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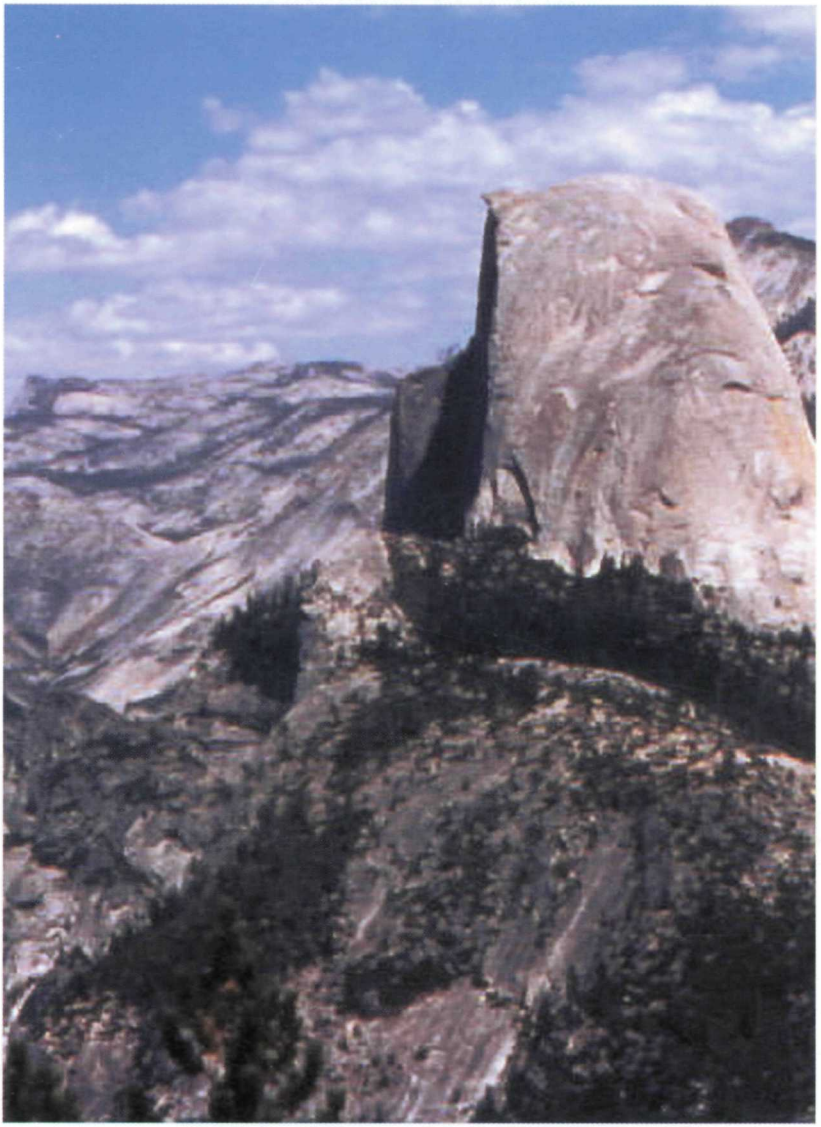

THE JOURNAL OF THE GEORGE WRIGHT SOCIETY

Dedicated to the Protection, Preservation and Management
of Cultural and Natural Parks and Reserves
Through Research and Education

The George Wright Society

Executive Office

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On the Cover: Yosemite and the High Sierra. View from Glacier Point. *An Ethan Carr photo.*

Society News, Notes & Mail

Mark Your Calendar for the 2001 GWS Conference

Get out your palm pilot or day organizer, fire up your tickler program, tie a string around your finger ... do whatever it takes, but whatever you do hold the week of April 16-20, 2001, and plan to join us in Denver for the 11th Conference on Research and Resource Management in Parks and on Public Lands. As always, this next GWS biennial conference will feature a mix of papers, panel discussions, plenary speakers, workshops, posters, computer demos, and special events. The Call for Papers will be sent out in late July or early August via e-mail and postings to electronic bulletin boards, and will also be available on the conference Web site:

http://www.georgewright.org/2001.html

If you are a GWS member, or if you attended the 1999 GWS conference, you will get a CFP automatically via e-mail. If not, send a note to GWS Executive Director Dave Harmon (dharmon@georgewright.org; or contact the GWS office at the numbers/address on the inside front cover) and we'll be glad to put you on the notification list.

A National System of MPAs for the USA

On 26 May 2000, U.S. President Bill Clinton issued an executive order directing federal agencies to establish a comprehensive national system of marine protected areas (MPAs) throughout the nation's marine waters. Currently, less than 0.1% of these waters are fully protected from harm. The executive order calls for each federal agency with management authority in marine waters (most such agencies are within the Departments of Commerce and the Interior) to establish new MPAs that contribute to a scientifically based, comprehensive national network that will represent the diversity of marine ecosystems.

Marine scientists are increasingly calling for expanding the area of MPAs to protect marine life from growing threats, as well as to enhance fisheries in surrounding areas. Clinton's action came after more than a dozen leading marine scientists, meeting at a January workshop jointly organized by the Marine Conservation Biology Institute (MCBI) and the Cousteau Society, called for full protection by 2015 of at least 20% of the area of each ecosystem type throughout U.S. seas. That would be a 200-fold increase over the marine area now fully protected. The executive order requires federal agencies to complete a biological assessment of the minimum amount of area that should be fully protected from consumptive uses to adequately conserve different habitat types.

Mounting evidence of harm to the sea has spurred calls for better conservation. MCBI estimates that at least 43% of U.S. fish stocks (for which data exist) are overfished, as are most of the world's fishing grounds. Atlantic cod populations, once the staple of the New England fishing industry, have collapsed. This year the federal government declared a similar fishery disaster for West Coast groundfish. Bottom trawling and scallop dredging damage essential fish habitats worldwide by scouring the seafloor, each year affecting an area nearly 150 times greater than that of forest being clearcut. Other threats include pollution, global warming, and non-native invasive species that enter new habitats in ships' ballast water. Several marine species are officially threatened or endangered, and many more are at high risk of extinction in U.S. waters.

Until now, designations of MPAs in the USA have lagged behind those in such nations as Australia and New Zealand. The USA's 12 national marine sanctuaries, administered by the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce, currently protect too few areas and offer little protection against the major threats of overfishing and destruction of seafloor habitats. Few national parks include marine waters, and those that do, such as Glacier Bay and Channel Islands, often allow types of extractive activities that are prohibited on land in the parks. Clinton's executive order will expand the number of MPAs and enhance protection of marine wildlife within existing ones. More information is at MCBI's Web site: http://www.mcbi.org.

Paul Schullery
John D. Varley

Box 65: Commentary from the GWS Office and our members

The Yellowstone Genetic Reservoir

Quandaries and Consequences of Exotic Introductions in Yellowstone National Park: A Conversation Between a Science Person and a Humanities Person

Introduction

We all know that some of the most satisfying and stimulating considerations of National Park Service policy take place not in the pages of our favorite journals, but in hallways, standing next to coffee machines, or wandering down some trail with a colleague. In fact, it often has seemed to us that by the time the thoughts of our various graybeards and sages find their way into print, a lot has been lost. The spontaneity, the give-and-take, and the creative energy generated by actual conversations are pared away either by the author, who doesn't want to sound too much like a one-person encounter group, or by the author's various reviewers, who were trained in the best professional tradition of flat, emotionless prose.

The assignment of a keynote address at a recent scientific conference on exotic species in the Greater Yellowstone Ecosystem gave us the opportunity to reconstruct elements of many conversations that we have either participated in or eavesdropped on. The following conversation was delivered at the conference with a fair amount of dramatic bombast (we considered wearing costumes, but couldn't locate a pith helmet for the science person), and a gratifying amount of audience reaction. Maybe this conversational format is a good way to explore philosophically messy issues. Maybe we can start a trend.

Or not. We recognize that though this argument and others essentially like it on a hundred other subjects occur regularly in park office hallways, we can't really achieve the perfect imitation of such talk. For one thing, people don't actually converse like this, in relatively continuous narrative with complete sentences. Most of us ramble, edit ourselves in mid-sentence, hem and haw, and get distracted by everything from doughnuts to the latest Superintendent Joke. But we do think that this little dialogue creates what we might call a reasonable illusion of such conversations. The spirit is there.

The conversation takes the form

of an exchange between a humanities person and a science person. As near as we can tell, the science person has just launched a little lecture on the complexities and perils of exotic species management, but is only a few minutes into it when he is interrupted by the humanities person. They differ, they instruct, they decide little, but somehow they seem to have accomplished something.

Or not.

Science Person: "In considering the fate of places like Yellowstone National Park, most scientists and conservationists would likely agree that the preservation of native species must be an essential goal. In Yellowstone, in fact, we like to celebrate the reality that the park is likely the only place in the lower 48 states that currently has all of the known wild flora and fauna that were here when Euroamericans began changing the face of the continent 500 years ago.

"We're pretty proud of this, but as a celebratory claim it may be just a little too simple and a little too pat to withstand either regulatory or scientific scrutiny. Consider, for example, the complications of defining exactly what a native species truly is. Our own (NPS Management Policies and NPS-77) guidance is clear at first glance—but maybe not:

> Native species. A species that occurs and evolves naturally without human intervention or manipulation. Species that move into an area without the direct or indirect aid of humans are considered native by NPS definition.

"Notice that this definition is more or less circular—in order to define a word, they use another form of that same word. A *native* species results from *natural* processes. Now for day-to-day working purposes, most of us have a pretty good idea of what a natural process is, but it is just this sort of imprecise language that makes our most outspoken critics froth incoherently, and even makes our friends uneasy.

"Not that we have any choice but imprecision when describing these elegantly complex processes that we are *somehow* supposed to be managing. But we probably are being too easy on ourselves when we're this vague about what we're doing.

"There was a time when, for many managers and park enthusiasts, it seemed adequate to define success in terms of how well a park replicated its condition when it was established. This was the often-misunderstood "vignette of primitive America" approach, in which the famous Leopold Report (1963) was invoked as suggesting that we preserve biological snapshots of the parks as they were when created.

"Of course Starker Leopold and his colleagues knew it wasn't that simple—they made it clear that we must consider ecological process and all the change it brings. Starker and his pals knew that the vignette was a *moving target*, never the same from day to day. The vignette Starker had in mind was not a snapshot but a *motion picture*, continuously playing. Starker, like all the rest of us, had his own set of ideas about how freely we

could let it play, but he knew that it must spend most of its time playing without our interference.

"But as a management goal, the vignette of primitive America haunts us and routinely demands our attention. How to you reconcile the fluctuations that characterize wild ecosystems, especially over the long haul, with our desire to protect favored native species?

"Most of us long ago recognized that there is no magic date at which a park setting achieved appropriateness. Even the current policy guidelines, known confusingly as NPS-77, admits this. NPS-77, published in 1988, in attempting to define "historic conditions," admitted that we are attempting something very involved here by saying that historic conditions are "those ecological *processes* for which a natural or historic area is being managed." This helps some, but it still doesn't clarify the nativeness question.

"Let's turn to the opposite of native and see if there's help there. According to NPS-77, the definition for an exotic is the reverse of native:

> Exotic species. A species occurring in a given place as a result of direct or indirect, deliberate, or accidental actions by humans.

"At least this definition has the advantage of not using the words "native" or "natural," but it still ties managers in some fascinating theoretical knots. Rhetorical specialists delight in dismantling this kind of simplistic statement."

Humanities Person: "So, the policy tells us that humans can introduce exotics, but can't introduce new native species?"

Science Person: "Right. That's the rule."

HP: "Well, how about humans who were here 5,000 years ago? Or 510? We can only guess what all effects the Indians might have had, either accidentally or on purpose, and how often they moved species around during their 10,000-year stewardship of the Yellowstone area."

SP: "Oh, well, everybody knows that Indians don't count in this discussion."

HP: "Why not? It looks to me like they might have had some pretty big effects. That's what all the environmental historians and archaeologists are telling us, anyway. And even if their effects were small, we don't have them any more."

SP: "No doubt about it. They probably had some big effects, and some small ones. But all that happened before we got here. It's part of the deal. Read the policy. Everything they did before we got here is part of what's defined as natural."

HP: "So Indian influences before 1872 or whatever date you choose are part of the natural setting?"

SP: "Sure, just as long as their influences happened before Euroamericans had any influences *on* those Indians."

HP: "But as soon as we Euro-trash got here, the rules changed, and everything we did was unnatural?"

SP: "Right."

HP: "But we changed the Indian cultures too."
SP: "Oh, it was a lot worse than that. We didn't just change them; we obliterated some of them. It was an unspeakably brutal destruction of millions of humans and hundreds of cultural traditions. It was horrible."
HP: "So how can you ignore it?"
SP: "I'm not ignoring it. It was humanity at our most inhumane, and it destroyed civilizations and ways of life that had been flourishing for thousands of years."
HP: "That's my point: if we changed what the Indians were doing on the landscape, how could the landscape still be natural? And, what's more, once we started establishing national parks, we *removed* all the Indians, so their influences stopped occurring! How can it be a natural system today if it lacks those influences?"
SP: "Everybody asks that. They always ask that like they've just discovered some sinister plot. You don't think that's a new question, do you?"
HP: "Well, maybe I did. But what do you say when someone asks?"
SP: "I tell them that it's not a perfect plan we have going here. I tell them that it's not *my* fault, or the fault of *any* modern manager, that we inherited a landscape and a policy with that kind of disjunction in it. I also point out to them that it's a sure thing that Indian influences certainly changed hugely over the thousands of years they were in charge here, and that their removal in no way means that the system must collapse."
HP: "Well, I guess that *might* make a kind of sense. After all, hardly anybody still believes in the balance of nature as a steady state any more."
SP: "Right. It's always changing anyway. Just because we removed the wolves and grizzly bears from Yosemite doesn't mean that the park isn't still wild. It's just different, and a little less exciting to us. It's still nature, out there being spontaneous."
HP: "You're saying that what we have is better than nothing?"
SP: "I'm saying that what we inherited from the first managers of these parks is kind of a redefined natural setting. It has pretty much everything we know how to let it have except those American Indian influences. So when people complain that the parks aren't perfect, I welcome them to the real world of conservation. Then they say—and they always think they're the first person to think of this, too—that maybe we should restore the influences of Indians to the parks."
HP: "Yeah! What's your answer to that?"
SP: "My answer is more questions. I ask them which influences, from when, over the course of the past 10,000 years, are they going to choose? Do you want people with atl-atls, or people with bows and arrows? Do you want hunter-gatherers or agrarians?"
HP: "I think it's obvious that you want the people who are most like the people who were here when our greedy ancestors booted them out."

SP: "Oh, you refer perhaps to the forty-five different tribes who all claim some cultural affiliation with Yellowstone? And how are you going to decide which of them gets to have which effects? They have wonderful, informative traditions, but they can't tell you much about how many of them visited here or lived here at any given time."

HP: "We don't have to be precise about that, do we? After all, *they* weren't. They didn't have a game management manual to tell them how many elk to kill each year. As you said, their use of the park probably changed a lot from year to year. Some tribes probably preferred elk, others bison or sheep. Some probably just gathered plants. It was all pretty loose."

SP: "No question about it. But modern white people aren't that easy-going about this sort of thing. Our friends in the various constituency groups, including the Indian tribes, are going to want to know how this is going to work. What is each citizen's fair share of Yellowstone? How many elk are you going to prescribe for each of their hunting parties? How many will be left to migrate out to where the white hunters are allowed to shoot at them? And let's not forget the atl-atls; what tools and weapons will these 'new' native humans use?"

HP: "Well, obviously we should have people whose technology is most like that used by the people who were occupying the park closest to our time, like 1872."

SP: "Ah, yes; what you want is the American Indian side of the 'snapshot' that Starker and his pals were criticized for."

HP: "What do you mean?"

SP: "I mean, you're proposing to do the same thing to the Indians that the armchair philosophers want to do to the rest of the setting. You're prescribing how it should be now, based solely on how we think it once was."

HP: "But we want the Indian influences to resemble their prehistoric influences, don't we?"

SP: "But the Indians in 1872 weren't prehistoric. They were riding horses they'd only had for a century or so, and they were using firearms."

HP: "Okay, then we go back to before Columbus got here. It makes the most sense for them to have the same kinds of influences they had before whites got here."

SP: "Maybe to you that makes sense, but ask some Indians."

HP: "I would think they'd be pleased to get back in the area and resume some of their activities."

SP: "I imagine they would. I understand they've never completely stopped."

HP: "So what's the problem? Why won't that work?"

SP: "Because these aren't the same people. These are the great-great-great-great-great-great-great-grandchildren of the people you want. The complaint I hear from them in this context—and this has come up in other parks—is that we're treating them as cultural artifacts. We're asking them to abandon the past cen-

tury's developments in their cultures in order to fit into our little wilderness scenario."

HP: "How are we asking them to do that?"

SP: "Well, you don't want them to come in here with rifles and ATVs, do you?"

HP: "Of course not; that's not how it was."

SP: "Neither are they. Their society, like every society, has continued to evolve. In fact, and ironically, they've had to evolve so fast just to survive in the face of Euroamerican culture. They have rifles now. Why should they give them up just to suit some white guy's quaint idea of how nature ought to look? They don't feel any obligation to walk around being our personal museums of how Indians are supposed to be."

HP: "Well, then maybe we don't need real Indians. Maybe we just need volunteers who are willing to go out and pretend they're Indians. There are lots of people who would love to hunt in Yellowstone, and some of them would do it on whatever terms were offered. Or maybe we could use staff professionals trained in primitive hunting techniques to go out there and do to the animals the anthropological equivalent of what we do to the plants when we have controlled burns."

SP: "You mean replicating nature because we aren't patient enough to wait for nature to act?"

HP: "Sure! The goal isn't so much to restore Indians to the landscape as it is to restore some semblance of their *influences* on the landscape."

SP: "Are you sure about that?"

HP: "Well, I thought I was, but I suspect I'm about to be told why I shouldn't be."

SP: "Well, by your line of argument, we don't need wolves, either. We just need a bunch of trained professionals to go out there and replicate the effects that wolves would have by hunting elk. You know—whacking the old and the young, leaving some carcasses around for grizzly bears and ravens, digesting a lot of elk meat and defecating here and there on the landscape to recycle the nutrients."

HP: "That's absurd."

SP: "So are your artificial Indians."

HP: "It's all academic anyway. When people ask about restoring the influences of Indians to Yellowstone, I tell them there's no chance. However intriguing or appealing it may be to discuss the possibility of restoring such influences, there isn't the faintest chance that we could convince the park's horrendously divisive and litigious constituencies that such a thing should be done."

SP: "Are you really sure? Sounds to me like with a little salesmanship, the re-enfranchisement of American Indians into these last parcels of American wilderness would have vast romantic appeal to the public."

HP: "Could be, but when that EIS appears on the horizon, I'm taking early retirement. It'll be in court for a hundred years."

SP: "Well, let me continue. The complications of dealing with exotic

species extend far beyond the quandaries of historical definition and cultural evolution. Though most legal authorities, conservationists, and conservation biologists agree that exotic species (by almost anyone's definition) are inappropriate in national parks, past management actions have resulted in 'gray areas' that occasionally confound current park managers.

"Let us consider what we think of as the 'accidental museum effect' that has arisen repeatedly in Yellowstone, and will no doubt surface more in the future.

"For the past few years, Yellowstone has been the site of one of many pitched battles against nonnative species. These are battles that never made *The New York Times* the hundreds of times they have occurred somewhere else, but that became international news when the word 'Yellowstone' could be attached to the story. The Yellowstone battle is our attempt to save the native Yellowstone cutthroat trout in Yellowstone Lake from an introduced population of lake trout. Lake trout had been in other lakes in the park for a century or so without arousing much hostility, but the day they were discovered in Yellowstone Lake, our outrage knew no bounds, and war was declared. Some of us still harbor hopes of finding the vile miscreant who did this awful thing. The tendency among many of us has been to treat the lake trout as the villain, when it is only the tool of the real villain. In fact, the lake trout is one of the park's most valuable nonnative species. While we would give almost anything to get them out of Yellowstone Lake, there are other park waters where we would probably not get rid of them if we could."

HP: "Wait a minute. National Park Service policy is pretty clear on this. It says: "Control or eradication will be undertaken, where feasible, if exotic species threaten to alter natural ecosystems; [or] seriously restrict, prey on, or compete with native populations." That sounds exactly like what lake trout are doing. If we could get rid of them, we would. Wouldn't we?"

SP: "You're right, but, as the saying goes, something has come up. The lake trout in other park lakes, such as Lewis Lake, were put there a long time ago, and left alone. Meanwhile, back in the Great Lakes where they came from, fisheries managers and fishermen have suffered through a century's worth of disasters that pretty much ruined their lake trout populations. A few years ago they looked around and discovered that out here in Yellowstone we had this nice, safe little population, museum-pure just like they'd left it a century ago."

HP: "I doubt that."

SP: "You doubt what?"

HP: "That the Lewis Lake population is museum pure. It's had a whole century to adapt to a new environment: different water chemistry, different food, different everything. It can't possibly be the same fish it was 100 years ago."

SP: "Well, okay, it's not perfect. Welcome to the national parks. But it's a really good imitation of perfect, by the standards of fisheries managers. In fact, it's terrific."

HP: "So? What's the problem? We give these Great Lakes guys some fish to solve their problem, and as soon as we have the technology, we nuke the rest of them. The policy says that Lewis Lake should be restored to its pristine condition."

SP: "I don't think you're embracing the spirit of this enterprise. As with so many complex management situations, we don't know enough to know what we don't know. The Lewis Lake population of lake trout is now a unique genetic resource. There were any number of isolated plantings of fish in various park waters in the early days. Several species were involved, and they're still out there cranking along in remote little populations. We don't know how many of them may turn out to be significant to fisheries managers somewhere else. It's hard to find a pure 'original' strain of rainbow trout in the lower 48, and it's getting pretty hard to find a pure strain of brookie. Right now in Yellowstone, we may have some of the purest distinct strains of the legendary Loch Leven and Von Behr brown trout, both European and not at all ecologically appropriate here."

HP: "So you're saying that we don't dare get rid of any of our exotics, just on the off chance that someone back home may need them? That's mighty generous of us."

SP: "No, I'm just saying that if we ever get the technology to wipe out some of these non-natives, we'd better ask around and make sure that what we have isn't irreplaceable. One man's pest is another man's treasure."

HP: "By that line of thinking we might as well put up a sign that says 'Yellowstone National Species Stockpile,' and just take everything anybody offers us."

SP: "Don't joke about it; there are actually people out there who think that's a good idea. Yellowstone isn't the only place this sort of thing goes on, and sometimes policy actually makes allowances for it. Some good examples in this regard are historic cultivars—varieties of domesticated ornamental or crop plants that may be genetically or morphologically distinct from contemporary varieties. Antique apple trees still growing at historic homestead units of the national park system come to mind. Our policy also makes allowances for 'minor breeds,' as they are called—rare genetic variants of common domestic species of very limited population size or range. The Assateague-Chincoteague ponies may fall into this category."

HP: "But they're exotic. It would be like introducing pandas to the Great Smoky Mountains."

SP: "That's been talked about, too. Some people would argue that if the United States has one really good piece of habitat that might ensure the survival of a genuinely threatened species somewhere else on the

planet, we'd be selfish and parochial not to adapt our policy a little bit and do the right thing on a global scale."

HP: "But where would it end? Once you break your own rule, you've got no standard left. Anybody could get away with anything. How will you know right from wrong?"

SP: "Who said we ever did?"

Paul Schullery and **John D. Varley** are both at Yellowstone National Park.

Reminder: this column is open to all GWS members. We welcome lively, provocative, informed opinion on anything in the world of parks and protected areas. The submission guidelines are the same as for other GEORGE WRIGHT FORUM articles—please refer to the inside back cover of any issue. The views in "Box 65" are those of the author(s) and do not necessarily reflect the official position of The George Wright Society.

Paul M. Bray

Taking Stock

Recent decades have been a challenging, dynamic, and interesting time for the social invention of parks and protected areas. How we think about them has been shifting and evolving to a drum beat of growing societal challenges and expectations.

I have found, for example, what I believe to be the core notion of parks, creating the right fit between preservation for future generations and beneficial public enjoyment. The history of parks in the 19th and 20th centuries has been a large and useful reservoir to guide me in my own work of over a quarter-century of park advocacy and park-making.

I learned from and was inspired by the history of urban parks, from Olmsted's greenswards to the era of playgrounds and facility parks; of the national parks, from Yellowstone to today's historical parks. such as Lowell National Historical Park, where it is said that there is not a park in the city of Lowell—the city *is* the park; and of the vast, six-million-acre Adirondack Park with its 130,000 permanent inhabitants, which has been called "a park in the painful process of becoming a park" for more than a century.

I saw parks in the vanguard of urban planning, preserving the public ability to enjoy scenic beauty when it might have been monopolized by the few, as well as developing the interpretive approach to education. Here was a social invention, diverse in its many forms and changing over time, that had a unique ability to respond in a timely way to society's needs.

This led me to the notion of the city and region as a park. Parks could be a contemporary vehicle for integrating conservation, recreation, and education in urban and regional settings that have a coherence based on both cultural and natural heritage. It was applied in creating the Hudson Mohawk Urban Cultural Park in 1977 (a.k.a. Riverspark), which encompasses most of seven neighboring cities, towns, and villages at the confluence of the Hudson and Mohawk Rivers. Riverspark as an inhabited park is a living organism continuously striving to achieve its preservation and public enjoyment goals.

While some of us were working with cities or regions as park or heritage area and carrying on the tradition of parks as agents of environmental reform, many other park-re-

lated initiatives were advancing, such as greenways, countryside stewardship, and planning for cultural landscapes and bioregions. On the one hand, it is very good that we are moving so fast on so many fronts because the threats to natural and cultural values from the global economy and population growth are unremitting. The opportunities for human and community enrichment from stewardship are also expanding. But it leaves us little time to step back and take stock of where we are, how we got here, and what the best course is for the future when it comes to parks and protected areas.

This special section of THE GEORGE WRIGHT FORUM is designed to tap the wisdom and ideas of a group of outstanding and diverse international scholars and practitioners (and, in some cases, scholar–practitioners) who are thoughtfully working on the front lines when it comes to parks and protected areas.

Ethan Carr, author of *Wilderness by Design,* a study of the partnership between landscape architecture and the National Park Service, offers a historical framework to clarify how we have gotten to where we are. He points to three ideal American landscapes: the civic, utilitarian conservation, and wilderness models, each with conflicting goals. Carr's analysis may help remove the blinders that have kept fierce advocates of these models from finding common ground.

Rolf Diamant also uses history to show that the National Park Service has been more adaptable to change than some park professionals acknowledge. He shows us that NPS has been "operating along a continuous evolution and diversification," giving us more reason to believe that ultimately the agency will meet the challenge to take the National Park System in new directions.

New directions are where Judy LaBelle and Roberto Gambino, authors from opposite sides of the Atlantic, see us going. They address the expansion of park and protected area approaches to encompass "humanized territories and cultural landscapes." Gambino points out that in Italy parks are increasingly being used as "essential tools for enhancing and improving local values, specificities, and cultures," while LaBelle points to an increasing American constituency for "protecting the distinctive and desirable elements of our communities" by adapting notions of the European countryside parks. Gambino and LaBelle have been working together on the twinning of Italian and American parks and protected areas and sharing conservation lessons therefrom.

Canadians J. Gordon Nelson and Lucy M. Sportza draw from extensive research in Canada and the rest of the world to outline nine elements of thought and practice concerning parks and protected areas that have changed during the last two decades. Whether the elements relate to

planning, funding, or management "a more interactive and adaptive approach is being taken to parks and protected areas."

No better example of new approaches can be found than the increasingly important role protected areas are playing in addressing the challenges of biodiversity conservation and sustainable development in transboundary areas. This is detailed in the concluding article by David Sheppard, who has the advantage of a global perspective from his position as head of the IUCN Programme on Protected Areas.

New directions, connectivity, and pluralism are the recurring themes. They apply whether the vantage point is local, as it is for LaBelle in "Postcards from Home," or global, as it is with such issues as biodiversity conservation. If we can take some moments from our particular tasks, passions, and challenges to read and ponder these articles, I suggest that we may be better able to chart and navigate the societal currents affecting our era of park and protected area activity.

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Ethan Carr

Park, Forest, and Wilderness

Over the last 150 years, various levels of government in the USA have set aside and managed public lands according to various landscape ideals, including "park," "forest," and "wilderness." Although often confused, each of these intellectual models implied different land management policies, usually backed by different constituencies. Above all, each ideal accurately reflected values specific to the time and circumstances that brought it about. Shifts in national attitudes towards public land management revealed changing perceptions of society's desired relationship to the natural world. Landscape ideals were in this sense civic ideals, serving to define the essential character of American society through its relationship to a "nature" which was to be managed, exploited, enjoyed, glorified, or left alone, depending on the ideals espoused. This history may of particular interest today, during an era in which various new ideals of landscape management are struggling to be born.

The American "park" arose in the 19th century as an agent of environmental reform, and in the process it became public art in the most profound sense. The 1830s and 1840s were a period of city-building, not unlike our own of the last several decades, that defied precedent in the pace and scale of urbanization. By mid-century, vast grids of new streets were built up around New York, Baltimore, Chicago, and dozens of other cities. Within a space of a generation, entire populations were separated for the first time from any direct access to expanses of open space. The park was advocated, under these circumstances, as an instrument of "preservation," in the sense that municipal governments were urged to acquire certain places and preserve them from the direct effects of this geographic modernization. Preservation as a public park, however, has always implied a transformation; preserving landscapes has never been a passive act. In New York's Central Park, for example, lakes were excavated and greenswards were graded in order to transform mere land into landscape, and a place into a park. Such "improvements," though, were only part of the project. Just as significantly, other portions of the park site were left unaltered except for the additions of carriage drives and paths. In the northern, less-disturbed portion, the existing landscape character of the park site was to be "interfered with" as little as possible, according to the park's designers (Beveridge and Schuyler 1983, 119). Dense woods,

rock outcrops, and scenic views made the landscape picturesque, and required little alteration or improvement. These areas today remain among the few places in which the pre-industrial character of Manhattan Island can still be experienced.

Central Park successfully conflated the ideas of "improvement" and "preservation," and in the process became an embodiment of 19th-century civic ideals: a living representation of the physical health and mental well-being many felt the industrial city had removed from everyday life. Park-making was thereafter established in the USA as an integral and mitigating aspect of modernization. The large landscape park secured more healthful and feasible civic forms for an evermore industrialized, urbanized republic. As a work of public art, the park landscape could be emotionally appreciated according to the conventions of picturesque aesthetics; iconographically it expressed a conviction that the modernization of the nation could continue without losing values and experiences deemed essential to human happiness. It was in parks that Americans demonstrated the ability (or inability) to come together as a diverse community, unified by certain shared values. It was in parks that we constructed civic models (in the form of roads, buildings, or other facilities) that attempted to recapture an imagined, pre-modern relationship between society and nature, by establishing a human presence that once again "harmonized" with its landscape setting.

The ideology of the 19th-century landscape park was not limited to the urban scale or the context of municipal government. In 1864, Congress granted the Yosemite Valley to California, provided that the state government maintain public ownership in perpetuity for the purposes of "public use, resort, and recreation." The state was also charged with the "preservation and improvement" of the valley, a mandate at the heart of the park idea. If later characterized as a contradiction, the mandate to both preserve Yosemite Valley and make it accessible to the public made perfect sense to 19th-century park advocates. The great theorist of both Central Park and Yosemite Valley was Frederick Law Olmsted, who advanced the park idea in both cases. Olmsted considered access to scenic areas a requirement for human happiness. In 1865 he therefore described "improving" Yosemite Valley as a park as "a political duty of grave importance," because unless government acted to make places like Yosemite Valley available to the many, the benefits of experiencing scenic beauty would inevitably be monopolized by the few (Tolson 1993, 64; Ranney 1992, 488-516). The republic that had recently been preserved at such bitter cost would therefore have failed in its most basic obligation to its citizens: to maintain opportunities for

all members of society to pursue and achieve happiness.

For Olmsted, public enjoyment provided the ultimate purpose and rationale for landscape preservation, whether at Central Park or Yosemite Valley. Preservation of a place, and the public's use of the place, were part of the same landscape ideal. "Preservation and improvement" were therefore a single undertaking, as the Yosemite legislation suggests. For Olmsted, the landscape park allowed individuals a "sense of enlarged freedom," while allowing groups to come together on common ground, "unembarrassed" by their different economic conditions or ethnic origins (Olmsted and Vaux 1967 [1866], 98-102). Olmsted's park (ideally) was a populated and tolerant landscape, in which a rapidly diversifying society assembled and affirmed commonly held values, above all the value of preserving and appreciating "natural" scenery. Landscape preservation was justified, ultimately, as a means to preserve society itself.

The theory described by Olmsted shaped a generation of intensive park-making in the USA by municipal, state, and federal governments. But the park was not the only landscape ideal to come out of the decades following the Civil War. The public "forest" was also advocated as an alternative to the park for the management of larger state reservations and, above all, for federal lands in western states. Park and forest advocates were at first natural allies and pursued many of the same goals. In 1883, for example, the New York State legislature created the Adirondack Forest Preserve in order to both preserve scenery and protect watersheds and water flows vital to commercial shipping. Charles Sprague Sargent, who was both a silviculturist and a landscape designer, helped draft the 1885 legislation that dictated the preserve should "be forever kept as wild forest lands" (Donaldson 1963 [1921]). In California, Sequoia and Yosemite national parks were created by Congress in 1890, again in large part out of a desire to protect watersheds from rapacious logging and grazing. Irrigationists in the San Joaquin Valley depended on seasonal water flows from the Sierra Nevada, and other economic interests, in turn, depended on the farmers. The result was the creation of vast parks in the mountains (Sequoia and Yosemite national parks) and an end to most logging and grazing within their boundaries (Dilsaver and Tweed 1990, 62-73).

But after 1891 park legislation was no longer the only means to limit logging and protect watersheds, at least on federal lands. That year Congress passed the Forest Reserve Act, which allowed the president to simply declare "public reservations" on any forested land in the public domain. Within 20 years, four

presidents had declared 150 million acres of federal forest reserves (later renamed national forests). If at first it was unclear how national forests would differ from national parks, in 1897 Congress officially opened the forests to timber sales, grazing, and other commercial development. In 1898, Gifford Pinchot arrived at the Division of Forestry (a bureau of the Department of Agriculture), and his influence grew steadily, especially once Theodore Roosevelt became president. In the first decade of the new century, Roosevelt and Pinchot enlisted the political support of western stockmen and irrigationists, who favored policies that defined national forests in terms of multiple economic use (even if such use involved fees and permits), rather than as vast parks. The policy of multiple use relied on the fact that, if properly regulated, logging and grazing could continue in the forests without threatening seasonal water flows. In 1905, jurisdiction over the forest reserves was transferred from the Department of the Interior to the Division of Forestry (renamed the U.S. Forest Service), where Pinchot had complete control over their management (Steen 1991, 26-27; Williams 1989, 403-415).

For Roosevelt and Pinchot, the national forest was a landscape that embodied the ideals of Progressive Era "conservation." Once millions of mostly mountainous, forested acres were retained in the public domain as national forests, scientists working for the federal government (including foresters, reclamation engineers, and biologists) could control the exploitation of timber, water, and grass. It was felt that scientific forestry, hydraulic engineering, and "game management" could define sustainable practices and assure perpetual yields of products. Objective science was to replace the venality and graft that had been the basis of federal land management for too long. Science also took precedence over the aesthetic concerns of scenic preservationists. For Pinchot, locking up resources in vast parks made as little sense as leaving them to be destroyed by robber barons. Pinchot felt that the park idea was obsolete, or at least it should be limited to "city parks," which he felt had nothing to do with western land management. National parks, he felt, should be transferred from the Department of the Interior to his agency, where they also could be managed essentially as national forests, free of "sentimental nonsense." Dam construction, grazing, and logging would then be permitted in national parks as well as forests, effectively eliminating any distinction between the two.

The reaction to this threat among scenic preservationists and park advocates resulted in the creation of the National Park Service within the Department of the Interior in 1916. Congress established this new agency to manage the national parks specifi-

cally as parks. This implied a mandate, again, to "preserve and improve" the parks, or, as it was stated in the Park Service organic legislation, to "conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same," with an additional reminder to do this in a manner that would leave the parks "unimpaired for the enjoyment of future generations" (Tolson 1933, 9-10). This language has often been described as a "dual mandate." But again, preservation and improvement were indivisible parts of one undertaking: the conceptual and physical trans-formation of land into landscape, and place into park. Although science certainly had a role in this transformation, at its heart it remained an artistic process of designing roads, trails, and other conveniences that allowed a large and diverse public to visit a place without degrading its visual character or the quality of the aesthetic, emotional experience it offered. Park advocates such as Frederick Law Olmsted, Jr., and Horace J. McFarland, described "park development" as the only appropriate form of exploitation for national parks, which they emphatically differentiated from the national forests.

Over the next several decades, NPS landscape architects and planners developed the "rustic" identity of national park architecture and facilities, which has since become so strongly linked in the public's imagination with the experience of scenery and the appreciation of nature itself. The forest, however, remained a powerful, alternate landscape ideal: the symbol of Progressive government by disinterested scientists and other experts. But the enormous popularity of national and state parks in the 1920s and 1930s disproved Pinchot's conceit that the park no longer had a place in the management of large tracts of public land. During Franklin Roosevelt's administration, only highway construction drew a larger share of New Deal largesse than new park development. In addition to the expansion of the National Park System, hundreds of state and municipal parks were established. In one indication of shifting priorities, Roosevelt's secretary of the interior, Harold L. Ickes, pressed to have jurisdiction over the national forests transferred back to the Department of the Interior, where, presumably, they could be managed more like parks, with an emphasis in favor of recreational uses over extractive industries.

But new controversies also swirled around the park idea during the 1930s, and a new landscape model was espoused by preservationists who felt strongly that neither the park nor the forest reflected their ideal of preservation in an era of ever-intensifying urbanization. Robert Sterling Yard at the National Parks Association, Robert Marshall at the Wilderness Society, Arthur Newton Pack at the

American Nature Association, and Rosalie Edge at the Emergency Conservation Council, among others, decried what they saw as overuse of national parks. The true mandate of the Park Service, they felt, was preserving the integrity of "primeval wilderness," not facili-tating automotive camping, hiking, skiing, or any of the other increasingly popular activities described as "outdoor recreation." In practice this meant finding a way to reduce the number of people and automobiles in parks, not developing frontcountry landscapes to further accommodate them. In 1936, the National Parks Association and a coalition of other groups suggested designating the larger, western parks as a "National Primeval Park System," since they felt the standards for "the original system" had been diluted as NPS diversified its activities and pursued recreational planning as well as the development of new "national recreation areas" and historical parks (Miles 1995, 148-149).

By the end of the decade, a growing number of critics were accusing the Park Service of abandoning its traditional mandate to preserve natural areas unimpaired. But definitions of both "preservation" and of "natural" were shifting. If anything, NPS was in fact clinging too stubbornly to the traditional theory and practice of park-making that had guided its actions since 1916. The new "wilderness" advocates were not demanding a return to a traditional role for the Park Service as much as the adoption of new models and policies. These proto-environmentalists were advocating a new landscape ideal—wilderness—that embodied the notion that preservation should be for its own sake, not for the sake of efficient multiple use (forests) or for the sake of public enjoyment of nature (parks). For wilderness advocates, public enjoyment could be just as destructive as logging or mining, especially if access by automobile were involved.

By the late 1920s, both the Park Service and the U.S. Forest Service had already established administrative "wilderness" designations for certain areas. At the Park Service, wilderness designations came about as part of the "master planning" process developed by chief landscape architect Thomas C. Vint in the late 1920s. Vint supported the "protective attitude toward wilderness values" that he observed growing already by that time, but he also felt that his mandate "included the words 'for the benefit and enjoyment of the people.'" If public access were not necessary, he noted, his job would be considerably simplified: "The development plan [of the park] could be limited to the construction of an effective barrier around the boundary. The administration would not need to go beyond an adequate control to prevent trespass." The master plans drawn up by Vint and his colleagues typically restricted

development in a park to a narrow road corridor. Outside of these "developed areas," the plans usually zoned the remaining areas of the park as "wilderness," a designation that did not preclude trails, ranger cabins, and immediately adjacent roads and trailheads. The plans also employed a more restrictive (and more controversial) zone, the "research area," that limited access of any type. Such administrative designations were subject to change periodically as park master plans were revised, and they did not exclude park "wilderness" from parkwide management policies (including predator extermination and fire suppression) that could have major environmental implications. Nevertheless, national park master plans became a vital means not only of planning and designing developed areas, but of limiting their extent (Vint 1938, 69-71; see also Tweed 1980, 8-10).

If conflicting definitions of wilderness were already apparent in the 1930s, the controversy intensified during the post-war period as pressures on public lands increased. In the early 1950s, when the Bureau of Reclamation proposed a major dam for the Echo Park area of Dinosaur National Monument, the Park Service failed to condemn the idea forcefully enough at the outset (although NPS Director Newton B. Drury was fired in 1951 largely because of his opposition to the dam). The dam was later defeated, not by the Park Service, but by a new coalition of private non-profit organizations, including the Sierra Club and the Wilderness Society, and their allies in Congress (see Harvey 1994). Recreational pressures on public lands also increased dramatically in the post-war years, and NPS Director Conrad L. Wirth, and his chief planner, Vint, felt an obligation to modernize the park system and make it functional in the context of post-war society. By the early 1950s, unprecedented millions of visitors were arriving in the parks, virtually all in their own cars. Roads, campgrounds, and sanitary facilities were overrun, and park superintendents lacked the staff and basic facilities to meet the increased demand for services. In 1956 Wirth unveiled his plans for "Mission 66," a ten-year program designed to convince Congress to spend hundreds of millions of dollars on road widenings, parking lots, and visitor centers, as well as housing and training for new park staff. Congress responded with everything Wirth asked for, and initially Mission 66 was hailed as a great success (Wirth 1980, 237-284).

But for wilderness advocates, the Park Service could no longer be relied on to limit recreational development in national parks any more than they could be counted on to stop federal dam construction at Dinosaur. These early environ-

mentalists built up their organizations and exploited growing influence in Congress to advance their own preservation agenda. Often led by David R. Brower, executive director of the Sierra Club, wilderness advocates almost immediately questioned why Mission 66 placed such a high priority on new construction, as opposed to some other means of preservation. For this new generation of advocates, "preservation and improvement" of national parks no longer seemed a feasible goal, since "improvement" implied "wilderness" would be compromised in the bargain.

But neither NPS planners nor wilderness advocates really addressed the inherent contradiction between the concept of a public park, an area defined by public access to natural beauty, and the new ideal of wilderness, which advocates described in terms of the absence of any sign of human activity. The Echo Park controversy had presaged conflict between the new environmentalists and the Park Service, and Mission 66 exacerbated the controversy. Wirth and his cadre of park planners and managers could not accept a definition of "park" that excluded the frontcountry development that made public access convenient. They felt the backcountry was wilderness enough (and would be protected adequately), and that developed areas should continue to be redeveloped as necessary to meet increased demand. Environmentalists, for their part, could not accept a definition of "park" that, for whatever reason, continued to allow road widenings, motel construction, and ever growing numbers of visitors and their cars (even if they were limited to existing frontcountry areas). They felt that backcountry wilderness, under such pressures, would never be protected enough, and that the money would be better spent on scientific research to more fully understand ecological systems. Scenery might be preserved through traditional park management; but the ecology of biological systems would continue to be degraded in ways that were not necessarily evident to non-scientists.

Faced with the destructive force of what Aldo Leopold called "mechanized recreation," and which Edward Abbey later described as "Industrial Tourism," by the 1950s wilderness advocates had abandoned what had been the central theory of park making: that preservation could be achieved through planned development for public access and appreciation (Leopold 1970 [1949], 269-272; Abbey 1970 [1968], 45-67). Wilderness advocates, especially Howard C. Zahniser at the Wilderness Society, bypassed NPS and lobbied Congress directly to pass legislation that would allow legal designation of "wilderness" that would not be subject to the administrative discretion of federal

agencies. For Zahniser and other advocates, wilderness was defined as an area "retaining its primeval character and influence, without permanent improvements," where "man himself is a visitor who does not remain" (Dilsaver 1994, 277-286, citing the Wilderness Act of 1964). The Park Service, recognizing perhaps the difference between this definition and its own, opposed the wilderness legislation. But by this point the new landscape ideal had captured the public imagination—along with considerable political backing—and Congress passed the Wilderness Act in 1964. Over the next 30 years, Congress went on to designate almost 100 million acres of wilderness out of the nation's public lands, mainly in national forests, but also in the backcountry of many national parks.

Although the national park has always evoked "wilderness" in the public imagination, Congress defined the new, official wilderness in almost the opposite terms: as scenic areas to be kept inaccessible to the public (wilderness) as opposed to areas to be made accessible to the public (parks). The basic theory of post-war wilderness, in fact, did not belong to the tradition of park-making that had guided the creation of the National Park System, as well as state and local parks, up to that point. The idea of wilderness had not been developed by landscape designers, regional planners, or for that matter, scientists. The postwar landscape ideal of wilderness derived from the poetic and literary traditions of Richard Payne Knight, Wordsworth, Thoreau, John Muir, and Aldo Leopold. Firmly rooted in the Romantic preference for rugged, uncontrived beauty, the landscape model of wilderness implied there should be no land management at all—that nature should be free from any human "improvement" in order to preserve its more authentic, more "natural" form.

Advocates insisted that wilderness should be managed according to scientific principles, but wilderness itself was not a scientific idea. Historians of the wilderness movement have emphasized the literary development of the concept (Huth 1990; Nash 1982). Some leading figures of the movement, such as Aldo Leopold and Rachel Carson, were indeed scientists, but even they are remembered for their writing and their activism, not their scientific research. Science, in fact, suggests the wilderness ideal was fairly problematic in terms of its official (i.e., Wilderness Act) definition. The impacts of early Native American land management practices, for example, as well as the effects of induced changes in the make-up and numbers of wildlife populations, suggest that few landscapes in North America have, historically, escaped some level of human influence. Fire suppression, insect extermination,

and predator poisoning are more recent examples of widespread disturbances that have affected landscapes later designated as wilderness. In many cases, in fact, disturbed natural systems and relationships must be repaired or restored in order to successfully "preserve wilderness," and so some level of human "improvement" is necessary after all (Jordan 1994; Cronon 1995).

The landscape ideal of wilderness also implied a profoundly different civic model than that of the park. Since Olmsted's day, American landscape ideals have been closely allied with new urban and regional planning proposals. The development of municipal park systems, for example, was the earliest form of American city planning. Regional and national parks were designed as ideal expressions of how society and nature could be brought together in unified "harmony." But wilderness was defined in terms of keeping society and nature apart, and the urban form most closely linked to wilderness is the private world of expansive, post-war subdivisions. The wilderness movement flourished as vast subdivisions were developed around almost every American city. The new suburbs sought to provide pleasant views, as well as private outdoor settings for picnicking, lawn games, swimming pools, and even playground equipment. Families that had lived in urban row houses needed the amenities of developed public parks; once ensconced in large, private residential landscapes, their taste for communal recreation withered.

Like the subdivision, wilderness was a private landscape in the sense that it was experienced individually, or as part of a small, self-selected group. Designated out of public lands, wilderness nevertheless was not a landscape in which a large and diverse group (the "public") was expected to appear. Activities in wilderness—presumably limited to hiking, mountaineering, and a few other pursuits—usually were taken up by relatively few members of a narrow demographic group. In its social dimension, at least, wilderness echoed the exclusivity and privacy that made new, low-density suburbs popular among the middle class during the same period. Wilderness met a desperate need to preserve remaining natural areas from any form of exploitation (including recreation) at a critical time. But wilderness could never serve, as the park had, to assemble a diverse society in a mutual confirmation of commonly held values. As the landscape ideal of post-war America, wilderness reflected, like the subdivision and the corporate park, the general preference of a more affluent society for more private space.

There are, as environmental historian William Cronon has

recently noted, troubling aspects to the wilderness ideal. Which is not to say that many more millions of acres of public land should not be designated as wilderness. Such legislation has been a vital and successful instrument of landscape preservation for almost 40 years and should continue to be aggressively employed. The trouble arises when we do not also recognize the continued necessity and viability of other landscape ideals, including the park and forest, which should be, with wilderness, mutually reinforcing models for land management. Recognizing the different, sometimes conflicting goals of American landscape ideals perhaps can help clarify current public land controversies and begin to answer the question: Where is the American park headed in the next century?

For over 150 years now, the American park movement has helped ensure that the general public would continue to have the opportunity to appreciate and enjoy scenic beauty. In the 1850s, this meant making municipal landscape parks at the edges of expanding urban grids to prevent people from being cut off from easy access to open ground and landscape scenery. Our situation today is comparable. The vast, low-density cities we have built over the last half-century may seem different from the endless urban grids of 19th-century row houses, but in one sense they are having a similar effect: sprawling development is eliminating convenient, meaningful access to the nearby natural world. The designation of millions of acres of official wilderness has been an unparalleled achievement, but meaningful experiences of nearby natural landscapes (that do not qualify as wilderness) have become harder and harder to come by. And when public landscapes are visited, their condition—whether an abandoned city park, an overexploited forest or grassland, or an overcrowded national park frontcountry—suggests a civic vision in crisis.

Nowhere is the problem more evident than in our larger and more popular national parks, such as Yosemite. Despite sometimes grievously overcrowded frontcountry facilities, the parks are not really being "loved to death." Although there continue to be serious problems maintaining the overall ecological health of the parks (most of which originate outside park boundaries), wilderness designations (and Park Service administrative policies) have helped ensure that, in many parks, the backcountry remains uncrowded and managed at least with the intent of preserving wilderness values and protecting natural systems. This aspect of national park management, although underfunded and always in need of more and better scientific research, has made consistent progress over the last 30 years.

During the same period, however,

critics have continued to denounce the failure of NPS to adopt "science-based" land management policies. A reporter for the *Washington Post* recently suggested that, "like an old drunk ... reaching for the bottle," the Park Service was addicted to its development-oriented ways. Other critics have suggested that Park Service "tradition" has prevented the agency from looking to science as the basis for park management (Kenworthy 1999; see also Sellars 1997). The resilience of this tradition can be explained, however, in part by the fact that the parks—specifically the frontcountry—remain, after all, parks; that is, NPS continues to be charged with providing for the safety, convenience, and enjoyment of a vast public. The agency therefore remains concerned with park management as well as wilderness management. If, in the backcountry, decisions can be based completely on scientific data, landscape design and environmental engineering continue to be essential disciplines if, in the frontcountry, meaningful civic spaces are to be created and restored while minimizing the impacts of large numbers of visitors.

In frontcountry "park" areas what is needed—as Mark Daniels, a Department of the Interior landscape architect, put it in 1914—is "some sort of civic plan" (Department of the Interior 1915, 15-20). In order to preserve scenic landscape character and prevent the debasement of the visitor's experience of that scenery, there must be a civic vision centered on the reality of bringing together a large and diverse public for the common purpose of enjoying scenic beauty. We cannot hope to apply management policy appropriate to backcountry wilderness to the frontcountry park, at least with any success. But in many cases this has been the emphasis of national park planning since the 1970s. And when critics decry the deplorable condition of the National Park System, they are usually not describing backcountry problems (as serious as those may in fact be); rather they are outraged by the traffic jams, confusion, and substandard services that often characterize the frontcountry experience. The deplorable condition of the frontcountry is the inevitable result of the lack of a civic vision necessary for the successful management of "park" landscapes.

Another challenge park managers will continue to face in this century will be how park systems should be expanded, if indeed that is still a desirable goal. It will be small consolation if, as our last vestiges of nearby open space, habitat, and local natural beauty disappear, we nevertheless successfully defend our designated wilderness system (as vital as the integrity of that system is). In a society that values only the landscape ideal of wilderness, the experience of the natural world will all but disappear for the vast majority of

people. This is exactly what has been happening during the last 30 years, as lives are lived increasingly within the private confines of subdivisions, automobiles, shopping malls, and corporate parks.

The best hope for American parks and public landscapes may be the ability to understand and manage them in terms of multiple landscape ideals. The advocates and users of parks (automotive tourists, for example), forests (hunters, loggers, outfitters), and wilderness (hikers, climbers, scientists) should be united in the common goal of landscape preservation. More often we remain isolated by the conflicts inherent in different landscape ideals. When such differences can be reconciled, good things happen. When the interests of scenic preservation and utilitarian conservation came together in 1885, for example, the Adirondack Forest Preserve (later the Adirondack Park) resulted. The Adirondack Park still offers a compelling example of a "park," which is a six-million-acre patchwork of private and state-owned land. Since 1971 the Adirondack Park Agency has been authorized to determine appropriate uses for public lands, and also to regulate development on private land within the park. As a result, the Adirondack Park combines the strongest wilderness preservation law (embedded in the state's constitution), zoned levels of appropriate recreational uses (including hunting), and regulated logging and other development (on the park's private lands).

As the original "blue line" park, the Adirondack Park remains unique in the USA, although some variation on the blue line (or "green line," or "heritage") park has long been suggested as the national park of the future. More recent initiatives in comprehensive, regionally coordinated land management and regulation have suggested related directions for developing new landscape ideals. Since 1984 Congress has designated 18 national heritage areas, for example, and has even provided some funding for them (as well as a vague management role for the Park Service). National heritage areas do not involve acquisition or direct management of land, but are public–private initiatives to encourage local governments to preserve regional scenery and character while promoting non-destructive forms of economic growth, especially tourism. Secretary of the Interior Bruce Babbitt also recently launched a "national landscape monuments" initiative, in which large areas of federal lands have been designated national monuments by executive proclamation. These new national landscape monuments (including Grand Staircase–Escalante and Grand Canyon–Parashant) will remain under the jurisdiction of the Bureau of Land Management, not

NPS—a move which will allow increased protection within the context of "flexible management alternatives," including hunting and limited extractive industry (Babbitt 2000, 24-25). Even the new model of the habitat conservation plan, an attempt by the federal government to deal with endangered species issues on a regional basis, hints at what may be a new kind of collaborative, comprehensive landscape ideal taking shape at the federal level.

In the meantime, the very nature of the role of governments in landscape preservation has changed dramatically over the last decade. The initiative for landscape preservation—especially at the regional level—is shifting from park and conservation bureaus to the many private non-profit "land trusts" proliferating across the country. Other private non-profit organizations have been inspired by the regional (and non-political) boundaries of large ecosystems to suggest landscape planning initiatives of impressive scope. From the Yellowstone-to-Yukon Conservation Initiative, to the 26-million-acre Northern Forest of New York and New England, advocates are seeking a regional, comprehensive approach to preserving landscapes and natural resources within the context of networks of economically sound local communities.

Whatever form new landscape ideals may take, it seems likely that the private sector (especially private non-profit organizations) will have as great a role as their government "partners" in the protection and management of public landscapes. It also seems clear that emerging landscape ideals today often attempt to combine the virtues of park, forest, and wilderness in order to propose comprehensive approaches to the preservation of regional character, natural resources, and local economies. It remains to be seen, however, whether today's preser-vation advocates can understand one another's landscape ideals well enough to find common ground.

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Rolf Diamant

From Management to Stewardship: The Making and Remaking of the U.S. National Park System

The establishment of Shenandoah National Park in the Virginia's Blue Ridge Mountains sparked a spirited debate among friends of the fledgling U.S. National Park Service in the early 1920s over whether eastern parks would spoil the integrity of a what was then primarily a system based in the western states. Robert Sterling Yard, a former national park publicist and subsequent founder of the National Park Association, warned against "the fatal belief that different standards can be maintained in the same system without the destruction of all standards" (Runte 1997). In Yard's opinion, the glaciated Blue Ridge Mountains did not measure up to splendor of the Teton Range, and the second-growth eastern woodlands were not comparable to the primeval forests of King's Canyon.

Today no one would give Yard's argument about eastern national parks a second thought. Parks such as Shenandoah, Great Smokies, and Acadia are considered among the *grand dames* of the system, which has grown to nearly 400 units. The context and criteria for park making may have changed with the times, but the larger debate on what should or should not be part of our system of national parks continues unabated. National parks, by definition, are created as an expression of national values and aspirations. Setting aside any land for perpetual preservation or protection reflects a fundamental judgment at the highest levels in the land.

Figure 1. Shenandoah National Park. *NPS photo.*

The National Park System serves nearly 300 million people a year, with millions more benefiting from National Register of Historic Places properties, national natural landmarks, and national historic landmarks, as well as through tax credits and financial and technical assistance (NPS 2000b). The economic activity associated with park development and tourism is huge; however, the power and significance of a park are measured in more ways than statistics and dollars. Most national parks become symbols and icons of the country at large. The special places that are designated national parks, and the ways these parks are interpreted, shape public history and public memory. National park designation is perhaps the ultimate articulation of recognition and respect for a place and its associated story, each new park forever enshrining a "sense of place" in the country's collective consciousness. It is therefore no surprise that park-making has been a controversial business from the very start, requiring a continuous process of defining and re-defining national cultural and civic values—contentious ground in almost every instance.

Nature's Cathedrals

It would be too ambitious to try to describe in great detail the various forces and influences that shaped the creation of America's first generation of national parks in the late 19th and early 20th centuries. This early period of park-making reflected a growing sense of national pride and identity associated with monuments of nature. America did not have the great cathedrals of the Old World, but it did have the Cathedral Rocks of Yosemite Valley, majestically photographed by Carlton Watkins and painted in celestial light by the artist Albert Bierstadt.

Figure 2. Cathedral Rocks, Yosemite. ***Photo by Carlton Watkins, American Memory Project, Library of Congress.***

The American parks movement, inspired by New York City's Central Park and one of its chief architects, Frederick Law Olmsted, Sr., was another important influence. In his 1865 report to the Commissioners of Yosemite, Olmsted laid the civic foundation for a future system of national parks by observing that the "the main

duty of government" was to set aside such places of great national scenery as Yosemite to forever guarantee its citizens "the pursuit of happiness" (Carr 1998, 28). A wide variety of conservation and civic-minded organizations, including John Muir and his Sierra Club, Horace McFarland and his American Civic Association, and Mary Belle King Sherman and her General Federation of Women's Clubs (Kaufman 1996, 32) championed the first generation of national parks.

With the powerful political support of western railroads, and anticipating an economic windfall linked to park tourism, Congress was persuaded to begin establishing the first national parks, including Yellowstone, Sequoia, Mount Rainier, and Crater Lake. In 1916 it finally created a unified system of national parks and a centralized professional bureau to manage them (Runte 1997). When the National Park Service began business in President Wilson's Interior Department, nearly all of the country's existing national park areas (with the notable exception of a few archaeological sites such as Mesa Verde, which had been established under the Antiquities Act of 1906) took in unique landforms and geologic wonders located in the rugged high country of the American West. In his *Book of the National Parks*, Robert Sterling Yard described the parks as "areas of the noblest and most diversified scenic sublimity easily accessible in the world; nevertheless it is their chiefest glory that they are among the completest expressions of the Earth's history" (Yard 1928, 3). He recalled a woman who, upon seeing Yosemite Falls, declared that she had "seen the tallest building in the world and the longest railroad, and the largest lake, and the biggest department store, and now I see the highest waterfall. Just think of it!" (Yard 1928, 4).

Figure 3. Horace Albright (left), Mary Belle King Sherman (right), Rocky Mountain National Park, 1915. *NPS Historic Photograph Collection.*

But even as Yard was writing his book, the legendary Park Service management team of Stephen Mather and Horace Albright were hard

at work expanding the park system in new thematic and geographic directions. Convinced that ease of accessibility was critical to popularizing the fledgling park system, both with the public and with Congress, Mather and Albright championed the expansion of the system east of Mississippi to include Acadia National Park in Maine, Shenandoah National Park in Virginia, and a Great Smoky Mountains National Park in Tennessee and North Carolina. While these eastern areas included some of the rugged topography of their western cousins, their eventual inclusion in the national system was justified on the basis of preserving a much broader range of natural and scenic resources.

"Limitless Potential"

Mather and Albright, however, were playing for even larger stakes. Determined to consolidate the new agency's position and budget in Congress, and always uneasy about being swallowed whole by the older and more powerful U.S. Forest Service, Mather and Albright knew that they could not afford to rest on their laurels. Having expanded their vision eastward, they were now prepared to expand the system beyond a handful of archeological sites to include parks associated with American history. As NPS Historian Barry Mackintosh observes, "The Service's major involvement with historic sites held limitless potential for the system's further growth" (Mackintosh 1991, 24).

Figure 4. Mather (left) at Acadia, 1923. ***NPS Historic Photograph Collection.***

Horace Albright's great opportunity came with the election of Franklin Roosevelt in 1932. Riding in the jump seat of a touring car carrying the newly elected president on a ride through the Shenandoah Valley, Albright, now NPS director, brought up the status of the Saratoga battlefield site in Roosevelt's home state of New York. In his book, *The Birth of the National Park Service*, Albright recalls the conversation with Roosevelt:

'It ought to be a national military park or historical park,' I said.

'I know,' the President shot back. 'When I was governor I pestered them to death to make a state park out of the Saratoga battlefield, but they didn't

do it.' Then he told me—ordered me, really—to 'get busy' and have Saratoga battlefield made a national park or monument. Just a moment or two later, he turned his head, and with that famous grin, said 'Suppose you do something tomorrow about this. We'll help you from the White House. And if you get one battlefield, why shouldn't you get the others' (Albright 1985, 296).

The 1933 reorganization of NPS that followed this brief but portentous conversation, and the associated programs of the New Deal, shook the organization from head to toe. Almost overnight the park system was expanded to include 12 natural areas (many transferred from the U.S. Forest Service) and 44 historic areas (mostly battlefields transferred from the War Department), as well as parks and monuments in the nation's capital city. "Taking their place beside the ancient Indian ruins of the Southwest, the historic houses already Federal property, the national memorials, and the vignettes of primitive America conserved in the national parks, these historic battlefields," wrote NPS Historian Ronald F. Lee, "representing successive phases of American history and situated in diverse regions of the Nation, made a major contribution to the growing national heritage preserved in the National Park System for the benefit and inspiration of all the people of the United States" (Lee 1973).

Figure 5. Antietam, 1934. ***NPS Photograph Collection.***

The subsequent Historic Sites Act of 1935 further codified this fundamental ground shift for the NPS by establishing a national policy "to preserve for public use historic sites, buildings and objects of national significance" and "to restore, preserve and maintain historic properties directly or through cooperative agreements with other parties...." The act established a clear mandate for NPS to reach out beyond the boundaries of the park system and assume responsibility as the nation's principal agency for historic and cultural preservation.

The Roosevelt Administration and the Great Depression proved to be a watershed for NPS. Programs like the Civilian Conservation Corps

(CCC) transformed the Park Service into an instrument for social change. The parks received an enormous shot in the arm, particularly from the CCC, which established camps in 63 national parks. The NPS proved itself adaptable and resourceful in implementing programs such as the CCC, the National Recovery Act, the Park, Parkway and Recreation Study Act, and the activation of recreation demonstration areas in 24 states. Congress took note.

While NPS's internal culture still remained largely rooted in the traditions and responsibilities of managing its natural parks, the agency's social agenda, though it would experience occasional peaks and valleys, would inexorably grow more extensive and complex over the next half-century. "The images of the [National] Park System are of remote places and past times," noted Ronald A. Foresta in the introduction to his book *America's National Parks and Their Keepers*. "They are tied up with American memory and mythology," Foresta continued. "However, things are not what they appear to be. The reality beneath the image is that neither the national parks nor their keepers stand apart from our times; they are very much subject to the problems and dilemmas of modern American life (Foresta 1985, 1).

Figure 6. Franklin Delano Roosevelt (head of table) at Shenandoah National Park CCC Camp,1933. *NPS Historic Photograph Collection.*

Parks to the People, People to the Polls

In shaping an expansive post-war park system, a more urban-based Congress put the National Park Service to work assessing potential recreational opportunities closer to the metropolitan areas where most people lived. By the mid-1960s these studies had culminated in the addition to the park system of no fewer than eight national seashores and four national lakeshores. These included Indiana Dunes National Lakeshore outside of Chicago, Fire Island National Seashore outside of New York City, and Cape Cod National Seashore near Boston.

Secretary of the Interior Stewart L. Udall further accelerated this trend. In his book *The Quiet Crisis*, Udall viewed the nation's growing urban crisis as integrally connected to a larger environmental crisis (Udall 1963). "By making a conceptual link between the two areas,"

Foresta writes, "Udall was also staking a bold claim for an expanded role for Interior, one which would move the Department far beyond its traditional concern for natural resources and into an active role in achieving social equality and, in general, improving the quality of American urban life" (Foresta 1985, 67).

George Hartzog, appointed director of NPS by Udall in 1962, astutely appreciated that urban parks of the 1970s, like the historic areas of the 1930s, might be the key to realizing his own expansionist vision of the National Park System. Like Mather and Albright, Hartzog was ever alert to opportunities to extend NPS's base of support in Congress, particularly among members from eastern urban areas. This support was particularly critical for enacting the legislation for the National Wilderness System in 1964, the National Wild and Scenic Rivers System in 1968, and ultimately the addition of 47 million acres of Alaskan parkland in 1980. Hartzog championed a "parks to the people" concept of creating park units directly in or near urban areas.

When the Nixon Administration came into office in the late 1960s, there was little enthusiasm for this potentially costly urban initiative and at first the new administration stonewalled congressional action on urban parks. The White House, however, had a sudden change of heart as it went into the 1972 presidential campaign, sweeping into the system the most ambitious of all urban parks, Gateway National Recreation Area near New York City and Golden Gate National Recreation Area in San Francisco. With the 1972 election behind it, the administration attempted to reverse gears once again, but by this time the political momentum in Congress for additional urban recreation areas modeled after Gateway and Golden Gate was not easily thwarted. By 1978, the park system had expanded to include Cuyahoga Valley National Recreation Area between Cleveland and Akron, Ohio, and Santa Monica Mountains National Recreation Area near Los Angeles.

It would take several decades of planning, civic debate, and substantial public and private investments to begin to fully realize the potential of these huge park complexes to deliver educational and recreational opportunities to their diverse urban communities. These parks would make a significant contribution to the culture of the NPS, accelerating the recruitment and promotion of minorities and women and significantly broadening the experience of NPS employees. And the impact of these parks would be felt in other ways. Golden Gate (later expanded with the Presidio, and ably assisted by the forward-thinking Golden Gate National Parks Association), would serve the entire National Park System as an incubator for fresh ideas and approaches to partnerships and co-management of facilities.

New Voices; New Kinds of Parks

The late 1970s saw one last spectacular burst of park-making unlike anything that came before or after. The House Interior Committee Chairman, Representative Philip Burton, included no fewer than 15 additions to the National Park System in his famous National Park and Recreation Act of 1978. This omnibus legislation also marked a watershed for Congress. The drive for expensive new urban additions to the National Park System had run its course. Support now grew in the Congress to pursue parks based on partnership arrangements where investment and management would be shared with other public and private parties. The creation of Lowell National Historical Park in 1978, with its successful formula of mixing public and private investments in downtown heritage preservation with NPS expertise in visitor services and interpretive facilities, inspired the first generation of national heritage areas.

In the heritage areas, partnering federal, state, and local governments and private interests join together to provide for preservation, interpretation, and other activities. Each national heritage area tells the story of its residents, celebrating cultural heritage and preserving special landscapes. The National Park Service functions as a catalyst among the partners, providing technical assistance as well as financial assistance for a limited number of years following designation.

Heritage areas, such as the Blackstone River Valley National Heritage Corridor (Massachusetts and Rhode Island), Illinois & Michigan Canal National Heritage Corridor (Illinois), and the Delaware–Lehigh Navigation Canal National Heritage Corridor (Pennsylvania), were initially located along historic transportation corridors linking a variety of historic properties. A second generation of heritage areas, including larger thematically linked areas, were added in the mid-1990s, including the Hudson River Valley National Heritage Area (New York), National Coal Heritage Area (West Virginia), Steel Industry American Heritage Area, a.k.a. "Rivers of Steel" (Pennsylvania), and the Automobile National Heritage Area (Michigan). By 1996, there were 18 national heritage areas.

Some people view heritage areas as a far less expensive alternative to more traditional national parks, a safety valve of sorts for Congress eager as always to quench the public thirst for new additions to the system. Others see these hybrid areas as an innovative way of realizing the broader mandate of the agency to provide national leadership in conservation and historic preservation. It is too early to tell when we will see another pulse of heritage area designations. Congress-ional interest in heritage areas appears to wax and wane, though there are always new

proposals waiting for the right opportunity.

Congress applied these same partnership principles using somewhat different formulas to establish two national reserves in the late 1970s, Ebey's Landing National Historical Reserve on Whidbey Island in Washington's Puget Sound, and Timucuan Ecological and Historical Reserve in northern Florida. Ebey's Landing preserves a rural community with an unbroken record of settlement and a distinctive cultural landscape. The NPS purchased key parcels of farmland threatened by development and sold them back to farmers with attached scenic easements. Administrative responsibilities were delegated to a trust board at the county level of government with NPS providing technical assistance in planning, interpretation, and scenic easement administration.

For a period of years during the early Reagan Administration, NPS was directed to stop the study of new areas entirely and testify against nearly all new park proposals before Congress. Unlike previous periods where the National Park Service provided leadership in the future direction of the park system, in the 1980s, with the new era of partnership parks already well underway, all initiative had passed largely to Congress. Not until a 1991 Symposium on National Parks for the 21st Century, the report from which is known as the *Vail Agenda* (NPS 1992), did NPS seek once again to assert a more proactive role.

Figure 7. Ebey's Landing. ***Photograph by Rolf Diamant.***

A new thematic framework for the National Park System, adopted in 1994, made it easier for the NPS to consider social and cultural history and identify places which best tell stories of broad social trends and ordinary people. The thematic framework still incorporates places associated with unique and notable events, but they are more likely to be considered within the broader contexts of their time (NPS 2000c).

As always, Congress and the political process continue to be powerful and essential forces in the final process of park-making. While some may argue that the influence of constituency politics has grown too large in recent years, parks

have always been, when all is said and done, political creations of a democratic government. Mistakes are made, though there are fewer than one might expect. There may be disagreement over whether a particular place being considered as a future national park unit is the best possible example of a theme or the ideal location for a park. Opportunity and political support undeniably play a big part in any final designation.

Over the past twenty years, increasing attention has been given to social history, and this is reflected in the development of new parks, heritage areas, and the revised thematic framework. Recent additions to the National Park System include sites associated with literature, music, and the arts, such as Eugene O'Neill National Historic Site (California) and Weir Farm National Historic Site (Connecticut) and the New Orleans Jazz National Historical Park (Louisiana). More parks are also being created that not only preserve history but also speak to powerfully transcendent ideas that resonate throughout contemporary society. At places such as Women's Rights National Historical Park (New York) and Marsh-Billings-Rocke-feller National Historical Park (Vermont), for example, the universal messages of gender equity and conservation steward-ship, respectively, reach far beyond the park boundaries.

Incorporating such places as the prisons of Alcatraz and Andersonville, the immigration station at Ellis Island, the Japanese-American detention camp at Manzanar, the Hawaiian leper colony of Kalaupapa, and, most recently, missile silos in North Dakota, national parks are also shedding light on institutions and untold stories that are an essential, if often forgotten, part of the American experience.

Figure 8. Manzanar Camp, 1940s. *NPS photo.*

"Our goal," writes Dwight T. Pitcaithley, chief historian of the National Park Service, "is to offer a window into the historical richness of the National Park System and the opportunities it presents for understanding who we are, where we have been, and how we as a society might approach the future. This collection of special places also allows us to examine our past—the contested along with the comfortable, the complex along with the simple, the controversial

along with the inspirational" (Pitcaithley 2000). The system has come a long way from War Department battlefields and cemeteries. Parks such as the Boston African American National Historic Site (Massachusetts), Martin Luther King, Jr., National Historic Site (Georgia), Brown v. Board of Education National Historic Site (Kansas), and the Central High School National Historic Site (Arkansas) speak to the most fundamental democratic principles of human and civil rights. The national parks have become, in effect, a living part of our democracy contributing in many ways to the stability and continuity of civil society.

As parks have tackled new and challenging themes, they have also evolved into a variety of non-traditional forms:

- New Orleans Jazz National Historical Park is dedicated to the preservation and celebration of jazz, our nation's best-known indigenous art form. Structured around a cooperative agreement between the National Park Service and the City of New Orleans, and advised by a 17-member New Orleans Jazz Commission represent-ing the jazz community, the park provides visitors with the opportunity to experience the sights, sounds, and places where jazz evolved.
- Little Rock High School, now Central High School National Historic Site, is a national emblem of the often-violent struggle over school desegregation. The recently enacted legislation may provide the National Park Service with some unusual management challenges, as the site will still operate as a high school. This dual mission has led one observer to comment wryly that this may be the first national park site with two superintendents: one for the park and one for the school.
- New Bedford Whaling National Historical Park (Massachusetts), established in 1996 also recognizes the contributions of Alaska Natives to the history of whaling in the United States. During the 19th century, more than 2000 whaling voyages sailed out of New Bedford to the Arctic region of Alaska, and joined Alaska natives from Barrow and other regions in whaling activities. The Inupiat Heritage Center has been designated in Barrow, making New Bedford Whaling the first coast-to-coast unit of the National Park System. The heritage center preserves the language and knowledge of the Inupiat people and collaborates with NPS in the social, historical, and scientific interpretation of whaling.
- Within the boundaries of Kalaupapa National Historical Park, on the rugged north shore of the island of Moloka`i, are the historic Hansen's Disease settlements of Kalaupapa and Kalawao. Kalaupapa, once

> a community in isolation, now serves as a place for education and contemplation, a place for visitors to reconsider their emot-ional and physical responses to people with disfiguring disabilities or illnesses. The community of Kalaupapa is still home for many surviving Hansen's Disease patients, whose memories and experiences are cherished values.

These examples illustrate how the definition of parks is evolving. People are raising their field of vision beyond the often fragmented preservation of individual areas, structures, and critical habitats to focus on how the benefits of parks and responsible stewardship can be integrated into the connecting fabric of people's everyday lives.

From Management to Stewardship

Periodically, through the years there have been official pronouncements that the National Park System is complete or nearly complete. "Rounded out" was an expression used in the past. However, a senior NPS official recently conceded that virtually no one takes this thinking seriously anymore. The facts speak clearly for themselves:

Figure 9. Central High School, Little Rock, Arkansas. *NPS photo.*

in the last 20 years more than 100 new parks have been added to the system. Attempts to divest parks or to severely restrict the system's growth, such as the so-called park closure bill offered in 1995, have found limited support.

Figure 10. Brother Dutton and his patients, Kalaupapa , 19th century. *NPS photo.*

The diversity represented by today's system is often unsettling to people who still hold some attachment to Robert Sterling Yard's pre-

dominately western vision of the National Park Service. Several years ago a principal advisor to the *Vail Agenda*, a professor from Harvard's Kennedy School, argued that NPS shouldn't try to be "all things to all people," expressing his belief that "just as the Ford Motor Company should stick to what it does best, making cars, the National Park Service should return to what it does best, managing its large parks" (Zimmerman 1991). This thinking is wishful at best, overlooking the broad legislative mandate that drives the agency's diverse roles and responsibilities. Perhaps more importantly, it also disregards the political necessity of constant engagement and outreach. More than ever, national parks are forging new relationships and partnerships transcending traditional concepts of "park management" to participate in the stewardship and sustainability of watersheds, ecosystems, and the larger landscapes which they are a part of. The National Park Service is constantly interacting with the world around it, responding to the best scholarship in the sciences and humanities and discovering new ways to strengthen the potent ties that bind the American people to places and stories of their natural and cultural heritage. As NPS Deputy Director Denis Galvin succinctly observes, "We need to be recognized as the stewards of our heritage, rather than managers of parks" (Galvin 2000).

New areas have also been perceived as a threat to existing ones. A former NPS director, Jim Ridenour, worried about the growth of the system and the changing nature of parks, often warning against the "thinning of the blood," i.e., an influx of supposedly less-worthy parks diluting the purity of the system as well as siphoning off critical resources necessary to sustain it. However, a reading of NPS's brief history repeatedly suggests the continuing evolution and growth of the system has not "thinned the blood," but instead has in many ways substantially strengthened the overall health of the organization.

The period of the 1933 re-organization and extensive NPS involvement in New Deal programs also saw the establishment of Everglades and Olympic national parks. The "parks to the people" decade of the 1970s culminated with the vast addition of the Alaskan parks—17 new areas and 47 million acres of land, the most spectacular expansion of natural areas in NPS history, more than doubling the size of the entire system. In the 1980s, Phil Burton's famous omnibus bills, dubbed "park barrel" by critics, in addition to authorizing new parks, historic sites, national historic trails, and wild and scenic rivers, also included in its provisions much-sought-after boundary changes, new land acqui-sition and development ceilings, and new wilderness designations for scores of existing parks (Runte 1997, 234).

The argument about the competition for financial resources is more difficult to resolve. While expansion and mission diversification has certainly not been a zero-sum game for the National Park Service—there has been substantial growth in the agency's annual budgets—these increases have not kept up with total needs. Ultimately, today's park advocates are gambling, as Mather and Albright did before them, that funding will eventually catch up with expanded political support and public interest.

Are there limits to expansion? If national parks, as Wallace Stegner has said, are one of the best expressions of our democracy (NPS 2000a), then as long as our democracy has vitality and strength, our park system will very likely continue to grow. Gatekeepers are needed, but gatekeepers who are also visionaries not afraid to lead and take risks. Standards are needed, but with the understanding that standards need frequent reassessment. The challenge now, as it always has been, is to take the National Park System in new directions that are relevant and responsive to our social and environmental condition and, in doing so, build ever-greater support and appreciation for the system as a whole. Echoing Olmsted's observations about "the pursuit of happiness," NPS Director Newton B. Drury once wrote:

> There are certain values in our landscape that ought to be sustained against destruction or impairment, though their worth cannot be expressed in money terms. They are essential to our 'life, liberty, and pursuit of happiness'; this nation of ours is not so rich it can afford to lose them; it is still rich enough to afford to preserve them.

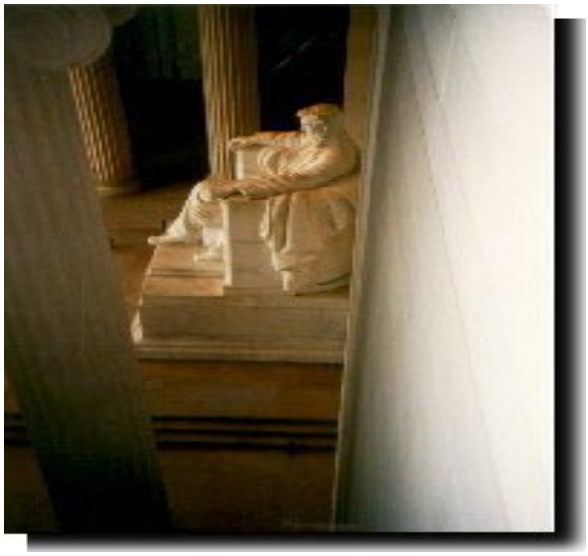

Figure 11. Lincoln Memorial. ***NPS photo.***

Our National Park System, as the sum of its many parts, ensures that the places and values associated with our "life, liberty, and pursuit of happiness" are not diminished or forever lost. In many tangible and intangible ways, parks endow our rich natural and cultural heritage, our sense of place, our recreation and general well-being—ingred-ients essential to the quality and sustainability of *life*. Parks are also the places where we learn about democratic institutions

and the fundamental values vital to any meaningful exercise of *liberty*. Responsible steward-ship of our National Park System may be our only guarantee that in the *pursuit of happiness* we do not burn out like a shooting star, but rather pass on to each successive generation the special places and experiences that have shaped our character and nurtured our souls.

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Judith M. LaBelle

Postcards from Home

Have you ever sent anyone a postcard from the town where you live—the place where you begin and end each day, where you spend most of the days of your life?

Your answer was most likely "No." And you were probably surprised and a bit puzzled by the question. We generally think of postcards as serving a fairly narrow purpose: telling a friend or loved one that we are "thinking of you" while away on vacation. Perhaps even bragging just a bit about the exotic origin of the postmark. So why would one ever send a postcard from home? Certainly not to brag.

But then consider all of the museum shop note cards and other stationery that you have in the drawer for occasional notes and letters. Surely a postcard would serve just as well, if you had one that you enjoyed using. Why do none of these feature your own hometown? I suggest that a major part of the answer is that Americans generally feel that they must travel elsewhere to see beautiful landscapes with distinctive, pleasant towns. We don't expect that the places where we live will have these same qualities. We don't expect our own hometowns to be worthy of a postcard.

But we did once. The next time you see a box of old postcards in an antique shop, take a look. While the cards from the 1930s and '40s may well feature the latest in highway or gas station design, the earlier cards often capture very ordinary scenes: a graceful tree-lined residential street, a couple paddling a canoe along a shoreline park, a simple white post office (Figure 1).

But along the way, most communities lost that scale and gracefulness one project at a time. In far too many cases, we let our communities erode and become something much less than they once were. We came to believe that loss of community character and a diminished quality of life in the public realm were just part of the cost of progress.

By the 1960s, planner and critic Kevin Lynch had come to believe that most Americans had forgotten—or had never known—what they were missing. Most, he said,

> are hardly aware of the potential value of harmonious surroundings, a world which they may have briefly glimpsed only as tourists or as escaped vacationers. They can have little sense of what a setting can mean in terms of daily delight, or as a continuous anchor for their lives, or as an extension of the

Figure 1. Two "postcards from home": Winneconne, Wisconsin, from the Wolf River Bridge. *Courtesy Judith M. LaBelle.*

meaningfulness and richness of the world (Lynch 1960).

But in the forty years since that observation was made, communications and travel have helped Americans become much more aware of the delight of "harmonious surroundings." At the same time, we have come to believe that they are to be found in other countries, not here.

The exception, of course, is in our parks. There, we Americans have preserved great stretches of our cultural and natural inheritance, by drawing a line around them and keeping most human activity out. Until quite recently, we were confident that that was enough. We had "saved" enough of our national heritage inside parks; outside, where people live and work, "progress" could hold sway. This dichotomy fostered the belief that progress—or change—inevitably involves the loss of community character and beauty in our everyday life. We came to believe that it is simply the price that must be paid for economic well-being.

Even as we have become more sophisticated in economic analysis and environmental impact reviews, our ability to assess the value of the finer grain—the everyday context of our lives, the things we appreciate most—has fallen behind. All too often, we seem unable to take it into account as choices are made in our communities: the value of an historic building, the worth of a quiet, tree-lined street, the option of being able to walk where we want to go, the importance of informal places that enable neighbors to meet, the need for human scale. We have trouble articulating the importance of such things, let alone allocating a precise value to them. In this regard, we Americans are not alone.

Common Ground, a British organization, emphasizes "local distinctiveness" as a key to fostering community responsibility for cultural resources. They note the difficulty of valuing "quality in the everyday":

> Because these things are not straightforward or easy to pigeonhole, often involve emotional attachment and are hard to communicate, they are treated as 'soft' by the media. Because they are impossible to put a money value on or to explain through equations, the unquantifiable 'intangibles' are likely to be marginalized by the professionals. Debate rages, and decisions are taken which often leave out the very things that make life worth living (Clifford and King 1993).

So even as we have come to value "harmonious surroundings" enough to travel elsewhere to see them, we have a hard time making their protection a priority when decisions are made in our own communities. The "quality of the everyday" continues to erode.

Nevertheless, the constituency for protecting the distinctive and desirable elements of our communities is growing. New approaches to community development are being crafted. Many of them fall under the rubric of "heritage areas"—a loosely defined term that encompasses areas

with a federal designation as well as those that are self-defined at the local level. All focus on an area with a distinctive identity that encompasses communities and their surrounding landscapes. They attempt to move beyond our restrictive notion of parks to provide protection for broader areas within which people live and work.

Interestingly, these new American approaches are moving toward the concept of parks and protected areas that have been common in Western Europe for decades. The landscapes that we Americans so love to visit didn't just happen. As the forces of change gathered speed after World War II, these countries realized that their distinctive communities and landscapes would be lost if special steps were not taken to protect them. They developed approaches to protecting communities and landscapes that are far more complex and expansive than the traditional American park model.

Since the late 1940s, the British countryside has been regarded as a critical national resource, first for its productive capacity and more recently for its aesthetic, cultural, environmental, and recreational values. National parks that encompass towns and the surrounding countryside, and provide an administrative and regulatory overlay, are found throughout England. A complex network of other types of protected areas, including such uniquely English designations as "areas of outstanding natural beauty" and "sites of special scientific interest," provide further types and levels of protection to other natural and cultural resources.

The French designation "regional park" provides another interesting and less-familiar example for Americans to consider. Thirty years ago the French recognized that the special landscapes they so treasured were also working landscapes, created by the people who had lived and worked there for many generations. They saw that because landscape and culture were intertwined, neither could be protected in isolation. Landscape and culture had to be maintained together.

The result of that realization was the development of a system of regional parks. Each park is created through the development of a charter in which representatives of the several jurisdictions involved spell out what they want to protect and how they propose to do it. The planning of a French regional park begins with a broadly inclusive project of "reading the landscape." Area residents study and map their landscape and determine its key distinctive elements. This provides the starting point for the park's charter.

If the national federation agrees that the goals and methods in the proposed charter are appropriate, the park is created. It is placed on national maps and allowed to use the federation's logo for marketing purposes. Local municipalities encour-

age economic development that is in harmony with the charter, and provide carefully targeted technical assistance and subsidies. Some parks, though not all, utilize land-use regulation to both promote and control economic activity and development.

The Brière Regional Park in Brittany is a good example. At the heart of the Brière is a marsh that the local residents have held in common for hundreds of years. Traditionally, horses were pastured there. Peat was removed for fuel, resulting in channels that provided habitat for wildlife, including eels that were actively harvested. The houses, built on the higher points which become islands during part of the year, were characterized by thatched roofs made from marsh reeds.

After World War II, the traditional architecture fell from favor. The distinctiveness of the area began to erode and the channels grew shut. When the regional park was created, one of several initiatives was to require that new houses use thatch in the traditional manner. It also provided training for craftsmen in how to use thatch, and subsidized the extra cost to the owners. The removal of the thatch helped reopen the channels. Eels and other wildlife came back. Eels and goose livers—traditional foods—are now served in the restaurant in the park auberge and sold as prepared food. The area is popular for ecotourism and environmental education.

We are, of course, a very different society from England or France, in cultural norms as well as legal framework. Property rights are particularly strong here and, as already noted, the societal values that might balance them are not as clearly developed or widely shared. Nonetheless, we have a great many legal tools and techniques that can be used to shape development patterns and protect resources. Local governments can use their zoning authority to this end and can create special designations and districts to protect natural and historic resources. Private individuals can play a role through local land trusts that protect land by buying it or acquiring a conservation easement to restrict its development. A growing number of state governments recognize that sprawl is very costly and are undertaking "smart growth" and "quality community" initiatives to curb the insatiable appetite for open space.

The recent smart growth initiatives, in particular, reflect a growing understanding that development need not run rampant in order to provide economic benefit to a community. Indeed, a growing body of literature suggests that the opposite is true. Those communities that have retained their distinctiveness and quality of life are the ones that are attracting the "lone eagles" who can bring their work with them and the entrepreneurs who can bring their companies with them. Both bring

new energy to the local economy as well as adding their own personal skills to the community mix.

Although it runs counter to what traditional economic development practitioners believe, the community that respects and protects the qualities that current residents value will have a competitive edge in attracting the business activity that is at the heart of the "new economy." The same is true regarding tourism. As the leisure economy grows, places that are distinctive and authentic—that are respected and cared for by the people who live there—increasingly have the edge with the upscale tourism that can contribute to the local economy without overwhelming it.

What we require is a more widely shared recognition of the importance of maintaining the distinctive character and qualities of our hometowns. We need to find ways to discuss and assess the features that contribute to the quality of our "everyday" life, and we need to engage many "ordinary" residents in the discussion. Last but not least, community leaders must look beyond the boundaries of their own community and become much more aware of what can be learned from other "hometowns." If they do that, in concert with their own residents, they will find the political will to protect those qualities.

A few years ago I asked writer Barry Lopez what one thing we Americans must learn if we are to protect our landscapes. His reply was stunning in its simplicity: "We must learn to stay home."

And, I would add, work toward the day when we will be sending postcards from home.

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Roberto Gambino

Parks for the Future:
A European Perspective

Which are the parks of the future? Or rather, which role can they play in shaping our future? The second question is much more interesting if we are trying to understand the limits and weaknesses of current policies in establishing and managing protected areas and to envisage new strategies for nature conservation. The answer to such a question may be, in fact, highly uncertain—at least from a European perspective. Despite the spectacular growth of nature parks (over the whole of Europe, a tenfold increase in less than 40 years)—or, better put, *thanks* to such growth—their role and even their conception are going through the deepest crisis since their birth in the 19th century. Paradoxically, the striking success of park policies has pointed out their limitations and the necessity of "going beyond" parks in light of their changing relationship with social processes. In Europe, scientists and politicians, park managers, tour operators, and environmentalists are realizing that effective nature conservation requires broader and more complex strategies. Some countries with sound traditions in nature conservation, such as Denmark, do not consider park policies to be the most effective answer to the social demands concerning nature and environmental quality. The social, economic, and cultural impacts of parks have, in any event, increased considerably throughout Europe. There is no doubt that parks and protected areas have strongly contributed to shaping our attitudes toward our natural heritage during the last century. In the recent past, they increasingly have helped us to deal with the values of the land where we live. Can they continue in helping us to shape our future? What is their specific contribution, if any? In the attempt to answer these questions, we may start from some preliminary observations on how the role and conception of parks are changing.

In the early history of parks, celebration of nature was the focal point. It was so in the mind of Frederick Law Olmsted (who, in the 1860s, was instrumental in the creation of what would eventually become Yosemite National Park), and it was so in the establishment of the first European parks, such as the Swiss National Park (1914) or the Gran Paradiso National Park in Italy (1922). Along with providing for public enjoyment they had to fulfill their mission as nature sanctuaries, monuments of a

distinctive national heritage. Much of this conception still remains in international definitions of protected areas (particularly in IUCN's Category II, national park) and in many European national laws.

But this conception now covers only a small proportion of European parks. Their expansion in the second half of the 20th century, whereby they increasingly encompass humanized territories and cultural landscapes, has deeply changed their character and role. It is not by chance that most European protected areas are classified by IUCN as Category V protected landscapes. Indeed, in 1998 one of the largest Italian parks, Cilento e Vallo di Diano National Park (1,800 sq km), was recognized by UNESCO as a "cultural landscape" of worldwide relevance under the World Heritage Convention (as have others). In Europe, of course, natural values are always mixed with cultural ones. A resolution adopted in 1998 by the Council of Europe for the European Landscape Convention recognizes this by observing that the landscape, which always results from the interaction between natural and cultural factors, represents a basic component of natural and cultural heritage. The resolution further states that landscape protection "applies to the whole European territory, affecting natural, rural, urban and peri-urban spaces," covering both "remarkable and ordinary landscapes, all conditioning the quality of life of people." Obviously, this is particularly true in the "inhabited parks"; the large majority of regional parks, the *Lander* parks in Germany, and a good share of the national parks are in fact lived-in landscapes. And it is even more true in parks that include a high density of historical remains and cultural values, as very frequently happens in Italy and other European countries.

But overcoming the traditional separation between nature and culture has a more general meaning. It draws our attention to cultural relevance, which must be recognized even in areas where natural values are dominant, as in many large parks of northern Europe and in remote mountain areas, or where previously existing ancient settlements have been abandoned. As stated in the Alpine Convention (signed in 1991), mountain regions, including those never exploited by humans, have an inherent cultural meaning that is recognized around the world. As a consequence of this new attention, the processes of economic and demographic decline, which affect a large portion of Europe's rural regions, are becoming a crucial problem, especially where landscape conservation and cultural interests may conflict with growing opportunities for "renaturalisation" and "rewilding." While these processes outline new and promising scenarios, whereby human pressures on and interference with natural dynamics may be erased

or substantially reduced, cultural options and landscape protection may often require policies aiming to maintain the human presence and associated traditional activities, so as to take care of the territory. Such policies also are often required for soil conservation and prevention of hydrogeological risks. Furthermore, problems of maintaining regional identities are linked with worries concerning the conservation of biodiversity. In Europe, there is in fact a growing awareness of the historical connection between biodiversity and landscape and cultural diversification, the conservation of which often requires active management of highly unstable successional stages, strictly tied to the landscape fragmentation and the economic, social, and cultural diversification that took place in the past. This implies that the biosphere and natural values cannot be separated from cultural meanings. This should increasingly influence the role and conception of parks in the near future.

With regard to policies, a focal issue is the integration of parks into their regional contexts. The growing relevance of this issue relates, first of all, to the above-mentioned diffusion of nature parks. Most of them are now located very close to urban or industrial areas, or even inside them. Most also are exposed to growing pressures, which are even more threatening as their size is very small (less than 400 sq km on average, 32% less than 50 sq km). An important share (21%) are like "besieged islands": small natural or semi-natural spaces surrounded by an increasingly hostile context, while another 3% really look like urban parks. Many, as we have noted, include important human settlements, or are surrounded by them. The expansion of European parks has been shaped by evolving economic, social, and cultural processes—first among them the urban diffusion of the last decades—that have deeply changed the problems facing protected areas. Pollution, perturbations, ravages, and other threats deriving from urbanization, infrastructure development, tourism, or from technological innovations in agriculture, sheep-raising, and forestry, can have an impact on park conditions much more detrimental and irreversible than the traditional threats related to hunting, grazing, or farming, even if those processes take place outside their borders. And the reaction of the parks' internal ecosystems depends on what happens in the surrounding bioregions. Given the small size of many European parks, the risks of "insularisation," with its negative consequences on biodiversity, are widespread.

The problems of environmental protection and nature conservation inside the parks are therefore more and more inter-related with conflicts over social and economic development outside their boundaries. Issues of sustainable development are as-

suming a very specific significance for most European parks. This is why they are increasingly conceived of as being essential workshops for searching out more sustainable paths of development, pioneering new models of interaction between social and natural processes and creating new jobs based on nature conservation instead of despoliation. In many cases, the establishment of a park simply reflects the hope that it can work as a "development engine" for a disfavoured or marginal area.

But these goals do not concern protected areas exclusively; they concern the whole territory. Therefore, park policies have to be integrated with broader policies in a regional approach. As IUCN stated in 1996, it requires adopting "ecosystems or bioregions as the appropriate geographic scale for resource management programmes, within which protected areas are enveloped as components in a diverse landscape, including farms, harvested forests, fishing grounds, human settlements and infrastructure." If we look at park planning in Europe (66% of the parks have a either a completed or pending management plan), we can observe an emergent tendency towards attempting to connect parks and other natural spaces within ecological networks. Local and regional networks may be conceived as part of the European Ecological Network, launched at the Maastricht Conference on Natural Heritage in 1993. The network aims to apply sustainability principles to the whole of Europe and particularly to "improve the resilience of its natural systems to adverse environmental changes," thus reducing the risks of insularisation. In this trans-scale frame, parks may be seen as important nodes of inter-regional networks and, at the same time, as local networks of nodes constituted by different resources. And this conception may be enriched by taking into account, besides ecological connections, environmental corridors based on roads and paths, as well as forests and other natural features that can foster proper enjoyment of natural and cultural resources within and outside the protected areas. This is, for instance, the idea behind such important projects as the Appennino Parco d'Europa in Italy.

Despite their strategic interest, ecological networks are inadequate to deal with the complexity of actual ecosystems, above all in those areas characterized by "diffused naturalness," which constitute a large share of rural Europe. In these areas, the main problem is to preserve the quality and the continuity of the ecological matrix, resulting from the interaction of human and natural components, in which parks and other natural spaces are located. Policies must take into account the needs and attitudes of the rural communities, as some European directives have recently suggested. More generally, the expansion of environmental protec-

tion to the entire region relates to landscape planning and management, which are now developing in many European countries. These tendencies suggest the emergence of parks as an integral and inseparable part of broader systems. This consideration may have a great effect on institutional frameworks for nature conservation in years to come.

The above consideration may be stressed if we keep in mind the growing pluralism of decision processes in regional governance. The spatial expansion of conservation policies must be based on cooperation among a number of actors and institutions. As IUCN stated in 1996, it has to be supported "with actions which encourage cooperation between private landowners, indigenous peoples, other local communities, industry and resource users; the use of economic incentives, tax arrangements, land exchanges, and other mechanisms to promote biodiversity conservation; and the development of administrative and technical capacities which encourage local stakeholders, academic and research institutions and public agencies to harmonize their efforts." The cooperative approach reflects, of course, the necessity of consensus— something already largely reflected in European park policies. "Protected areas," it has been said, "will survive only if they are seen to be of value, in the widest sense, to the nation as a whole and to local people in particular." But cooperative management and planning also implies a search for synergies and complementarities that can produce "added value" and that allow the achievement of results unobtainable by any single actor. Particularly, a cooperative approach can foster the empowerment of local government and local actors, directly involving them in resource management, thereby strengthening their responsibility. It is worth noting that in Europe, despite differences in institutional and political contexts, a vigorous tendency towards intergovernmental and co-operative approaches may be observed even in those countries (such as Italy) whose legislation is still characterized by a hierarchical, top-down order.

As a consequence of the cooperative orientation, we can observe in the last decade an important shift in the attention of planners, managers, and politicians from the *products* of their activities (plans, projects, regulations, and realizations) to the *processes* by which they are achieved. Experiences in management and planning have shown, in fact, that the social processes for making decisions and implementing plans (how to do, with whom, by which means) are often more important than their results. This is, for instance, the basic perspective of the Scottish programme (entitled "Working with Scotland's People to Take Care of Our Natural Heritage") or the recent programme of the Peak District National Park,

U.K. ("Shaping the Future," the first document in its new management plan). These and other experiences are akin to the American greenways concept of working together. In this perspective, negotiation processes among different stakeholders are assuming a growing importance for resolving environmental conflicts, as well as in mediating confrontations among different interests, by taking into account the costs and benefits associated with development or conservation choices. Planning a park is becoming more and more a complex process of social and institutional interaction, based on agreements and consultations, exchange of documents and cross-evaluations. Cooperative or "compact" planning is becoming the rule, even when it is not explicitly provided for within the institutional and legal frameworks. Increasingly, a park must be seen as a social, economic, and cultural process instead of an institutional event, dropped from above like some alien reality.

In the light of the above considerations, we can try to answer the initial question. In the near future—at least from a European perspective—parks will probably play a significant role as important social processes, actively conserving and valorising unique sets of natural and cultural resources, and also serving as nodes within networks that aim to support the sustainable development of whole regions. Parks can no longer be conceived of as mere islands of unendangered nature, set aside from social and cultural processes and ruled by aloof institutions—even though most of them will continue to offer an essential experience of nature, and will generally continue to need special institutional protections against many human threats. But this answer is still not satisfactory. In fact, the goals of natural and cultural heritage conservation and valorisation, the search for sustainable development, do not concern only parks, but the entire areas used (directly or indirectly) by human society. What, in this larger context, is the specific role of parks? Is there a mission that only parks can efficiently perform in shaping our future?

It is, perhaps, precisely the expansion and differentiation of conservation policies that can give parks a more specific role—in symbolic, cognitive, and cultural terms. In fact, a distinctive feature of parks is now, and always has been, their prominent symbolic value. This goes far beyond ecological value. It relates to a peculiar mix of natural beauty, landscape uniqueness, historical meaning, and cultural significance. As a track of our relationship with nature, parks are a powerful "living metaphor" of a new alliance between humans and the earth. This is not far from the spiritual and educational missions envisaged by the founders of the first nature parks in the 19th century, but it is becoming even more important in our

contemporary communications-oriented society. Now and into the near future, the parks' own communication role should prevail in every functional mission. A new partnership between social and natural processes implies a sound understanding of how ecological dynamics and environmental constraints influence human choices and are influenced by them. Nature parks have offered, since their birth, an extraordinary ground of experience for scientific research. Park planning and management have substantially contributed to the advancement of scientific knowledge and attempts to "design with nature" (as Ian McHarg recommended). In Europe, this contribution is becoming more and more irreplaceable owing to the progressive wasting and degradation of natural spaces. Moreover, parks are becoming focal points for environmental education. Through their communication and interpretation activities, park authorities can significantly help people to learn how to live in harmony with nature.

Finally, park policies play a growing role in the valorisation of local identities. In the European experience, parks are more and more being conceived of as essential tools for enhancing and improving local values, specificities, and cultures. Since they are very often located in "losing" areas affected by economic, social, and cultural decline, the image of the parks can be seen by local communities as a powerful means for asserting their rights, competencies and identities. And, what is even more important, parks can help avoid the risk of conservation of local values falling back on a nostalgic, hopeless defence of the past by instead inserting these values into broader, open networks of social and cultural development.

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Evolving Protected Area Thought and Practice

Sometime in the early-to-mid-1980s national park and protected area planning entered a different phase or paradigm. A broad threshold was reached where the theory, methods, and practice of protected area planning and management re-arranged themselves into what is essentially a new framework that is still evolving (IUCN/UNEP/WWF 1991; McNeely 1993; Nelson and Serafin 1997; Sportza 1999). This shift in thought and practice can be described in terms of a number of key elements relating to parks and protected areas, including:

- Funding;
- Protected area cultures and values;
- Native people;
- Sustainable development;
- Changes in science, scholarship, and information;
- Scale;
- The changing role of government and other actors;
- Stewardship; and
- Planning.

These elements interact with one another and are difficult to separate, even in a think piece such as this.

The shift in protected area thought and practice will be discussed here in a preliminary way. This essay is based upon research and experience in universities and with government agencies and nongovernmental conservation organizations in Canada and other parts of the world since the 1960s. Current work is funded by a Social Sciences and Humanities Research Council of Canada grant for study of regional approaches to parks and protected areas as well as by consulting and cooperative work with agencies and groups such as Parks Canada, Ontario Parks, and the board of trustees of the Canadian Parks and Wilderness Society

(CPAWS). The focus in this essay is on Canada and, to a lesser extent, on the USA, with additional comments on other parts of the world.

Funding

Although advocacy from railroads and other businesses, scientists, scholars, and private citizens has been important in establishing national parks and other protected areas in countries such as Canada and the USA, funding for them historically came mainly from governments, notably federal governments, which also provided for necessary laws, policies, agencies, and staff (Lothian 1987; Mackintosh 1984). The private sector was nevertheless important; for example, some leaders in early national park activities in the USA contributed their services on a *pro bono* basis. In recent years, however, governments have reduced funding for protected areas. Yet financial support and involvement from the private sector seem to be increasing locally, nationally, and internationally. One interesting example is The Nature Conservancy's work involving acquisition of ranch lands around Great Sand Dunes National Monument in Colorado. World Wildlife Fund–U.S. is heavily involved in the Chihuahuan Desert project in the USA and Mexico.

Protected Area Cultures and Values

The cultures and values involved in parks and protected areas have varied in some basic ways since the beginning of major protected area programs in the mid-to-late-nineteenth century. In the USA for example, two value systems were integral to the development of protected areas from the beginning (Mackintosh 1984; Runte 1979). The utilitarian conservation philosophy and approach of Gifford Pinchot was reflected in the thought and practice of the U.S. Forest Service and the preservationist thought of John Muir in the U.S. National Park Service. These value systems have interacted and evolved unevenly since.

The wilderness tradition has not been as strong in Canada as in the USA, although one of the early Canadian national park directors, James Harkin, espoused wilderness ideas. After the environmental decade of the 1960s, and following the influx of many young Americans seeking to dissociate themselves from the Vietnam War, the wilderness idea did gather strength in Canada, although there is still a strong inclination to see hinterlands as the "bush"—as places for hunting, fishing and other uses in the spirit of the native people or the early fur traders and their successors (Nelson 1989). In Mexico, the wilderness idea has not been very strong to the present day. The utilitarian approach has been dominant and there is a strong emphasis on national parks as vehicles for tourism. The recent report of the Parks Canada Ecological Integrity Panel calls, however, for

much more emphasis on conservation of ecosystems (Parks Canada 2000).

Native People

Native people have played a strong role in the evolution of protected area thought and practice, especially since the late 1970s. In these years the Canadian government tried to secure "land claim" agreements with people such as the Inuit of the Arctic, people who never ceded their lands and waters to the government. These land claim agreements arose from the desire to open the Arctic to oil and gas and other development. In the process of working with the native people, the federal government eventually created a new national park model reflecting the cultures and values of First Nations. Thus, since the 1970s, northern national parks have allowed for native hunting and fishing with conservation safeguards. Tourism is more restrictively managed and the national parks and other protected areas are often administered through co-management arrangements between native people and Canadian federal and territorial agencies. These Canadian responses were forerunners in the trend to "inhabited wilderness" of the kind described by Stevens (1997) in Central and South America, Asia, and Africa today.

Sustainable Development

The early-to-mid-1980s were also the time when the concept of sustainable development led to the view that environmental conservation and human development were opposite sides of the same coin (IUCN/UNEP/WWF 1980, 1991; WCED 1987). Conservation and development were essential to one another if human and other life was to be sustained in such a way as to provide for equitable access to socioeconomic and environmental opportunities "to the seventh generation." The strong role that protected areas can play in sustainable development has led to much greater appreciation of their vital services to life in surrounding lands, waters, and regions. The launching of the concept and practice of sustainable development has been paralleled by support for a broad regional approach to conservation and resource use. Indeed, when the World Wildlife Fund (WWF), World Conservation Union (IUCN), and United Nations Environment Programme (UNEP) launched the first major statement on sustainable development in 1980, the title of the relevant document was the *World Conservation Strategy*. Conservation strategies were subsequently prepared for many countries, as well as for regional seas, areas such as the Serengeti and the St. Lawrence River, and urban regions such as Manchester, England.

Recent Changes in Science, Scholarship, and Information

One of the most, if not the most, important elements leading to a shift

in thought and practice about national parks and protected areas has been the evolution of relevant science, scholarship, and information, notably in terms of developments in ecosystem science (Forman and Godron 1986; MacArthur and Wilson 1967; Meffe and Carroll 1997; Soulé 1986; Wilson 1988). New theory and method in the form of island biogeography, landscape ecology, conservation biology, and biodiversity studies have changed the fundamentals of park planning and management. Prior to the development of these newer approaches, national parks and protected areas tended to be thought of as "natural fortresses" set aside from development—with the notable exception of recreation and tourism, although this has been less the case in Mexico.

These new ecological ideas and approaches led to placing more stress on connectivity among parks and protected areas and surrounding lands and waters as a key way of preventing isolation, fragmentation, and other processes leading to decline in species, communities, and biodiversity generally (Noss 1992; Schonewald-Cox et al. 1992). Interest in the park and protected area field has consequently shifted toward landscape- or regional-level planning, management, and decision-making.

Changes in economics also have led to much greater interest in what has been called "ecological economics" (Costanza et al. 1997). This type of economics seeks to identify the services offered to society by natural characteristics and processes, including those of protected areas, and to place economic values upon them. On the land use side, thought and practice in fields such as recreation and tourism have evolved to include new concepts and approaches, such as ecotourism, or sustainable tourism development (Nelson et al. 1999). Here the main emphasis is on types and levels of tourism that respect the qualities of the natural environment and focus on providing economic and social benefits to local people and communities.

Scale

Much more attention is being devoted to *scale* in current thought and practice about parks and protected areas, nature conservation, and sustainable development. Protected areas now are seen as part of a network including local as well as larger landscapes or regions (Grumbine 1990; Noss and Harris 1986). Furthermore, these regions interweave over very large areas at a continental or even a global scale. Migratory waterfowl, shorebirds, and passerine birds all move seasonally from Mexico and Central and South America to the USA and Canada—and return (Cox 1999). Protected areas and conservation programs have been and are being set up to recognize these realities. An example is the Important Bird Area Program in Europe and

North America, which among others, has recognized sites in southwestern Mexico; the San Pedro River area, Arizona; and Long Point in Ontario (Cheskey 2000).

Consciousness of the significance of scale on the human and social side of the protected area ledger has, however, only begun to develop. An extremely interesting example is the multi-level approach of World Wildlife Fund–U.S. (Table 1; Stedman-Edwards 1998). Here the focus is on understanding changes in national and international thought, laws, policies, and practices and their links with what happens at the local park level. Upper-scale socioeconomic and institutional analysis has been neglected in the past, with the focus having been on individual parks and local or micro-scale systems. Efforts at these lower scales can be fundamentally affected or changed by challenges at the macro-scale. An example is the North American Free Trade Agreement, which has led to the Commission on Environmental Cooperation, a trinational body that has provided funding for programs such as the North America Important Bird Area Program and for mapping and study of North American parks generally.

Changing Role of Government and Other Actors

Theoretically and conceptually at least, many more actors or stakeholders, interest groups and individuals are explicitly involved in protected area thought and practice than was the case prior to about 1980 (Day et al. 1998; McNeely 1993; Nelson 1995). In the 1960s, when park master planning and management planning began in the USA and Canada, the main actors were seen to be government and the private sector or citizenry. It was the government's job to develop plans for and to fund and manage the system. It was recognized that governments best do this by informing and consulting with the people, businesses, and other affected groups through public meetings, open houses, and the like in developing plans and activities for the system as well as for individual parks and protected areas. The main job of the citizenry and other relevant actors, such as universities, was seen as supporting government in its work for society.

However, one major implication of the many shifts in scientific and scholarly thinking and in planning and practice has been that government is now clearly only one of many players on the protected area stage. A major step in this direction was the arrival of "Thatcherism" and "Reaganism" and the shift to a "free market" approach with associated cuts in funding and thus in the government capacity and role in protected areas and nature conservation. Consequently, as noted earlier, since the 1980s nongovernmental organizations such as The Nature Conservancy, the World Wildlife

Temporal	Geographical	Political	Economic
today	farm	agreements among neighbors	subsistence
agricultural cycle	wildlife reserve	local council	local market
political term	ecoregion	state government	state development funds
timber cycle	nation	national government	national policies
generation	continent	international interventions	international markets

Table 1. Examples of scale. Source: Stedman-Edwards 1998.

Fund–U.S., The Wildlands Project, and many local land trusts and stewardship groups have played a much stronger role in protected area funding, planning, and management.

Governments and private organizations are interacting to an increasing extent in conserving significant natural areas and in providing for appropriate protection and use on the ground. This shift, in turn, is associated with a growing interest in public and private stewardship through measures and processes such as those listed in Table 2. In light of these ongoing changes it is not clear what the role of governments and other actors will be in a decade or so. Certainly many more levels and kinds of governments are assuming responsibilities in the protected area field—locally, provincially, nationally, and internationally.

The emergence of a strong private role at the international level is especially striking in cases such as the International Birds in Flight Program (Cox 1999), cross-border protected area proposals such as those for the North Cascades of Washington state and the adjoining province of British Columbia (Friedman and Lindholdt 1993; Miles 1999), and large bioregional efforts such as the Yukon to Yellowstone (Y2Y; Locke 1997), the Chihuahua Desert (Williams, in press), the Sky Islands of Arizona and northern Mexico (Gatewood 1999), and the Algonquin to Adirondacks (A2A) in Ontario and New York (CPAWS–OV 2000). Such large-scale public and private stewardship efforts have only recently begun to develop, some apparently with considerable progress, some with difficulty. We urgently need studies of the various approaches that have been taken—the institutional arrangements that have been used, how and why they have worked, and what lessons can be gained thereby.

Acquisition
Conservation easement
Lease
Transfer of development rights
Management agreement
Subsidy
Written agreement
Verbal agreement
Direct income incentive (tourism)
Certification
Technical assistance
Recognition
Education

Table 2. Hierarchy of stewardship tools. Tools at the higher end are marked by *increasing* effectiveness, cost, and commitment, as well as *decreasing* participation. Adapted from Brown and Mitchell 1997.

Stewardship

Some of the ramifications and effects of large-scale stewardship efforts have not been recognized clearly in terms of planning, management, and decision-making (Brown and Mitchell 1997; Berkes and Folke 1998; Litke and Day 1998). One basic challenge has been to secure enough relevant information to develop scientific solutions to problems. Science and rational (or corporate) planning are seen as important, but not capable of providing all the answers. Support for a *precautionary management approach* in which policy and practice are seen as hypotheses or experiments to be carefully monitored, in the context of *adaptive planning and management*, is one major consequence (Gunderson et al. 1995; Lee 1993). Another challenge is the need to deal with local and indigenous knowledge and experience, this knowledge often reflecting different cultures, values, expectations, and world views than the modern scientific, rational approach (Stevens 1997). In this context, biodiversity has become an ever more powerful science-based concept in the protected areas field since E.O. Wilson (Wilson 1988) gave it a big push in the early 1980s. As a vision and a guiding philosophy it has also received international sanction through the Convention on Biological Diversity.

Recent stress on science and on scientific concepts such as biodiversity have tended to push the concepts of wilderness and the role of aesthetics and other values toward the "back burner," with implications that are not entirely clear. One reaction has been a call for more stress on spiritual as well as scientific approaches in planning, creating, and managing protected areas. These approaches have been advanced with growing vigor by some nongovernmental conservation organizations and religious groups, which are concerned about the increasingly adverse effects of development on nature and creation. For these and other reasons, the knowledge field has become an increasingly pluralistic and uncertain one.

Planning

This leaves us with planning, the last aspect of protected areas to be discussed here (Day et al. 1998; Nelson and Serafin 1996; Roseland et al. 1996). As a result of the funding, scientific, and other changes described in this paper, we now have a situation in which many private players—as well as local, provincial, and federal governments, along with international organizations and groups (such as UNESCO and its Man and the Biosphere Program)—are involved. Other ways of knowing, other interests, values, and approaches, are now increasingly represented at the table, and a more interactive and adaptive approach is being taken to parks and protected areas in the context of surrounding lands and waters.

Amid all this increasing complexity and uncertainty, collaborative regional approaches to parks and protected areas definitely need much more study. Some assessments have been made of programs such as Greater Yellowstone Ecosystem Plan and the North Cascades International Conservation Initiative (Jensen 2000; Miles 1999). These indicate that top-down and basically corporate efforts by either government agencies or nongovernmental organizations may not work very well. A recent assessment of the ecosystem planning approaches used in four Canadian national parks shows that the complex human dimensions of ecosystem science have neither been well-understood nor even considered in decision-making (Nelson et al. 2000). Insufficient consideration has been given to socioeconomic and planning factors such as those shown in Table 3.

Final Comments

We are witnessing a shifting and evolving framework for protected areas, nature conservation, and sustainable development. This situation is marked by the involvement of many government agencies and private groups, not only regarding the lands and waters in and around protected

• Understanding of the historical, socioeconomic, and political context of the park and region
• Understanding of the needs and activities of local people and their effects on the parks
• Use of traditional knowledge of First Nations or of local people
• Increased attention to and emphasis on human dimensions research and monitoring and reporting
• User-friendly information: brochures, videos, interpretation programs, consultative committees, civic forums, workshops, regular networking
• Ongoing, collaborative, and mutually reinforcing planning
• Interactive and adaptive or transactive planning approaches
• Emphasis on public and private stewardship, landowner contacts, economic incentives, easements, and other agreements
• Communication strategies
• Intra-agency interaction to help address the holistic and integrative processes of ecosystem planning

Table 3. Important planning factors. Source: Nelson et al. 2000.

areas, but those that are far away. In these circumstances, concerned agencies and private groups cannot easily regulate or direct one another's activities. Civic arrangements need to be encouraged so that the array of stakeholders can learn mutually from one another and find ways to communicate, negotiate, plan and act in the individual and the common interest. In this respect, pluralism needs to be explicitly recognized and dealt with in a collaborative rather than a predominantly or exclusively corporate manner. The human dimensions of protected area planning, management, and decision-making require as much attention as science, whether at the local, provincial or state, national, or international scale of thought and practice. Within this overall context, two approaches to nature conservation and sustainable development now seem to be taken. The first is planning for individual protected areas in a regional context (e.g., greater park ecosystem planning). The second is planning for nature conservation and sustainable development on a regional or bioregional basis, where this planning includes protected areas as well as an array of other stewardship methods. Both approaches seem to be necessary responses to the challenges of the day.

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Conservation Without Frontiers: The Global View

Introduction

The dawn of the new millennium provides an excellent opportunity to assess the future of conservation in the 21st century. The Fontainebleau Symposium, held in France in November 1998 to mark the 50th anniversary of IUCN–The World Conservation Union, reviewed conservation achievements over the last 50 years and assessed future challenges. This symposium noted a dichotomy. On the one hand, awareness of conservation issues has never been higher. Concepts such as biodiversity conservation and sustainable development, which were not even explicitly developed until the 1980s, are now increasingly mainstreamed into key sectors of the economy. The recent proliferation of international environmental conventions, such as the Convention on Biological Diversity, also reflects growing awareness of the significance of the environment for life on earth. However, on the other hand, many key environmental indicators give rise to major concerns. The rate at which humans are altering their environment, and the impact of this on biodiversity, is accelerating. For example, recent reports indicate that between 5% and 20% of vertebrates and trees are threatened with extinction and that extinction rates in many of the well-documented groups, such as birds and mammals, are likely to increase by an order of magnitude over the next century or so (May 1998).

This dichotomy shows the need for the establishment and implementation of clearer and more effective conservation measures. Protected areas—defined as "areas of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means" (IUCN 1994)—are playing an increasingly important role in addressing the challenges of biodiversity conservation and sustainable development around the world. These areas represent a vital investment by nations to ensure a healthy environment in the 21st century. However, the full potential of this investment will not be realised unless dynamic and forward looking strategies are developed and implemented. Also, it is becoming increasingly clear that protected areas, and the agencies that manage them, must re-examine their traditional approaches to protected area establishment and management. Important species,

such as the ibex in Europe and the cougar in Central America, are not interested in artificial boundaries drawn on maps. Protected areas, reflecting this perspective, must broaden their outlook beyond their traditional boundaries if they are to survive in the next century.

This paper provides background to protected areas at the global level, then reviews trends in transboundary conservation around the world, introduces some successful examples of transboundary protected areas, and suggests some strategies to ensure that their full potential is realised.

The Status of the World's Protected Areas at the End of the 20th Century

IUCN's protected area category system. The current situation with regard to protected areas was reviewed at a major international symposium in Albany, Western Australia, in November 1997. This symposium reviewed current protected area status, in accordance with the IUCN protected area category system (Table 1). This system increasingly is being accepted by national governments as a clear and logical framework for guiding the establishment and management of protected areas. More and more countries have integrated the category system into their domestic legislation relating to conservation and protected areas. The category system focuses on management objectives rather than the names of different protected areas; Green and Paine (1997) note that over 1,388 different terms are used around the world to designate protected areas, and an exclusive focus on such terms within any category system is an unproductive and time-consuming exercise.

Protected area extent and distribution. The Albany Symposium noted that, as of November 1997, there were 30,350 protected areas extending over 8.83% of the world's land area, covering 13,232,275 sq km—an area as large as Antarctica. This is an impressive achievement and represents a major commitment by countries to protect their natural heritage. The number and extent of the global network of protected areas have grown steadily throughout the latter part of this century, as shown in Figure 1 for each five-year period between 1900 and 1994. Continuing growth during the most recent five-year period indicates on-going efforts by governments to establish new protected areas.

Analysis. The overall status appears encouraging, for countries around the world have taken up the challenge of developing systems of protected areas. However:

- Despite the extent of protected areas, it is increasingly obvious that, in some countries, they are not managed effectively and are often not achieving the conservation goals for which they were established. In many devel-

oping countries, the last ten years has seen a massive increase in funding for protected areas, particularly through avenues such as the Global Environmental Facility. However, this increase in funding has not always led to a commensurate increase in the effectiveness of management, and this should sound "alarm bells" to those involved with protected areas.

- A number of terrestrial biomes are poorly protected (particularly grasslands and freshwater lakes) and the marine habitat in general is poorly represented.
- Management arrangements for protected areas are changing rapidly in many parts of the world, particularly involving agencies outside of government in their establishment and management. The long-term implications of these changing arrangements are often unclear but may be irreversible.
- Biodiversity loss is still occurring even though the total area under protected area designation is increasing, reflecting the dichotomy noted in the introduction to this paper.

Trends in Transboundary Conservation

The rapid increase in the number and area of protected areas has been mirrored by the growth in transboundary protected areas—defined in this paper as protected areas shared between two or more countries. Such areas promote and, if managed effectively, ensure biodiversity conservation at wider scales: specifically, across national boundaries. However, it is becoming clear that transboundary protected areas do much more than that. Increasingly, such areas are playing a role in building cooperation. In some cases, they are being applied as an integral element of the peaceful resolution of conflict between countries. Recent examples include the Peru–Ecuador and the Wye River (Middle East) peace agreements, which include peace parks as one component of overall peace settlement accords.

Peace parks trace their origin to 1932, when Waterton–Glacier was jointly declared the first international peace park by Canada and the USA. Since that time the concept has increasingly been applied, particularly in the last decade. The recent growth in transboundary protected areas can be clearly seen. In 1988, during the First Global Conference on Tourism—A Vital Force for Peace, 70 cases involving 68 countries were identified where established or proposed protected areas met across international boundaries. The current situation (as of 1997) is outlined in a paper by Zbicz and Green to a recent IUCN peace parks conference (Zbicz and Green 1997) and is summarised below.

Category I	Strict Nature Reserve/Wilderness Area: protected area managed mainly for science or wilderness protection
Category Ia	Strict Nature Reserve: protected area managed mainly for science
Category Ib	Wilderness Area: protected area managed mainly for wilderness protection
Category II	National Park: protected area managed mainly for ecosystem protection and recreation
Category III	Natural Monument: protected area managed mainly for conservation of specific natural features
Category IV	Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
Category V	Protected Landscape/Seascape: protected area managed mainly for landscape/ seascape conservation and recreation
Category VI	Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

Table 1. IUCN protected area management categories. Source: IUCN 1994.

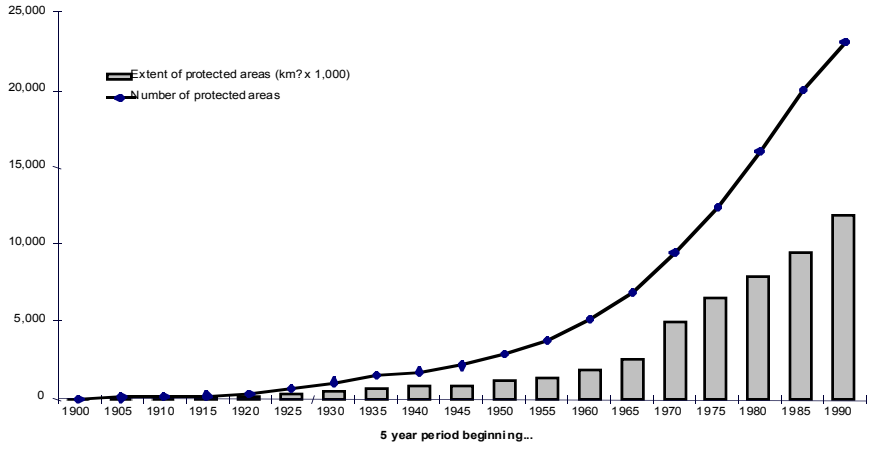

Figure 1. Cumulative growth in the number and extent of protected areas, 1900-1994.

Status of transboundary complexes of protected areas. A total of 136 transboundary complexes of protected areas were identified by Zbicz and Green. These are distributed among 98 countries and comprise 415 individual protected areas. Zbicz and Green note that such complexes cover at least 1,127,934 sq km, representing nearly 10% of the world's protected area network. This highlights the global significance of transboundary complexes in terms of their extensiveness, quite apart from their potential importance for enhanced regional cooperation and their contribution to peace between countries at war.

There has been tremendous growth in the number of transboundary complexes since 1988, particularly over the period since 1995. Furthermore, the number of complexes straddling the boundaries of three countries has increased from two in 1988 to 23 in 1997, with a further seven potential complexes identified. While some of this growth reflects changing political situations, such as in the former Soviet Union and Central America, much of it represents increasing awareness of the value of transboundary protected areas for more effective conservation and for enhanced regional cooperation.

The regional distribution of transboundary protected areas complexes, as noted by Zbicz and Green, is summarised in Table 2 for 1988 and 1997. The increase in Central and South America partly reflects the establishment of several transboundary protected areas since the cessation of armed conflicts in the region.

Regions	Number of complexes		Number of protected areas	Number of proposed complexes		Number of complexes with three countries
	1988	*1997*	*1997*	*1988*	*1997*	*1997*
North America	5	8	36	0	4	0
Central & South America	7	24	80	0	15	5
Europe	20	45	126	3	41	6
Africa	20	34	104	2	13	9
Asia	7	25	69	6	12	3
TOTAL	**59**	**136**	**415**	**11**	**85**	**23**

Table 2. Regional growth of transboundary complexes of protected areas, 1988-1997. Source: Zbicz and Green 1997.

Analysis. The following points can be drawn from the above:

- There has been a rapid growth in transboundary protected areas in recent times.
- Increasingly, these areas are being used to promote and increase peace and cooperation between neighbouring countries. As mentioned, the recently concluded Peru–Ecuador peace accord incorporated a major peace park component. Other examples include the La Amistad protected area between Costa Rica and Panama and the Wye River peace accords for the Middle East, both of which included a peace park component. Recent work by the South African Peace Parks Foundation (see below) has been significant in furthering the concept of transboundary protected areas as a tool towards better biodiversity conservation and regional development on the African Continent.
- To date, cooperation between transboundary complexes in different parts of the world appears to have been limited, although initiatives such as the recent IUCN peace parks conference are contributing to sharing experience and increasing awareness of the range of potential benefits of transboundary protected areas.

Case Studies of Transboundary Protected Areas from Around the World

Peace Parks Foundation (South Africa). Hanks (1997) provides background to the development of the Peace Parks Foundation. Recent political events in South Africa have helped lead to this part of the subcontinent becoming one of the most peaceful regions in Africa, with great potential for regional cooperation on transboundary protected areas. The Peace Parks Foundation was established in 1997 following a series of earlier initiatives aimed at promoting cross-border cooperation in the establishment and management of protected areas. The foundation facilitates the development of a regional international partnership to promote job creation and biodiversity conservation through the establishment of transboundary protected areas in southern Africa. Experience to date has been very successful, and clearly illustrates the role that peace parks can play in conservation and development in Africa.

Peace park in the Virunga volcano region (East Africa). Kalpers and Lanjouw (1997) note that the Virunga volcanoes are home to one of the two surviving populations of mountain gorillas *(Gorilla gorilla beringei),* as well as to a rich biological diversity typical of Afro-montane forest habitats. This conservation area, covering approximately 400 sq km, is shared by three countries:

Rwanda, Uganda, and the Democratic Republic of Congo. The region has passed through a number of years of civil strife with associated negative impacts on the environment and protected areas. A peace park, encompassing the Parc National des Volcans in Rwanda, the Mikeno sector of the Parc National des Virunga in the Democratic Republic of Congo, and the Mgahinga Gorilla National Park in Uganda, has been proposed in this area to protect its remaining biodiversity. This project works with local authorities and through nongovernmental organisations (NGOs) such as the International Gorilla Conservation Programme. The creation of a peace park in the Virungas can potentially fulfil objectives for biodiversity conservation as well as encourage cooperation at political and diplomatic levels. Experience has indicated the important role that NGOs can play in difficult situations like this. The potential for working with other key bodies working in the region, such as the United Nations High Commission for Refugees (UNHCR), has also been noted.

Peace park initiatives in Indochina. Dillon and Wikramanayake (1997) review experience with transboundary cooperation in Indochina and note that, with much of the region's remaining natural forest habitats now restricted to the area around the international borders of Cambodia, Laos, and Vietnam, a transboundary approach to conservation is essential. All three countries have designated protected areas which can contribute significantly towards establishing a transboundary protected areas system at a wider regional level. Until recently, the subregion's long history of conflict had precluded the cooperation and dialogue necessary to establish and manage these border areas in an integrated way. The subregion's growing nature conservation activities and the active participation of the Indochina Biodiversity Forum are positive developments in recent years that have the potential to enhance biodiversity protection as well as increase stability in the subregion. The Forum, a project funded by U.N. Development Programme and implemented by World Wildlife Fund with the three above countries and Thailand, works under the theory that effective conservation of adjacent border areas requires international dialogue and cooperation.

Lessons and Future Strategies for Transboundary Protected Areas

There are a number of emerging lessons. These include:

1. Transboundary protected areas can make a major contribution to more effective biodiversity conservation and cooperation between countries. A larger contiguous protected area cooperatively managed reduces the risk of biodiversity loss and thus enhances conservation of species and ecosystems.

2. Transboundary protected areas are unlikely to resolve conflicts by themselves or be established in active conflict areas. However, experience has shown that they can contribute to increased cooperation between countries, especially after conflict and periods of tension. The example of the Peru–Ecuador peace accord has shown that peace parks can be "built in" as one element of the peaceful settlement of disputes.
3. There are advantages of using unifying symbols or themes for protected areas shared between two or more countries. For example, the Meso-American Biological Corridor was originally developed and promoted under the theme of "Path of the Panther"; the Ho Chi Minh Trail in Indochina provides a powerful symbol for building the foundations of a peace park in this region. Hamilton (1997) notes that some landscape features, such as mountains or rivers that are shared by two or more countries, often enhance cooperation; this can be a powerful unifying force.
4. International designations, such as those coming under the World Heritage Convention and UNESCO's Man and the Biosphere (MAB) Programme, can provide a useful stimulus to efforts to establish and manage transboundary protected areas. A number of transboundary protected areas are either World Heritage sites or biosphere reserves.
5. There is a need to include the full range of protected area categories within transboundary protected area systems. The majority of transboundary protected areas around the world are within the more strictly protected IUCN categories (mainly categories I and II). IUCN suggests that any protected area system should include the full range of categories and also that it should include the full range of terrestrial and marine ecosystem types in each country. This principle is particularly relevant for the establishment and management of transboundary protected areas.
6. Increased support, at all levels, is essential if transboundary protected areas are to have a viable future. In many parts of the world, protected areas are seen as marginal to other areas of policy, such as forestry and agriculture. If protected areas are to have a strong and viable future, this situation must change. Protected areas need to be accepted as credible sectors in their own right and mainstreamed into other policy areas. A key issue is to appropriately identify and communicate the many values and benefits that protected areas offer society, both material and nonmaterial. Often such values are neither identified nor articulated in government policy forums, even though they can be significant. Clearer articulation of the benefits of transboundary protected areas can show how they can relate to and support different sectors of government policy within the respective countries. Transboundary protected areas must broaden the base of support at local

community levels. Global experience shows that only planning which fully involves all relevant actors is likely to be successful in the long term, though it may often be more expensive and complex initially. The more effective involvement of local communities is one of the major challenges facing transboundary protected areas, and the key issue is to ensure this is done most effectively. Transboundary protected areas must have strong support from local staff. Without it, transboundary protected areas are unlikely to succeed. Staff need to be closely involved in the design and implementation of transboundary protected area programmes at all stages.

7. The full range of models for establishing and managing transboundary protected areas should be used. Traditional approaches to managing protected areas are changing in many parts of the world. Transboundary protected areas are generally managed by different government agencies in ministries or departments of environment or forestry, although other agencies are increasingly becoming involved. Many agencies managing transboundary protected areas are relatively new, with great pressures on scarce resources. An important issue in many countries is the need to improve coordination between different agencies involved in transboundary protected area management.
8. There is a need to improve management capacity for transboundary protected areas. The challenges facing the transboundary protected area manager in the 21st century are increasing in scale and complexity. The range of skills thus needs to be broadened to include, for example: (a) management skills, such as in strategic planning and financial management; (b) cultural and social expertise; for example, relating to partnerships and stewardship, dispute resolution, and networking with a complex array of stakeholders; (c) technical skills in relation to project design, report writing, and information technology; and (d) policy expertise, such as understanding the broader legal framework and other sectoral policies within which protected area activities need to be implemented. In many cases this will require a change on the part of protected area agencies, both in terms of recruitment and in training and career development strategies.
9. Experience from successful transboundary protected areas has also shown that it is critical to build activities on a foundation of practical, "nuts and bolts" cooperation at the field level, as in fire and invasive species management.
10. Cooperation with other agencies with similar objectives may be a useful way for encouraging transboundary protected area efforts. For peace parks such as the Parc National des Virunga, there are considerable benefits in

working with agencies such as the UNHCR, whose activities (e.g., siting of refugee camps) can have significant environmental impact.

Conclusion

Transboundary protected areas are a vital element of attempts by countries to conserve their biodiversity, to support sustainable development, and to enhance regional cooperation. The challenges facing transboundary protected areas are significant, and the nature of the work of agencies is changing rapidly and significantly. If transboundary protected areas are to reach their potential, appropriate strategies must be developed and implemented, including:

- Using the full range of protected area categories;
- Broadening planning for transboundary protected areas so that they form an integral aspect of broader regional planning as part of an interlinked network, rather than as a series of individual sites;
- Ensuring that the full range of benefits from transboundary protected areas are identified, communicated, and factored into decision-making;
- Ensuring that local staff and communities are closely and effectively involved in the establishment and management of transboundary protected areas;
- Utilising the full range of approaches to transboundary protected area management, tailored to the needs and circumstances in each country; and
- Building capacity for the management of transboundary protected areas at all levels.

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Conservation Area Network in the Southern Appalachians

Introduction

The Southern Appalachian Forest Coalition (SAFC) is currently developing a proposal for a regionally integrated conservation plan for the Southern Appalachian region. This region, which covers the highlands of Virginia, Tennessee, North Carolina, South Carolina, Georgia, and Alabama, is an area of high biological diversity, rich cultural heritage, and fast population growth and development. A core of public lands exists in the area that could be the basis for long-term regional biodiversity protection. SAFC is developing conservation plans centered on these public lands. However, addressing just these lands would leave significant gaps in conservation and biodiversity protection. SAFC is addressing other conservation and management ideas to fill in these gaps.

Biological Diversity of the Southern Appalachians

Forests of the Southern Appalachian Region are among the most diverse temperate forests in the world. At least 2,391 species and varieties of flowering plants are found in the high mountains (the Blue Ridge Province) of the Southern Appalachians alone. Approximately 2,816 species of plants are found in Great Smoky Mountains National Park; 130 are tree species. Also found in the park are 450 species of vertebrates, 4,280 of invertebrates, 2,250 of fungi, 330 of mosses and liverworts, and 230 of lichens. These are conservative estimates, and these numbers are expected to increase as new species are discovered. An All-Taxa Biodiversity Inventory recently begun in the park expects to increase these numbers to 5,400 plants, 475 vertebrates, 76,000 invertebrates, and 20,000 fungi. Numbers of species in Great Smoky Mountains National Park, which has received considerable study, are only an indication of the number of species in the entire region, which in general has received much less study.

The major reason for the biological diversity of the Southern Appalachians is the relatively long stability of the region's climate and geology. Mountains have been present in what is now eastern North America for about 230 million years, going through several stages of uplift and

erosion. Because of a combination of geographical and climatic protection, the southern portion of these mountains has been continuously vegetated for this whole period. The Southern Appalachians have thus played a crucial role in the vegetation history and evolution of North America and the world. While other areas have been submerged under seas, covered by glaciers, and otherwise subjected to catastrophic changes, the Southern Appalachians have remained a biological refuge.

During this same period, the Americas, Europe, and Asia were connected as a single supercontinent. Flowering plants evolved while this connection between the great land masses of the earth existed. As the continents separated, an immense forest of broad-leaved trees with a rich understory developed that stretched over the entire northern section of the landmass from Asia to the Americas.

This primordial forest, which has been called the Arcto-Tertiary Forest, is thought to be ancestral to the present forests of both the Southern Appalachians and Southeast Asia. This ancient forest is thought to closely resemble the Cove Hardwood Forests of the Southern Appalachian Mountains and the Mixed Mesophytic Forests of the Cumberland Mountains. Most of the plants in our Southern Appalachian forests had their origin in the Arcto-Tertiary Forest. The separation of North America and Eurasia as the continents continued to drift apart isolated the forests, but the large number of plant genera that the Southern Appalachians have in common with areas of Southeast Asia illustrates the common ancestry of forests in these widely separated regions.

This ancestral forest expanded to cover most of North America as the climate warmed about 30 million years ago. Although changes occurred in this forest, the major events that profoundly changed the ecology of the entire northern hemisphere were the ice ages that occurred during the last 3 million years. The majority of this period was characterized by periods of cold, lasting about 100,000 years, during which glaciers moved south. These periods were interrupted by periods of relative warmth, lasting 10,000 to 30,000 years, during which the glaciers receded. From four to ten such periods occurred. The Southern Appalachians were south of the ice sheets, but were nevertheless greatly affected by them. Periods of cooling were associated with southward migrations of plant species; interglacial warming was associated with northward migrations as the ice sheet receded. Because of the lack of glaciation in the region and the multitude of microclimates found around the low mountains and stream valleys, much of the biological diversity of the region was able to find suitable microclimates to survive during the ice ages.

The Conservation Challenge for the Southern Appalachians

The rich biological heritage of the region that has survived time and ice ages is currently threatened by a variety of forces. Extirpation of large mammals during European settlement and destructive logging at the turn of the century damaged many ecosystem functions and eliminated or marginalized many species. Establishment of public lands early in the century and a wide variety of conservation efforts have resulted in a base of ecological recovery for the region. However, new threats place this recovery in jeopardy. One of the highest growth rates in the nation is converting unfragmented forest into sprawl. An aggressive regional road-building policy is further fragmenting the landscape. Timber and pulp companies are increasingly focussing their activities in the region. If the legacy of biological diversity in the Southern Appalachians is to be saved, disparate conservation efforts throughout the region must be unified to provide a coordinated and comprehensive conservation strategy. SAFC is seeking to provide this strategy by working with a wide variety of conservation groups in the region. SAFC's GIS program provides the analysis, persuasive mapping, and other tools to develop and implement a conservation vision for SAFC and other conservation associates in the region.

Conservation Elements for Landscape and Regional Planning

A number of conservation elements are available for large-scale planning in the region. The region has a complex mix of ownerships and a long history of human influence, both from European settlement and from pre-Columbian habitation. However, within this complex cultural context are a rich heritage and potential for conservation protection. Elements on the landscape available for a regional conservation plan include:

- **Protected wildlands.** Existing wilderness areas and national park lands, including the world-class bioreserves Great Smoky Mountains and Shenandoah national parks, are central to any regional conservation strategy.
- **Currently unprotected wildlands.** U.S. Forest Service areas inventoried as roadless, as well as other areas that may not satisfy strict roadless criteria but nevertheless have wildland characteristics, are habitat to species dependent on an unfragmented landscape.
- **Old-growth forest.** Destructive logging at the beginning of the century destroyed much of the original forest in the region. However, significant tracts, particularly in remote areas, survived. These areas are being rediscovered, and their extent is sometimes surprising. These areas of old growth serve as a reservoir of diversity and a reference for the recovery of the extensive second-growth forests that are just reaching maturity in the re-

gion.

- **Biological hotspots.** Species diversity is not spread uniformly across the landscape. There are areas of the region that harbor much more than their share of rare species and species richness. These areas, many of them on the public lands, are key areas to protect as reservoirs of community and species diversity. SAFC is working with The Nature Conservancy and state and federal natural heritage programs to identify and protect these biological hotspots.
- **Aquatic diversity area watersheds.** Just as there are terrestrial hotspots of diversity, there are rivers and streams that are particularly diverse in aquatic species and which retain much of this diversity despite widespread impoundment of waters and degradation of water quality in the region. SAFC has conducted a rapid assessment of the regions' watersheds to identify priority aquatic diversity areas for special protection by public agencies and for landowner outreach programs for riparian protection. In addition, these watersheds and riparian areas can play a key role in providing movement corridors for terrestrial species.
- **High-priority areas for public acquisition.** Public lands were established in the Southern Appalachians early in the century primarily for watershed protection. The passing of years has also highlighted the importance of the region for biological diversity. However, there still remain many gaps in the fragmented public ownership in the region. Much of the land in the region remains in large blocks owned by utility and timber companies. Currently much of this land is being sold. It is an excellent opportunity to fill in the gaps in public ownership and add key lands for habitat and aquatic protection.
- **Private conservation management.** Many landowners are open to managing their lands for long-term habitat and open-space preservation. Particularly when economic incentives are put in place, key tracts can be managed with conservation easements to supplement habitat on adjacent and nearby public lands. SAFC is working with conservancy groups to encourage this movement and to envision these areas in their relationships to the landscape and the regional context.
- **Regional sustainable development.** To prevent conservation lands from becoming islands in a sea of development, there is a great need for local, state, and regional efforts to put development and economic trends into a planning context that protects important biological processes while encouraging compatible

economic development. Road planning that provides for wildlife movement could mitigate the high biological impacts. Residential clustering and land-use planning could provide for both economic development and habitat protection.

Conclusion

The Southern Appalachian region is one of the fastest growing in the USA. If the region's rich biological heritage is to be saved for the future, planning a conservation network is essential. SAFC is beginning this process with a proposal for a conservation network centered on public lands and building on other initiatives in the region.

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Resource Protection in the World's Largest Urban Park:
A Model for Partnership Between Parks, Higher Education, and the Community

Introduction

Shelby Farms Park, the world's largest urban park (4,500 acres), is located within the city limits of Memphis, Tennessee. The park is in the geographic center of Shelby County, approximately 12 miles east of the downtown area. Of the 4,500 total acres, 1,032 have been designated as a Tennessee State Natural Area. The park is a significant natural and recreational resource for the citizens of Memphis and Shelby County.

The Memphis Metropolitan Statistical Area (MSA) completely encompasses Shelby County and includes portions of four other counties. According to the 1990 census and the Bureau of Economic Analysis, the Memphis MSA has a population of just over one million persons and grew at a rate of 8.73% from 1990-1997 (Memphis Chamber of Commerce 1999). The central location of Shelby Farms Park within the county places it within approximately 15 miles of the majority of the county's residents, and at the center of the county's suburban growth.

The park is a major source of recreational opportunity in the Memphis area and contains a sensitive bottomland hardwood forest and a number of archaeological sites. It is part of a landscape that is culturally and historically rich. Due to natural geographic barriers (mainly the Mississippi River to the west of the city), much of Memphis's growth and development has moved eastward from the downtown area, and into northern Mississippi to the south. Shelby Farms Park, once considered remote, is currently surrounded by commercial and residential development. Owing largely to its proximity to developed areas, the park's resources are threatened by frequent proposals for its development, and by the recreational pursuits of more than one million visitors (Shelby County Department of Public Works 1998).

To address the resource protection and management concerns within Shelby Farms Park, Shelby County Administration and the Shelby Farms Board enlisted the assistance of the University of Memphis Park Ranger Training Program. The university's role was to provide training, expertise, and qualified per-

sonnel to assist in the planning and implementation of park resource protection and management at Shelby Farms.

This descriptive case study outlines the partnership arrangements and participants, and the methods employed to achieve park management goals. These methods include adopting a resource protection and management philosophy based on the National Park Service (NPS) model of conserving and protecting the resources while providing for their enjoyment. Specifically, the plan includes the use of seasonal resource protection rangers to patrol the park augmented by a volunteer-based program.

Administration

Shelby Farms Park is under the administrative mantle of the county government. In 1996, Shelby County's mayor appointed a board of advisors to make policy and directives regarding the park's administration and operation. Since its inception, the Shelby Farms Board has repeatedly promoted efforts to preserve natural resources in the park while voting down any proposal for park use that had potential for damaging the park's resources. The mayor and the board have become determined advocates for preservation of the park's unique natural and cultural resources.

Park Visitation

The park was visited by more than one million visitors last year, and their recreational activities ranged from early-morning running to evening fishing. In fact, there are 45 recreational activities officially recognized and accommodated within the park's boundaries. The park is open to visitors during daylight hours throughout the year. There is currently no entrance fee.

A Brief History

Shelby Farms was designated as a penal farm for the rehabilitation of criminals in 1929. The facility was considered a model of practical rehabilitation and self-sufficiency. "The Farm" as it was called, cultivated a number of crops and raised livestock from which nearly all the needs of the prisoners were derived. What could not be raised was purchased through the sale of surplus food and livestock. During the mid-1960s the penal farm concept came under a great deal of scrutiny, largely as a result of the civil rights movement. Eventually the farm sold most of its livestock and ceased production.

In 1966, the penal farm site was under consideration as a proposed nuclear fuel processing facility. Although the penal farm site was eliminated from consideration, Shelby County officials agreed that the property should be sold. Throughout the late-1960s and mid-1970s a variety of plans for the development of the penal farm property were put forth. These included commercial and residential development, an airport, and a dam and recreational res-

ervoir. More recently, proposals have surfaced to develop golf courses and a 10,000-seat soccer stadium. The stadium proposal was denied by the Shelby Farms Board.

In 1975, park planner G. Eckbo proposed a "pastoral park" for the citizens of Shelby County on the penal farm property. The "Eckbo Plan," as it came to be known, proposed a large natural area along the Wolf River, and included restoring the channelized river to its original meandering flow. Interestingly, the Eckbo Plan also proposed a large "African safari"-type zoological park for the interior of the penal farm property which, at that time, consisted mainly of open, formerly cultivated fields. In 1976, Shelby County government officials passed a resolution to develop the penal farm land according to the Eckbo Plan; however, the land was never developed according to that plan because of citizen action against it.

In 1977, the undeveloped park came under the supervision of the warden of the county prison (located at the northwest corner of the property) because that position oversaw the 4,500 acres of land formerly used for penal farm activity. For the next eight years, the penal farm property remained undeveloped and mostly closed to the public. In 1985, the position was changed from warden of the county jail to superintendent. By this time, the would-be park was at the very edge of encroaching suburban development.

The first superintendent enlisted local businesses to support his efforts to open the newly named Shelby Farms Park for public use through donations of funds and equipment. Basic playground equipment and picnic tables were installed and began to draw a few visitors, including the families that he hoped would use the park. However, almost immediately, outlaw motorcycle gangs began to occupy sections of the park. Crime, especially incidents involving drugs and firearms, increased rapidly. Within a few weeks only the gang members dared venture into the fledgling park.

To address the crime problem, the park's superintendent arranged for local law enforcement agencies to concentrate enforcement efforts at Shelby Farms. After several weeks of intense scrutiny by law enforcement officers, the outlaw motorcycle gangs left Shelby Farms. Crime in the park was dramatically reduced and park visitors again returned to Shelby Farms. To ensure the safety of park visitors, the superintendent employed auxiliary police officers and off-duty regular officers to patrol the park. This procedure was effective until the early 1990s, when increased visitation presented threats to the park's resources.

Although a wide variety of recreational activities were being pursued in the park, mountain bike use best exemplifies the growing resource management problems in the park at that time: hikers began complaining that the trails were eroding, widening, becoming braided, and devel-

oping numerous mud holes. There were additional complaints that mountain bikers were forcing hikers off of the trail as they sped by. As mountain biking continued to grow in popularity, so grew the need for resource management and protection at Shelby Farms.

At this point, the superintendent contacted the University of Memphis for assistance in planning for resource management. The university's Park Ranger Training Program—about which more will be said below—is an interdisciplinary program that prepares students from a variety of academic majors for work as seasonal protection and interpretive park rangers for the National Park Service (NPS), U.S. Fish and Wildlife Service, and a number of state and local land management agencies.

In January 1996, the park's first superintendent retired. The Shelby Farms Board conducted a national search for a new superintendent, and subsequently hired one of the authors (Martin), a long-time park volunteer and local businessman, as interim superintendent. After six months, the Shelby Farms Board conducted another search and later chose him to continue in the position permanently.

As is the case in many public agencies responsible for recreational service delivery, Shelby Farms Park is challenged by fiscal constraints. A large portion of the park's budget is allotted for personnel-related expenses, while a much smaller portion is required for equipment (e.g., grass-cutting equipment and park ranger patrol vehicles). In consultation with the University of Memphis Department of Geography, the superintendent has been able to reallocate personnel resources in such a manner so as to ensure optimal staffing during both high and low park-use times, and transfer surplus funds to resource management efforts.

The Volunteer Reserve Ranger Program

Shelby Farms Park now maintains a reputation as a safe, relatively low-crime recreation area within the city limits of Memphis. As the park's reputation as a safe recreation area has grown, so has visitation. With more visitors using the park, the demand for facilities and amenities has grown as well. Recognizing the needs of visitors, Shelby County administration, Shelby Farms Board, and park management expanded services in many areas. The most notable of these was the need for security in the park. Although few crimes were being committed within the park, nearly all of its visitors reside in a large metropolitan area with typical crime problems. The potential for criminal incidents is ever present, but kept in check by judicious use of visible patrol by resource protection rangers, resource staff, and volunteer rangers.

The Volunteer Reserve Ranger program is the result of a partnership between the University of Memphis Park Ranger Training Program, the

citizens of Shelby County, county administration, the Shelby Farms Board, and park management. The program is patterned after the NPS seasonal resource protection curriculum and provides a comprehensive three-day training course for those wishing to participate, preparing them to provide visitor-centered service in the park. The reserve rangers are asked to give a minimum of 16 hours per month to the park, and are encouraged to work on projects of interest to the individual and of benefit to the park visitors. The Shelby Farms model relies on three elements critical to the success of a volunteer ranger program: selection and recruitment, training and preparation, and motivation and retention.

Selection and recruitment. Shelby Farms Park relies on recruiting university students with majors in the natural sciences or park resource management, and members of the community who possess valuable knowledge, skills, and abilities and who desire to give service to their community. Volunteer ranger candidates are often referred to Shelby Farms park management by friends who are rangers or through academic programs. Each volunteer candidate is interviewed by the superintendent, and before beginning the next phase, a background check is performed. Persons who wish to volunteer for the purpose of gaining an inside track on paid positions in the park will likely become discouraged quickly and will not persist in the program. Therefore, each volunteer is told at the outset that the program will be exclusively a volunteer program, and that the volunteer program is not an intake program for law enforcement work.

Training and preparation. The philosophy of the park with respect to its mission must be imparted at the outset. The mission of the park should act as a guide for the volunteer's actions. The Shelby Farms model provides for an initial 20-hour course for volunteers which includes coverage of topics such as constitutional law and civil liberties, legal liability issues, appropriate interactions between volunteers and visitors, ethics and conduct, park-specific knowledge, and field training to be completed with experienced paid or volunteer ranger staff. Examples of park-specific skill-building include equestrian activities, use of park vehicles, such as all-terrain vehicles and watercraft, and other tools utilized for resource protection and management efforts.

Motivation and retention. Once the volunteer ranger has been selected, every effort is made to keep those who are active and serve the needs of the park motivated so that they will want to continue. Shelby Farms assigns a paid staff member to serve as volunteer coordinator. The responsibilities of the volunteer coordinator include providing opportunities for knowledge and skill acquisition and recognition of accomplishments of the volunteer rangers. The goal is to gather a relatively small, manageable number of volun-

teers who will serve the park in the long term. The volunteers, too, should benefit from the experience, thus encouraging them to persist in service to the park. A recently completed dissertation (Bartel 1999) found that supporting the intrinsic motivation of volunteers tends to increase a sense of organizational loyalty and subsequent performance. To this end, the park offers on-going training and certification programs that are of interest to the volunteers and which benefit to the park.

Evaluation and study. On-going study of the partnership's role in resource protection and conservation is necessary to ensure continued viability of the program. Additional study of visitor perceptions of the park's resource protection efforts would assist in quantifying the effectiveness of the partnership.

The Future of the Partnership

Recently, Slippery Rock University of Pennsylvania has joined the Shelby Farms partnership, providing student interns and trained resource protection rangers for the summer months. To enhance the training and preparation efforts of the program, innovative educational strategies, such as Web-based and -enhanced instruction, are being developed for the park by Slippery Rock faculty and graduate students. Future efforts to enhance the partnership include innovative training to support manageable growth of the volunteer program, in concert with an increasing emphasis on resource protection and management.

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Legislative Practice and Nature Protection in Russia's Kola Peninsula

A suite of laws enacted during the 1990s has allowed Russia to begin to realize more effective nature protection. The following federal laws, which are the result of direct action by Russian lawmakers, state the value of a healthy environment and fix punishments for transgressions:

- The law "On protection of the environment" (1991);
- The base forest legislation of the Russian Federation (1993);
- The law "On specially protected nature areas" (1995);
- The water code of the Russian Federation (1996); and
- The forest code of the Russian Federation (1997).

This federal legal system has been in force since 1998. But in practice, to realize the intent of the new laws will demand a large and continuing effort in directions that have not been taken before.

The Lapland Biosphere Reserve provides a good example. The biosphere reserve is in the Kola Peninsula, which is adjacent to Finland in far northeastern Russia (Figure 1; Barcan 1995). Almost all of the peninsula is north of the Arctic Circle. The Lapland Biosphere Reserve is surrounded by large industrial enterprises, including the Severonickel copper–nickel smelter complex; iron ore mining complexes at Olenegorsk and Kovdor; other mines at Apatite, Kirovsk, and Koashva; the nuclear power station at Polar-Zory, 30 km south of Lapland Reserve; hydroelectric stations on the Niva River, 30-40 km south of the reserve; and municipal thermoelectric power stations at Monchegorsk, Olenegorsk, Apatite, Kirovsk, and Kovdor.

Among them, the Severonickel smelter complex and the hydropower complex at Kolenergo are responsible for the majority of negative impacts on Lapland Reserve. Every year, the Severonickel smelter (in operation since 1946) emits 200,000-300,000 tons of sulfur dioxide and 3,000-4,000 thousand tons of nickel and copper into the atmosphere. These emissions have caused catastrophic degradation in nearby forest ecosystems, demonstrated by a decline in lichens, the death of trees, the disappearance of animals, and a general decrease in biological diversity. Approximately 25,000-30,000 ha formerly covered with forests have been transformed

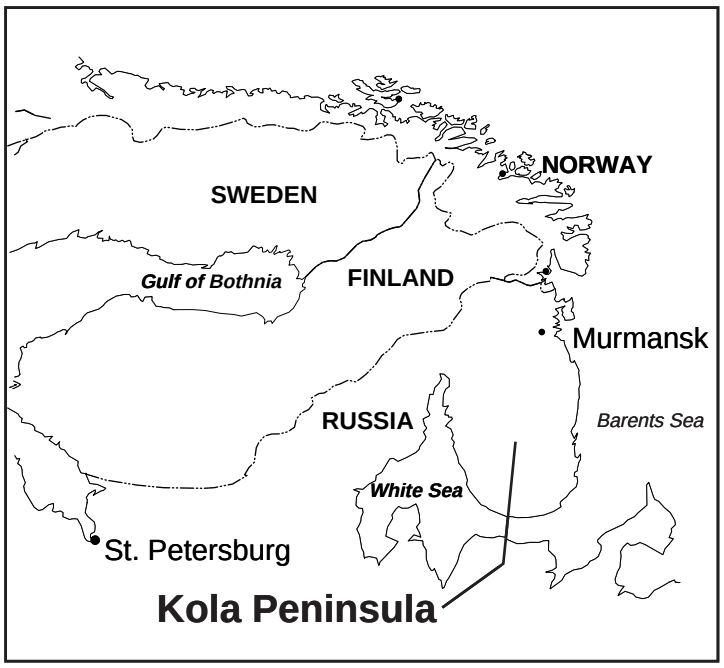

Figure 1. Location of Kola Peninsula.

into barrens, 40,000 ha of forest are now dying, and 400,000 ha more show signs of degradation. Some 10,000 ha of these heavily damaged forests are situated within the reserve.

Since 1934, outflows from two nearby lakes, Okhta and Pyrenga, have been controlled by dams, thus turning them into reservoirs in the hydropower chain on the Niva river, by which Imandra Lake issues into the White Sea. Water is accumulated during summer and discharged in winter. Annual lake level fluctuations in these reservoirs reach 5.5 m, whereas natural fluctuations of Kola lakes are only 0.5 m. These extraordinary fluctuations result in the degradation of coastal ecosystems, including the death of fishes owing to draining–flooding cycles in their spawning grounds.

In 1992, after a routine inspection of forest conditions, Lapland Reserve for the first time demanded compensation for forest damage caused by the Severonickel smelter. Without going to trial, Severonickel agreed to pay compensation for a small part of the damage, partly by direct payments and partly by providing apartments for reserve employees. But by 1995 the smelter was refusing to provide any support for the Reserve.

In Russia, nature reserves are supposed to be supported by the federal government, but because of cutbacks the Lapland Reserve's budget was restricted to minimal salaries only after 1995. At that time

we were forced to actively search for other sources of funds, and, after a thorough analysis of the new Russian legislation mentioned above, we thought we saw a way to obtain money not only for the reserve's mere survival, but for its proper management and development too. Our new federal legal system, although still far from completely worked out, gives us the freedom to take the initiative. Thus we asserted the right to sue to get compensation for the nature damage caused by industrial activity near the reserve, with any damage judgments won going back to the reserve.

Such a step is not something to be taken lightly. In Russia, metallurgical plants and mines are often the sole reason for a particular city or town's existence, and electricity-generating complexes are politically powerful monopolies. Nevertheless, in 1996 Lapland Reserve again inspected the territory affected by industrial emissions and, as a result, brought a suit of US$6 million against the Severonickel smelter for the forest damage. To stay within realistic financial limits, we consciously included in the suit only 15-20% of the area actually damaged. The smelter, naturally, refused to pay, and so the reserve brought the suit to an arbitration tribunal. During the process, Severonickel for the first time in its history admitted in court its guilt, i.e., that the smelter is causing the forest damage, but contested both the dimensions and the value of the damage. When, at the end of 1997, it became evident to Severonickel that it would lose the case, the smelter's management offered to sign a compromise agreement if the reserve agreed to withdraw the suit. We agreed to the proposal and lowered our claims, primarily because the new legal executive procedure had only just begun to operate and implementation of compensation judgment would be delayed for several years. Therefore, an agreement was concluded for five years: during this time Severonickel pledged to pay US$300,000 annually to support investigations of the smelter's impact on the environment.

At the same time, a suit was brought against the joint-stock company which runs the Kolenergo hydroelectric complex for compensation for damage to fish populations owing to the fluctuations of the levels of Pyrenga and Okhta lakes. This claim surprised the Kolenergo company so much that it did not take the lawsuit seriously: it did not reply to letters and took no part in the preliminary negotiations. Therefore, the company come to court unprepared and lost the suit utterly and completely. Kolenergo tried to appeal the sentence but lost from instance to instance. The court sentenced the company to an indisputable fine of US$300,000. In theory, the reserve could bring such a suit every year because the damaging cyclic system of water accumulation and discharge remains in force. But instead, we negotiated with Kolenergo and got it to build a 14-km low-voltage transmis-

sion line and substation to provide, for the first time, electricity to the main settlement within Lapland Reserve. (It is interesting that Kolenergo has behaved more delicately and responsibly in international relations than it has within Russia. In 1947, the company built the first weir on the river Pats, which is on the frontier with Finland and flows from the Finnish lake Inary. Kolenergo paid Finland for forfeiting the river's free flow—money and electric power in compensation for damages to the fish population in Inary. The flow on the Pats is regulated for Finland's interest, with fluctuations in water levels limited to 2.3 m by mutual agreement.)

In 1998, only 18% of Lapland Reserve's annual budget came from the federal government. The remainder was obtained by the reserve's staff on their own, including money from the two judgments just described. Although this is a testament to the skill and initiative of the staff, it is not a desirable state of affairs, since money-raising takes the lion's share of the staff's time. The lives of the staff and the operations of the reserve center on trying to get around shortages: where to get money, how to keep workers, how to just survive. Obviously, it would be better to be able to spend this energy on resource protection, scientific research, and ecological education for the public (Barcan 1997). These are the common difficulties Russian reserves face as we try to cope with the changes in the country's economic system.

In the former USSR, users of natural resources did not even think about compensating for nature losses. It is necessary that both the legal system in general and tax laws in particular make it disadvantageous for industrial users of natural resources to damage the environment. For the present, it seems that Russian industry is not ready for voluntary changes. Perhaps our trials—portrayed as "the reserve against industrial enterprises"—will be first steps toward changing that attitude; earlier, nature protection organizations were not able to successfully bring lawsuits against industry. We hope that our enterprise and example will be useful to others who have taken up the difficult task of nature protection.

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