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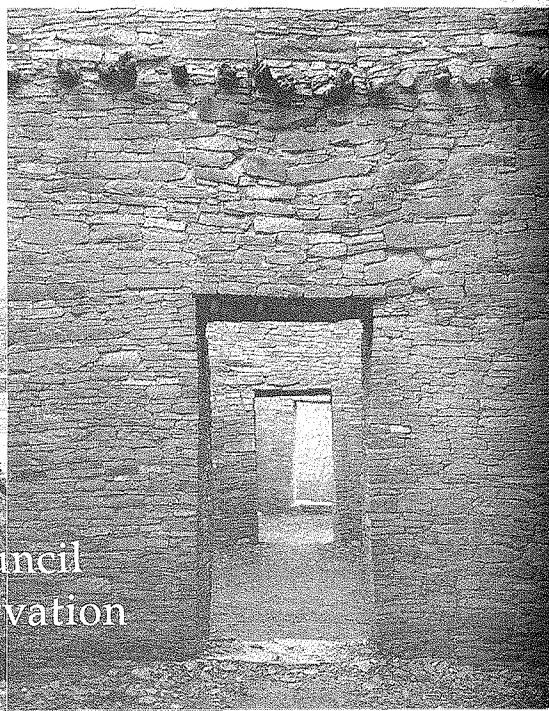
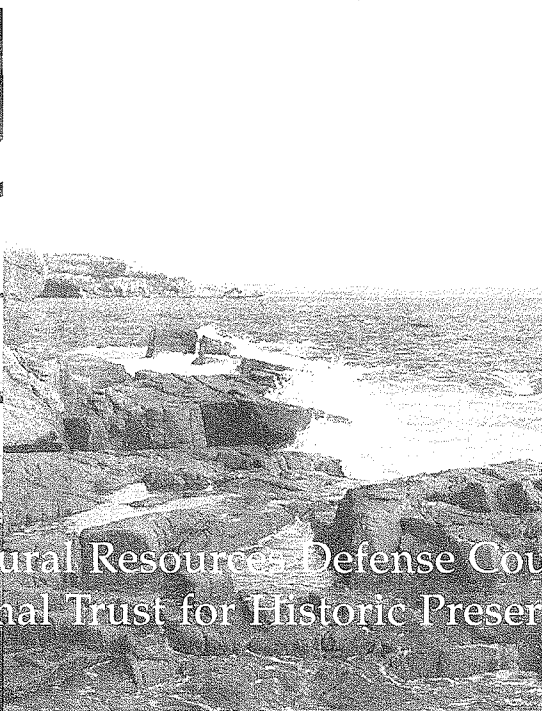
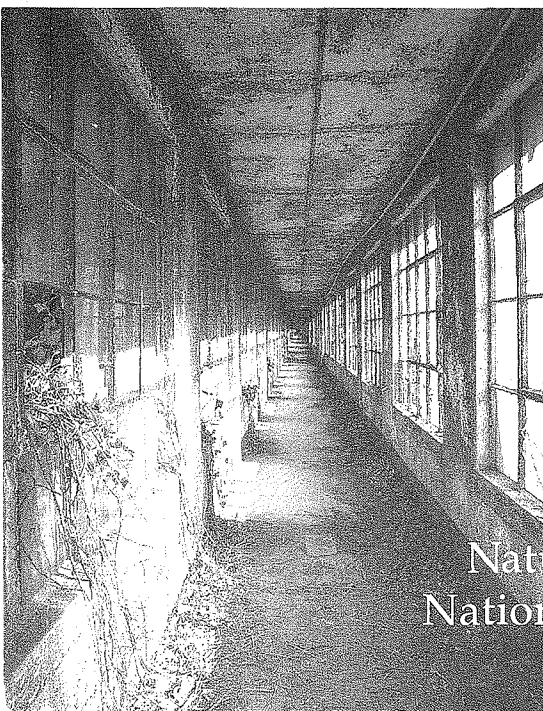
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RECLAIMING OUR HERITAGE

WHAT WE NEED TO DO TO PRESERVE AMERICA'S

NATIONAL PARKS



Natural Resources Defense Council
National Trust for Historic Preservation

RECLAIMING OUR HERITAGE

*What We Need to Do to Preserve
America's National Parks*

Sharon Buccino
Charles Clusen
Ed Norton
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Natural Resources Defense Council
National Trust for Historic Preservation
July 1997



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This report is dedicated to the employees in the National Parks who work day in and day out to protect park resources, both natural and cultural, now and for the future.

About NRDC

NRDC is a nonprofit environmental membership organization with over 350,000 members and contributors nationwide. Since 1970, NRDC's scientists, lawyers, and staff have been working to protect the world's natural resources and to improve the quality of the human environment. NRDC has offices in New York, Washington D.C., San Francisco, and Los Angeles.

About the National Trust for Historic Preservation

The National Trust for Historic Preservation, chartered by Congress in 1949, is a nonprofit membership organization with approximately 275,000 members. The National Trust provides leadership, education, and advocacy to save America's diverse historic places and revitalize our communities.

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PREFACE

When President Ulysses S. Grant signed the legislation creating the nation's and the world's first National Park—Yellowstone—just over 125 years ago on March 1, 1872, only a few fur trappers and traders had ever visited the area. No member of Congress had ever seen its geysers, rivers, lakes, and waterfalls, its elk, grizzly bears, and bison. At that time, the graves at Manassas and Shiloh were still fresh and cared for by the War Department. The Colorado River's path through the Grand Canyon had only just been mapped. Ellis Island had not become the way station through which millions of people would pass. Few Americans, except for the descendants of the original inhabitants and neighboring tribes, even knew about the treasures of Mesa Verde or Bandelier.

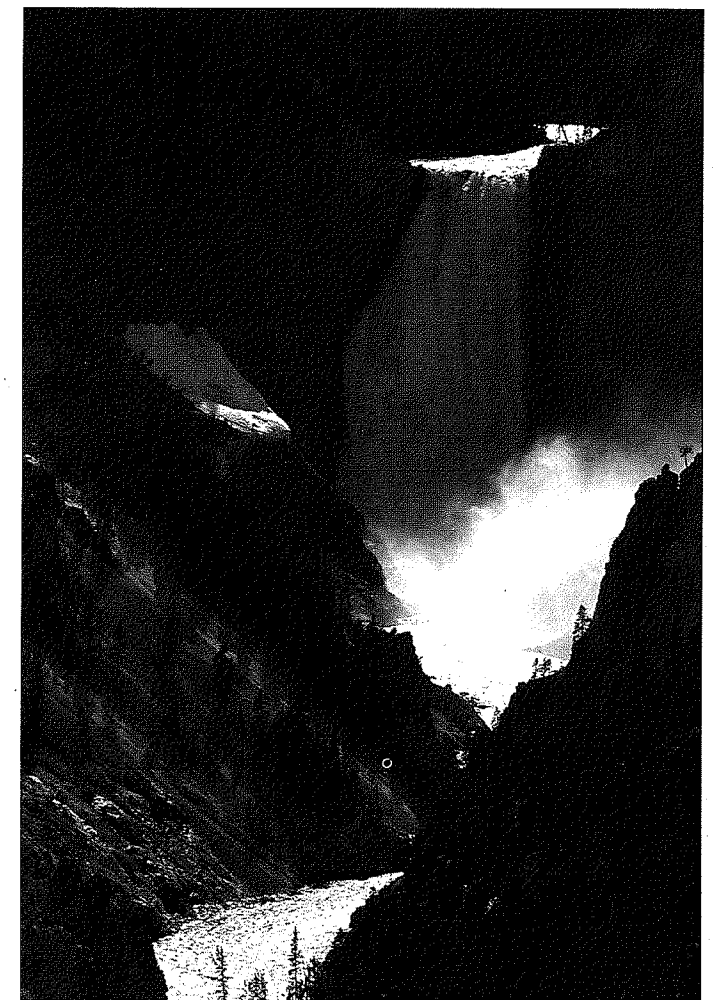
Since that day, these and other unique places, integral to our national heritage, have become parts of our great National Park system, and the National Park idea has circled the globe, ranking with our democratic form of government and the Bill of Rights as "the best idea America ever had." We are rightly proud of our parks and what they say about us as a people, proud that we had the wisdom and foresight to set them aside.

But we have neglected our parks for far too long, and we must act soon if we are to be able to pass them on to our children and theirs.

A solid consensus as to this long period of neglect exists today among key leaders in the executive and legislative branches of the federal government, and the broader American public. The accumulated neglect threatens the integrity of the National Park system and the very resources our parks were set aside to protect.

The equation of decline is simple. Americans are visiting and enjoying the National Parks in steadily increasing numbers. Yet we have provided insufficient funds for their management and protection as well as for educating visitors about them. We have deferred maintenance and necessary capital expenditures to the point that a multibillion-dollar backlog has been created, and the accrued deficit increases every year. We are losing our historical and natural heritage.

In preparing this study, we have learned that the problems facing the National Parks, although critical, are not insurmountable. Above all else, we must focus on the need to preserve the resources our parks were established to protect. We must begin to address the threats to those resources now, stop the decline and deterioration, and eliminate the accrued backlog with a systematic plan implemented over the next decade.



Charles Clusen

We have also learned that the American people will support a plan to protect and preserve the National Parks. Americans will pay for the plan's implementation if assured that their financial support goes to protect the parks and not to other uses. They recognize and affirm their patriotic duty to pass on the National Parks to the next generation.

To that end, we offer this report. It documents the ways in which the accumulated neglect throughout our National Park system has harmed not only the natural and historic resources of our parks, but also visitors' experience of them. It provides specific recommendations designed to ensure that National Park resources are protected for future generations and that the National Park Service has the tools to achieve that goal. Our political leaders in Congress and the Clinton administration must now work together to develop a plan that will reverse the equation of decline and ensure that our parks and all they offer will be preserved for future generations.

John Adams
Executive Director
Natural Resources Defense Council

Richard Moe
President
National Trust for Historic Preservation

July 1997

EXECUTIVE SUMMARY

America's first National Park—Yellowstone—was set aside in 1872. Since then the National Parks have come to be intimately connected with the world's idea of America and with Americans' idea of themselves. The National Parks were established to conserve the resources—both natural and historic—that Americans have chosen to set aside as part of their heritage. They are the living repository of the collective history of this diverse nation.

Unfortunately, the nation has in recent years failed to take the steps necessary to adequately protect the parks. More and more people are visiting the parks, yet fewer and fewer real dollars are going to maintain them. The number of people visiting National Parks has skyrocketed in the past twenty years, with 40 million more visitors in 1996 than in 1978. In the same period, however, annual funding has dropped by \$635 million in constant dollars. As a result, our ability to pass the National Parks on to the next generation as they were given to us is at risk.

We have arrived at this state because the agency responsible for protecting the National Parks, the National Park Service, has not been given the tools to do so. It faces numerous challenges its staff is poorly equipped to address. Examples of the problems facing the parks and their managers include:

- **Air Pollution at Acadia.** Urban smog, acid rain, and mercury deposition continue to threaten both human health and plant and animal life at Maine's Acadia National Park. While air quality has improved, smog levels continue to trigger health advisories that warn park visitors to avoid strenuous exercise such as bicycling, hiking, and jogging—the reasons many come to the park to begin with.
- **Disintegrating Monuments at Gettysburg.** The 1,300 monuments, markers, and memorials at Gettysburg National Military Park in Pennsylvania are gradually disappearing. The sandstone, limestone, and marble monuments are particularly susceptible to acid rain, and no way to reverse the damage is known.
- **Crumbling Ancient Dwellings at Mesa Verde.** Weather, age, and a lack of ongoing stabilization and routine maintenance are threatening the very fabric of many prehistoric cliff dwellings at Mesa Verde National Park. At the famous Cliff Palace, ground water has penetrated in places to damage original walls and plaster.
- **Mining Near Chaco Canyon.** Potential mineral exploration and drilling threaten New Mexico's Chaco Culture National Historical Park on all sides. The park lies in the energy-rich San Juan Basin, in which one-quarter of the nation's known coal reserves and one-sixth of the world's known uranium reserves are located. Development of the region's oil and gas reserves has encroached on the park's eastern boundary. Strip-mining of a large coal reserve three miles north of the park has been proposed.
- **Proposed Airport Outside the Everglades.** Development of a major commercial airport within ten miles of Everglades National Park (and adjacent to Biscayne National Park) is being considered on the site of what once was Homestead Air Force Base. Overflights are already a problem in the park, degrading its natural quiet and harming the visitor experience. Construction of a major airport facility would have devastating impacts in terms of noise, air, and water pollution.

The steady failure to appropriate adequate funds for our National Parks has created an accumulated backlog of needs that some estimate to be as high as \$8 billion. Much attention has focused on crumbling roads and sagging roofs. Unfortunately, far more is at stake. While the nation's parks face real infrastructure needs, focusing only on those needs will do little to prevent the widespread degradation of the spectacular vistas, pristine waters, critical habitats, historic buildings and sites, and other park resources now occurring. Tragically, parks lack the funds to do the basic data collection needed to assess the condition of park resources, let alone do something about them.

What is needed is a comprehensive response to the park problems. More money is needed and mechanisms must be put in place to ensure that the money that does go to the parks is spent in a way that protects the parks' resources now and for the future. In addition, federal, state, and local agencies must recognize the impact of their decisions on park resources and act to protect them. Often what is happening near the parks is as consequential as what happens in the parks.

Our specific recommendations to Congress, the White House, and park administrators include the following:

- **Executive Order focused on Resource Protection.** The President should sign an executive order that clearly reaffirms the "protection first" mandate for the National Parks. The executive order should: (1) clarify that all federal agencies, including but not limited to the National Park Service, have an obligation to ensure that their actions do not harm park resources; (2) prescribe systemwide scientific research and its integration into resource management programs; and (3) encourage a collaborative planning process between the Park Service and gateway communities located near the parks.
- **Enhanced Applied Science and Ecosystem Management.** Park managers must be given the scientific tools necessary to resolve conflicts arising from visitor use, management of adjacent public and private lands, upstream and upwind pollution, and regional development issues.
- **Enlisting the Help of Gateway Communities.** Collaborative planning between park managers and gateway communities that serve and depend on the health of the parks can help provide attractive and environmentally sensitive facilities for visitors benefiting both the local communities and America's parks.
- **Enhancing the Visitor Experience by Establishing a Reservation System for the National Parks.** The Park Service should evaluate opportunities for establishing a computerized public information system to eliminate overcrowding and guarantee access to the parks. While a number of parks have reservation systems for some services, a systemwide plan is lacking.

To address the pressing resource needs of the National Parks, funds must be raised from a variety of sources, including new and untapped ones. Given that all needs cannot be met at once, both Congress and the President must ensure that first priority is given to the prevention of ongoing harm to park resources and to

the rehabilitation of damage already done. Our funding recommendations include the following:

- **Appropriations must be increased.** The operational needs of the National Park Service should be provided through increased appropriations. Ongoing staffing, maintenance, visitor services, interpretation, and park protection are examples of items that should be provided for through appropriated funds. The President's request for an increase of \$218 million in the overall Park Service budget in fiscal year 1998 is a step in the right direction although it still falls well short of the needs.
- **Federal transportation funding should be made available for all park transportation systems, not just roads.** In many parks, including Yosemite and Grand Canyon, providing visitor access through public transportation—such as shuttle buses or light rail—will greatly help protect resources by keeping automobiles either away from sensitive park resources or outside park borders. The National Parks currently receive federal transportation dollars, under the Intermodal Surface Transportation Efficiency Act (ISTEA), only for building and reconstructing park roads. Congress should adopt President Clinton's request that the National Park Service annual share be increased to \$161 million to provide needed public transportation and road repairs within the parks.
- **A new National Park capital improvement fund should be created and financed through the sale of National Park federal agency bonds insured by the federal government.** A targeted capital improvement fund could provide for many of the critical needs of the National Parks, including investments in resource stewardship. This fund would be similar to capital improvement funds created by state and local governments and some private organizations. The parks' resources—both natural and historic—are their capital, and it is appropriate to fund the steps necessary to protect them through a capital account.
- **Congress should establish a new National Park Authority as a fully guaranteed federal agency to issue National Park bonds.** This agency would be comparable to the Federal Housing Administration, the Tennessee Valley Authority, and the Government National Mortgage Association. Bonds issued by these agencies have high purchase appeal for investors because of their history of never defaulting. Through the purchase of National Park bonds, the public can provide a ready source of capital that will go directly to the parks and receive a meaningful return on their investment.
- **Congress should ensure that all revenue collected in the parks stays in the National Park System.** Even under the new pilot program put in place last year, more than half the revenue paid by park visitors goes to the general treasury rather than to the parks. While 100 percent of the increase in fees authorized by Congress last year will stay in the park system, the Treasury Department will continue to collect all of the original fees. This legislation is clearly a step in the right direction, but further reform is needed. Since new revenue is needed to meet the numerous park needs, Congress may have to raise entrance fees even further.
- **Congress should take the necessary steps to ensure that those that profit from park resources do more to protect them.** As many others have previously noted,

those making a profit from park resources by operating lodging, tours, and other commercial operations within the parks, should be contributing more to ensuring that park resources are protected. If visitors have to pay more, it is only fair to ask those profiting from monopoly franchises in the parks to pay more. These added revenues should be used to help service the debt on the National Park Authority bonds. Pending passage of reform legislation, the Department of the Interior should review park concession fees to identify where more revenues from concession operations can be generated without degrading park resources or visitor services.

► **Congress should take the Land and Water Conservation Fund offbudget, thus ensuring that its funds will be spent for the purpose of land acquisition and state assistance for which it was created.** There are many inholdings and other private parcels within the authorized boundaries of National Parks that threaten park resources. Many private landowners wish to sell their land to the Park Service, but the government does not have funds to buy from them. Acquisition funds are also critically needed for buying land outside park boundaries where mining or other proposed development threatens park resources. Although as much as \$900 million is collected each year in the Land and Water Conservation Fund, only a small fraction actually gets spent on land acquisition. Instead, the money has gone to fund other things such as tax cuts and defense programs. If taken offbudget, the money in the fund would have to be spent on the park purposes for which it was created.

Americans love their parks and want their tax dollars spent to preserve them. Given the need to reduce the deficit, the budget pie is not likely to get bigger. Those on Capitol Hill and in the White House should, however, give serious thought to cutting the pie up differently. We must seriously consider whether we want to be a nation that spends more than twice the sum on federal prisons that we do on federal parks.

CHAPTER ONE

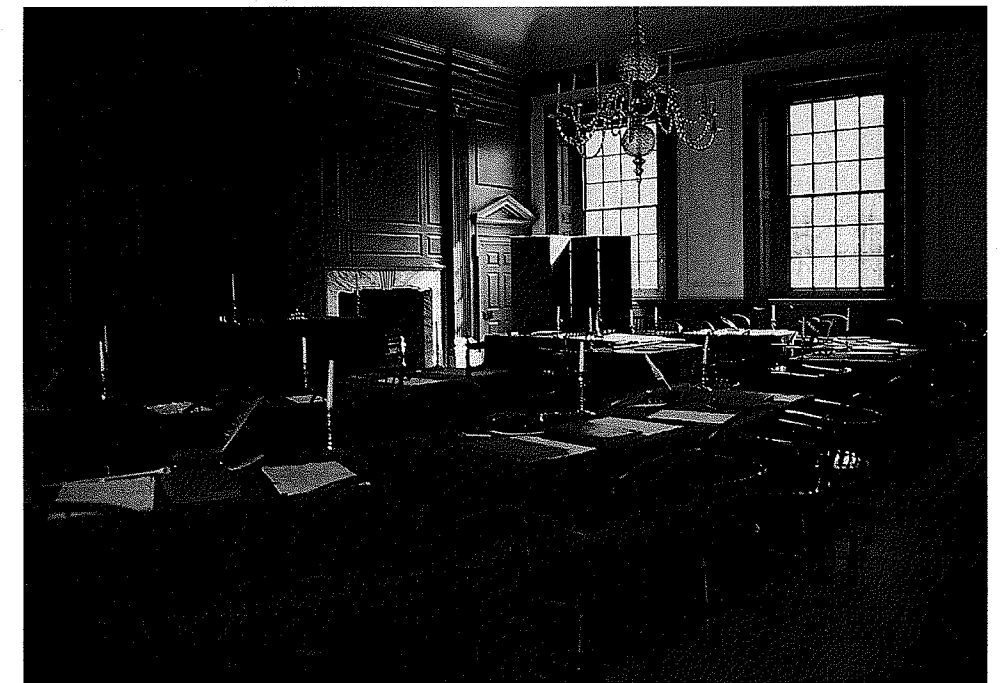
AMERICA'S PARKS

America's National Parks are among our nation's greatest treasures. Each represents a unique and special piece of our history and heritage. Set aside by wise men and women of the past, our parks teach us and our children about how our ancestors lived and how America used to be. They allow us, as visitors, to experience natural beauty, solitude, and serenity—a welcome respite from our daily lives. We must protect our parks for future generations to enjoy, learn from, and experience.

Our National Parks represent what is best about America. A uniquely American invention, many of our parks are instantly familiar to families and individuals all around the world, regardless of whether they have ever visited them. The Grand Canyon. Yellowstone. Yosemite. Other parks commemorate internationally known individuals and events. George Washington's birthplace in Virginia and Abraham Lincoln's in Kentucky. Independence Hall, where the Declaration of Independence was signed. Civil War battlefields like the ones at Gettysburg, Pennsylvania and Manassas, Virginia. Places like Alabama's Tuskegee Institute and the site of the first Women's Rights Convention in Seneca Falls, New York, where African-Americans and women met, organized, and demonstrated to gain their full rights as citizens of this nation. Places where ancient civilizations flourished long before the first Europeans came here, like Gila Cliff Dwellings and Chaco Canyon in New Mexico. Places that commemorate where Americans have explored, lived and created communities, worked, farmed, gone to school, fought, and worshipped. Places preserving the diverse ethnic heritage of our nation, as well as our architecture, arts, and literature, have been set aside as National Parks.

In addition, our National Parks encompass many of our nation's landforms—

America's National Parks—like Independence Hall pictured here—allow us to imagine historic moments and glimpse the past.



*If future generations
are to experience and
learn from the parks
as we do today, we
must act now to
reverse the effects of
years of neglect.*

our tallest peaks, our oldest and biggest trees, our deepest and widest canyons, our seashores, prairies, deserts, caves, geysers, and glaciers. We have parks that preserve representative samples of the original American wilderness, like Denali in Alaska and the Everglades in Florida. We have parks in remote areas, such as Gates of the Arctic (Alaska) and Big Bend (Texas), and parks in some of our major cities, such as Gateway (New York/New Jersey) and Golden Gate (California). We have still other parks that harbor petrified forests in Arizona, dinosaur fossils in Utah, and volcanoes in Hawaii.

Together, all of these parks—the “crown jewels” and the lesser known, the urban and wildland parks, the large and the small—are the living means by which we know and remain connected to our national heritage. As varied as our people, our landscapes, and the stories of our past, our parks together are a vast textbook of American history, there for each of us to experience and learn from. The National Parks are an essential piece of what it means to be an American.

These unique and varied places are managed as one system in the public interest by the National Park Service, an agency of the U.S. Department of the Interior. The system incorporates 375 parks that include National Monuments, National Battlefields, National Cemeteries, National Historic Sites, National Recreation Areas, National Seashores and Lakeshores, National Wild and Scenic Rivers, and National Trails, as well as National Parks. Together, the parks encompass 83.3 million acres in forty-nine states and four U.S. territories. Appendix 1 provides a complete list of America’s National Parks.

The National Park Service was created in 1916 to manage the nation’s parks in a manner that would protect and preserve them so that future as well as current generations could enjoy and experience them. The Park Service is also responsible for educating Americans and other visitors to our parks about their unique value and their significance for our national heritage. Specifically, the purpose of the National Park system is:

*to conserve the scenery and the natural and historic objects and the wild life therein and
to provide for the enjoyment of same in such a manner and by such means as will leave
them unimpaired for the enjoyment of future generations.*

NPS Organic Act, 16 U.S.C. § 1.

At present, however, our parks are *not* being adequately cared for and protected. On the contrary, our parks are under siege, and our ability to pass them on to future generations as they were passed on to us is at risk.

In constant dollars, annual funding for National Parks decreased by over \$600 million over the past two decades. At the same time the number of visitors has skyrocketed. The National Parks now receive 40 million more visitors *each year* than they did in 1978. This increase represents over five times the number of people living in New York City, yet park managers have dramatically less money to serve them. Park visits are expected to increase to over 300 million each year by 1999. The Park Service has been asked to do more with less, and as a result our parks are suffering.

Park facilities have been closed, seasons shortened, and maintenance and repairs of historic buildings and monuments deferred. Visitor services, including

educational programs like campfire talks and guided nature walks, have been cut. The Park Service has lacked the funds needed to respond effectively to overcrowding and overuse. It has been unable to assess and monitor the health of park ecosystems and determine how to protect park resources like wildlife and air quality. It has been unable to purchase key parcels of land within existing park boundaries to protect park ecosystems and to control mining, logging, and other harmful developments on adjacent lands.

This report documents the challenges now facing our National Parks, both generally and in a series of case studies, and sets forth recommendations for what we must do as a nation to protect and preserve our parks for our children and theirs as we enter the twenty-first century.

*While millions more
are visiting the parks,
millions less in real
dollars are being
spent to protect them.*

ASSESSING PARK NEEDS: PUTTING PROTECTION FIRST

The wisdom and foresight of past leaders created America's great park system. Yet, without the commitment of current leaders, what the National Parks have to offer will be lost. We cannot afford to take our parks for granted. We must recognize their needs and take the necessary steps to address them.

The National Parks face a backlog of critical problems—a backlog that too few Americans are even aware of. Failure to invest the money needed to adequately maintain the parks has led to an accumulated debt of needs that some estimate is as high as \$8 billion.¹ It is not just a matter of the physical infrastructure getting old, resulting in crumbling roads and dilapidated buildings. The very resources—both natural and historic—that the National Parks were established to protect are steadily deteriorating. While the nation's parks face real infrastructure needs, focusing only on those needs will do little to prevent the widespread degradation of the spectacular vistas, pristine waters, critical habitats, historic buildings and sites, and other park resources that is currently occurring, and in fact may well accelerate the degradation by bringing more cars, more visitors, and more use to already stressed sensitive park ecosystems. To preserve America's parks and the resources they sustain, we must put resource protection and rehabilitation first.

The parks' roads and visitor centers will be of little use if the resources the parks were established to protect are lost.

TYPES OF THREATS

Currently, the National Park system faces tremendous threats that, if not addressed, will destroy the values and resources that the parks were created to protect. The host of problems facing the system includes both internal and external threats. Parks face problems from within their borders, such as the traffic jams resulting from increasing numbers of visitors. Activities outside park boundaries, such as mining on adjacent lands, also threaten park resources. Even the best-known National Parks are not immune to such problems. The proposed New World Mine, for example, would have brought significant water pollution to Yellowstone National Park. Despite the commitment of the Clinton administration over a year ago to buy this property, Congress has not yet made the funds available to do so. In addition to affecting park resources, both internal and external threats tarnish the experience of visitors to the National Parks.

THREATS TO PARK RESOURCES

- ▶ Overcrowding/Visitor Impacts
- ▶ Crumbling Historic Structures
- ▶ Inadequate Storage for Museum Pieces
- ▶ Incompatible Development—Mining, Subdivisions, Shopping Malls
- ▶ Consumptive Uses Both In and Near Parks—Grazing, Logging, Oil and Gas Drilling
- ▶ Air Pollution
- ▶ Water Pollution and Water Management
- ▶ Invasion of Non-native Weeds and Pests
- ▶ Lack of Inventory and Monitoring Data

Internal Threats

Internal threats include problems associated with the increasing number of park visitors, with inadequate numbers of staff to conduct campfire talks and patrol the parks, and with inadequate funds to monitor potential hazards to park resources and to find ways to abate them.

The number of visitors to the National Parks has skyrocketed over the last decade. From 1984 to 1994, the number of visits to National Parks soared from 208 million to 269 million, an increase of over 25 percent. The number of visitors to the Statue of Liberty climbed from 3.1 million in 1985 to 4.1 million in 1993. Visits to Arizona's Lake Mead National Recreation Area increased by almost 2 million over the same period.² In many cases, not only are more people coming to visit our parks, but they are also staying longer. In many parks the current number of visitors threatens the very qualities—the serenity and unspoiled nature—that make them so special, as well as

our ability to ensure that these qualities are passed on to future generations. In all too many cases visitors are literally loving parks to death.

More people than now live in Los Angeles visit Yosemite National Park each year. This huge number of visitors has brought traffic jams and polluted air equal to those in any urban area during peak commuting hours. At Bryce Canyon in Utah and at the Grand Canyon,

Grand Canyon Trust

Some of our National Parks are so immensely popular that they have brought traffic jams and air pollution equal to those in urban areas during rush hour.



noisy overflights by commercial helicopters threaten park solitude and natural quiet. In parks all over the country, increased numbers of visitors have brought excess wear and tear on hiking trails, with erosion and trampling of vegetation and sensitive ecosystems, as well as vandalism and crowded campgrounds. And visitors have driven up demand for, and strains on, basic park services such as roads, sewers, utilities, and staff resources.

More visitors require more park staff. Additional staff are needed to deal with the increase in vandalism and crime that accompanies more visitors. They are also needed to provide visitor services, including interpretive services. Interpretation—helping visitors understand and appreciate the significance of each park and its resources, as well as the system as a whole—is a key part of the park experience. But at all too many parks across the nation, staff are not being added; instead they are being cut back. At others, the parks are simply not keeping up with the demand.

At parks across the nation, campfire talks, nature walks, and similar services are being cut back or have already been eliminated, even as the demand for them is increasing. Interpretive programs at many parks are provided only by volunteers, if at all. Other parks have seen the hours and days that their visitor centers are open reduced, their exhibits and buildings closed, and their information services discontinued.

Inadequate staff and funds have also resulted in another critical problem—the failure to take actions needed to protect resources from harm or to rehabilitate damage already done. The Park Service, for example, lacks the funds and staff to take the actions necessary to solve the problems resulting from heavy automobile traffic at parks such as Minute Man National Historical Park in Massachusetts and Yosemite in California. The Service is unable to prevent the stealing of wildlife and plants at parks like Crater Lake National Park in Oregon and Olympic National Park in Washington.³

In many parks, non-native plant and animal species are invading park boundaries, crowding out the native species that represent America the way it used to be. In the Grand Canyon, for example, non-native tamarisk shrubs have overtaken much of the diverse, native vegetation along the Colorado River. At Lake Mead National Recreation Area, not only feral burros but also domestic livestock and off-road vehicles have caused extensive erosion and vegetation loss.⁴ Cattle along with deer and elk have been overgrazing Santa Rosa Island, part of Channel Islands National Park off the coast of southern California for years—with devastating impacts on its native plants and water quality. Addressing these threats up front is not only much more effective but also much less expensive than trying to repair the damage later. Regrettably, in all too many cases, including, for example, the situation on Santa Rosa Island, members of Congress have attempted to prevent the Park Service from addressing these threats, and at times they have succeeded.

Known threats of the sort identified above are unfortunately only the tip of the iceberg. Many of the resources—natural and historic—that the National Parks were established to protect are deteriorating and, in some cases, disappearing without anyone's knowledge. Why? One reason is because most parks lack basic scientific

The Park Service lacks the funds to adequately assess the damage being done to park resources, let alone take the necessary steps to stop it.

CUTBACKS IN VISITOR SERVICES

Henry Wadsworth Longfellow's Home (MA)

Originally open year-round to the public, it has been closed from December through April for two years and original papers are stored uncatalogued and unprotected in the basement.

Gettysburg National Military Park (PA)

As a result of staff reductions, the park has denied 25% of requests received for intensive student tours and curtailed access for researchers to the archives.

Badlands National Park (SD)

Since 1996, the number of seasonal park rangers has declined from thirteen to four.

Minute Man National Historic Park (MA)

Visitor center hours and months of operation have decreased; grounds maintenance has declined; and there are fewer programs and special events.

Fort Donelson National Battlefield (TN)

In 1996, the park had no daily history program for the first time since the 1960s.

Olympic National Park (WA)

Campground and other public facilities will not be maintained at the high standards of past years. Trash collection and other services will operate on a less frequent basis.

Yellowstone National Park (WY)

In 1996, the park closed the 116-site Norris campground for the first time.

Lassen Volcanic National Park (CA)

The Chalet was closed last winter, turning away the 28,000 people the facility serves each winter. In addition, the park no longer has a Chief of Interpretation.

Saratoga National Historic Park (NY)

One historic house will only be open three days per week this year, while the other will be open on a limited basis depending on volunteer help. Both used to be open seven days per week.

Padre Island National Seashore (TX)

For the last few years, no lifeguards were on duty at a popular park beach.

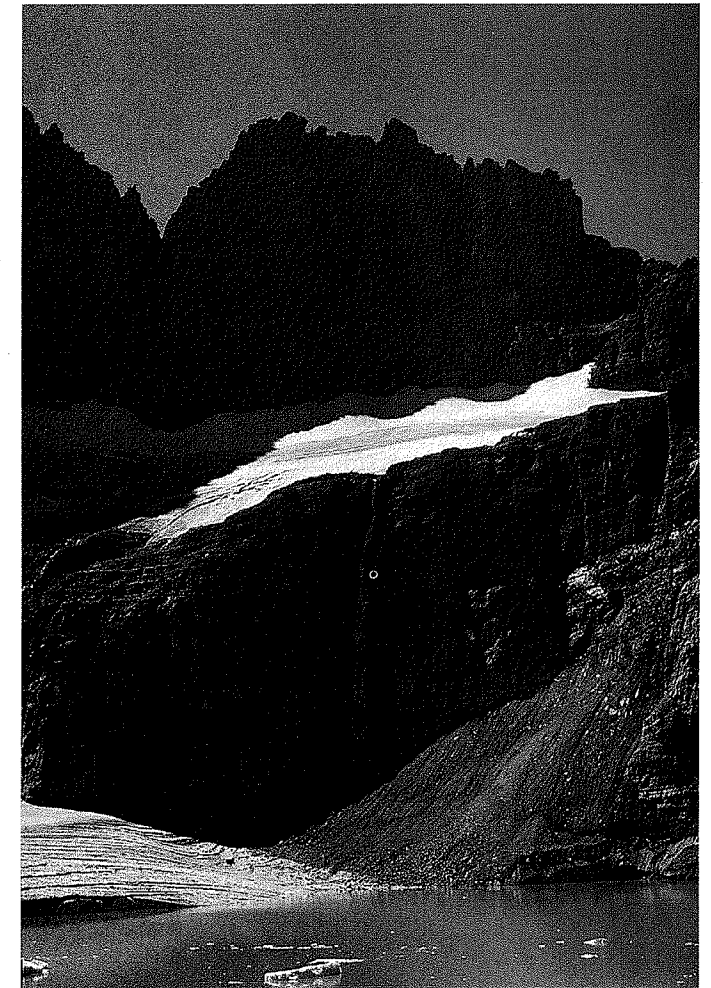
Sources: U.S. General Accounting Office, *National Parks: Difficult Choices Need to Be Made About the Future of the Parks*, GAO/RCED-95-238, (August 1995) and National Parks and Conservation Association, *Fact Sheet: Declining Budgets Have Hurt National Parks* (June 1996). Telephone calls to park staff confirmed current status.

data about their resources and resource conditions. They lack this information despite the fact that, for several decades, Park Service officials and independent experts have voiced concerns about the lack of scientific data on park resources. Scientific information is critical to effective management of park resources. Without it, the Park Service cannot adequately assess the damage being done to park resources, let alone take the necessary steps to stop it.

Sadly, information about all kinds of park resources is lacking. At Glacier National Park, little information exists about the park's namesake resource—its glaciers—as well as about its wildlife. Little has been done to systematically inventory the diverse plant and wildlife resources of Alaska's Denali National Park.⁵ Similarly, in many parks established to protect historic and cultural resources, the number, location, and status of those resources is largely unknown because needed surveys have yet to be done. For example, no comprehensive documentation of the archeological ruins at Chaco Culture National Historic Park exists. Buried structures and objects are frequently exposed and destroyed in the banks of Chaco Wash and the tributaries that flow into it.

Unlike many of the problems that currently threaten our parks, infrastructure problems are relatively well-known. Visitor facilities are deteriorating and roads are crumbling. For example, over \$5 million is needed to rehabilitate the water treatment system at Lake Mead National Recreational Area so that it complies with current drinking water standards. Almost \$3 million is needed to repair electric lines and other utilities at the entrance area to Alaska's Denali National Park. Even more troubling, many of the irreplaceable resources the parks were established to protect are vanishing. At Gettysburg National Military Park, acid rain and the freeze-thaw cycle of water have corroded and cracked some of the cannons and monuments. The hospital and quarantine wards on Ellis Island, from which immigrants gazed out to the Statue of Liberty, are in such a state of disrepair that they are unsafe to visit. As these examples demonstrate, years of failing to invest in the National Parks have produced a backlog of maintenance and repair needs.

In some places, construction in the parks causes significant damage to park resources and visitors' experience. For example, a proposal to build a multi-lane commuter highway through the 7,200 acre Petroglyph National Monument in New Mexico threatens to desecrate this Native American holy land still used today by Pueblo Indians. The proposal, which is designed to access recently planned real



Park resources are deteriorating without anyone's knowledge because most parks lack basic scientific data. At Glacier National Park, little information exists about the park's namesake resource—its glaciers—as well as about its wildlife.

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Many of the irreplaceable resources the parks were established to protect are vanishing. The hospital and quarantine wards on South Ellis Island are falling into ruin and closed to visitors because they are unsafe.

estate developments, would subject the park to additional vehicle traffic, set a dangerous precedent by allowing commuter highways through America's National Parks, and despoil a sacred site.

External Threats

The National Parks face daunting external threats as well as internal ones. Many parks suffer from uses of land adjacent to the parks that threaten the quality of park resources. Consider for example, Grand Canyon National Park, one of the "crown jewels" of the National Park system. Views of the Grand Canyon's spectacular scenery are severely threatened by air pollution. A chief source is a power plant located in Nevada, which delivers significant amounts of air pollution to the park under prevailing westerly wind conditions. In addition, air pollution from as far away as Los Angeles and Phoenix reduces air quality and visibility at the park as do vehicle emissions generated within its boundaries.

Elsewhere, at Acadia National Park, which is located on a rugged, rocky island off the coast of Maine, concentrations of ground-level ozone, experienced as urban smog, have exceeded both

state and federal health standards within park boundaries. On numerous occasions, health advisories have warned park visitors to avoid strenuous exercise such as bicycling, hiking, or jogging—the very reasons many people come to this and other National Parks in the first place—because of extremely high levels of ozone in the air. Such pollution not only threatens human health, but also harms the plants and animals in the park.

Other parks face pollution of different types. For example, waters at Missouri's Wilson's Creek National Battlefield have been polluted with toxic metals and fecal bacteria from a wastewater treatment plant located four miles upstream from the park's boundary. As a result, noxious odors greet visitors to the park, and native aquatic plants and animals have lost critical habitat. Visitors to Joshua Tree National Park in California's Mojave Desert may have a similar experience if the massive garbage dump proposed for an abandoned mine only two miles away is approved.

In many cases, land actually owned and managed by the government is used in ways that harm park resources. Mining for coal, as well as drilling for oil and gas, occurs near several parks on public land. At Arches National Park, for example, both the state of Utah and the Bureau of Land Management (BLM), a federal agency within the Department of the Interior, lease land adjacent to the park for mineral exploration. Extensive uranium mining has already occurred near the park, and a

large uranium tailings pile is located one mile south of its entrance. In addition, several parcels of state-owned land *within* the park have high oil and gas potential. There is constant pressure to lease such lands to oil and gas corporations to generate revenue for the state.

In addition to the BLM, the U.S. Forest Service is another federal agency that has permitted activities that have harmed park resources on lands under its jurisdiction. It has, for example, permitted clearcuts right up to the boundary of Yellowstone, as well as oil and gas leasing in areas immediately adjacent to parts of the park. These unsightly activities have caused serious ecological harm, including damage to critical grizzly bear habitat.

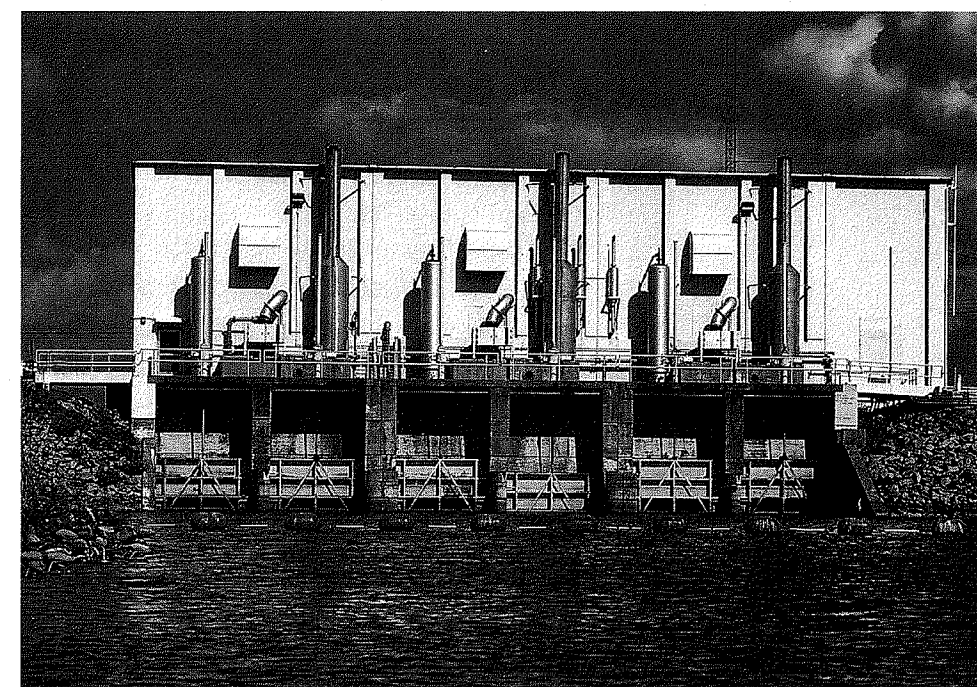
Nor is it only federal land-managing agencies that have made decisions that have compromised the integrity of our parks. At the Grand Canyon, for example, the Federal Aviation Administration has continued to allow overflights to destroy the natural quiet of the area. Everglades National Park in Florida provides yet another example. At the Everglades, irrigation projects promoted in the past by the U.S. Army Corps of Engineers have caused significant damage to water quality and critical wildlife habitat. The sugar production supported by federal subsidies and other corporate farming enterprises over the last century have reduced the "River of Grass" to less than half its original size. Today the park is facing yet another threat—a proposal to build a major commercial airport less than ten miles away, over which the Department of Defense, not the Park Service, has decision-making authority.

An even more difficult problem is the commercial development that occurs on private lands adjacent to the parks. Tasteless billboards, souvenir shops, fast food chains, and other enterprises dot the roads leading up to many of America's parks, threatening park resources as well as tarnishing the visitors' experience. Yet the Park Service has little, if any, control over such activities. For example, the excessive commercialization and amusement park-like character of Estes Park, Colorado, and Gatlinburg, Tennessee, degrade the natural beauty and serenity of the world-renowned parks to which they serve as entrances—Rocky Mountain and Great Smoky Mountains National Parks, respectively.

As these examples reveal, not all park problems require money to solve. Indeed, many simply require a firm commitment to environmental stewardship not

The U.S. Forest Service has permitted clearcuts right up to the boundary of Yellowstone.

Over the past century, corporate sugar farming, supported by federal subsidies and U.S. Army Corps of Engineers irrigation projects, has reduced the Everglades to less than half of its original size.



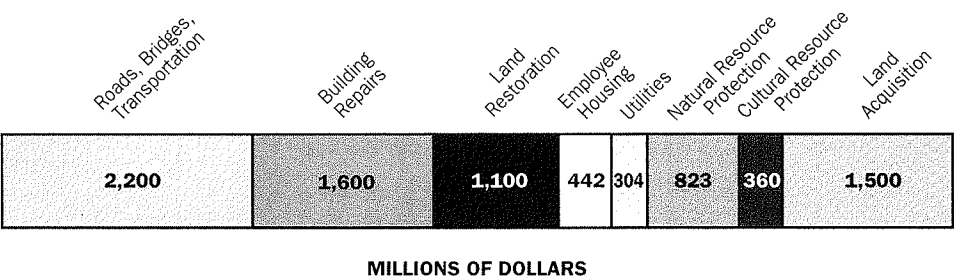
For too long the nation has failed to make the investment in its parks necessary to maintain them.

only from Congress and the various federal agencies, but also from state and local governments. More money, nevertheless, can help solve many of the problems facing the National Parks today. For too long the nation has failed to make the investment in its parks necessary to ensure that they are adequately maintained.

QUANTIFICATION OF NEEDS

As is documented in the next chapter, the parks have been seriously shortchanged by Congress over the past two decades. As a result, routine maintenance of the parks' physical infrastructure has not occurred. Roads are crumbling, roofs are leaking, sewage lines are breaking, and historic structures are falling into disrepair. More importantly, the research, planning, and management actions necessary to preserve the very resources the parks were established to protect are not getting done. Now the bill for this neglect is coming due.

Figure 1. Unmet Needs of National Park Service



Physical Infrastructure. According to Park Service estimates, the immediate capital construction needs in the parks currently total \$5.6 billion.⁶ Repairs to roads, bridges, and other transportation needs account for \$2.2 billion, or 39 percent of the total. While some of the identified needs involve enhancing public transportation systems, most are focused simply on repairing the existing physical infrastructure to promote automobile travel through the parks.

The second largest component of the unmet capital needs is \$1.6 billion for building repairs. Almost half of this amount is needed simply to complete one-time repairs to historic structures, archeological sites, and other cultural resources. The remaining amount is needed to repair existing visitor facilities and park support buildings. None of the amount represents construction of new buildings.

The remaining three categories of unmet capital needs are as follows: land restoration (\$1.1 billion); employee housing (\$442 million); and utilities, including gas, electric, water, and sewer (\$304 million). Land restoration includes projects to address harm already done to park resources, such as the cleaning up of hazardous waste sites, the removal of old logging roads, and the moving of lodging and other visitor facilities out of fragile woods and wetlands.

Even more sobering than what is included in the \$5.6 billion for capital needs is what is left out. Except for some land restoration projects that have been treated as

construction projects because of their large size, the \$5.6 billion figure includes no natural resource protection work. No funds are included to provide for the basic inventory and monitoring necessary to know the nature and condition of park resources. Nothing is included to support the management steps necessary to preserve the quality of those resources. The parks' physical infrastructure will be of little use if the natural and cultural resources the parks were established to protect are lost.

Natural Resource Protection. Park Service officials estimate that unmet natural resource protection needs amount to \$823 million.⁷ This figure is derived from the Resource Management Plans (RMPs) developed by each park. In these plans, park managers outline goals for managing the parks' natural and cultural resources and identify deficiencies in resource inventory, monitoring, research, protection, mitigation, and interpretation. Actual needs are even greater since the parks lack the staff and resources to adequately assess their needs. Furthermore, the Park Service estimate only reflects needs identified at the 75 percent of the parks that have submitted RMP data.

The unmet needs identified in the current plans (which represent projected needs for the years 1996 through 1999) include actions to address the following problems:

- Lack of basic data/ insufficient understanding of park ecosystems and threats to them (\$93 million);
- Visual and biological effects of urbanization and other near-park development on park resources (\$64 million);
- Accelerated erosion and disruption of native plant communities due to past land practices (\$54 million);
- Effects on threatened, endangered, and other at-risk wildlife (\$53 million);
- Visitor use effects on backcountry park resources (\$34 million);
- Resource damage due to the invasion of exotic, i.e., non-native, weeds (\$60 million);
- Loss of plant and animal species (\$60 million);
- Loss of cultural landscapes, i.e. a sense of how people lived in a particular place at a particular time (\$35 million); and
- Loss of park resources due to consumptive practices (hunting, fishing, commercial fishing, grazing) within parks (\$32 million).⁸

While more money is not the complete solution, having the funds to address some of these fundamental resource protection needs will go a long way to ensuring that our parks are here tomorrow for future generations to enjoy.

Cultural Resource Protection. The \$5.6 billion for physical infrastructure needs also fails to include any of the regular, ongoing work necessary to manage and protect the National Park system's numerous and diverse cultural resources. These resources range from the prehistoric Anasazi ruins at Chaco Canyon in New Mexico to the Statue of Liberty to the Topeka, Kansas school immortalized in the Supreme Court's landmark desegregation decision, *Brown v. Board of Education*. According to Park Service estimates, over \$360 million is needed to address cultural resource management needs such as the development of inventories of archeological sites, the

The steady failure to appropriate adequate funds for our national parks has created an accumulated backlog of needs as high as \$8 billion.

completion of ethnographic studies, the cataloging of museum collections, and the preservation of museum collections.⁹

Land Acquisition. Another critical unmet need of America's parks is land acquisition. As discussed further in the next chapter, Congress has failed to deliver the funds necessary to fulfill the promise it made to the American people when it established the various units of the National Park system. The Park Service estimates that it needs \$1.5 billion just to acquire private holdings within established park boundaries to complete existing National Parks. This figure does not include any of the unique National Parks in Alaska. It represents acquisition needs totaling over 349,000 acres in 102 different park units. For a list of these specific acquisition needs, see Appendix 2. When Alaska is added, the total of privately held land within authorized National Park boundaries jumps to 4.75 million acres. The \$1.5 billion figure does not take into account any expansion of park units beyond their existing boundaries, nor the addition of any units to the system. It simply represents the amount necessary to fulfill the promise Congress made to the American people when it established each of the parks.

A few specific examples highlight the immediate need for more land acquisition dollars. In many cases, private landowners want to sell their land to the Park Service because of illness, old age, or other financial needs. The Park Service's lack of acquisition funds, however, often compels these landowners to look to resource extraction or other development interests instead. At Cape Cod National Seashore, for example, \$10 million is needed to acquire twenty-five tracts totaling sixty-four acres. On many of the tracts, the present use of the land is not compatible with the purposes for which the seashore was established. On others, imminent further development would have adverse effects on the integrity of the national seashore.

Still another example comes from Alaska's Wrangell-St. Elias National Park and Preserve, where mining is occurring or imminent at six different sites within park boundaries. One site is adjacent to the Kennicott National Historic Landmark and would significantly degrade the visitor experience there. The owner of another site in the Chititu Drainage has patents to mine gold, but is interested in selling to the United States. Funds are needed to acquire these sites and preserve the integrity of the park.

At Petroglyph National Monument in New Mexico, \$2 million is needed to acquire three tracts to protect its scenic cliff and ancient drawings. The landowner has sought approval to subdivide adjacent land for housing development, but is willing not to develop land within the monument if the Park Service acquires it within two years.

All Needs Are Not Equal. Given the impossibility of meeting all these needs, political leaders and Park Service officials must establish priorities. Unfortunately, the focus so far has been almost entirely on physical infrastructure. Such emphasis is misguided. While important capital needs do exist, as a nation we must first ensure the preservation of the resources the parks were created to protect. Although the

The first priority must be the prevention of ongoing harm to park resources and the rehabilitation of damage already done.

National Park system was established to protect and preserve our nation's most important natural and cultural resources, as this report's case studies document, we are losing those resources at parks across the nation both large and small, and at "crown jewels" as well as lesser-known places.

Congress and the Park Service must follow clear criteria to ensure that protection of resources—cultural, historic, and natural—comes first. First,

Park Service funds must go to preventing ongoing harm. Needless to say, money should not be spent in a way that causes harm. Unfortunately, some of the dollars now being spent for construction projects that would increase visitor capacity and improve the flow of automobiles through the parks are in fact harming the very resources people come to see. Second, Park Service funds should be spent to rehabilitate resource damage already done. Third, Park Service funds should be used to address the sources of harm to park resources. Finally, in order to accomplish these three objectives, sorely needed funds must be directed toward interpretation and applied science in the parks. Only by enriching the lives of all Americans through the explanation of the significance of park resources and the education of the public about the harm being done to these resources can we ensure their protection.

In determining which capital projects make sense, decision-makers must choose first to stabilize and restore valuable historic resources, rather than to construct new facilities and new roads. Furthermore, park managers should look to fund those projects that enhance both resource protection and the visitor experience. For example, rebuilding roads so that even more private cars can enter parks currently plagued by automobile congestion and pollution will only make already severe problems worse. By contrast, public transit systems designed to keep private vehicles outside park boundaries will solve such problems *and* enhance the visitor experience. Only by taking such an approach can we preserve the varied pieces of our heritage represented through the many units of the National Park system.

Before turning to some ideas about how to address the various park needs, it is instructive to review just how the current situation came about. The next chapter looks at what makes up the National Park Service budget, how it has changed over the years, and how it compares to other categories of federal spending.



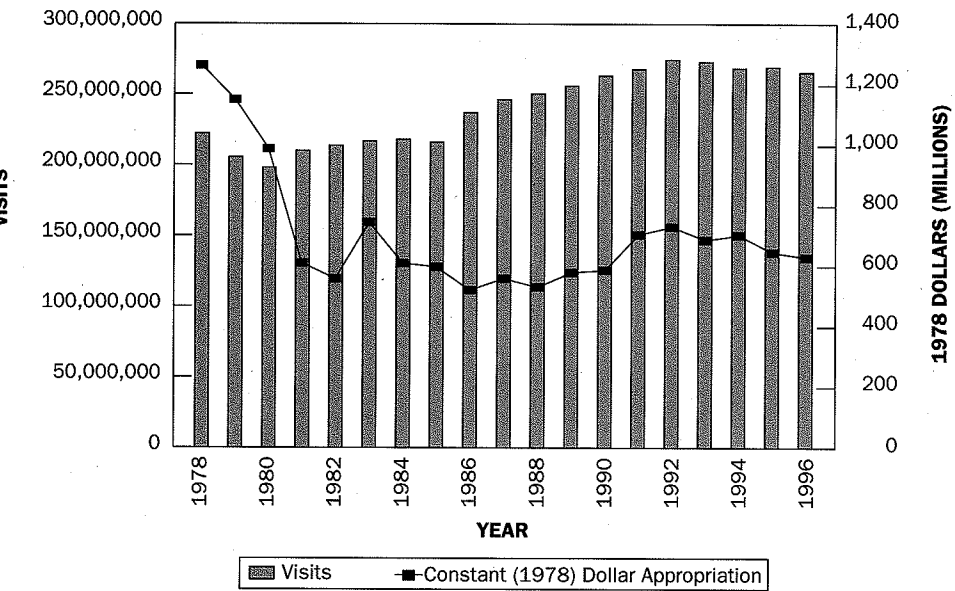
Park Service funds should be spent to rehabilitate damaged park resources and to determine how to prevent that damage from recurring.

FUNDING RECORD: MORE DEMAND, LESS MONEY

In constant dollars, the National Park Service budget declined by \$635 million from 1978 to 1996. At the same time, annual visits have increased by almost 40 million and Congress has created seventy-nine new park units. The Park Service's current budget is \$1.4 billion, with which it must maintain 375 parks and serve an estimated 276 million visitors. As park managers struggle to maintain visitor services for the increasing number of people coming to the parks, the research, planning, and management necessary to preserve the parks for tomorrow is not getting done.

Operations. Most of the Park Service's budget goes to keeping the parks open and operating from one day to the next. Of the total budget for fiscal year 1997 of \$1.4 billion, \$1.2 billion is for operations.¹⁰ These funds are apportioned to individual parks, where they are then used to pay for staff, utilities, necessary equipment and

Figure 2. National Parks: Annual Visitation and Funding



Source: Visitor statistics provided by National Park Service Office of Public Affairs. Funding figures provided by National Park Service Budget Office. For exact numbers, see Appendix 3.

In constant dollars, the National Park Service budget declined by \$635 million from 1978 to 1996.

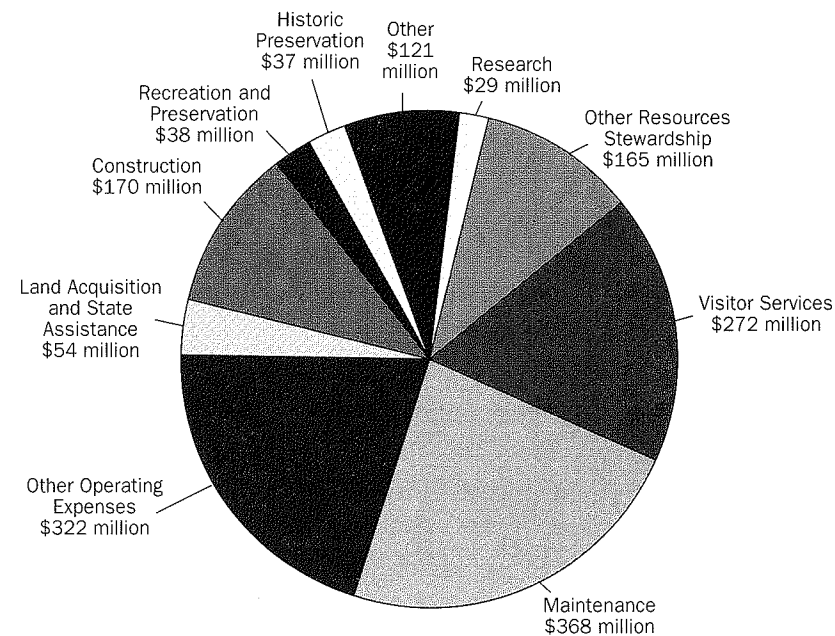
other supplies, and training. On average, approximately 75 percent of each park's budget goes toward salary and benefits for its employees,¹¹ leaving very little to meet all the other needs.

Overall, only \$29 million is currently dedicated to fund the numerous applied-science needs at all 375 parks in the entire system.¹² Another \$165 million gets spent on other resource-stewardship efforts to inventory, evaluate, monitor, and maintain the natural and cultural resources at the parks.¹³ The rest of the operations budget goes toward visitor services, daily maintenance necessary to the upkeep of park facilities, utilities, emergency response, personnel training, and administrative/technical support.¹⁴

Furthermore, the Park Service has been asked to fulfill numerous new responsibilities over the past two decades. Some relate to necessary environmental protection, such as the identification and removal of hazardous waste. Others relate to employee and visitor health and safety. No one would deny the importance of fulfilling such responsibilities, but the fact is that in most cases funds have not been made available to cover the cost of complying with these requirements.

For example, Yosemite National Park received no additional funds in fiscal year 1994 to cover the \$122,000 it had to pay to correct violations of Occupational Safety and Health Administration regulations and to clean up hazardous waste.¹⁵ In addition, the cost of more detailed background checks now required for law enforcement officers has risen from under \$100 in 1991 to over \$3,000 in some cases for each check.¹⁶ As a result, Yosemite spent approximately \$200,000 on background checks in fiscal year 1994 alone, accounting for about 6 percent of the previous year's operating budget available after salaries and benefits.¹⁷ Beginning in fiscal year 1992, Glacier National Park has had to spend an additional \$20,000 per year to comply

Figure 3. 1997 National Park Service Budget



with Safe Drinking Water Act requirements.¹⁸ Again, while very good reasons may exist for these new requirements, Congress must recognize their cost and provide the necessary funds for compliance. Otherwise, money is diverted from critical resource protection activities.

Land Acquisition. Over the years, the Park Service has received well short of what it needs to fulfill commitments made by Congress in establishing the various parks. At the time each park is established, boundaries are set and funds are authorized to be spent to acquire privately owned parcels within those boundaries. Congress, however, has failed to deliver to the Park Service through appropriations the actual dollars necessary to acquire these lands. As was described more fully in Chapter Two, the Park Service estimates that the amount necessary to acquire all the private land within the authorized boundaries of the units of the National Park system, *excluding the Alaska parks*, is \$1.5 billion.¹⁹

In 1964, recognizing both the importance and the cost of parkland acquisition, Congress created the Land and Water Conservation Fund (LWCF). The fund was intended to be a permanent source of financing for purchasing federal parkland, as well as to contribute to the purchase of state and local parks. The concept was simple—revenue from the extraction of certain natural resources, like oil and gas, would be used to protect and preserve other natural resources. When the fund was first created, annual spending of \$100 million was authorized. By 1980 Congress had raised this amount to \$900 million a year, where it remains today.²⁰ This figure is still significantly less than the approximately \$3 billion a year the nation receives from offshore oil and gas leases.²¹

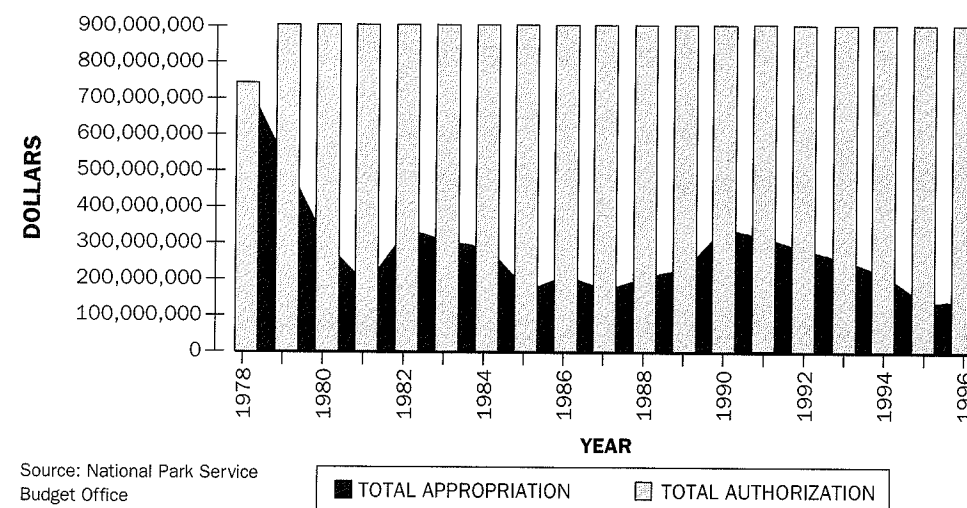
Despite such prior commitments, in reality the Department of the Interior and the states are not receiving anywhere close to the \$900 million a year dedicated to land acquisition. Since 1980, millions of dollars have been diverted from the LWCF to pay for other things like defense programs and the funding of tax cuts. For the current fiscal year, the total appropriation for land acquisitions is only \$149 million—just one-third of the oil and gas revenues received each year.²² About half of this amount is allocated to the National Park Service, with the rest going to two other agencies in the Department of the Interior, the Bureau of Land Management and the Fish and Wildlife Service.

Unless Congress appropriates more of the funds it has committed to deliver, the Park Service cannot hope to come close to meeting the acquisition needs at the nation's parks. Until it does, the public is not getting what it was promised when the parks were established. Instead, mining, grazing, logging, and other commercial development incompatible with resource protection will continue to occur within and near the nation's treasured parks.

Congressionally Mandated Spending. Another significant factor leading to the large backlog of needs in the parks is that scarce park dollars have often gone to fund specific projects that members of Congress want built, rather than those that Park Service officials have recommended. For example, just this last year Congress

Of the fifty-nine total construction projects funded for the fiscal year 1997, forty-one were not requested by the Park Service, but added by Congress.

Figure 4. Land and Water Conservation Fund: Authorized and Appropriated Funding Levels



Land adjacent to Arches National Park is leased by both the State of Utah and the Bureau of Land Management for mineral exploration. Several parcels of state-owned land within the park have high oil and gas potential, and there is constant pressure to lease them.

required: \$4.6 million to be spent for the Natchez Trace Parkway; \$4.4 million for a new administration building at the headquarters of the Blue Ridge Parkway; \$3.6 million for "site development" at Fort Sumter National Monument; \$600,000 for "technical assistance" at Lackawanna Valley, Pennsylvania; \$2 million for various projects by the Southwestern Pennsylvania Commission; and \$2.3 million to construct a new administrative/educational facility at the William Howard Taft National Historic Site. None of these projects was identified as a priority by the National Park Service. Of the fifty-nine total construction projects funded for the fiscal year 1997, forty-one were not requested by the Park Service, but added by Congress.

Given that the Park Service budget has declined significantly in constant dollars, the new projects that Congress has required clearly take scarce resources from other critical needs. From fiscal year 1981 to fiscal year 1996, Congress required the Park Service to complete \$1.1 billion worth of projects it had not planned to do. Often these Congressional additions are for new construction. As a result, not only does the backlog

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of existing repairs grow, but new maintenance responsibilities are added without additional funds to cover them.

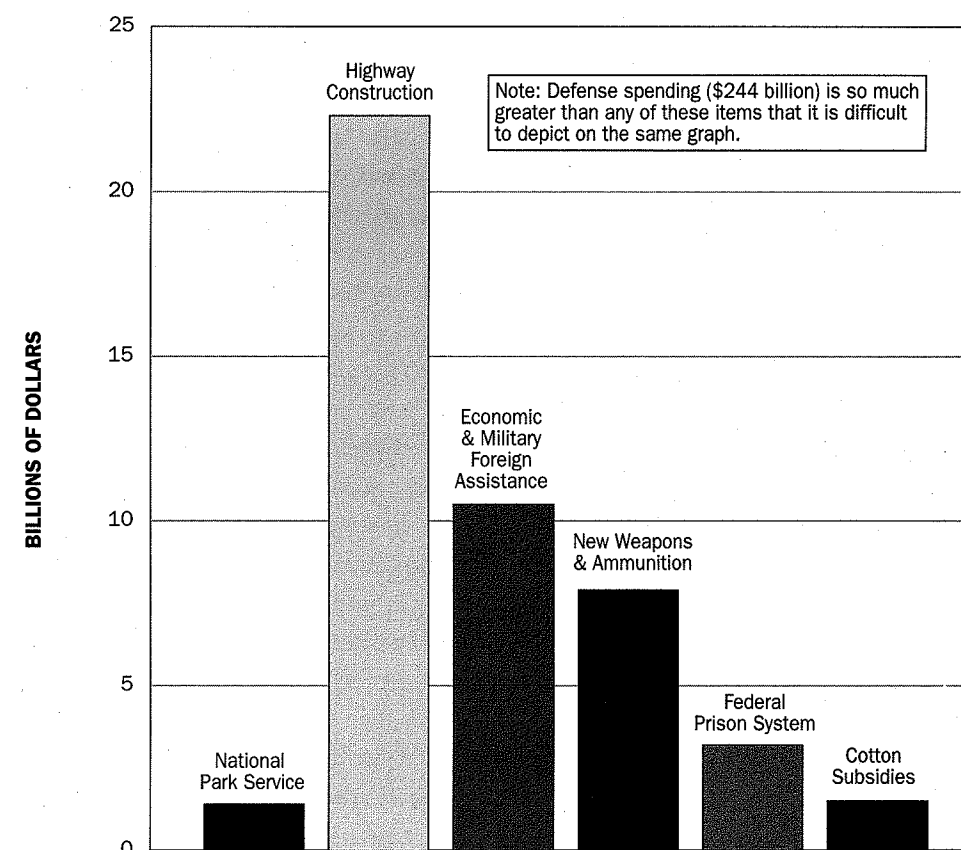
Something's Wrong When America Spends More Than Twice for Federal Prisons

What It Does for Parks. Americans love their parks and want their tax dollars spent to preserve them. Given the need to reduce the deficit, the budget pie is not likely to get bigger. Those on Capitol Hill and in the White House should, however, give serious thought to cutting the pie up differently. Does the nation really need to spend \$244 billion dollars a year on defense—an amount equal to that of the cold war era, even though the enemy threats America faces today are much smaller? A mere sliver out of this piece would go a long way to meeting some of the pressing unmet needs in the parks.

Similarly, what does it say about American society when we spend more than twice as much on prisons to lock people away than we do on parks in which our families can play?

America is spending \$3.2 billion on the federal prison system, while it spends only \$1.4 billion on its National Parks. The nation spends more than fifteen times what it does on National Parks for highway construction (\$22.3 billion); more than seven times for foreign aid (\$10.5 billion); more than five times for weapons and

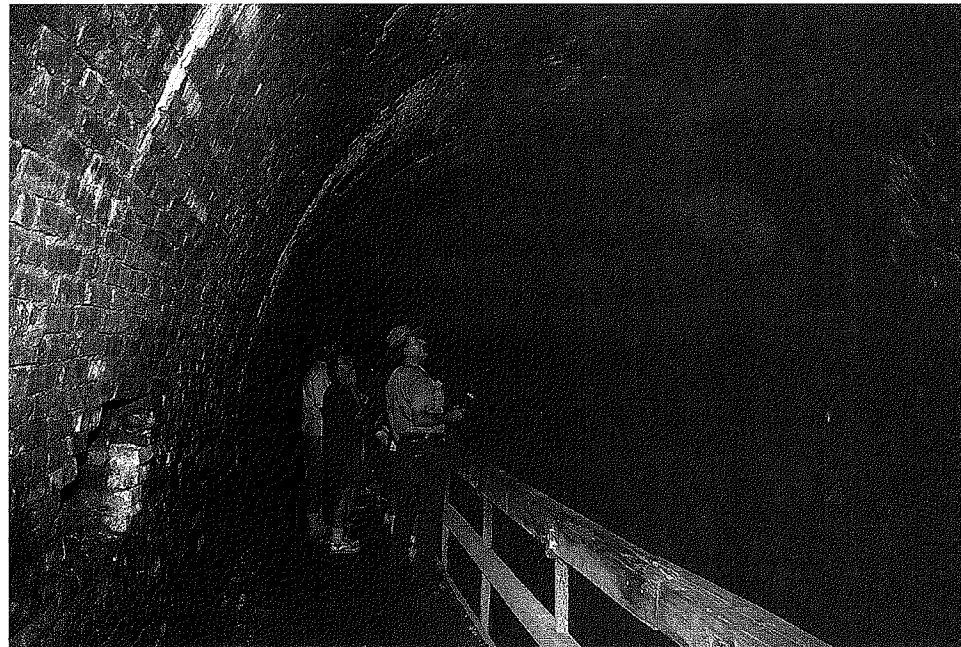
Figure 5. National Park Service Budget Compared to Other Federal Spending for Fiscal Year 1997



ammunition (\$7.9 billion). America spends as much to subsidize corporations growing cotton as it does on the National Parks.

The reality is that we cannot afford to shortchange our parks today, if we want them around from our children to enjoy tomorrow. Park managers must be given the information and tools to make informed decisions today, so they can avoid the expensive consequences tomorrow.

A park ranger points out deterioration in the Paw Paw Tunnel, part of the C&O Canal National Historical Park. Instead of funding priority needs identified by the Park Service, members of Congress often develop their own construction projects, draining scarce funds from other critical needs.



Connie Toops

CHAPTER FOUR

FINDING THE SOLUTIONS

As citizens, park users, supporters, planners, managers, and policymakers, how do we best provide the framework and the tools that our National Park resources deserve? This chapter identifies practical means for achieving this goal. Specifically, it presents a number of recommendations to the White House, Congress, and park administrators, all of which are designed to support and facilitate the protection and responsible enjoyment of National Park resources for current and future generations.

PROGRAM RECOMMENDATIONS

Establish a Clear Policy of "Protection First" for Park Resources

Recommendation: *The president should sign an executive order that clearly reaffirms the "protection first" mandate for the National Parks by: (1) clarifying that all federal agencies, including but not limited to the National Park Service, have an obligation to ensure that their actions do not harm park resources; (2) prescribing systemwide scientific research and its integration into resource management programs; and (3) encouraging a collaborative planning process between the Park Service and gateway communities located near the parks.*

The Park Service's statutory mandate is clear: to conserve the natural and cultural resources of our parks for present and future generations. Although its mandate makes the protection of park resources the highest priority, park managers and administrators have been caught in the unfortunate rhetorical position of saying that the parks have two equal and conflicting goals: protection of park resources and provision of human use and enjoyment. This argument has led to overcrowding, the building of facilities in locations and ways that harm important park resources and natural systems, and the use of park resources in ways that result in their degradation. Serious mistakes have been made over the years in the location and construction of visitor centers as well as in park administration, maintenance, concession, and housing facilities.

Decisions not only made by the Park Service but also by other federal agencies that control lands adjacent to or in the same region as the National Parks have caused in serious damage to park resources. In still other cases, park resource damage has resulted from the attempts of Congress and past administrations to



Pollution from power plants limits visibility, harms plant and animal life, and mars visitors' experience of the Grand Canyon. An executive order that clearly reaffirms the "protection first" mandate for the National Parks would help avert government-induced harm to park resources.

resolve serious resource conflicts. The battle over dam-building in the Grand Canyon in the 1960s provides one example. That battle ended with a compromise—a power plant at Page, Arizona, the Navajo Generating Station. Today this power plant emits pollutants that degrade visibility, plant and animal life, and the visitor experience at Grand Canyon and other parks in the region.

Still other negative consequences have resulted from decentralization of Park Service decision-making. In some cases, greater autonomy has led to resources being compromised due to a lack of clear policy guidelines. Decentralization has also left superintendents subject to greater political interference by Congress and other centers of political power.

To address these problems, the president should sign an executive order that clearly reaffirms the "protection first" mandate for the National Parks and that clarifies the obligation of all federal agencies to ensure that their actions do not harm park resources. This presidential executive order should direct every proposed federal agency action that could significantly affect park resources to be subject to a full environmental impact statement

under the National Environmental Protection Act and to a public hearing before a final decision is made. In addition, the executive order should promote the research necessary to identify and address or develop solutions to the various threats to the plants, animals, and other resources in the parks. Finally, the executive order should encourage cooperative planning between park managers and the gateway communities that serve and depend on the health of the parks.

Achieve Resource "Protection First" Through Applied Science and Ecosystem Management

Recommendation: *The President should provide park managers the scientific tools necessary to protect park resources.*

The Park Service today faces numerous difficult resource and "people management" issues. In the past the agency had the luxury of isolation, which gave it significant latitude. But now, as documented in this report, conflicts arise on every front with visitor use, management of adjacent public and private lands, upstream and upwind pollution, and regional development issues. To respond to these issues effectively, reliable and sound scientific information is essential. However, the Park Service's capacity to develop, analyze, and utilize scientific information and research is minimal. As a result, resource managers are frequently forced to act without the

benefit of relevant scientific information and analysis. The Park Service all too often is unable to take a regional approach to park protection even though that approach is usually most effective, because it lacks the sound applied science that is essential for park personnel to enter into a dialogue with outside interests.

The parks lack the funding to do the most basic inventorying and monitoring of the irreplaceable resources within their boundaries, let alone to take the sound science-based steps necessary to ensure that the resources are there for our children to enjoy tomorrow. To rectify this situation, the Park Service should be given a mandate—and the financial resources to fulfill it—supporting systemwide scientific research and its integration into resource management programs. This mandate should be provided through a presidential executive order.

Enlist the Help of Gateway Communities

Recommendation: *The President should promote collaborative planning between park managers and gateway communities that serve and depend on the health of the parks.*

Experience has demonstrated that vehicle traffic and visitor facilities within parks can seriously degrade park resources and the visitor experience. These effects have led many park proponents to advocate moving many visitor services away from sensitive park resources or even out of the parks entirely and into gateway communities. While the approach of moving facilities outside the park cannot be universally applied, it should be pursued wherever practical.

For years park proponents have decried the commercialization and seedy appearance of many gateway communities. In decades past, park supporters simply wanted the unsightly commercial strips to go away. Now there is a realization that gateway communities are the appropriate places to provide visitor accommodations in a planned, environmentally sound, and aesthetic manner.

To meet this need, the parks and their gateway communities must come together to develop a common approach: to provide clean, fairly priced, attractive visitor facilities in gateway communities and, where appropriate, to provide public transportation systems from those communities to various points of interest within the parks. New investment and redevelopment of existing gateway communities will provide opportunities to



Parks lack the funding to do the most basic inventory and monitoring of the irreplaceable resources—like these ancient pictographs in Mojave National Preserve—within their boundaries.

plan and build in an environmental and aesthetic way that benefits both the communities and America's parks.

For example, public transportation systems starting at the gateway communities would make it far easier and more attractive for visitors to stay in those communities rather than in the parks. Moving interpretive services into gateway communities would prepare visitors for their park experience prior to entering the parks. In both cases, more visitors, infrastructure development, program attractions, and therefore more jobs could be brought to gateway communities. Technical assistance and matching planning grants could help selected gateway communities accomplish these goals.

Enhance Visitor Experience by Establishing a Reservation System for the National Parks

Recommendation: *The Park Service should evaluate opportunities for establishing a computerized public information system to limit crowds and guarantee access to the parks.*

Many of the National Parks are experiencing overcrowding. Yet while one park may be filled to capacity, another nearby park may have space available. The growth of information technology provides the opportunity to develop a comprehensive computerized public information system for public services and accommodations in the National Parks. This system could include entrance slots, campground spaces, and lodging reservations, as well as information about park attractions, scheduled activities, and recreational and educational opportunities. In addition, the system should provide information about recreational opportunities, accommodations, and services outside park boundaries, thus promoting nearby private businesses, as well as other less well-known federal, state, and local recreation sites. While a number of parks have reservation systems for various services, a comprehensive systemwide approach is lacking. Such a system would enhance the experience of visitors by giving them more information about what to expect when they arrive and allowing them to plan accordingly.

FUNDING RECOMMENDATIONS

To address the pressing resource needs of the National Parks, funds must be raised

CRITERIA FOR DETERMINING SPENDING PRIORITIES

1. Prevent Ongoing Harm
2. Rehabilitate Resource Damage Already Done
3. Address Sources of Harm to Park Resources

from a variety of sources, including new and untapped sources. Given that all needs cannot be met at once, both Congress and the president must ensure that the funding goes first to protect park resources for the future. The first priority must be to prevent ongoing harm to park resources and to rehabilitate damage already done. Monitoring and other research in the park, as well as interpretative programs, are critical tools to the resource protection mission.

Enlist the Public's Help

Recommendation: *The Park Service should enhance public involvement in setting funding priorities.*

Americans love their parks. In addition to wanting them to be better funded, Americans want to play a meaningful role in decisions about how any additional funds that the Park Service receives are spent. To provide this role and to help ensure that added funds are spent in accordance with the "protection first" mandate, the Park Service should consider the following approach to public involvement.

Prior to spending added funds, the Park Service should develop for each park an updated priority list of projects and activities eligible for funding from the capital improvement fund or municipal bonds proposed in subsequent sections of this chapter. To compile this list, the Park Service should identify park needs, using existing general management plans, resource management plans, and other agency documents. The Park Service should then combine the lists from individual parks together into one Park systemwide prioritized list and make this list available for public comment, including regional public hearings, around the country. The systemwide list should provide basic information about the projects and activities, including what resources each would protect and how, and what each would cost. Following public review, the Park Service should finalize and publish its plans.

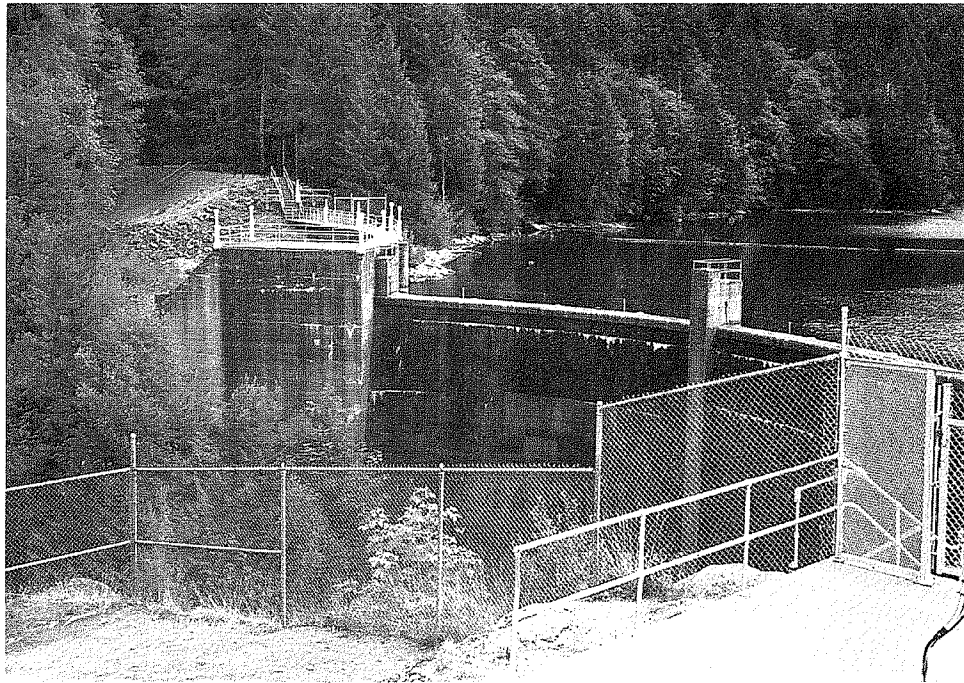
The purpose of this public involvement would be: (1) to give people a meaningful role in decisionmaking relating to parks in general and the spending of the added money in particular; (2) to provide a mechanism that will help ensure that the added money is in fact spent to protect park resources; and (3) to generate public support for making the additional financial resources available for the park system. In addition, adoption of this recommendation would eliminate the need for a new and lengthy assessment of needs. It would provide a means by which Congress and the American people could hold the agency accountable for protecting the resources of the people's parks.

Increase Park Appropriations

Recommendation: *The operational needs of the National Park Service should be provided through increased appropriations.*

Ongoing staffing, maintenance, visitor services, interpretation, and park protection are examples of items that should be provided for through appropriated funds. President Clinton's request for an increase of \$218 million in the overall Park Service budget in fiscal year 1998 is a step in the right direction, although it still falls well short of the needs.

Congress should support the President's proposals to address restoration needs in two critical areas—the Everglades in south Florida and the Elwha River in Washington's Olympic National Park. The President has requested \$331 million for the South Florida Ecosystem Restoration Initiative, which includes \$100 million for the Park Service. These funds would be directed toward restoring the water quality of the greater Everglades. Six federal departments and the Environmental Protection Agency are collaborating with the state of Florida in an comprehensive



President Clinton has requested \$25 million for the Elwha River Ecosystem Restoration project to purchase two privately-owned dams within Olympic National Park and begin plans for their removal, helping revive native fisheries and restore the watershed.

multiyear program that will cost approximately \$3 billion in all. The state is contributing approximately \$250 million a year. The money will be used to purchase important wetlands and lands for water storage and pollution abatement as well as to fund the restoration of the Kissimmee River and Lake Okeechobee watersheds.

The President has also requested almost \$25 million for the Elwha River Ecosystem Restoration project. These

funds will be used to purchase two privately-owned dams on the Elwha River within Olympic National Park in Washington and initiate planning for their removal to facilitate the full restoration of native fisheries and the surrounding watershed.

Of course, to increase appropriations while trying to eliminate the federal budget deficit will be difficult. Yet it can and must be done. The budget outline that congressional leaders and President Clinton agreed to in May includes some important commitments to America's public lands over the next five years. First, the budget agreement sets aside \$700 million for priority land acquisition needs, including the purchase of the New World Mine site outside Yellowstone as well as other threatened areas over the next five years. While still far short of the \$900 million annually authorized for the Land and Water Conservation Fund, the budget agreement provides for significantly more funds than Congress has been providing in recent years.

Second, the budget agreement provides for the full increase to the National Park Service budget requested by President Clinton. None of these dollars, however, are yet in the hands of the parks. The budget agreement will only become a reality once the funds are actually provided through the appropriation bills Congress must enact before the end of the fiscal year on September 30.

Intermodal Surface Transportation Efficiency Act (ISTEA)

Recommendation: *Congress should make ISTEA funds available for all park transportation systems—not just roads—when ISTEA is reauthorized this year.*

In many parks, including Yosemite and Grand Canyon, providing visitor access through public transportation—such as shuttle buses or light rail—will greatly help protect the park by keeping automobiles and facilities outside park borders or away from sensitive park resources. Public transit can provide clean, efficient, reliable service at an affordable cost to visitors while enabling them to experience parks in

an environmentally sound, flexible, and independent manner. As the number of visitors continues to climb, park managers cannot ignore this important tool for allowing Americans to enjoy their parks without loving them to death. Public transportation systems are an answer for many parks—large and small, “crown jewel” and urban parks alike. Transit systems, depending on their type, could be operated by the Park Service, by a local government, or by a private entity under the supervision of the Park Service. Unfortunately, the Park Service cannot now use federal transportation funds for these systems.

The National Parks currently receive ISTEA dollars only for building and reconstructing park roads. Their need for various forms of public mass transportation is similar to that of states and local governments around the country. Given that ISTEA provides public transportation funds to the states, Congress should do the same for the National Parks. Given the park needs, Congress should adopt President Clinton's request that the National Park Service annual share be increased to \$161 million, almost double the current amount of \$84 million. This expanded authorization could do a great deal to provide needed public transportation and road repairs within the parks. Yet, it alone cannot satisfy all the transportation needs of the park system. While ISTEA can provide critically important core funding for transportation, the Park Service will need to obtain funds from other sources to make the ambitious proposals like those for the Yosemite and Grand Canyon transportation systems a reality.

National Park Capital Improvement Fund

Recommendation: *A new National Park capital improvement fund should be created and financed through the sale of National Park federal agency bonds insured by the federal government.*

A targeted capital improvement fund could provide for many of the critical needs of the National Parks, including investments in resource stewardship. This fund would be similar to capital improvement funds created by state and local governments and some private organizations. It could underwrite a wide variety of one-time or periodic projects such as resource inventories, monitoring systems, educational and interpretative programs, and transportation systems to provide inner-city residents the opportunity to experience urban parks such as Los Angeles's Santa Monica Mountains National Recreation Area and the Indiana Dunes National Lakeshore outside Chicago.

The development of educational and interpretive programs to provide the visitor with a meaningful experience related to park resources is fundamental to the mission of the Park Service. Similarly, the protection of natural and historic park resources often requires action that does not involve physical construction, such as wildlife habitat protection and weed control. While not the kind of construction projects that have traditionally been funded by public bonds, these projects are critical investments to the natural, if not the physical, infrastructure of the parks. Just like rebuilding a road or re-roofing a building, many resource protection projects need to be done periodically but not often. Bonds are an appropriate way to fund them.

The parks' resources are their capital, and the actions necessary to protect them are appropriately funded through a capital account.

By selling bonds, the park system would be able to leverage future revenues to take care of pressing needs today.

Furthermore, the data collection and planning necessary to design resource protection projects are also appropriately funded through a capital account. These types of activities are no different from the planning and engineering that are considered justifiable costs of construction projects and fundable by bonds. The parks' resources—both natural and historic—are their capital, and the steps necessary to protect them are appropriately funded through a capital account.

Federal Government Bonds

Recommendation: *Congress should establish a new National Park Authority as a fully guaranteed federal agency to issue National Park bonds.*

This agency would be comparable to the Federal Housing Administration, the Tennessee Valley Authority, and the Government National Mortgage Association. Bonds issued by these agencies have high purchase appeal for investors because of their history of never defaulting. They are considered nearly as safe as Treasury bonds, which carry the full faith and credit of the United States. Through the purchase of National Park bonds, the public could provide a ready source of capital that will go directly to the parks, and they could receive a meaningful return on their investment.

Having bought National Park bonds, investors must receive principal and interest payments. All revenues generated by the park system should be dedicated to making these payments, rather than diverted to the general treasury as is now done. Currently, the U.S. Treasury receives a significant portion of the entrance fees and all the concession fees collected at America's parks. An estimated \$160 million will be collected in fiscal year 1997, of which \$110 million will go to the Treasury—\$80 million in entrance fees and \$30 million in concession fees. To provide funds for servicing the National Park bond debt, the Treasury should forgo these revenues. Assuming a 7 percent interest rate with a fifteen- to twenty-year term, park bonds could raise between \$1.2 and \$1.4 billion for the capital fund to be used for priority park projects and activities. By selling such bonds, the park system would be able to leverage future revenues to take care of pressing needs today, thereby increasing the present and future value of park assets.

Although Congress has not yet actively considered systemwide park bonds, some have proposed bonds to solve the problems at specific parks. For example, Senator John McCain (R-Arizona) has introduced legislation, S. 301, to use bonds to finance a new public transportation system at Grand Canyon National Park. His bill would levy a special surcharge of \$2 on each visitor to Grand Canyon National Park to service specific bonds for the building of a public transit system on the south rim of the canyon. Under Senator McCain's proposal, the National Park Foundation (a nonprofit organization chartered by Congress to educate the public about the parks and to raise private funds for them) would issue the bonds. While focused on the problems at the Grand Canyon, the McCain bill would authorize a similar approach at any other National Park with an approved general management plan and capital needs in excess of \$5 million.

Using Tax-Sheltered Municipal Bonds

Recommendation: *Congress should provide the Park Service the authority to join with local governments in issuing bonds.*

Using the authority of local governments to issue bonds has the additional benefit of allowing investors to earn interest that is not taxed by the federal government. This idea has been proposed for Yosemite for the purpose of building a public transportation system to take visitors into and out of the park from gateway communities. The Park Service would be given the authority to charge a transportation fee to service the bonds in addition to the normal entrance fee.

Because the interest earned on municipal bonds is exempt from federal, and in some cases state, income tax, such bonds permit lower interest rates and could generate greater revenue for park purposes than bonds with higher interest. Issuers of municipal bonds pay between 5½ and 6½ percent interest today, instead of the 7 percent paid to federal government bondholders. Since the cost of issuing municipal bonds is so much lower, that much more money would go to solving park needs than could be raised through the National Park Authority bonds proposed above.

This option would work best for infrastructure projects in a particular park where a local government in the area or the state in which the park is located is willing to issue municipal bonds in a contractual relationship with the National Park Service. The local or state government would establish an entity that would issue the municipal bonds, contract with the National Park Service to build the project, and receive from the Park Service the transportation or surcharge fees collected at the gate for debt service and amortization of the bond principal. Congress should authorize the National Park Service to collect such fees and to enter into such joint powers agreements. Congress should delegate this authority to the proposed National Park Authority so that new legislation need not be passed for every case.

Although this approach has great promise, it will not work in all cases. Indeed, it will only work at parks that have the capacity to charge an extra fee and collect a significant sum of money. Many parks may have too few visitors or could not charge a surcharge without reducing visitors and thus would be unable to generate enough revenue to support the sale of bonds. In some places the local and state governments may not be interested in or capable of issuing bonds for park projects. In other cases an increase of fees may be inappropriate for social justice and equity reasons. Because this approach will have limited applicability, a significant systemwide capital improvement fund will still be necessary to pay for the many projects and activities that are needed for parks where the municipal bond approach will not work. The failure to create a systemwide capital improvement fund while pursuing municipal bonds will result in "rich parks" and "poor parks."

In order for bonds to contribute significantly to solving park needs, more revenue than the parks now collect is needed to support them. As described above, dedicating the approximately \$160 million in total revenue that the National Parks generate each year to paying off park bonds would support approximately \$1.2 to 1.4 billion worth of bonds at 7 percent interest over about twenty years. Since park needs are much greater, new revenue must be generated. If park revenue could be increased by half,

Increasing park revenue to \$250 million annually could support \$2 billion worth of bonds.

Before entrance fees are raised, all the dollars that are now collected in the parks should stay in the parks to address park needs.

to \$250 million, by raising concession and entrance fees, a great many more critical park projects and activities could be capitalized—perhaps \$2 billion worth over a fifteen-to twenty-year period.

To support the issuance of even more bonds, Congress should commit \$250 million in offshore oil and gas receipts annually for twenty years to finance capital improvements. With this sum, approximately \$4 billion for the capital improvement fund could be raised under the assumptions set out above, allowing many critical park needs to be met. Why not use revenue from exploiting some public resources to protect others? Federal revenue from oil and gas drilling is expected to increase as deep-water leases in the Gulf of Mexico begin producing. Even at current levels—about \$3 billion a year—this revenue provides plenty of funds for an additional capital account for the parks on top of the annual \$900 million that Congress has authorized for land acquisition needs.

Entrance Fees

Recommendation: *Congress should ensure that all revenue collected in the parks stays in the National Park system. Since new revenue is needed to meet the numerous park needs, Congress should consider raising entrance fees.*

Even under the new pilot program put in place last year, more than half the revenue paid by park visitors goes to the general treasury rather than to the parks. In 1996, Congress included language in the Department of the Interior's appropriation bill (Pub. Law No. 104-134) to authorize the Park Service to raise entrance as well as other user fees at 100 of the most popular National Parks on a three-year experimental basis. While 100 percent of the increase will stay in the park system, the Treasury will continue to collect all of the original fees. This legislation is clearly a step in the right direction, but further reform is needed. Before entrance fees are raised, all the dollars that are now collected in the parks should stay in the parks to address park needs.

Those who visit the parks are probably willing to pay more than they now do in entrance fees. There is no better recreation deal in America than touring the National Parks. Even with the recent increase of fees at Yellowstone and Grand Teton National Parks to \$20 a week, enjoyment of these unique areas is a bargain compared to a visit to an amusement park for a day, a professional sporting event, or a professional performing arts production. The entrance fee system should be studied comprehensively, park by park, to see where fees could justifiably and fairly be increased. The question of equity and park accessibility by the poor must be a critical part of this study. Fees should not be increased at parks used heavily by those with limited means.

Added funds might also be obtained by expanding the Park Service's Passport Program to offer a variety of passports with varying levels of premiums, benefits, and services. For example, a "deluxe" Golden Eagle Passport might include reductions applicable to other federal recreation fees or a vanity park stamp for display on a windshield or bumper. Like duck stamps, park stamps could be changed annually, creating a popular collector's series over time.

Concession Reform

Recommendation: *Congress should take the necessary steps to ensure that those that profit from park resources do more to protect them.*

As many others have previously noted, those making a profit from park resources by operating lodging, tours, and other commercial operations within the parks should be contributing more to ensuring that park resources are protected. If we are to ask visitors to pay more, it is only fair to ask those profiting from monopoly franchises in the parks to pay more. These added revenues should be used to help service the debt on the National Park Authority bonds.

Existing concession law gives concessionaires thirty-year contracts, a "preference right" at the time of contract renewal, and a property interest in some facilities. These provisions have made it very difficult for the Park Service to press concessionaires to make needed changes in their operations. In addition, they have made it nearly impossible for other companies to compete successfully against an existing concession operator when a contract expires, because they would have to buy out the property interest while providing better service to the public and paying higher fees to the government. In contrast, under the preference right provision the present concessionaire needs only to match a competing bid to retain the contract. For years existing law has encouraged some concessionaires to operate with disregard for the public interest: concession fees have been held down, the public has been given inferior services at high cost, and park resources have been treated cavalierly.

The Clinton administration has implemented some important administrative reforms, including eliminating preference rights for new services. Nonetheless, comprehensive reform legislation such as the bill introduced by Senator Dale Bumpers (D-Arkansas), S. 624, is still essential to provide higher fees for the government, improved services at lower cost to park visitors, and greater control over the impacts of concessionaire operations on park resources. In addition to raising fees, Congress must mandate park resource "protection first" for concessionaires and give the Park Service the tools necessary to prevent concession operations and facilities from degrading park resources. Pending passage of reform legislation, the Department of the Interior should review park concession fees across the National Park system to identify where more revenues from concession operations can be generated without degrading park resources or visitor services.

Land and Water Conservation Fund

Recommendation: *Congress should take the Land and Water Conservation Fund offbudget, thus ensuring that its funds will be spent for the purpose of land acquisition and state assistance for which it was created.*

As documented in this report, there are many inholdings and other private parcels within the authorized boundaries of National Parks that if not acquired will threaten the resources of many parks. In many cases, private landowners want to sell their land to the Park Service, but the government just does not have the money to buy it. Acquisition funds are also critical to acquiring land outside park boundaries where mining or other proposed development threatens park resources.

In many cases, private landowners want to sell their land to the Park Service, but the government does not have the money to buy it.

While up to \$900 million is collected each year in the Land and Water Conservation Fund (LWCF), only a small fraction actually gets spent on land acquisition. Revenue from oil and gas leasing on the outer continental shelf has poured into the LWCF, but Congress has actually appropriated very little for land acquisitions. Representative Dale Kildee (D-Michigan) has introduced a bill, H.R. 1732, to change this. The legislation would take the LWCF offbudget, guaranteeing that the revenue that came into the fund would get spent on land acquisition. The money would not be available for other purposes.

CASE STUDIES: WHAT AMERICA STANDS TO LOSE

ACADIA NATIONAL PARK

In 1916 Acadia became the first National Park east of the Mississippi River. Shaped by glaciers over 10,000 years ago, the park encompasses over 40,000 acres of dramatic Maine coastline, lush forests, crystal-clear lakes, and majestic mountains. Northern and temperate climate zones meet and overlap at Acadia, resulting in an abundance of life. The park is home to over 300 species of birds, forty-two species of mammals, and 1100 species of plants. Tidepools along the coast are awash with numerous shapes and colors of shells, sea urchins, starfish, seaweed, and other marine life.

Acadia preserves a varied slice of history as well. The French explorer Samuel Champlain arrived in the area in 1604 to find Abnaki Indians occupying the Maine coast. He gave Mount Desert Island its name from its landmark bare top. Only after almost 150 years of warfare between France and England did English colonists settle in the area. Acadia still retains a glimpse of the seafaring ways that have characterized life in the area since colonial times. But probably the most distinctive flavor of the area comes from its use as a natural escape from urban life for the affluent at the turn of the century. Between 1913 and 1940, John D. Rockefeller Jr. financed and directed the construction of fifty-seven miles of carriage roads. This network of woodland roads free of motor vehicles is still used today by hikers, bicyclists, and horseback riders.

It was public-spirited landowners such as Rockefeller who created Acadia National Park by donating their land for all to enjoy today. Acadia is unusual in that it was first established with land donated by private landowners. The park's neighbors remain actively involved in its preservation. An active Friends of Acadia group of private citizens volunteer in the park and raise money for it. The park has also developed an innovative program called Resource Acadia designed to educate park neighbors about resource protection needs and to enlist their help in addressing them. Some of the challenges they face are discussed below.

Because of air pollution, park visitors must be advised to avoid strenuous exercise such as biking, hiking, and jogging—the reasons many come to Acadia to begin with.

Air Pollution

Urban Smog. During the 1980s, concentrations of ground-level ozone (experienced as smog) within park boundaries frequently exceeded both federal and stricter state health standards. As a result of steps taken pursuant to the 1990 Clean Air Act amendments, ozone concentrations in the park have been reduced. Nevertheless,



Offering an escape from the urban congestion of the Northeast, Acadia is not immune to the pollution generated by the region's urban centers.

exceedances of the health standards still occur, and each summer park visitors must be advised on occasion to avoid strenuous exercises such as bicycling, hiking, and jogging—the reasons many come to the park to begin with.

High levels of ozone in the air threaten not only human health but vegetation as well. Research has shown several plant species to be sensitive to ambient levels of ozone, and injury has been documented to native

vegetation within the park. Additional monitoring is needed to determine long-term trends.

Acid Rain. Nitrogen and sulfur oxides emitted primarily from power plants have resulted in the acidification of numerous lakes and streams as well as soils throughout the Northeast. Since the early 1980s, acidic precipitation at Acadia has held relatively constant, with an annual mean pH of approximately 4.6. While the lakes of Acadia have not yet become acidic, alkalinites (which “buffer” acidic inputs) in most of the park’s lakes and streams are among the lowest in the region. The potential for loss of fish, defoliation, and ecosystem balance that has occurred elsewhere as a result of acidification is high. Additional research and monitoring are needed to determine the long-term implications of acidic deposition at Acadia.

Mercury Contamination of Fish. Power plants, hazardous waste, and medical incinerators contribute to harmful levels of mercury in the fish in Acadia’s lakes and ponds. Public advisories warn children and women of childbearing age not to eat freshwater fish throughout the state of Maine, including Acadia. When eaten in significant quantities, fish contaminated with mercury can cause birth defects and other developmental problems in humans.

Adjacent Land Uses

Acadia’s boundary has approximately 700 contiguous privately owned tracts of property, of which over half are developed. Encroachment on park lands and

resources has been occurring for years, but has increased over the last two decades as large tracts of land have been developed for urban and commercial uses. Increased development has resulted in the fragmentation of habitat, stream sedimentation, and significant water pollution. Leaking septic systems from nearby housing developments have increased nutrient levels in two important estuaries, Fresh Meadow Marsh and Bass Harbor Marsh. As a result, these fragile ecosystems are being dramatically altered by increased algal growth that eventually decay and decrease oxygen levels.

Visitor Impacts

Overuse. Traffic and lack of parking are becoming significant problems at Acadia. The park is working with local governments in the area to develop a public transportation system, but more funding is necessary to make it a reality. In addition, social science research is needed to better understand visitor needs and desires. Such research has been successful in resolving past conflicts among hikers, bikers, skiers, and snowmobilers on Acadia’s unique carriage roads and offers a critical tool for addressing some of the negative visitor impacts that result from the park’s popularity.

Erosion/Fire/Waste. Extensive visitor use has damaged park resources, especially near trailheads and heavily used trails. Extensive vegetation and soil loss has occurred, non-native weeds have been introduced, and trash and human waste have been left behind.

The park’s most sensitive areas, including its mountain summits and offshore islands, have been hardest hit. Given the almost 3 million people now visiting the park each year, more and more visitors are venturing away from the park’s developed areas into more remote areas. While use of the park’s offshore islands and other remote areas has increased, there has been no corresponding increase in ranger staff to monitor and regulate this shift in public off-road use. Fire has been a serious problem. Nearly all fires on Mount Desert Island are caused by people. Poaching and the illegal trapping of fur-bearing animals are chronic problems and a continuing threat to park resources. Sea kayakers are camping illegally on the park’s fragile offshore islands, leaving fire scars, litter, and human waste.

Educational material can go a long way toward reducing the human impacts on the park’s resources. Corporate funds supported a recent effort to put up some signs at trailheads educating visitors about how to tread lightly on park resources. Funding is also needed to increase patrols and mitigate the damage that does occur.

Critical Information Needs

Information about the condition of the park’s resources is critically needed. For example, no inventory has been completed of the native and non-native fish in the park’s streams, lakes, ponds, and bogs. There has been no comprehensive effort to identify invertebrate species at risk. Changes resulting from air pollution as well as sedimentation and nutrient buildup in park waters must be regularly monitored in

order that these threats can be documented and mitigated. In many cases, initial studies have been completed but funding is unavailable to continue monitoring or to implement the suggested recommendations.

More information is needed about the park's vegetation. Native species are significantly threatened by the invasion of non-native weeds. One-third of the park's flora is now non-native. Information is needed about the distribution of these exotic species and the effect they are having on park resources. Park visitors risk losing the chance to experience the area as it once was.

SHENANDOAH NATIONAL PARK

Straddling a section of the Blue Ridge Mountains in Virginia, Shenandoah National Park encompasses 197,389 acres of majestic mountains, lush forests, and resplendent waterfalls. Ranging from one to thirteen miles wide, the park climbs in elevation from the Shenandoah River Valley floor to more than 4,000 feet. Shenandoah is a sanctuary for more than 100 varieties of trees, 200 species of birds, and 1,100 flowering plants.

Much of the park was intensively used for almost 200 years after Europeans began settling in the area in the early eighteenth century. By 1790 there were 67,000 people living in the Shenandoah region operating farms, mines, mills, tanneries, and other small industries. As the economy changed and timber and other natural resources were depleted, however, the fortunes of many of the people of the Blue Ridge declined. The population had significantly declined by the time the National Park was authorized in 1926.

Since the park's establishment, native and, unfortunately, exotic trees have grown back and now cover vast areas that were previously pastures, croplands, home sites, and logging slashes. However, the modern era brings its own serious threats to the Shenandoah's resources. Located within a day's drive of nearly two-thirds of the population of the United States, Shenandoah is one of the country's most accessible parks and, as a result, gets heavy use, especially along the Skyline Drive corridor running down the middle of the park. But more damaging than visitor use, encroaching development and industry are degrading park resources. Some of the specific challenges facing park managers as they strive to preserve the park's beauty and biodiversity in the context of a rich cultural landscape are discussed below.

External Threats

Impact of Adjacent Development. The northern part of Virginia is one of the fastest growing regions of the country. The rural countryside surrounding the park is being transformed by housing subdivisions, vacation homes, conversion of farms to industrial poultry operations, and other commercial enterprises. Longstanding public access to trails along the boundary is being lost. The scenic views from the park's peaks and overlooks along Skyline Drive are becoming tarnished by the loss of the pastoral landscape. Increasing urbanization seriously threatens the integrity of the park's ecosystems. Funds are needed to monitor the impacts of such development on the park's resources and to develop strategies to mitigate them.

Air Pollution. Because of its proximity to the nation's urban centers, as well as the increased growth along its borders, Shenandoah National Park experiences significant air pollution. Acid rain, ozone smog, and particulates threaten the stability of ecosystems and visitor enjoyment of the park. Such pollution impairs visibility, damages vegetation, and destroys water quality. For example, nitrogen and sulfur oxides emitted primarily from power plants have resulted in the acidification of the park's streams and lakes. Park officials estimate that Shenandoah receives an acidic deposition load ten times that of pre-industrial levels. This has immediate and significant adverse effects on aquatic organisms.

Under the Clean Air Act, federal land managers have an obligation to protect the

The rural countryside surrounding Shenandoah Park is being transformed by housing subdivisions and shopping strips.

air quality and related values at Shenandoah National Park. As a result, park staff review and comment on permits being considered for new sources of air pollution in Virginia, Maryland, West Virginia, and Pennsylvania. They need the financial resources to enable them to play an active role in this process. The monitoring data and additional research to support their case are also critical.

Poaching. Significant unlawful killing of the park's animal and fish populations is occurring. Especially hard hit are deer, bears, and native brook trout. The park lacks the staff and resources to adequately patrol and investigate and thus deter such poaching.

Visitor Impacts

Intensive human use is seriously degrading backcountry and wilderness resources in the park. Extensive day use and camping have resulted in deteriorating trail conditions, erosion, deteriorating water quality, and harm to vegetation and wildlife in sensitive habitats. No scientifically based systems are in place to monitor the change to backcountry conditions resulting from visitation. As a result, management actions have been reactive and only partially effective. Funds are needed to implement the park's innovative backcountry and wilderness management plan and to maintain trails and campsites in the face of high use.

Severe recent storms have significantly added to trail damage caused by visitors. Limited funds have prevented park rangers from keeping up with new trail restoration and maintenance.

Pest Invasion

Gypsy Moths. Since their appearance in the park in 1982, non-native gypsy moth caterpillars have defoliated many of the park's hardwood trees. Thousands of trees have been lost, harming the overall forest and species diversity. Park managers, in concert with viruses and fungi, have been fairly successful in controlling the moths in recent years, but monitoring must continue because infestation could increase again. Such monitoring allows park rangers to identify spot-infestations quickly and apply appropriate controls if they occur in high visitor-use or sensitive-resource areas.

The countryside surrounding Shenandoah National Park is being transformed by housing subdivisions and other development. The park's scenic vistas are being permanently altered.



Charles Clusen

Hemlock Woolly Adelgid. Epidemic populations of another imported insect, the hemlock woolly adelgid, are causing rapid decline of the eastern hemlock stands in Shenandoah National Park. Significant numbers of trees in the park's most accessible areas, such as Camp Hoover, as well as the park's developed areas where visitors concentrate, are infested and will eventually die. As a result, visitor enjoyment and safety are being compromised and critical habitat for a wide variety of unique plant and animal life is being lost.

Unfortunately, there is no known environmentally sensitive control yet for the adelgid. Cooperative research is needed on safe methods of controlling this harmful exotic species. In order to restore the ecosystem if and when the pests are controlled, inventories of the plants, animals, fish, and other organisms that inhabit eastern hemlock stands and waters are needed. The park currently lacks such information. Greater understanding of human-induced and climatic forces on the eastern hemlock ecosystem is also needed.

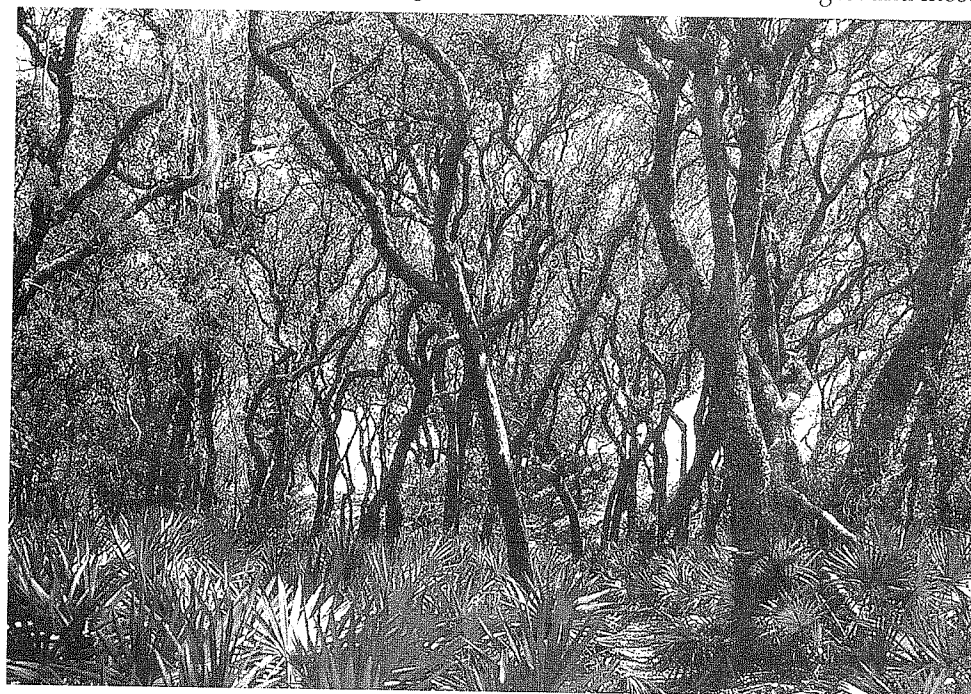
Critical Information Needs

Shenandoah's proximity to urban areas makes it one of the country's most accessible National Parks, but also one of the most threatened. Over the past three decades, air and water pollution have resulted in serious deterioration of the park's natural resources. Monitoring the exact nature and rate of these changes is critical to doing something about them.

In 1991 Shenandoah National Park was selected as one of four initial prototype monitoring programs as part of an effort to expand the extremely limited inventory and monitoring that now exist in the parks. This program has produced some good results, but much more needs to be done. More data are needed, for example, regarding water quality (surface and groundwater), soil development and chemistry, rare plants and their habitats, and many of the less-glamorous but potentially critical plant and animal species. The future of this program is threatened by erosion of park budgets and other pressing short-term needs.

CUMBERLAND ISLAND NATIONAL SEASHORE

Established in 1972, Cumberland Island National Seashore preserves the scenic, ecological, and historical values of the largest and most southerly island off the coast



Cumberland Island is a complex ecological system, with salt-water marshes, oak and pine forests, as well as pristine dunes and beaches. To protect these diverse resources, basic data are needed to document current conditions and identify changes.

of Georgia. The island is 17.5 miles long and totals more than 35,000 acres, of which almost half are marsh, mud flats, and tidal creeks. The label "seashore" is misleading for Cumberland Island, as it is a complex ecological system incorporating saltwater marshes, and oak and pine forests as well as pristine dunes and beaches. An incredible array of plants and wildlife, including bobcats, alligators, and sea turtles, occupies the island. Over

300 species of birds are seen on the island at different times of the year.

Humans first came to Cumberland Island as early as 4,000 years ago. Piles of shells, called middens, provide clues about the lives of the Timucuan Indians who left them. The Spanish came to the island in the mid-1500s, followed in 1736 by the British general James E. Oglethorpe, who named the island after the duke of Cumberland. It was the Carnegie family that shaped the destiny of the island in the late nineteenth and early twentieth centuries. Thomas Carnegie, brother and business partner of steel magnate Andrew Carnegie, acquired 4,000 acres of Cumberland Island in 1881. The family built several mansions on the island—Greyfield, Stafford, and Plum Orchard—which remain today.

While the Carnegies donated much of their land for incorporation into the park, isolated parcels on the island remain in private hands. Today, park managers face many challenges as they try to accommodate private landowners, a wilderness area, and the vast diversity of natural and cultural resources within park boundaries. Some of these challenges are discussed below.

External Threats

Nearby Channel Dredging. St. Mary's Inlet borders Cumberland Island on the south, separating it from the state of Florida. This inlet is a major shipping channel. As a result, extensive dredging and the construction of coastal engineering works have occurred to maintain the channel as well as the Intracoastal Waterway along Cumberland Island's western shore. The U.S. Navy's new Trident submarines are now based out of the nearby Kings Bay Submarine Base. To accommodate these

larger submarines, the entrance channel to Kings Bay has been deepened, widened, and lengthened. Such alteration of natural water flow patterns can dramatically affect the shoreline, estuaries, and plant life of Cumberland Island. Unfortunately, funds are unavailable to maintain systematic monitoring of the effects of channel dredging and boat traffic on park resources.

Boats. The heavy boat traffic in close proximity to the southwest border of Cumberland Island poses several threats to the park's resources. Boat wakes produced by private, public, and commercial boats can increase shoreline erosion. Shoreline recession in several areas threatens archeological sites and nature trails within the park. In addition, noise generated by boat operations can also be disruptive to the feeding, resting, and nesting activities of shorebirds and other waterfowl. Also damaging is the debris that washes up on Cumberland's shores, which is hazardous to wildlife as well as being unsightly.

Poaching. Wildlife poaching is a persistent problem at Cumberland Island. Current staffing levels are not sufficient to conduct effective poaching patrols on the uplands, in the marshes, and in the numerous tidal creeks that provide access to the west side of the island.

Development. While the legislation establishing the national seashore provided for acquisition of the entire island, approximately 2,000 acres of private inholdings remain. Until these parcels are acquired, private development of a type and scope that would be extremely detrimental to the purposes of the park could occur. In addition, industrial development (primarily pulp mills) and the military base near the park pose potential threats to the island's air and water quality and to the plants and animals that depend on these resources.

Internal Threats

Exotic Species. There are several species of non-native plants and animals at Cumberland Island that threaten its indigenous species. One of the most widespread exotics is feral hogs. The hogs eat eggs of species that the park seeks to protect, such as sea turtles, least terns, and other ground-nesting birds and small mammals. They also eat seeds of pine and oak trees, inhibiting forest regeneration. Since hogs were introduced on the island by humans and have no natural predators, their numbers have risen rapidly. Although park managers have tried to limit the number of feral hogs through managed hunting, they remain a problem. Feral horses, while one of the island's visitor attractions, also damage native vegetation by grazing and trampling it. Non-native plants also threaten the park's natural habitat. Introduced species such as acacia trees, tamarisk, and tung trees are crowding out native plants in many areas of the park.

Visitor Impacts

Conflicting Uses. With several private inholdings, a wilderness area, numerous historic sites, and diverse natural resources, Cumberland Island is many different things to different people. Unfortunately, some uses compromise the experience of others. For example, hikers traveling the main road through the park often come into

The park has little information on the population and distribution of plants and animals found on Cumberland Island.

conflict with vehicle drivers. Hikers complain of the dust and threats to their safety, while drivers complain that pedestrians inhibit their ability to pass. Private land-owners on the island have legal rights of access to their property that in some cases call for driving through the park's wilderness areas. A wilderness management plan emphasizing the preservation of the natural processes of a coastal barrier island needs to be developed.

Trash. The park has a management plan for disposing of waste generated by the park and by visitors. However, a plan needs to be developed for dealing with waste generated by island residents. Solid waste disposal is a serious problem because of the difficulty of transporting the waste to the mainland. Such difficulty in disposing of trash, old vehicles, old appliances, and the like has resulted in cases of phantom dumpers leaving items on park land for disposal. Open pit dumps were used in the past, and some of these remain uncovered.

Critical Information Needs

No systematic collection of research regarding park resources has occurred on Cumberland Island since 1987. According to the Resource Management Plan, "the research program has stalled out. No new information is being generated to assist park managers in making decisions on protection of park resources." Park managers are attempting to meet some of these needs through partnerships with nonprofit organizations and universities, but lack the funds to ensure that these cooperative programs will be continued in the future.

Baseline Data to Establish Current Conditions. The park has little information on the population and distribution of the plants and animals found on Cumberland Island. Such baseline data documenting the current condition of birds, insects, plants, reptiles, and mammals in the park are needed to provide a benchmark against which change can be evaluated. Recently the park has been working with universities to develop a cooperative monitoring program, scheduled to begin in the fall of 1997, to help acquire this kind of information.

Monitoring. Funding has been unavailable to perform the necessary follow-up monitoring to assess the success of certain wildlife management decisions as well as the effects of a variety of influences from within and outside the park. Although there is some monitoring for threatened and endangered species, there is almost none for other native plants and animals. For example, increased water use due to industrial activity in the area outside of the seashore has caused the freshwater aquifer within the park to decline. Although park managers are aware that the aquifer draw-down is probably adversely influencing native plants on the island that depend on the aquifer for water, there is no monitoring program currently in place to track exactly how the reduction of freshwater is affecting them. Without this critical information, park managers have no way of planning to effectively protect these plants.

Tools to Manage Data. The park lacks a complete geographic information system (GIS), a computerized mapping tool to assess and manage park resources used by numerous universities and state resource managers. Although the park does

currently own GIS hardware and software, it does not have the staff or funds to make the system complete. Lacking a complete GIS, park managers now depend on pulling out maps, file folders, research data, and reports to attempt to collate information for compliance, planning, and management decisions. They cannot systematically utilize new data that are being collected, as well as those that have been collected in the past.

Knowledge and Facilities to Preserve Cultural Resources. The most recent information about the park's archeological sites dates from 1976. The park lacks the resources to monitor systematically its numerous prehistoric and historic structures and sites. The park's museum, which has well over 12,000 objects in its collection, has been without a curator for over four years, although one may be hired this year. In addition, the museum lacks adequate security and fire systems, as well as environmental controls. Fortunately, the park has obtained funds to modify a mainland storage facility into a new museum. Park staff hope to move the collection into the facility within the next couple of years. However, there are currently no funds available to develop the exhibit area.

EVERGLADES NATIONAL PARK

Located in southern Florida, Everglades National Park is the largest remaining subtropical wilderness in the lower forty-eight states. Established in 1947, it now covers 1.5 million acres and is the core of a complex of protected federal lands consisting also of Big Cypress National Preserve, Florida Keys National Marine Sanctuary, and Biscayne National Park. The best-known natural feature of Everglades National Park is the "River of Grass," so called because of the sawgrass that grows there in abundance, with its six-foot and longer leaves as sharp as saw blades. The park also contains both fresh and saltwater areas, open prairies, tropical hardwood forests, offshore coral reefs, sloughs and swamps, lakes and ponds, and mangrove forests. A wide variety of wildlife lives there, including: the endangered wood stork, egrets, spoonbills, and other aquatic birds; as well as mammals like the endangered Florida panther and the endangered American crocodile. The third largest park in the United States outside Alaska, the Everglades has been designated a World Heritage Site, a Biosphere Reserve, and a Wetland of International Significance.

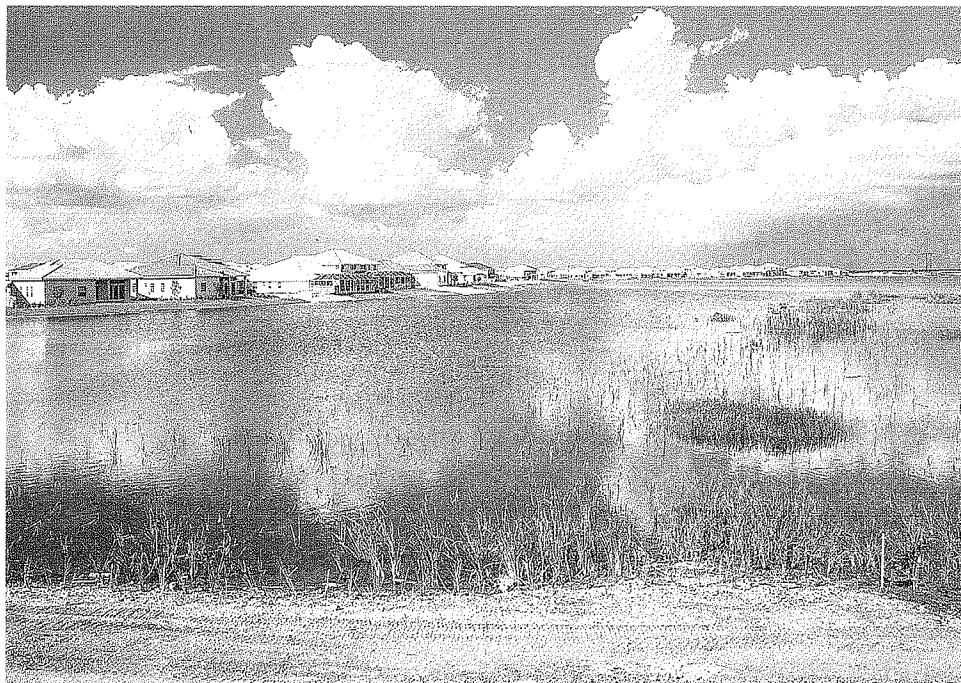
Over the past century the Everglades, which once covered a 50-mile-wide, 100-mile-long swath of southern Florida, has shrunk to less than half its original size, as agricultural and other development in the region has expanded. Today the grandeur and uniqueness of the Everglades are seriously jeopardized chiefly by external threats. Unless these threats, and threats within park boundaries are resolved, the death of the Everglades could occur.

External Threats

Water Diversion and Flood Control. The Everglades and its varied ecosystems depend for their survival in large part on the flow of freshwater from the central part of the state through the park and into the surrounding water bodies. For decades the

Everglades has had to compete for this life-giving water with increasing agricultural and residential development in south Florida. The park and its resources have been the losers. Wetlands have been destroyed, the ecological balance throughout the park has been severely impacted, and habitat and biodiversity have been lost. The number of wading birds nesting in colonies in south Florida has declined 93 percent since the 1930s, while wood stork numbers

Over the past century, the Everglades has shrunk to less than half its original size as agricultural and residential development in the region have expanded. Here, a new community has been built where the Everglades used to exist.



have gone from 6,000 nesting birds to just 500 since the 1960s.

The water management practices of the Army Corps of Engineers and the South Florida Water Management District also are seriously threatening Everglades National Park, including Florida Bay. Under current practices, western portions of the park experience harmful, prolonged periods of inundation, while eastern portions are too dry. In part because of a reduction in freshwater flows, Florida Bay, the nursing ground for a number of valuable commercial marine species, is experiencing massive algae blooms and a corresponding general decline in productivity.

A major federal-state program is currently underway to restore the damage done to the hydrologic system of the Everglades. Its components include purchasing land to preserve key wetlands, permitting reflooding of other areas for water storage, and undoing stream channelization projects undertaken in the 1950s. The Clinton administration has requested \$331 million for this initiative in fiscal year 1998; the total federal share will come to about \$1.5 billion.

Water Pollution. Polluted runoff from nearby sugarcane and other agricultural operations has significantly altered the Everglades' complex water chemistry and caused a major disruption of natural plant cover. High levels of mercury are found throughout the entire food chain, from fish to alligators to the endangered Florida panther.

Proposed Commercial Airport. In addition to the significant threats outlined above, a major commercial airport has been proposed to be built within ten miles of the park (and adjacent to Biscayne National Park), on the site of what once was Homestead Air Force Base. Overflights are already a problem in the park, degrading the natural quiet and the visitor experience. The construction of a major airport facility would have devastating impacts in terms of noise, air, and water pollution. In addition, it would undoubtedly lead to still more development, which in turn would have still more harmful impacts. To date, the Department of Defense, which currently has jurisdiction over the air base, has not prepared an environmental impact statement that fully analyzes the range of adverse effects that the proposed airport would have.

Internal Threats

Exotic Species. The principal internal threat to Everglades National Park is posed by non-native species, including plants such as Brazilian pepper and Australian



For decades, the Everglades has had to compete with corporate farms and urban areas for life-giving water; wetlands species, like this green heron, have been a major loser in this contest.

melaleuca. Brazilian pepper, the major existing exotic problem, is currently the focus of a \$20 million eradication/restoration program in the "Hole in the Donut" section of the park. Melaleuca is mainly found in the northeastern part of the park. Although it does not now cover an extensive area within the park, this plant chokes native plant species and disrupts the flow of the region's precious water resources. It is without question the greatest exotic species threat to the greater Everglades area. In addition, exotic animals, such as wild boars, are harming park resources.

Visitor Impacts. Despite its large size—1.5 million acres—the Everglades gets "only" 985,000 visitors annually, and they are far less of a problem than at many other parks. Because much of the park is largely inaccessible and inhospitable much of the year, people tend to remain in the park's developed areas for relatively short periods of time. Nonetheless, humans are adversely affecting the resources of the park. Recreational boating in Florida Bay is a serious internal problem. Groundings are numerous and destroy seagrass beds, vital to the Bay's productivity. In addition, poaching occurs, and in the northeastern expansion area, where ownership patterns are mixed, the dumping of toxic wastes and cars as well as other types of vandalism are apparent.

CUYAHOGA VALLEY NATIONAL RECREATION AREA

The Cuyahoga Valley National Recreation Area (CVNRA) encompasses 34,000 acres of pastoral valley in Ohio, along twenty-two miles of the Cuyahoga River between the cities of Cleveland and Akron. Sculpted by glaciers, streams, and weathering, the CVNRA landscape is enchantingly diverse and includes river floodplain, steep and gentle valley walls blanketed by deciduous and evergreen forests, tributaries and their ravines, and upland plateaus. Home to an amazingly wide variety of plants and wildlife, it is a place of peace, active recreation, and local, regional, and national history. Its visitors enjoy picnicking, hiking, biking and horseback riding, winter sports, canoeing and other water-based activities, and golf.

Established in 1974 as one of the nation's first urban National Parks, CVNRA has consistently enjoyed strong bipartisan support from the Ohio congressional delegation and significant amounts of funding. Nonetheless, it too faces a variety of threats—some of which it shares with many parks, others with only a few. Unless and until these threats are addressed, all that CVNRA represents and all that it offers to visitors is at risk.

Incompatible Uses Within and Adjacent to the Park

Antiquated Upstream Sewers. The Cuyahoga River's poor water quality after rainstorms is one of the most serious threats to CVNRA resources and to the visitor experience there. Although water quality has improved significantly since the 1960s, it remains a major problem, in large part due to Akron's old combined storm and sanitary sewers upstream from the park. During periods of wet weather these sewers are overwhelmed and, consequently, untreated and inadequately treated wastewater enters the river. As a result, the river must be closed to recreational use for three days after heavy rains.

Hazardous Waste Dumps. A Superfund site is actually located within the park's boundaries and there are other potential Superfund sites in the vicinity. While known pollutants have been stabilized, undiscovered material may still be present. In addition, several instances of illegal dumping of hazardous waste within the park have been documented. These wastes pose serious threats to the surrounding surface waters, groundwater, and wildlife.

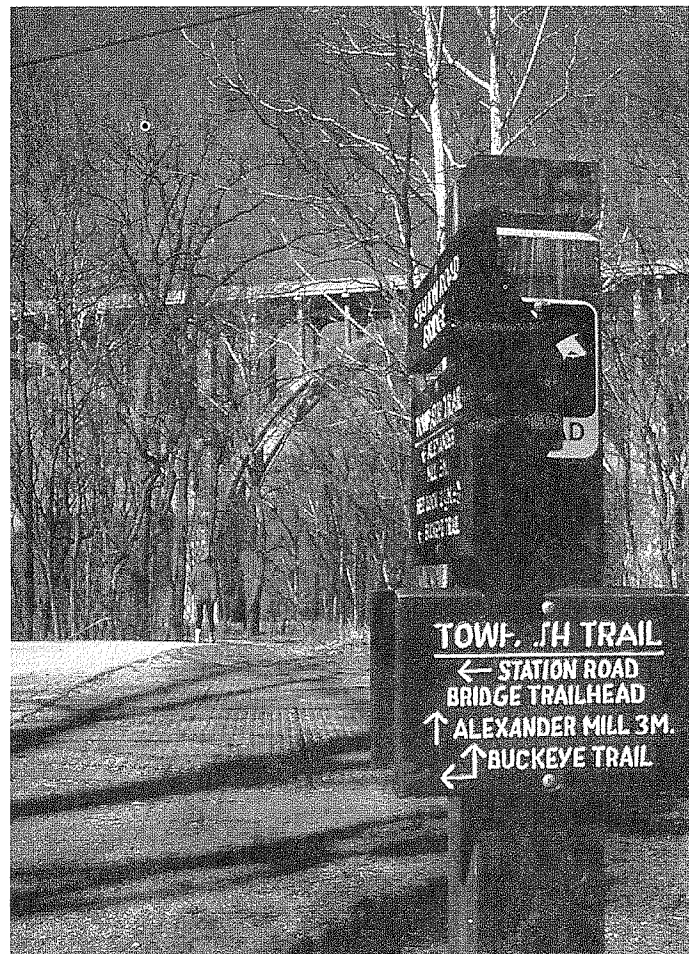
Potential Development. At the present time, two large developed sites, one of which is partly within the park, the other adjacent to it, are not being used as originally intended and are available for redevelopment. One of them was a state mental health facility, the other a privately owned sporting facility. Although there are presently no known plans to develop either site, inappropriate development could have major adverse scenic effects. The state of Ohio appears unwilling to give the state-owned site to the Park Service for inclusion in the CVNRA. The Park Service is prohibited by federal law from purchasing land from state or local governments for this park.

Oil and Gas Operations. There are over ninety active oil and gas operations within the park and many more adjacent to it. Within the park there are also a number of known inactive or abandoned wells, and many more unknown ones certainly exist.

Over ninety active oil and gas rigs operate within the Cuyahoga Valley National Recreation Area and many more are adjacent to it.

These activities and structures are having a variety of adverse impacts on the park's air and water quality, soil productivity, and habitat value. At some abandoned wells oil is leaking directly onto the surface of the surrounding ground, while other wells are leaking gas into the atmosphere. Those located on the floodplain of the Cuyahoga River may be compromising the quality of both surface and groundwater.

Quarries, Dumps, and Similar Sites. Still other serious damage results from the many quarries, topsoil removal areas, trash dumps, and similar sites situated on private lands within park boundaries. Impacts include soil erosion, severe gully, sedimentation of streams, and loss of vegetation and habitat. In addition, these sites represent severe visual intrusions, contrasting sharply with the otherwise scenic landscape surrounding them. Some present safety hazards to visitors.



When it was established in 1974, CVNRA was one of the nation's first urban National Parks. Yet its proximity to urban areas also creates obstacles to protecting the park's resources from problems like sewer overflows, hazardous waste, nearby development, and overuse.

Visitor Impacts

With improvements in the water quality of the Cuyahoga River, use by canoeists, anglers, and hikers is increasing along its shores. This increased use is causing loss of vegetation, soil erosion and siltation of streams, and displacement and disturbance of wildlife.

Wildlife Impacts

The CVNRA provides habitat for white-tailed deer. Free from predation, the deer herd has grown to the point where it is causing destruction of important park flora to avoid starvation in the winter. Following a two-year study, park staff have developed a plan that calls for thinning the herd by a specific number of animals each year so that the carrying capacity of the deer habitat is not exceeded. The plan, which calls for ranger sharpshooters to perform the task of thinning and for the

meat to be donated to nonprofit organizations that provide food to persons in need, is currently being reviewed by Park Service officials.

Exotic Species

The Cuyahoga Valley was first occupied by European settlers in 1800. Many brought European plants with them to the valley. Today, the CVNRA is surrounded by and downstream from thousands of landowners and many different kinds of land uses, including farms, nurseries, orchards, and private homes. Numerous non-native plants have been introduced into the park, both accidentally and deliberately. It has been estimated that approximately 22 percent—almost one-quarter—of the plant species in the park are non-native.

One invading species that seriously threatens the park is the gypsy moth. The number of gypsy moths caught within the park has increased explosively in recent years, from zero before 1985 to 834 in 1990 to over 6,000 in 1993. Experts fear that "epidemic numbers" may be present within the park within the next few years—with potentially disastrous impacts on vegetation and wildlife.

Critical Information Needs

Some important information voids exist at CVNRA. In particular, park managers lack quantified information about visitor impacts along the river as well as about imperiled wildlife species and their critical habitats. Without this information, managers cannot identify the actions needed to ensure that the river environment will be adequately protected into the future and that wildlife species and/or habitats will not be irretrievably lost.

CARLSBAD CAVERNS NATIONAL PARK

Located in the Chihuahuan Desert of southeastern New Mexico, Carlsbad Caverns National Park preserves a spectacular array of mineral formations in a network of more than eighty limestone caves. Formed from a 400-mile-long reef in an inland sea covering the region 250 million years ago, the network of caves at Carlsbad is one of the world's largest underground chambers. The sea evaporated, burying the reef. Part of it was later exposed, forming the Guadalupe Mountains, while the underground limestone portion slowly dissolved through the action of water and hydrogen sulfide gas migrating upward from vast oil and gas deposits beneath the ancient reef.

The caverns produced from the erosion of the limestone were then decorated with various mineral formations such as stalactites and stalagmites from calcite dissolved in water as it seeped through the limestone and into the cave. Drop by drop, water entered the cave and deposited calcite crystals, forming stalactites where it dripped slowly from the ceiling, draperies where it ran down a slanted ceiling, cave pearls around grains of sand, and numerous other forms.

In addition to the unique cave formations, the park is home to numerous plant and animal populations both below and above ground. The most famous is the Mexican free-tailed bat colony that roosts in Carlsbad Caverns from early spring until October.

The caverns were first explored by American settlers in the 1800s, but few believed the initial tales of spectacular underground wonders. In the early days some people made a living off the caverns by mining huge deposits of bat guano and selling it as fertilizer. Word of the caverns spread, in large part because of the exploration and promotion of the cave by Jim White at the turn of the century. The area was first protected as a national monument in 1923, and became a National Park seven years later on May 4, 1930. Carlsbad Caverns was designated as a World Heritage Site in 1995 as a result of its superlative natural phenomena.

The park faces several challenges in protecting its natural and cultural resources for future generations to enjoy. Some of these challenges and needs are discussed below.

Internal Threats

Impact of Surface Development. Numerous visitor facilities, including the visitor center and its parking lots, as well as park maintenance facilities and housing, are located directly above the internationally significant cave resources the park was created to protect. Water pollution is a serious problem. Runoff from the parking lots and roads is laden with chemicals, which park managers are considering addressing through the use of settling ponds.

The maintenance facilities, in particular, are a significant source of hazardous materials. A spill, a leak in one of the underground storage tanks, or other accident could put unknown quantities of hazardous materials directly into the cave system, damaging its mineral formations and the many unique cave plants and animals and threatening visitor safety.

Roads, buildings, and parking lots overlay about half of Carlsbad Caverns, impeding the critical flow of water to the caves below.

Sewage lines serving the housing areas and visitor service areas above the cavern also pose a serious threat. There have been two documented major sewage line breaks and numerous smaller leaks. Many of these lines are old, and the potential for unidentified leaks is great. Contamination from sewage could clearly harm cave life and thwart mineral growth.

Development has also dramatically affected the infiltration of surface water

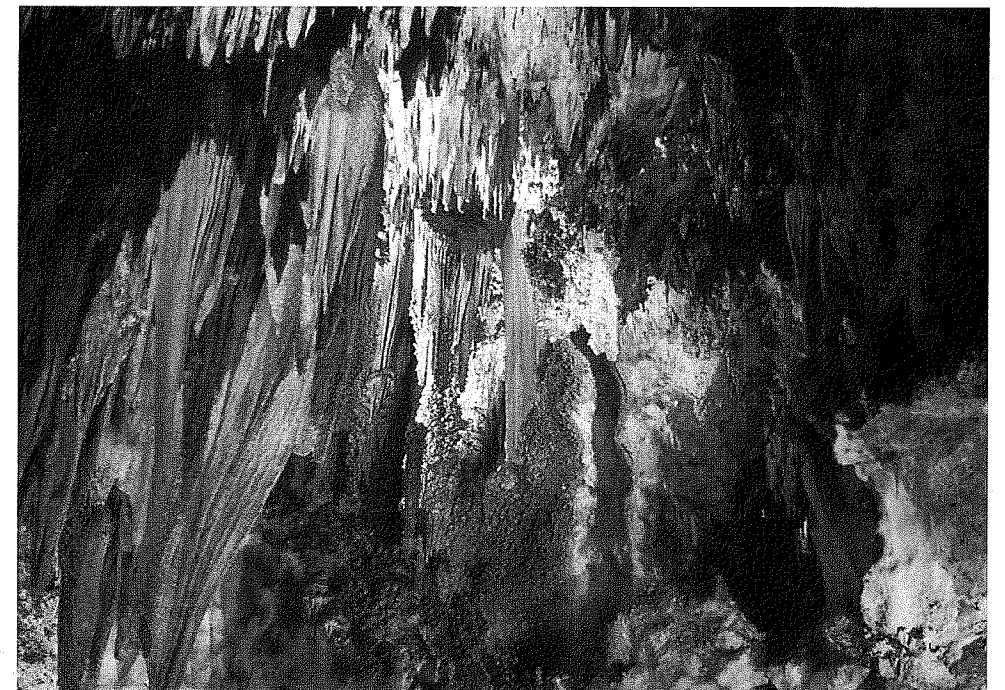
critical to the preservation of the cave environment. Approximately half of the Carlsbad Caverns is already overlaid by roads, buildings, and parking lots. Such development is believed to have significantly accelerated the current drying trend within the caverns. More information is needed about infiltration rates and routes so that management decisions do not result in additional inadvertent change in infiltration and irreparable damage to the caverns.

Damage from Other Human Activity. Given the park's fragile desert environment, various human activities other than cave visitation have damaged the natural landscape. Money is needed to restore disturbed surface areas, including former construction sites, abandoned roads and trails, quarries, garbage dumps, human occupation near water sources, and scars remaining from the burying of utility lines and the removal of structures.

External Threats

Grazing. The lands that surround the park—some managed by the Bureau of Land Management and the U.S. Forest Service, others owned by the state of New Mexico or in private hands—is used extensively for livestock grazing and hunting. Cattle enter the park frequently in places where fencing is incomplete or in disrepair. They damage vegetation, impair water quality, and accelerate erosion. Park managers lack the funds to patrol and adequately maintain fencing to keep cattle out of the park.

Killing of Mountain Lions. Mountain lions are protected by the National Park Service within the park. However, each year the state of New Mexico and the U.S. Department of Agriculture's Animal and Plant Health Inspection Service kill up to fourteen mountain lions on adjacent lands. This so-called "preventative harvest," which is in addition to recreational hunting, is done under the assumption that it will prevent enough depredation on domestic livestock to be of public benefit. The



Carlsbad Caverns National Park preserves a spectacular array of mineral formations in a network of caves. Unfortunately, extensive visitor facilities built above the caverns have altered the site's hydrology, affecting the cavern's fantastic stalactites and stalagmites.

Jack Parsons

costs and benefits of such action need to be fully assessed. The park conducts annual surveys to monitor broad trends in the mountain lion population, but resource managers do not know how this harvest affects the long-term viability of the population.

Visitor Impacts

Paved paths, restrooms, a lunchroom, and an elevator have all been built within Carlsbad Caverns to make it accessible to the millions of visitors who come to see it. Such physical facilities have caused significant damage to the cave environment. Educational materials are needed to illustrate the cost and the impact these facilities have had. Interpretative programs and materials can help reduce the individual and collective human impact today.

Critical Information Needs

Lack of Cultural Resources Inventory. Although not as prominent as the caverns, numerous archeological and other historic resources lie within the park. They are in critical need of protection. The park's cultural resources have not been documented or researched fully. As backcountry visitation increases, finding and protecting undocumented resources such as Native American pictographs and cooking pits become more and more important. Soil erosion, grazing, and wildfires can also cause irreparable damage to the park's cultural resources, but the park has lacked the funds to evaluate and mitigate such threats.

Baseline Data Needed. The park lacks basic information about water sources and water flow within its boundaries. Such water is critical both to plants and wildlife and to the cave formations. Water is scarce in the park's desert climate and threatened by increased backcountry visitor use. Data concerning total drainage area, surface flows, percolation, and flooding potential are needed to inform management decisions about park development, visitor use, and external threats to park resources.

CHACO CULTURE NATIONAL HISTORICAL PARK

Situated in northwestern New Mexico, Chaco Culture National Historical Park encompasses thirteen major Indian ruins unsurpassed in the United States, representing the highest point of pre-Columbian Pueblo civilization. The park's 34,000 acres also include hundreds of smaller ruins. By A.D. 1000, the Anasazi who lived in Chaco Canyon and its surrounding area had developed a civilization characterized by a highly sophisticated architecture, social organization, and community life. The impressive Pueblo Bonito, for example, rose four stories and contained some 600 rooms and forty kivas. The pueblos at Chaco Canyon were the center of a far-reaching system of prehistoric roads that led to numerous outlying communities. The park's extensive archeological ruins, combined with its stark desert beauty, offer a unique connection to both the ancient and the natural worlds.

Chaco Canyon represents the only sizable area managed by the National Park Service in the entire San Juan Basin region of the Colorado Plateau. As such, the park represents a valuable opportunity to preserve the biodiversity of the region. Yet this glorious treasure is at risk. Threats from both inside and outside the park endanger its irreplaceable cultural and natural resources.

External Threats

Mineral Exploration and Development. Potential mineral exploration and drilling threaten the park on all sides. Chaco lies in the energy-rich San Juan Basin, in which one-quarter of the nation's known coal reserves and one-sixth of the world's known uranium reserves are located. Development of the region's oil and gas reserves has encroached on the park's eastern boundary. Strip-mining of a large coal reserve three miles north of the park has been proposed. Given the nation's voracious appetite for fuel, the pressure to develop previously undeveloped areas will only increase. Mechanisms must be put in place to protect the park's resources from these damaging activities.

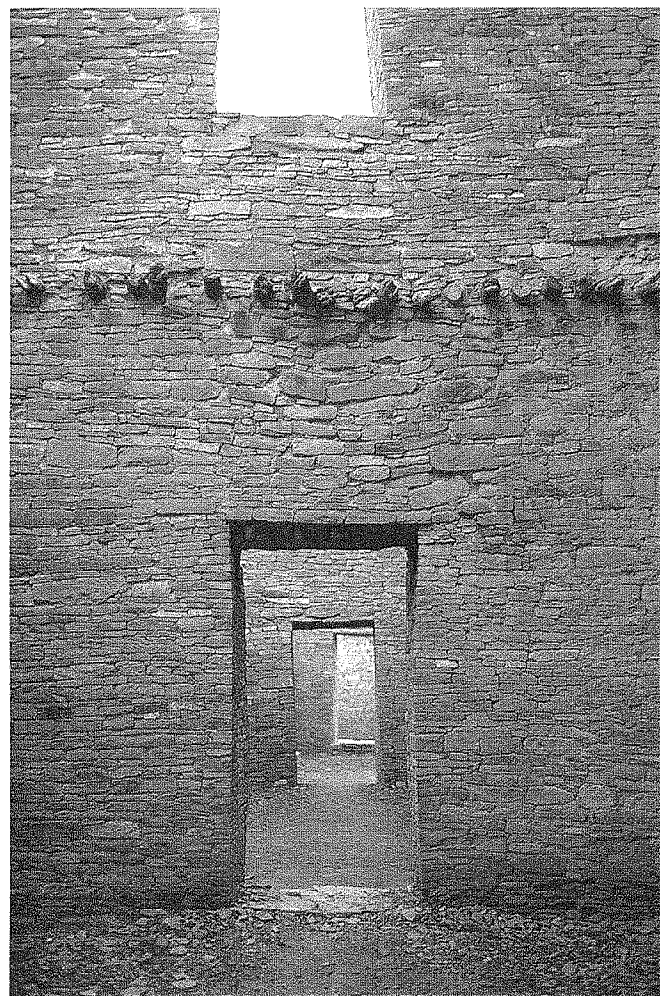
Mineral exploration, for example, threatens the park's viewsheds. The vastness of the surrounding landscape is critical to appreciating what life was like in Chaco Canyon for its former occupants. In addition, many come to Chaco Canyon today for the solitude it offers. Both the sights and sounds of mining and drilling operations destroy the non-urban, solitary experience that park visitors seek.

Hazardous Materials. Oil and gas spills also threaten the park's resources. The park lacks the funding to develop a contingency plan for dealing with such spills. One oil spill has already occurred adjacent to the park boundary, causing damage to vegetation and wildlife as well as potential contamination of scarce water resources. The park must be prepared for spills of hazardous materials within the park because a through road bisects it.

Aircraft Overflights. In addition to the threats from mineral development, low aircraft overflights are increasing in the park. Aircraft noise is damaging prehistoric structures and compromising visitor experience. The park has developed a monitoring system and shares the data gathered with the Federal Aviation Administration, but to date that agency has taken only minimal enforcement actions.

Both the sights and sounds of mining and drilling operations destroy the non-urban, solitary experience that visitors to Chaco Canyon seek.

Development of Navajo Reservation Land. As a result of the consolidation of its land holdings, the Navajo Nation now owns much of the land surrounding Chaco Park. Because of the Nation's sovereign status, no formal process exists to review and



Knowledge about the extent of archeological resources at Chaco is limited. Lack of funding has prevented needed preservation treatment in the sites that are known.

mitigate potential harm to park resources from development of the Navajo lands. While a prison has been proposed to be built just fifteen miles south of the park, since it is on Navajo land the opportunities for public comment and the assessment of environmental impacts guaranteed under state and federal law do not apply. Therefore, park managers need the time and resources to build new relationships with their Navajo neighbors if they are to protect the park's resources from such proposals.

Grazing. Livestock grazing on land upstream of the park poses a serious threat to the Chaco Canyon's critical riparian core. The loss of vegetation and erosion of land caused by grazing outside the park have contributed to numerous destructive flash floods through the park's Chaco Wash. Erosion triggered by such flooding threatens several archeological sites, including the popular Pueblo del Arroyo.

Incompatible Uses Within the Park

Livestock grazing is also occurring in the park itself. Much of the land added to the park in 1991 was heavily grazed and continues to be grazed today. Such land contains dams, water tanks, and mineral licks that attract livestock into the park. This grazing in turn promotes soil erosion, alters vegetative commu-

nities, and threatens the integrity of archeological sites. Much of the area is remote from core visitation areas and consequently inadequately patrolled. Work needs to be done to identify threatened, endangered, and rare flora in the areas to ensure their protection. Funds are needed to monitor the success of efforts made to restore the vegetation after the livestock have left.

Visitor Impacts

Given the fragile nature of the desert landscape and the park's archeological ruins, steps must be taken to limit visitor impacts. Unfortunately, some of the park's intriguing petroglyphs have been marred by modern graffiti. Visitors are able to experience close-hand many ancient cliff drawings along the park's trails, but this has left some of the drawings vulnerable to vandalism.

By failing to stay on designated trails, visitors have also trampled sensitive vegetation and damaged fragile ruins. Public education about the consequences of such visitor behavior can go a long way toward preventing it.

Critical Information Needs

Knowledge about the extent of the archeological ruins at Chaco is limited. Buried cultural resources are continually being exposed in the banks of Chaco Wash, which splits the canyon, and the tributaries that flow into it. Resources are also exposed during ground-disturbing developments at the park such as the installation of waterlines and toilets. These resources need to be comprehensively mapped and documented in order to synthesize the existing information and make recommendations on future development or research activities.

Of the sites that are known, many are not getting the preservation treatment they need. Due to limited funds, the park has been unable to evaluate in a systematic way the preservation needs of its archeological resources. The forces of weather are eroding both the ruins themselves and the land on which they are located. Unless such deterioration is assessed and addressed, we risk being left with rather nondescript piles of rocks in place of the impressive stone walls of Chaco's ruins.

The park has other basic information needs. For example, no site-specific information exists about park soils. Without such information, managers are unable to make informed decisions regarding the siting of visitor-use facilities, the protection of cultural sites and critical habitats, and the prevention of soil erosion.

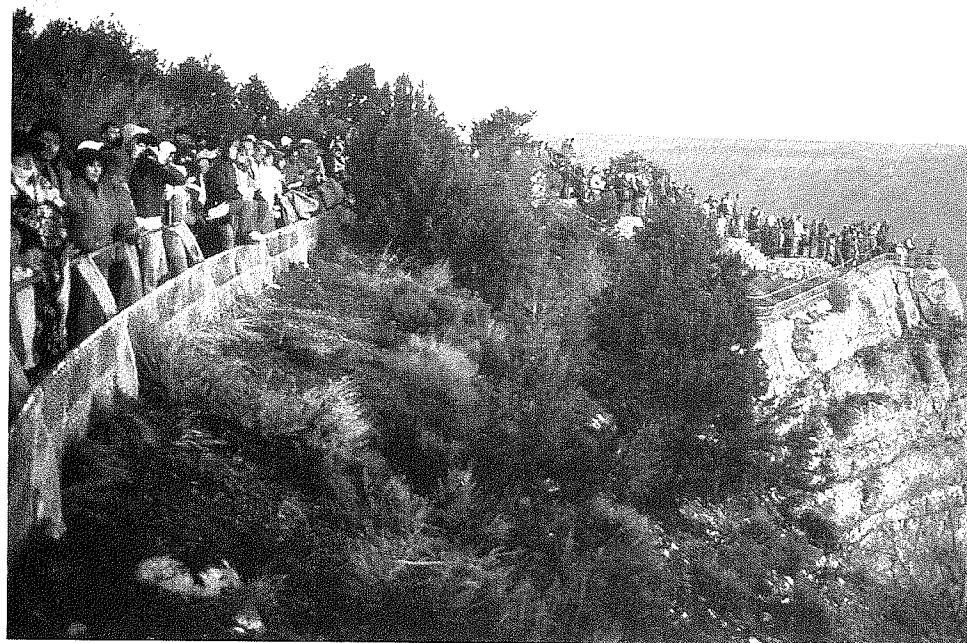
Little is known about the size, spatial distribution, and temporal variability of the park's animals. Management practices both within the park and on adjacent lands, such as grazing, conversion of plant communities, hunting, and predator control, have affected animal populations. Without information about baseline conditions, park managers are without the tools to analyze or prevent additional harmful effects on wildlife resources.

The same is true about the potential negative noise effects of development. The park needs baseline information about current ambient noise levels prior to additional development so that managers can document change and thus make a better case for appropriate mitigation.

Probably most importantly, more needs to be known about the precious water resources in the park. Precise information is needed about the park's shallow aquifer, a precious but fragile desert resource. In addition, more data are needed about the sensitive riparian area surrounding Chaco Wash. Loss of the cottonwoods in this area could reduce the park's biodiversity by 10 to 30 percent.

GRAND CANYON NATIONAL PARK

The Grand Canyon—one of the “crown jewels” of the National Park system—is located on both sides of the Colorado River in Arizona. Over several million years the River has carved a vast chasm through these arid lands and created one of the



Every year almost five million people visit the Grand Canyon. The huge number of visitors is having direct impacts, with overcrowding, traffic jams, and an overtaxed, outdated transportation system all degrading the visitor's experience of the park.

most powerful and awe-inspiring landscapes in the world. The canyon walls of the park reveal much of the geological history of North America, while its boundaries encompass vast open spaces, extraordinary scenery, pristine air, and virtually the only untouched watersheds in the entire West.

Created as a national monument in 1908 and redesigned as a National Park in 1919, the Grand Canyon is one of America's most popular National

Parks. Unfortunately, the park's unique and spectacular resources are gravely threatened by its popularity as well as by a variety of activities that are outside the park borders or Park Service's jurisdiction.

Visitor Impacts

Every year approximately five million people visit the Grand Canyon to experience its beauty and grandeur. Visitation to the South Rim, which receives the most people, is projected to reach seven million by 2010—a 40 percent increase. Already the enormous growth in visitation over the past decade has transformed the visitor experience at this park. And increasingly, a key part of that experience—natural quiet and solitude—cannot be realized because of the increased numbers of airplane overflights.

The huge number of visitors to the Grand Canyon is having direct effects on the park. Overcrowding, traffic jams, and an overtaxed, outmoded transportation system are all degrading the park experience and its natural qualities. The Park Service's General Management Plan (GMP) for the Grand Canyon, completed in 1995, directly addresses these and other visitor problems. The plan calls for construction of a new visitor center, for removal of two of the hotels presently situated on the rim, and, in order to reduce use of private vehicles within the park, for the limiting of access by automobiles and the construction of an extensive public transit system into and throughout the developed areas on the South Rim. The estimated price tag for implementation of the GMP is more than \$300 million—or twenty-five times the \$12 million that the park received for operating expenses last year.

In theory, the problems posed by aerial tours should be easier to resolve. Last year about 800,000 visitors flew over the canyon on aerial tours and seriously affected its natural quiet. Whereas in 1988 visitors could experience natural quiet in almost half of the Park, according to the National Park Service, by 1994 as a result of these flights the percentage had decreased to less than a third. By 2010, if nothing more is done, it will be possible to experience natural quiet in less than 10 percent of the park. But, although natural quiet is a key resource of the Grand Canyon, the Park Service lacks the authority to control these flights. Instead, that authority belongs to the Federal Aviation Administration, which has not yet been willing to protect the park's peace and quiet.

External Threats

River Management. The Colorado River is the lifeblood of Grand Canyon Park and yet the river faces numerous grave threats. Management of its water is under the control of the Bureau of Reclamation, not the Park Service, and is designed to supply urban areas like southern California, Las Vegas and Phoenix. Past management practices have jeopardized the continued existence of many of the fish species native to the river, and today introduced species outnumber natives. Tamarisk, an exotic species of tree, is taking over from native cottonwoods and willows in many places, further diminishing water quantity and degrading habitat value.

Air Pollution. Air pollution directly affects views of the Grand Canyon's spectacular scenery. A power plant located fifty miles upwind from the canyon, in Laughlin, Nevada, is the largest single source of sulfur dioxide emissions in that state. Under prevailing westerly wind conditions, the plant delivers significant amounts of air pollutants to the park. And that is not the only source of air pollution harmful to the park. Air pollution generated by other sources, some from as far away as Los Angeles and Phoenix, as well as from the cars of visitors to the park, adversely affects air quality and visibility at the Grand Canyon.

Development. Increasing pressure for development outside the park also poses a major threat. Given the huge projected increase in visitors and the Park Service's decision, set out in the GMP, to reduce lodging within the park, outside development is inevitable. The effects on the park and its resources, however, are not inevitable. Rather, they will depend on how the park and the region respond. Coordinated, integrated, and environmentally responsible planning by all affected jurisdictions will greatly benefit the park. In contrast, incremental development of private lands in gateway communities could result in a variety of harmful effects, including the depletion of springs and seeps within the canyon, the fragmentation of wildlife habitat, and widespread aesthetic degradation.

Inadequate Staff

As is the case with other parks, the Park Service at Grand Canyon has had to do too much with less during recent years, and especially with less staff than it needs to carry out key park management functions. The park lacks sufficient staff to monitor and enforce limitations on excessive air tour operations, to carry out necessary

Although water is the most critical and limited resource at Grand Canyon, little information exists about its quality or the effects of current and future withdrawals on existing supply.

rehabilitation of visitor damage in backcountry areas, and to restore historic trails established over seventy-five years ago. It also lacks the resources needed to develop interpretive programs to convey information about the park's natural resources, including, for example, water, one of the park's most precious resources. The park has long used volunteers and outside researchers to support management activities. Volunteers currently assist the Park Service with park restoration projects, interpretation, and backcountry patrols. Budget constraints recently led the agency to conclude that the "time has come to greatly expand the use of outside assistance."

Critical Information Needs

Despite the fact that the Grand Canyon is one of the nation's best-known and oldest parks, the Park Service still lacks basic information about many of its natural resources as well as about the effectiveness of the Service's own management activities. For example, although water is the most critical and limited resource in the park, the Park Service lacks basic hydrological data as well as needed information about the effects of current and future groundwater withdrawals on existing supply. And as indicated above, a lack of funds threatens the Service's ability to obtain information that is essential to achieving the goal of restoring natural quiet to most of the Grand Canyon.

YELLOWSTONE NATIONAL PARK

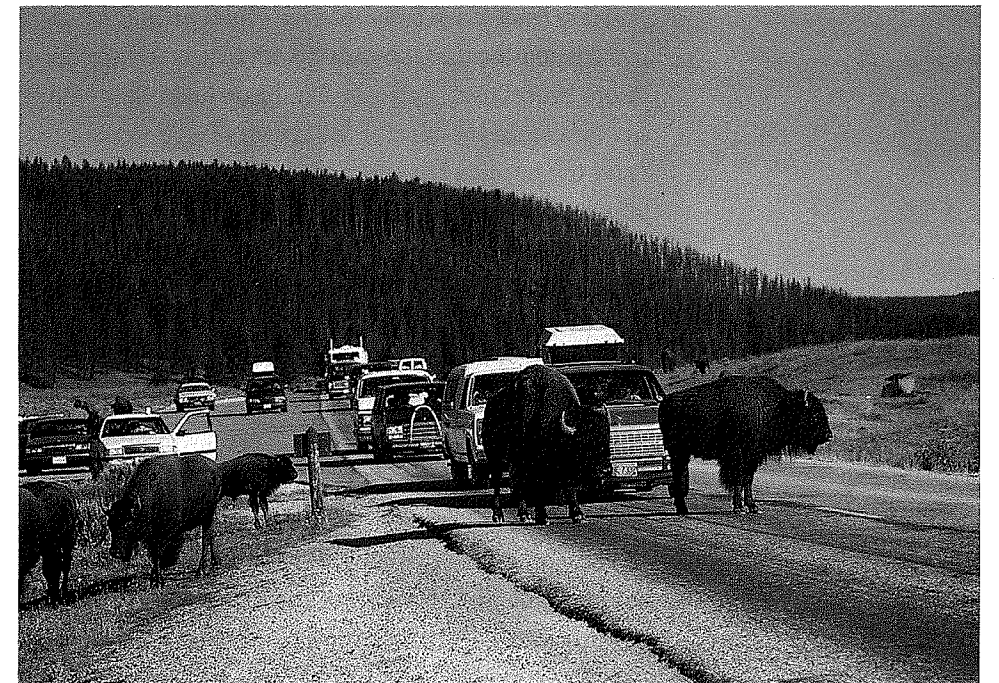
Situated in the northwestern corner of Wyoming, Yellowstone National Park is a treasure that inspires awe in visitors from around the world. The result of catastrophic volcanic activity that began millions of years ago, the park contains world-renowned geysers, hot springs, and other geothermal features, the spectacular Grand Canyon of the Yellowstone River with its stunning waterfalls and geological revelations, and rugged mountain scenery. The American bison, grizzly and black bears, the reintroduced wolf, and the trumpeter swan are among the wildlife species that make their homes in this park, the heart of an ecosystem that includes one other National Park, Grand Teton, and seven national forests. Totaling 3,400 square miles, Yellowstone is a true wilderness, one of the few large natural areas remaining in the United States outside Alaska.

Established in 1872, Yellowstone National Park is the world's first National Park, and the National Park idea that it epitomizes spread to many nations. In the 125 years since it was created, however, much has changed at Yellowstone—and not all of it for the good of the park or its incomparable resources. Indeed, Yellowstone is now one of the most heavily visited parks in the nation and is facing the prospect of being adored to death by the public. It is also facing a number of other equally serious threats.

Visitor Impacts

Annual visitation to Yellowstone first exceeded the one million mark in 1948. Today, it has surpassed three million and is expected to continue to grow. Within the park traffic congestion has reached crisis proportions, and with the rising tide of visitors the current transportation system is patently inadequate. Overcrowded conditions are the rule at many of the park's most popular attractions, including backcountry areas, while bear, bison, and other "jams" occur regularly throughout the summer.

Visitation and visitor problems are not confined to the traditionally heavy summer season. From 1973 through 1994, winter visitation increased by almost 7 percent annually—about three times the annual increase in summer visitors. An estimated 180,000 people visit the park now in the winter, as compared to only 60,000 in 1984. The result has been a rapid growth in snowmobile use, which in turn has led to increased air pollution, noise, and displacement of wildlife, particularly the bison



American bison and tourists compete for space on one of Yellowstone's overcrowded roads. Transportation systems within this immensely popular park are seriously outmoded.

Vanessa Vick

that use the groomed trails to leave the park. One day of snowmobiling at current levels equals the air pollution resulting from all automobiles the entire summer. Action must be taken to protect the winter park environment from increasing visitor use.

External Threats

Killing of Bison. One of Yellowstone's most outstanding resource is its bison. The first (1902) protected species in this country, Yellowstone's bison comprise the last wild, free-roaming bison herd in North America. Despite the park's vast size, however, it does not contain enough winter habitat for the herd. During this past winter, more than a thousand of these wide-ranging creatures were shot on national forest and private lands outside the park or captured and shipped to slaughter as they approached or crossed the park boundary—all in the name of protecting Montana's livestock from brucellosis, a disease that bison and other wildlife such as elk can carry.

Not since the turn of the century have so many wild bison been slaughtered, and the impacts have been devastating to the herd. The killing, combined with an unusually harsh winter, has cut the bison herd at Yellowstone in half. As long as the park continues to lack sufficient habitat and a long-term plan for managing the herd that is agreed to by the state and the federal agencies, more killing may well occur in the future.

Mineral Development. The proposed New World Mine remains another major threat to Yellowstone's integrity. The environmental risks posed by this massive new gold mine, which would be perched in the mountains just two and a half miles from the park's northeast border, are enormous: the mine could end up sending tons of toxic material directly into the irreplaceable Clark's Fork of the Yellowstone River and other streams, and it could have devastating impacts on wildlife. In the summer of 1996, President Clinton announced a deal to stop this mine—a deal in which the mining company would swap its mine site in return for suitable federal assets. The assets swap did not get consummated, but the President and Congressional leaders agreed as part of the budget deal to provide funds to purchase the mine properly. Unfortunately, opposition to this provision has arisen—so the mine remains a potent threat.

Grizzly Bears. The park and environs provide habitat for one of only two significant grizzly bear populations in the lower forty-eight states. This population—listed on the endangered species list—is unfortunately experiencing bear mortality at too high a level for the population to recover. This bear mortality stems from habitat destruction outside the park and pressure from growing human visitation within the park.

Other Development Threats. Logging and oil and gas development on national forest lands adjacent to Yellowstone continue to threaten its integrity. Clearcuts located along its border can be seen from outer space, while oil and gas activities jeopardize critical wildlife habitat.

Inadequate Staff

Over the past decade visitation to Yellowstone has increased by 32 percent—from 2.4 million in 1986 to 3.1 visitors currently. At the same time, the park's budgets,

adjusted for inflation, have increased only 4 percent. As a result, staff positions have been reduced and many programs have been curtailed or eliminated. In the summer of 1996, for example, two museums were closed along with one campground. Seasonal interpretive positions have been eliminated, increasing the likelihood that visitors will leave the park without learning about its unique resources and history. Law enforcement patrols have been reduced, at the risk of greater vandalism, theft, and visitor safety. The park has also eliminated most of its resource monitoring programs, including many longstanding programs. Ended now, for example, is virtually all research associated with the great fires of 1988. Necessary restoration work, including the restoration of important grizzly bear habitat, is being delayed, while additional measures under consideration, assuming that there is no improvement in the fiscal situation, include the shortening of the summer season, the closing of more facilities, and additional layoffs.

Logging and oil and gas development on national forest lands adjacent to Yellowstone continue to threaten its resources.

YOSEMITE NATIONAL PARK

Situated in the heart of California's Sierra Nevada, Yosemite National Park embraces almost 1,200 square miles of incredibly scenic wildlands. Ranging in elevation from 2000 feet above sea level to more than 13,000 feet, the park's outstanding features include alpine wilderness, three groves of giant sequoias, the Yosemite Valley with its impressive waterfalls, towering cliffs, and unusual rock formations, and some of the most sublime scenery found anywhere in the world.

Established in 1890, Yosemite National Park is a place of priceless beauty and natural wonder. Yet its beauty and natural value are seriously threatened by the ever-increasing number of people who visit the park every year, particularly by the automobiles they use to get there. According to the Yosemite General Management Plan, automobile traffic is "the single greatest threat to enjoyment of the natural and scenic qualities of Yosemite." Increased visitation has also exceeded the park's ability to provide interpretive services. This past winter record floods wreaked havoc in the valley. Preservation of this park, one of the nation's most glorious natural places, depends on the resolution of these threats.

Visitor Impacts

In 1995 more than 4.1 million people visited Yosemite, a new record and almost twice the number that visited in 1980. The resulting traffic problems are among the most severe in the entire National Park system. During peak visitor times the traffic jams in the valley are the equal of those in major American cities. Increased visitation has produced such high traffic volumes that park access was restricted for several hours on seven weekends between May and July in 1995.

High visitor numbers and associated traffic volumes adversely affect park resources, often compromise visitor safety, and always diminish the visitor experience. Today, far too many visitors to the park experience it while sitting in traffic, driving around in search of parking, and standing in long lines for food. Visitors who get an opportunity to venture onto trails often find them clogged with other visitors, and the views from world-famous points are impaired by haze created by the exhaust from thousands of cars as well as by the smoke from thousands of campfires.

To reduce automobile congestion and resource damage resulting from current visitor numbers, unrestricted access to the park must end—as the Park Service recognized in 1980 with the completion of the Yosemite General Management Plan (GMP). The GMP established a daily limit on overnight and day-use visitors, but the limit has never been enforced. Indeed, the Yosemite Restoration Trust, which advocates on behalf of the park, believes the day-use limit is exceeded virtually every day from June to September. The two most recent park superintendents have supported a day-use reservation system as the fairest way of protecting park resources and enforcing the GMP limit. The park now intends to begin using such a system next summer.

In the GMP, the Park Service also committed itself to the development of a public

Far too many visitors experience Yosemite while sitting in traffic or standing in long lines for food.

transportation system that would allow the elimination of private vehicles within the park. A federal-state-local partnership is currently working to develop a transportation strategy that would direct day-use traffic to gateway communities, from which visitors would take shuttles into the park. Completion of this strategy and its prompt implementation are essential if the severe threat cars pose to Yosemite is to be resolved responsibly.

Inadequate Visitor Services

At Yosemite, as at other National Parks, the Park Service is responsible for educating visitors about the park, its resources, and its history. Even as visitation to Yosemite has skyrocketed, however, Park

Service funding for this key function has become increasingly scarce. Although the Park Service has worked closely with the principal Yosemite concessionaire and with various park partners to supplement park staff, today there are simply not enough interpretive rangers in the park. Even restoring the number of these rangers to 1980 levels—going from forty-two to fifty-four full time employees—would require a 29 percent increase in Yosemite's current budget for interpretive staff.

Flood Damage and Recovery

The floods of the past winter wreaked enormous damage on the developed areas of Yosemite Valley: the swollen waters of the Merced River damaged hundreds of cabins, campsites, and other structures, turned picnic tables into rafts, fouled the water supply system, wrecked bridges, closed all three access roads, and ran up a bill of about \$125 million in damages. With the destruction, however, the Park Service has the opportunity to implement one of the 1980 GMP's major recommendations for reducing congestion in the valley—moving some facilities out of the park and others out of the immediate floodplain of the Merced River, and restoring key areas within the valley to their natural state. Carrying out these actions will cost about \$200 million. Once completed, the visitor experience will again be dominated by the wonder of the valley, the wonder that prompted establishment of the park 110 years ago.



The sublime scenery of Yosemite National Park is seriously threatened by the ever-increasing number of people who visit the park every year and particularly by the automobiles they use to get there.

Chris J. Caldwell

DENALI NATIONAL PARK AND PRESERVE

Denali National Park and Preserve encompasses six million acres of pristine wilderness in the interior of Alaska. Denali is a vast protected subarctic ecosystem—a place that offers visitors opportunities for superlative, inspirational experiences and provides a refuge for a spectacular array of wildlife. The park surrounds Mt. McKinley, the highest mountain peak in North America, and has many large, active glaciers and glacier-fed rivers and streams. Denali is home to Dall sheep, caribou, wolves, moose, grizzly and black bears, and outstanding examples of subarctic plant communities, including readily accessible alpine tundra. Over two million acres of the park have been protected since 1917, making it the largest continuously protected area in the world and fully deserving of the international significance associated with its status as an International Biosphere Reserve.

Denali is literally at the center of many contentious land and resource management debates over whether the state of Alaska should reap economic benefit through extraction of its natural resources or through the preservation of its large-scale natural and wilderness integrity. Whether the park will be preserved for our children hinges on the outcome of these debates.

External Threats

Land Conversion. Denali and the subarctic interior of Alaska where it is located are threatened by escalating resource conflicts and resultant ecological change. Because this region is relatively accessible by Alaskan standards, interest in developing new resource-based industries, such as logging and mining, is high. Park managers expect continued rapid growth of tourism in and around Denali. These activities will bring additional settlement, transportation and utility corridors, industrial development, and increasing recreational demands to the region. In turn, degradation of water quality, loss of wildlife habitat, introduction of non-native species, and wildlife disturbance are likely to result.

Aircraft Overflights. Civilian and military uses of aircraft in Alaska have well-established traditions, and aircraft use of all kinds appears to be on the rise throughout the state. Denali, unfortunately, is no exception to these trends.

At Denali, private, commercial, military, and administrative aircraft have been present for many years, and all these uses are clearly increasing. In particular, "flightseeing" with both small planes and helicopters has greatly increased over the last decade. These flights adversely affect visitors' ability to experience wilderness, and they disturb many wildlife populations. To assure the protection of Denali's unique resources, better tools for monitoring and regulating these uses are needed.

Air Quality. Denali is the only area of significant size in Alaska designated as Class I under the Clean Air Act because of its pristine air quality and the importance of preserving it. On a clear day Mt. McKinley can be seen from Anchorage, over 130 air miles distant. Outstanding views of natural features dominate the park landscape and are internationally known. But increasing air pollution from Eurasia already forms a visible haze in remote areas of Alaska and is threatening Denali's air quality. To preserve the quality of the park's air, ambient air quality monitoring is critically

needed now for the documentation of baseline conditions and the tracking of long-term trends.

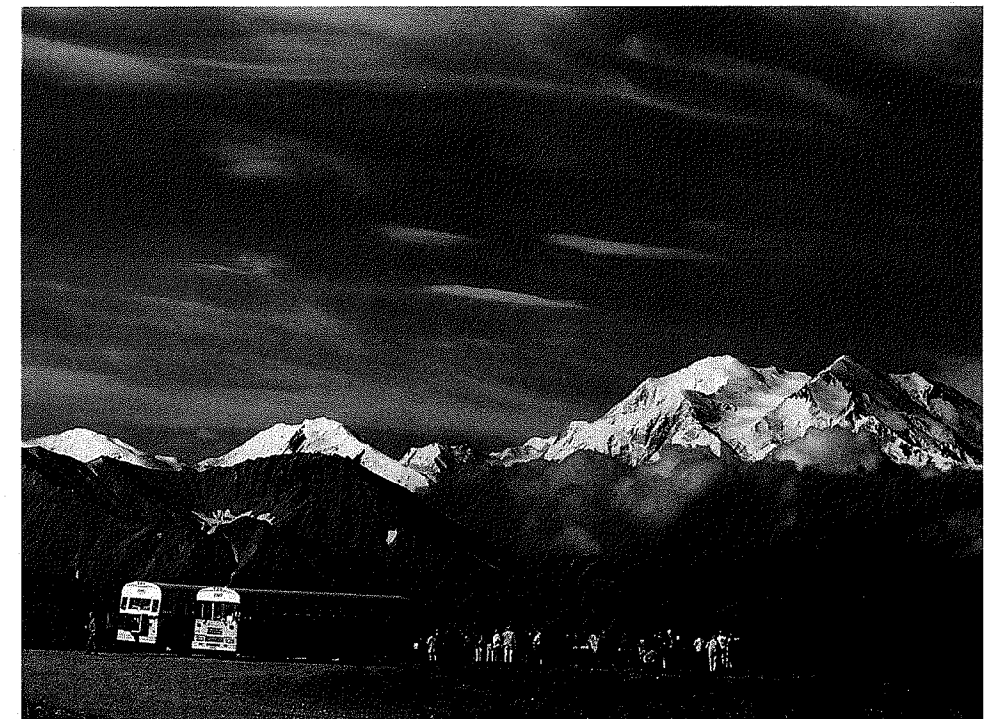
Visitor Impacts

The two primary public attractions at Denali are its views of Mt. McKinley and the sight of large mammals in a wilderness setting. For two and a half decades visitors have enjoyed these views either from bus tours along the park's single access road or by backcountry access originating from this road corridor. Controlled access on the park road has been looked to as a model for accommodating visitor use while providing for resource preservation. Despite the success of this arrangement, visitors are having significant impacts along the road corridor.

Demand for access on the park road has increased substantially in the past decade. In response, the Park Service has permitted a significant increase in bus traffic and has utilized larger, far heavier buses—all in excess of the limits established in the 1986 Denali General Management Plan and despite objections raised by The Wilderness Society. In the summer months visitors experience noise, dust plumes, and the constant flow of buses on the road, which was originally constructed for light use. In addition, over the last few years they have seen large mammals such as moose, Dall sheep, and caribou far less often due to this increased traffic. This increased use has generated pressure to "harden" the current rough road and to enhance visitor facilities within the 300-foot corridor that divides the congressionally designated Denali Wilderness in two. Alaska Senator Ted Stevens is pressing for access via construction of a new road or railroad through the northern region of Denali, even though the overdevelopment that would result would degrade the visitor experience.

Other sources of pressure on park resources include substantial increases in snowmachine use and in numbers of mountaineers attempting to climb Mt. McKinley and other peaks. These uses are resulting in accumulations of human waste, the proliferation of trails across fragile tundra, and the disturbance of wildlife. Current staffing and funding are not adequate to implement measures to prevent these harms and ensure that visitors will enjoy their visits to this special place.

The Park Service has allowed a significant increase in bus traffic on Denali's unpaved, single access road. Conditions along the road have deteriorated, and summer visitors now experience noise, dust plumes, and the constant flow of buses.



Bruce M. Herman

If adequately protected, Denali will continue to offer a unique opportunity to study a large, intact and naturally functioning ecosystem.

Ecosystem Integrity

Preservation. Many critical ecological and national political discussions are now focused on how to manage large landscapes and ecosystems. Denali provides a laboratory for finding answers to these questions. Denali offers a special opportunity to study a large, intact, and naturally functioning ecosystem that surrounds complex and diverse geological features such as Mt. McKinley and extensive glaciers. Most ecosystems its size have suffered far more harmful human impacts and are governed by a maze of different management mandates. With its large, continuously protected area under one management authority, Denali offers the possibility of long-term stability for ecological study—but only if measures are taken to deal with external threats, visitor impacts, and demands for more park access, all of which pose the serious risk of pervasive adverse resource effects.

Restoration. Although few visitors to the National Parks expect to see evidence of mining activities, at Denali past mining for gold and gravel has left behind scarred lands in need of reclamation. Some 200 acres of disturbance exist in the Kantishna Mining District alone. In some cases, unclaimed mines are causing contamination of surfacewater bodies. In other cases, stream dynamics have been altered drastically. Natural recovery is very slow in the park's subarctic environment. Although the park drafted a reclamation plan in 1994, reclamation efforts have been hampered by insufficient staffing and funds. As a result, the visitor experience continues to be marred by unrehabilitated streams and landscapes in mining districts.

Critical Information and Science Needs

It is essential that the public and land managers have access to high-quality scientific information to formulate and justify management decisions and to monitor human-induced effects on the environment. Although substantial amounts of resource information exist for the original Mt. McKinley National Park, important information voids exist for park and preserve lands that were added in 1980 under the Alaska National Interest Lands Conservation Act.

Basic information on flora and fauna is needed, as is information about water and air quality for these lands. Many resource categories, such as wetlands, invertebrates, and furbearers, are generally understudied and underdocumented. Without adequate funding and staffing to address these information gaps, the Park Service will be unable to detect threats to the park's resources or to take appropriate actions to protect them for the enjoyment of future visitors.

Since 1992 park staff have been working on putting a major Long Term Monitoring Program in place aimed at addressing many of these information gaps. Financial support of the program has been minimal. Additional funding and staffing are necessary if this forward-thinking program is to succeed.

THE CIVIL WAR

Gettysburg National Military Park

(Need: \$8.7 to \$15 million to maintain and preserve historic structures)

With over 51,000 soldiers killed, wounded, or captured, the battle of Gettysburg was the bloodiest battle of the Civil War. The small town of Gettysburg, Pennsylvania, was the site of the largest battle ever waged in the Western Hemisphere. Fought during the first three days of July 1863, the battle resulted in a Union victory that turned back the second Confederate invasion of the North. It was a major turning point in the war, and some have referred to Gettysburg as the "High Water Mark of the Confederacy."

Gettysburg National Military Park was established in 1895 and contains over 1,300 monuments, markers, and memorials, making it one of the world's largest collections of outdoor sculptures. There are 117 historic houses, barns, and other structures. Some 400 cast-iron cannon carriages dot the 5,900 acres of historic landscapes. The Soldiers' National Cemetery at Gettysburg contains more than 7,000 interments, over 3,500 from the Civil War, and is also the site where Abraham Lincoln delivered the famous Gettysburg Address on November 19, 1863.

One of the first things needed at Gettysburg today is good, sound research data. There is a need for primary, documented knowledge of what the problems of the park are before thoughtful decisions can be made about the park's future. In the past, decisions have been made in haste. At present there is a moratorium on big projects; the current strategy is to delay until the data are in hand. To illustrate, there are 1,300 entries (comprising more than 2,500 individual structures) on the Park Service's List of Classified Structures (LCS), and fewer than 20 percent of these LCS entries have had their condition comprehensively assessed. Therefore, park officials currently cannot make accurate judgments about estimated costs for structural preservation.

Some needs, of course, are readily apparent. Among Gettysburg's most immediate cultural needs is caring for its major monuments. The major monuments—including the Soldiers National Monument (1889), New York State Monument (1893), and Pennsylvania State Memorial (1910)—are experiencing environmental and physical

Lacking proper care, the monuments of Gettysburg are gradually disintegrating.

Some 400 cast iron Civil War cannons, like this one on Oak Ridge, dot the 5,733 acres of historic landscape at Gettysburg. The park's many monuments, like the cannons, are deteriorating because there is no money for maintenance.



Jeff Greenberg

damage and deterioration, and require major preservation treatment. The sandstone, limestone, and marble monuments are particularly susceptible to acid rain, and there is no way to reverse the damage. These monuments are slowly and gradually disappearing. Furthermore, the landscape, which is what the visitors come to see, has changed so much over the last six or seven decades that it is difficult to interpret prominent sites of the battle such as Culp's Hill.

Valuable archival collections are also threatened by inadequate and improper storage that lacks temperature and humidity controls. Less than 10 percent of the 40,000-object collection is on display at one time. In addition, there is a unique history of the development of Gettysburg National Military Park that remains largely inaccessible. Scholars are particularly interested in the park's history because in terms of preservation Gettysburg was a pioneering park. Moreover, staff cuts have limited researchers' access to the library and the archives.

Gettysburg receives more than 1.7 million visitors a year—it is the largest and most visited of the nation's twenty-four Civil War parks. The sheer number of people who come to the park is now a significant problem that directly affects the visitor experience. Everyone wants to go to the same places, and the landscape is showing signs of wear. A hundred years ago the park was designed for only 70,000 people. As Superintendent John A. Latschar has said, the park is being loved to death.

Because of staff cutbacks, last year Gettysburg denied one-quarter of requests for intensive student tours. Other responses to the budget crises that have affected the visitor experience (cited in a park document under "Interpretation") include:

- 1993: Reduced number and variety of park information brochures and offsite interpretive programs; eliminated interpretive material for approximately 30,000 non-English speaking visitors.
- 1994: Reduced access to curatorial collection for five months.
- 1995: Eliminated archival supplies.

The following changes, listed under "Maintenance," were made because of budget shortfalls:

- 1993: Cut seasonal maintenance staff by 50 percent and eliminated a permanent carpenter position; reduced the park cemetery, grounds, and road maintenance, resulting in grave/headstone deterioration and unsafe road shoulders; historic structures maintenance reduced by 20 percent causing deterioration of gutters, window frames, and siding.
- 1995: Eliminated equipment purchases; reduced electrical and carpentry work, except for emergency needs.

Gettysburg is currently looking for a way to use private money to fund a new visitor center, which would include a museum with modern storage and conservation facilities. The cost is projected to be somewhere near \$43 million.

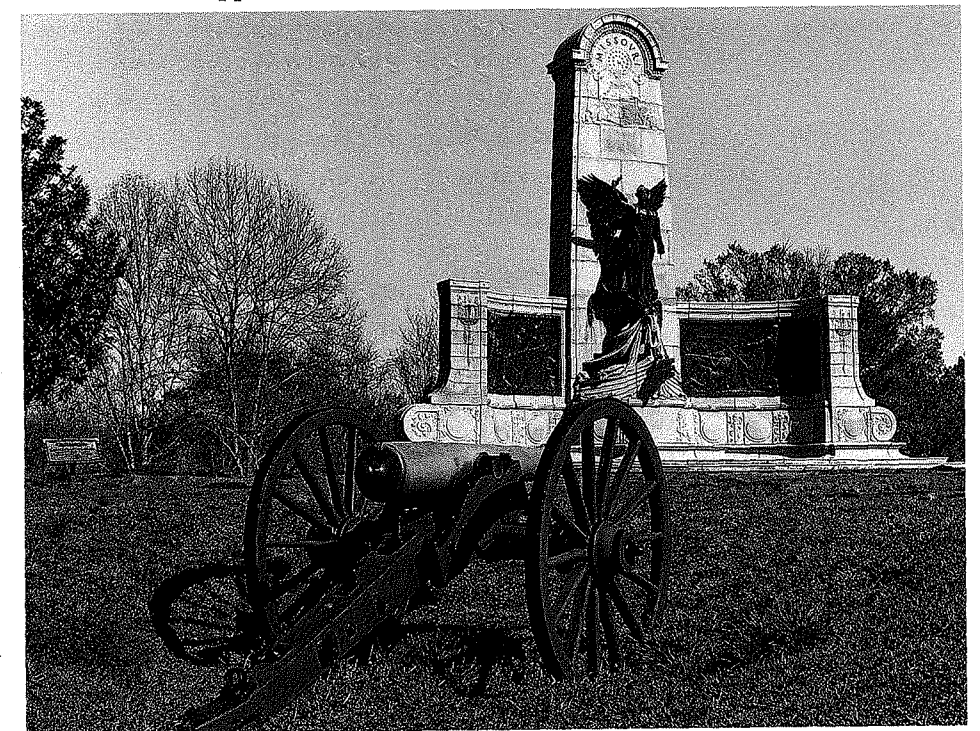
Superintendent Latschar has said publicly that Gettysburg's greatest problem is that it is "broke." Virtually all the challenges facing the park stem from a lack of money. To cite a final example, the historic fences are falling down and there is no money to rebuild them.

Vicksburg National Military Park

Vicksburg, Mississippi was a strategic stronghold on the Mississippi River. It linked the eastern and western parts of the Confederacy and presided over the use of the river. President Abraham Lincoln told his top leaders: "Vicksburg is the key. The war can never be brought to a close until that key is in our pocket . . . We can take all the northern parts of the Confederacy, and they can defy us from Vicksburg." Vicksburg was so important during the Civil War because the Mississippi River was critical to the economy of the North. Northern commercial interests were threatened once the South had seceded and closed the river to unfettered navigation.

One of the decisive battles of the Civil War, the Vicksburg campaign was waged from March 29 to July 4, 1863. Union siege operations lasted for forty-seven days against the city of Vicksburg. Located high on bluffs, Vicksburg was a fortress guarding the Mississippi River and was known as "The Gibraltar of the Confederacy." Other battles were fought in west-central Mississippi at Port Gibson, Raymond, Jackson, Champion Hill, and Big Black River. Together with the fall of Port Hudson, Louisiana, Vicksburg's surrender on July 4, 1863 divided the South and gave the North total control of the Mississippi River. Vicksburg National Military Park was established in 1899 to commemorate the campaign, siege, and defense of Vicksburg. The park receives nearly a million visitors a year.

Inadequate base funding has led to drastic reduction in essential visitor services and results in less-than-adequate maintenance of the park's infrastructure. Due to a steady erosion of the park's operational budget and the lack of personnel, the litany of deficiencies stemming from inadequate base funding is great. One example: historic bridges built between 1901 and 1905 that were designed to carry horse and carriage traffic must now bear a high volume of traffic of commercial tour buses, school buses, and large motor homes. One bridge was condemned by the Federal Highway Administration and has been destroyed and completely replaced, while another bridge has needed extensive repairs that are only temporary. These two bridge failures closed down a significant portion of the tour route for more than a year. Obviously these infrastructure problems directly affect the visitor experience.



Lack of funding kept two bridges and a major portion of the tour route closed for over a year at Vicksburg National Military Park.

Russell Thompson

*Nathaniel
Hawthorne's home,
the Wayside House,
lacks a fire sup-
pression system.*

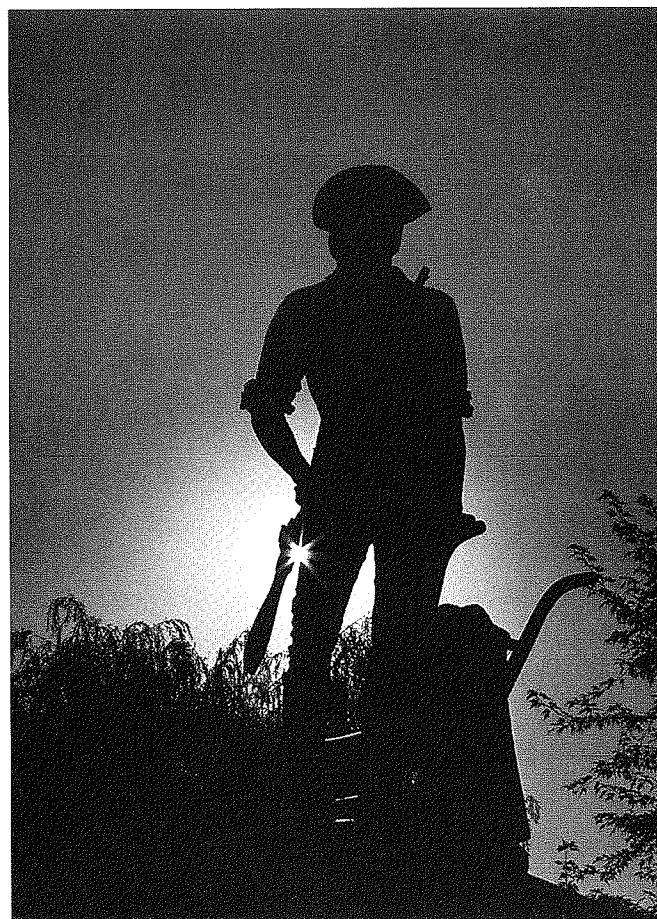
THE REVOLUTIONARY WAR

Minute Man National Historical Park

(Need: \$7.2 million to preserve and rehabilitate twenty-nine historic Battle Road structures)

The Minute Man National Historical Park was created because the outbreak of the American Revolutionary War was essential and prerequisite to American independence and the creation of our nation. Events relating to the beginning of hostilities on the 18th and 19th of April 1775, and associated with Paul Revere, the Minute Men, and the British are of great importance in American history. A number of historic properties, buildings, sites, and objects in Boston and its vicinity, including the road and road sites between Lexington and Concord, are intimately connected with events that opened the war. Consequently, these locations merit preservation and interpretation in the public interest as prime examples of the nation's historical heritage.

About a million people visit Minute Man Park each year. The main priority of the park today is the preservation of cultural and historic landscapes and structures that date back to the Revolutionary War. Many needs exist. For example, Nathaniel Hawthorne's home, the Wayside House, lacks a fire suppression system. The landscape resources that need preserving include British soldiers' graves, formal gardens at the Buttrick estate, stone walls, and pathways.



The famous Daniel Chester French sculpture of the soldier-farmer of the Revolutionary War stands at the heart of Minute Man National Historical Park.

Jerry Howard

HISPANIC HERITAGE

San Juan National Historical Site

(Need: \$9.4 million to repair and stucco walls, repair interior plaster, and preserve terra-cotta)

San Juan National Historical Site in Puerto Rico is comprised of the Spanish-built fortresses of El Morro, San Cristobal, El Canuelo, and five kilometers of historic city walls. Two million visitors a year visit San Juan National Historical Site. The United Nations recognizes San Juan National Historical Site as a World Heritage Site for its exceptional universal cultural value. In 1539 Spanish military engineers began to build a fort on a rocky headland to guard the entrance to San Juan Harbor. Its name, El Morro, means headland or promontory in Spanish. The strategic port of San Juan was a strong base to protect vital shipping lanes entering the Caribbean from Europe. This six-level fortress was continually enlarged in the seventeenth and eighteenth centuries because it was in constant danger of English, Dutch, and French attack. Deep in one of the bombproof vaults is a museum with displays illustrating El Morro's history. The fortress San Cristobal is even larger than El Morro. Begun in 1634, San Cristobal protected the land approaches to old San Juan. Today its high bastions still loom over its nearest neighbor, the beautiful Capitol of Puerto Rico. Visitors can see a restored eighteenth-century Spanish troop quarter inside one of the vaults.



Castillo de San Marcos National Monument

(Need: \$7 million to develop and implement stabilization strategy)

Castillo de San Marcos National Monument and its surrounding land make up twenty-five acres in downtown St. Augustine, Florida, the oldest continually occupied European settlement in what is now the continental United States. The Castillo has been in place since its completion in 1695, and was used as an active military post until 1900. During its existence, it has served the Spanish (from 1695 to 1763 and from 1784 to 1821), the British (from 1763 to 1784), the Confederate States of America (from 1861 to March of 1862), and the United States of America (from 1821 to 1861 and from 1862 to 1900). Although it changed hands many times, these changes were only due to military agreements or political treaty; the Castillo was never taken by force.

Castillo de San Marcos is the oldest continuously occupied European settlement in the continental United States. Construction was completed in 1695, and it was used as an active military post until 1900.

With the help of volunteers, the Park Service reenacts cannon firings—a 1740 Spanish drill that involves a minimum of five crew members and thirty-two different steps to serve, load, and fire the gun. The gun is an exact replica of a bronze six-pounder that is in the Castillo's collection, and if it were fired with an actual six-pound cannonball it could reach a target almost a mile and a half away. Many of the firings involve other living history programs. Park events include Musket School, Siege of 1702 Reenactment, and a Torch Light Tour of the Castillo. Every May, the Park Service holds a class on Castillo history, artillery, and black powder safety that trains new volunteers to serve on gun crews.

NATIVE AMERICAN HERITAGE

Our treasured National Parks are a window on the prehistoric world of ancient Puebloans, the direct ancestors of today's southwestern Native Americans. More than a thousand years ago these peoples were hunters, farmers, artisans, and architects. They studied the sun, moon, and stars, and built sophisticated systems of irrigation for their crops, which included corn, squash, beans, and cotton. The ancient Puebloans were expert pottery makers, having practiced their craft since before A.D. 400. Their architectural legacy of mesa-top communities and complex cliff dwellings continues to astound visitors to the parks. Many of their thirteenth-century constructions were sophisticated, multistoried buildings incorporating kivas, special subterranean rooms for ceremonial gatherings.

There is further evidence of prehistoric Native American cultural history in National Parks outside the Southwest. There are well-preserved prehistoric Indian mounds in Shiloh National Military Park. Ceremonial mounds can also be found at Effigy Mounds National Monument, where animals rise in low relief out of the ground. The mounds are representations of living creatures such as eagles, falcons, bison, deer, turtles, lizards, and in particular, bears. Unique to eastern Iowa, these effigies were created by people who lived in the region from about 500 B.C. to A.D. 1300.

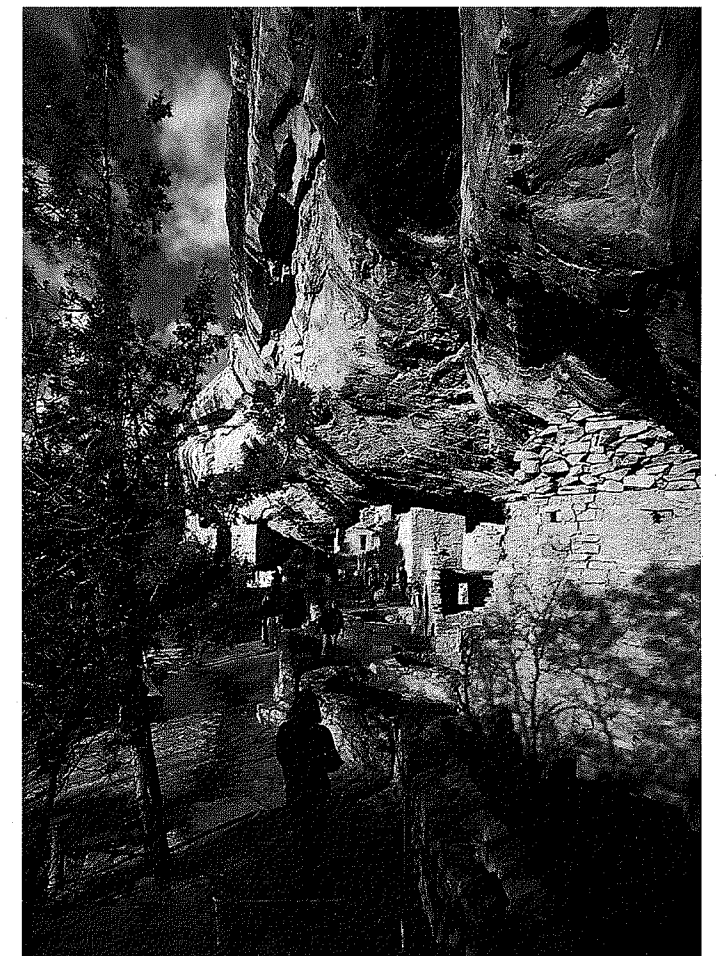
Visiting Mesa Verde National Park allows one to experience the landscape of a pre-Columbian civilization. Unfortunately, many of the structures require emergency stabilization to ensure that visitors may continue to tour them.

Mesa Verde National Park

(Need: \$12 million to stabilize and restore prehistoric structures)

The visitor to Mesa Verde National Park enters the spectacular landscape of a pre-Columbian civilization. Visitors can explore cliff dwellings and walk through numerous mesa-top villages built by the ancestral Pueblo people between A.D. 550 and A.D. 1300. There are 4,000 documented archeological sites within the park boundaries, and more are being discovered all the time. The two million objects in Mesa Verde's collection provide visitors and researchers alike with information about processes, events, and interactions among cultures, individuals, and the environment. In 1996, 633,628 people visited Mesa Verde National Park.

Mesa Verde was declared a National Park by Congress in 1906 to protect the ruins and preserve the remnants of this culture for future generations. It was the first National Park set aside specifically for its cultural resources. Mesa Verde was internationally recognized as an outstanding example of the works of man when it was named one of the original eight United Nations World Cultural Heritage Sites in 1978.



Chris J. Caldwell

Weather, age, and a lack of ongoing stabilization and routine maintenance threaten the very fabric of the prehistoric buildings of Mesa Verde.

Although questions persist, scholars and archeologists have told us much about the history of the region: around A.D. 550 the first Anasazi (from a Navajo word meaning "the ancient ones") settled in Mesa Verde. After living as hunters and gatherers for thousands of years, these Anasazi, known as "the Basketmakers" because of their mastery of this craft, established farming villages (usually on the mesa tops but occasionally in the cliff recesses). The Basketmakers prospered and their population grew, and for the next 700 years their descendants lived and flourished in Mesa Verde.

Eventually, in the middle decades of the 1200s, the Anasazi built the elaborate stone cities in the sheltered recesses of the canyon walls that visitors to the park find today, with cliff dwellings ranging in size from one-room houses to those with over 200 rooms. Then, only one or two generations later, in what remains a mystery, the Anasazi abandoned their homes and moved away. By 1300 Mesa Verde was deserted.

Discovered in 1888 by cowboys looking for stray cattle, Cliff Palace has 217 rooms and twenty-three kivas (subterranean ceremonial chambers); it had a population of 200–250 people. Another famous cliff dwelling, Spruce Tree House, was also discovered by ranchers in 1888. The third largest cliff dwelling among the hundreds within the park boundaries, Spruce Tree House has 114 rooms and eight kivas and was probably home to about 100 people. The cliff dwelling is built into a natural cave measuring 216 feet at its greatest width and eighty-nine feet at its greatest depth.

Sandstone was the basic construction material for the Anasazi. Using harder, riverbed stones, they shaped the sandstone into rectangular blocks roughly the size of a loaf of bread and used a mixture of mud and water for mortar. Many of the thirteenth-century cliff dwellings display remarkable preservation because of their protected location under natural stone alcoves. Weather, age, and a lack of ongoing stabilization and routine maintenance, however, are threatening the very fabric of the prehistoric buildings of Mesa Verde National Park. Some structures are deteriorating at an alarming rate; collapsing walls, undermining foundations, sagging roofs, rising damp, and eroding mortar places the integrity of this architecture in danger. At Spring House, for example, the interior of the tower shows cracks in the plaster and masonry that extend upwards for three floors. At Cliff Palace, groundwater has penetrated in places to damage original walls and plaster.

In response, Mesa Verde has proposed an Emergency Stabilization Program to help arrest the current deterioration and prevent further decay. The staff at Mesa Verde also administers Hovenweep National Monument and Yucca House National Monument, and these park units are included in the stabilization program. There are approximately 5,000 documented prehistoric sites in Mesa Verde, Hovenweep, and Yucca House. Inventories reveal that about 585 of these are cliff dwellings such as the world famous Cliff Palace. There are also forty-five mesa-top towers with standing, exposed architecture. Approximately 100 of these sites have received some preservation over the last ninety years. The Emergency Stabilization Program will reexamine these and add another 200 sites to the treatment program.

Priorities for stabilization are based on the following criteria:

- ▶ The probability of imminent structural collapse of the buildings or their alcoves.
- ▶ The impending major loss of original fabric.
- ▶ The significance of the site and its potential for interpretation.

The Plan of Action for the Emergency Stabilization Program includes the following components:

- ▶ Documentation and assessment by construction and historic preservation professionals to determine structural instability, resource condition, and overall deterioration of 585 cliff dwellings and other significant structural sites.
- ▶ The selection of 300 architectural sites [based on their scientific significance, their potential for meaningful interpretation, and their current contribution to visitor experience] and the setting of priorities for the treatment of these sites.
- ▶ The design of effective proactive preservation treatments and procedures in order to reestablish the structural stability of the 300 sites that are determined to be the highest priority.
- ▶ Implementation of stabilization treatments utilizing techniques that involve only the minimal alteration of original building materials.
- ▶ Creation of permanent building files to document the project and of a record of aboriginal and stabilization construction methodology and techniques.
- ▶ Development of operational and maintenance manuals to facilitate the monitoring and maintenance of the stabilized structures.

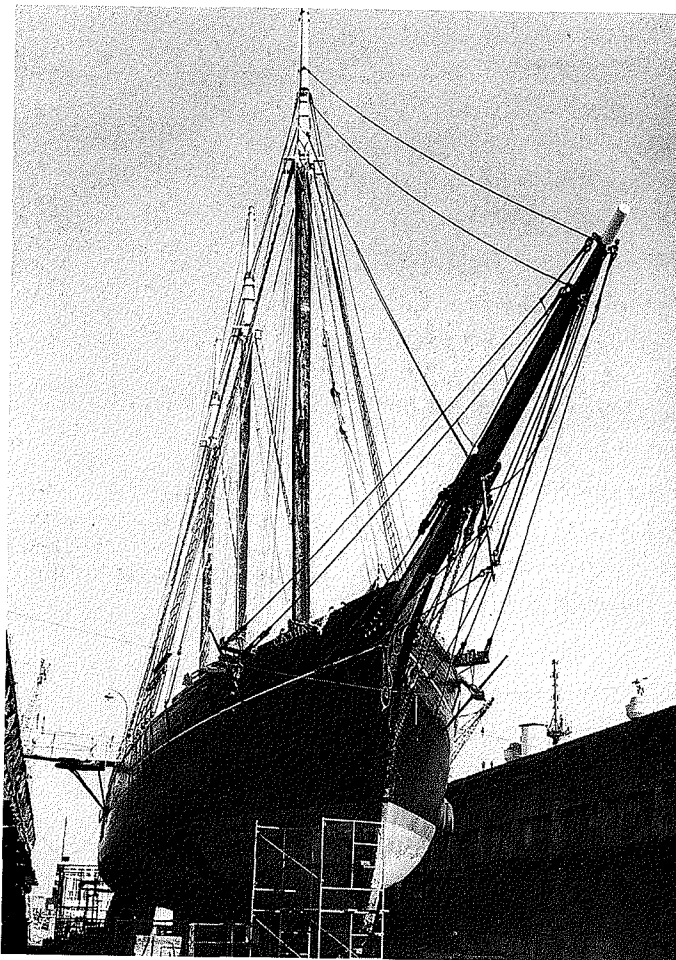
Mesa Verde has requested a commitment of \$10 million, over five years, from the National Park Service Line Item Construction budget to establish the program.

COMMERCE AND INDUSTRY

San Francisco Maritime National Historical Park

(Need: \$20.7 million to rehabilitate threatened historic museum building and restore the endangered ships C. A. THAYER and BALCLUTHA)

San Francisco Maritime National Historical Park, located at the west end of Fisherman's Wharf, contains a historic fleet at Hyde Street Pier. Visitors board the



The C.A. Thayer, shown here in dry-dock, is one of the few vessels that survive from the once prodigious West Coast trading fleet.

National Historic Landmark ships daily, including the 1895 schooner C. A. Thayer, one of only two ships to survive from the once prodigious West Coast sailing fleet. The Thayer, a three-masted schooner used to haul lumber, was the last working sail-powered commercial ship on the West Coast. The Thayer is in desperate need of funds, and San Francisco Maritime Superintendent William G. Thomas offers a reason to restore it: "Our true greatness as a nation is represented by the vessels of commerce and industry . . . The Thayer is just about the last of her breed."

Lowell National Historical Park

(Need: \$958,000 to complete Boott Mill)

Lowell, Massachusetts, was a pioneer in the American Industrial Revolution. In 1813 a wealthy Boston merchant, Francis Cabot Lowell, re-created from memory an English power loom in America. Textile production advanced so quickly that by 1848 the city of Lowell was the largest industrial center in America, producing 50,000 miles of cotton cloth a year. Lowell was a social experiment as much as a technological one: "mill girls" were expected to stay in the city only several years and then return to the

farm to be replaced by other women. This would forestall the growth of a permanent working class. Difficult working conditions, however, caused growing discontent, and women left the mills, replaced by immigrants who were desperate for jobs. The experiment was over; by the middle of the twentieth century most of the city's textile mills had shut down. Today there is an operating weave room with eighty-eight power looms at the Boott Cotton Mills Museum in Lowell National Historical Park.

Edison National Historic Site

(Need: \$29.6 million to develop Edison Center and rehabilitate laboratory complex)

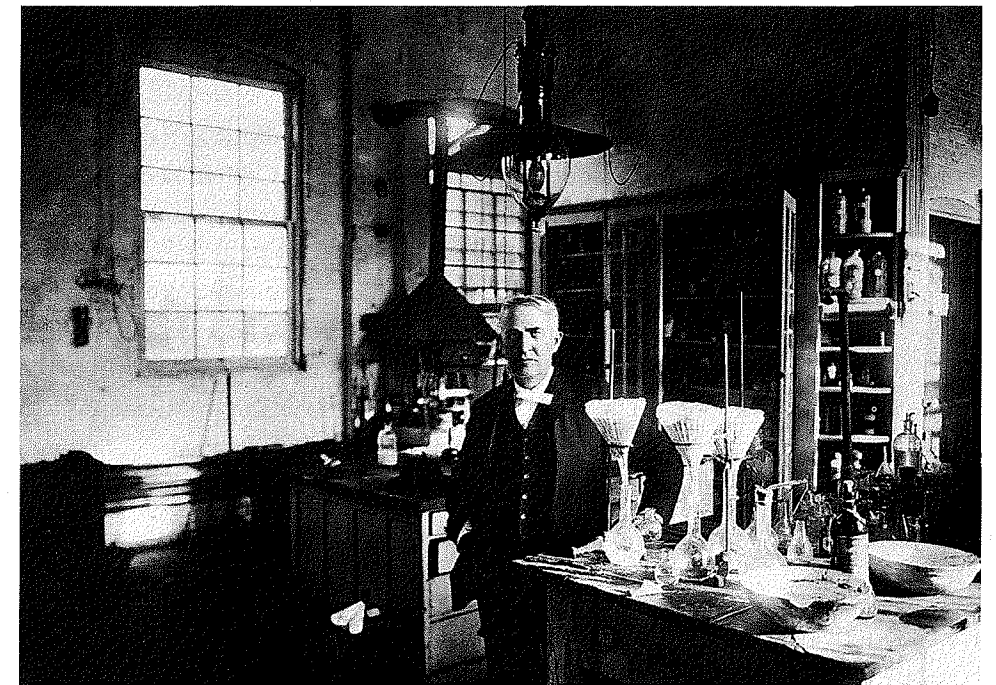
In 1886 and 1887, Thomas Alva Edison designed and built his largest and most sophisticated invention factory in the northern New Jersey village of West Orange. The factory is just half a mile away from Glenmont, a Queen Anne-style mansion

that he bought for his second wife. Both properties constitute Edison National Historic Site.

Many visitors come to the invention factory to see the multitude of Edison's artifacts, including early light bulbs, an electric car powered by a storage battery, and a kinetoscope on which the public first viewed motion pictures.

Meanwhile, the site is in desperate need of funds to process and catalogue its valuable collection of artifacts. Edison's laboratory

notebooks, patent applications, correspondence, and other papers—some five million documents that reveal Edison at work—are largely inaccessible. A collection of prototypes and early models of Edison's inventions cannot be exhibited. These circumstances prevent the visitor from realizing the full experience of being inside the laboratory that led America's technological and business revolution.



Edison in 1904, standing among workbenches and chemistry apparatus in Building 2 of the West Orange site. Many of the valuable artifacts at the Edison site remain uncatalogued and unprotected.

Edison National Historic Site

San Francisco Maritime National Historical Park

SETTLEMENT, IMMIGRATION, AND MIGRATION

Santa Fe Trail

Captain William Becknell's expedition to Santa Fe departed from Arrow Rock, Missouri, on September 1, 1821. Captain Becknell was the first to discover the new trading opportunities that had opened up in New Mexico, and he was the first to return to Santa Fe with a regular trading expedition. Soon the trail established by Becknell and his men would become a cultural and commercial link between the borderlands of the United States and Mexico. Of course, early traders and adventurers would be challenged by distance, terrain, weather, and hostile Indians. The Santa Fe Trail illustrates the scope of western expansion: trappers and traders, diplomacy and war, territorial acquisition, emigrants and gold seekers, and Indian warfare. There are historical landmarks along the way that help interpret the Santa Fe Trail.

Fort Union National Monument

(Need: \$720,000 to construct curatorial, audiovisual, and office areas)

On the eastern frontier of New Mexico, Fort Union was the bustling center of frontier defense from 1851 to 1879. The large number of army troops stationed in the area to protect U.S. citizens were in need of supplies, and Fort Union functioned both as a supply depot and as department headquarters. The provisions were brought across the Santa Fe Trail from Fort Leavenworth. Ruins of the fort, the largest in the Southwest, have been stabilized and treated to prevent erosion of the adobe walls. Through museum exhibits, publications, and guided and self-guided tours, visitors can gain an appreciation of the relationship of the fort to the Santa Fe Trail. There are about 25,000 visitors annually to Fort Union National Monument.

Visitors to Fort Larned can glimpse what life was like on the Santa Fe Trail in the mid-nineteenth century. Funds are needed to restore buildings and grounds and also to construct a visitor center for education work.



Fort Larned National Historic Site

(Need: \$13.8 million to restore buildings and grounds in historic core and to construct visitor center)

Established in 1859, Fort Larned, Kansas, was the most significant military post on the eastern portion of the Santa Fe trail. It was a principal guardian of Santa Fe Trail commerce. For ten years the fort was involved in contests with the Indians, and in 1864 the War

Donna Aitkenhead

Department issued an order that no trains could proceed west of Fort Larned without armed escort. In 1868, Lt. Gen. George A. Custer and the seventh Cavalry were called in to lead an assault from the fort against the Cheyennes. Throughout the 1860s Fort Larned was also an administrative center for peaceful attempts at managing the Indians.

About 50,000 people visit Fort Larned each year. Visitors can view clothing, weapons and equipment used by Fort Larned soldiers and Plains Indians. Exhibits also include displays on medical items and civilians who lived in the fort. When available, visitors can talk to "living historians" who staff the Infantry Barracks, Post Blacksmith Shop, and Commissary and Officers' Quarters. Through talks and demonstrations on frontier life, visitors can experience the sights, sounds, and smells of 1860s Fort Larned.

CONCLUSION

We must, as a nation, make the necessary investment to protect and preserve the parks' tremendous resources or we risk losing them forever.

As documented in this report, America's parks are deteriorating from external impacts, overcrowding, and neglect. For too long Congress has asked the parks to do more with less. Now it is time to pay the cost of years of deferred maintenance and reduced resource protection. We must, as a nation, make the necessary investment to protect and preserve the parks' tremendous resources or we risk losing them forever. While much has been said about the parks' crumbling physical infrastructure, the roads and visitor centers will be of little use if there is little left worth coming to see.

The solutions are at hand. Whether it is ensuring that federal agencies act in ways that protect, rather than damage, park resources, or delivering significantly more funds to resource protection through the sale of government-backed park bonds, Congress, the White House, and the Interior Department must work together to preserve the critical piece of our national identity that our National Parks represent.

ENDNOTES

1 143 Cong. Rec. S3233 (daily ed. April 16, 1997) (statement of Senator Thomas).

2 U.S. House Committee on Appropriations. *United States Department of the Interior National Park Service Budget Justifications, F.Y. 1998: Hearings of the Subcommittee on the Department of the Interior and Related Agencies*. 105th Cong., 1st sess., 1997, 811, 963-970; and visitor statistics provided by National Park Service Office of Public Affairs.

3 U.S. General Accounting Office. *Activities Within Park Borders Have Caused Damage to Resources*. Washington, DC: GAO/RCED-96-202, August 1996, 11.

4 U.S. General Accounting Office. *National Parks: Difficult Choices Need to Be Made About the Future of the Parks*. Washington, DC: GAO/RCED-95-238, August 1995, 27.

5 *Ibid.* at 26.

6 National Park Service, Office of the Associate Director, Professional Services. "Recapitalization of the National Park Service: Preliminary List of Unfunded Capital Construction Needs for Parks with Fiscal Year 1996 Revenue," January 6, 1997.

7 This number includes staff time, as well as equipment, necessary to accomplish the identified goals.

8 National Park Service, Office of Natural Resources. "Backlog of Natural Resource Projects," December 17, 1996.

9 Like the natural resources management issues, this figure includes staffing.

10 United States Department of the Interior. *The Interior Budget in Brief*. February 1997, at BH-57.

11 U.S. General Accounting Office. *National Parks: Difficult Choices Need to Be Made About the Future of the Parks*. Washington, DC: GAO/RCED-95-238, August 1995, 29.

12 U.S. House Committee on Appropriations. *United States Department of the Interior National Park Service Budget Justifications, F.Y. 1998: Hearings of the Subcommittee on the Department of the Interior and Related Agencies*. 105th Cong., 1st sess., 1997, 811, 837. In addition to these funds, the parks rely on scientific work that may be done by resource stewardship staff and others outside the Park Service, such as scientists at the U.S. Geological Survey and universities.

13 *Ibid.*

14 *Ibid.*, at NPS-21, NPS-55, NPS-89, NPS-109.

15 U.S. General Accounting Office. *National Parks: Difficult Choices Need to Be Made About the Future of the Parks*. Washington, DC: GAO/RCED-95-238, August 1995, 31.

16 *Ibid.* at 32.

17 *Ibid.*

18 *Ibid.* at 31

19 National Park Service, Office of Land Resources. "Land and Water Conservation Fund Backlog After FY 1996," February 14, 1997.

20 National Park System Advisory Board. *Creating a Conservation and Recreation Legacy*. Washington, D.C.: August 1994, 28.

21 *Ibid.*

22 *Omnibus Consolidated Appropriations Act, 1997*, Public Law 208, 104th Cong., 2d sess. (7 October 1996), 1996 U.S.C.A.N. (110 Stat.) 3009-1, 3009-181-188.

APPENDIX 1

America's National Parks

	Visitor Use FY1996 (calendar year)	Total Gross Acreage (9/30/96)
Abraham Lincoln Birthplace NHS	249,344	117
Acadia NP	2,704,831	41,818
Adams NHS	38,230	14
Agate Fossil Beds NM	16,567	3,055
Allegheny Portage Railroad NHS	139,446	1,249
Amistad NRA	1,238,990	58,500
Andersonville NHS	197,394	495
Andrew Johnson NHS	59,102	17
Aniakchak NM & Preserve	—	602,779
Antietam NB	246,082	3,256
Apostle Islands NL	168,614	69,372
Appalachian NST	—	172,637
Appomattox Court House NHP	205,938	1,775
Arches NP	856,016	73,379
Arkansas Post NMem	47,919	389
Arlington House (from GWPkwy)	409,143	28
Assateague Island NS	1,910,450	39,722
Aztec Ruins NM	65,955	320
Badlands NP	1,024,543	242,756
Baltimore-Washington Parkway	—	—
Bandelier NM	363,447	32,737
Bent's Old Fort NHS	37,640	800
Bering Land Bridge National Preserve	—	2,698,000
Big Bend NP	279,454	801,163
Big Cypress National Preserve	424,920	716,000
Big Hole NB	50,235	656
Big South Fork National River & RA	855,882	125,000
Big Thicket National Preserve	111,626	96,678
Bighorn Canyon NRA	301,533	120,296
Biscayne NP	338,603	172,924
Black Canyon of the Gunnison NM	200,125	20,766
Blue Ridge Parkway	17,169,062	87,950
Bluestone NSR	64,651	4,268
Booker T Washington NM	20,134	224
Boston African American NHS	345,739	0
Boston Harbor Islands NRA	—	—
Boston NHP	2,260,565	41
Brown v. Board of Education NHS	—	2
Bryce Canyon NP	1,269,600	35,835
Buffalo National River	716,530	94,309
Cabrillo NM	1,047,672	137

	Visitor Use FY1996 (calendar year)	Total Gross Acreage (9/30/96)
Canaveral NS	1,496,961	57,662
Cane River Creole NHP	—	207
Canyon de Chelly NM	818,667	83,840
Canyonlands NP	447,527	337,570
Cape Code NS	4,901,782	43,569
Cape Hatteras NS, Ft Raleigh NHS, Wright Brothers NMem	3,057,649	31,261
Cape Krus NM, Kobuk Valley NP, Noatak National Pres	13,448	8,970,737
Cape Lookout NS	378,487	28,243
Capitol Reef NP	678,012	241,904
Capulin Volcano NM	64,680	793
Carl Sandburg Home NHS	42,879	264
Carlsbad Caverns NP	557,217	46,766
Casa Grande Ruins NM & Hohokam Pima NM	155,941	2,163
Castillo de San Marcos NM & Ft Matanzas NM	1,123,602	248
Castle Clinton NM	3,753,944	1
Catoctin Mountain Park	484,892	5,770
Cedar Breaks NM	543,760	6,155
Chaco Culture NHP	76,868	33,974
Chamizal NMem	186,130	55
Channel Island NP	490,715	249,354
Charles Pinckney NHS	24,340	28
Chattahoochee River NRA	3,540,375	9,239
Chesapeake & Ohio Canal NHP	904,509	19,237
Chickamauga and Chattanooga NMP	974,898	8,119
Chickasaw NRA	1,551,574	9,889
Chiricahua NM & Ft. Bowie NHS	103,508	12,985
Christiansted NHS & Buck Island Reef NM	157,509	907
City of Rocks National Reserve	67,785	14,407
Clara Barton HNS (from GW Parkway)	11,341	9
Colonial NHP	3,145,039	9,330
Colorado NM	318,717	20,454
Congaree Swamp NM	62,614	22,200
Constitution Gardens	—	52
Coronado NMem	93,656	4,750
Cowpens NB	189,434	842
Crater Lake NP	476,957	183,224
Craters of the Moon NM	217,586	53,545
Cumberland Gap NHP	1,051,683	20,444
Cumberland Island NS	43,182	36,415
Curecanti NRA	1,017,256	41,972
Cuyahoga Valley NRA	3,455,878	32,525
Dayton Aviation NHP	39,262	86
De Soto NMem	206,131	27

	Visitor Use FY1996 (calendar year)	Total Gross Acreage (9/30/96)
Death Valley NP	1,189,215	3,367,628
Delaware Water Gap NRA	4,657,735	69,165
Denali NP & Preserve	341,385	6,076,000
Devils Postpile NM	123,364	798
Devils Tower NM	436,591	1,347
Dinosaur NM	464,133	210,844
Dry Tortugas NP	35,127	64,700
Ebey's Landing National Historical Reserve	—	19,000
Edgar Allan Poe NHS	15,549	1
Edison NHS	53,603	21
Effigy Mounds NM	93,894	1,481
Eisenhower NHS	84,465	690
El Malpais NM	101,158	114,277
El Morro NM	82,655	1,279
Eleanor Roosevelt NHS	93,998	181
Eugene O'Neill NHS	3,440	13
Everglades NP	890,167	1,507,850
Federal Hall NMem	259,932	1
Fire Island NS	385,706	19,579
Florissant Fossil Beds NM	91,278	5,998
Ford's Theatre NHS	995,416	0
Fort Caroline NMem	122,565	138
Fort Clatsop NMem	179,573	125
Fort Davis NHS	64,560	460
Fort Donelson NB	217,178	552
Fort Frederica NM	308,819	241
Fort Laramie NHS	54,402	833
Fort Larned NHS	45,985	718
Fort McHenry NM & Historic Shrine	610,932	43
Fort Necessity NB	96,103	903
Fort Point NHS	1,483,089	29
Fort Pulaski NM	343,706	5,623
Fort Scott NHS	48,406	17
Fort Smith	75,056	75
Fort Stanwix NM	48,429	16
Fort Sumter NM	322,702	195
Fort Union NM	19,374	721
Fort Union Trading Post NHS	23,448	444
Fort Vancouver NHS	352,769	209
Fort Washington Park (from NCP-E)	247,954	341
Fossil Butte NM	22,394	8,198
Franklin D Roosevelt Memorial	—	—
Frederick Douglass NHS (from NCP-E)	45,041	9

	Visitor Use FY1996 (calendar year)	Total Gross Acreage (9/30/96)
Frederick Law Olmsted NHS	4,660	2
Fredericksburg/Spotsylvania NMP	477,991	8,375
Friendship Hill NHS	19,228	675
Gates of the Arctic NP & Preserve	6,448	8,472,527
Gateway NRA	6,381,502	26,599
Gauley NRA	214,880	11,145
General Grant NMem	98,127	1
George Rogers Clark NHP	135,132	26
George Washington Birthplace NM	79,261	550
George Washington Carver NM	35,042	210
George Washington Memorial Parkway	6,615,612	7,265
Gettysburg NMP	1,632,720	5,907
Gila Cliff Dwellings NM	56,933	533
Glacier Bay NP & Preserve	304,374	3,283,200
Glacier NP	1,720,805	1,013,572
Glen Canyon NRA	2,505,004	1,236,880
Golden Gate NRA	14,043,984	74,441
Golden Spike NHS	60,484	2,735
Grand Canyon NP	4,537,703	1,217,158
Grand Portage NM	71,746	710
Grand Teton NP	2,733,439	309,994
Grant-Kohrs Ranch NHS	29,175	1,498
Great Basin NP	86,335	77,180
Great Egg Harbor SRR	—	—
Great Sand Dunes NM	309,283	38,662
Great Smoky Mountains NP	9,265,667	521,621
Greenbelt Park	322,800	1,176
Guadalupe Mountains NP	223,485	86,416
Guilford Courthouse NMP	614,766	220
Gulf Island NS	2,616,448	135,607
Hagerman Fossil Beds NM	11,793	4,281
Haleakala NP	1,553,344	28,091
Hamilton Grange NMem	0	0.11
Hampton NHS	30,218	62
Harpers Ferry NHP	314,548	2,287
Harry S Truman NHS	65,463	7
Hawaii Volcanoes NP	1,170,491	209,695
Herbert Hoover NHS	241,757	187
Home of Franklin D Roosevelt NHS	193,170	290
Homestead NM of America	36,384	195
Hopewell Culture NHP	37,005	1,134
Hopewell Furnace NHS	91,412	848
Horseshoe Bend NMP	95,851	2,040

	Visitor Use FY1996 (calendar year)	Total Gross Acreage (9/30/96)
Hot Springs NP	1,538,105	5,549
Hovenweep NM & Yucca House NM	27,526	795
Hubbell Trading Post NHS	253,123	160
Independence NHP	3,128,028	45
Indiana Dunes NL	1,526,166	15,139
Isle Royale NP	23,445	571,790
James A Garfield NHS	—	8
Jean Lafitte NHP & Preserve	849,136	20,020
Jefferson National Expansion Memorial	3,649,308	91
Jewel Cave NM	144,634	1,274
Jimmy Carter NHS	39,766	71
John D Rockefeller Jr Memorial Parkway	1,471,029	23,777
John Day Fossil Beds NM	120,556	14,015
John F Kennedy NHS	15,717	0
John Muir NHS	28,045	345
Johnstown Flood NMem	141,116	164
Joshua Tree NP	1,095,046	792,750
Kalaupapa NHP	62,314	10,779
Kaloko-Honokohau NHP	48,836	1,161
Katmai NP & Preserve	0	4,124,040
Kenai Fjords NP	274,034	670,643
Kennesaw Mountain NBP	1,144,361	2,884
Keweenaw NHP	—	1,870
Kings Mountain NMP	227,709	3,945
Klondike Gold Rush NHP	480,817	13,191
Klondike Gold Rush NHP (Seattle)	111,642	—
Knife River Indian Village NHS	15,987	1,758
Korean War Veterans Memorial	—	2.20
Lake Clark NP & Preserve	12,727	4,030,500
Lake Mead NRA	9,350,847	1,495,666
Lake Meredith NRA & Alibates Flint Quarry NM	1,679,742	46,349
Lake Roosevelt NRA (Coulee Dame NRA)	1,045,455	100,390
Lassen Volcanic NP	351,632	106,372
Lava Beds NM	108,298	46,560
Lincoln Boyhood NMem	130,805	200
Lincoln Home NHS	412,524	12
Lincoln Memorial (from NCP-C)	1,190,961	107
Little Bighorn NM	363,841	765
Little River Canyon National Preserve	—	13,669
Longfellow NHS	13,131	2
Lowell NHP	541,515	137
Lyndon B Johnson NHP	136,892	1,570
Maggie L Walker NHS	8,536	1

	Visitor Use FY1996 (calendar year)	Total Gross Acreage (9/30/96)
Mammoth Cave NP	1,896,829	52,830
Manassas NBP	725,086	5,072
Manzanar NHS	—	—
Marsh-Billings NHP	—	—
Martin Luther King, Jr NHS	774,917	37
Martin Van Buren NHS	17,807	40
Mary McLeod Bethune Council House NHS	—	—
Mesa Verde NP	617,360	52,122
Middle Delaware NSR	—	1,973
Minute Man NHP	955,938	935
Mississippi NR & RA	—	53,775
Missouri NRR	—	—
Mojave NPRES	—	1,450,000
Monocacy NB	11,312	1,647
Montezuma Castle NM & Tuzigoot NM	1,144,747	1,658
Moore's Creek NB	58,516	87
Morristown NHP	498,256	1,684
Mount Rainier NP	1,338,961	235,613
Mount Rushmore NMem	1,904,991	1,278
Muir Woods NM	1,410,655	554
Natchez NHP	49,110	108
Natchez Trace NST	—	10,995
Natchez Trace Parkway, Brices Crossroads, Tupelo NB	6,088,610	51,750
National Capital Parks	8,400,985	6,544
National Mall	—	146
National Park of American Samoa	—	9,000
Natural Bridges NM	136,368	7,636
Navajo NM	100,323	360
New Bedford Whaling NHP	—	—
New Orleans Jazz NHP	—	—
New River Gorge National River	1,237,637	62,144
Nez Perce NHP	263,241	2,123
Nicodemus NHS	—	—
Ninety Six NHS	37,591	989
Niobrara/Missouri NR	—	—
No. Cascades NP, Lk Chelan NRA, Ross Lk NRA	378,366	684,243
Obed Wild & Scenic River	216,699	5,122
Ocmulgee NM	129,818	702
Olympic NP	3,348,723	922,651
Oregon Caves NM	98,383	488
Organ Pipe Cactus NM	399,721	330,689
Ozark National Scenic Riverways	1,475,942	80,790
Padre Island NS	840,236	130,434

	Visitor Use FY1996 (calendar year)	Total Gross Acreage (9/30/96)
Palo Alto Battlefield NHS	—	3,357
Pea Ridge NMP	90,839	4,300
Pecos NHP	40,400	6,671
Pennsylvania Avenue NHS	—	—
Perry's Victory & International Peace Memorial	197,506	25
Petersburg NB	171,312	2,744
Petrified Forest NP	829,495	93,533
Petroglyph NM	90,533	7,240
Pictured Rocks NL	403,684	73,228
Pinnacles NM	164,465	16,265
Pipe Spring NM	44,817	40
Pipestone NM	96,157	282
Piscataway NS	194,494	4,441
Point Reyes NS	2,272,398	71,049
President's Park	—	70
Presidio	—	—
Prince William Forest Park	239,369	18,572
Pu'uhonua O Honaunau NHP	458,035	182
Puukohola Heiau NHS	46,593	86
Rainbow Bridge NM	325,562	160
Redwood NP	426,938	110,232
Richmond NBP	77,807	821
Rio Grande W&S River	498	9,600
Rock Creek Park	1,873,822	1,754
Rocky Mountain NP	2,923,755	265,727
Roger Williams NMem	49,513	5
Russell Cave NM	26,881	310
Sagamore Hill NHS	71,195	83
Saguaro NP	671,643	91,453
Saint Croix Island IHS	—	35
Saint Croix NSR & Lower Saint Croix NSR	422,653	92,735
Saint Paul's Church NHS	4,346	6
Saint-Gaudens NHS	37,498	148
Salem Maritime NHS	600,778	9
Salinas Pueblo Missions NM	44,913	1,071
Salt River Bay NHP & Ecological Preserve	—	945
San Antonio Missions NHP	1,239,970	819
San Francisco Maritime NHP	3,670,972	31
San Juan Island NHP	227,104	1,752
San Juan NHS	1,051,187	75
Santa Monica Mountains NRA	428,524	150,050
Saratoga NHP	137,366	3,393
Saugus Iron Works NHS	21,451	9

	Visitor Use FY1996 (calendar year)	Total Gross Acreage (9/30/96)
Scotts Bluff NM	132,166	3,003
Sequoia NP & Kings Canyon NP	1,340,809	864,384
Shenandoah NP	1,571,019	197,389
Shiloh NMP	318,936	3,973
Sitka NHP	371,210	107
Sleeping Bear Dunes NL	1,091,005	71,189
Springfield Armory NHS	18,991	55
Statue of Liberty NM & Ellis Island	4,487,176	58
Steamtown NHS	168,970	62
Stones River NB	255,888	708
Tallgrass Prairie NPres	—	—
Thaddeus Kosciuszko NMem	7,259	—
Theodore Roosevelt Birthplace NHS	28,895	—
Theodore Roosevelt Inaugural NHS	8,300	1
Theodore Roosevelt Island (from GWParkway)	131,890	89
Theodore Roosevelt NP	436,081	70,447
Thomas Jefferson Memorial (from NCP-C	748,862	18
Thomas Stone NHS	3,946	328
Timpanogos Cave NM	97,250	250
Timucuan Ecological & Historical Preserve	59,701	46,000
Tonto NM	71,970	1,120
Tumacacori NH	62,206	47
Tuskegee Institute NHS	490,861	58
Ulysses S Grant NHS	14,124	10
U.S.S. Arizona Memorial	1,415,855	—
Upper Delaware Scenic & Rec River	494,267	75,000
Valley Forge NHP	1,876,525	3,466
Vanderbilt Mansion NHS	368,899	212
Vicksburg NMP	968,615	1,736
Vietnam Veterans Memorial	—	2
Virgin Islands NP	475,942	14,689
Voyageurs NP	246,588	218,035
Walnut Canyon National Monument	—	2,249
War in the Pacific NHP	133,220	1,960
Washington Monument (from NCP-C)	707,498	106
Washita Battlefield NHS	—	—
Weir Farm NHS	11,127	61
Whiskeytown NRA	844,151	42,503
White House	1,179,458	18
White Sands NM	616,699	143,733
Whitman Mission NHS	77,338	98
William Howard Taft NHS	6,640	3
Wilson's Creek NB	259,201	1,750

	Visitor Use FY1996 (calendar year)	Total Gross Acreage (9/30/96)
Wind Cave NP	781,171	28,295
Wolf Trap Farm Park	591,928	130
Women's Rights NHP	30,490	7
Wrangell-Saint Elias NP & Preserve	31,467	13,176,391
Wupatki NM, Sunset Crater NM, Walnut Can NM	590,525	40,543
Yellowstone NP	3,012,171	2,219,791
Yosemite NP	4,046,207	761,236
Yukon-Charley Rivers National Preserve	1,005	2,526,510
Zion NP	2,498,001	146,598

Key:

IHS=International Historic Site
 NB=National Battlefield
 NBS=National Battlefield Site
 NCP=National Capital Parks
 NHP=National Historic Park
 NHS=National Historic Site
 NL=National Lakeshore
 NM=National Monument
 NMem=National Memorial
 NMP=National Military Park
 NP= National Park
 NPres=National Preserve
 NRA=National Recreation Area
 NS=National Seashore
 NSR=National Scenic River
 NST=National Scenic Trail
 SRR=Scenic and Recreational River

APPENDIX 2

National Park Service Land and Water Conservation Fund Backlog After FY 1996 (Excludes Alaska Parks)

Area	Tracts	Acres	Estimated Value (\$)	Statutory Ceiling Balance ¹
Inholdings ²	2,176	30,088	203,218,000	No ceiling
Acadia National Park	94	987	20,901,000	0
Alibates Flint Quarries NM	1	292	330,000	0
Amistad NRA	1	1,208	1,000,000	No ceiling
Antietam NB	47	840	5,000,000	No ceiling
Appalachian NS Trail	164	10,374	17,211,000	0
Assateague NS	24	4	100,000	0
Aztec Ruins NM	17	141	1,536,00	No ceiling
Bent's Old Fort NHS	1	40	100,000	513,107
Big Bend NP	22	23,283	2,690,600	1,500,000
Big Cypress N. Preserve Addition	2,306	12,484	16,300,000	36,559,000
Big South Fork NR and NRA	36	7,900	8,043,000	8,043,000
Bighorn Canyon NRA	5	2,046	682,100	0
Biscayne NP	10	547	820,500	3,951,065
Black Canyon NM	1	120	100,000	No ceiling
California Desert Parks	Unknown	Unknown	300,000,000	300,000,000 ³
Cape Cod NS	49	176	34,015,950	0
Cape Lookout NS	2	7	55,000	1,000,000
Channel Islands NP	3	60,545	59,100,000	0
Chattahoochee River NRA	23	421	21,280,720	0
Chesapeake and Ohio Canal NHP	141	2,623	19,500,000	0
City of Rocks N. Res	13	1,855	836,000	820,493
Congaree Swamp NM	1	272	400,000	No ceiling
Cumberland Island NP	11	1,670	28,624,000	0
Cuyahoga Valley NRA	365	2,819	44,000,000	0
Dayton Aviation Heritage NHP	4	1	125,000	No ceiling
Delaware Water Gap	78	2,656	5,440,000	No ceiling
Ebey's Landing N. Historic Pres.	50	886	5,715,000	79,000
El Mapais NM	33	6,351	2,797,703	5,542,763
Everglades NP Expansion	6,240	45,959	63,750,000	0
Fire Island NS	234	70	22,000,000	1,825,788
Fort Donelson	3	12	47,300	0
Fort Frederica NM	3	2	230,000	0
Fort Laramie NHS	1	1	1,760	No ceiling
Fort Raleigh NHS	3	92	5,610,000	No ceiling
Fort Smith NHS	16	36	359,012	359,012
Fort Union Trading Post NHS	7	45	99,220	66,734
Fred and Spots. NMP Expansion	94	997	18,513,000	No ceiling
Gauly River NRA	121	6,159	6,105,000	No ceiling
Gettysburg National Park Expansion	89	1,681	20,175,000	No ceiling
Golden Gate NRA	87	3,028	56,760,000	0

Area	Tracts	Acres	Estimated Value (\$)	Statutory Ceiling Balance ¹
Golden Spike NHS	16	532	182,500	303,171
Great Basin National Park	250	5,000 (min)	200,000	200,000
Great Sands Dunes NM Expansion	1	1,833	330,220	265,000
Guadalupe NP	10	4,960	460,000	No ceiling
Gulf Islands NS	10	719	830,000	0
Haleakala NP	12	277	6,092,200	0
Harper's Ferry NHP	15	32	2,395,000	250,000
Hopewall Culture NHP	10	356	1,500,000	No ceiling
Indiana Dunes NL	111	1,017	12,300,000	No ceiling
Jean Lafitte NHP	29	5,387	2,800,000	27,972,351
Jefferson N. Exp. Mem. NHS	2	52	650,000	761,007
Jimmy Carter NHS	10	48	95,000	95,000
John Day Fossil Beds NM	9	1,576	430,000	3,054,003
John Muir NHS	1	1	200,000	No ceiling
Kalaupapa NHP	1	72	1,100,000	909,860
Kaloko-Honokohau NHP	1	26	20,100,000	24,095,111
Keweenaw NHP	2	1,870	5,000,000	5,000,000
Knife River Indian Villages NHS	2	165	400,000	327,903
Lake Chelan NRA	150	394	16,320,000	0
Lake Mead NRA	38	17,092	1,680,000	0
Lowell NHP	20	121	10,600,000	0
Lyndon B. Johnson NHP	37	984	2,500,000	1,127,703
Manassas NBP	66	671	11,240,000	501,173
Martin Luther King, Jr., NHS	6	16	4,800,000	No ceiling
Minute Man NHP	31	117	6,392,000	6,392,000
Monocacy NB	7	507	12,000,000	11,769,617
National Park of American Samoa	Lease	Lease	Unknown	No ceiling
New Orleans Jazz NHP	Unknown	Unknown	Unknown	No ceiling
New River Gorge NR	436	14,229	13,947,430	0
Nez Perce NHP	14	460	1,200,000	1,200,000
North Cascades NP	103	173	129,000	0
Obed Wild and Scenic River	36	1,376	890,000	0
Olympic NP Expansion	94	244	31,450,000	0
Ozark NSR	21	1,891	510,000	0
Palo Alto Battlefield NHS	18	2,966	4,601,000	5,001,000
Pecos NHP	29	472	3,001,000	No ceiling
Petroglyph NM	122	751	8,767,000	No ceiling
Piscataway Park	2	45	1,200,000	No ceiling
Point Reyes NS	94	514	8,500,000	411,702
Prince William Forest Park	2	1,161	22,825,000	No ceiling
Rocky Mountain NP Expansion	13	104	688,000	0
Saguaro NP	28	2,500	25,100,000	No ceiling
Saint Croix NSR	83	1,158	478,000	0
Salinas Pueblo Missions NM	4	18	50,000	80,000

Area	Tracts	Acres	Estimated Value (\$)	Statutory Ceiling Balance ¹
Salt River Bay NHP	25	279	16,850,000	No ceiling
San Antonia Missions NHP	31	211	4,500,000	6,271,500
Santa Monica Mtns, NRA	161	29,157	81,010,000 ¹	0
Saratoga NHP	3	321	1,445,000	204,000
Sequoia NP (Mineral King)	40	169	3,014,000	No ceiling
Sleeping Bear Dunes NL	64	1,985	4,500,000	4,767,985
Stones River NB	41	208	2,825,000	No ceiling
Timucuan E&H Preserve	23	17,303	8,600,000	No ceiling
Tumacacori NM	5	30	290,000	0
Tuzigoot NM	4	743	2,215,000	1,350,000
T. Roosevelt NP	24	234	137,000	No ceiling
Upper Delaware S&R Rvr.	2	37	2,768,000	No ceiling
Valley Forge NHP	18	248	16,118,000	3,958,435
Virgin Islands NP	244	1,592	52,100,000	No ceiling
Voyageurs NP	71	1,597	8,920,000	0
War in the Pacific	49	168	9,000,000	12,929,953
Weir Farms NHS	2	3	Unknown	19,000
Women's Rights NHP	3	1	120,513	120,513
Total	15,332	349,891	1,451,917,728	479,595,950

¹ When a new park is established, Congress often authorizes a certain amount to be spent to acquire land. The funds are not available for acquisitions until they are appropriated. Once appropriated and spent, the statutory ceiling balance shrinks until it reaches zero, at which point a new authorization is required.

² "Inholdings" is a technical term referring to projects within areas authorized prior to 1965.

³ Statutory ceiling for acquisition by NPS and BLM at areas affected by the California Desert Protection Act of 1994. NPS acquisition needs and costs have not yet been determined.

Source: National Park Service, Natural Resources Division

APPENDIX 3

National Parks: Visitation and Funding Figures

Year	Visits	Park Service Appropriation	Constant (1978) Dollar Equivalent
1978	222,184,026	1,265,378	1,265,378
1979	205,369,794	1,251,711	1,152,117
1980	198,014,710	1,173,610	989,019
1981	210,050,610	793,719	611,200
1982	213,704,970	770,781	558,871
1983	216,893,310	1,072,971	746,096
1984	218,092,830	910,649	610,699
1985	216,040,450	924,345	598,590
1986	237,094,440	825,805	521,507
1987	246,408,690	914,480	560,133
1988	250,466,250	899,004	531,467
1989	256,100,470	1,022,091	579,983
1990	263,234,120	1,080,119	587,372
1991	267,840,999	1,347,889	705,114
1992	274,694,549	1,437,036	731,451
1993	273,120,925	1,386,283	687,737
1994	268,636,169	1,451,637	703,698
1995	269,564,307	1,367,436	646,863
1996	265,796,163	1,360,759	630,233

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