century of social change.

Despite the widespread use and name-recognition of the HET during its heyday, its significance has been under-represented in the scholarly literature. This may be because some see the HET simply as an element of the park's infrastructure—a means of connecting important Yellowstone features to one another—rather than as an important and meaningful place in and of itself. What follows is an attempt to explain this latter perspective by showing how the history of the Howard Eaton Trail mirrors the history of NPS as a federal land management agency and how NPS policies manifested themselves on the Yellowstone landscape. This is done through maps, historical photographs, and documents graciously provided courtesy of the NPS's Heritage and Research Center in Yellowstone National Park, and a series of digital maps created by students at Missouri State University. The maps show three

The George Wright Forum, vol. 35, no. 1, pp. 83–95 (2018).

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historical locations of the HET: the original location in 1923, its location in the mid-1930s after a major re-construction effort, and its location in the late 1950s. With the exception of three minor segments still in use today, the named Howard Eaton Trail does not appear on maps produced by the federal government after its decommissioning in 1970. Further, this is also the story of Howard Eaton's association with Yellowstone, a role memorialized in his namesake trail.

Eaton was a Pennsylvania native who moved to Dakota Territory in the late 1870s and started a cattle ranch near what would become Medora, North Dakota. Eaton soon invited his brothers, Willis and Alden, to join him in the cattle business, and a decade later, the Eaton Brothers' Ranch expanded its business to include serving as a dude ranch (Rodnitzky 1968; Borne 1983). In 1904, the Eaton brothers moved their operations to Wolf, Wyoming, where the neighboring Big Horn Mountains provided good land for their cattle as well as hunting and fishing opportunities and railroad access to Yellowstone's north entrance at Gardiner, Montana, for their dudes (Ringley 2010). In addition to activities at the ranch, Howard Eaton began offering guided saddle-horse trips to Yellowstone and later to Glacier and Grand Canyon national parks. Eaton's Yellowstone pack tours during the 1880s included only a dozen or so men who were "roughing it," if the few grainy photographs documenting these tours are any indication of life on the trail. By the early 1900s, however, Eaton's pack tour clientele was "roughing it with comfort" as described his brochures. Eaton's later Yellowstone tours had up to 60 members, both men and women, who spent two or three weeks touring the park and suffered few privations. "Girls made the guests' beds and served them food while wranglers took care of the horses and set up the equipment" (Borne 1983: 102). Today, we would call this "glamping"—glamour camping—rather than a real wilderness experience, but Eaton understood what people wanted, and he took a personal and active role in shaping that experience.

Eaton's clients were primarily wealthy, educated Easterners who opted to ride horses and camp with Eaton rather than touring by stagecoach, staying at the park's grand hotels, and eating in fancy dining rooms. Even a quick glance at Eaton's promotional brochures reveals his keen understanding of what Easterners wanted of a Western experience. He appeals to their sense of adventure, of living out-of-doors in frontier America, at one with wilderness yet with all the safety and amenities of modern, civilized travel. During his almost 30 years as a trail guide, Eaton was an energetic and shrewd promoter of the national parks, not so much *discouraging* people from traveling by other means so much as singing the praises of trail riding. Never openly criticizing his competition, Eaton suggests that traveling on horseback provides a more authentic and satisfying park experience, and he extolled the virtues of the national parks as places with clean air, clean water, and the opportunity to see wild animals in their native haunts rather than confined in a zoo.

Eaton's guest list and circle of friends included movers-and-shakers in Western politics, conservation, and the arts, including Teddy Roosevelt, George Bird Grinnell, Charlie Russell, and Mary Roberts Rinehart, whose book, *Through Glacier Park* was sub-titled *Seeing America First with Howard Eaton*. When Eaton died in the spring of 1922, just as NPS was completing construction of a first-of-its-kind, park-encompassing, bridle trail, Yellowstone's

chief ranger, a close friend, suggested the trail be named “in honor of Howard Eaton, celebrated horseman and guide, who had conducted nearly a hundred horseback parties through the Yellowstone” between 1883 and 1922 (Chittenden 1924: 259).

In some ways, the HET that opened to the public in 1923 pre-dates the establishment of NPS as the federal agency mandated to manage an assortment of existing national parks, monuments, battlefields, and other sites managed at the time by several different federal agencies (Foresta 1985). When US Geological Survey (USGS) expedition leader Ferdinand Hayden returned from his exploration of the Yellowstone region in 1871, he submitted a report to Congress that included descriptions of what would eventually become the “must-see” sights of a typical Yellowstone tour: Mammoth Hot Springs; Norris Geyser Basin; the Lower, Middle, and Upper geyser basins along the Firehole River; Yellowstone Lake and West Thumb; and the Grand Canyon of the Yellowstone River and its two waterfalls, the Upper and Lower (Hayden 1872; see also Meyer 1996). When Yellowstone became a national park the following year, it was assigned to the Interior Department, a huge federal agency with seemingly little interest and certainly no expertise in managing a park (Ise 1961; Foresta 1985).

Yellowstone’s first administrators were civilian superintendents appointed through political favors rather than out of respect for their managerial skills, leadership experience, or even familiarity with the park (Bartlett 1983). One of the few directives imposed on them by the Interior Department was to improve public access (O’Brien 1966), resulting in the gradual construction of a Figure 8-shaped road that came to be known as the “Grand Loop.” In its earliest form, the Grand Loop was merely a rough clearing through the forest that allowed riders, pack trains, wagons, and stagecoaches to reach the must-see sights/sites (Cramton 1932; Schullery 2001). In addition to the Grand Loop, there were bridle trails extending into the backcountry used by those more interested in riding and camping than seeing the most famous sights.

When poaching and vandalism became more of a problem than the superintendents could handle, the War Department was asked to intervene and station soldiers in the park (Rydell and Culpin 2006). In 1886, the US Army became the park’s administrators, and the Army Corps of Engineers stepped up construction of roads, bridges, and bridle paths. Park visitation had been growing steadily over time and adding infrastructure—roads and trails, in particular—helped keep tourists and the impact of their activities confined to specific areas within the park. Although providing good roads for stagecoaches and wagons was paramount, the Corps also built new backcountry trails and improved existing ones, because such routes served both the public and the Army’s other obligations, as an Army administrator explains:

Late last fall 25 miles of new trails or fire lanes were built in the southeast corner of the park, and during the present summer similar passageways were built.... These, together with such trails as have been opened up by troops, enable scouts and patrols to get about much easier and quicker and are of great importance in the protection of game and of forests from fire. (Brett 1911: 574).

National and global events, most notably the First World War, set in motion the creation of NPS as a non-military agency to oversee the parks. NPS's first two directors, Stephen Mather and Horace Albright, shared a single vision for the parks, one that emphasized tourism and recreation (Sellars 1997; Pritchard 1999; Stephenson 2014), and good transportation infrastructure was essential to the fledgling NPS's way forward. The motivation behind both the initial construction of the HET and the fanfare of its opening lay with forces playing out on a much broader scale than simply inside Yellowstone Park. One was the growing popularity of saddle-horse riding and camping as forms of outdoor recreation associated with the public lands of the American West, particularly national parks and forests (Foresta 1985; Schwantes 2001). Another was the emergence of the US Forest Service (USFS) as a "functional competitor with the new Park Service" (Foresta 1985: 21) in providing outdoor recreation. In the political foment surrounding the creation of NPS, USFS hoped to expand its political clout and the acreage under its control by bringing national parks under its jurisdiction alongside the national forests. USFS "was closing the potential niche in the federal bureaucracy for a preservation and recreation agency ... even while the Park Service was being established (Foresta 1985: 20). Treadwell Cleveland, Jr., named an "expert in forest history" by Gifford Pinchot himself (Pinkett 1962: 10), made the case that national forests—rather than national parks—were better suited as outdoor recreation destinations for independent, self-reliant horseback riding and camping enthusiasts, subtly insinuating that national park goers were an *effete clientele*:

Recreation in the national forests usually takes the form of summer outings devoted simply to camping out. Individuals and small parties, or clubs, come in by stage or wagon ... and shift for themselves with true western independence and skill. Doing without many conveniences is not regarded as privation. In comparison with this western way of enjoying nature, the usual eastern summer vacations ... appear highly artificial. In the national forests enjoyment of recreation is largely based on the absence of conditions which less sincere and capable lovers of outdoor life find quite as indispensable in the woods as in the towns. This fact explains much of the very wide use of national forests for recreation, in regions which are largely pure wilderness (Cleveland 1910: 25–26).

Cleveland went on to suggest that the proliferation of logging roads in the national forests was an asset to outdoor enthusiasts, because logging roads provided easier access to a greater expanse of federal lands. USFS even had a hand in helping start the Trail Riders of America (Foresta 1985), one of many equestrian clubs springing up all over the country looking for places to ride other than in city parks and horse farms.

Mather countered by publicizing his view on the difference between riding on trails in the national forests and national parks and argued that only the parks provided an authentic "wilderness experience." In his first official annual report as NPS Director, Mather cautioned, "one must not confuse the national forests with the national parks," because national forests allow timber-cutting, livestock-grazing, and hunting: activities not permitted in the parks. Instead, "the national parks, unlike the national forests, are not properties in a com-

mercial sense, but natural preserves for the rest, recreation, and education for the people.... They alone maintain 'the forest primeval'" (Mather 1916: 754).

Mather's energetic and determined leadership allowed NPS to consolidate control of existing federal holdings and make plans to add more. He worked hard to strengthen and broaden the NPS's image and popularity among politicians and the general public at a time when automobiles were becoming affordable to American families. Mather reached out to auto clubs and gateway communities, advocating for paved roads to and through the national parks (Whitely and Whitely 2003). Tourists were already allowed to drive automobiles in Mount Rainier National Park beginning in 1908, and General Grant, Crater Lake, Glacier, Yosemite, Sequoia, and Mesa Verde national parks quickly followed suit. In the NPS's inaugural year, Yellowstone still relied on horse-drawn vehicles, and elaborate schedules regulated the times when automobiles could use the Grand Loop so as "not to interfere at all with the regular horse-drawn stage coaches" (Mather 1916: 764). This road-sharing arrangement proved disastrous for both car and horse, and automobiles replaced horses as Yellowstone's primary means of transportation the following year. Some concessioners who had provided stagecoach tours retired from the business altogether, while others sold their horses and coaches and replaced them with touring cars. Eaton benefited from the dissolution of stagecoach-based tours by buying up "some of the coaches, many of the horses, and all of the harness equipment" for use in his booming trail guide and camping business (Culpin 2003: 60).

When the Grand Loop opened to automobiles, park administrators had to find an alternative route for saddle horses. At the national level, Mather wanted and needed broad public support which meant appealing to a wide variety of park user groups, including trail riders, automobile tourists, and eventually, hikers. Mather made efforts to satisfy as many user groups as possible, especially after having so recently wrested the outdoor recreation function away from USFS. Mather pointed out that new and increasingly popular "horseback and foot travel this season in the parks ... has demonstrated the necessity for more trails for equestrians and pedestrians, and comprehensive studies will be made by the engineering department in planning such trails as will properly supplement the road systems and permit their fullest utilization and benefit by the people" Mather (1920: 91-92). One such planned trail would be Yellowstone's HET, a single trail linking must-see sights without sacrificing the wilderness experience. Such a trail would comply with Mather's pro-auto-tourist approach while simultaneously continuing Yellowstone's long tradition as a tourist destination for those seeking the more rugged, trail-riding and camping "frontier-experience." In 1921, Horace Albright was Yellowstone's superintendent, but he would soon replace Mather as NPS director. While still superintendent, Albright indicated that "no new roads should be planned for the Yellowstone; the portions not now accessible to motorists should remain forever in their present condition of primitive wilderness, accessible only by trail—for the saddle-horse parties and hikers" (Albright 1921: 122).

It was during this exciting, contentious, and transitional period that the HET emerges from the shadows and into the light as an integral part of the Yellowstone landscape (Figure 1). When NPS officially opened the HET, the agency manifested two important aspects of a Yellowstone experience on the physical landscape. First, the trail itself was the culmination

Figure 1. Map of the Howard Eaton Trail and Grand Loop Road in Yellowstone National Park. The darker line indicates the location of the HET as it appears in segments on seven USGS 15 minute topographic maps: 1956 Old Faithful Quadrangle, 1956 West Thumb Quadrangle, 1958 Madison Junction Quadrangle, 1958 Mammoth Quadrangle, 1958 Norris Junction Quadrangle, 1959 Canyon Village Quadrangle, and 1959 Tower Junction Quadrangle. The map was created using ArcGIS 10.2 and is courtesy of Aaron Pavlowsky and Marc Owen, Missouri State University.



and expression of a long tradition of trail riding in Yellowstone. Second, naming the trail for Howard Eaton may have been a last-minute decision predicated on his untimely death, but it was a gracious nod to the popular horseman and concessioner who had done so much to popularize Yellowstone and other national parks. Mather traveled from Washington, D.C., to attend the HET dedication ceremony during which a commemorative sign was placed at the Sheepsteer Cliffs (Figure 2), supposedly one of Eaton’s favorite camping spots. Albright, already in Yellowstone, was joined by an impressive assortment of local politicians, residents, and community leaders, and the event gave national NPS officials a chance to meet-and-greet local stakeholders.

Over the next several decades, NPS directors and superintendents wrote glowingly of the HET, using it as evidence of how the Park Service was meeting its agency obligations. Albright, of course, was no exception:

There was a great increase this year in the use of Yellowstone trails. Many saddle-horse parties and several hundred visitors enjoyed the wilderness charm of sections of the park reached only by trail, where wild life is abundant and easy to approach



Figure 2. Howard Eaton Trail sign erected for official dedication on July 19, 1923. The sign reads, “Howard Eaton: Celebrated Western horseman and guide on his favorite mount ‘Danger.’ He conducted over one hundred horseback and camping parties through Yellowstone National Park and other scenic regions of the Rocky Mountains from Canada to Mexico. Died April 5, 1922.” Lantern slide courtesy of Yellowstone Heritage and Research Center, YELL 16371.

and photograph. The trails are all kept in good condition and some new trails were built. The Howard Eaton Trail was finished and dedicated July 19, 1923, to that famous old guide and conservationist, the late Howard Eaton (Albright 1923: 85-86).

Popular guidebooks, too, publicized the HET as both corridor and as recreation destination. The *Haynes Guide*, one of the most popular guidebooks and one published annually from 1890 until 1968, includes lengthy descriptions of the HET. The *Guide* cautions drivers to be aware of horses and riders on the HET, because although “this much needed trail affords equestrians ideal routes to all main points without conflict with motor traffic” (Haynes 1927: 174), there are, in fact, points where the HET intersects with the Grand Loop. The guidebook also includes a lengthy description of the official dedication, details of the HET’s length, route, and purpose, and states that “the splendid Howard Eaton Trail links not only the famous scenic regions of the park but leads also to many points of romantic and historic

interest ... which might be quite forgotten if park travel were confined to main-line automobile roads” (Haynes 1927: 177). Thus, the HET became a landmark representing both a place/location and a tourist activity within a broader “Yellowstone experience.” Even visitors who would never ride or hike the HET were aware of its presence.

The original 1923 HET seems to have been hastily and inexpensively sewn together from bits and pieces of pre-existing bridle trails (New York Times 1918), both named and un-named, some of which appear on park maps as early as the 1880s, as well as parts of freight roads and even game trails. Its route “followed in general the course of the main loop highway and connected the points of outstanding interest” (Skinner 1937: 1), because its primary purpose was not to carry tourists into the backcountry but to provide a corridor for horses so recently excluded from the main road. Mather and Albright may have used the HET as a means of promoting the parks as destinations for trail riding and camping, but little money was allocated to designing and building a good trail, especially when building roads for automobiles would serve a much larger portion of the park-going public.

All that changed, however, during the Great Depression when Franklin Delano Roosevelt’s Civilian Conservation Corps (CCC) came to Yellowstone. Federal dollars were needed to compensate for the decline in tourist spending, and road and trail construction figured prominently among the many projects undertaken with CCC funding and labor. Four CCC camps were set up in Yellowstone just to work on the new Howard Eaton Trail during the summers of 1936 and 1937 (Haines 1977; Rydell and Culpin 2006). Historical photographs reveal the Herculean task of building a completely new trail in some places and vastly improving the condition of the original trail in others. Photographs and comments also indicate a general lack of concern for the environmental impact of trail construction (Figures 3 and

Figure 3. Building the second Howard Eaton Trail. Photograph titled “Plowing out ditch along trail at Arnica Cr. (Lake), 7-29-36, Jacobson,” courtesy of Yellowstone Heritage and Research Center Museum, YELL 192993-1161.



Figure 4. Condition of the Howard Eaton Trail prior to reconstruction. Photograph titled “Side hill gully before rip-rapping with rock, Tower Falls, 7-27-36, Jacobson,” courtesy of Yellowstone Heritage and Research Center, YELL 192993-1158.



4). Trail crews blasted-away boulders sitting along the new route, cut down trees, dug drainage ditches, hauled in aggregate, built retaining walls and bridges, and erected signs and mileage markers.

The original HET may have been constructed in a hurry, but the new and improved trail constructed during the 1930s was built by a more mature, better-funded, and more organized NPS. Notes by the acting assistant chief ranger during the reconstruction project indicate a concern for maintaining NPS standards for “width of tread, grade, drainage and general landscape treatment” that were scrutinized, and then agreed to, by civil engineers and landscape architects. In designing the new trail, NPS had to reconcile its preservation-and-use mission by providing “ease of travel, maximum scenic features and good drainage” while simultaneously minimizing environmental impact, a difficult task due “to the varying topography of Yellowstone Park” (Skinner 1937: 3–4). To build the sort of high-quality trail that met NPS requirements, the original HET had to be moved to where the topography was more forgiving. The HET of the 1930s was an impressive, modern feature (Figure 5), one of which NPS and park users could be proud. Ongoing maintenance included spraying the trail with “CS-2 road oil to prevent dust and for a binding of the loose soil” and recommended “one gallon of road oil to the square yard of trail surface, the oil to be raked into and mixed with the upper layer of the trail surface” (Skinner 1937: 6). Such highly intrusive “hard-scaping” practices are anathema to the NPS mission today but were in keeping with NPS expectations at the time, evidence of the inter-connectedness of the HET, Yellowstone, and the mission of NPS generally.

USGS topographic maps published in the 1950s reveal that NPS built at least one more version of the HET during the post-war and Mission 66 era. The newest HET catered to tourists traveling in their own cars and able to stop and go as they pleased. As early as 1921, Mather anticipated the emergence of hiking as a recreational activity, and he recognized the potential in courting hikers as a park user group, writing that “particular effort was made by the Park Service to stimulate foot travel in the parks—hiking, as it is popularly called.... More trails are needed in all the parks, and, in fact, in national park development consideration is always given to what parts of the park can be better served by trail than by road” (Mather



Figure 5. Completed New Howard Eaton Trail. By the end of the 1930s, the HET was wider, smoothly graded, and dead trees and other debris had been removed from the area on either side of the trail. Photograph titled "Howard Eaton Trail, completed along side hill. Tower Falls, 7-27-36, Jacobson," courtesy of Yellowstone Heritage and Research Center Museum, YELL 192993-1159.

1921: 113). As young people, especially college students, began taking to the trails, NPS once again used the HET to adapt to the new recreational demands. Yellowstone administrators built trail-heads along the Grand Loop, making it easier for hikers to leave their vehicles while they hiked a section of HET and then return to the Grand Loop either where they started or at a different trail-head. Whereas in the 1930s the HET was moved further away from the Grand Loop to reduce the number of times riders needed to cross it, in the 1950s the HET was moved closer to increase day-hiking options. Thus, in less than 20 years, the location and condition of the HET changed from serving primarily trail riders to serving hikers.

By the 1960s, NPS's shift toward nature-based management goals became more pronounced. For the first time in Yellowstone history, concerns for ecological integrity were weighed seriously and scientifically against tourism and recreation, and the HET was a ca-

suality of this latest stage of “mission creep.” In 1970, on the eve of Yellowstone’s centennial and as part of the new management goals, the decision was made to stop maintaining most of the HET. Because the HET was designed to provide panoramic views and access to a variety of park environments such as wildflower meadows, lakes, mountain slopes, and backcountry thermal areas not visible from the main road, it passed through areas now considered geothermally sensitive, prime grizzly bear habitat, or wolf reintroduction areas. Three short segments of the former Grand Loop-encompassing trail are still open in the Old Faithful, Mammoth Hot Springs, and Fishing Bridge areas, however.

The demise and eventual disappearance of the HET as a visible feature on the Yellowstone landscape may evoke bittersweet emotions. There are still hundreds of miles of open, well-maintained trails in Yellowstone, so losing the HET is of sad consequence only to those who recognize its name, traveled on it in the past, and understand its relevance to Howard Eaton, Yellowstone, NPS, and the history of tourism in the American West. However, the fact that nature is, indeed, reclaiming much of the path should bring a sense of satisfaction to those who value allowing nature to run its course. Ecological resiliency is visible in most places along the HET, and where it is not, the HET serves as a baseline for measuring environmental factors that delay or preclude re-establishment of more natural conditions.

Thankfully, NPS is not limited to preserving only natural landscapes and the processes that act on them but also to preserving history, including the historical materials that allowed this preliminary research on the HET. Because NPS has dedicated part of its budget, space, and talent to collecting, preserving, and archiving historical materials and making them available to the public, the HET will be remembered not only as a place name but also as a cultural artifact. For example, the Yellowstone Association (now Yellowstone Forever, an organization created in late 2016 by joining together the Yellowstone Park Foundation and the Yellowstone Association) has offered a summer day-hiking course, “Continuing on the Trail of Howard Eaton,” as part of its summer institute series. And, the internet has allowed former and current HET-hikers to share photographs and reminiscences of their time on the trail as blogs and Facebook postings. Hence, although most of the historic length of the HET has a reduced presence on the Yellowstone landscape, it lives on as a cultural artifact. The idea of—or awareness of—the history of the Howard Eaton Trail serves as a touchstone tying together the story of people, places, and experiences with how the changing mission of NPS manifests itself on the physical landscape.

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Local Communities, CBOs/Trusts, and People–Park Relationships: A Case Study of the Kgalagadi Transfrontier Park, Botswana

Naomi Moswete and Brijesh Thapa

Introduction

The concept of community-based natural resources management (CBNRM) was introduced in Botswana in the early 1990s, and was premised on the idea that rural people must have the power to make decisions regarding utilization of natural resources (Mulale et al. 2013). CBNRM was built on the need for local participation and involvement in the management and utilization of protected areas, as well as community empowerment within and adjacent to them (Thakadu 2006; Mutandwa and Gadzirayi 2007). Based on these fundamental tenets, the CBNRM initiative was designed to alleviate poverty, advance conservation, strengthen rural economies, and empower communities to manage and derive equitable benefits from resources, as well as determine their long-term use (Arntzen et al. 2003; GoB 2007). Since its adoption, the implementation arm for CBNRM initiatives has been largely orchestrated through the formation and operation of a local community-based organization (CBO) and/or community trust (Moswete et al. 2009; Mbaiwa 2013). This local organizational entity (hereafter referred to as a CBO/Trust) has evolved as an instrumental tool for rural communities as it provides a forum for them to negotiate their interests, problems, goals, and aspirations in a democratic and participatory process (Rozemeijer 2001; Arntzen et al. 2003; Mbaiwa 2013). This paper examines how local residents assess CBOs/Trusts, and people–park relationships, within the context of the Botswana portion of the Kgalagadi Transfrontier Park (KTP).

CBNRM in Botswana

In Botswana, park-based tourism and/or community ecotourism is strongly linked to the notion of CBNRM (GoB 2007). According to the National CBNRM Policy of 2007, the

The George Wright Forum, vol. 35, no. 1, pp. 96–108 (2018).

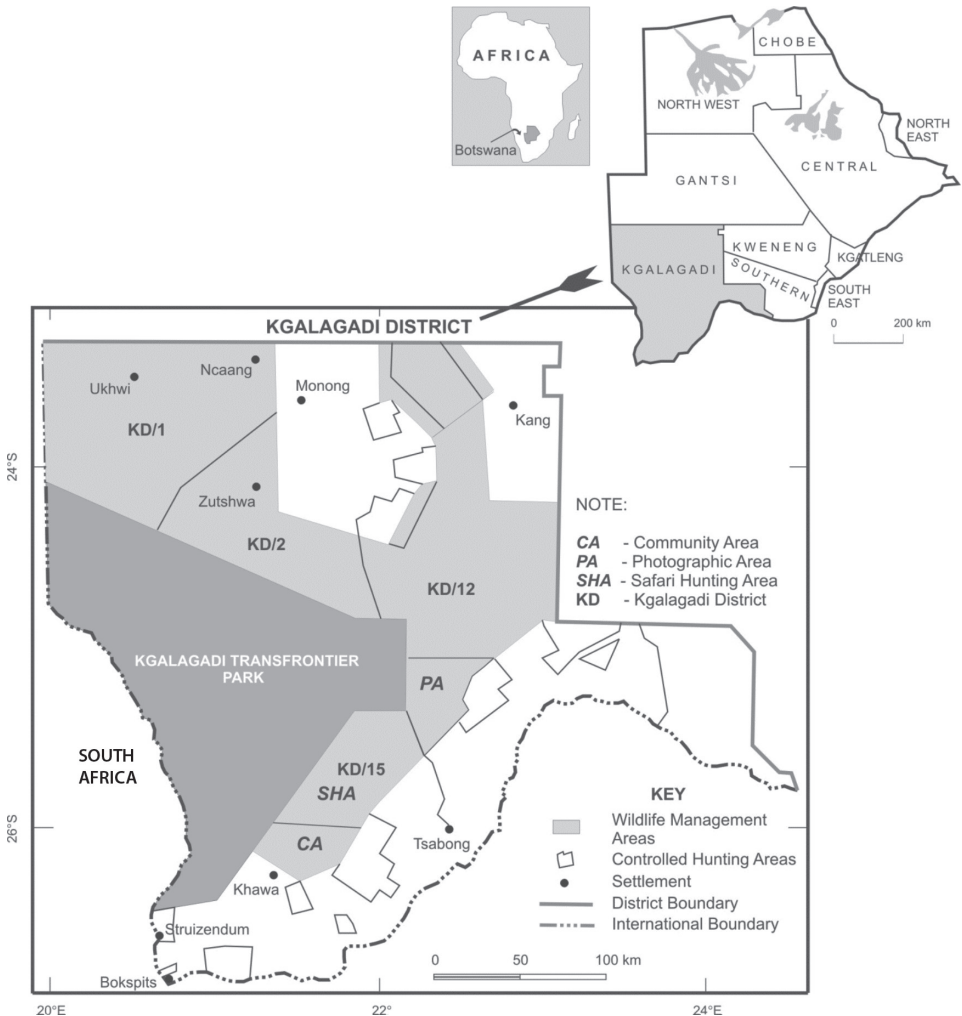
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Ecotourism Strategy of 2003, and the Wildlife Regulations of 2000, the host communities are encouraged to establish CBOs and/or community trusts (GoB 2007). It is through these CBOs/Trusts that communities organize themselves as per their village constituencies and collectively form communally owned tourism businesses or carry out tourism-related projects (Mbaiwa 2013; Mulale et al. 2013). At first, tourism activities run by CBOs/Trusts were not permitted to occur inside protected areas (such as transboundary conservation parks or wildlife reserves) but only within their buffer zones. The buffer zones are designated as wildlife management areas (WMAs; see Figure 1), as they function to resolve land-use conflicts

Figure 1. Study areas and wildlife management areas in and around Kgalagadi Transfrontier Park (KTP). Shown here is the portion of KTP inside Botswana; the transfrontier park extends across the border into South Africa. Map by G. Koorutwe.



as well as act as wildlife migratory corridors (GoB 2001; Dougill et al. 2016). The WMAs are further subdivided into smaller units referred to as controlled hunting areas (CHAs). The WMAs and CHAs are multiple-use areas in which sustainable utilization of natural and cultural resources is emphasized (GoB 2001). *Sustainable use* refers to appropriate consumption of resources to ensure that they are not depleted (GoB 2007). As such, controlled tourism activities are permitted in the WMAs, but agricultural practices with large pastoral and arable farming are not allowed (GoB 2001). The various land uses and wildlife activities permitted include photographic safaris (GoB 2007), film production, game ranching and viewing, and controlled trophy hunting (GoB 2001). Overall, WMAs play a significant role in ensuring the preservation and protection of wildlife and cultural heritage resources (GoB 2007; Mulale et al. 2013).

While CBNRM has the potential to strengthen community rights as well as manage and accrue benefits from a wide range of natural and cultural resources (Arntzen et al. 2003; Stone and Rogerson 2011; Mulale et al. 2013), there are also other positive and negative effects of activities engaged in by various villagers and communities (Mbaiwa 2003, 2013; Stone 2015). While some CBOs/Trusts have been successful in the operational aspects (Arntzen et al. 2003), others have lacked meaningful involvement of locals in tourism (Mbaiwa 2003; Moswete et al. 2009; Moswete and Thapa 2015; Stone 2015). Some of this can be attributed to a deficiency of community capacity to manage tourism-related projects (Stone 2015). It should also be noted that while the majority of CBNRM tourism projects are focused on wildlife and wilderness (Arntzen et al. 2003; GoB 2007), there are a few emerging projects related to cultural tourism and agro-tourism (Rozemeijer 2001; Moswete and Lacey 2014; Lenao and Saarinen 2015).

Generally, CBNRM projects that operate in buffer zones have achieved success, notably in the Okavango Delta region in the northern part of the country, which is a World Heritage site and a major tourism hub (Arntzen et al. 2003; Thakadu 2006; Mbaiwa 2008, 2013). In contrast, communities in Botswana's southwestern Kgalagadi district have also established CBOs/Trusts, but have lacked similar success due to various constraints (Moswete et al. 2009). For example, communities in the Matsheng area, which is a remote region within the district, established a CBO/Trust (the Nqwaa Khobee Xeya Trust) and entered into a joint venture with a private operator to permit exclusive rights for hunting and photographic safaris (Moswete et al. 2009). Based on this relationship, other tourism-related activities were leveraged, such as jobs (e.g., animal trekkers and skinners), accommodation facilities, handicraft production, etc. However, individual benefits were reported for only a few community members, while a majority registered low participation, involvement, and benefits (see Moswete et al. 2012).

Overall, Botswana's southwestern region, which is situated in the Kalahari Desert, is in dire need of economic advancement (Moswete et al. 2012), as the poor and marginalized people living there are hampered by limited formal training and tourism-related business skills (Arntzen 2003), inadequate education (GoB 2001), weak policies, and poor leadership (Chanda and Magole 2001). It has been recommended that CBNRM-based tourism initiatives and labor-based public work schemes should be made a permanent feature of the

region's rural areas to alleviate poverty (GoB 2007). This region is understudied, but given the proximity of the communities to the Kgalagadi Transfrontier Park (KTP), opportunities to derive economic benefits and achieve conservation outcomes via a CBO/Trust are evident. Hence, there is a need to further examine the relationship of local communities, CBO/Trusts and KTP.

Site context

A *transfrontier park* refers to wildlife conservation areas with common international boundaries managed as a single unit by a joint authority that consists of representatives from the participating countries (Sandwith et al. 2001; Ramutsindela 2009). KTP was planned in the 1990s and formally declared in 1999 by Botswana and South Africa, and comprises Botswana's Gemsbok National Park and South Africa's Kalahari Gemsbok National Park (Peace Parks Foundation, 2011). KTP's key objectives are to (1) fully realize the economic potential of the parks and the surrounding areas in order to bring economic benefits to both countries, especially to the local adjacent communities; and (2) mitigate the undesirable impacts of existing and potential land-use conflicts between the park and local communities (SANP and DWNP 1997: 9). KTP was established on the premise that there be dual ownership and management of the resources (natural and cultural) with the motivation to engage nearby rural dwellers in both countries (Peace Parks Foundation 2011).

The unique ecosystem in and around KTP, along with its rare and endangered animal and plant species, attract local, regional, and international visitors, especially to the various protected areas that include nearby game reserves such as the Central Kgalagadi Game Reserves, Kutse Game Reserve, and Jwana Game Park (CSO 2006). While the Kalahari Desert region's image as a nature-based tourism destination has improved recently (Schoon 2008), tourism development lags behind in terms of attracting the high-paying clientele who frequent Botswana's northern protected areas—particularly Chobe National Park, Moremi Game Reserve, and the Okavango Delta (Magole and Gojamang 2005). Moreover, in KTP the tourism activities and enterprises are concentrated on the South African side of the park (Schoon 2008; Thondhlana et al. 2015). On the Botswana side, the tourism infrastructure is situated far away from the park's boundary, in the villages of Tsabong and Kang. Tourist facilities such as campsites and game farms are found there. KTP offers opportunities to further capitalize and develop tourism initiatives in the greater Kalahari region of Botswana, and some communities have begun to derive nominal tangible and indirect benefits from community-based ecotourism (Moswete and Thapa 2015). Benefits include but are not limited to tangibles (e.g., game meat, production of garments and other merchandise from wild animal skins and hides, cash income) and intangibles (e.g., pride in local/national heritage of flora and fauna, revival of craft skills in making handmade head and arm bands, social capital, and socialization of villagers, especially older women, youth, and children) (Moswete et al. 2009).

Tourism development has generated direct and indirect benefits to individuals and communally owned projects and enterprises situated near KTP on the Botswana side (Moswete and Thapa 2015). Recent emphasis on protected area tourism requires that local involvement and participation be increased (Thakadu 2006; Stone and Rogerson 2011; Silva and Mosi-

mane 2012), especially among those most affected, such as indigenous residents (Mbaiwa 2008; Thondhlana et al. 2012). Thus, CBOs/Trusts play a vital role in securing benefits for local residents and their respective villages and communities. CBNRM-based CBO/Trusts have been promoted as an instrument to achieve conservation and development initiatives at the local level, and success has been mixed and site specific.

Study objectives

The purpose of this study is to examine the local residents' assessment of their CBO/Trust and people-park relationships within the context of the Botswana side of the KTP. More specifically, the objectives were to:

1. Assess local residents' use of KTP and its resources;
2. Evaluate local residents' awareness of their CBO/Trust;
3. Examine the extent to which local residents derive benefits from their CBO/Trust;
4. Assess local residents' involvement in their CBO/Trust; and
5. Examine local residents' level of support for KTP.

Methods

The Kgalagadi district comprises some 42,000 residents, with approximately 26,000 located in the north and 16,000 in the south (CSO 2001). Nine villages were selected based on their location, distance from the boundary of KTP, and existence of a CBO/Trust. The communities included five in the north (Kang, Ncaang, Ukhwi, Zutshwa, Tshane) and four in the south (Khawa, Struizendam, Bokspits, Tsabong). The villages of Ncaang, Ukhwi, Zutshwa, and Khawa are located within WMAs, where the main rangeland utilization is wildlife conservation. Among the sites, Tsabong has the largest population and is the administrative center of the district. The village has become a popular tourism destination since the Trans-Kalahari Highway (TKH) was completed. The TKH also runs through Kang, the second-largest village, and this has created similar tourism business opportunities there. Most of the communities in the district offer safari hunting to both local and overseas hunters, and have established CBOs/Trusts for conservation and tourism activities (Moswete et al. 2009).

The sample size was based on the population. Stratified sampling based on distance from the park was used to identify households. The head of household (18+ years of age) was identified and requested to participate. Only residents who had lived in the village for twelve months or more were selected. The questions¹ covered sociodemographics (12 items); park use and frequency of visit (3 items); awareness, benefits, involvement, and support of CBOs/Trusts (11 items); and support for the park (5 items). Since levels of illiteracy are high among residents, the lead author, who is a Botswana citizen, read the questions to participants in their native language and documented the responses. A total of 746 household surveys were completed, with a response rate of 75%. The analyses were based on descriptive frequencies due to the exploratory nature of the study.

Results

Profile of respondents. The sociodemographic characteristics were based on the head of the household; some highlights of our findings follow. Females were more representative (55%) than males (45%).² Age ranged from 18 to 92 years, with 41% between 18–30 and 24% in the 31–40 bracket. The education level varied as there were noticeable differences based on the sampled sites. About 31% had formal employment, and 24% were self-employed, mainly in the informal sector such as handicraft production for tourist consumption. However, 25% were unemployed and were largely those who were aided via the government welfare projects. Almost 80% reported that at least 1–2 persons in the household had a job, while 10.5% reported that 3–4 persons in their home had paid employment. The median annual household income ranged between P1001–1500 (US\$143–214). The size of the household varied; 30% noted between 2–4 individuals. The ethnicity varied with Bakgalagadi (28%) and Batharo (21%) as the top two among nine groups reported. Approximately 67% were native residents born and bred in Kgalagadi, while 10% had lived in the area for 10 or more years.

Park use. Respondents were asked if they had ever visited KTP. About 58% indicated that they had never done so during their lifetime, and of them, 27% could not estimate the distance of their household to KTP. Those who had visited the park (42%) were requested to provide reasons for their visit(s). About 23% noted for recreation/tourism, and 24% reported to see wild animals, birds and nature. Almost all respondents (98%) had never visited the park for veldt or forest food collection. Similarly, 96% had never visited for any meetings associated with park management (see Table 1). Respondents were also asked to indicate the frequency of their visits to KTP based on a twelve-month period. The majority (92%) indicated not to have taken any trips during that period. Among those who had, only 9% visited to see wildlife, birds or nature, while 4% went for recreation/tourism activities. Other respondents (6%) had entered the park only once during the period, for myriad reasons (e.g., shopping, attending funerals, visiting friends and relatives, or transiting to other villages and towns in South Africa).

Awareness about CBOs/Trusts. Respondents were queried if they were aware of a CBO/Trust in their respective area/village. Only 45% were aware, while 47% were able to name the existing CBO/Trust. For example, some respondents (12%) were able to name Nqwaa Khobee Xeya CBO/Trust in KD1 (refer to Figure 1); 10%, Khawa Kopanelo Development Trust in Khawa village; 7%, Qha Qhing Development Trust in Zutshwa; and 6%, BORA-VAST CBO/Trust in Bokspits, Rapelspan, Vaalhoek, and Struizendam. In summary, about

Table 1. Reasons for visits to Kgalagadi Transfrontier Park.

	Yes (%)	No (%)
Outdoor recreation/tourism	171 (23%)	574 (77%)
See wild animals, birds & nature	176 (24%)	569 (76%)
Veldt resource collection/harvest	8 (2%)	737 (98%)
Park management meeting	24 (4%)	721 (96%)
Other reasons	140 (19%)	605 (81%)

Respondents were permitted to give more than one response.

half of all respondents demonstrated lack of information and knowledge of the existence or availability of CBOs/Trusts.

Benefits from CBOs/Trusts. Since the role of a CBO/Trust is largely to assist in economic development and disbursement of benefits via tourism, respondents were asked to report whether there were any benefits accrued at individual and community levels. At the individual level, only 17% of the respondents indicated to have personally benefited from tourism in their particular area, while 64% noted otherwise, and 19% were unsure (see Table 2). Those who had accrued benefits reported individual gains such as part- and full-time employment (e.g., assisting safaris, acting as watchmen or camp caretakers), procurement of game meat, and business opportunities (e.g., production and sale of handcrafts). At the community level, 29% noted that the CBO/Trust had benefited from tourism activities while 29% were unsure. Similarly, 29% of respondents felt that their community benefited with the existence of a CBO/Trust there, while 45% disagreed. Only 21% noted that the CBO/Trust had created business opportunities in their area, while 53% indicated otherwise. Responses were also mixed about whether the CBO/Trust had brought positive changes to their area, as 26% acknowledged the changes while 48% noted otherwise. Benefits at the community level were not limited to employment opportunities. For example, infrastructural developments such as the presence of the CBO/Trust office and craft outlets, were noted.

Involvement in CBOs/Trusts. Respondents were requested to indicate their level of involvement in their CBO/Trust activities, which were measured by four items based on a Likert-type scale (1 = not at all involved to 5 = extremely involved). Based on the varied responses, the scale was recoded as two binary categories to reflect involvement³ or no involvement. Overall, there was low level of involvement (see Table 3)—for all four items, lower than 20%.

Table 2. Benefits from CBOs/Trusts.

	Yes (%)	No (%)	Not Sure (%)
Have you benefited from tourism in your area?	128 (17%)	472 (64%)	139 (19%)
Has your CBO/Trust benefited from tourism?	209 (29%)	11 (43%)	210 (29%)
Has your community benefited from CBO/Trust?	212 (29%)	328 (45%)	194 (26%)
The CBO/Trust has created business opportunities in my village	151 (21%)	388 (53%)	194 (26%)
CBO/Trust has brought positive changes to my village	191 (26%)	351 (48%)	188 (26%)

n = 746; missing data excluded

Table 3. Involvement with CBOs/Trusts.

	Not at all Involved (%)	Involved (%)
Involvement in tourism activities of the CBO/Trust	595 (81%)	143 (19%)
Involvement in the decision making about the CBO/Trust	611 (83%)	127 (17%)
Involvement in the management of CBO/Trust finances	651 (88%)	87 (12%)
Involvement in the CBO/Trust daily activities	642 (87%)	96 (13%)

n = 746; missing data excluded

Support for KTP. The level of support for KTP was also measured by five items based on a Likert-type scale as above (see Table 4). A large majority of respondents (96%) expressed support for protection of KTP as a conservation area. Seventy-two percent expressed support for KTP as a transfrontier park, 66% for current KTP management staff, 79% for the creation of KTP buffer zones and WMAs, and 73% for regulations and guidelines that maintain KTP as a transfrontier park.

Discussion

In Botswana, rural communities, especially those situated close to protected areas, are encouraged to actively participate in natural resource conservation and community-based ecotourism (Moswete and Thapa 2015; Stone 2015). Given the dual conservation and development objectives of CBOs/Trusts, communities have accrued direct and indirect benefits from them (Moswete et al. 2009; Mbaiwa 2013). Since local involvement, participation, and equitable distribution of benefits are key aspects for a successful CBO/Trust, this study examined residents’ perspectives with respect to these topics within the context of villages/communities adjacent to the Botswana side of KTP.

In this study, people–park relationships appeared to be very minimal, as more than half of the respondents had never even visited KTP in their lifetime. Those that had visited essentially did so for leisure and wildlife observation activities. The collection for veldt and/or forest food by residents inside the park was nearly non-existent—a fact which is compliant with the country’s National Park Act of 1992. Resident interactions with park management were extremely limited, as the vast majority reported to have never attended meetings in relation to the park. Furthermore, the overwhelming majority had not visited KTP in the past twelve months. Overall, only a small proportion of the residents were actively engaged with KTP for any reason. A plausible explanation is the distance to the park from the villages/communities. Supplementary analysis was conducted to discern differences based on location of the respondent. The results confirmed that respondents from Bokspits, Khawa, Struizendam, and Zutshwa were more actively engaged (e.g., by escorting safari tourism clients, securing the park’s boundary fence, holding part-time jobs) with KTP, being in closer proximity (53, 23, 21 and 72 kilometers, respectively).

Table 4. Support for Kgalagadi Transfrontier Park.

	SO (%)	O (%)	N (%)	S (%)	SS (%)	Total
Support protection of KTP as a conservation area	<1	1	3	66	30	743
Support KTP as a transfrontier park	9	12	7	52	20	744
Support current management staff at KTP	1	15	19	52	14	745
Support creation of KTP buffer zone and Wildlife Management Areas	2	6	13	59	20	744
Support regulation and guidelines to maintain KTP as a transfrontier park	4	8	15	54	19	745

Items coded on a five-pt scale: 1=Strongly Oppose (SO), 2=Oppose (O), 3=Neutral (N), 4=Support (S), 5=Strongly Support (SS)

n = 746; missing data excluded

These results illustrate the importance for park management staff to conduct outreach initiatives to various villages and communities. The lack of community conservation and capacity-building programs designed by KTP management to reach out to adjacent communities was evident. Further, it could be that residents in areas distant from the park are not engaged largely due to a lack of understanding of its role and existence (see Stone and Rogerson 2011). Overall, lack of engagement is of major concern and is contrary to the objectives of KTP (Schoon 2008; Moswete et al. 2009; Thondlana et al. 2012).

With respect to CBOs/Trusts, slightly less than half of the respondents were aware of their existence. This finding was a surprise since there is a CBO/Trust for tourism in almost all the sampled villages and communities. It is obvious that awareness programs are needed to inform residents about CBOs/Trusts and their benefits at the individual and community levels. In addition, only a small percentage of residents were beneficiaries of tourism in their villages and communities. Benefits at the community level were more noticeable, and were not limited to employment opportunities but also included infrastructure development. Although the individual and community benefits accrued were relatively small, they are still significant since community-based tourism is fairly new in the region (Moswete et al. 2009). This should be a catalyst to further develop and enhance tourism-based products, as well as create additional business opportunities.

While a quarter of the residents noted positive changes due to the operations of a CBO/Trust, there was a sizeable percentage that stated otherwise, or was unsure. This is an area of concern as perceived lack of benefits usually leads to lack of support for a CBO/Trust. Also, in some cases, based on previous findings in the KTP region, community elites tend to be dominant and actively involved with others being marginalized (Moswete et al. 2009). Such dominance by a few likely creates fissures within the community and compromises the ability of a CBO/Trust to fully function. It was discouraging to find a low level of involvement in tourism activities, decision-making, management of finances, and daily activities. These findings demonstrate the vital importance of broad engagement within the village/community in order to establish a successful CBO/Trust that is inclusive and provides equity for all residents.

The notable lack of involvement of locals indicates that community tourism via CBNRM in and around KTP has been relatively unsuccessful. This calls for a more efficient implementation strategy coupled with a robust monitoring system with regards to involvement and participation of adjacent local communities. The issue of involvement and participation in tourism is often associated with derived benefits, and influences people-park relationships (Silva and Mosimane 2012; Moswete and Thapa 2015; Molina-Murillo et al. 2016). Similarly, this issue also resonates with community sentiments and displeasure towards nearby protected areas in neighboring countries, notably in Kruger National Park in South Africa (Brandon 2007) and Kasanka National Park in Zambia (Himoonde 2007).

The near-unanimous support for KTP as a conservation area denoted that communities valued the park. Also, a majority of the residents were supportive of the transboundary nature of the park, management staff, associated regulations/guidelines, buffer zones, and WMAs.

While overall positive support was in evidence, a sizeable proportion of residents were not convinced. The reasons could be varied, but likely relate to access to resources, lack of involvement and benefits, etc. It is apparent that additional community outreach activities by KTP staff are needed. Similar ideas regarding adjacent communities have been emphasized in other studies, such as in Botswana's northern region at Chobe National Park (Mosetlhi 2012). KTP management needs to institute participatory governance with local villages and communities in order to meet the park's mission. Essentially, effective management of protected areas relies on good governance (Sandwith et al. 2001; Mosetlhi 2012; Mulale and Mbaiwa 2012; Shields et al. 2016) with active local participation of the poor and disadvantaged communities (Simelane et al. 2006; Himoonde 2007;).

Conclusion

This study revealed a limited people-park relationship, along with minimal involvement of residents with their local CBO/Trust, in the areas around KTP in Botswana. Local communities derived only nominal benefits from KTP-based tourism and CBO/Trust activities associated with tourism. The majority of remote local communities lacked engagement, and signs of imbalances in derived benefits and involvement with KTP were identified. Since CBNRM and CBO/Trusts were introduced in Botswana as proposed solutions to the socio-economic challenges of rural dwellers, this study discovered that there are still major issues to resolve. This appears to be specific to the Kgalagadi district, and it is recommended that local communities should not be isolated but rather be considered as stakeholders in KTP's management. Local people's involvement in decision-making regarding tourism development can foster positive impacts and support for community-based tourism development. CBOs/Trusts have created part- and full-time jobs, and other income and business opportunities for households, but they need to be more inclusive of the wider community, regardless of age, ethnicity, or education level, to better involve residents and achieve equity of benefits. Further, programs on conservation of biodiversity and cultural heritage resources, tourism awareness, and skills and enterprise development are also recommended to encourage employment and poverty alleviation within the villages in the periphery of the Botswana portion of KTP.

Endnotes

1. Survey consisted of nine sections as part of a larger study but only the relevant items are reported in this paper.
2. More females were home since males were engaged in their farms, fields, and cattle-posts. In addition, the rural communities have also experienced out-migration of males to other communities for employment and job opportunities.
3. Involvement (somewhat involved, moderately involved, and very involved responses combined).

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Solutions to Coastal Flooding: Can National Parks Turn the Tide?

Cliff McCreedy

COASTAL REGIONS OF THE US HAVE EXPERIENCED RAPID POPULATION GROWTH and environmental change over the last half century. More than 39% of the US population, or over 123 million citizens, now live in coastal shoreline counties.¹ Residential and commercial development has taken up coastal lands and consumed water resources that formerly provided ecosystem services. As a result, coastal systems and communities are now more vulnerable to flooding. While the reasons for flooding are not new—storm inundation, extreme precipitation, and tidal flooding—they are worsening in many areas due to development, rising sea levels, and stronger storms.

Significant resources and assets in 80 ocean and coastal parks are located in low-lying areas of the coast where various parks and adjacent communities have suffered storm damage, and concerns about storm surge, erosion, and tidal flooding remain high. At the same time, ecosystem services in the national parks, national wildlife refuges, and state parks provide various levels of natural resilience to coastal flooding, such as drainage and dissipation of storm surge and flood waters via beaches, wetlands, and soils, and wave dissipation via oyster reefs and coral reefs. In many places, these public lands offer rare, undeveloped shorelines along our densely populated coasts, providing the public with significant recreational and economic benefits in addition to natural flood control.

The National Park Service (NPS) is tasked by Congress to preserve natural and cultural resources unimpaired and provide recreational opportunities, as well as maintain these natural floodplain values of parks. These difficult tasks take on an entirely different dimension, however, when vulnerable inland communities rely on coastal parks as barriers to protect public infrastructure and private property. Ill-conceived or poorly coordinated coastal engineering solutions, such as hard structures on park lands or adjacent to the park, will adversely impact park resources and values. Fortunately, NPS and state and federal partners can avoid

The George Wright Forum, vol. 35, no. 1, pp. 109–122 (2018).

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these problems with rigorous preparation and cooperative planning. When partners align, they can bring solutions to the table that protect the integrity of parks and achieve their mutual goals.

Storm surge, tidal flooding, and sea-level rise—what are we facing?

Storm surge is the episodic rise in seawater level during a storm, caused primarily by a storm's winds pushing water onshore. Storm surge is the main driver of coastal flooding during most extreme storms. *Storm tide* is the total observed seawater level during a storm, resulting from the combination of storm surge and the astronomical tide.² As a result, the highest storm tides are often observed during storms that coincide with spring tides at a new or full moon. That is unfortunately what happened during Superstorm Sandy, which occurred near the time of the highest tide along the Atlantic Coast.

In late October 2012, Hurricane Sandy merged with a developing nor'easter to become Superstorm Sandy. Weather forecasters also called it "Frankenstorm." Sandy roared across the New York–New Jersey Bight as a giant tropical storm and produced record levels of storm surge and flooding, with an estimated \$70.2 billion in damage across 13 states. In many locations, storm surge was accompanied by powerful, storm-driven waves. Neighborhoods, commercial areas, and several parks in the New York City area sustained major damage. In 2015, Hurricane Matthew struck the South Atlantic seaboard; and in 2017, a succession of three major hurricanes impacted the US. Extreme rainfall from Hurricane Harvey caused widespread flooding in the Houston area. Irma and Maria caused catastrophic damage to Puerto Rico and the Virgin Islands, including Virgin Islands National Park and other NPS units, islands, and communities in the Caribbean and South Atlantic. Hurricane Maria now ranks as the third-costliest weather disaster on record for the nation, and Irma ranks as the fifth costliest.³ Ongoing recovery from these storms is slow and painstaking.

Storms represent the extremes in flooding risk and potential damage to coastal areas.⁴ Storms are headline-grabbing, episodic events. Tidal flooding is more insidious. High-tide flooding may occur more frequently on a bi-monthly or even daily basis in low-lying areas, causing long-term, chronic damage to cultural resources and infrastructure. Recurrent high-tide flooding, known as "nuisance flooding," can overwhelm stormwater drainage capacity and prompt road closures, and frequent inundation or salt-water exposure can degrade buildings and infrastructure. Frequent flooding also submerges intertidal mudflats and wetlands, and may convert them to other habitats, or subsume them entirely. Archaeological sites also are at risk. High-tide flooding impacts have been increasing in frequency and duration, including at many US Atlantic and Gulf Coast tide gauge locations.⁵

Storm tides and high-tide flooding levels are getting higher as baseline water levels increase from sea-level rise. Changes in sea level relative to land vary in location and magnitude along US coasts due to geologic change (e.g., land subsidence in places on the Atlantic and Gulf Coasts versus rising land due to isostatic rebound in Alaska) and oceanographic factors. Many parks along the Atlantic and Gulf Coasts are particularly susceptible to inundation and flooding due to their low elevation in combination with sea-level rise.⁶ Along the Pacific Coast, studies show that higher projected sea levels will magnify the adverse impacts of storm

surges and high waves, including at Golden Gate National Recreation Area, where managers will continue to confront erosion and rising sea levels on both the Pacific Ocean and San Francisco Bay sides.⁷ Alaska and Pacific island parks also confront significant coastal hazards from storms and tsunamis.

Flooding brings a heavy human toll and puts high financial burdens on taxpayers to repair damage. National policies are late to the game of guiding coastal development in sustainable ways.⁸ As a result, much of the coastal zone has been developed on low elevations with higher probabilities of flooding. In this increasingly challenging environment, NPS and other state and federal public land agencies need to be at the fore of maintaining the ecosystem services and values of public lands.

Floodplains, wetlands and shorelines—natural processes aid coastal protection

Natural shoreline processes move water and sediments in ways that create and sustain wetlands, beaches, bays, and barrier islands. Coastal parks depend on floodplain functions that, if allowed to persist naturally, provide various levels of resilience to coastal flooding and sea-level rise. Maintaining these natural processes is critical to sustaining recreational opportunities and natural and cultural resource values in parks. NPS management policies follow federal floodplain policy in Executive Order 11988 (Floodplain Management), and stipulate that the agency will manage floodplains to protect, preserve, and restore the natural and beneficial values associated with them; avoid to the extent possible the long- and short-term adverse impacts associated with their occupancy and modification; and avoid direct and indirect support of their development wherever there is a practicable alternative.

For example, the geologic process of overwash is a floodplain function that contributes to the maintenance and evolution of barrier islands. When waves wash over the foredunes during a storm and deposit sediments on top of a barrier island, the sediment builds up the elevation. Sediment deposited via overwash actually tends to equal the rate of sea-level rise.⁹ When water from storm surge overtops the dunes, or pushes through the barrier island, it delivers sediment all the way into the back bay. Sediment deposited in this way creates and sustains platforms for tidal wetlands on the landward sides of barrier islands. These seemingly radical changes are not destructive in the long run. In relatively undeveloped areas where sediment is free to move, it creates new landforms that allow the island to persist, albeit in a new form and location. NPS management policies recognize the importance of overwash and other natural shoreline processes, stipulating that “processes (such as erosion, deposition, dune formation, overwash, inlet formation, and shoreline migration) will be allowed to continue without interference.”¹⁰

Coastal wetlands also provide important floodplain functions and values to the public, including significant storm protection. Research from The Nature Conservancy estimates coastal wetlands prevented more than \$625 million in property damages during Hurricane Sandy.¹¹ Salt marshes and tidal flats lower flood heights and dissipate storm surge energy by storing and slowly releasing surface water, rain, snowmelt, groundwater, and flood waters, and distributing them more slowly over the coastal floodplain. Wetland vegetation stabilizes shorelines in rivers, bays, tidal wetlands, and estuaries by holding sediments in place with

roots and absorbing wave energy that would otherwise cause erosion. Wetlands also filter runoff, are highly productive, provide habitat for a wide diversity of species, and serve as the foundation for coastal food webs. Coral reefs also buffer storm damage by dissipating wave energy.¹²

Protection and restoration of coastal wetlands on public lands is urgently needed. Coastal watersheds in the US lost an estimated 721,720 acres of wetlands between 1998 and 2009. These estimates represent only a small fraction of the extent of coastal wetlands lost over the last century.¹³ In parallel to the Executive Order floodplains policy, NPS management policies recognize that the agency must manage wetlands in compliance with Executive Order 11990 (Protection of Wetlands).¹⁴ This order requires NPS to prevent the destruction, loss, or degradation of wetlands, preserve and enhance their natural and beneficial values, and avoid direct and indirect support of new construction in wetlands, to the extent practicable. Pursuant to the order, NPS management policies establish a “no-net-loss of wetlands” policy. At the heart of this policy is a required infrastructure and resource management planning sequence of avoiding wetland impacts, minimizing impacts that cannot be avoided, and compensating for unavoidable wetland impacts at a minimum 1:1 acreage ratio (at least one acre of wetland must be restored for every acre degraded or destroyed).

Coastal armoring—harder is not necessarily better

Solutions to avoid flood damage from storm inundation and high-tide flooding can be costly and difficult to engineer. Various types of coastal protection structures have been used extensively to reduce flood damage or erosion to protect both private and public property, including coastal park properties and cultural sites. Bulkheads, seawalls, and revetments deflect waves from vulnerable property. Jetties and groins are placed perpendicular to the shore to divert and build up sediment. Beach nourishment (i.e., artificial replenishment of sediment, usually sand) is often combined with the use of these structures.¹⁵

In reality, hard structures typically interfere with natural shoreline processes. Hard structures interrupt the movement of water and sediment, and as a result may actually increase erosion in attempting to control it. Jetties and groins usually cause more erosion in downdrift areas of the beach, by trapping and interfering with the long-shore transport and accretion of sediments. When jetties are used to keep inlets open, they can prevent sediments from building deltas and marsh platforms that stabilize shorelines on the bay side.¹⁶ Seawalls and bulkheads also disrupt natural processes. Instead of allowing wave energy to dissipate naturally, they block and deflect wave energy downward. This frequently results in scouring, steepening, and shortening of shallow wetland habitats over time.¹⁷

The growing number of bulkheads and seawalls in bays and estuaries has raised concerns over the erosional impacts of shoreline armoring. A 2015 analysis indicates that 14% of the contiguous US shoreline is already hardened and that 64% of armoring has occurred along Atlantic and Pacific sheltered shorelines, such as estuaries, lagoons, and tidally influenced rivers where valuable wetlands provide important ecosystem services.¹⁸ Overall, these hard structures exacerbate erosion and disrupt natural shoreline processes. Eight states have realized that hard structures are self-defeating and have banned or restricted their use.¹⁹

The national park system contains a significant number of coastal engineering structures. An inventory of 19 coastal parks identified 997 engineering structures in or adjacent to them, which is only a subset of all structures likely to be present in or around the 80 ocean and coastal units of the national park system.²⁰ In a separate study, the University of Rhode Island evaluated the potential to reestablish exchanges of sediment and ecological functions in parks by removing shore protection structures, or allowing them to deteriorate, in the NPS Northeast Region. A total of 407 individual structures were found to obstruct waves and currents that shape coastal landforms and habitats, occurring in 10 of 12 parks studied. The authors suggest that 145 structures could be removed or allowed to deteriorate. Park-specific case studies and possible removal projects are identified. (The study rejects the removal option if impractical, counter to policy, or potentially destructive to existing built resources, historic sites, or habitats.²¹)

Living shorelines—viable alternatives to hardening

Living shorelines techniques typically incorporate vegetation or other living, natural, “soft” elements, either alone or in combination with some type of harder shoreline structure (e.g., oyster reefs or rock sills) for added stability. By adopting more environmentally sensitive techniques to stabilize shorelines, living shorelines offer a suite of alternatives to stem the proliferation of hardened structures such as bulkheads and seawalls. According to NOAA (the National Oceanic and Atmospheric Administration), “living shorelines maintain continuity of the natural land–water interface and reduce erosion while providing habitat value and enhancing coastal resilience.”²² In hindsight, living shoreline construction in many locations involves restoring the functions of wetlands that were supplanted or modified by coastal development, ironically at much greater expense than if they were preserved in the first place. Living shorelines nonetheless offer alternative solutions to flooding and erosion problems that may conserve natural shoreline processes and habitats. The US Army Corps of Engineers (“the Corps”) has adopted Nationwide Permit 54, authorizing construction and maintenance of living shorelines. Nationwide or General Permits are streamlined permits that allow certain construction activities in tidal waters and wetlands, without having to apply for an Individual Permit. States may adopt, disallow, or modify the General Permit by incorporating additional conditions into their own permitting processes.

For example, Canaveral National Seashore in Florida utilized living shorelines to protect archaeological sites at Mosquito Lagoon (Figure 1). Erosion caused by waves and storm surge threatens oyster shell middens left by the Timucua Indians between 800 and 1400 AD, which hold significant archaeological, environmental, and paleoecological data from the period. To buffer wave energy and protect this site, called Shell Mound, bags of oyster shells and oyster restoration mats were installed to provide substrate for oysters (*Crassostrea virginica*) to attach and form a living reef. To further dissipate wave energy and stabilize sediments, marsh grass (*Spartina alterniflora*) and mangroves (*Rhizophora mangle*, *Avicennia germinans*) were planted in the intertidal zone gradient. These natural features are stabilizing the shoreline while providing habitat and ecosystem services.



Figure 1. Workers install oyster shell mats as part of the living shoreline project in Mosquito Lagoon at Canaveral National Seashore. M. Schwadron/National Park Service photo.

Beach nourishment—feeding our appetite for higher and wider beaches

In contrast to coastal hardening, beach nourishment involves placing sediment on the eroded shoreline, to expand its width or elevation and replace sediment in the intertidal zone. To protect housing or infrastructure, dunes may be constructed behind the beach to provide additional height and planted with vegetation for further stabilization. Depending greatly on geologic factors and location, the engineered beach and dune system can provide protection from moderate storms and water-level rise up to the newly constructed height. At the same time, raising a beach higher than the natural elevation causes erosion and formation of a steep scarp that interferes with movement of endangered species and utilization of beach habitats by plants and animals (e.g., sea turtles, shorebirds, sea oats, etc).²³

Most coastal protection projects undertaken by the Corps in communities along the Atlantic and Gulf Coasts have focused on protecting beachfront development, with a heavy reliance on beach nourishment. Depending on the purposes of the project and its design, natural shoreline processes or habitats may or may not benefit from this approach. Nourishment projects generally do not prioritize habitat values and ecosystem services when the primary goals are damage reduction, property protection, or retention of public beaches. Planning and project designs may give only cursory treatment to environmental issues. As a result, opportunities to maintain or restore habitats and reduce environmental impacts are lost.²⁴

Beach nourishment projects can serve to restore sediments to beaches and wetlands im-

pacted by coastal protection structures or development, as part of restoration or flood mitigation projects. Coastal parks have used beach nourishment to restore habitat and cultural sites. The NPS published beach nourishment guidelines in 2012 for staff to plan and manage beach nourishment projects. Ways to avoid impacts on beach invertebrates, sea turtles, and other flora and fauna are described, as well as methods for post-project physical and biological monitoring. Best management practices to ensure long-term performance of projects are discussed. (This document only applies after a decision has been made to conduct beach nourishment consistent with NPS management policies; managers must first decide whether nourishment should be used, or other strategies selected instead.²⁵

Beach nourishment involves cost considerations along with environmental concerns. The initial project costs of nourishing beaches can rise by an order of magnitude as storms and natural processes erode sediments in the project area, and new replacements of sediment are needed to maintain the original project. Periodic renourishment over the course of years or decades may run into the tens of millions of dollars. In terms of costs and benefits from storm protection, studies and assessments of certain project areas impacted by moderate storms have found that beach fill and dune-building projects have protected communities from storm surge. Wider beaches also provide significant economic and recreational benefits from beach-related tourism and visitation.²⁶ The taxpayer costs of long-term renourishment can be controversial, however, particularly when hurricane relief provides a 100% federal subsidy to communities in vulnerable beachfront areas, relieving the local level from any fiscal responsibilities or assumption of risks.²⁷

The process drives the solution

In national parks as elsewhere, typically the intent of hard structures, beach nourishment, living shorelines, or other options is to make buildings, cultural resources, and infrastructure less vulnerable to flooding and erosion. The challenge is to find the right solution, or to remedy previous attempts that are not working and are now negatively impacting park resources and values. Selecting the right alternative for a particular place requires a two-fold process: first, evaluating hazards and understanding the geologic setting, water levels, and influences of waves, wind, tides, and currents; and second, evaluating possible alternatives for compliance with the park's enabling legislation and agencywide mandates. Are the flood risks adequately understood, taking into account potential changes to water levels from storm surge and tidal flooding? Can living shorelines or restoration of natural floodplain values be used? What are the potential impacts to park wildlife, lands, and waters, and can these impacts be avoided or adequately mitigated?

The NPS *Coastal Adaptation Strategies Handbook* describes the challenges of adapting to sea-level rise and provides information resources for park managers. It compares and contrasts the costs, benefits, and impacts of protecting NPS cultural and facility assets in place using various coastal engineering approaches, including hard stabilization structures, beach nourishment, and living shorelines. Chapters on facilities, cultural resources, and natural resources describe approaches for adapting park assets to sea-level rise by incorporating vulnerability assessments. In addition, an expanded case study is included in a chapter entitled

“Lessons Learned from Hurricane Sandy” (see Figure 2). Accompanying the handbook is a compilation of many adaptation strategies that have been recommended, tried, and even dismissed at some national park system units.²⁸

The challenges and complexities of responding to coastal flooding are greatly amplified for NPS when parks are affected by landscape-level projects designed to protect navigational channels, adjacent shorelines, and private property. The major federal partner in design and construction of these projects is the Corps. Its programs include hurricane and storm damage reduction, flood risk management, ecosystem restoration, emergency operations, coastal mapping, and coastal process modeling. Under a range of authorities the Corps works with sponsors (typically states and local entities) to examine the feasibility of projects related to coastal risk reduction, including beach nourishment, barrier island restoration, and engineered storm barriers. The Corps designs and constructs these projects contingent upon project-specific congressional authorization and appropriations. It also conducts maintenance dredging of navigational waterways.

While states and communities are understandably pressured to prevent storm damage, the resulting project designs may discount the role of NPS in conserving park resources and values, including wilderness, habitat and species protections, recreational access, and natural floodplain and shoreline processes. As noted earlier, planning and design of coastal engineering projects may fail to account for environmental and floodplain concerns. These pressures may place park managers squarely on the horns of a dilemma: How can NPS reconcile proj-

Figure 2. The National Park Service is monitoring the reopening of Old Inlet, a natural, barrier island-breaching process that occurred in 2012 during Hurricane Sandy in the Otis Pike Wilderness at Fire Island National Seashore, New York. R. Beavers/National Park Service photo.



ects designed for a different public purpose, i.e., protecting non-NPS coastal infrastructure or private property outside the boundary from flooding, while avoiding adverse impacts to park resources and values?

Balanced solutions for coastal flooding in parks

Clearly, state and federal planning processes need to explicitly account for and conserve the resources and values of parks, and use the best available science when evaluating flood risks and potential projects in or around parks. Collaborative planning can ensure that NPS and partners comply with park stewardship mandates. As a starting point, NPS should have a place at the table with federal, state, and local partners when flood protection plans start taking shape. NPS policies require the agency to work with partners and the public across administrative boundaries to achieve its mission of preserving park resources and values unimpaired.²⁹ As stated in the document *National Park Service Natural Resource Stewardship and Science Framework*, “Long-term conservation of park resources requires working successfully beyond the boundaries of any individual park or protected area...”³⁰

The Corps is required by law and its own regulations to align itself closely with NPS’s mandates for protecting park resources and floodplain values. In at least six coastal park enabling statutes, NPS and the Corps (acting for the secretaries of the interior and army respectively) are required by law to plan collaboratively, i.e., to achieve “mutually acceptable” plans for beach erosion control that comply with park protections in these enabling statutes.³¹ The Water Resources Development Act (WRDA) also directs the Corps to protect natural resources and floodplains. WRDA is the main legislative vehicle for authorizing water projects to be studied, planned, and developed by the Corps. WRDA stipulates that “all water resources projects should reflect national priorities” including: “(1) seeking to maximize sustainable economic development; (2) seeking to avoid the unwise use of floodplains and flood-prone areas and minimizing the adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used; and (3) *protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems*” (emphasis added).³² Protecting and restoring floodplains and natural systems directly complements NPS policy.

The Corps or other entities seeking to conduct coastal engineering activities in parks also must obtain an NPS permit. Permits issued for any park must comply with the park enabling legislation and the overarching mandate of the NPS Organic Act to prevent impairment of park resources and values, and to prevent “derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.”³³ An NPS-approved permit enables the agencies to ensure that any flood or erosion control projects avoid adverse impacts to parks, or to stipulate measures to mitigate those impacts.

The Corps also considers specific effects on national park system units in its own permitting regulations under the Rivers and Harbors Act and Section 404 of the Clean Water Act. These regulatory programs govern a wide range of activities in US waters, including coastal protection structures discussed in this article, dredge and fill operations, and protec-

tion of wetlands and floodplain values. The general policies for evaluating regulatory permits include historic, cultural, scenic, and recreational values, and require the Corps give “due consideration ... to the effect which the proposed structure or activity may have on values such as those associated with wild and scenic rivers, historic properties and National Landmarks, National Rivers, National Wilderness Areas, National Seashores, National Recreation Areas, National Lakeshores, National Parks, National Monuments,” etc.³⁴

Early collaboration pays off

While these mandates provide clear direction to NPS and the Corps, achieving them requires timely and diligent collaboration. National Environmental Policy Act regulations emphasize early collaboration to avoid conflicts, *before* an environmental impact statement is prepared.³⁵ WRDA requires the Corps (acting for the secretary of the army), to identify “as early as practicable in the environmental review process” all federal, state, and local government agencies and Indian tribes that may have jurisdiction over the project, or project review or permitting responsibilities, and to invite the relevant agency to become a *cooperating agency*.³⁶ Cooperating agency status provides a formal means for NPS to provide needed technical expertise and input into decisions affecting areas under its jurisdiction, in advance of public review and comment.³⁷

Where projects take place on or adjacent to park lands and waters, the Corps and NPS may benefit from serving as *co-lead agencies*. For example, Golden Gate National Recreation Area and the Corps’ San Francisco District are co-leads for a beach nourishment project at Ocean Beach in 2018. Even in cases when NPS is not a co-lead or cooperating agency, early consultation is still critical to ensure that all partners are fully aware of the affected natural, cultural, and facility assets in the planning area, and that NPS is informed of partners’ concerns. Once equipped with this information, the environmental review process that follows is much smoother and more efficient, and communication breakdowns are avoided.

Moreover, a recent executive order lends even greater urgency and value to interagency collaboration by setting a time limit of two years. Under Executive Order 13807 (“Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure”), “the Federal Government’s processing of environmental reviews and authorization decisions for new major infrastructure projects should be reduced to not more than an average of approximately 2 years, measured from the date of the publication of a notice of intent to prepare an environmental impact statement or other benchmark deemed appropriate by the Director of OMB [Office of Management and Budget].” This two-year limit places a high premium on prompt and efficient collaboration.

The Corps and NPS as partners in restoration

As discussed, many coastlines in the national park system have been modified and natural shoreline processes impeded, degrading both natural and scenic values in parks. In these cases, policy, science, and practice can come together with stakeholder input to bring back natural shoreline processes and restore coastal landscapes. According to NPS management policies, “Where human activities or structures have altered the nature or rate of natural

shoreline processes, the Service will, in consultation with appropriate state and federal agencies, investigate alternatives for mitigating the effects of such activities or structures and for restoring natural conditions.”³⁸

Various parks have worked with the Corps’ capabilities to mitigate erosion and restore natural and cultural resources. Assateague Island National Seashore has one such project with the Corps’ Baltimore District to restore and maintain the north end of Assateague Island and counteract the erosional impacts of the Ocean City Inlet jetty. Built in 1933 to stabilize the inlet for navigation, the jetty trapped sediment from reaching the north end of the barrier island. Over decades the north end retreated 500 meters landward, and lost elevation and width, leading to unnatural rates of overwash and erosion of peat, dunes, and shoreline, including habitat for threatened and endangered species. The first phase in 2002 was a one-time nourishment project that widened the beach by 30 meters over a distance of 10.5 kilometers. The second, long-term phase, begun in 2004, addresses the source of sediment starvation. Sand dredged twice a year from the inlet channel is moved and placed into the longshore current, a practice known as *sediment bypassing*. The sand is transported by the current and accretes onto the island. The project has been successful in partially restoring the position, width, and elevation of the north end, and preventing further habitat degradation or loss of geologic integrity. Physical impacts on park resources and wildlife from the nourishment project required mitigation.³⁹

Figure 3. The northern end of Assateague Island National Seashore in Maryland (known colloquially as the “North End”), where a multi-year project is restoring the island position and elevation lost to erosion caused by the Ocean City jetty. National Park Service photo.



Past is prologue

In 1980, the National Park Service sponsored a Barrier Island Forum and Workshop in Provincetown, Massachusetts. Floodplain values, ecosystem, services and coastal protection problems were well recognized, not just at barrier islands but across the coast. Robert Herbst, the assistant secretary of the interior for fish and wildlife and parks, stated: “The systems help protect areas from the full force of ocean storms. They absorb the energy of the waves and reduce flooding.... The islands are tolerant of the great power of wind and water... What they cannot tolerate is wood and concrete where they should never be. We can foresee the consequences, yet we build on dunes which, left alone, would replenish themselves. Then, we see them destroyed and then we build [on] them again, close to the sea, and challenge nature.... We need to improve the level of protection of lands which are already under public control. That will take further coordination and consultation between the public and many other local and federal agencies.”⁴⁰

Acknowledgments

The author appreciates the review and comments provided by Rebecca Beavers, Julia Brunner, Joel Wagner, and Mike Martin.

The specific opinions stated here are the author’s conclusions and do not represent the official opinions or statements of the National Park Service.

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