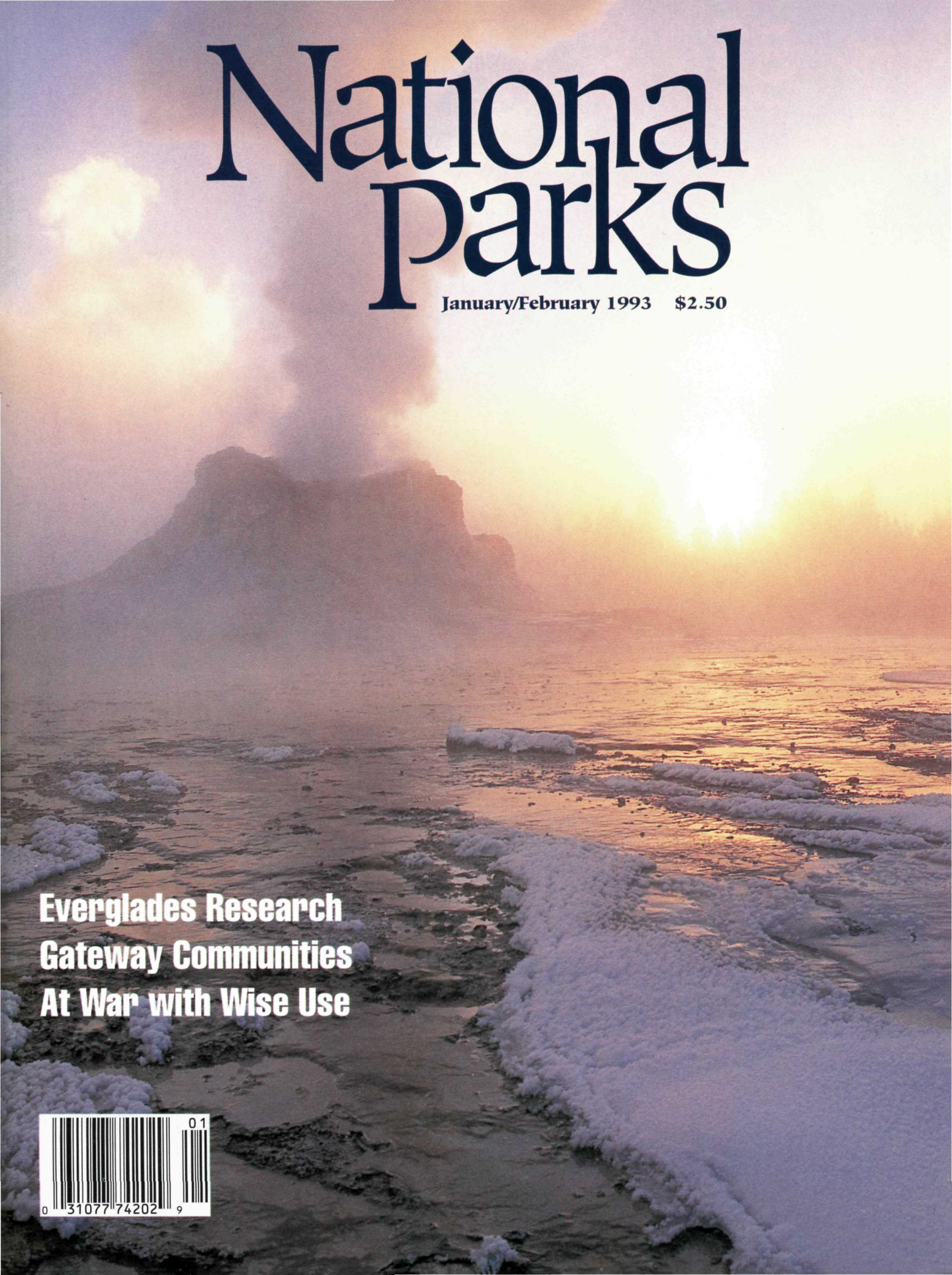

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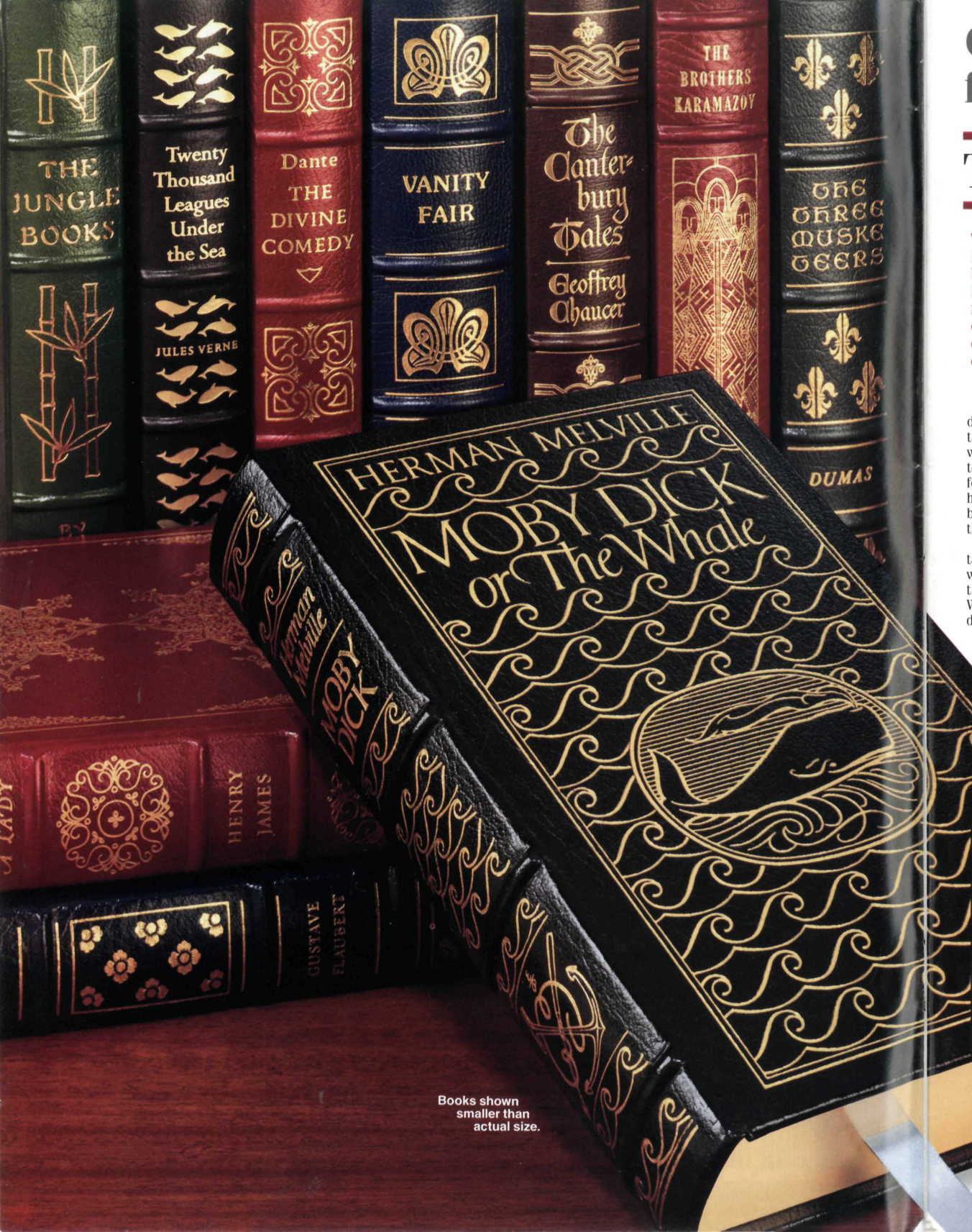

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MICHAEL H. FRANCIS

Everglades National Park, page 20

EDITOR'S NOTE

A new report issued by the National Research Council confirms what NPCA and others have been saying for years: the National Park Service urgently needs to improve its research programs. Nowhere is this need more critical than at Everglades National Park in Florida, where the water flow has been severely disrupted, resulting in extensive damage to the ecosystem. NPS scientists are working to restore the Everglades, but their efforts are hampered by a lack of data and a chronic shortage of funds—conditions that exist throughout the park system (see story, page 20). Effective resource management depends on scientific data; and with so many parks facing serious problems, research deserves to be a top priority for NPS.

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National Parks

THE MAGAZINE OF THE NATIONAL PARKS AND CONSERVATION ASSOCIATION

Vol. 67, No. 1–2
January/February 1993
Paul C. Pritchard, Publisher

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More Than a March


DOMINIC R. TIDMARSH

BORN OUT OF THE 1990 Earth Day celebration is an event that is the cornerstone of a number of environmental programs across America. NPCA's March for Parks raises awareness and funds for America's national, state, regional, and local parks by organizing walks and other events around the country. The march has taken a special place as Americans look for ways to take back their heritage, their history, and their parks, and to initiate grassroots programs to save their piece of the Earth.

The well-known quote, "think globally, act locally," suggests that if each community were to ensure that its particular environment were healthy, that its air and water were clean, that its plant and animal species were thriving under its stewardship, global environmental problems would be minimized. For example, if citizens ensured that factories in their towns did not pollute, nations might not need clean air laws.

On the specific scale of national parks, the same is true. Our parks have been in the hands of those who favor short-term returns over long-term public needs. As a result, many programs—such as planting trees, preserving wildlife habitat, carrying out research, and furthering environmental education—have been given low priority because they produce no immediate commercial or political gain. Therefore, private citizens must step in to ensure that these needed programs become a reality.

Through March for Parks, citizens can do just that: take back what is theirs, take back their parks, take back their responsibility. For example, users of Chugach State Park in Alaska marched last year to inaugurate a park watch program aimed at taking back their park from criminals engaged in illegal tree-cutting, theft, and vandalism in Chugach. And in Florida, a Miami elementary school teacher marched with her students to raise funds for environmental education materials about Everglades National Park.

March for Parks is more than a march because it reflects the broad mandate of thinking globally and acting locally. Last year, more than 15,000 people across the country raised nearly $250,000 for park projects. This year we will help more people work to fulfill their local needs—including riverside cleanups, tree plantings, recycling programs, and environmental education projects (see story on page 40).

March for Parks 1993—April 16, 17, and 18—takes on a special significance for NPCA because it is also the kick-off of NPCA's 75th anniversary. Join with individuals nationwide as we not only work to protect parks but also applaud 75 years of citizen action that has created the wonderful National Park System we have today.

Each one of us must act locally if we are going to save our parks, save our Earth.

Paul C. Pritchard

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Political Ties

May I raise a cautionary flag about the proposal to remedy National Park Service political influence problems by removing the service from the Department of the Interior?

The example of William Reilly and the Environmental Protection Agency should be warning enough. Changes in government organization will not save "white hat" agencies from adverse political manipulation.

In 1981, I took early retirement as associate regional director of NPS—fortunately missing all but six weeks of Secretary of the Interior James Watt. Earlier in my career, I served as a confidential assistant to Secretary Stewart L. Udall and as a staff assistant to the assistant secretary for mineral resources and to the director of the Bureau of Mines. I had a good opportunity to see environmental and developmental issues from all sides.

What is needed is an aggressive and politically talented NPS director, supported and buffered from antagonistic interests both inside and outside government by an environmentally sensitive secretary of the Interior. NPS did well during the Udall years, and the park system could thrive again—given the right political climate. The solution is political, not structural.

L. Boyd Finch
Tucson, AZ

Persistent Poison

We Alaskans are still suffering the far-reaching effects of the *Exxon Valdez* oil spill. We are seeing smaller and smaller numbers of salmon in our rivers and streams. We have lost eagles, puffins, cormorants, otters, bears, and beavers.

Those of us who tried to make a difference by volunteering at the several otter recovery centers will never forget the impact the oil had on the sea mammals. Much to our dismay, we were to learn at a later date that Exxon had gone out and captured many of these cleaned animals, dumped them into vats of oil, and recorded how the oil affected them without human intervention.

Unfortunately, we will feel the oil's mark for many years to come. Much of our wildlife will continue to suffer, and Alaska's Prince William Sound will never be the same again.

Mary Anne Love-Miller
Eagle River, AK

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Gail Pigeon
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NEWS

102ND CONGRESS MIXES ACTION AND DELAY

With the elections and the economy occupying center stage, the 102nd Congress did not attain many landmarks in conservation. Most big decisions were put off until 1993. Nonetheless, conservationists made real progress on a number of major issues. Congress also passed many important smaller measures.

One of these established Dry Tortugas National Park in the Florida Keys. The area had previously been Fort Jefferson National Monument but was declared a national park to better reflect its significance. The new park contains the least disturbed coral reef system in the continental United States, and tens of thousands of birds flock to the islands each year.

"NPCA first proposed a decade ago that the Dry Tortugas become a national park to signify the importance of their marine resources and our national commitment to protect them," said NPCA President Paul Pritchard. He gave credit to Florida's Rep. Dante Fascell (D) and senators Bob Graham (D) and Connie Mack (R).

NPCA put a high priority on assuring protection for the only place on current U.S. territory where the Columbus expeditions are believed to have landed. The new Salt River Bay National Historical Park and Ecological Preserve on St. Croix also includes one of the Virgin Islands' most pristine areas.

Congress made several other additions to the National Park System. A Topeka, Kansas, school that figured in the landmark *Brown* v. *Board of Education* desegregation case was declared a national historic site. Manzanar, a camp in California where Japanese-Americans were held during World War II, received the same designation. The Marsh-Billings house in Vermont, home of early conservationist George Perkins Marsh, was made a national historical park. The Niobrara River in Nebraska became a national scenic river. And Alabama's Little River Canyon, "the Grand Canyon of the East," became a national preserve. There will also be a study of the proposed coast-to-coast American Discovery Trail for hikers and bicyclists.

The boundaries of roughly a dozen parks were expanded, including Assateague Island National Seashore in Maryland, Indiana Dunes National Lakeshore in Indiana, several Revolutionary War and Civil War sites, and Mound City National Monument in Ohio, renamed Hopewell Culture National Historical Park (see page 37).

Other legislation will help to protect parks. Two dams that block once-spectacular salmon runs on Olympic National Park's Elwha River may finally be removed. A new law directs the Interior Secretary to study ways of restoring the fish runs. It indicates that, unless there are major environmental drawbacks, removing the dams is the preferred method. A water bill comes to the aid of Grand Canyon National Park, requiring that Glen Canyon dam upstream be operated in a less damaging manner.

Congress approved a measure aimed at "park pork" projects. It prevents appropriations committees from earmarking NPS funds for projects not approved by Congress as a whole.

Conservationists blocked other bills successfully. In 1991, a Senate energy bill opening the Arctic National Wildlife Refuge to oil and gas drilling was

MATT BRADLEY/TOM STACK AND ASSOCIATES

Dry Tortugas National Park, 70 miles off Key West, contains Fort Jefferson, the largest of the nation's historic coastal forts, and abundant bird and marine life.

scuttled. The provision was absent from energy legislation passed in 1992.

Alaska's congressional delegation pushed to open Glacier Bay National Park to commercial and subsistence fishing and to more cruise ships. After lobbying efforts by NPCA and other groups, no such bill was passed, but the proposal will likely return in 1993.

So will some major environmental proposals. Legislation expanding protection for the California desert passed the House in late 1991 but did not clear the Senate in 1992. Californians helped its chances for next session by electing new senators Barbara Boxer and Dianne Feinstein, who support the proposal.

Congress held hearings in 1992 on reform of the park concessions system, under which businesses provide visitor services in the parks. NPCA testified that the system is anti-competitive, a bad deal for the government financially, and fosters development and overuse at the expense of preservation. Reform legislation, sponsored by Sen. Dale Bumpers (D-Ark.), will be back in 1993.

Yellowstone's famous geysers and hot springs were left at risk when Congress failed to move quickly on a bill banning geothermal energy development within 15 miles of the park until its effects are studied. The Old Faithful Protection Act passed the House in November 1991 but did not clear the Senate in 1992. A moratorium on geothermal leasing and development north of the park expired in April.

An exchange of state inholdings in Utah's national parks, forests, and Indian reservations for mineral interests elsewhere in the state also failed to clear Congress before adjournment, as did resolutions to protect the Tatshenshini and Alsek rivers in Alaska and Canada from a proposed massive copper mine.

Of all the issues to return in 1993, perhaps the biggest fight will be reauthorization of the Endangered Species Act, which Congress put off this year.

For fiscal year 1993, Congress provided the Park Service with $1.395 billion, an $8-million increase from last year. In all categories except construction, however, funding was lower than the Bush Administration proposed.

Compared to last year, the Park Service's basic operations budget grew by $39 million to improve maintenance and resources management. But some park managers believe that costs the parks had to absorb created an overall 3-percent cut in operational funding.

Land purchase funds rose more than $8 million, benefiting Channel Islands National Park in California and Saguaro National Monument in Arizona.

Western senators opposed to the reintroduction of wolves to Yellowstone were unsuccessful in trying to delete funds for the Park Service to participate in a study on reintroduction.

The appropriations bill prohibits the Park Service from using any funds to construct a massive hotel complex at Crater Lake National Park in Oregon, which NPCA holds is excessive and damaging. Instead, the bill directs the Park Service to restudy the proposal. The Park Service has asked Dale Crane, NPCA's Pacific Northwest regional director, to participate in the study process. Congress also did not provide funding for a controversial hotel project at Denali National Park (see page 14).

The House appropriations bill included a one-year moratorium on recognizing right-of-way claims made under an 1866 statute. Under Revised Statute 2477, states and counties are claiming the right to develop and expand old dirt roads and tracks that cross national parks and other federal lands. The final House-Senate bill did not contain the moratorium but does require the Interior Department to complete a study of the issue by May.

ALAN AND SANDY CAREY

Wolves, killed off from Yellowstone decades ago, may now be reintroduced.

NEWSUPDATE

▲ **After Andrew.** Recovery from Hurricane Andrew is under way at Everglades and Biscayne national parks. The main park entrance at Everglades was scheduled to reopen in mid-December, and portions of Biscayne were to open on January 1. Employees left homeless have now found temporary or permanent housing. Damaged facilities are receiving temporary repairs; others will have to be rebuilt. NPCA is coordinating this year's Everglades Coalition conference, February 20-23 in Tallahassee. It will focus on the aftermath of the storm as well as other major problems confronting the Everglades. Contact Ellen Wilson at (202) 223-6722.

▲ **Sightings.** A film crew in Yellowstone this August returned with footage of what biologists think may be a wolf. Likely wolf sightings in the region have been on the rise. It is unclear if the animals are hybrids or escaped pets or if wolves are naturally recolonizing the area, but reintroduction still seems the best way to ensure the wolf's return (see above).

▲ **Shift on appeals.** The Interior Department announced this fall that it will allow oil and gas drilling on public lands to proceed while under appeal. The policy shift weakens the power of citizen appeals, since by the time a case is decided, the environmental damage may already be done.

Lawsuit Challenges Permit for Jetties

NPCA and five other environmental groups, represented by the Sierra Club Legal Defense Fund, filed suit against the Department of the Interior in early November, contesting a permit issued for a controversial jetty project.

Interior Secretary Manuel Lujan granted a conditional permit on October 29 for the building of two enormous jetties on North Carolina's Outer Banks. NPCA and the other groups have fought approval of the project for more than 20 years, arguing that the jetties will create serious erosion at Cape Hatteras National Seashore and Pea Island National Wildlife Refuge.

The lawsuit also cites several irregularities in the permit. The permit authorizes construction to begin as soon as a study of the project's effects, already under way, is completed. It appears to give the authorization no matter what the study's findings are.

Under federal law, this supplemental environmental impact statement and other such studies are meant to be objective reviews on which government decisions can be based. The suit charges that by issuing the permit now, Interior violated that decision-making procedure and the objectivity of the study.

The lawsuit also points to evidence that the decision was politically motivated. It cites a July letter written by Dan Gray, chairman of the Dare County, North Carolina, Republican Party, to President George Bush. In it, Gray states that "for us to carry this area" in the November elections, some sign that the project would be approved was needed. "I cannot deliver the votes this fall unless some answers are provided in this matter," Gray said.

The two stone jetties, each up to a mile and a half long, would stretch out into the sea from either side of treacherous Oregon Inlet. They are intended to stabilize the inlet, the only opening in the Outer Banks for 120 miles.

Scientists and environmentalists who oppose the jetty project question its effectiveness. They also believe the jetties will cause severe erosion by blocking the natural sand movement that replenishes the shoreline of the Outer Banks.

DAVID MUENCH

Massive jetties planned for the Outer Banks could cause serious damage to Cape Hatteras.

Senior Interior Department officials reportedly opposed granting the permits. The project, authorized by Congress in 1970, has been held up ever since by opposition from Interior Department staff, including Secretary James Watt. In October Rep. Ralph Regula (R-Ohio) wrote to Bush citing the damage the project could cause.

Another controversy arose in late September, when an Interior Department policy change that could have opened millions of acres of public lands to strip mining became public. Shortly thereafter, Congress put a one-year hold on the new policy, which had been scheduled to take effect in November.

Strip mining for coal in national parks, national forests, and other federal lands has been prohibited since 1977. Federal law allows only people and companies with "valid existing rights" to mine in those areas. That term has been generally accepted as meaning cases in which mining permits were sought before the law went into effect.

The new Interior Department policy changed the definition of the term to include anyone holding mineral rights on federal land. Under the policy, the government would either have to allow mining to begin or purchase the mineral rights from the owners. Both environmentalists and the coal industry predict the total would come to hundreds of millions of dollars.

The administration took other anti-environmental actions shortly before the November elections. In late October, it proposed a weakening of Environmental Protection Agency regulations for Alaska. The change would exempt Alaskan developers from Clean Water Act regulations that protect wetlands.

The state's wetlands remain largely intact but are being lost at a rate exceeding the national average. Conservationists are urging EPA not to finalize the change, published as a proposed new regulation on November 4.

Also in late October, the Bush Administration moved to weaken air quality protections for national parks and wilderness areas. It has not yet published this proposed new regulation, however, which would loosen pollution-control standards for industries locating near parks and wilderness.

✍ *Write to EPA Administrator William Reilly, 401 M Street, S.W., Washington, DC 20460, urging him not to approve regulations affecting park air quality and Alaska wetlands. Send copies to President-Elect Clinton, P.O. Box 615, Little Rock, AR 72203.*

Grizzly Plan Comes Under Attack

A plan by the U.S. Fish and Wildlife Service that was supposed to help grizzly bears thrive for centuries to come has instead come under fire for not doing enough to protect the bears.

"We are concerned this plan will, if anything, push grizzlies closer to extinction in the lower 48," said Terri Martin, NPCA Rocky Mountain regional director.

The document is a revised version of the Fish and Wildlife Service's draft recovery plan for the bear. The agency revised the plan after receiving 2,000 comments on the first draft, released in 1990. The vast majority of letters called for better protections for grizzlies. But Martin and other critics say the revised plan is not much different.

Perhaps the biggest problem facing the grizzly, a threatened species, is loss of habitat. The bear has held onto less than 2 percent of its original range in the lower 48 states. Its numbers have declined from the 50,000 animals that once roamed the continental United States to the present total of 1,000. As the grizzly's remaining habitat disappears, some scientists are concerned that bears will be split into isolated small populations without the genetic diversity needed to survive indefinitely.

Conservationists criticize the plan for failing to protect bear habitat. Some areas occupied by grizzlies are not even recognized as habitat. Many of the areas that are identified as habitat are left open to levels of road building, logging, mining, and oil and gas drilling that critics consider too high.

The plan also does not preserve "linkages" among grizzly populations. Threads of undeveloped land now connect scattered pockets of bears, creating the potential for intermingling and interbreeding. These links are especially crucial for small populations like Yellowstone's estimated 228 grizzlies. The plan calls for a five-year study of linkages but offers no interim protection.

Critics also say that the plan sanctions the current rate of grizzly mortalities from poaching and human-bear conflicts rather than trying to reduce it.

Finally, the plan sets low population goals. As a result, even slight increases in their numbers could allow grizzlies to be removed from the list of threatened species and possibly lose protections now in place.

"We are urging Fish and Wildlife to produce a final version of the plan that really does ensure thriving grizzly populations for the future," Martin said.

✍ *Write to Dr. Christopher Servheen, U.S. Fish and Wildlife Service, NS 312, University of Montana, Missoula, MT 59812 and send copies to President-Elect Clinton (address on preceding page).*

Report Finds Serious Damage to Parks

A report released by the Interior Department's Office of the Inspector General this fall found that the National Park Service did not "correct or mitigate on a timely basis" known threats to some parks.

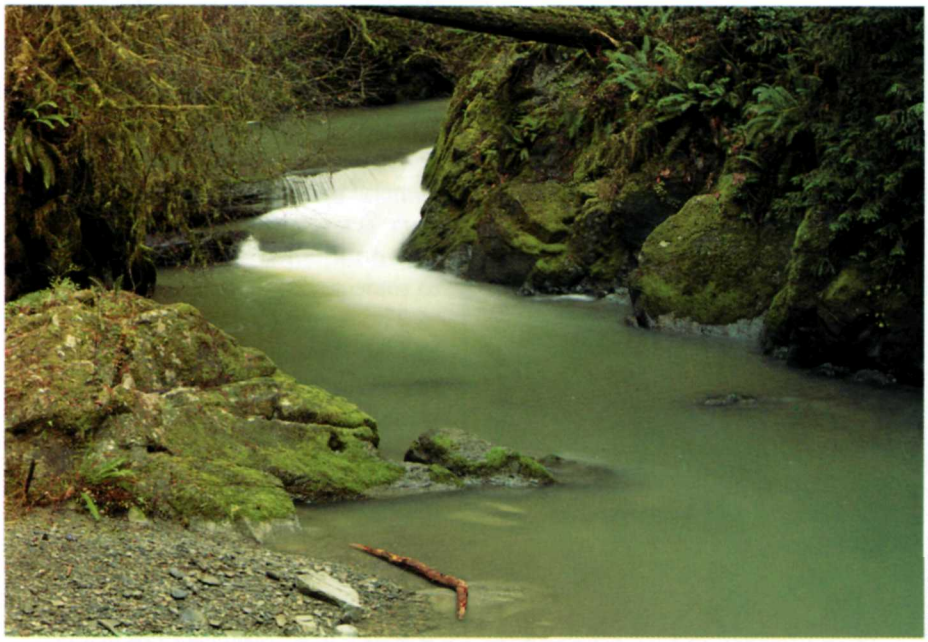
The report also found that the Park Service does not have the information or monitoring programs needed to track changes in the condition of the parks. As a result, it said, "serious and irreversible damage has occurred in some of our national parks."

"The report makes a point NPCA

MARKUP

Some of the Key Park Legislation of the 102nd Congress

Bill	Purpose	Status
Dry Tortugas; Brown v. Board of Education Public Law 102-525	Establish Dry Tortugas National Park in Florida and designate a Topeka school Brown v. Board of Education National Historic Site. NPCA supported.	Signed into law by President Bush on October 26, 1992.
Salt River Bay Public Law 102-247	Add to the park system Columbus' 1493 landing site at Salt River Bay, St. Croix, Virgin Islands. NPCA supported.	Signed into law by President Bush on February 24, 1992.
Elwha dams Public Law 102-495	Study ways to restore salmon and trout runs on Olympic's Elwha River, including removal of two dams. NPCA supported.	Signed into law by President Bush on October 24, 1992.
"Park pork" prevention Public Law 102-575	Close a loophole that allows the addition of "pork barrel" projects to the Park Service budget. NPCA supported.	Signed into law by President Bush on October 30, 1992.
California desert H.R. 2929	Create Mojave National Monument; expand Death Valley and Joshua Tree national monuments and rename them national parks; establish 4.1 million acres of wilderness areas; allow hunting in Mojave NM. NPCA supported without the hunting amendment.	H.R. 2929 passed the House in November 1991 but did not make it through the Senate in 1992. NPCA will work for passage in both houses in the 103rd Congress without the hunting amendment.
Glacier Bay H.R. 3418 S. 1624	Open Glacier Bay to commercial and subsistence fishing and to increased numbers of cruise ships. NPCA opposed.	Both bills received committee approval but did not make it to floor votes.
Old Faithful Protection Act H.R. 3359	Ban geothermal drilling within 15 miles of Yellowstone until more study is completed on the effects of drilling on the park's geysers and hot springs. NPCA supported the House-passed version.	H.R. 3359 passed the House in November 1991 but did not make it through the Senate in 1992. NPCA considers its passage urgent in 1993.
Concessions reform S. 1755	Increase concessions fees and return them to the park system; prevent overcommercialization of parks; increase competition for contracts; reform possessory interest. NPCA supported.	NPCA testified in support of S. 1755 at Senate hearings and will push for its passage in the 103rd Congress.



WILLARD CLAY

A new report cites threats to parks such as erosion and disrupted water flow at Redwood.

has made repeatedly, that the parks face real threats," said NPCA President Paul Pritchard. "The administration for too long has had a policy of indifference. NPS has not had the support to correct these problems and in fact has often been discouraged from doing so."

The inspector general's report cited more than a dozen examples of parks with serious environmental problems. At Hagerman Fossil Beds National Monument in Idaho, water used to irrigate adjacent farmland has caused repeated landslides into the park since 1988. By 1992, when the park received funds to address the problem, 75 acres of fossil beds had been destroyed.

The Park Service has also not had the money to clean up enormous volumes of debris, some of it hazardous, washed up on the shore of Padre Island National Seashore in Texas and dumped on the grounds of Gateway National Recreation Area in New York.

Elsewhere, lack of basic data or monitoring programs has allowed serious problems to develop. A 1947 survey of Sun Creek in Crater Lake National Park, Oregon, showed that 3,000 bull trout inhabited the creek. Another survey was not conducted until 1989, and it found only 130 trout remaining.

NPCA and Park Service studies have repeatedly reached the same conclusions about park science and monitoring programs, as did a National Research Council report released in August.

The inspector general found that the Park Service budget has stressed visitor services over science and preservation. Overall, NPS has accumulated a backlog, estimated at $477 million, of more than 4,700 projects that would prevent or mitigate known threats to the parks.

"The Park Service must receive the support needed to tackle these problems," Pritchard said. "We are calling on Congress to hold oversight hearings to set a course of action before these threats completely overtake the parks."

In another recent report, the inspector general concluded that a luxury hotel planned for Denali National Park in Alaska is unneeded and goes against National Park Service policy.

While Alaska's congressional delegation has pushed hard for the project, conservationists, area residents, and local businesses oppose it. The inspector general estimates that building the hotel would cost the Park Service $39 million.

"The report says exactly what we hold," said Mary Grisco, NPCA Alaska regional director, "that with the serious needs and insufficient budgets of the parks in Alaska, it can't be justified."

According to the report, the hotel would cost $325 per square foot to build, while other new hotels in the vicinity have cost about $100 per square foot. There will be a total of 910 hotel rooms available within 16 miles of the hotel site by May, it said, and the number is expected to continue to increase.

As a result, the report concluded, "We believe that the proposed hotel within the park is no longer needed."

NPCA Wins First Round In Landfill Appeal

A judge has barred almost all construction on a landfill planned near Great Smoky Mountains National Park.

The ruling is an initial victory for NPCA and a local chapter of the Izaak Walton League in the appeal they have filed to stop Haywood County, North Carolina, from building the landfill.

Judge Thomas R. West, of the North Carolina Office of Administrative Hearings, ruled the county may clear and grade the site. It is under injunction not to interfere with any of the springs, streams, or wetlands there, however.

The water pollution that the landfill would cause is one of the major issues in the appeal. NPCA argues that North Carolina violated its own water quality regulations by issuing a permit for the landfill in July.

The dump also is likely to prove a deadly lure for black bears, according to the National Park Service and wildlife experts. They say bears from the park and Pisgah National Forest will be drawn to the site by the smell of rotting food. A four-lane interstate highway runs between the dump and the forest, greatly increasing the danger of accidents fatal to both bears and humans.

Haywood County had asked that a $650,000 bond be imposed on the plaintiffs, but the judge rejected that request in favor of a $10,000 bond. The county has filed a second request for a $1.6 million bond.

"The landfill would be devastating both to bears and to the people who live in the area," said Don Barger, NPCA Southeast regional director. "We will do all we can to ensure success in the next stages of the appeal."

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REGIONAL REPORT

News Briefs from NPCA's Regional Offices

ALASKA

Mary Grisco, Regional Director

In early December, Alaska suspended plans for a wolf-killing campaign that had sparked outrage and protests inside and outside the state.

Gov. Walter J. Hickel (I) stated on December 4 that he was putting a temporary hold on the plan. He also announced a mid-January "wolf summit," to be attended by leaders of national and international wildlife organizations.

NPCA is delaying the boycott on travel to Alaska it announced several days earlier, pending the outcome of the summit. "The battle is not over, but the governor has taken the first step," said NPCA President Paul Pritchard.

Since wolves prey on moose and caribou, the state's reasoning went, reducing their numbers would lead to a bumper crop of big game. The goal was a bonanza for hunters and a more dramatic spectacle for tourists. The plan set up broad zones in which state game officials would shoot wolves from helicopters. These zones come right up to the borders of Denali National Park and Preserve and Yukon-Charley Rivers National Preserve. "Wolf packs that inhabit the parks would be systematically killed whenever they step over the border," Grisco said. Along with conservationists, Alaska tourism groups had called on Hickel to rescind the plan.

◆

Grisco wrote a letter of protest in November to the Exxon Valdez Trustee Council, which is charged with allocating settlement money from the 1989 oil spill. The money is meant for study and repair of damage caused by the spill. Grisco argued that many projects the council has funded are unrelated to the spill. Further, she said, the emphasis is on more studies, to the neglect of any concrete restoration projects. To help wildlife populations rebound, conservationists want to see damaged habitat supplemented by protection of additional areas. The council has done little toward habitat preservation, however.

PACIFIC NORTHWEST

Dale Crane, Regional Director

A new coalition for the North Cascades held its first meeting on December 10 in Leavenworth, Washington. NPCA and other conservation groups from the United States and Canada began work on a strategy for better international protection of the region, which spans the Washington-British Columbia border and constitutes one of the most spectacular and intact ecosystems in either country. The Bullitt Foundation showed its support by sponsoring the meeting and giving NPCA a grant to initiate efforts for the establishment of a North Cascades international park.

PACIFIC SOUTHWEST

Russ Butcher, Regional Director

NPCA is alarmed by proposed oil and gas drilling on Bureau of Land Management land near Carlsbad Caverns National Park in New Mexico. BLM's own analysis of the risks, in a draft environmental impact statement this fall, only heightens those concerns. Drilling could seriously damage the park's world-famous Lechuguilla Cave. Butcher is urging BLM not to approve the proposal and calling for an exchange of Yates Energy Corporation's mineral rights for interests elsewhere.

ROCKY MOUNTAIN

Terri Martin, Regional Director

NPCA is calling on the Army Corps of Engineers not to issue a permit for a road and bridge project that would border the Elkhorn Ranch unit of Theodore Roosevelt National Park. The park protects the site of Roosevelt's home and ranch on the banks of the Little Missouri River in the solitary and beautiful badland country of western North Dakota. If built along the route proposed, the road would bring heavy oil and gas truck traffic within 500 feet of the park. Martin is urging that an alternative route several miles from the park be chosen.

◆

The number of visitors to Canyonlands National Park in Utah has increased 14 percent a year for the last ten years. The danger is that overcrowding will diminish the pristine environment and quiet of the park's backcountry. The park has begun work on a backcountry management plan and is accepting public input. Comments can be sent to Walt Dabney, Superintendent, Canyonlands National Park, 125 West 200 South, Moab, UT 84532. NPCA advocates regulating the number of day and overnight park visitors and restricting certain visitor activities in sensitive areas.

SOUTHEAST

Don Barger, Regional Director

Floating fish farms planned off the Mississippi coast pose a serious threat to Gulf Islands National Seashore. The state has leased 760 acres of open water to Sea Pride, Inc., which intends to start what could be the country's largest mariculture, or fish farming, operation. In Maine and Washington, mariculture has proven a significant source of pollution. A recent study shows the problem would be much worse in Mississippi's warm, shallow waters. The lease area is less than two miles from Horn Island, a designated wilderness area within Gulf Islands. The state can cancel the lease before March 11; NPCA is mobilizing pressure on it to do so. Write to the Hon. Dick Molpus, Secretary of State, Box 136, Jackson, MS 39205.

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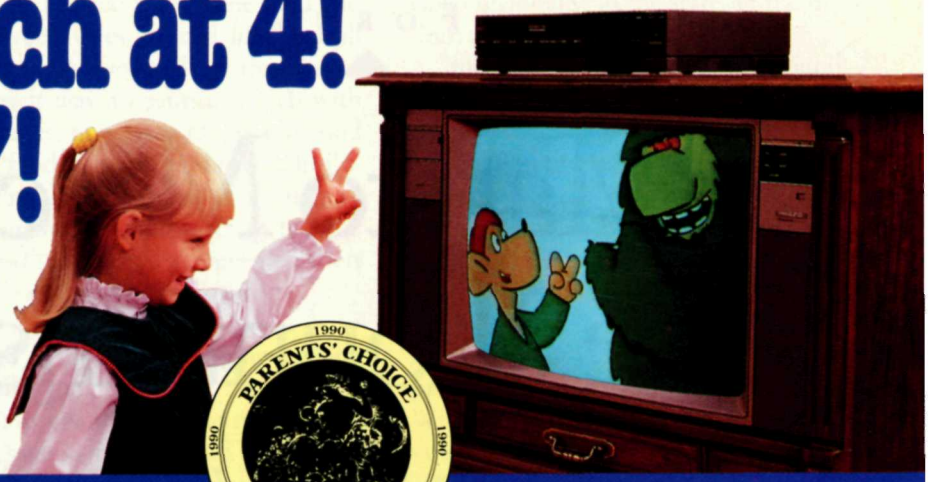

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A Man to Match the Mountains

William Penn Mott, Jr., the 12th NPS director, is remembered as a lifelong champion of the parks.

WILLIAM PENN MOTT, JR., who died September 21, 1992, a month shy of his 83rd birthday, has been compared to conservation legends of his and earlier times. Mott, who was the 12th director of the National Park Service, was described by colleagues as someone who had a love of beauty matching that of John Muir and who had a vision as broad and far-reaching as Teddy Roosevelt's.

"Bill Mott was a true conservationist and one of the last half century's greatest defenders of the national parks," said NPCA President Paul C. Pritchard. Mott served on NPCA's board of trustees from 1981 to 1985, when he was appointed director of NPS by President Reagan. "His term as NPS director came in a dark period for national parks and our environment, and he was a ray of sunlight," said Pritchard, referring to the years when the Department of the Interior was headed by James Watt and Donald Hodel.

Tom Stienstra of the *San Francisco Examiner* wrote: "In a period when President Reagan would scarcely give a plug nickel to fish and wildlife, Mott somehow convinced the boss to add 13 new national parks from 1985 to 1988." Stienstra went on to say that Mott had created more parklands in America, including the Bay Area and California, than possibly anyone else in history.

Mott resigned as Park Service director in 1989 under pressure over his decision to delay control of a huge fire at Yellowstone National Park. Mott, who believed making risky decisions was part of the creative process, maintained that forest fires should be allowed to take their natural course.

After he resigned, Mott continued to work on park issues. Most recently, he had been working as a special assistant to the director of the National Park Service's Western Region on plans to transform Presidio military base in San Francisco into a national park.

Bill Mott was one of the last half century's greatest defenders of the national parks.

Mott was a man who liked to do rather than to talk about doing and was among those who had the energy and the motivation to transform dreams into reality. One of Mott's proudest achievements, Children's Fairyland in California, was the nation's first theme park and an early model for Disneyland. He also was the first director to hire women, historians, and archaeologists as park staffers in California.

Mott built an impressive resume. After working in his own landscape architecture business, Mott was hired in 1946 as Oakland's superintendent of parks, and he served in that position for 17 years. Mott also served as general manager of the East Bay Regional Park District in Oakland and was director of the California Department of Parks and Recreation from 1967 to 1975. During that time, he set up a campsite reservation system in California—the first of its kind.

When Mott became director of the National Park Service, he wrote in *National Parks*: "My decision to accept the directorship of the National Park Service hinged on whether I felt that I would be able to make a *real* contribution. I wanted to make an impact, to effect change, to dramatically improve, where improvement was necessary, the running of the National Park System." Everyone who knew him would agree that he had.

Many people have paid tribute to Mott since his death. What follows is an attempt to capture that tribute by reprinting excerpts of remarks made about this friend to the parks.

Robert Baker, director of the NPS Rocky Mountain Region.
Bill Mott served with distinction at all levels of government, and for more than 50 years, he served as a guiding light for all of us in the parks movement.

He did the right thing, untainted by petty politics, ego, or ambition. He counseled all of us to do the same. With his extraordinarily creative mind, he challenged us to look at improved ways of serving the public and protecting our parks and challenged us to see the world through new paradigms.

The measure of this good man is not the wars that he won or lost, not necessarily the good works that he has done, but the principles he lived by and the spirit that he brought to this world.

As Denis Galvin [Mott's deputy director at NPS] said so often, he passionately cared about all parks with every bone in his body. Bill Mott will always be a guiding light for each of us

and an inspiration for all of us. He remains our touchstone with integrity.

Donald W. Murphy, director of California's Parks and Recreation Dept.
Along with his many honors and accomplishments, William Penn Mott, Jr., will be remembered for the way he touched and inspired everyone who knew him or listened to him speak. His commitment to the park movement was extraordinary. His unique combination of energy, enthusiasm, honesty, creativity, and vision will be sorely missed.

He redesigned many of Oakland's public parks to make them less formal and more friendly and usable. He got the whole community involved in the city's park program and raised private funds to carry out projects that would have been impossible otherwise.

During Mott's tenure as director of California parks, volunteerism doubled and redoubled. Some 35 nonprofit, cooperative associations were formed, and volunteers got involved in publication sales, trail building, interpretive programs, and a variety of other support activities.

Under Mott's leadership, the National Park Service enjoyed a resurgence of pride and self-confidence. As director, Mott liked to remind people that short-term political or financial considerations should never be allowed to destroy the intrinsic values that parks were created to protect.

L.W. Lane, Jr., former ambassador to Australia.
In the 30 years I knew Bill Mott and worked closely with him, he was always eager to get people working together to solve problems with creative solutions—even when those solutions were controversial. Bill's optimism that any difficult job could be done, and his enthusiasm for nature and parks, carried him through so many great accomplishments. His positive attitude also allowed him to keep his head up when the going got rough.

Bill had a true love of the land and the flowers, trees, animal life, and all the things that existed on the land—whether it was a beautiful beach with sand dunes, mountain range, redwood forest, field of poppies, historic building, or remnant of earlier civilizations.

In virtually every aspect of his life, Bill Mott's work and achievements left all of us a much better world.

Richard C. Trudeau, longtime friend and colleague.
"Give me men to match my mountains" goes a sage saying, and Bill Mott was a man who matched our mountains.

PHOTO COURTESY OF THE NATIONAL PARK SERVICE

I treasured Bill Mott as a close friend for 38 years, but he also was a mentor to me in the park field and an admired compatriot. He was always miles ahead in his thinking, had an idea a minute, inspired others, and made things happen that otherwise wouldn't have happened. One characteristic always stood out, one which was well expressed by Thomas Carlyle.

Carlyle said: "Never give up, never give in. You've got what it takes and God will help you." Bill Mott never gave up and never gave in, and his belief in God helped him to achieve the awesome goals he set for himself, the advancement of parks for people and the protection of the environment—locally, regionally, in the state, in the nation, and in the world.

Bill envisioned a ring of parks around San Francisco Bay and trails that would connect them. Now, 35 years later, this dream is on the verge of becoming reality in both the Bay Ridge and Bay Shoreline trails. It was his vision, energy, enthusiasm, inspiration, and creativity that will be remembered most.

Russ Cahill, NPCA trustee and former parks director in California.
William Penn Mott was one of the most vital, energetic people I ever met. Under his management in the 1970s, the California State Park system attained world-class status. Plans were drawn for museums, parks, recreation areas, historic sites, and ecosystem preserves. Plans were based on science and political savvy. My job, as a subsequent state parks director, was to fulfill this brilliant landscape architect's dreams.

Bill, who was appointed under Governor Reagan, was fired when Jerry Brown became governor. But disappointment did not slow him. When I first knew him, Bill was running the Oakland Zoo, managing the California State Parks Foundation (supplying $12.5 million a year in assistance to the parks), and employing ex-convicts and rehabilitating drug addicts to supplement crews to improve Oakland's financially strapped parks and landscaped areas.

Bill seemed to have no end to his ability to get new programs started. He had more good ideas than anyone I know, and I suspect that if I catch up with him in the next life, there will be another big job to do.

The Mott family has established the William Penn Mott, Jr., Memorial Fund to carry forward his vision and projects. Contributions in Mott's name may be made to the State Foundation, Kentfield, CA 94904 or to the William P. Mott Memorial Fund, P.O. Box 1394, Ross, CA 94957.

In Search of the Early Everglades

Scientists struggling to repair damage to the River of Grass must contend with a lack of data and funds.

By Bill Sharp and Elaine Appleton

YOU CROUCH ON A SMALL dry hummock in the midst of the seemingly endless wetland grasses of the Everglades. It is 1930, and you are surrounded by an abundance of wildlife beyond the scale of anything you have ever seen. You stand, startling a vast colony of wading birds that takes to the air *en masse*, obliterating the sun. Mammals from mice to manatees abound, along with fish, alligators, and other species.

Fifty miles to the south, in a skiff on the waters of Florida Bay, you can look from horizon to horizon and see nothing but shallow waters dominated by dense seagrasses. The bay is home to fish, shrimp, sea turtles, and birds. Like all early visitors to these places, you are astounded by the numbers of plants, animals, and insects. In 17 years, a portion of this massive ecosystem will become Everglades National Park.

Today, 46 years after formation of the park, both deliberate and inadvertent modifications have severely depleted this abundance. The massive nesting colonies of Everglades' wading birds are gone. Those missing birds have plenty of company. Only 50 Florida panthers exist today, and only two are believed to live within the park; seagrass, mangroves, and sponges periodically die in large sections of Florida Bay at the south end of the park; and economically important populations of fish and shrimp perish in their nursery grounds as rotting vegetation robs the bay's water of life-giving oxygen.

Everglades National Park in Florida is not the same park it was before farming, along with commercial and residential development, exploded in the southern end of the state. In fact, at least one scientist says the Everglades began sliding downhill before becoming a national park in 1947. And the damage continues. Each busload of European tourists and carload of vacationing Americans has a bit less of the Everglades to enjoy than the visitors who came before them. The traditional role of NPS dictates that the agency ensure the public's enjoyment of the parks while preserving the resources. In the face of limited funding and public demand for access, preservation and the research necessary to sustain it have become secondary pursuits.

The Everglades is far from the only national park facing serious problems; however, its issues are among the most urgent because the park's water supply—its lifeblood—has been diverted, dammed, poisoned, and otherwise damaged. In the vast majority of cases where parks are threatened, it is not the inability to take action that prevents implementing remedies to save them but the lack of clear knowledge of the mechanisms causing the damage.

"We have a mandate to protect the Everglades," says Mike Soukup, research director for the National Park Service's South Florida Research Center. "We need to voice the needs of the park [in the interest of] its long-term preservation. The issues are so pressing and the threats so immediate for the Everglades that unless research information is available at the appropriate time, our efforts here will fail."

A limnologist, Soukup specializes in freshwater ecosystems. He directs research to help understand the Everglades and works to share that information effectively. Among his goals are preserving the park and returning waters to conditions prevalent before humans intervened.

Changes made to the Everglades' natural systems in the late 1940s and after were made with little or no thought to environmental consequences. And now that the changes have been in place for some time, each alteration has its proponents, says Soukup, and many of these have political or economic influence. NPS and conservationists working to support the park must deal with the entrenched interests of developers and the conflicting interests of flood control, demands for a water supply, and agricultural interests who want water but oppose regulation of their runoff.

Some opposition to Everglades restoration comes from unlikely corners. Bass fishermen oppose filling canals to restore water flow patterns, because the canals provide easy access to fishing areas. The U.S. Fish and Wildlife Service has opposed water-level changes that might increase risks to the endangered Everglades kite, which have become dependent on habitat in certain areas and may not adapt quickly enough to survive. The most effective answers to these dilemmas, more often than not, involve better data, ecosystem perspective, and careful approach.

Research in the National Park Service

JOHN SHAW/TOM STACK & ASSOCIATES

Changes to the Everglades' ecosystem have depleted the numbers of wading birds, such as the roseate spoonbill.

has a fundamental purpose, according to Dominic Dottavio, NPS southeast region chief scientist and deputy associate regional director for science and natural resources in Atlanta. "Research is a tool to help us understand what we have, how it is changing, and what we have to do to protect it in perpetuity," he says. "In order to manage the resources effectively, you have to have scientific research and resource management research. How do we get rid of exotic plant species, and what is the impact of activities in areas adjacent to our parks? We can answer these questions only through good-quality research."

The Park Service's attitude has not always been so positive. A National Research Council report published in August, *Science and the National Parks*, notes that a dozen major reviews over the past 30 years—including at least two issued by NPCA—strongly recommended, to little avail, that NPS improve its research program. The chairman of the committee that wrote the report, Paul G. Risser, ecologist and provost at the University of New Mexico, Albuquerque, uses Sequoia National Park in California to illustrate the need for greater study.

"We thought without research that maintaining the sequoias meant preventing fires among the trees," he says. "Because of research, we now know that if there are no fires, the trees cannot reproduce. Without periodic fires, a layer of soil litter builds up that seeds cannot penetrate [and as a result they cannot] compete and grow. Occasional burns open the understory and provide a good seedbed."

What the sequoias are to Sequoia National Park, water is to the Everglades. Yet, detailed research about the role of water in the health of the park is new. The South Florida Research Center was founded in 1978 in response to rapid degradation of the Everglades. By that time, a network of huge water diversion projects was robbing the park of a sizable percentage of its water as well as disrupting distribution and affecting quality.

"Vast changes to the water management...brought us to the point where

the Everglades doesn't really exist as a sustainable ecosystem," says Soukup. "It needs to be thoroughly restored to bring it back to the characteristics for which the national park was established."

Understanding water in the Everglades requires mastering complex relationships of quantity, quality, distribution, and timing across a vast region, nearly all of it disrupted. It is an extremely complex ecosystem. Water flows slowly but steadily along the "river of grass" leading southward from Lake Okechobee. The lake and nearly every water body and waterway south of it to the Everglades has been changed. Water is diverted for human use, much of it never to return to the system. The water that is returned is sometimes full of nutrients that affect the natural development of Everglades' plant communities. And any water releases are irregular and in locations convenient to people, not the Everglades.

Soukup's team aims to identify the historical characteristics of water that typified the Everglades. The team also will look at the relationship of these factors with the wading bird colonies and the biological activity that promoted the establishment of the park.

"The holes in our knowledge center on what the system was like in quantitative terms," says Soukup. "How much water

MICHAEL H. FRANCIS

Researchers are examining changes to water flow to determine the effects on wildlife such as the Florida panther.

was in what areas, for what time periods, and with what variability? How much water flowed into Florida Bay in an average year, and what were the extremes? Those baseline data for the original ecosystem don't exist."

In the absence of data, Everglades researchers turn to computer modeling to simulate early conditions in the park. Using the models, researchers test hypothetical water delivery systems to determine how best to ensure that water reaches the right portions of the park.

Extending the use of modeling allows the park's researchers to determine how variations of water delivery affect wildlife populations such as wood storks, alligators, and panthers. Other work predicts how changes in the water supply in the northern Everglades will affect quality when that water reaches Florida Bay and, in turn, the coral reefs in the Florida Keys.

But even as research and new modeling tools begin to provide a pathway for recovery in the Everglades, the effort is starving for lack of funds. When it was founded, the South Florida Research Center was provided with $1.6 million in funding. In the 14 succeeding years, the center has taken on additional park responsibilities, while funding has remained the same. For the past two years, the center had been scheduled for a significant increase, only to see it cut late in the budget process. "In real dollars, the amount of money available for Everglades research has decreased substantially since 1978," says the Park Service's Dottavio.

As a result, even the most dedicated researchers experience severe frustration. "Funding for research in the Park Service is absolutely abysmal," says one researcher. "We are facing monumental problems ecologically, and these funding problems make it worse. I feel like a runner coming up on the finish line, and I realize that I am about to fall. It appears that the federal government and the Park Service are not capable of identifying the true needs and getting the dollars there."

To do the job right, Soukup wants the center's budget increased from the current $1.6 million to $5 million. And to include the entire larger ecosystem in the effort, he says, an additional $3 million should be made available to Big Cypress and Biscayne national parks, which are adjacent to the Everglades. This includes both research and resource management efforts.

And Hurricane Andrew worsened the situation. Homestead, Florida, which suffered the worst damage from the storm, is headquarters for the Everglades and home to most of its employees. Simply placing a phone call to or from the center, difficult in the best of times because of inadequate phone systems, was nearly impossible for weeks following the storm. Of 250 people employed at the park, the homes of 175 were seriously damaged, according to NPS. The research center lost much of its roof, and water damaged many records and papers. NPS officials estimate that cleanup efforts will take several years and put the initial recovery needs for Big Cypress, Biscayne, and Everglades at $52 million. Most of this money will go toward repairing infrastructure and not for research.

Hurricane damage will undoubtedly draw attention from the Everglades' other problems; however, it is not likely to still the requests for more research funding. The intensity of the cries for money for the Everglades might seem enough to elicit quick responses from Washington, but the problems are more complex than that, notes John Dennis, chief of the science branch of the Park Service's Wildlife and Vegetation Division. "Because of the way the federal budget is set, each bureau has to weigh all its competing needs," he says. "NPS distributes funds internally based on priority, and it is fairly easy to place the human needs of park visitors at a higher level than those of research."

Throughout NPS, much of the research requested by professionals goes unfunded. In its 1988 report *Natural Resources Assessment and Action Program*, NPS identified 2,500 natural resource and research projects that would go unfunded from 1988 to 1992. Anne Frondorf, chief of planning and information in the Park Service's Wildlife and Vegetation Division, estimates that at least 750 of the unfunded projects were research. And while she reports that some progress in funding has been made, it is likely that similar numbers of proposed NPS research projects continue to go begging.

JOHN SHAW/TOM STACK & ASSOCIATES

FRIDMAR DAMM/LEO DE WYS, INC.

Visitors aboard an airboat tour the park, above, where public access is a higher priority than research. Even so, park staff developed an agreement to reduce runoff flowing into the Everglades, which affects creatures such as the anhinga, left.

A New Mandate for Science

Science and the National Parks makes clear that the National Park Service has an urgent obligation to improve its research programs.

According to this report, published in August 1992, "The nation cannot afford to wait any longer for NPS to move toward a new mandate for science. The Park Service is entrusted to manage some of the nation's most treasured resources, and science is an indispensable tool in that process."

The report, issued by the National Research Council's Committee on Improving the Science and Technology Programs of the National Park Service, is the latest of more than a dozen released over the past 30 years—including two by NPCA. All have strongly urged additional funding for research as well as a reorientation of the agency to support research. Many of the recommendations in the report echo those made by NPCA in the *National Park System Plan* and in *National Parks: From Vignettes to a Global View*, a 1989 study of park science.

The latest report includes the following observations:

▲ NPS itself noted in 1980 that "current levels of science and resource management are completely inadequate to cope effectively with the broad spectrum of threats and problems" facing the parks. In that same year, NPS noted that 75 percent of the known threats to national parks were inadequately documented by research.

▲ Researchers account for 2.3 percent of the Park Service's permanent employees, compared with the U.S. Fish and Wildlife Service, in which research positions account for 9.3 percent of permanent employees. Many national parks have no research personnel.

▲ Because NPS combines its budgets for resource management and research, it is impossible to determine Park Service research expenditures accurately. However, NPS estimates show that research grew from $18.5 million in fiscal year 1987 to $29 million in 1992. The 1992 number would be about 3 percent of the total NPS appropriation for that year. By comparison, in 1992 the U.S. Fish and Wildlife Service spent $85 million and the U.S. Forest Service spent $181 million on research.

And the report includes the following recommendations:

▲ Provide NPS with an "explicit legislative mandate" defining the service's scientific responsibilities.

▲ Make science equivalent in organizational stature to park operations, with separate funding and autonomy.

▲ Elevate the role of the Park Service's chief scientist.

▲ Manage areas of the parks as protected repositories of biological diversity.

Paul G. Risser, ecologist and provost for the University of New Mexico at Albuquerque, chaired the committee that wrote the report. He says that while there is some resistance to the report, there is also "a groundswell of enthusiasm" for its recommendations.

"Without research, we simply have to guess at resource management decisions," says Risser. "But with research, we can *know* the right answers."

In the midst of criticism over the lack of research in NPS, teams such as Soukup's have nonetheless accomplished impressive things. Their research led to winning a settlement in the Everglades Water Quality lawsuit last year. And as a result of settlement negotiations, the center gained the assistance of the state in negotiations with South Florida's growers to reduce agricultural runoff flowing into the park. It is one of the triumphs of the Everglades program that even on a tight budget Soukup's team can use complex research tools to provide meaningful data on the requirements of the park's ecosystem.

In addition, the Park Service's Dottavio ticks off a long list of Everglades projects, including some of the nation's leading work in fire ecology and with exotic species; endangered species research with bald eagles, least terns, and panthers; long-term monitoring of many environmental parameters; research into the dynamics of the Everglades' water systems; and the development of ecosystem computer modeling.

Everglades research is making headway in spite of obstacles ranging from budget cuts to hurricanes. After what one official called a "long, agonizing lack of protection," researchers are optimistic that the unique ecosystem over which they stand guard can be restored to something approximating its original condition.

"Realistically, it will take something like a decade" to repair the water systems and regulate them to replicate the early Everglades, says Soukup. If we can muster the political and economic support to make it happen, our reward will be a gradual return of the wading birds, increases in populations of formerly endangered species, restoration of original vegetation communities, and an overall increase in the health of the Everglades.

Through rigorous research and restoration, it may yet be possible in our lifetime to stand amid the abundance of the Everglades and watch a vast colony of startled birds obliterate the sun.

Bill Sharp and Elaine Appleton are freelance writers and owners of Fresh Air Communications, Newburyport, Massachusetts. The second edition of The Complete Guide to Environmental Careers, *written by Sharp and the Environmental Careers Organization in Boston, is scheduled to reach bookstores in January.*

Not Just Another Roadside Attraction

Growing towns near national parks are learning ways to avoid the tourist-trap syndrome.

By Ron Steffens

AS LONG AS there have been national parks, people have lived near them and set up shop around them. Towns have grown along the approaches and entrances of nearly every park, and they frequently provide the last chance to fuel the car or fill the cooler. Many have become the sites of tourist traps or world-class museums, of mobile home parks or million-dollar subdivisions.

Towns like Jackson, Wyoming, and Gatlinburg, Tennessee, with populations measured in the thousands, are playing usher to millions of tourists each year. Collectively these towns have come to be called "gateway communities," and how a town reacts to its neighbor depends on to what degree the park is viewed as a commodity to exploit or as a treasure to preserve.

What many gateway communities have in common, besides the parks and the tourists, is a distinct picture of what they don't want to become. Few towns aspire to become the next Gatlinburg—gateway to Great Smoky Mountains National Park—which became infamous during the 1960s for using caged bears to attract tourists to businesses. But saying no to Gatlinburg and its sprawling, unrestrained growth works only if you find an alternative to which you can say yes. And finding an alternative may require the kind of communal agreement foreign to towns accustomed to unrestricted private property rights and freedom from zoning laws.

JEFF HENRY

Tourists pass this stand in Cherokee, N.C., on the way to Great Smokies.

In Jackson, which stages a mock gunfight for tourists every night of the summer, planners, officials, and leaders attended a workshop to seek a consensus on how the city—south of Grand Teton National Park—should grow. Residents asked how to create affordable housing for the cooks and clerks employed by the town's tourist-based businesses and how to maintain the open space and wildlife habitat that attract tourists. But a few people resent any sort of planning and perceive it as an attempt by government to control private property. One irate resident took advantage of the open mike at the workshop to accuse planners and environmentalists of "trying to turn Jackson Square into Red Square."

Although land-use planning traditionally has made property rights advocates see red, at least one land-use planner, along with many conservation groups, would rather see communities fighting about their future than taking little or no interest in how land and space will be used. Luther Propst, who directs the Sonoran Institute in Tucson, Arizona, travels from town to town with his Successful Community work-

A proposed huge-screen theater would be built next to the apricot tree, right, at the entrance to Zion National Park in Utah.

TOM TILL

With careful planning, growing gateway communities can avoid replicating Gatlinburg's haphazard development.

TIM BARNWELL

shops, offering residents and business owners of gateway communities a way to see around the jargon. In many ways, planning is nothing more than a tool to be used by communities whose residents want to protect the values they share. Many rural communities lack basic zoning ordinances and have never considered using planning as a means to preservation.

Typically, nonprofit groups seeking to prevent unwelcome or unwise development invite Propst to present his two-day workshops, which draw everyone who cares about the community—land developers and park managers, ranchers, teachers, lawyers, Main Street business owners, and retirees. The variety is essential, Propst says. "The most important lesson is the need for communities to build their land-use strategies around a positive, shared vision of what the community can be. By focusing on a vision with popular appeal, communities can build lasting constituencies for protecting local assets."

Propst has conducted his workshops in towns throughout the Greater Yellowstone Ecosystem including Red Lodge, Montana, where the 70-mile Beartooth Highway begins its climb to Yellowstone National Park. Residents were worried that unchecked development might turn historic Main Street into a ticky-tacky strip mall or divide large tracts of property into small lots.

In this workshop, people compiled lists of what they appreciate most in Red Lodge. One resident suggested that Red Lodge's supply of water—no small asset in the arid West—was extremely valuable. Another suggested, and nearly everyone agreed, that the small-town atmosphere should be protected. "It's a place where people are visitors, not tourists. Somebody had his appendix taken out at the hospital, and we treated him so nice he moved here," said a city council member.

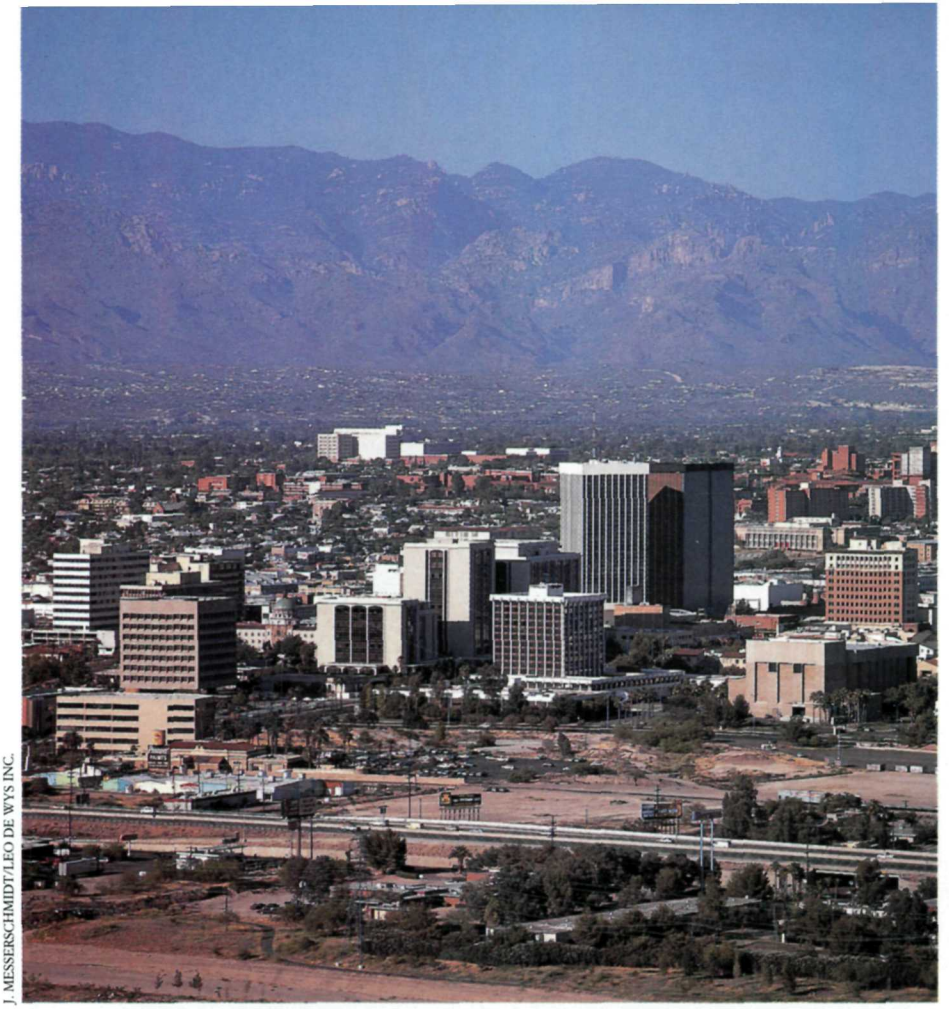
Once values were established, others in the workshop listed some of the town's needs, such as a four-season resort, a protected greenway, and an infrastructure that would lure small, clean industries.

After participating in a workshop, Propst said, most groups want a master plan for future development. And it is important for a community to have a clear plan for its own future even before the first developments are proposed. "Identify the scenic views you want to protect before major developers arrive," Propst says. "Find a middle ground for land-use control. And remember, you can't regulate people nearly as effectively as you can educate them. Go out and teach the new people what you value."

Propst is not alone in his effort to harness tourist-based economies and development interests in a battle to protect the gateway regions that surround every park. Under the guise of various labels—the Man and the Biosphere (MAB) program, ecosystem management, community development, environmental activism, or pure neighborliness—land managers and local residents are becoming increasingly cooperative when trying to solve problems that threaten an entire region.

Many gateway communities present common problems for the parks. And many of these problems are created by greater numbers of people moving into these towns simply *because* they are next door to a national park. Human effluent and agricultural runoff pollute the Buffalo National River in Arkansas; forests are clearcut around parks throughout the West; essential winter range for wildlife is destroyed; shopping malls are built beside historic battlefields; air pollution blots the vistas and stunts tree growth in parks throughout the country; landfills are proposed next door to several national parks; a huge-screen theater is proposed next to the entrance to Zion National Park in Utah; and subdivisions and golf courses edge up to Saguaro National Monument in Arizona.

"The fate of a lot of our parks rests on what happens outside their boundaries, outside of the state, even outside of the country," says Denis Galvin, as-



J. MESSERSCHMIDT/LEO DE WYS INC.

Tucson, Arizona, is spreading into the surrounding countryside and edging up to Saguaro National Monument.

sociate director of planning and development with the National Park Service. "Park managers are increasingly moving outside of the park's boundaries and discussing local actions that affect park resources."

Many problems have resulted for the same reasons: unplanned, uncontrolled, and unhealthy development. And the solutions are as unique as the communities inventing them.

In Cooke City, Montana, on the northeast edge of Yellowstone, residents are afraid that a proposed gold mine on state and U.S. Forest Service land will poison creeks with cyanide and fill the town with transient miners and ore trucks. They are also afraid of being trapped into a boom-or-bust business cycle typical of some other Western towns. Residents are fighting for a local planning district, an action the townspeople hope will severely limit the mine's development.

In Dubois, Wyoming, the job base plummeted after a sawmill closed despite residents' efforts to keep it open. So the town, which has long decorated itself with larger-than-life wildlife statues, embraced its most famous resource—the largest herd of bighorn sheep in the Lower 48. Through cooperative efforts among state and federal agencies and nonprofit groups, the town soon will open a museum dedicated to the bighorns. New problems facing the townspeople include a boom in vacation homes for retirees, which threatens to overwhelm ranchland and wildlife habitat.

Small towns embracing land-use planning and sustainable development are not restricted to the Yellowstone region. Some time ago, when Provincetown, Massachusetts, threatened to expand its landfill next to Cape Cod National Seashore, communities up and down Cape Cod united to form a regional planning commission. The commission developed a regional landfill solution that did not threaten the seashore and today continues to fight for open space.

In Winthrop, Washington, east of North Cascades National Park in the Methow Valley, Friends of the Methow have been fighting a 10,000-skier-a-day resort that would devastate a pristine rural valley, says Tom Robinson, a local activist. So far, the friends group has beaten three developers and is working on a fourth.

"The community is split on development," Robinson says. "But even the boosters got fed up with the last proposal." Now the community is discussing the formation of a land institute to focus development ideas, and may consider either buying the contested land or working to scale down the size of the ski resort.

In the Rincon Valley next to Saguaro National Monument, the Sonoran Institute and its affiliate, the Rincon Institute, along with NPCA, worked with a developer to reduced the size of a proposed resort community by half. The developer also agreed to include covenants on homes in the new subdivision that required annual fees to be paid to the Rincon Institute. The institute serves as a local environmental center and educates residents about their responsibilities in living next to a park. While still controversial, this approach might eventually result in a greater portion of desert habitat preserved as open space.

And in Pittman Center, Tennessee, local residents and the Southern Appalachian Man and the Biosphere Cooperative (SAMAB) work together toward a common goal. Pittman Center, which shares a six-mile boundary with Great Smoky Mountains National Park, has banned helicopter overflights and has begun to remove billboards. An ordinance is in the works to control ridgetop development, and a citizens' group hopes to forestall the need for a new water system, which, residents fear, would increase taxes and the number of homes and businesses.

While Pittman Center may provide a model for other communities, SAMAB—which forged connections among a variety of agencies, including

DIANA L. STRATTON/TOM STACK & ASSOCIATES

CASIMIR/LEO DE WYS, INC.

Jackson, Wyoming, next to Grand Tetons NP, seeks a consensus on how to grow.

the Park Service, Forest Service, and Tennessee Valley Authority—suggests that cooperative efforts for state and federal agencies are not impossible. Man and the Biosphere programs—sanctioned by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and intended to protect environmentally sensitive areas while allowing for human economies—have been criticized for allowing federal inaction on land preservation to become interagency inaction.

It's clear that MAB is no substitute for protection, but the designation succeeds because it provides a forum for communication, not regulation. In Pittman Center, the SAMAB cooperative provided the information and start-up money that allowed a local community to determine its own economic and environmental vision.

And sharing information may be the key to success in ecosystem and regional planning, according to Bill Gregg, the MAB coordinator for the Park Service. "MABs help land managers develop common goals but with a broader base of understanding and with a broader constituency."

At Glacier National Park in Montana, regional planning has long been synonymous with international cooperation. And this tradition of park outreach has allowed Brace Hayden, the park's regional issues coordinator, to pursue thornier goals closer to home.

"The Park Service," Hayden says, "would like to encourage growth in established communities rather than along highway corridors." Hayden argues that highway improvements by the state of Montana have encouraged a development boom on Highway 2, west of the park, so the state should help mitigate the damage to wildlife corridors and scenic vistas. Hayden has suggested that developers could fund programs to help the community develop better planning guidelines.

Hayden is also organizing a workshop in West Glacier, for which he plans to invite "business men and women who have been through this, leaders from West Yellowstone and Gardiner, and from Gatlinburg, so we can learn what to do differently, and what [to do] the same."

Not everyone welcomes Hayden and his Park Service peers when they step outside their boundaries. "I get sick and tired of the hostility," Hayden says. "But I make it clear, we're not trying to expand our boundaries. We're just trying to learn how to protect values that everyone wants protected."

If Hayden is acting more boldly than park bureaucrats have in the past, it is partly because of a change in Park Service culture. Nearly 200 managers have gone through a course titled "Planning Across Park Boundaries," hosted by Bill Paleck, who is now superintendent of North Cascades and who was formerly superintendent at Saguaro National Monument. While he was at Saguaro, Paleck often dealt with air pollution and encroaching development.

In the past, Paleck says, park managers didn't dare poke their noses outside their official jurisdictions. "Six years ago, it took a lot of risk to do this, but the risk-takers were not impaled, and some were even promoted. People notice that, and it becomes safer to take those risks." Denis Galvin agrees with Paleck and finds that the greatest role a park can play in shaping the politics beyond its borders is to document the values that are threatened.

This year the Park Service will begin awarding grants to promote community planning outside of national parks, and a few model gateway communities will be chosen to demonstrate how parks and towns can work together to solve mutual problems. Fighting unwanted subdivisions, however, may not be as easy as targeting smokestacks, and neither is possible without a community that recognizes the values of the park.

For Saguaro National Monument, meeting development challenges may require a park manager to spend more time with Tucson land developers. For Organ Pipe Cactus National Monument in Arizona, boundary communities include Ajo, a former copper mining center, and villages across the Mexican border and within the nearby Tohono O'odham Nation. The challenges here may be more complicated for Park Service managers than those around Yellowstone, because the park's neighbors have three different languages and cultures. Even so, the Park Service understands the need for cooperation from all three communities.

For Ben Read, private lands director of the Jackson Hole Alliance for Responsible Planning, the debate surrounding life along the edge of parks is a chance both to question and reaffirm basic values. "There's growth pressure found in any gateway community because national parks are cathedrals," says Read. "The millions who travel to the Ganges are not much different from the millions who travel here. All are seeking renewal and re-creation." The goal, says Read, is not only to preserve these special places but also to preserve the character of the towns and villages that surround them. "You have to do better than other places that have been ruined," he says.

The pilgrims will return, one tour bus and RV and stationwagon after another. Whether they discover renewal, or a traffic jam like the one they left behind, is something that each town and park must decide.

Ron Steffens has been a visiting writer at Central Wyoming College and works as a seasonal park ranger in Grand Teton National Park in Wyoming.

On the Western Front

Dispatches from the war with the Wise Use Movement.

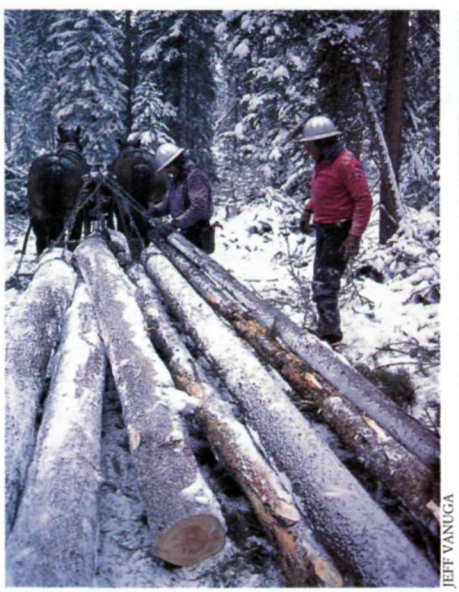
By Richard M. Stapleton

[Ed. Note: In part one of this series, we reported on the history of the Wise Use Movement, the people who front it, and the corporations behind it. In this article, we describe two battles with the Wise Use Movement—one a defeat for environmentalists, the other a victory.]

IT WAS CALLED *Vision for the Future.* It was a carefully crafted set of guidelines designed to bring order to the Greater Yellowstone Area—an ecosystem governed by three states, half a dozen government agencies, and countless local entities. It was to have been a model of environmental governance, recognizing natural rather than political boundaries.

In the Greater Yellowstone Coalition's Fall 1990 newsletter, Executive Director Ed Lewis wrote: "It is rewarding indeed to see the Forest Service and Park Service so openly and enthusiastically embracing the ecosystem approach to managing this wondrous land we know as Greater Yellowstone. Indeed, there can and will be no turning back."

One year later, noting it had been an unsettling summer, Lewis was to write:



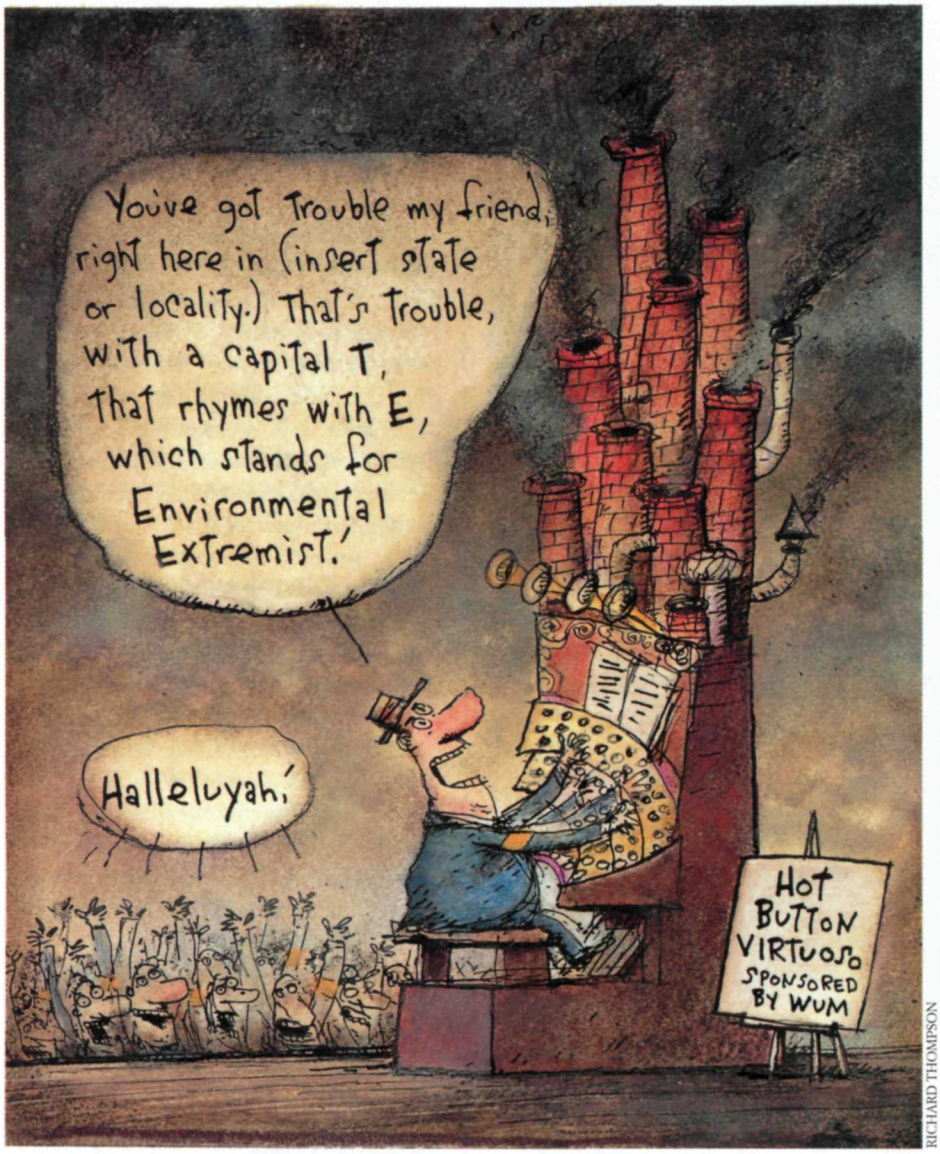
JEFF VANUGA

Loggers prepare to remove timber from Bridger-Teton, one of six national forests in the Greater Yellowstone ecosystem.

"The final Vision document released in mid-September was so watered down that the word 'vision' was even dropped from the title. The final [document] utterly failed to develop a set of guidelines to ensure ecologically sensitive and coordinated management of the Greater Yellowstone Ecosystem." NPCA Rocky Mountain Regional Director Terri Martin called the revised document "a vision with cataracts."

What happened in the intervening year is a stark lesson in the new realities of environmental politics. The Yellowstone Vision document was torpedoed by the Wise Use Movement (WUM), specifically by People for the West! (PFW), which receives heavy funding from the mining industry. Borrowing freely from the tactical notebooks of grassroots environmentalism, PFW mounted a multifront campaign and, with most of the conservation movement unprepared for such an aggressive enemy, won the fight.

The military metaphors are intentional; the Wise Use Movement has declared war on environmentalism. Charles Cushman, of the National Inholders Association, calls it "a holy war between fundamentally different religions." WUM founder Ron Arnold says, "This is a war zone. Our goal is to destroy, to eradicate, the environmental movement." The gutting of the Yellowstone Vision document was a



RICHARD THOMPSON

major battle in that war, and there is much we can learn by analyzing what happened.

The Yellowstone ecosystem is vast, 20 million acres (the 2.2-million-acre park forms the core), and spills out of Wyoming into Montana and Idaho. It includes Grand Teton National Park to the south and six national forests, all separately administered, as well as state and private lands—a land-management nightmare. In 1985, a congressional report called the National Park Service and the U.S. Forest Service to task, deeply critical of the lack of continuity and cooperation, not only among agencies but even among individual forest units.

The Park Service and the Forest Service responded by getting together. They compiled "aggregation documents," mapping everything from roads to elk migration routes, showing present resources and what might be expected ten years hence. It was a tally, but there was still no plan. NPCA and the Greater Yellowstone Coalition, which had long been in the forefront of ecosystem model planning, continued to push for joint management planning. Congress pushed, too. In 1988, the process of developing guidelines for the coordinated management of the region began.

The agencies, unaccustomed to talking even among themselves, failed to draw anyone else into the process, says Ed Lewis. He believes this was a fatal mistake. The Greater Yellowstone community not only felt uninvolved, Lewis says, but it was totally ignorant of what the draft plan would contain and why. The stage was set for a WUM campaign of lies, distortion, and fear.

The Yellowstone Vision draft was released in July 1990. It stated that the first consideration in any land-management decision would be its environmental impact. Logging, grazing, mining, and drilling would continue in the national forests, but in "ways...sensitive to other resource values and uses of the land."

"No place in North America, perhaps no place on Earth, is a more fitting site to pioneer ecosystem management," it said. "The Greater Yellowstone area *has the public and legislative support, the agency enthusiasm* [emphasis added], and the unparalleled natural resources to provide a world-class model of such management." If only it were so.

Workshops and hearings were scheduled. There were four forces at play: cattle ranchers, timber and mining industries, sports enthusiasts, recreationists, and other users of the land; the environmental community; the general public; and the agencies themselves.

As opposition to the document mounted, NPS and Forest Service administrators, with some exceptions, backed down from their commitment to ecosystem management. Under political pressure from Bush Administration officials and Western legislators, they took the comfortable middle ground, leaving environmentalists to battle industry and other opponents of the Vision document while the agencies sat in judgment. As the debate escalated, that "agency enthusiasm" disappeared like morning mist in July.

Yellowstone National Park Superintendent Robert Barbee says the national conservation organizations were "asleep at the wheel." However, NPCA and other groups alerted their members about the issue, prepared testimony, and attended public hearings—measures that usually are sufficient but proved woefully inadequate against the aggressive WUM. "The environmental community simply was not prepared for the scale of the opposition against the Yel-

In Opposition

A Charles Cushman direct mail letter dated November 20, 1990, announced that the Yellowstone Regional Citizens Coalition (YRCC) had been organized "to give you a voice." The coalition is composed of about 40 commodity, multiple-use, recreation, and local government groups. This partial list of YRCC's cooperating groups shows what the Yellowstone Vision document was up against:

Associated Contractors of Wyoming
Idaho Farm Bureau
Intermountain Forest Industry Association
Montana 4 x 4 Association
Montana Mining Association
Montana Snowmobile Association
Montana Trail Vehicle Riders Association
Montana Wood Products Association
Montana Woolgrowers Association
Multiple-Use Land Alliance
Petroleum Association of Wyoming
Rocky Mountain Oil and Gas Association
Teton County Heritage Society
Wind River Multiple Use Advocates
Wyoming Association of County Commissioners
Wyoming Bankers Association
Wyoming Department of Agriculture
Wyoming Mining Association
Wyoming Public Lands Council

lowstone Vision document," says NPCA's Martin.

People for the West! led the WUM fight. Formed by John Wilson, CEO of Pegasus Gold, PFW has filled its board with mining company executives. With corporate checks coming in annually in the $15,000, $30,000, and $100,000 range, the group can afford to do some mischief, and PFW has a full bag of tricks. They were joined by Cushman and the newly formed Yellowstone Regional Citizens Coalition (YRCC—see box, above).

The Wise Use people organized. They worked the phones; they worked the media; they worked the politicians. They passed out preprinted "I oppose the 'Yellowstone Vision for the Future' letters, which thousands of people signed and mailed to the Park Service, the Forest Service, and other agencies. They blanketed the Yellowstone area with letters and handouts. They generated fear: the plan "creates a 19-million-acre *de facto* wilderness around Yellowstone Park," a PFW letter warned. "What is being proposed is a national park 8.5 times the size of Yellowstone National Park," claimed the Wyoming Heritage Society. "You will lose many of your existing rights," Charles Cushman wrote, "for example, tourism, access, snowmobiling, hunting, fishing, off-highway vehicle use, and other forms of recreation will be reduced as well as substantial losses in mining, grazing, and timber harvesting... [The plan] will govern your life."

Through rumors and letters, with exaggerations, half-truths, and outright lies, WUM pushed all the hot buttons. Those who wrote the document and knew precisely what was in it did little to counter these tactics. "They were gun-shy. They tiptoed around the middle," says Lewis of NPS and the Forest Service. "They distanced themselves from their own document and did little to refute WUM's lies." The Wise Use Movement was assisted by key Western legislators who shared its ideology.

Rallies, where emotions are whipped and issues clouded, are a key WUM tactic. A squad of well-paid Wise Use evangelists is ready to rally for any industry willing to pay. A newspaper report described WUM hired gun Dennis Winter as he worked lumbermen in Livingston, Montana: "He shouted at, pleaded with, and stroked his audience, using an evangelical style more common to the pulpit than to wood pulp. He made his audience stand. He made them sit. He made them shout in unison, and when it wasn't loud enough he made them do it again."

PFW scheduled rallies immediately before each of the Vision hearings and told people to go there first.

The final hearing was held at Montana State University in Bozeman. Industry chartered buses to bring workers and families from hundreds of miles away. Wearing mediagenic yellow armbands provided by PFW, they were herded into a YRCC rally immediately preceding the hearing, where they shouted and stood and sat and sat and stood and shouted until all reason vanished.

"There were 700 people there. You can't imagine the virulence of the outcry. I was Saddam Hussein, a Communist, a Fascist, everything else you could think of. One lady got up there, jaw quivering, used her time to say the Pledge of Allegiance, then looked at me and called me a Nazi," says Robert Barbee, meeting Wise Use face-to-face for the first time. "They loaded the hall," he says. "It represented the very worst of the public participation process. It was grim...revolting...a rout."

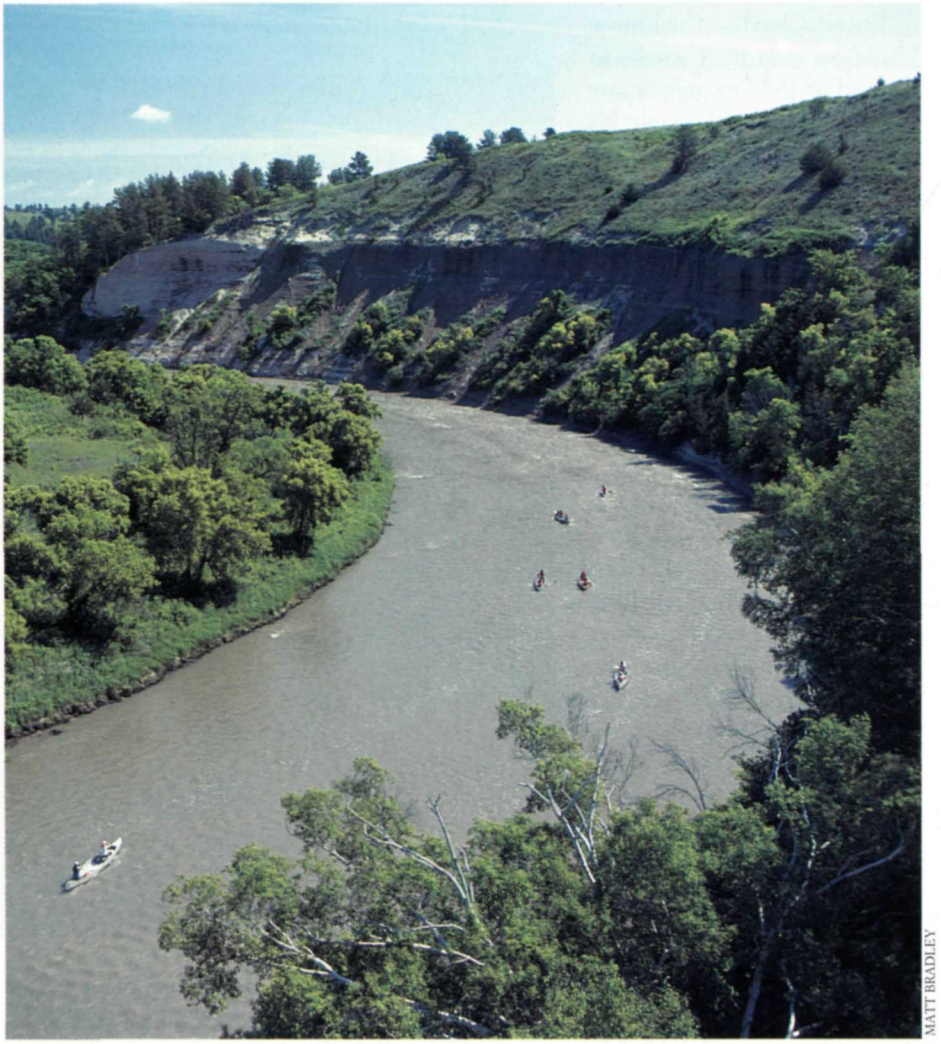
In fact, there is evidence that even before the battle of Bozeman, the fight was lost. A PFW newsletter interviewed Jack Troyer, who led the Forest Service Vision team. "The document goes too far," Troyer is quoted as saying. "We think the document is too long and too

ambiguous....It will be about two-thirds shorter, and sections that have been greatly criticized will be clarified or removed...We want what People for the West! wants." The newsletter was dated January 15, nine days before the Bozeman hearing.

[Ed. note: The Wise Use Movement did not limit itself to local organizing. Lorraine Mintzmyer, then NPS Rocky Mountain regional director, testified before Congress that pressure emanating from John Sununu and the Bush White House led directly to the gutting of the Yellowstone Vision document. Mintzmyer was reassigned and later resigned. See her article, "Disservice to the Parks," (Nov/Dec 1992)].

What has the conservation community learned from the loss of this battle? Ed Lewis enumerates the lessons: "We have to aggressively involve the public throughout the process: hold community meetings, early on, with anyone affected or interested," he says. "We have to do our own organizing. We have to work the grassroots. We have to educate. We have to get people to hearings." As for the Wise Use Movement: "Take their claims seriously. Find out precisely who you're up against. See if you can divide them (for instance, farmers/ranchers and hard-rock miners are sometimes WUM partners, although miners cause extensive damage to farmland)."

Finally, says Lewis, "Work the media, the politicians, and the community. Be credible."



MATT BRADLEY

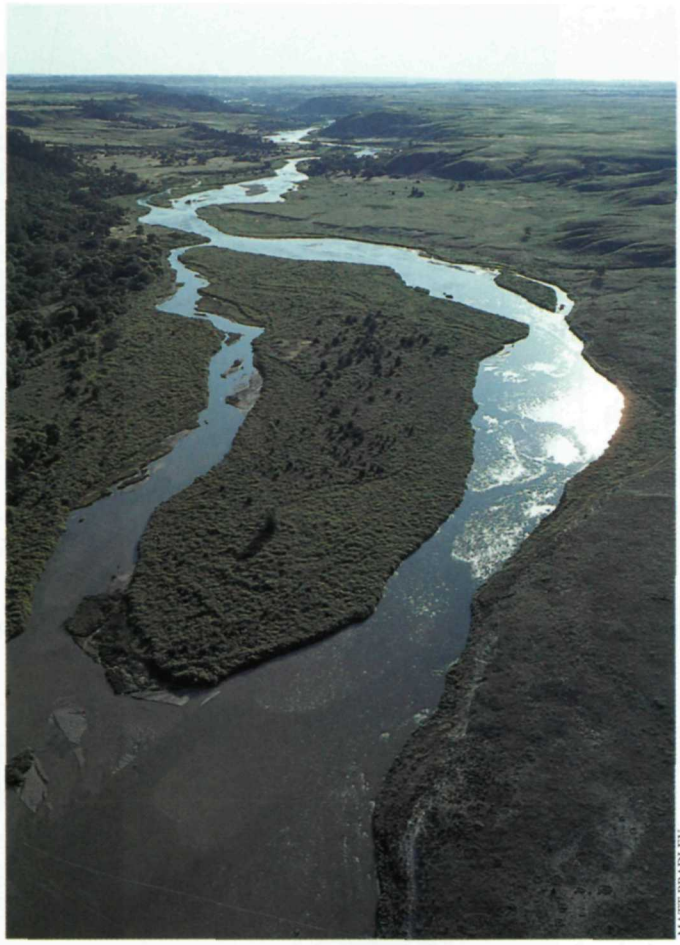
A proposed dam threatened Nebraska's Niobrara River, whose steady currents attract more than 20,000 canoeists a year.

LONG BEFORE environmentalists relearned the basics of grassroots activism at Yellowstone, Ron Klataske was practicing them on the Niobrara River. The Niobrara, which flows east across northern Nebraska, is not only one of the few rivers in the Great Plains; it is spectacular, especially in its mid-section, where it has carved a canyon 20 feet below the rim rock, where streams cascade off ponderosa-mantled bluffs and spring-fed draws bubble under paper birches, where whooping cranes stop over and bald eagles soar, where the least tern confronts extinction and wild turkeys confound hunters, and where 20,000 canoeists each year enjoy a quiet, constant current as the riverbed drops a steady eight to ten feet per mile.

To those who see water as just another commodity, the Niobrara was a gold mine. The U.S. Bureau of Reclamation (critics spell it "Wrecklamation") proposed building a dam that would rise 181 feet above the riverbed. The impounded water would be diverted for an irrigation project 60 miles away. Some landowners whose properties bordered the river above the proposed Norden Dam would lose their land outright; farms downstream would lose their water. Local farmers and ranchers came together to fight the project. They were joined by Ron Klataske, west central regional vice president of the National Audubon Society.

A lawsuit tied up the dam project. Meanwhile, The Nature Conservancy, which had established a preserve near the dam site, joined forces with Audubon and local landowners to kill the dam. Their efforts helped defeat House funding for the dam, but the project, still authorized by Congress, remained a threat. In 1980, two landowner couples called a news conference to announce they wanted a stretch of the Niobrara federally protected as a "scenic river." For the next ten years, Klataske worked directly with riverbank landowners—building support and understanding and shepherding the proposal through the bureaucracy. Political support for the dam eroded while support for protection of the Niobrara grew.

Enter Charles Cushman. Hired by dam proponents at the end of 1989 to orchestrate division, Cushman brought his usual bag of tricks, sending flyers, passing petitions, organizing telephone call-ins, holding rallies, and all the while bending the truth or spreading hot-button lies. In typical WUM fashion, the dirty work was done by a friendly sounding front, The Niobrara Basin Preservation Association (NBPA). Some people were fooled: the Omaha *World-Herald* quoted a charge by a man named Harlin Welch that "the real issue was private land rights, not protecting a river that is pristine without any visible threats," and described Welch as a person who "has owned land along the river for 12 years." But most people knew better. They knew it was the proposed dam, not scenic river designation, that threatened to grab their land. And they knew that Harlin Welch was no mere riverbank landowner; as head of the Ainsworth Irrigation Project, he supported the dam.



MATT BRADLEY

The Niobrara finally gained protection as a national scenic river in 1991.

Meanwhile, Nebraska Sen. Jim Exon, who led the scenic river designation fight in the U.S. Senate, was viciously attacked by the WUM. The NBPA bought full-page newspaper ads saying Exon had "declared war" on rural Nebraska. ("War on rural Nebraska/Oregon/America/etc." is a standard Cushman catch-phrase). They dogged the senator with pickets. Sporting those yellow armbands, they packed a hearing held by Exon and Sen. Bob Kerry and applied the same tactics they would use a year later in Bozeman. Exon, and the landowners, held firm.

WUM charged that scenic river designation would "alter disastrously canoeing on the Niobrara," but canoeists, faced with a 181-foot dam, knew better. In an effort to provoke sports enthusiasts, WUM charged that fishing and hunting would be curtailed, but people knew that Klataske was a devoted deer and pheasant hunter. WUM tried to split farmers and environmentalists, telling farmers that grazing and land-use rights would be limited. But the farmers knew better; Klataske had been working with them for a decade or more to preserve not just their rights, but their land and their water.

"We dealt with the 'Cushman Factor,'" Klataske says, "by exposing him for what he is: an outside agitator." Early in the fight, Klataske sent a memorandum to everyone involved, warning that Cushman had been hired and telling what to expect: "If his track record is any indication, Nebraska can begin to expect pickets with outlandish signs at appearances, letters from individuals who do not exist or letters that misrepresent views of organizations, extremely negative advertisements and news releases." Later, Audubon also sent a release to the news media, spelling out who Cushman was and what his tactics were. The story was picked up by local and Omaha papers.

All of these efforts eventually paid off. A bill establishing 76 miles of the Niobrara as a protected scenic river passed the House and Senate by wide margins and was signed into law by President Bush in May 1991. Klataske gives credit to Sen. Exon and the landowners, but it is clear that credit must also be given to the process.

"The scenic river legislation was developed in a partnership between landowners and conservationists," Klataske says. "It was written to protect both the natural quality and the pastoral character of the valley. There is nothing to exclude the presence of the compatible ranching and farming that already exists." The partnership Klataske forged is important in two ways. Not only were the landowners' interests represented in the final document, but the landowners were intimately involved in the process; they were fully informed. And thus, when the rumors and lies were sown, the ground was not fertile.

Conservationists can expect an increasing number of battles with the burgeoning Wise Use Movement. Clearly, the keys to winning these fights are working closely with local citizens, organizing aggressive grassroots campaigns, and exposing WUM's underhanded tactics and shortsighted motives. By doing so, we *can* hold the Wise Use Movement in check.

Richard Stapleton wrote and produced "Down to Earth," a daily environmental broadcast, for CBS Radio News. Based in Brooklyn, New York, he now writes widely on environmental issues.

The third article in this series will address conservation tactics and strategies for fighting the Wise Use Movement.

Mound Builders

Ancient earthworks offer a glimpse into the civilizations that once inhabited the eastern half of the United States.

By Elizabeth Hedstrom

As EUROPEAN settlers spread out across what is now the eastern half of the United States, they encountered a curious thing. Throughout the land they thought of as virgin wilderness, inhabited by people they considered unsophisticated savages, the settlers came across impressive, ancient earthworks.

Some were flat-topped pyramidal mounds as high as hills. Others were domed burial mounds or mounds in the shape of animals. Still others were walls, built of dirt and grown over with grass, that formed huge circles, squares, or octagons. Earthworks were found from New York to Florida to Oklahoma, but were especially concentrated in Ohio and along the Mississippi River.

Americans of the 1700s and early 1800s began to imagine themselves living in a mysterious new Egypt and named their towns Memphis, Alexandria, Cairo. They also ardently debated the identity of the Mound Builders.

Some held that the mounds had been built by past groups of Native Americans. Others preferred the notion of an extinct "superior race." Credit for the mounds variously went to ancient Babylonians, Phoenicians, Hindus, Persians, Greeks, Carthaginians, the Ten Lost Tribes of Israel, the Vikings, the Toltecs, refugees from Atlantis, and Chinese, Crimean, and Celtic wayfarers. (One version of a present-day theory attributes the mounds to visiting space aliens.)

As archaeologists and historians investigated the matter, evidence suggested that the mounds had indeed been built by Native Americans, in both ancient and more recent times. Despite the evidence, however, the wars with the Indians were intensifying, and the whole topic had fallen out of vogue.

To this day, the ancient ruins of the eastern United States are not as well-known as the pueblos and rock art of the West. They also have not been preserved as well. Many have been built over, worn down by farming, bulldozed, and looted. But the earthworks that remain provide much information about the prehistoric civilizations of the eastern and southern United States. And they can exert the same fascination for modern visitors as they did for Americans of 150 years ago.

Poverty Point National Monument

The ridges and depressions in the earth at Poverty Point, Louisiana, were so large they were assumed to be natural. But in 1952, aerial photos uncovered the significance of the place by revealing that the ridges formed a giant symmetrical pattern.

Three thousand years ago, Poverty Point—named for the 19th-century plantation that occupied the site—was the center of the most advanced civilization north of the Rio Grande.

The town was built in six concentric arcs forming an enormous semicircle. Each arc is a raised ridge of earth, originally ten to 15 feet high and between 50 and 150 feet wide. It is not clear whether the site was inhabited year-round or only when ceremonies were being held there.

Connected to the outermost arc is a huge mound, shaped like a bird with its wings outstretched and its tail spread as if in flight. At 70 feet high and 640 feet by 700 feet across, it was the largest mound on the continent for more than 2,000 years.

This central district of Poverty Point

Hopewell Culture NHP suggests the magnitude of these engineering feats.

NATIONAL PARK SERVICE

covers nearly one square mile, and other mounds stretch out from it across more than 2.5 square miles. It is estimated that building the earthworks from dirt, basketful by basketful, would have taken five million hours of labor.

Habitation of Poverty Point goes back to 1730 B.C., and the earthworks were built sometime between 1400 and 1350 B.C. But by 1300 B.C., for reasons that remain unknown, the great center was abandoned.

While it flourished, Poverty Point was the ceremonial and trade center of a culture that extended up and down the Mississippi River. More than 100 smaller towns, villages, and campsites from the Poverty Point culture have been found elsewhere in Louisiana, Arkansas, and Mississippi.

An extensive trade network made available the metals and colorful stones Poverty Point people prized in both utilitarian and decorative objects. More than half the stone they used came from distances greater than 175 miles.

Only 3 percent of the Poverty Point site has been excavated, and many questions remain about it. But the site is believed to have supported the first culture north of Mexico to construct complex, geometric earthworks on a grand scale.

Poverty Point has been designated a national monument but continues to be managed by the state of Louisiana. The site offers an interpretive museum, guided tours, and an opportunity to see archaeologists at work. For more information, contact Poverty Point State Commemorative Area, P.O. Box 276, Epps, LA 71237; (318) 926-5492.

TERRY DONNELLY

Burial mounds at Effigy Mounds.

The Mound Builders

About the time Poverty Point was abandoned, people in the Great Lakes area began to erect mounds. From this tradition arose the great mound-building civilizations of the Ohio River Valley: the Adena and the Hopewell.

The Adena date from 500 B.C. to A.D. 200 and the Hopewell, from 200 B.C. to A.D. 500. It is not known for certain whether they were two different groups or two different phases of the same culture.

The Adena and Hopewell both built burial mounds, often 30 to 40 feet high. The Hopewell enclosed their mounds with enormous geometric earthworks. While many of the mounds have since been destroyed, Hopewell Culture National Historical Park in Chillicothe, Ohio, preserves a number of sites spread across the southern part of the state. The sites suggest the magnitude of Hopewell mathematical, surveying, and engineering skills.

The Hopewell Mound Group consists of a three-mile-long earthen wall in the shape of a giant "D." Attached is a square-shaped embankment. The complex covers 130 acres, and portions of the walls are still eight feet high.

Researchers have recently found evidence of what could be the greatest Hopewell undertaking: two parallel walls that stretch 60 miles from Chillicothe to another major cluster of earthworks in Newark, Ohio.

The Hopewell also attained a high level of artisanship, revealed by the objects that line the interiors of their mounds. They carved delicate silhouettes out of mica, made headdresses and earrings from copper, and fashioned conch shells into drinking cups. Perhaps the most remarkable artifacts are the stone pipes carved in human and animal images using local stone.

The materials used in the objects indicate trade routes spanning half the continent. Hopewell artisans had access to silver from Ontario; freshwater pearls and copper from sites along the Great Lakes; obsidian, a black volcanic glass, from what is now Yellowstone National Park; seashells from the Gulf of Mexico; and stone from a quarry in Minnesota, now preserved as Pipestone National Monument.

The Hopewell world came to an end about A.D. 500. The reasons for its demise are unknown, but drought or other climate changes, epidemics, civil war, or invasion have all been suggested.

Effigy Mounds National Monument preserves sites from a related culture, which sprang up in Iowa and Wisconsin as the Hopewell were disappearing. These mounds were built in the shapes of bears, birds, and other animals.

Visitors to both parks can follow trails through the mounds. At Hopewell Culture, visitors can also see artifacts from its mounds on display. For more information, contact Hopewell Culture National Historical Park, 16062 State Route 104, Chillicothe, OH 45601; (614) 774-1125; and Effigy Mounds National Monument, Rural Route 1, Box 25A, Harpers Ferry, IA 52146; (319) 873-3491.

The Temple Mound Builders

Around A.D. 700, a new civilization based in the Mississippi Valley ex-

NATIONAL PARK SERVICE

WILLIAM BAKE

An ancient artifact, above, and mounds at Ocmulgee National Monument, Georgia.

panded upon the developments of the Hopewell. Villages became cities, small-scale farming became an organized operation that could feed thousands of people, and a new style of mounds was erected on an enormous scale.

The Mississippians, or Temple Mound Builders, continued to bury important people in mounds. But they also built flat-topped pyramidal mounds as bases for their temples, which were made of poles and thatch.

Some temple mounds had terraced sides where other smaller structures stood. These were the homes of rulers, nobles, and priests.

Mississippian sites can be found from Florida to Oklahoma and north to Wisconsin. The greatest was Cahokia, now a state historic site in Illinois, just across the Mississippi from St. Louis. An estimated 10,000 to 20,000 people lived at Cahokia at its peak in the 1100s. The village extends for five square miles and originally contained 120 mounds. Monk's Mound, which was built over 15 acres and is about 100 feet high, is the largest earthwork by volume in the Western Hemisphere.

The Mississippians were able to support such large towns because they had become master farmers.

Symbols used in Mississippian artifacts reveal a preoccupation with death, and evidence exists of human sacrifice at Cahokia and other sites. These symbols and practices, along with the temples and city layouts, are nearly identical to those of the Mayans. Although contact between the two cultures is unproven, it seems likely.

A major Mississippian site in the National Park System is Ocmulgee National Monument in Macon, Georgia. Ocmulgee was a Mississippian town that flourished between A.D. 900 and 1100. Its 2,000 to 3,000 residents built a series of temple mounds along the Ocmulgee River. The largest, Great Temple Mound, rises more than 40 feet from a base that is 300 feet by 270 feet.

While nearly all Mississippian buildings have disappeared, an earthlodge at Ocmulgee survives in part and has been reconstructed. Probably used as a council house, the building seats 50 on an eagle-shaped platform and a low bench lining the wall.

Another major site is Emerald Mound, along the Park Service's Natchez Trace Parkway. Just north of Natchez, Mississippi, and covering eight acres, Emerald Mound is the second largest temple mound in the nation, after Monk's Mound at Cahokia.

Cahokia was abandoned by the 1400s, as were most of the great Mississippian sites. Scholars suggest that European diseases may have raced ahead of the first explorers, or endemic diseases may have been responsible for wiping out the Mound Builders. Other theories include drought, famine, political strife, and warfare.

Whatever the answer, the great Mississippian civilizations were vanishing or gone not long before the masses of European settlers arrived, leaving behind few clues beyond the mounds and the artwork. The mounds today still evoke the wonderment they did in naturalist William Bartram, who visited Ocmulgee in 1773 and spoke with awe of "the wonderful remains of the power and grandeur of the ancients in this part of America."

The Ocmulgee visitor center contains a major archaeological museum, and foot and automobile trails provide a tour of the mounds. Emerald Mound is also open to visitors, and the Park Service gives presentations on Mississippian culture and astronomical events there. For more information, contact Ocmulgee National Monument, 1207 Emery Highway, Macon, GA 31201; (912) 752-8257; and Natchez Trace Parkway, Rural Route 1, NT-143, Tupelo, MS 38801.

Elizabeth Hedstrom is news editor for National Parks.

Partners for Parks

NPCA's FOURTH ANNUAL March for Parks is a celebration of parks and open spaces in which park advocates raise funds through neighborhood walks. March for Parks is based upon successful walk-a-thons but is unique in allowing the local March Partners to choose specific environmental projects that will receive 100 percent of the funds their march raises.

March Partners—individuals or community groups—are organizing city, county, state, and national marches locally in recognition of this year's March for Parks theme, "Adopt a Park." March for Parks will be held April 16, 17, and 18, 1993, to coincide with Earth Day activities.

Already, hundreds of activists nationwide are planning a march in their area. David Canter, a University of Baltimore law student, founded the Young Person's Action Coalition (YPAC) to get young people involved in their community. YPAC will be a March Partner in the Baltimore, Maryland, area. One of YPAC's first actions was to volunteer its time and energy for a clean-up day at Fort McHenry National Monument and Historic Shrine, site of a crucial battle in the War of 1812 that Francis Scott Key immortalized in the "Star Spangled Banner."

"Going to school in the city that inspired our national anthem motivated us to give something back to the community," said Canter. "That's why we organized the clean-up day, and that's why this year we will adopt Fort McHenry for our March for Parks."

YPAC will join the Friends of President Street Station Historic Site, the Defenders, the Coalition to Protect Black Marsh, and the Patriots to raise funds and awareness to preserve Baltimore's heritage.

Thousands of citizens across the country will march in local parks and communities for projects that include purchasing land for public enjoyment through the Hamburg Open Space Preservation Program in Hamburg, New York; stabilizing archaeological ruins at Indian Key State Historic Site in Islamorada, Florida; establishing a children's forest at Balcones Canyonlands Wildlife Refuge for endangered species protection through the Children's Alliance for Protection of the Environment in Austin, Texas; and purchasing and planting native vegetation in parks and forests by various tree-planting groups.

Tree New Mexico, a nonprofit Albuquerque-based organization, is getting the March for Parks message out to its many volunteers statewide. Since its inception in 1991, the group has donated more than 7,700 volunteer hours and planted more than 40,347 trees in national and state forests, urban and county parks, Bureau of Land Management areas, and many school sites. Executive Director Sue Probart said, "March for Parks is an excellent way for Tree New Mexico to raise funds for those projects that have been sitting on the shelf collecting dust due to lack of money." Probart will work with other tree groups, schools, and service organizations to plan more than 100 marches statewide. The marches will raise funds for urban forestry, riparian work, and distribution of a teacher training manual on reforestation.

The flagship March for Parks will be at Rock Creek Park in Washington, D.C. With more than 1,700 acres, Rock Creek is the largest natural park in an urban area. Superintendent Bill Shields said, "I want to make the march at Rock Creek the prototype in terms of the variety of projects and the diversity of organizations involved." Groups from around the city will participate in the event that will raise funds for interpretive and educational materials for handicapped visitors and children; research into historic areas; setting up volunteer programs to improve park conditions; and improved safety at various park sites.

NPCA president Paul Pritchard said, "The Rock Creek Park March for Parks shows what can happen when local community leaders and the National Park Service work together to protect our national treasures. Each partnership project exemplifies our willingness to protect our parks and open spaces for future generations."

—Tom St. Hilaire

Be a March Partner!

March Partners are individuals or groups that are willing to plan a March for Parks in their community on April 16, 17, or 18, 1993. They are responsible for organizing their local march as part of a larger network of marches organized nationwide by the National Parks and Conservation Association. Past March Partners include:

National, state, regional, and local park friends groups
Teachers
Park managers
Trails clubs/walking groups
Earth Day coordinators
Student groups
Local environmental groups
Local activists
Service organizations

To become a March Partner, call NPCA Director of Grassroots Tom St. Hilaire at 1-800-NAT-PARK.

The Blue and the Gray

THE CIVIL WAR, ever present in the American consciousness, is a popular topic of books and films. Since D.W. Griffith's 1915 *Birth of a Nation*, moviegoers have flocked to the cinema to glimpse filmmakers' interpretations of the war that to a large extent defined the character of America.

Last year, more viewers watched Ken Burns' epic *The Civil War* than any other special carried by the Public Broadcasting System. And no topic in American history has been written about in such detail. But with more than 50,000 titles from which to choose, how do neophyte Civil War enthusiasts know where to begin? *The Blue and the Gray*, published by the National Geographic Society, would be an ideal place to start.

Author Thomas B. Allen's engaging text brings the drama of America's bloodiest war to life, while a combination of faded, historic photographs and Sam Abell's breathtaking color photography captures the essence of the battlefield landscape. By combining historic record and modern photographic interpretation, the book escapes a pitfall that plagues so many others on the Civil War—blow-by-blow descriptions of its military history. Instead, the book captures the breadth of the war and its effect on the countryside and the people.

According to Allen, "often the land itself would determine where armies would or wouldn't fight." Consequently, Allen tried "to stay with people doing the fighting and those experiencing the war, such as the women on the farms trying to make a living."

Readers will find a beautifully written synthesis chronicling the catastrophic events that tore the nation apart as well as biographical sketches of both the better-known and some of the lesser-known figures, such as the Grimké sisters. Sarah and Angeline Grimké were a rare breed—southern white female abolitionists who spoke out against slavery in both the North and the South.

For battlefield enthusiasts, Abell's photographs are the highlight of the book. Tree-covered slopes in brilliant fall colors characterize his landscapes, while evocative winter scenes capture the stillness of national cemeteries. "My photographs...are about...the national, North, and South feeling of grief, of sorrow, of loss," says Abell.

The book comes with a map of the battlefields and a *Guidebook to the Civil War National Battlefield Parks*. The 160-page guide lists the major battlefields administered by the National Park Service. Its color maps shed light on the strategy and tactics used during the major campaigns. The guide makes a fine companion to "Visiting Battlefields: The Civil War," available free from NPCA's Park Education Center.

The Blue and the Gray is available for $33.50, hardcover. Order by writing to The National Geographic Society, 17th & M, N.W., Washington, DC 20036.

—Bruce Craig

The Mather Society

The Mather Society involves dedicated members and friends of NPCA who, by their annual general contribution of $1,000 or more, continue to ensure the thoughtful stewardship of our National Park System through their leadership, activism, and generosity.

We gratefully acknowledge these individuals, whose support enables us to continue the fine tradition of Stephen Tyng Mather, the first director of the National Park Service and one of the founders of NPCA.

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For information on joining the Mather Society, please call or write:

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Conservation Association
1776 Massachusetts Ave., NW
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1-800-NAT-PARK, ext. 131

Notices

1992 Annual Report

NPCA's 1992 annual report identifies its accomplishments and highlights many of the issues NPCA is still fighting after 73 years.

NPCA worked on more than 70 bills in 1992. With a membership of more than 300,000, NPCA has been able to fight for clean air in Shenandoah and Grand Canyon national parks and testify before Congress for additional funding for endangered species, global climate change research, biological inventories, and other pressing issues affecting the national parks.

After years of work, NPCA helped expand the park system with the creation of the new Salt River Bay National Historical Park and Ecological Reserve at St. Croix, Virgin Islands. Last year NPCA continued the battle to prevent the construction of a giant-screen theater at the entrance of Zion National Park in Utah and fought against hunting in the proposed national monument in California's Mojave Desert.

In 1992, NPCA was instrumental in securing co-sponsors and allies for the Concessions Reform bill. Laws under which private businesses provide lodging, food, and other services at national parks are outdated and full of loopholes.

Park protection is one of NPCA's most important missions. NPCA won a battle in 1992 when it convinced Congress to delete funds in appropriations for construction of an unneeded new hotel in Alaska's Denali National Park and Preserve. NPCA also helped quash plans by the Department of the Interior to build a museum in the base of the Lincoln Memorial which would have compromised the monument's architecture as well as its structural integrity.

According to the financial statements for the fiscal year, NPCA's total operating income was $10,519,905. Percentages of total expenses were as follows: program services 75 percent, fund raising 9 percent, membership recruitment 13 percent, and management and general 3 percent.

NPCA's grassroots department made strides in 1992 as it helped launch the Mid-Atlantic Trails report, a comprehensive grassroots-driven report on what must be done to protect and enhance trails.

Find out more about NPCA's achievements, missions, and programs by writing for the free 1992 annual report at NPCA, 1776 Massachusetts Ave., N.W., Washington, DC 20036.

Annual Dinner

NPCA's annual dinner will be held March 18, 1993. The dinner, which in the past has been held in the fall, has been moved to the spring to give NPCA members and trustees a more timely opportunity to lobby Congress.

Park Vacation Kits

NPCA has released the new National Park Vacation Kits, comprehensive packages describing the beauty and history of ten different national parks. Each kit focuses on one park and includes a special 60-minute audio tape, a fact book, a topographical map, an NPS handbook, trail guides, and campground information.

For $44.90, your kit will teach you about the ecological systems of the Grand Canyon, Rocky Mountain, Glacier, Zion, Yellowstone, Yosemite, Grand Teton, or other national parks before you visit.

For more information, write to NPCA, Marlena Kelly, 1776 Massachusetts Ave., N.W., Washington, DC. 20036. To order by phone, call 1-800-PARK KIT.

Correction

Please note on page 6 in the Nov./Dec. 1992 issue that the International Video Network is a corporate sponsor for NPCA, not NPAA.

"I never imagined a child so far away could bring me so much joy!"

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"When I wrote to Ana, she wrote back. Five years' worth of her letters is proof enough for me that we've made a real difference in her life!

"We like how Save the Children makes our contributions work with other sponsors' rather than just giving handouts directly to individual children. The field reports *show* us how we've helped Ana's own village give her the things she needs.

"When you think of it, a contribution of $20 a month comes to just 65¢ a day. It takes so little from us to make their lives a lot better."

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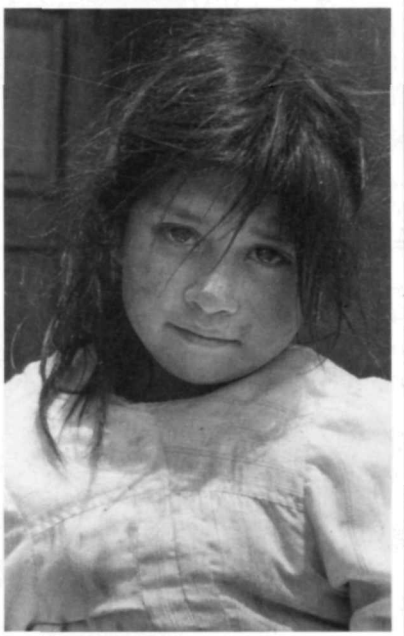

How Save the Children's funds are spent. 85% of all dollars spent goes right to programs that benefit kids most.

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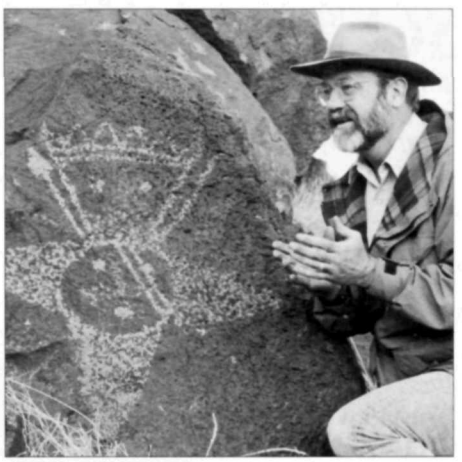
TRIBUTE TO EXCELLENCE

Marjory Stoneman Douglas Award

Presented by NPCA and the Faultless Starch/Bon Ami Co., this award recognizes outstanding efforts resulting in protection of a unit or a proposed unit of the National Park System. The award is named in honor of Marjory Stoneman Douglas, who devoted many years to preserving the fragile ecosystem of the Florida Everglades.

ISAAC C. "IKE" EASTVOLD, the 1991 recipient, is founder and president of Friends of the Albuquerque Petroglyphs, a group dedicated to preventing the destruction of ancient rock art on a 17-mile-long escarpment near Albuquerque. His leadership led to the establishment of the 7,669-acre Petroglyph National Monument in June 1990.



Isaac C. "Ike" Eastvold

Stephen Tyng Mather Award

The Stephen Tyng Mather Award, named for the first director of the National Park Service, is presented by NPCA and the Faultless Starch/Bon Ami Co. in recognition of a Park Service employee who has risked his or her job or career for the principles and practices of good stewardship.

The 1991 recipient is CHRISTINE L. SHAVER, chief of the Policy, Planning, and Permit Review Branch of NPS's Air Quality Division. Over the past several years, she has taken direct action to remedy sources of air pollution affecting national parks—most notably the Grand Canyon, where she helped secure emission limitations on a nearby power plant.

Christine L. Shaver

The Faultless Starch/Bon Ami Company wishes to congratulate the recipients of these awards and thank them for the excellent contribution they have made to the protection of our environment.

The Faultless Starch/Bon Ami Company has actively supported the efforts of organizations such as NPCA for more than 100 years and will continue to work toward the goal of preserving our natural resources for future generations.

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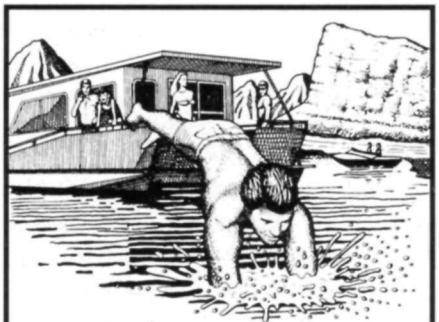

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Sculpted Landscapes

PARK PURSUIT tests your knowledge of the history and the natural resources represented within the National Park System. Clues can be found in past issues of the magazine, in books, or in literature about the parks.

The January/February quiz focuses on the types of dramatic natural formations preserved within the National Park System, and information has been provided to aid you in identifying the park sites depicted.

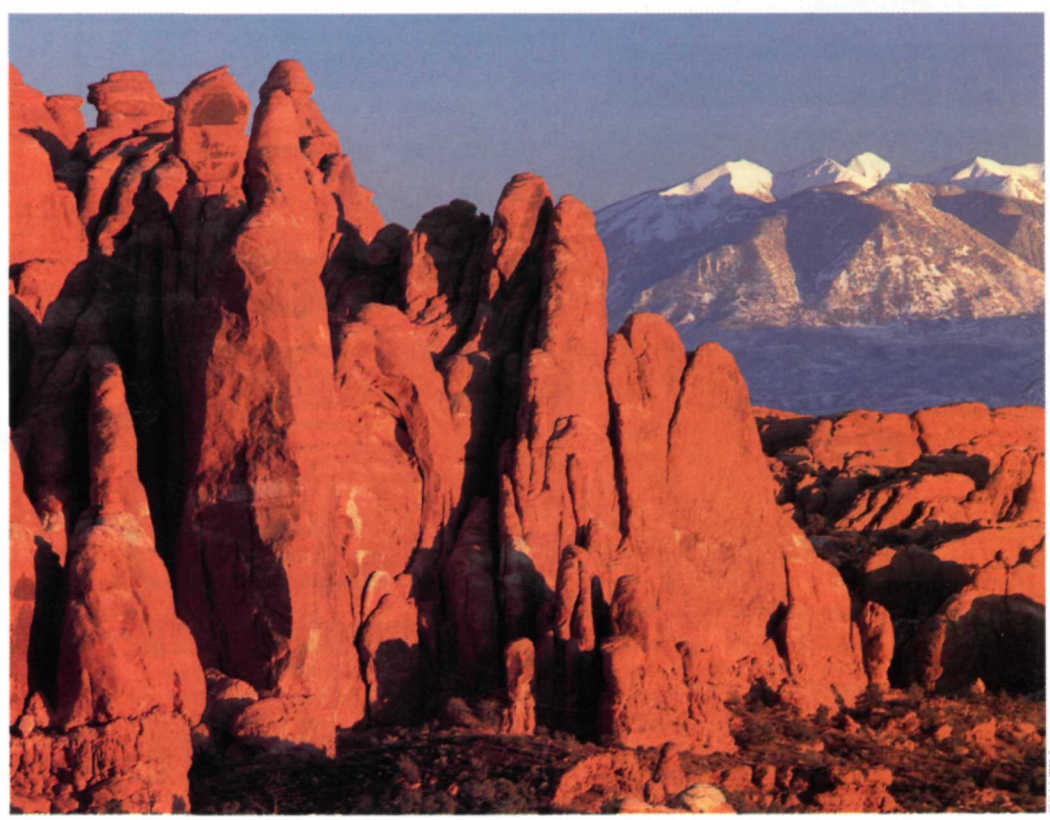
Landscapes found within the National Park System tell stories of the 4.6-billion-year history of the Earth and provide proof that during that time whole mountain ranges have come and gone, great valleys have filled in or been lifted into mountains, and continents have broken and drifted apart.

Within the parks and monuments are stories of arid deserts and steaming jungles, of ancient seas and dying mountains, of erupting volcanoes long since dead and sunken canyons. Some sites protect huge underground systems of caves, and still others feature landscapes filled with sandstone formations that have been tortured by wind, rain, and ice into stunning shapes. Unmerciful heat and cold have added to the picturesqueness of some landscapes, sculpting the rock like an undirected but energetic artist.

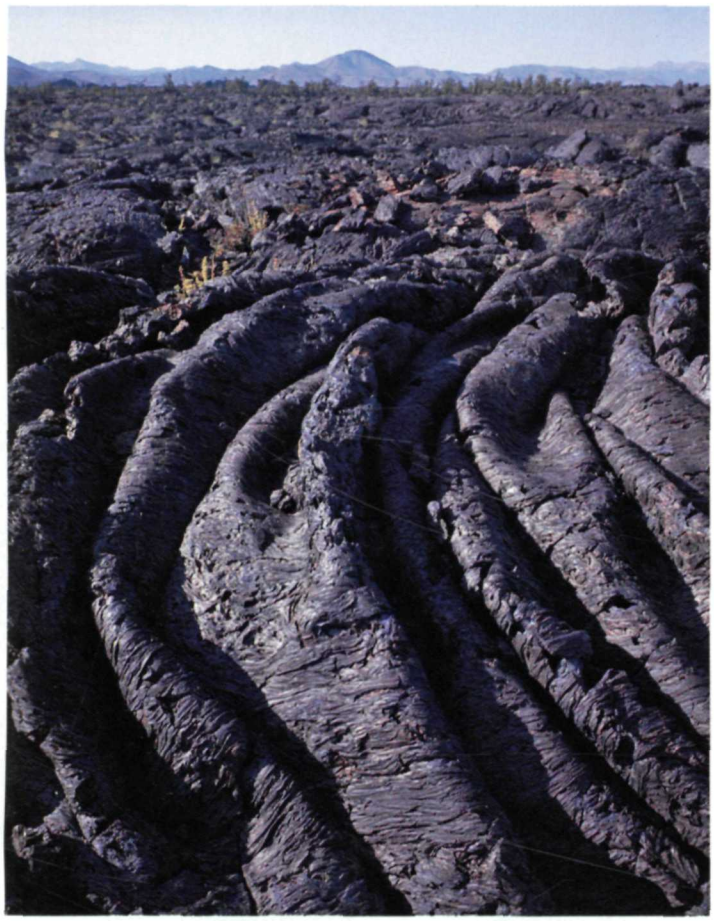
If these stark and beautiful landscapes preserved within the park system prove anything, it is that the earth around us is constantly changing. Whether change is brought by a slow drip of water or the explosive punch of 160-mile-an-hour winds, the change is just as definite.

If you are unable to wait until next issue for the answers, call our 900 number (see page 8). Answers to the November/December quiz are: 1. Golden Gate National Recreation Area in San Francisco, California; 2. Rock Creek Park in Washington, D.C.; and 3. Jean Lafitte National Historical Park and Preserve in New Orleans, Louisiana.

1. This park is marked by massive sandstone cliffs and canyons, barren slickrock expanses, mountains, mesas, buttes, and spires. Displayed here is a landscape that had its origins several hundred million years ago. The rock has been carved into endless variety by wind and rain and frost, dramatic shifts in temperature, and the release of age-old tensions in the rock itself. What park is this?



TOM TILL



DAVID MUENCH

2. This park preserves a weird lunar landscape that was created by volcanic eruptions beginning about 15,000 years ago. Fissure vents, volcanic cones, and lava flows of the Great Rift Zone ceased only 2,000 years ago. Virtually unknown until 1921, this area with its astonishing landscape was made a national monument in 1924, and today it embraces more than 53,000 acres. What national park unit is this?

DAVID MUENCH

3. At first just a curiosity, this cave became a valuable commercial property with the outbreak of the War of 1812 after nitrate, an essential ingredient of gunpowder, was found here. In the 1800s and early 1900s, there were weddings, performances by Shakespearean actor Edwin Booth, and the establishment of a hospital for tuberculosis patients in this cave, which features underground rivers, springs, and sinkholes. The cave is believed to be the largest in the world. What national park unit is this?

photo by L.A. Photo

Evening light bathes the dunes at White Sands National Monument, a 270 square-mile sea of snow-white gypsum crystals.

An ocean of sand is painted pastel colors as twilight falls.

ONE by one, countless tiny gypsum crystals have made their way to this quiet place, carried by the wind. Over millions of years they have gathered here, forming a vast sea of gleaming white dunes. This is the largest expanse of gypsum sand on earth and it is still growing, grain by grain.

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