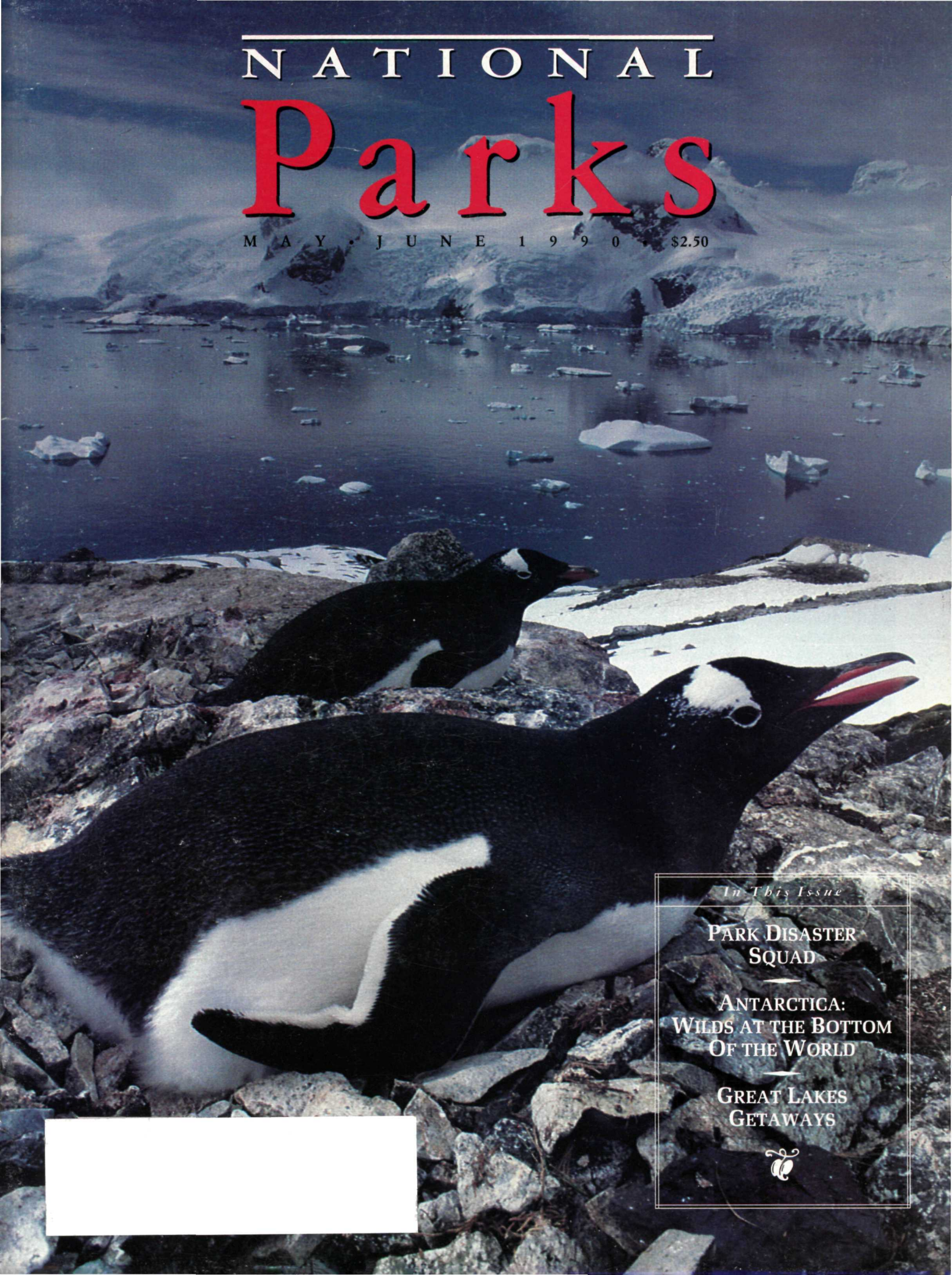


NATIONAL Parks

MAY • JUNE 1990 • $2.50

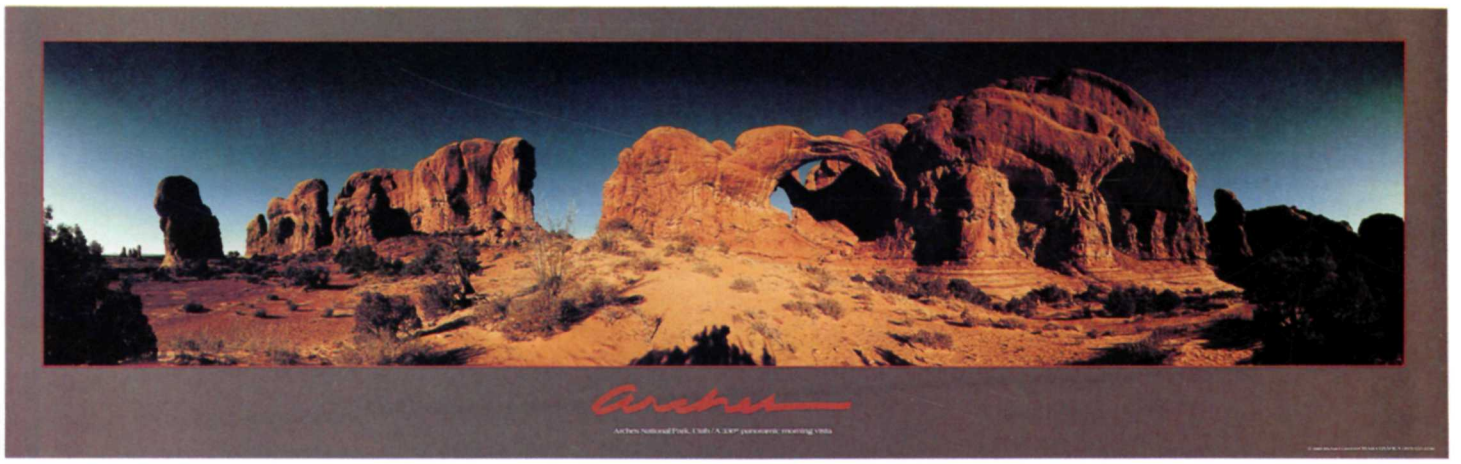
In This Issue

SPECIAL OFFER

YOSEMITE NATIONAL PARK, *California*

Yosemite, *a 290° panoramic ground view of the Yosemite Valley, the Merced River in the foreground. El Capitan is lit by the morning sun with Bridalveil Falls to the right. Each year over a million visitors come to see these wonders, which are some of the most rugged and beautiful in the nation.*

ARCHES NATIONAL PARK, *Utah*



Arches, *a 330° morning vista. Located in eastern Utah it has the highest density of natural arches in the world, created over millions of years. If you visit Arches after a spring rain you may see the unexpected: a vast field of wildflowers appearing on the desert floor.*

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TED WOOD

Crisis strike force, page 30

EDITOR'S NOTE

In human history, nationalism is a relatively new phenomenon. Within little more than 150 years all the continents, save one, have been carved into national units. Antarctica alone is not ruled by any government. Human inhabitants are there only temporarily and, until recent technological advances, Antarctica was too severe for any but extraordinary explorers. Its sharp, white beauty was protected by the cold.

Now oil, minerals, and the ever-expanding range of tourism threaten to turn Antarctica into a junkheap of food waste, rusting oil drums, old machinery—the detritus of civilization.

Some argue that oil and minerals must remain available for human use. Others propose protecting the continent as a world park. Antarctica is an issue that must be settled quickly before it is irrevocably fouled.

NATIONAL PARKS

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NATIONAL
Parks

THE MAGAZINE OF THE NATIONAL PARKS AND CONSERVATION ASSOCIATION

Vol. 64, No. 5-6
May/June 1990

OUTLOOK

FEATURES

DEPARTMENTS

Cover: *Cierva Cove, Antarctic Peninsula, by Gordon Wiltsie*
Gentoo penguins—one of four species that inhabit Antarctica—nest along the shoreline, not far from Argentina's Primavera Base.

Established in 1919, the National Parks and Conservation Association is the only national, nonprofit, membership organization that focuses on defending, promoting, and improving our country's National Park System while educating the public about the parks.

Life memberships are $1,000. Annual memberships: $250 Guarantor, $100 Supporter, $50 Defender, $35 Contributor, $25 Active, $22 Library, and $18 Student. Of membership dues, $7 covers a one-year subscription to *National Parks*. Dues and donations are deductible from federal taxable incomes; gifts and bequests are deductible for federal gift and estate tax purposes. Mail membership dues, contributions, and correspondence to address below. When changing address, please allow six weeks' advance notice and send address label from your latest issue plus new address. POSTMASTER: Send address changes and circulation inquiries to **National Parks, 1015 Thirty-first St., NW, Washington, D.C. 20007 / (202) 944-8530**

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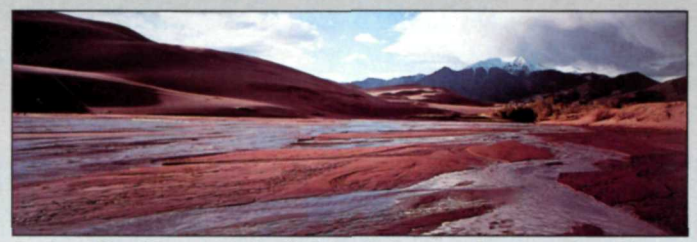

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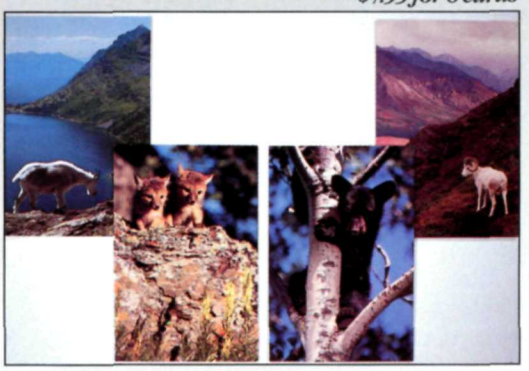

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Heroes for Our Times

THERE HAS BEEN a lot of talk recently about why the environment is one of the most important issues facing this nation. Although many people are now getting involved in the environmental movement, all along the movement has had great leaders.

During the 1950s and early 1960s—the era of Rachel Carson and her seminal book, *Silent Spring*—this leadership came from individuals who were identifying the problems. Leaders of the 1960s and 1970s took the next step, giving environmental problems a broader hearing and looking for solutions.

Some were public administrators who had the skills to translate environmental concerns into public policy. Former Interior Secretary Stuart Udall and former Wisconsin Senator Gaylord Nelson fought environmental battles at the federal level. Former Oregon Governor Tom McCall was an early state leader. And Laurance Rockefeller, a citizen leader and one of the great patrons of the movement, worked for the environment all across the country.

Rockefeller was the father of the Outdoor Recreation Resources Review Commission, a presidentially appointed board that engendered both Wild and Scenic Rivers and National Trail systems as well as the Land and Water Conservation Fund.

Private citizens never vanished from the scene. They fought battles over the Love Canal, Three-Mile Island—battles too numerous to mention—as pollution became a growing concern.

The 1980s should not be forgotten as a period of heroes. A few who come to mind include Rhode Island Senator John Chafee, a resilient leader concerned with clean air as well as protecting parks, open space, and wildlife.

Although Marjory Stoneman Douglas began her successful efforts to protect the Everglades back in the 1930s, she continues to meet the challenges facing this area, and I have had the privilege of working with her on some of these issues. This heroine of the environmental movement, who led the fight to make Everglades a park, will celebrate her 100th birthday this month.

There are leaders on NPCA's Board of Trustees whose work may not be highly publicized, but whose voluntary efforts shape the direction of our environmental efforts.

One such truly talented and committed Trustee was Susan Hanson. Susan recently died—ironically and tragically—while traveling with her mother to visit national parks in Costa Rica. She was one of those rare people who understood the importance of environmental education at places such as the Nature Center, the value of inner-city children enjoying fresh air outside of their difficult environment, and the camaraderie of people working for a common cause. Most importantly, Susan took an active role in all that concerned her.

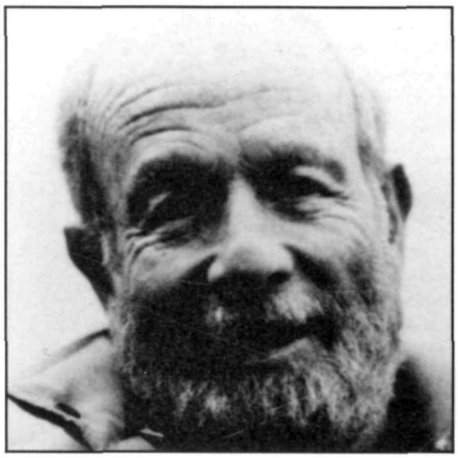
Senator Bob Graham, another great leader, said at a recent Everglades Coalition meeting that our victories for the environment are temporary while the losses are forever. What he implied was that the need for environmental leaders will never diminish and, in fact, will continually grow.

Paul C. Pritchard

TRIBUTE TO EXCELLENCE

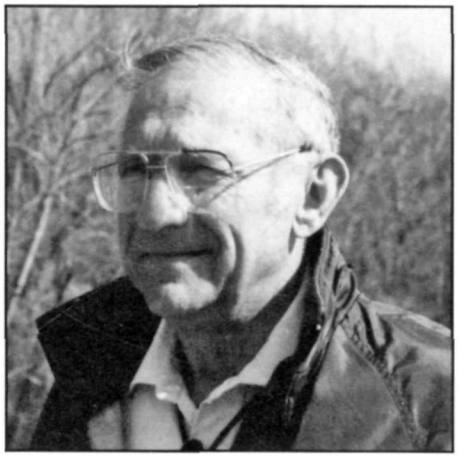
Marjory Stoneman Douglas Award

The Marjory Stoneman Douglas Award is presented by the National Parks and Conservation Association and the Bon Ami Co. to recognize an individual for an outstanding effort that results in protection of a unit or a proposed unit of the National Park System. The award is named in honor of Marjory Stoneman Douglas for her many years of dedication to preserving the fragile ecosystem of the Florida Everglades.



1987 RECIPIENT

DR. EDGAR WAYBURN. For forty years, Dr. Wayburn has been a leading environmentalist. He was the principal conservation architect for the establishment of Redwood National Park and Golden Gate National Recreation Area, and for the 1980 Alaska National Interest Lands Conservation Act.



1988 RECIPIENT

ROBERT CAHN. A Pulitzer Prize winner for his Christian Science Monitor series on the state of the national parks, Mr. Cahn has also served on seminal environmental councils and, through numerous books and articles, furthered the cause of conservation.

1989 RECIPIENT

POLLY DYER. For decades, Mrs. Dyer has led the fight to protect and preserve Olympic National Park. Her activism at Olympic began in the 1950s, when she headed the effort to block logging and a coast road slated for the park. Mrs. Dyer continues her work as president of the Olympic Park Associates.

The Faultless Starch/Bon Ami Co. wishes to congratulate the recipient of this award and thank them for the excellent contribution they have made to the protection of our environment.

The Bon Ami Co. has actively supported the efforts of organizations such as National Parks and Conservation Association for over 100 years and will continue to work toward the goal of preserving our natural resources for future generations.

LETTERS

Sharing of the Green

I read with great interest the article "Fate of the Northeast Kingdom" [January/February 1990].

In January President Bush wrote into his budget money and provisions for increasing the number of trees in the United States. With our lack of national park areas in New England it would seem appropriate to preserve trees by protecting these woods from destruction and by turning them into parkland through acquisition. The bonus of enjoying the region as a great park area would be a welcome result, too.

Daniel M. Potrepka
Manchester, Connecticut

Fossils and Other Facts

I thank Stephen Nash and *National Parks* magazine for an enjoyable and informative article on research at Petrified Forest National Park ["Birth of the Dinosaurs," November/December 1989]. I would like to correct one popular misconception he included, however, regarding the funding and practical applications of paleontological research. One reason that paleontology remains underfunded is that the public is unaware of its practical value.

Present-day paleontological research does more than provide knowledge for its own sake. With global population increasing, geologists use fossil evidence in exploring for ever-diminishing natural resources (oil, natural gas, etc.). Cooperative drilling programs between the U. S. Geological Survey (USGS) and various state agencies use paleontology regularly in the search for unpolluted groundwater in urbanized areas.

We are using paleontology in long-term stability studies for proposed nuclear waste storage sites, such as Yucca Mountain, Nevada. Paleontology is instrumental in basic geologic mapping, which contributes to intelligent land-use planning. Paleontology has been employed in defense matters.

Perhaps the most recent use for paleontology is in the newly emerging field of global climate change. The USGS and other agencies and groups are presently using fossil data to study past episodes of global warming to help make sound predictions for our future. The list could be much longer, but these few examples illustrate the point.

Please note, however, that basic (academic) research is also purposeful as it often forms the foundation by which practical research is made possible.

Ronald Litwin, PhD.
Geologist, USGS
Reston, Virginia

I read about the establishment of City of Rocks National Reserve in southern Idaho as an important site of diverse animal species and geological formations.

In addition, readers of *National Parks* will be interested to know that this site is of historical importance in that the site served as a camping and crossroads area on the California Trail for the period of 1840 to 1869.

California-bound emigrants left their names and messages inscribed on the rock formations at this site and many of these inscriptions are still visible over a hundred years later.

Jan A. Roberts
Mountlake Terrace, Washington

Have just read my first copy of *National Parks* and enjoyed it, especially regarding the reintroduction of wolves to Yellowstone. As we in Australia do not hear a great deal about your wolves, I was most interested.

Some of our kangaroos are on the endangered list, and the Australian dingoes, like your wolves, are finding it hard to exist in many of their usual hunting grounds. More and more land is being used for grazing.

Bruce Hollier
Cranebrook, New South Wales
Australia

Amusement Parks

I've been thinking for some time about Great Basin National Park. When it was first proposed for park status, one article mentioned the bears, bobcat, and deer that roamed there. At the time, I thought, "As soon as it becomes a park, those same animals will have to go elsewhere. Very few people know of the area and as soon as attention is focused on it, tourists will descend."

Sure enough, a few issues later, a disgruntled RVer wrote and complained about the lack of camping facilities. So new and more facilities will be built, attracting even more campers, and what will happen to the very features that attracted the campers in the first place?

I realize the park is to bring in much-needed money to a depressed area (at the expense of the wildlife and natural features of the park). Since the towns hope to benefit, why not either have the national parks or the state buy and develop campgrounds close to the towns. This would concentrate the dollars in the towns and still preserve the park area as it is—and should remain—a beautiful wild area.

Primitive camping might be allowed in designated areas. Leave the wild area wild. The tourists could camp close to the towns, spend their money there, and drive to the park, instead of bringing the town to the park. Why could this not be done with other areas? Americans seem to want an amusement-park atmosphere when they vacation.

Linda Childers
Neosho, Missouri

NPCA has long advocated that the majority of tourist facilities be built on the perimeter of—rather than inside—new parks.

—the Editors

Corrections

The cougar in the photograph on page 18 of the January/February 1990 issue was incorrectly identified. The animal pictured is not a Florida panther, but a western mountain lion.

Write "Letters," National Parks, *1015 Thirty-first St., NW, Washington, D.C. 20007. Letters may be edited for space.*

NEWS
NPCA

Clean Air Bill On Move at Last

The Clean Air Act was passed in 1970 and amended in 1977. Over the past 13 years, numerous bills, revisions, and amendments have been proposed. Representatives, senators, conservationists, and industry officials have spent months, even years of their lives debating the relative merits of this plan and that.

During that time acid rain, urban smog, the ozone layer, and global warming have been recognized as critical problems. But, until this year, we have been no closer to updating the act or resolving any of these problems.

Conservationists now expect that the long wait is almost over, that a new clean air bill will be passed during this Congress, perhaps within the next few months.

NPCA President Paul Pritchard said of the pending legislation, "Public leaders are being faced with environmental issues that test their ability to stand firm on a particular course of action. Clean air may be an example of the approach this administration and this Congress will take on future environmental issues."

Momentum to pass clean air legislation has built because of two factors. President Bush jump-started Congress by proposing his own air legislation, compelling Congress to respond. Of greater potential consequence, environmental sentiment has become strong and widespread. Apparently, Congress is getting the message: Their voting constituents want clean air.

Up to this point, forward momentum has been most obvious in the Senate. And, in an often confusing array of amendments and revisions, the acid rain proposal stands out as a positive component of both Senate and House bills.

Senate Bill 1630, approved by the Environment and Public Works Committee late last year, melded proposals introduced by a number of senators, and it was approved by the 16 committee members with only one dissenting vote.

The Bush administration became squeamish about S. 1630's potential costs to industry. In closed-door sessions, committee members and administration officials worked out a compromise, resulting in a weakened piece of clean air legislation.

The bill, passed by the full Senate on April 3, now includes two major provisions that affect parks:

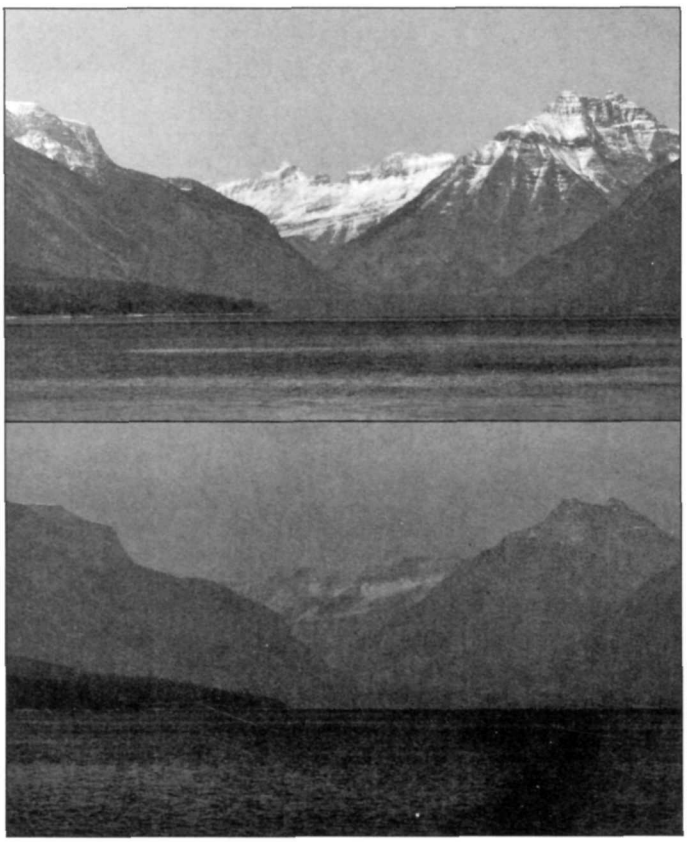
▲ Acid Rain Proposal. This proposal requires pollutors to cut sulfur dioxide emissions by ten million tons by the year 2000, capping emissions at 1980 levels. By 2005, nitrogen oxide emissions must be cut by four million tons.

▲ Visibility Amendment. The 1977 amendments to the Clean Air Act included sections on Visibility and the Prevention of Significant Deterioration of Air Quality. The purpose of these sections was to protect and enhance air quality in the parks and other pristine areas.

Since 1977, however, the Environmental Protection Agency (EPA) has failed to implement comprehensive protections.

In testimony presented before Congress, the National Park Service has said, "NPS visibility monitoring has shown that in excess of 90 percent of the time scenic vistas are affected by man-made pollution at all [park]monitoring

Park monitors show Glacier views are fine (top) 10-25 percent of the time and poor (bottom) an equal amount of time.



NATIONAL PARK SERVICE

locations within the lower 48 states. Even at Grand Canyon National Park the color and textural detail of the canyon are nearly always impaired to some extent by man-made haze."

Senate Bill 1630 contains a visibility amendment, sponsored by Senator Brock Adams (D-Wash.), that requires a five-year, $40-million study; establishes EPA authority—but not duty—to establish visibility regions; and authorizes regional visibility commissions.

NPCA is hoping that when Senate and House work out any differences on a final air bill, visibility proposals will be even stronger. The best chance for that now rests with the proposal by Representative Ron Wyden (D-Ore.), the leading visibility advocate on the House Health and the Environment Subcommittee. Among other improvements, Wyden's plan would *require* EPA to promulgate regulations to address regional haze.

Elizabeth Fayad, NPCA park threats coordinator, says that "lack of visibility protections is robbing us of clear air in our parks.

"In 1926, when Shenandoah National Park was established, one of Congress's stated goals was to protect the area's incredible views. At that time, it was possible to see the Washington Monument—more than 60 miles away. Now, because of pollution, visibility is often less than ten miles."

On the House side, clean air legislation has moved more slowly. The bill being considered—H. R. 3030—is stronger than the Senate bill in some areas, and weaker in others.

Over the years, numerous clean air bills have died in the House Energy and Commerce Committee as a result of strong opposition by the committee's chairman, Representative John Dingell (D-Mich.). Recently, however, long-time clean air champion Representative Henry Waxman (D-Calif.) reached a compromise agreement with Dingell on automobile standards.

The Energy and Commerce Committee has marked up and reported out the bill, and, as of this writing, the bill is in the Rules Committee, which is expected to send it to the House floor.

ROCKEFELLER UP FOR CONGRESSIONAL MEDAL

For his outstanding contributions as a conservationist, Laurance Spelman Rockefeller is expected to receive a Congressional Gold Medal. The medal will be the first of its kind awarded for conservation and historic preservation. (Lady Bird Johnson received a Congressional Gold Medal for beautification.) Supporters of legislation to award the honor hope President Bush will sign the bill near Rockefeller's 80th birthday in May.

"We were inspired to write this legislation simply because Laurance Rockefeller has donated more than 50 years to the enhancement of the environment, and his generosity has been extraordinary," said Nash Castro, organizer of the ad hoc committee to write the legislation. Members of the committee included Lady Bird Johnson; Gilbert Grosvenor, president of the National Geographic Society; and Paul Pritchard, president of NPCA.

Rockefeller has enlarged and enhanced the National Park System through land donations to national parks, including 5,000 acres for the Virgin Islands National Park. He has also helped direct organizations such as Jackson Hole Preserve, Inc., which has preserved park land in the Grand Tetons of Wyoming, the Virgin Islands, and the Hudson Valley.

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Conservationist Laurance Rockefeller nominated for Congressional Medal.

Rockefeller served four presidents, beginning with his appointment as chairman of the Outdoor Recreation Re-

NEWSUPDATE

▲ **Burr Trail ruling.** The Interior Board of Land Appeals recently ruled that the Bureau of Land Management (BLM) had improperly conducted its environmental review last year of plans to upgrade the Burr Trail, a scenic dirt road that runs through Capitol Reef National Park and Glen Canyon National Recreation Area in Utah. The BLM had considered only portions of the road, and disregarded the impact of upgrading upon the parks. The BLM now must analyze the effects of upgrading the entire road before paving can occur. However, conservationists are challenging another part of the ruling, which allows graveling of a 14-mile stretch of the road.

▲ **Isle Royale wolves.** The wolves at Isle Royale National Park in Michigan now number 15, up from last year's estimate of 11. While a successful breeding season is good news for the wolves, their numbers remain precipitously low.

The island's wolf population shrank dramatically in the early 1980s. The cause of its decline is still not clear. However, recent genetic tests have shown that the entire population is descended from a single female, supporting the hypothesis that inbreeding is responsible.

One of the last three viable grey wolf populations in the United States, the wolves came over an ice bridge from Canada in 1949.

sources Review Commission under President Eisenhower. His work in the commission resulted in many legislative landmarks, including the Wilderness Act, and the establishment of the National System of Wild and Scenic Rivers, and the Land and Water Conservation Fund.

The two bills to award Rockefeller the medal, introduced at the end of the 101st Congress by Representative Morris Udall (D-Ariz.) in the House of Representatives and Senator John Chafee (R-R.I.) in the Senate, quickly got more than the required number of cosponsors, largely due to efforts by NPCA and other groups.

Congress awards gold medals to recognize an individual for a longlasting impact on history or culture, or for a lifetime of continuous superior achievement in those areas.

Congress has awarded 18 medals in the past decade, the latest to artist Andrew Wyeth in November 1988. The first recipient of a Congressional Gold Medal was George Washington.

Construction Runoff Hits Redwood Streams

A several-ton mudslide from a nearby highway project damaged trout- and salmon-spawning streams in Redwood National Park in northern California. An early winter storm caused the erosion from a state highway project, which had ignored orders to erect guards against such a mishap.

The California Department of Transporation, or Caltrans, had not heeded instructions from the state Regional Water Quality Control Board to stop work on its Redwood Bypass construction project and prepare it for winter rains by October 15. Its crews continued grading the four-lane highway into the rainy season without building drainage structures or seeding the graded earth to prevent runoff.

More than four inches of rain fell on the area between October 20 and 25. The rain washed loose earth from the surface of a two-mile sloped stretch of the project and sent it downhill into park streams. Four to six inches of silt from the project ended up in Prairie Creek, which flows through Redwood National Park and Prairie Creek Redwoods State Park, and up to two feet of silt landed in the creek's tributaries.

NATIONAL PARK SERVICE

Several tons of mud slid from this highway project into Redwood streams.

"It was not an unusual storm," said Terry Hofstra, Redwood's acting chief of resource management. "It was exactly what we can expect that time of year, just a normal October rain."

Hofstra described Prairie Creek and Redwood Creek, also fouled by the mudflow, as the area's "most pristine coastal salmon and steelhead trout habitat" until the incident.

After the storm, teams directed by the NPS and several state agencies, and funded by Caltrans, erected barriers at the site. The barriers have limited damage from subsequent storms by preventing any further erosion. However, natural water flow continues to move the already-deposited silt through Prairie and Redwood Creeks.

Every winter, large numbers of king and silver salmon and cutthroat and steelhead trout travel from the ocean up the streams to spawn. According to Hofstra, the fish bury their eggs in loose gravel in turbulent areas of the streams.

The mud that inundated the streams was made up of "very fine clay particles—like modeling clay, very sticky—which formed a seal on the spawning gravels like mortar."

Since the spawning areas had been so damaged, biologists trapped the returning fish and, when they were ready to spawn, moved them to a hatchery. As the young fry hatching from the eggs become sufficiently mature, Hofstra explained, they will be released into the streams.

"We were afraid we would lose this year's fish if we did not take this extraordinary measure," he said. "Now the question is, how many more years do we have to do this?"

Scientists will be watching how well this year's spawn survives and how much natural cleansing occurs in the streams. They will then decide whether the fish can spawn naturally next year, and whether an attempt to clean out the streams would be helpful or harmful to the fish.

By summer, Hofstra said, the park will have a clearer idea of the long-term effects of the mudslide.

"The negligence of Caltrans last October was tragic because of the severe, long-term damage to the stream in that part of the Redwood Creek watershed," Russ Butcher, NPCA's Southwest and California regional representative said. "It is likely that the fish spawning will be impaired for a long time. We are, however, extremely pleased with the quick response by Caltrans and other state and federal agencies to offset the damage that was done."

NPCA, Florida Plan Wildlife Initiative

NPCA and Florida Governor Bob Martinez are planning an innovative partnership to aid recovery of the state's endangered species. The plan calls for new levels of executive leadership and public-private cooperation on wildlife and plant restoration.

The State of Nature 2000 program provides a comprehensive statewide plan for the management and recovery of Florida's endangered plants and animals. As well as outlining cooperation between state agencies, the plan involves the general public through citizen groups, universities, and museums.

"The goal is not to change the federal endangered species program, but to significantly supplement it, to add a whole new layer—the will of private citizens," said NPCA President Paul Pritchard. "State of Nature 2000 will be the private sector, government, and private citizens, all working together."

The program sets an ambitious goal for wildlife recovery. Under the plan, by the year 2000 all species in Florida currently listed as endangered will have recovered sufficiently to be eligible for the less-serious status of "threatened" species. All species now listed as threatened will no longer need that classification.

In order to help species recover, the state and the federal Land and Water Conservation Fund would purchase land needed as habitat. Scientific breeding programs and population studies would help restore plant and animal populations to health.

A special initiative, the Panther Recovery Program, would serve as a model for aiding other species. The Florida panther, the state animal, once roamed most of the Southeast. Now, however, there are only 30 to 50 individuals left. The Panther Recovery Program would enlist support from business, private landowners, and state officials, among others, to restore the animal's numbers.

"It was with the panthers that we realized we had to take a broader view," said Pritchard. "We could protect them within a national park, but not if they roamed off its lands."

Another focus of State of Nature 2000 would be educating the public. Through schools, public library displays, and radio and public television, citizens would learn about the state's endangered species and what they can do to help protect them.

Governor Martinez will introduce the statewide State of Nature 2000 campaign this spring and provide it with leadership and direction. NPCA will assist in coordinating Florida's efforts and supply expertise on wildlife and conservation issues.

Martinez will also call on other governors to adopt such initiatives in their own states. NPCA hopes to see State of Nature 2000 and similar programs spread nationwide.

"Florida is an ideal starting point," Pritchard said. "It has tremendous biodiversity and a governor who is very interested in the environment, but faces extreme development pressure and loss of that biodiversity."

Florida is one of North America's biologically richest regions. Along with the Florida panther, however, many of its species, such as the key deer and the Florida golden aster, are listed as endangered or threatened.

Bush Names First New Park Site

White Haven, a home of President Ulysses S. Grant, became the Bush administration's first addition to the NPS, when the president signed a bill declaring it a national historic site. The site commemorates the life of the eighteenth president and commander-in-chief of the Union Army during the Civil War.

White Haven, where Ulysses S. Grant lived, joins the park system.

NATIONAL PARK SERVICE

The Ulysses S. Grant National Historic Site, designated last fall, will preserve the 9.65-acre estate near St. Louis where Grant and his family lived from 1854 to 1860. The estate was the childhood home of his wife, Julia Dent Grant.

The NPS property includes the main house and lands, as well as slave quarters and other related buildings. However, Hardscrabble, the log cabin that Grant himself built on the grounds of White Haven in 1856, has since been moved from the estate, and is now part of a nearby theme park.

Although Grant did not live at White Haven after 1860, it remains closely associated with his life and that of his wife. He purchased the property, during the Civil War, but lost it in a failed Wall Street deal shortly before his death in 1885.

Grant's farming and business ventures at White Haven were unsuccessful. Historians believe, however, that these experiences helped him develop the strength of character responsible for his later accomplishments as general and president. Grant and his wife eventually looked back on the difficult White Haven years fondly and planned to return there after his retirement.

While Grant's role as Union general is commemorated at Civil War sites and at General Grant National Memorial in New York City (more commonly known as Grant's Tomb), this will be the first Park Service site to focus primarily on Grant as president.

"It is unique among presidential sites," said Bruce Craig, NPCA's cultural resources coordinator, "because White Haven is associated not with Grant during his time in office, but with the formation of his presidential character."

The bill to create the Ulysses S. Grant National Historic Site was sponsored by the House majority leader, Representative Richard Gephardt (D-Mo.) and by senators Christopher Bond (R-Mo.) and John Danforth (R-Mo.). The property will be donated to NPS by St. Louis County, which bought it in 1986 to save it from demolition.

BILL MAY END MINING THREATS TO BRYCE

One of the West's longest-running park protection battles may be coming to a close. Both conservationists and coal interests are supporting a bill to transfer coal mining leases out of the Alton hills near Bryce Canyon National Park in Utah and withdraw the environmentally sensitive area from future coal leasing. NPCA and other conservation groups have worked for years to prevent strip mining near Bryce Canyon.

H. R. 3058, introduced by Representative Howard Nielson (R-Utah), seeks to implement a proposal the Nevada Electric Investment Company (NEICO) made early last year. NEICO agreed to trade its federal coal leases near Bryce Canyon for coal resources in central Utah near an existing mine. The first version of the bill provided for a direct exchange of NEICO's Alton leases for new central Utah leases. That proposal was criticized, however, as an unfair windfall for the coal company.

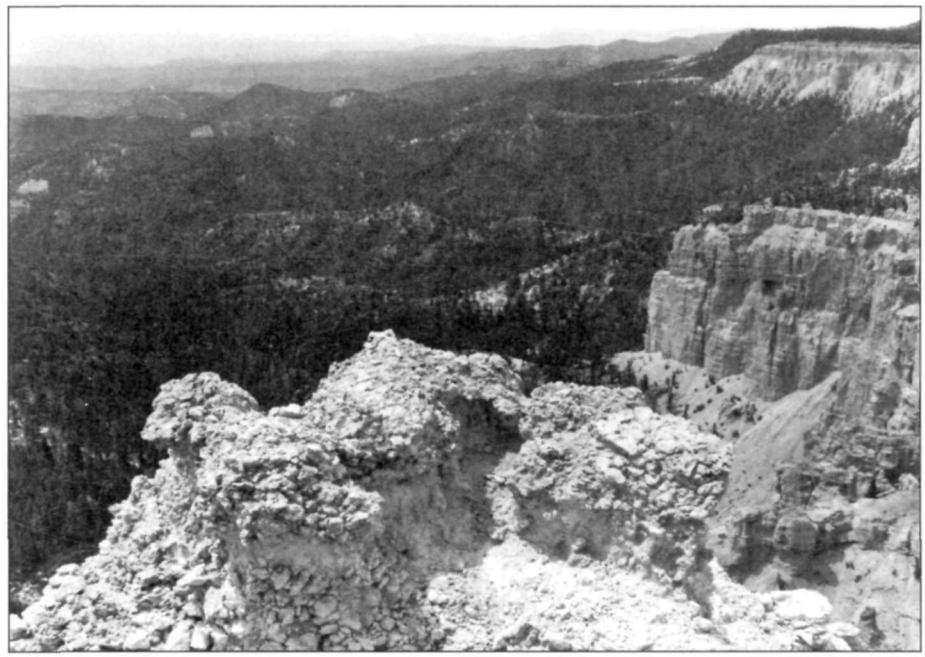
The current version of the bill, marked up by the Mining and Natural Resources Subcommittee in late March, requires NEICO to bid competitively for new leases in central Utah, but provides the coal company with financial credit toward the cost of those leases.

The bill is a significant victory for park protection because it also permanently withdraws from future coal mining all lands in the Alton area that are currently under federal coal lease.

"We are very pleased to be part of this creative solution to a long-standing conflict between coal mining development and park protection," said Terri Martin, Rocky Mountain regional representative for NPCA.

The battle over the Alton fields goes back more than a decade. In the mid-1970s, Utah International, Inc., which at the time held leases at Alton along with NEICO, announced its intent to strip mine the area. When NEICO became sole possessor of federal coal leases at Alton in 1986, it continued to make plans for strip mining.

Throughout this time, conservationists argued that mining operations would diminish some of Bryce Canyon's most remarkable features. On clear days visitors to the park can see farther than 100 miles. Its exceptional visibility creates spectacular night skies as well. Bryce is also one of the quietest places in the country, with background noise levels comparable to those in a sound studio.



NATIONAL PARK SERVICE

Since the 1970s, mining plans have threatened views from Bryce's Yovimpa Point.

Studies showed that 24-hour flood lights, dust, and blasting from open-pit coal mining in the Alton fields could obscure the view from Bryce's Yovimpa Point, pollute the park's pristine air, and shatter its silence. In addition, mining would have scarred thousands of acres beneath Yovimpa Point.

NEICO's plans also included pumping several thousand gallons of water a minute from an aquifer beneath the field, in order to "slurry" coal through pipelines to a proposed generating station in Nevada. Local ranchers and residents believed that the groundwater they rely upon could be seriously depleted. Evidence also showed that pumping from the aquifer might affect the flow of the East Fork of the Virgin River. The East Fork runs through and has carved nearby Zion National Park.

Mining operations might also have destroyed several alluvial valley floors located in the Alton hills. Alluvial valley floors are areas of underground irrigation vital to farming and ranching in the arid West.

Testifying at hearings on the bill in early March, Martin said, "NPCA has long argued that there are better places to mine coal than in an area where coal development threatens to degrade pristine national park values, dry up scarce and irreplaceable water resources, and destroy precious alluvial valley floors."

Martin also recommended that two additions be made to the bill in order to ensure permanent protection for the Bryce area from mining threats. She stated that NEICO should abandon its pending water rights applications in the Alton area, and that the Alton coal field should be permanently withdrawn from coal leasing and development.

These recommendations met with success. Since the hearing, NEICO has filed a formal letter with Utah's State Water Engineer stating that it will relinquish its water rights applications when the exchange goes into effect. Further, while the bill does not permanently withdraw the entire Alton field from leasing, it does withdraw all areas under current lease. Since the remaining lands are not viable mining prospects, the withdrawal should effectively prevent any future coal development near Bryce Canyon National Park.

Selma March Route Proposed for Study

In late March the House passed 400-0 a bill to study the route of the 1965 Selma-to-Montgomery voting rights march for designation as a national historic trail. H. R. 3834 was introduced by Representative John Lewis (D-Ga.). As of this writing, a companion bill, sponsored by Senator John Kerry (D-Mass.), was expected to meet with similar success in the Senate.

In 1965 Dr. Martin Luther King, Jr., and his Southern Christian Leadership Conference planned the 54-mile march between the two Alabama towns to demonstrate the need for the Voting Rights Act, then pending in Congress. As the marchers set out on March 7, state troopers wielding clubs, whips, and tear gas attacked them at the Edmund Pettus Bridge in Selma. Lewis, leader of the Student Non-Violent Coordinating Committee, was among the first injured.

The events of "Bloody Sunday" were broadcast around the world and helped convince the nation and President Johnson of the need for legislation guaranteeing the right to vote.

The marchers were not able to complete their journey until Johnson ordered federal protection for them. They set out from Brown Chapel in Selma on March 21 and arrived in Montgomery three days later. On March 25, a crowd of 25,000 from across the country gathered to hear King speak at the state capitol. The Voting Rights Act was signed into law on August 6, 1965.

H. R. 3834 would provide funding for a one-year study of the entire march route and particularly significant sites, such as the Edmund Pettus Bridge in Selma and the state capitol building in Montgomery.

"Historians will recognize the Selma-to-Montgomery march as a catalytic event. The brutality that occurred convinced President Johnson that federal action was necessary to protect the rights of all people," said Bruce Craig, NPCA cultural resources coordinator. He noted that Congress has shown "extraordinary bipartisan support for Congressman Lewis in his efforts."

Lewis introduced the bill as part of the 25th anniversary of the march, which was re-enacted this year by a crowd of 2,500, led by civil rights activists.

New Trail to Join Washington Parks

Congress is currently debating appropriations for a new National Park Service hiking and biking trail along the Chesapeake and Ohio Canal National Historic Park in Washington, D.C., and through nearby areas.

The trail would provide open space for hikers, bikers, and runners. Its route connects the District of Columbia, its northern Maryland suburbs, and the National Park Service's C & O Canal and Rock Creek Park.

The proposed Capital Crescent Trail follows the abandoned Georgetown branch of the Baltimore and Ohio railroad in an 11-mile semi-circle through

Montgomery County, Maryland, and Washington. The route runs between Silver Spring and Bethesda, Maryland. It travels south along the C & O Canal and the Potomac River through Washington, and ends in Georgetown. The trail would adjoin Rock Creek Park both at its northern end in Maryland and its southern end near the Potomac Basin, forming a 20-mile open-space loop.

Montgomery County purchased the Maryland portion of the trail last year. The NPS is leasing but has yet to purchase the Washington portion. Cost of the unacquired trail is estimated at between $10 million and $11 million.

Congress last year appropriated $4 million toward the purchase, and President Bush included another $7 million to complete the purchase in his budget. If the entire sum is allotted this year, the project would then enter planning stages. The Capital Crescent Trail could open as a completed unit within two to three years.

Poaching Persists Despite Stings

Government officials and NPCA over the last several months have made gains in a difficult campaign to curb the illegal taking of plants and animals from national parks. Poaching remains a serious problem, however.

Successes included undercover sting operations, an NPCA program to halt park poaching, and the opening of a wildlife forensics laboratory.

In early February, Virginia game wardens and federal officials concluded a nine-month undercover operation in the vicinity of the Blue Ridge Parkway in western Virginia. The sting resulted in the arrest of 23 suspects. Approximately 180 state charges and 18 federal charges were meted out, ranging from hunting violations to trespassing.

Poaching of black bears and other animals, including deer and snakes, has been on the rise along the parkway.

Undercover agents said the bears were hunted with sophisticated methods and equipment. For example, some poachers used packs of hounds wearing radio collars to track the bears.

A similar operation may help curtail the poaching of saguaro cacti from Saguaro National Monument in southern Arizona. The four-year undercover probe, conducted by the state and the U. S. Fish and Wildlife Service, ended early this year with the arrest of 21 people on charges of stealing and trafficking in the protected saguaro.

The operation, the largest federal case ever involving protected plants, resulted in a range of charges, including wildlife violations, conspiracy, and theft of federal property. Though no cacti involved in the sting originated at Saguaro, the extensive coverage given the case in the area media is expected to put a dent in poaching at the monument. Saguaro is a common source for area cactus thieves.

NPCA continues to receive calls on its

Stephen Tyng Mather Society

The Stephen Tyng Mather Society was created to involve dedicated NPCA members and friends who, by their annual contributions of $1,000 or more, continue to ensure the thoughtful stewardship of our National Park System. Today's Mather Society members are distinguished among the growing network of conservation-minded individuals who recognize the importance of preserving our natural and cultural heritage for future generations.

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

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William Wiener, Jr.
Stuart S. Wright
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Anonymous contributions

*January-February 1990

If you are interested in joining the Stephen Tyng Mather Society, please contact the Director of Development, NPCA, 1015 31st Street, NW, Washington, DC 20007.

poaching hotline, a toll-free number available 24 hours a day for reports of poaching in the national parks. NPCA has compiled a list of wildlife law enforcement agencies around the country. The association passes hotline callers and information on to these agencies.

Persons with any information on poaching in the national parks should call NPCA toll-free, 24 hours a day, at (800) 448-NPCA.

The association has conducted a public education campaign on poaching. Besides press releases and magazine articles, NPCA has pushed for the coverage of national park poaching issues in an upcoming major television program on illegal wildlife trafficking. And a major *National Parks* magazine feature on park poaching was reprinted in *Reader's Digest* magazine in April.

Also, the U. S. Fish and Wildlife Service has opened a forensics laboratory devoted exclusively to wildlife crimes. Located in southern Oregon, the lab, the first of its kind, will provide federal and state agencies with state-of-the-art equipment to examine physical evidence involved in wildlife crimes.

After initial research, pathologists at the lab should be able to determine, for example, whether a piece of ivory came from an African or Asian elephant, or what kind and brand of poison was used to kill a protected animal.

The vast majority of hunters obey game laws, including those banning hunting in national parks. But a minority, driven by the lucrative, worldwide market for wildlife and wildlife products, has made poaching a daunting problem for park managers.

The NPS does not have sufficient staff to deal with the poaching threat. Typically, park managers can command only a handful of rangers to patrol vast areas. Since many wildlife crimes can be accomplished quickly, catching suspects in the act is difficult.

Since rare species usually fetch the most cash, poachers threaten precarious wildlife populations, such as the Yellowstone grizzly. Also, since poachers generally target the largest, healthiest specimens, poaching weakens even robust populations.

"Though we think we've put a dent in the problem here, poaching continues to be a very serious concern," said Larry Hakel, chief ranger at Shenandoah National Park in Virginia, where black bear and deer are the main targets of illegal hunters. "Rumor and evidence—drag marks, for example—tell us we're losing dozens, if not hundreds of animals a year."

New Staff Expand NPCA Efforts

NPCA welcomes three new representatives to its staff. They are Dale Crane, who is working with NPCA's governmental affairs staff in Washington; Ney Landrum, consultant for the Southeast; and Mary Grisco, Alaska representative.

Crane comes to NPCA from a long career in conservation and legislation. After serving with California's state parks and the Army Corps of Engineers, he was a professional staff member of the House Subcommittee on National Parks and Public Lands, acting as its chief of staff from 1985 to 1990.

As part of NPCA, "I look forward to continuing to work to protect the National Park System," Crane said.

Southeast Consultant Landrum distinguished himself as director of the Florida state park system from 1970 to 1989. Landrum said he will "serve as the eyes and ears for NPCA. While Florida has to be one of the cutting-edge states in terms of growth, development, and environmental conflict, I will work to improve the visibility and access for the parks in the other southeastern states as well."

Before Grisco became NPCA's Alaska representative, she spent several years assisting the previous representative. She has degrees in public administration and counseling, and has had long experience with citizen coalitions. "I was brought up to be a park supporter and spent a lot of time out of doors," Grisco said.

"I am pleased that NPCA is committing itself to a real presence in Alaska. We have a lot of challenges and opportunities up here—there is never a lack of issues."

Treasures of Ancient Egypt

Preserving Civilization's Legacy in World Cultural Parks

By Hind Sadek

THE YOUNG PRINCE had outdistanced his hunting party, way out to what is now called the Giza Plateau, west of Cairo, Egypt. There, nearly 2,000 years had passed since three mighty pharaohs built their pyramid tombs. Also on the plateau stood the enigmatic head of King Khephren, now known as the Sphinx, his body buried under the sands.

The prince lay down in the shadow of the Sphinx and soon was fast asleep. Was it a dream? From the land of the departed the king's voice commanded, "When you awake, deliver me from the sands that have choked me for 2,000 years. Deliver me and I shall make you king of all Egypt!"

So it was ordered, so it was done. The prince removed the tons of sand that covered the body of the lion, and at the death of his father the prince was proclaimed pharaoh and reigned as Thutmos IV, 1,400 years before the birth of Christ.

Today, with the loss of his shoulder and beard and the sprawl of urbanism, pollution, and tourists, the Sphinx is in far greater danger than he was from the sands. One wonders if Khephren's command to the future Thutmos IV was wise or if the huge carved rock would have been safer under the sands for another 2,000 years.

Egypt's conservation problems extend far beyond the deterioration of the Sphinx. Saqqara, site of the world's first stone structure—the Step Pyramid—and the necropolis of Egypt's most ancient capital, Memphis, contains a most impressive and extensive group of decorated funerary temples and tombs that vividly portray life in Egypt nearly 5,000 years ago.

But, with each year, the harvesters, workers, officials, and nobles reveal changes in the brilliance of their colors and a deterioration in the general condition of the stone and structures. In addition to problems with climate change and humidity, the arrival of busloads of tourists and their guides to Saqqara—cramming into limited spaces, unavoidably brushing against the walls, polluting the already limited and humid air—is a daily occurrence year-round.

The urgency is not only in restoring, but in preventing and anticipating.

And at Thebes, known to the Greeks as "that most select of places," the temples of Karnak and Luxor are being restored and the inscriptions recorded by a team from the University of Chicago. According to their assessment, the inscriptions will be gone in less than two centuries at the current rate of degradation.

On the West Bank of the Nile, the temple of Hatshepsut, the pharaoh-queen whose reign was characterized by peace and prosperity, has scenes from the famous expedition she sent to Punt to bring to Egypt incense and myrrh and panthers and baboons. The swiftness of Egyptian ships and the trim figures of Egyptians, contrasting with the obese shape of the visiting Queen of Punt, are depicted on the walls with great art and vivacity.

Here, too, probably the world's first "dialogue balloon" on record appears above a donkey who is commiserating on his companion's fate for having borne the heavy load. Once vividly portrayed, these inscriptions risk being lost forever.

Also on the West Bank, the tombs in the Valley of the Kings, Queens, and Nobles are disintegrating from the impact of humidity and acidity and from the corrosion of salts in the rock.

At the International Conference on Climate Change held in Cairo, Egypt, December 17-21, 1989, it was suggested that nations should consider establishing World Cultural Zones to safeguard priceless elements of humankind's cultural heritage.

The announcement that the Nile Valley region in Egypt would be an appropriate area in which to establish the first such zone was received with approval by participants and with enthusiasm by senior cabinet members of the Egyptian government and by the Egyptian press. The most immediate task now is to implement this proposal.

Protection of ancient monuments may interfere with modern development projects, however, and opinions are divided as to the priorities of each. The controversy over a bauxite process-

ing plant near the Oracle of Delphi in Greece is a case in point. On the one hand, jobs would be created; but on the other, the sulfurous fumes might gnaw at the ancient marble.

The building of dams to provide regions with much-needed water, electricity, and other energy sources can be catastrophic to both ecology and culture history. For example, plans by Mexico and Guatemala to build a series of dams along their border threaten Mayan ruins with inundation. The building of the High Dam south of Aswan in Egypt galvanized the world into action to elevate the temple of Abu Simbel to a level above the expected rise of the Nile waters. And the exquisite temple of Philae, built for the goddess Isis, was relocated to another island that was safer.

Today, the greatest loss to modern Egypt is the "gift of the Nile," the sediment that was deposited annually, fertilizing the land, and, most importantly, drained the salts from the soil and the rock as the floodwaters withdrew at the end of the inundation. The accumulating salts now threaten stone, sculpture, and paintings.

Cleanup and restoration are in progress. One example is the work undertaken by the Getty Conservation Foundation in the beautiful tomb of Nefertari.

But, as one Egyptologist put it, "that is but a drop in the bucket, and the bucket of restoration and conservation needed for the antiquities of Egypt is very deep indeed."

The spectrum of environmental changes and the causes and impact of those changes must be researched and communicated, and strategies need to be adopted and implemented. Policy-makers of national governments and international organizations must become fully informed of potential and existing threats to historical monuments caused by mining, land reclamation projects, urbanization and urban needs, irrigation, and energy projects.

Also, the global impacts and causes of climate change, the increase in humidity, and the very real threat of excessive and poorly managed visitation of ancient sites must be addressed.

One way to address the problem of environmental stresses on the world's cultural legacy is the establishment of a World Heritage Conservancy whose mandate is to:

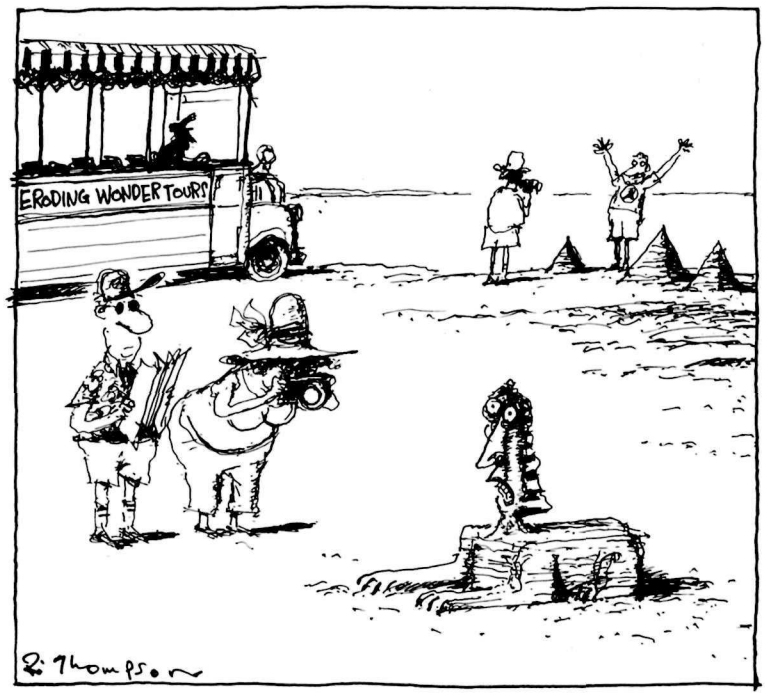


ILLUSTRATION BY RICHARD THOMPSON

- focus world attention on the protection and conservation of cultural regions, such as the Nile Valley;
- designate each region as a World Cultural Park;
- approach national governments as a nongovernmental entity on the need to initiate action for the recording, restoration, and conservation of their cultural heritage; and,
- offer assistance, at the invitation of the national government, in responding to the stresses on the environment and cultural monuments imposed by climate change and human activities.

The World Heritage Conservancy, first suggested by NPCA President Paul Pritchard, would undertake the responsibility of locating and organizing an interdisciplinary group of experts for the parks' conservation. The Conservancy would assist scientists and decision-makers of the host country by making appropriate recommendations and mapping out plans for implementation. The Conservancy would, at all times, remain in touch with the national government as well as with the appropriate international organizations.

The Conservancy would set standards for the World Cultural Parks, recognize and aid national efforts for the protection and conservation of cultural monuments, and monitor the progress of conservation.

In brief, the World Heritage Conservancy would approach environmental stresses and the protection of cultural monuments from a "regional" rather than a "site" or "national" perspective. It would encourage research and promote efforts aimed at regional as well as at national/international conservation.

The enormity of the tasks that lie ahead is mind-boggling. But, we have no choice. The loss of history and antiquity is tantamount to the loss of our soul, of that which creates the link between the biological and the spiritual reality of *Homo sapiens*, past and future.

The urgency, furthermore, is not only in restoring, but in preventing and anticipating. Our response to the degradation caused by our own actions must be a positive and energetic response to reverse that process.

The time to save and protect and conserve is *before* the destruction, not after the fact, because once gone, these cultural treasures can never be recalled or revived.

Dr. Hind Sadek, anthropologist, is a consultant to Egypt's Natural History Museum. She directed the International Conference on Climate Change.

NATIONAL
Parks

Journey to the Bottom of the World

Antarctica Faces the Future: Plunder versus Preservation

By Gordon Wiltsie

LIKE MOST PEOPLE, I imagined all of Antarctica as a featureless and lifeless wasteland, cold enough to freeze even the toughest human spirit. As for needing environmental protection, I had read enough about explorer Robert Falcon Scott to know that this vast, high-altitude desert defended itself pretty well. Who in their right mind would want to fool around with a continent where temperatures can drop 120 degrees below zero, winds can gust 200 miles per hour, and 89 percent of the land mass is covered by ice up to three miles thick?

OVERLEAF: TOURISTS ON WEDDELL SEA AND KING PENGUINS ON SOUTH GEORGIA ISLANDS BY FRANS LANTING/MINDEN PICTURES

KING PENGUINS AND CRUISE SHIP BY FRANS LANTING/MINDEN PICTURES

Indeed, as I later witnessed at the South Pole, much of Antarctica really is unimaginably huge, flat, and white. And some of its climatic statistics do make the blood run cold. But these are the extremes, the daunting harsh edges that sell books and movies and that, until recently, have disguised countless more placid and fragile places, such as Paradise Bay.

Climbing near a hillside covered with iridescent green moss, I looked out over this spectacular cove. Although cold, inexorable power was everywhere evident in glaciers and icefalls that cracked and banged and calved icebergs explosively into the bay, the hard contours of the continent were softened in the glassy waters.

Penguins and seals dove all around me. Rock towers as big as Yosemite's El Capitan and fluted, snowy arêtes rose straight from the sea, bathed soft gold and mauve by three-hour sunsets. No contrails scarred feathery cirrus clouds overhead, and countless birds wheeled and cried as if nothing human would ever interrupt them.

If Paradise Bay—in fact, the entire Antarctica Peninsula—belonged to any particular nation, it already would have been preserved as a revered national park. Not only does it encompass scenery to rival Alaska's Glacier Bay, the Tetons, even Mount Everest, but the waters and shoreline teem with bird and marine life: six species of seal, four of penguin, six of baleen whale, six species of toothed whale and dolphin, various species of tern, albatross, petrel, cormorant, shearwater, sheathbill, and other birds.

The climate is too hostile for land-based animals that are larger than insects, but the mixing of cold Antarctic waters with warmer waters from the north supports incredible quantities of plankton. The plankton, in turn, provide food for vast amounts of krill, which are the small crustaceans that are the base of the Antarctic food chain.

This oceanic upwelling of nutrients—at the Antarctic Convergence, where the oceans meet—gives rise to thriving airborne and amphibious creatures that breed in numbers to rival herds on the African veldt. At nearby Hope Bay I witnessed a hill covered with more than half a million Adelie penguins. Out in the South Shetland Islands I have seen hundreds of corpulent sea elephants sleeping on a single beach.

Weddell, crabeater, and leopard seals lounge on countless pieces of ice, themselves encircled by albatross, whales, and strange translucent fish. Fearless, chicken-sized skua gulls, which prey on penguin eggs, have dive-bombed most of my shoreline wanderings, protecting their nests, and arctic terns wheel effortlessly despite recent 10,000-mile migrations from

the arctic north. Antarctica is dramatic, alive, yet still fairly oblivious to *Homo sapiens*. Most penguins were not even savvy enough to run when I approached.

Even more powerful than the vistas and wildlife, however, is the awesome solitude of the continent. Wandering away from the group, a person can experience a compelling loneliness in this last, vast wilderness. It is a feeling I've wanted to recapture in trip after trip.

IN THE THREE YEARS since my first visit, I have been back five times, working as camp hand at the first-ever antarctic tourist base, a tent compound beside a slick, bare ice glacier where a large, four-propeller aircraft can land after the 1,700-mile flight from South America; guiding and photographing crosscountry and downhill ski safaris to the Peninsula and South Pole; and ultimately climbing 16,000-foot Mounts Vinson and Shinn. These two peaks are part of a huge, Denali-like massif that is bordered east and west by seemingly endless ice, flat as an ocean.

Between the tip of Antarctica Peninsula and its distant opposite shores unfolds a continent of living Pleistocene geography as big as the United States and Mexico combined, much of it unmapped, unexplored, and totally deserted.

A traveler can fly across the vast interior's windy emptiness for hours without seeing a single geographic feature, where no sound but hissing spindrift shatters the infinite silence.

From the smoking crater atop Mount Erebus you can overlook the Ross Ice Shelf, so large it launches icebergs the size of Rhode Island. On the lonely shores of Cape Crozier, emperor penguins huddle through the months-long winter night incubating fragile eggs on their feet.

There are unexpected dry valleys to explore, mountains to ski that few people have even seen. There is no other place where such possibilities still exist.

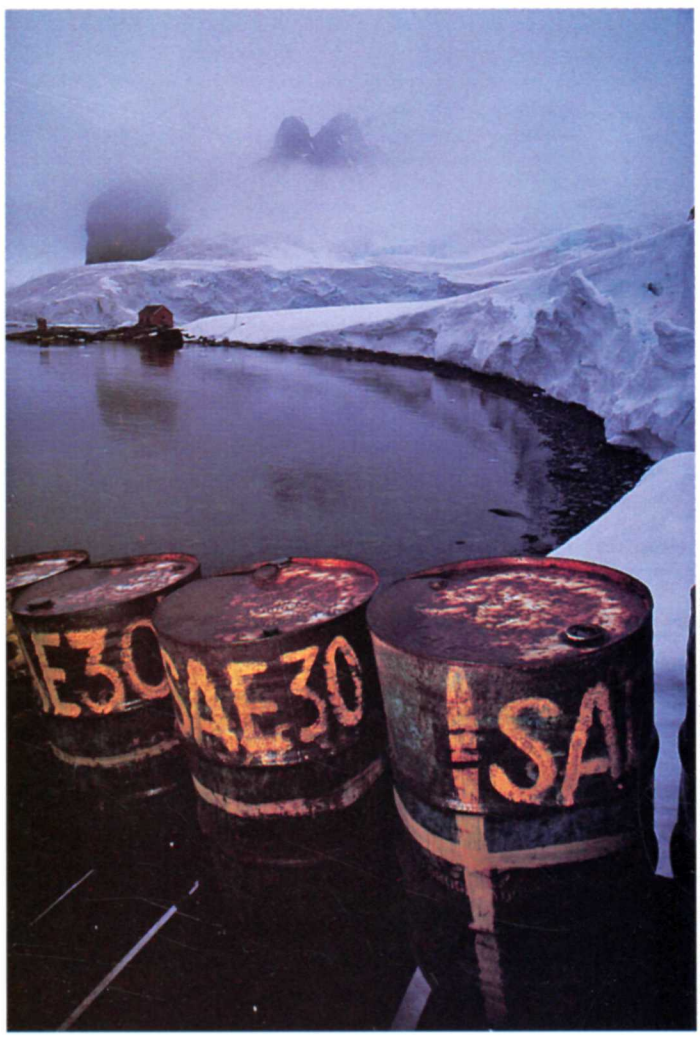
Unfortunately, people—myself included—can now finally reach these remote, untouched places. And with us come changes.

Consider Paradise Bay. Two scientific bases already cling to the shore—one of them burned into rusting debris by an isolation-crazed doctor. And every austral summer up to 3,000 shipborne tourists cruise through the placid waters, snapping photographs and speeding about in inflatable motorboats.

Ironically, *Bahia Paraiso*, the Argentine ship that first took me to Antarctica, hit a rock two years later and sunk just a few miles from the bay, spilling diesel straight into a penguin rookery. Powerful as the landscape might seem, it would not take too many people—especially profiteers—to trample, harpoon, or drill all of the Paradise from this landscape.

Simply because human technology now can reach anywhere, no part of Antarctica is immune to winds of change more powerful than even the continent's own fearsome katabatics. Although these alterations are just now becoming globally significant, they began more than two centuries ago, when the first maritime explorers braved fog-shrouded icebergs and 50-foot waves in search of austral riches.

As early as 1775, Captain James Cook circumnavigated the continent in search of "Terra Incognito Austraulis." Although pack ice kept him from ever glimpsing land, his reports of abundant seals soon brought fleets of privateers that, by the mid-1800s, decimated entire species from antarctic islands they never publicly mapped for fear of competition.



PARADISE BAY FUEL DUMP BY FRANS LANTING/MINDEN PICTURES

Alongside them came others with more honorable intentions, including coastal explorers, scientists, and heroes, questing for the Pole and other places yet unknown.

Many of these early visitors experienced deprivation and hardships unparalleled in the annals of planetary exploration, and the continent quickly earned a fearsome aura. Reports of its fragile beauty paled compared to stories of sailors and scientists driven permanently insane by sunless winters or well-funded explorers who slowly suffered in the grip of endless cold, wind, and hunger.

Most famous was Robert Falcon Scott, a British Navy captain whose greatest ambition was to be first to the South Pole. In 1911, together with four intrepid companions, he set off. But the tractors they brought seized up in the cold, their ponies died, and, in the end, the men hauled their huge sledges

themselves for 700 miles. When they finally reached their goal they found a tent and a flag. One month earlier, Norwegian Roald Amundsen had beaten them, largely because he had used dogsleds and Eskimo survival skills the Englishmen had been too proud to employ.

Heartbroken, Scott and his men trudged back north only to starve and freeze to death, pinned down by a storm just 11 miles from a cache that might have saved their lives.

Even more remarkable was an expedition led by British explorer Ernest Shackleton, which sought to cross the entire continent in 1915. Pack ice crushed their ship, *Endurance*, leaving the team stranded for the winter on a floating prison that began breaking up when the sun returned.

Only Shackleton's superhuman leadership and courage kept them alive.

Sixteen months after their ship was first trapped, the team finally reached dry land—desolate Elephant Island. It took yet another four and a half months to effect a rescue, and that only after Shackleton and a few companions rowed hundreds of miles in an open lifeboat through the world's wildest seas to a whaling station on South Georgia Island, and then crossed high mountains and glaciers to reach civilization. Remarkably, not a single man died.

GRAY-HEADED ALBATROSS ON SOUTH GEORGIA ISLANDS BY FRANS LANTING/MINDEN PICTURES

SINCE THEN, better ships, then airplanes have made travel and survival easier and commercially viable. In the first half of this century, seven nations—Norway, France, Australia, New Zealand, Great Britain, Chile, and Argentina—staked out territorial claims that were generally pie-shaped, with some overlapping each other.

Improved technology has left these areas open to commercial exploitation. If not for a rare triumph of science over politics, wars might have ensued between already-antagonistic nations such as Chile, Argentina, and Great Britain, each of which claims the Antarctica Peninsula.

Fortunately, in the 1950s, scientists around the world recognized the value of international cooperation in order to study a rare sunspot activity that would peak in 1957 and 1958. They agreed that the sunspots could best be observed from Antarctica because it was the only remaining planetary site where human pollution would not affect data.

Despite volatile Cold War tensions, 67 nations participated in this project, which was dubbed the International Geophysical Year. Twelve of these nations subsequently established science bases on Antarctica.

Inspired by this astonishing success, several nations, led by the United States, began an international effort to further protect the world's unique, new-found "laboratory." The result was the unprecedented Antarctic Treaty, which reserved the entire continent for nonmilitary, scientific research and set aside all territorial claims for the duration of the treaty.

Some of the scientific fields now being studied in Antarctica include plate tectonics, oceanography, marine biology, pollution, and the Big Bang and other theories related to the beginnings of the universe. The magnetic field over the continent makes it particularly useful for studying questions relating to deep space.

Ratified in 1961 and in force for three decades, it is now coming up for review by all signatories, including numerous subsequent participants such as Poland, Peru, China, and India. Big changes may lurk ahead, especially concerning resource exploitation.

Although the Antarctic Treaty has been remarkably effective in preventing widespread human impacts, it is limited in its ability to cope with the world's growing demand for space and resources. Most notably, it does not create any single governing body to investigate environmental problems or enforce international policies affecting the continent. This leaves little real authority to discourage any country—treaty partner or not—from actively assaulting the agreement.

Already there are numerous smaller problems concerning Antarctica that could quickly get much bigger and more controversial. Under the guise of science, for example, some countries are still trying to solidify their own territorial claims by overt and symbolic colonial acts.

For instance, Argentina and Chile have, in the past, encouraged their citizens to give birth there. These and other coun-

tries, such as New Zealand, have set up bureaucratic agencies. Runways, hotels, government post offices—veritable cities—have been built.

And, much as legitimate scientists value the minimal human impacts that make Antarctica such an important outdoor laboratory, some stations are virtual junkpiles, cascading with rusting fuel drums, abandoned machines, household garbage, even toxic wastes.

One of the worst offenders is America's McMurdo Station, whose population rises to 1,200 in the summer, including scientists and civilian and naval support personnel. The ugly barracks town has already poisoned nearby waters with PCBs—man-made toxins used in generating and transmitting electricity, among other things—and heavy metals. And, in 1972, McMurdo Station faced a serious nuclear-disposal problem from a dismantled reactor.

In fairness, the U. S. National Science Foundation has begun a multimillion-dollar cleanup, but other problems sprout with increasing regularity. Just last winter, for example, the French bulldozed seabird rookeries to build an airstrip at Dumont D'Urville base, and the U. S. South Pole and McMurdo stations accidentally spilled tens of thousands of gallons of fuel onto the polar icecap.

The Antarctic Treaty lacks the teeth necessary to deal with new polar issues such as tourism, mining exploration and development, and oil drilling. Mitigations to these problems are usually not employed or enforced, and any one of these problems could seriously affect the continent.

MOST ANTARCTICA VETERANS do not oppose environmentally sensitive tourism in the numbers that have occurred to date. Indeed, nonofficial visitors could prove a critical factor in swaying world opinion for more stringent protection of Antarctica's delicate and singular environment. Tourists have also acted as watchdogs, returning home outraged by degradation at certain bases, helping to force cleanups. The real worry is that their numbers will grow too great.

Visiting cruise ships have begun to interrupt expensive research at America's Palmer Station, where U. S. scientists are studying krill, seal, and penguin biology. When the *Bahia Paraiso* crashed, it destroyed scientific research relating to the ozone hole's effects on Antarctic marine life.

The National Science Foundation openly worries about who will pay for the inevitable and expensive rescue if a ship runs aground or an airplane crashes. (The United States has already been sued for allegedly providing faulty weather data to a DC-

BAHIA PARAISO AT PARADISE BAY BY GORDON WILTSIE

Congress Considers a World Park

In 1988, PARTNERS in the Antarctic Treaty and other nations proposed regulations, called CRAMRA (Convention on the Regulation of Antarctic Mineral Resource Activities), that would allow mineral prospecting, exploration, and development on this last, relatively untouched piece of Earth.

CRAMRA must be ratified by 16 nations, including the United States; and the Senate must approve the U. S. ratification. The State Department believes we must keep open the mineral-development option.

As part of the Alliance for Antarctica, NPCA urges the Senate to withhold that approval and support Australia's plan to create an Antarctic Wilderness Park, which would ban mining.

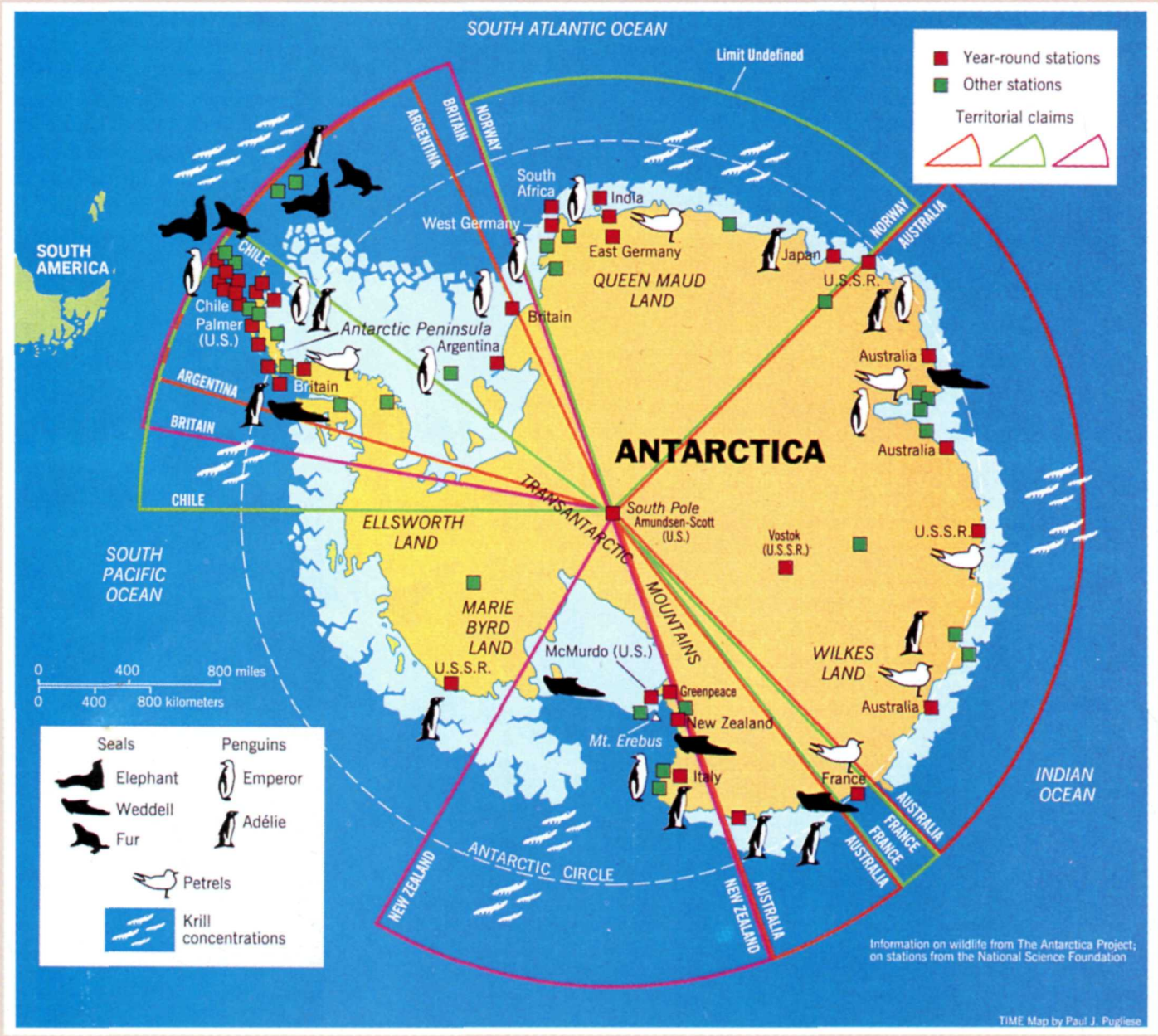
Drilling, industrial waste, and potentially massive oil spills would irrevocably ruin an ecosystem that serves as an incredibly rich and various marine nursery, contains 70 percent of the Earth's fresh water in its polar icecap, and helps regulate world climate.

Senator Albert Gore (D-Tenn.) has introduced Senate Joint Resolution 206 to protect Antarctica completely as a "global ecological commons."

Representative Silvio Conte's (D-Mass.) bill, H. R. 3977, bans U. S. nationals from any mineral activity in Antarctica, under threat of civil and criminal penalties. Representative Bruce Vento's bill, H. R. 4514, requires NPS to produce an inventory and management plan for Antarctica as a world park. U. S. nationals who violate Antarctica mining sanctions would forfeit the right to mine anywhere on U. S. soil.

NPCA uges readers to write their senators and representative, asking them to support Senate and House bills.

—the Editors



10 that crashed near McMurdo Sound in 1979, killing 257 of the tourists aboard.)

Shoreline hotels (one has been built and there are plans for more) could prove a blight. Right now, Chile has one hotel and a concessioner is planning another on Australian "territory." This hotel complex would include a landing strip for large planes such as 747s.

More tourists mean more ships, therefore a greater risk of oil slicks. And increasing visitation of any kind means more garbage, sewage, trampled moss, and frightened wildlife. At some point limits and environmental restrictions may need to be set—and enforced. No such mechanisms now exist.

The Environmental Defense Fund's recent report on tourism, however, calls for a licensing plan for U. S. tour operators, who are the principal concessioners in Antarctica.

NORTHERN ELLSWORTH MTS BY GORDON WILTSIE

EVEN MORE worrisome is the possibility of a rich, technologically powerful nation deciding to drill for oil or minerals. Antarctica contains abundant iron—buried under three miles of ice. And there may be oil reserves.

The idea of offshore oil drilling among calving icebergs gives environmentalists nightmares. Although the recent *Exxon Valdez* catastrophe has shown how severe risks of an oil spill might be, the Antarctic Treaty sets no environmental guidelines for such drilling.

Mining and drilling, especially, became the focus of a recent meeting to discuss Antarctic Treaty changes. Led by the United States, one contingent pushed for adoption of a new agreement called the Wellington Convention. The convention, which would set stringent environmental standards for mining, would not, however, prohibit mining.

Australia and France rejected the convention as too weak and countered with a proposal to make all of Antarctica a wilderness preserve. Italy and Belgium are among the nations supporting a preserve, which would ban all fuel and mineral development. The United States and Britain object to this potential renegotiation of the Wellington Convention in order to maintain their interests in potential mining.

While the notion of locking up an entire continent from a resource-hungry planet might seem like wishful thinking, the original treaty—with its ban on military activity and nuclear waste disposal—was pretty radical for its day. Growing world opinion supports the world park idea, and even such powerful U. S. leaders as Senator Albert Gore (D-Tenn.) and Representative Silvio Conte (R-Mass.) have come aboard. [See sidebar on page 24.]

A world park makes sense for Antarctica. Undoubtedly the continent's natural majesty is worth preserving and requires far more effective and efficient protections than currently exist.

Not only could such designation preclude exploitation of natural resources, but it could also regulate and oversee tourist outfitters, scientists, and other visitors. In a world where almost everything of value has already been found and spent, might not Antarctica be the last gold coin hoarded by the family of a compulsive spendthrift?

While even world park status cannot hope to solve all the global problems that may severely affect Antarctica, including global warming and the ozone hole that is growing over the continent, it might be an essential first step to abating these problems as well.

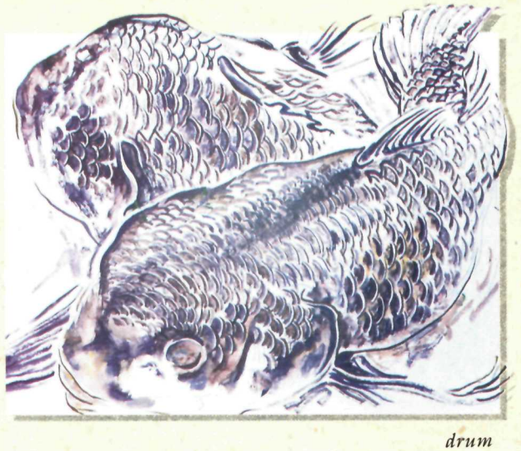
More and more, environmentalists, scientists, and others recognize the urgent need for world cooperation to reduce a number of brewing disasters. Among these are problems such as deforestation, acid rain, global warming, and oceanic pollution. A successful solution to protecting Antarctica might set some precedents for dealing with these and similarly thorny international issues.

If only for its spirit, the world needs some place that is off limits to mankind's destructive energies, a continent left just to natural forces, where penguins can swim between icebergs uncoated with oil and seals lounge on beaches untracked by tires or boots. We are lucky to have such a land left to protect.

Photographer/writer Gordon Wiltsie has guided skiing and climbing groups in the Himalayas and Antarctica and written for numerous national magazines. He also holds the record for the most number of days camped at both poles within the same year.

WaterLife

Gulf Islands National Seashore—Artist Walter Inglis Anderson's Lifelong Obsession.



drum

shells

baby herons

Horn Island is a 14-mile strip of barrier dunes protecting the gulf coast of Mississippi. Since 1971 it has been part of Gulf Islands National Seashore.

To many eyes the island looks barren. But to Walter Inglis Anderson, who haunted its shores from the 1940s until his death in 1965, it contained so much life that he was compelled to create tens of thousands of drawings and watercolors of its denizens.

For several decades, Anderson spent weeks each year alone on Horn Island with no more shelter than an overturned skiff, a hat, and sometimes a tent.

Though he died in obscurity, his works have since been widely acclaimed. A sampling of his intense, vibrant watercolors of gulf sea life appears here.

In This Coastal Realm, Anderson Lived Among the Creatures He Painted.

The black drum fish (overleaf, upper left), common at Horn, can grow to 16 inches at Gulf Islands National Seashore. Drum are found from Cape Cod to Argentina.

Park waters also harbor a host of mollusks (overleaf, lower left: shells). Lightning whelk, for instance, which create a spiral formation as they grow, are common on Horn. When attacked by birds and other predators, the lightning whelk seals off the entrance to its shell with a hard, horny plate.

The lightning whelk's egg cases, deposited on beaches during the summer, resemble strands of pearls. Eventually, each pod bursts, releasing several pellet-sized whelk young into the sea.

Horn Island hosts several species of heron (overleaf, right), including the great blue, green-backed, and Louisiana heron.

Heron eggs hatch in early spring. Great blue chicks remain in the nest four to six weeks and can grow to four feet in height.

turtles

tropical fish

hermit crab

WALTER ANDERSON ILLUSTRATIONS FROM *THE LIVING DOCK*, BY JACK RUDLOE, FULCRUM, INC., GOLDEN, COLORADO

Several species of sea turtles (far left), can be found in the waters around Horn Island. Though all are rare, the most often observed is the loggerhead. With few exceptions, the loggerhead is the only sea turtle that nests on the island.

Sea turtles nest on beaches in early summer, burying scores of eggs in the sand. After about seven weeks, the eggs hatch, usually at night, and the hatchlings scramble for the surf.

Tropical fish (left, above) are uncommon at Horn Island. Wrasses, sergeant-majors, and other tropicals usually seek cover near underwater features such as stones and wrecks.

Hermit crabs (left, below) do not produce shells, so they take up those abandoned by other creatures. As the crabs grow, they shed small shells for larger ones.

CRISIS STRIKE FORCE

SPECIAL TEAMS TACKLE FIRES, OIL SPILLS AND OTHER DISASTERS

BOISE, IDAHO, July 27, 1988. On the wall of the situation room at Boise Interagency Fire Center (BIFC), a huge map pinpoints the locations of wildfires burning throughout the drought-plagued West. Within the past two days, weary dispatchers recall, the 31,500-acre Clover Mist fire has twice lapped the boundaries of Yellowstone National Park before moving into Shoshone National Forest. The North Fork fire, started by a careless woodcutter in

BY CONNIE TOOPS

Targhee National Forest near Yellowstone's western border, has flared across the tinder-dry stand of lodgepole pines. It is now raging just nine miles from Old Faithful. Direction for national call-outs of fire fighters comes from BIFC, a communication and supply nerve center for North American fire-fighting activities. Call-outs for large fires may involve a half-dozen organizations, including crews from the National Park Service, U.S. Forest Service, Bureau of Indian Affairs, and the Bureau of Land Management. BIFC's communications networks may span thousands of miles.

On this summer day, NPS fire fighters from the Southeast join six other crews gathering at a Knoxville, Tennessee, staging site. They travel by chartered jet to an airport an hour's drive from the Yellowstone fires. The National Guard then trucks them to a base camp near the fire line where they begin work.

At the same time, dispatchers at BIFC are monitoring reports from 53 other fires blazing out of control in Alaska, dozens of lightning strikes in California, and scores of brush fires in the intermountain regions.

At BIFC, phones ring and computer screens flicker with reports of crew, equipment, and aircraft deployments. Although requests for supplies and workers are urgent and often arrive in

Below, right: Yellowstone fires brought out the largest fire-fighting force in history. Close to 10,000 people and 117 aircraft were part of the well-organized Incident Command Team.

TED WOOD

rapid succession, employees handle them all with cool professionalism. Older fire managers, however, remember a disastrous period in 1970 when this was not the case.

The fire season in California that year was exceptionally severe. In just 13 days, wildfires consumed 700 buildings and took 16 lives. Fire fighters from local, state, and federal agencies tried to work together. But, without common radio frequencies, communication among them was difficult.

WHENEVER FIRE FIGHTERS could communicate, there were semantic problems. For instance, one fire boss might request a "pumper"; another agency might call the same piece of equipment an engine or a truck. While managers grappled over differences in terminology, needless acres went up in flames.

Congressional investigations of the California fiasco pointed out the need to train and organize workers into interagency response teams before fires occurred. The first attempt at this organization was FIRESCOPE (Fire-fighting Resources of Southern California Organized for Potentional Emergencies).

This alliance of government fire-fighting agencies developed standard operating procedures for fire emergencies. FIRESCOPE was effective but limited to southern California.

In 1981, the National Park Service, together with state and local agencies and other federal land management agencies such as the Bureau of Land Management and Fish and Wildlife Service, created a unified organization known as the National Interagency Incident Management System (NIIMS).

Although fire management was the driving force for developing NIIMS, it is an "all-risk" program. NIIMS is used in natural emergencies such as floods, earthquakes, and hurricanes or for human disasters such as plane crashes and hazardous material spills.

The backbone of NIIMS is the Incident Command System (ICS), a protocol for managing people and equipment in the midst of crises. Although participants come from many agencies, the system succeeds because everyone involved uses standard operating procedures, uniform terminology, and common radio frequencies.

A full incident command team consists of 27 members. The incident commander sets objectives and supervises key staff. He is aided by four section chiefs who are responsible for operations, planning, logistics, and finances.

The operations chief supervises fire-fighting crews, bulldozers, helicopters, and air tankers. The logistics unit obtains tools, food, latrines, sleeping gear, and communications equipment for the camps. The finance chief oversees purchases and payroll.

Planners gather information about terrain, weather, and fire behavior. From these calculations they determine where and how fast the fire will spread and how to control it, developing the incident action plan for each shift.

Each morning and evening the incident commander and section chiefs meet with their field leaders—division supervisors, strike-team leaders, and crew bosses—to review the overall plans for the next 12-hour shift.

Logistics officers explain where crews should meet helicopters, buses, or National Guard trucks that will transport them to the line. Operations chiefs spell out tactics their air and ground crews will employ. And the incident commander summarizes the day's plan of action for the team.

The Incident Command System worked well during the summer of 1988 when 13 major fires burned a 1.5-million-acre mosaic across three states—Wyoming, Montana, and Idaho—in the Greater Yellowstone Basin. At peak mobilization some 9,600 fire fighters and support personnel were on the scene.

They were joined by six battalions of soldiers from the Army and Marine Corps. Incident management teams guided each major fire response. A Unified Area Command in West Yellowstone, Montana, coordinated requests from incident commanders and set priorities for the use of 105 fire engines, 21 dozers, and 117 aircraft that were assigned to the complex.

The Yellowstone fires required the largest fire-fighting effort in history. More than half of the nation's incident management teams were simultaneously on duty.

How does one become a member of the ICS organization? To qualify for a "red card," the NIIMS seal of approval, fire-fighter candidates must pass stress tests and 40 classroom hours of training on fire behavior and safety.

OVERLEAF: FIRE FIGHTERS AT LAKE YELLOWSTONE HOTEL, YELLOWSTONE NATIONAL PARK. BY TED WOOD

TED WOOD

Once issued hard hats, boots, and fire-retardant clothing, recruits follow their squad boss with military precision as they learn firsthand about the fireline. Then, additional classroom time and disaster experience move members to more authoritative positions in ICS.

Team members are highly qualified supervisors—from superintendents to rangers—who have applied for incident command duty in addition to their regular jobs. Each member keeps a "war bag" packed and must be ready to depart to an assignment anywhere in the country on two-hour notice.

The Atlanta command center has a Blue Team on call one week, a Red Team the next. Year-round, shifts change every Tuesday at midnight. If the duty team is called out, the backup team is alerted.

All regional interagency coordination centers field at least one of these incident command teams. Several western regions support two or three incident command teams.

ALTHOUGH FIRES occur every year and account for the majority of Incident Command System callouts, ICS organizational principles work equally well with law enforcement and search-and-rescue operations. Bill Pierce, superintendent at Devils Tower National Monument, Wyoming, has been a member of ICS teams sent to plane crashes, an earthquake, and numerous fires.

Pierce's specialty is planning. In the autumn of 1989 he was recruited as the incident commander for a search-and-rescue mission at Wind Cave National Park, South Dakota, that involved more than 100 people.

"Planning, command, logistics, and finance principles of ICS will work in any situation," Pierce said.

In this case, a teenage girl became separated from her group in a remote cave passage. She had no light or emergency rations. Pierce knew she had to be found while she could still respond audibly to rescuers' shouts.

The searchers finally heard the teenager pounding two rocks together to signal them. Thirty-three hours after her ordeal began, the girl was safely pulled from a 50-foot deep, dead-end passage.

Pierce also served as the leader for American search-and-rescue teams that responded to the Mexico City earthquake in September 1985. There, he organized a search-and-rescue command post with a telephone hot line that city dwellers could call if they thought they heard voices of people trapped in the rubble.

Using these tips, as well as maps and the expertise of a local building engineer, Pierce checked off sectors as the dog teams searched them and prioritized areas of highest urgency for the rescue teams to explore.

ICS CAPABILITY was also tested by the nation's largest man-made disaster. On March 24, 1989, the *Exxon Valdez* struck Bligh Reef, fouling Alaska's pristine Prince William Sound with 11 million gallons of crude oil. Five days later Anna Castellina, superintendent of Kenai Fjords National Park, which lies more than 100 miles southwest of Bligh Reef, realized that high winds and ocean currents were carrying the oil ever closer to the park.

At her request, an incident command team was summoned to park headquarters at Seward. The first priority was for biologists and cultural resource specialists to document prespill conditions so that the amount of damage from the spilled oil could be calculated.

Once Coast Guard and Exxon officials had arrived to supervise the clean-up, incident command teams continued to monitor and assess damages. As oil spread toward Katmai and Lake Clark national parks and Aniakchak National Monument, ICS oil spill operations moved to an area command office in Anchorage.

Typical fire-fighting organizations are set up on the basis of 21-day assignments, but the oil spill required ongoing work throughout the summer and fall. Frank Betts, retired superintendent of Denali National Park, had prior emergency management experience, and he took charge. He then pulled in other experienced National Park Service retirees as division chiefs.

Throughout the summer the area command made travel and logistical arrangements for about 525 ICS workers. Finance officers logged the expenses, and at the end of the operation, Betts filed suit under Superfund and Clean Water Act provisions for Exxon to reimburse $2.5 million in cleanup expenses to the National Park Service.

For the park rangers who responded as ICS resource protection specialists, a typical day began at 6:30 a.m. when they were ferried ashore from work boats anchored near the coast.

They checked the beaches for bears and other hazards and then signaled Exxon contract cleanup crews to join them. Rangers patrolled the beaches during 12-hour shifts, as workers shoveled and swabbed the gummy oil into collection bags. If bears appeared, the rangers either scared the bears away or escorted workers to safe areas.

Despite the tragedy of the fouled beaches, Castellina said there was one good effect of the Exxon oil spill. Management agencies in the Seward area unified and, therefore, increased the effectiveness of their responses to all emergencies.

Castellina chaired the Multi-Agency Coordinating (MAC) Group, an advisory arm for the ICS organization, during the clean-up. MAC included ten local, state, and federal agencies, which met daily to discuss the cleanup and to set goals. MAC then advised Exxon,

GERRY REYNOLDS

BOISE INTERAGENCY FIRE CENTER

Left: Crisis teams use Army helicopters for rescue training at Denali National Park, Alaska. Above: At Yellowstone, helicopters dumped at least 80 gallons of foam fire-suppressant at a time.

KAREN JETTMAR

More than 500 Incident Command Team members helped clean beaches at Kenai Fjords (above) and at other national parks in Alaska that were fouled by the *Exxon Valdez* oil spill.

through the Coast Guard, of problems and priorities.

"It hasn't always been easy working with Exxon," Castellina said, "but the MAC group gives all concerned the ability to speak with one voice."

As a result of this group effort, management decisions have been based on the ecosystem, not just resources on one agency's property.

"MAC worked so well," said Castellina, "that the mayor of Seward wants to establish a permanent MAC group here and give the three-day incident command training course to the people involved."

The Incident Command System also earned respect during relief efforts following Hurricane Hugo. On September 17, 1989, the killer storm knocked out power and phone lines and damaged approximately 95 percent of the houses on St. Croix, U.S. Virgin Islands. Hugo ripped across Puerto Rico and several days later assaulted the South Carolina coast with 150 mph winds.

After the storm passed Puerto Rico, Ping Crawford, the superintendent at San Juan National Historic Site, phoned the NPS southeast regional office to report on damages. He also inquired about rangers at Christiansted National Historic Site and Buck Island Reef National Monument on St. Croix, and Virgin Islands National Park on St. John.

No one knew how they fared. Crawford became even more concerned when he could not contact the Coast Guard on St. Croix. Since he was a pilot, he asked permission from southeast regional supervisors to fly over the parks to check on personnel and facilities.

At the airport in San Juan, Crawford discovered most of the 65 rental planes were reduced to piles of twisted metal. He and the airport owner were able to put a Cessna 172 back together by patching it with a door and parts of the tails from other planes. "It looked awful, but it flew okay," said Crawford.

"I thought Puerto Rico was in bad shape until I saw Christiansted," he continued. "The airport was closed, much of the complex had blown away." Crawford landed the plane and hiked to the road.

Phones were out, businesses were being looted and burned. At park residences, Crawford found NPS employees and their families huddled in the midst of their disintegrated homes. Others had sought refuge in their cars.

Most lost all their possessions in the hurricane. "They were all in a daze," said Crawford. "They hardly knew I was there."

Crawford immediately reported to NPS regional supervisors in Atlanta. The Federal Emergency Management Administration (FEMA), who handled disaster relief efforts for Hurricane Hugo, were then assisted by the ICS organization through the Southeast Interagency Coordination Center in Atlanta.

Crawford said ICS "worked very very well. They sent chain saws to open the roads and generators for power. Materials came quickly, and we're well on the way to being back on our feet."

In St. Croix, the incident command team installed the same communications system taken to wilderness fires—256 radios with five repeater networks.

Andy Stewart, a Natchez Trace Parkway dispatcher who served in St. Croix, reported this was the only radio link the National Guard, departments of Transportation and Justice, FEMA, Red Cross, and territorial agencies had for months.

"It's a good feeling to do something for people that they don't know you can do," he added.

Joe Kelly, a 26-year NPS veteran who is the interior coordinator at the Southeast Interagency Coordination Center, worked 12-hour shifts for two months after Hugo. Kelly related, "FEMA and the military were impressed by how efficiently we moved equipment in and got to work."

Similar praise was given by Coast Guard commanders during the oil-spill response and by military leaders assisting with the Yellowstone fires. Kelly anticipates that incident command teams will receive even more emergency calls as their organizational expertise becomes known.

The parks will surely benefit. During the past decade, park rangers participating in the NIIMS program have been increasingly well trained and prepared for quick mobilization. This has resulted in an Incident Command System that is always becoming more efficient in the protection of natural and cultural resources.

A former NPS naturalist and backcountry ranger, writer Connie Toops served as a fire fighter on several wildfires. She last wrote about canoeing in the national parks for National Parks *magazine.*

Shores of the Inland Seas

GREAT LAKES PARKS OFFER HUGE DUNES, SHIPWRECKS, AND WATER SPORTS

BY MARK PETERSON

ASK ANYONE to name our country's coasts and they will quickly recite the Pacific, Atlantic, Gulf, and perhaps the lonely Arctic. Often forgotten, however, is the fifth coast—the Great Lakes shoreline.

It was along these shores that voyageurs—the legendary French frontier traders—paddled their 36-foot canoes, carrying up to four-ton cargoes of furs and other goods. In pursuit of beaver hides, these hardy Frenchmen opened a continent for thousands who would follow this aqueous highway and shape the region—miners, loggers, and fishermen.

Journals of these early travelers are filled with testimonies of the natural beauty they discovered along broad sand beaches and towering, rocky headlands. Later, these same areas made excellent sites for harbors, highways, and homes, as the Great Lakes region was gradually settled over the next century and a half.

By the 1950s, the public began to realize that many of the finer spots along these shores were being lost to development. In 1959 the National Park Service released a timely report entitled *Remaining Opportunities*. It examined the 5,500 miles of Great Lakes shores in eight states, "to determine what portions of undeveloped shoreline remained that were worthy of preservation."

From that initial survey, 66 areas, including 118 miles of shoreline, were identified as having outstanding characteristics. Over the next 12 years, four areas—two on Lake Michigan and two on Lake Superior—were selected as national lakeshores, the freshwater equivalent of the national seashores.

Pictured Rocks

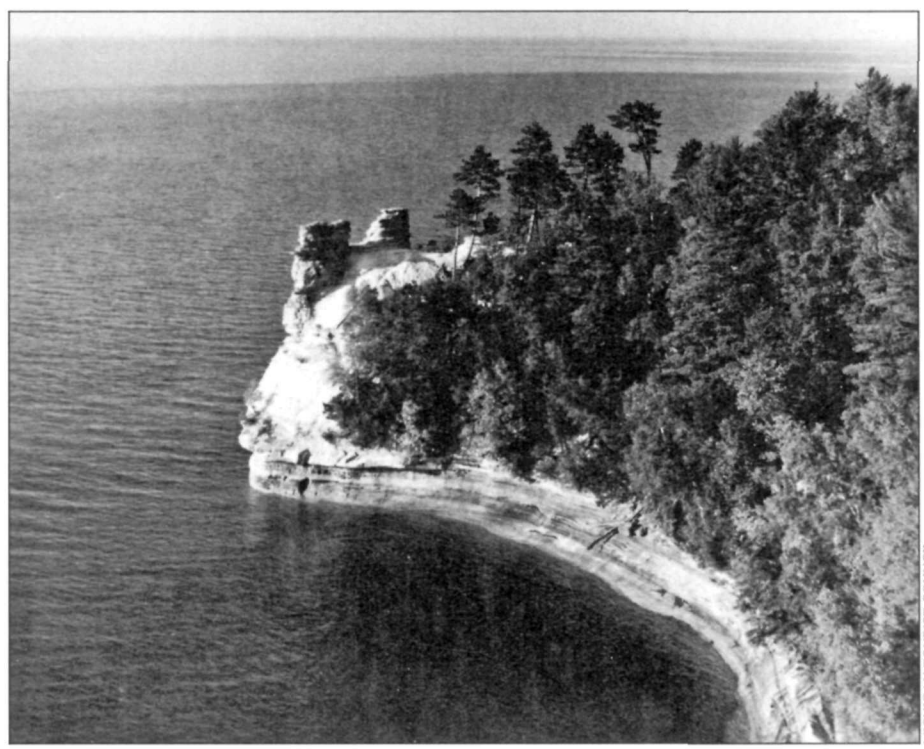
To the Ojibway Tribe, the Pictured Rocks shore was sacred. Even today, some of the most spectacular scenery on the Great Lakes lies along this 42-mile stretch of relatively undisturbed shoreline on the north side of Michigan's Upper Peninsula.

The west end of the lakeshore is dominated by massive sandstone cliffs, which extend for 15 miles along Lake Superior's southern shore. Superior's might and fury have relentlessly pounded these colorful, dramatic, 200-foot cliffs, creating caves, arches, stacks, and promontories. Occasional waterfalls spill over the escarpment from inland rivers.

The best views of the towering cliffs are from a commercial tour boat that departs from Munising, Michigan, five times daily during the summer. Another breathtaking vantage point is from Miners Castle, atop bluffs on the western end of the park.

To the east of the sheer rock escarpment, a white sand beach stretches for 12 miles, giving way to the massive Grand Sable Banks—five square miles of shifting sand dunes that rise 300 feet above Superior. The park's main trail runs

Miners Castle offers excellent views of the Pictured Rocks lakeshore.



MICHIGAN TOURIST COUNCIL

nearly the entire length of the shoreline. Backcountry campsites are staggered along the path.

The park trail offers spectacular views of Lake Superior. Backpackers can hike any segment of the lakeshore trail, and, for a nominal fee, a shuttle bus will bring you back to the trailhead at the conclusion of your trip. Hiking the full trail takes about four days.

But don't overlook the park's interior. Behind the shoreline are lakes, waterfalls, and forests that possess the essential flavor of the great North Woods. Hemlock, white pine, and northern hardwoods form the canopy, with elements of the boreal forest, such as spruce and fir, also present.

Popular day hikes include the Chapel Loop Trail, which saunters down to Chapel Rock, a castle-like rock formation jutting out from Chapel Beach.

Or, visit the park's Maritime Museum in Grand Marais, an old U. S. Coast Guard Station now run by the National Park Service. The museum contains relics of ships that have gone down along these shores and gear from the U. S. Lifesaving Service.

This station was the last to hear from the now-famous *S. S. Edmund Fitzgerald* before it sank in a vicious November storm in 1975, claiming all 29 lives aboard.

For additional information, contact Pictured Rocks National Lakeshore, P. O. Box 40, Munising, MI 49862, (906) 387-2607.

Apostle Islands

Folklore holds that early explorers of western Lake Superior, many of whom were Jesuit missionaries, believed there were only 12 islands comprising this archipelago and aptly named them Apostle Islands. Later, ten more islands were discovered. But the name stuck.

Today, 21 of these islands, plus a portion of the peninsular mainland, fill a 720-square-mile area at the northern tip of Wisconsin known as Apostle Islands National Lakeshore.

Sailing is one of the most popular recreational pursuits in the park. The islands' many bays and coves, along with safe anchorages near beaches and sand spits, make for some of the best sailing in the country.

The features that make the park so attractive to sailors also act as a siren's call to kayakers. In just the past few years, kayakers have discovered that paddling along and among the islands offers the park's best view of the sea caves and brownstone cliffs. In the quiet leeward bays the water is so clean and transparent you sometimes seem suspended between lake bottom and sky.

Many visitors get to the islands via a commercial tour boat that departs from the Bayfield, Wisconsin, harbor. The boat leaves twice a day during the summer. For those on a tight schedule, the "Grand Tour," a three-and-a-half-hour route, is an ideal island sampler.

If you enjoy primitive camping, a "water taxi" can drop you off at any of the islands for one night or more. Stockton Island, the largest of the Apostles in the park, is one of the more popular destinations for camping. Its 15 miles of trails wind through hardwood forests to tropical-looking bays and coves.

But don't be fooled by the inviting surf. Lake Superior's waters, even in the shallow bays, are seldom warm enough for comfortable swimming.

On the mainland, take a drive north of Bayfield to Little Sand Bay. Here you will find the restored Hokenson Brothers Fishery, a small-scale commercial fishery that operated from the late 1920s to the early 1960s. A museum here explains the hardy life of the Lake Superior fisherman.

For more information, contact Apostle Islands National Lakeshore, Route 1, P. O. Box 4, Bayfield, WI 54814, (715) 779-3397.

Indiana Dunes

It's hard to believe that here, just a short drive from downtown Chicago, lies one of the most biologically diverse areas of the National Park System.

In fact, 1,134 species of native plants can be found at Indiana Dunes National Lakeshore in northern Indiana. Of national park areas, only Great Smoky Mountains, Grand Canyon, and North Cascades contain more.

At this lakeshore you can find arctic

JAMES DURRELL, JR.

Sleeping Bear Dunes (above) gets its name from a Chippewa legend.

plants, such as bearberry and jack pine, growing near prickly pear cactus and southern dogwood. The plants that adapted for severe winter are relics—leftovers from the last ice age. The warm-clime plants colonized the dunes during a much later time in the park's evolution, long after the last continental ice sheets receded north.

The biotic diversity also results from the variety of habitats found in this 14,000-acre park that hugs the south shores of Lake Michigan. Walk the inland Marsh Trail, for example, and see the wetland environment formed 11,000 years ago, when Lake Michigan was 25 feet higher than it is today.

The West Beach Trail will take you from sand beach to forest environments—each with its unique plant species. In addition, the one-mile Hoosier Prairie Trail offers samples of the tallgrass prairie that once covered most of the Midwest.

There are other ways of seeing the lakeshore besides walking. The nine-mile Calumet Bike Trail follows the Chicago South Shore and South Bend Railroad route.

The 180-foot dunes taper into wide sandy beaches that make for ideal swimming in the summer. West Beach provides the most service for lakeshore visitors with showers, restrooms, and concessions.

Catch a glimpse into the early settlement of the area on short trails to the Bailly Homestead and Chellberg Farm. In 1822, Joseph Bailly settled here at the intersection of a canoe route and two major trails used by the native Potawatomi.

The Chellbergs arrived here later—in 1863. The barn they built in 1880, a reflection of Swedish architecture, still stands along with the granary, home, and several other buildings.

For more information, contact Indiana Dunes National Lakeshore, 1100 North Mineral Springs Road, Porter, IN 46304, (219) 926-7561.

Sleeping Bear Dunes

The landscape at this park exhibits some of the best examples of continental glaciation anywhere. Along its 31 miles of Michigan lakeshore stretches an almost continuous beach of fine sand, backed by dunes that cover four square miles atop a plateau that rises 400 feet above Lake Michigan. Glaciers dumped these sands 12,000 years ago and left behind colossal blocks of ice that melted, forming bogs and small lakes now framed by pine and hardwood forests.

The Chippewa have a more poetic explanation for the area's features. They tell of a mother bear and her two cubs who were driven into Lake Michigan from Wisconsin by a forest fire. As they swam toward safety at the opposite shore, the small cubs tired.

When mother bear reached the shore she climbed to the top of a bluff to watch and wait for her two offspring. But the cubs drowned. Today the profile of a sleeping bear overlooks Lake Michigan here, and the two Manitou Islands in the distance mark the spots where the cubs drowned.

To explore the park, many modes of transportation are available. For motorists or cyclists, the seven-and-a-half-mile Pierce Stocking Scenic Drive is a great introduction. Named for a lumberman who studied nature on his walks along here, the route takes you across a covered bridge and alongside the remarkably blue waters of Glen Lake.

From this drive, visitors enjoy walking the one-and-a-half-mile Cottonwood Trail, part of the 50 miles of trails that cross the giant dunes, traverse meadows, and wind through beech-maple forests. The trail, and accompanying guide, will introduce you to some of the park's more interesting plants, such as the broomrape, which, unlike almost all other plants, lacks chlorophyll.

Also, the 65-foot *Mishe Mokwa* carries passengers to South Manitou Island from Leland, four miles north of the park. Visiting the 1871 lighthouse is a popular destination during the four-hour layover on the island. This lighthouse stands 104 feet high—tallest of all lighthouses on the Great Lakes.

For a more remote experience, take the boat to an overnight camping stay on North Manitou Island. The island has trails that you can follow to low and sandy open dune country, or into high blowout dunes such as Old Baldy and rugged bluffs towering 300 feet above Lake Michigan.

Traverse City, about 25 miles east, is the lakeshore's gateway town. A stop at the park's visitor center in Empire will orient you to the area's history, flora, and fauna. For more details contact Sleeping Bear Dunes National Lakeshore, P. O. Box 277, 9922 Front Street, Empire, MI 49630, (616) 326-5134.

Mark Peterson is executive director of the Sigurd Olson Environmental Institute at Northland College in Ashland, Wisconsin. His home is on Lake Superior.

Completing the Parks

LATE LAST YEAR, the National Park Service identified privately owned tracts of critical Florida panther habitat in Big Cypress National Preserve in southeast Florida. Because this extremely endangered species is now confined to a fraction of its former range, the National Park Service (NPS) wished to acquire the parcels. Unfortunately, the agency had no funds available for the purpose.

This spring, the National Park Trust—with the help of a generous June Webster Norcross grant from the Norcross Wildlife Foundation of New York—stepped in and purchased the properties. The Trust will hold the land, safeguarding the panther habitat, until Congress appropriates funds to acquire it.

Other parcels of Big Cypress panther habitat have become available, and the Trust is working to acquire those. It is believed that fewer than 50 Florida panthers remain in existence. Loss of habitat to human encroachment is the chief cause of the species' decline.

Thanks to support from members and foundations, NPCA established the National Park Trust in 1983 as a million-dollar revolving fund dedicated to helping the Park Service complete the National Park System.

While many might assume the parks are wholly owned and protected by the federal government, that is not the case. In fact, throughout the Park System, more than two million acres of designated parkland are privately owned.

While many of these tracts, called inholdings, are carefully preserved, some are not, and can pose significant threats to parks. Inholdings can be logged, developed, or otherwise managed in ways incompatible with park preservation.

The National Park Trust negotiates with property owners to purchase inholdings—or park-caliber land adjacent to parks—at fair market value. It holds properties in trust until funds for their acquisition are appropriated by Congress. The Trust then sells the tracts to the NPS at cost, and invests sale proceeds in further land acquisition.

In addition to its Big Cypress acquisitions, the Trust is involved in a wide range of other projects in California, Oregon, Massachusetts, Rhode Island, Texas, and Arizona, among other places. For example, the Trust is in the process of acquiring a plot on the north shore of Lake Quinault, in Olympic National Park in Washington. The parcel contains old-growth cedar and spruce and hosts a rich variety of animals and plants, including the highly endangered northern spotted owl. In addition, securing the plot will protect lakefront and scenic road tracts.

The Trust is also looking at purchasing a sensitive zone at Fredericksburg-Spotsylvania National Military Park in Virginia. The owner of the tract has been trying to sell it to the Park Service for some time, but federal funds for the purchase will not be available until Fiscal Year 1991, at the earliest.

Located on the park's eastern boundary, the tract forms a buffer between battlefield features and the Lee Hill Industrial Park, a 600-acre industrial complex just outside the park. Loss of the tract could bring development to within feet of Confederate earthworks that traverse the battlefield.

"The Trust can work as an emergency fund, too," said Judy Immerman, director of the Trust. "If an inholding suddenly goes up for sale but the Park Service is

Fewer than 50 Florida panthers remain. The Trust works to safeguard their habitat.

STEVEN KAUFMAN

unable to act quickly enough, we can act for them."

The Trust will also coordinate large-scale projects, added Immerman, drumming up support from other land conservancies for particularly costly or fast-breaking projects.

But better funding is needed to ensure that opportunities will not be missed. Late last year, Trust staff discovered that prime acreage adjacent to the Thomas Cole House, a proposed National Historic Site in New York State, was on the market.

The Trust contacted a local land conservancy, hoping to pool funds and preserve the tract. But before sufficient money could be raised, the parcel was sold.

In seven successful years, though, the National Park Trust has made significant gains, rounding out numerous park areas across the country. In 1983, for example, the Trust purchased privately held lands around the headwaters of the Alatna—a designated wild and scenic river—in Gates of the Arctic National Park and Preserve, Alaska. The Trust then turned the land over to the Park Service in August 1985.

Also in 1985, the Trust purchased private lands on Mount Desert Island in Acadia National Park, Maine, that had been slated for residential development. It now holds the tracts for NPS. Trust staff have also negotiated land exchanges and boundary expansions to protect sensitive lands at parks such as Hawaii Volcanoes.

Perhaps you can help the Trust. If you know a landowner who is considering selling private land within a national park area, or if you know of land conservation projects that may benefit a national park, please inform the Trust.

Also, though the Trust's million-dollar base is a good starting point, it is actually quite modest for its task. In the face of ever-increasing land prices, more funding is urgently needed to carry out projects such as those mentioned above.

To make a donation, or for more information, please contact Judy Immerman, National Park Trust, NPCA, 1015 Thirty-first St., NW, Washington, D.C. 20007, (202) 944-8530.

Susan Hanson: In Memoriam

On January 15, Susan Hanson, a former NPCA Board member, and her mother were flying to a national park in Costa Rica when their plane crashed, killing the occupants.

Hanson was an extremely active member of NPCA's Board of Trustees from 1980 to 1989, serving on the executive committee and as Board Secretary. She was also head of the Public Education Committee and, as such, took a strong interest in *National Parks* magazine.

Hanson's titles describe her involvement with NPCA, but they say nothing of her commitment, energy, and warmth. A photographer, Hanson enjoyed the national parks for their varied splendor and worked to preserve them.

FIREWEED/GLACIER BAY, BY S. HANSON

In her travels for Americares, the emergency relief organization, Hanson flew worldwide, sometimes under extreme circumstances, such as to Yerevan, Armenia, just after that area's earthquake. It is tragically ironic that she was on her way to a national park when she died.

Hanson is survived by her husband Peter Hanson and their three daughters, Kate, Molly, and Emily.

March for Parks

Tens of thousands of people voted for the parks with their feet this spring. On the weekend of March 24-25, people all across the country in 170 marches showed their support for national, state, and local parks as well as other open space and historic sites by joining in NPCA's first annual March for Parks.

"Not only are marchers benefiting the parks," said NPCA President Paul Pritchard, "but this strong show of support sends a message to legislators and to government officials all over the country.

"People—all kinds of people, not just activists—care about their parks and their immediate environment. Because of their commitment, this movement, and March for Parks, will grow over the coming years."

Marchers included schoolchildren in New Jersey, nuns from a convent in West Virginia, Earth First! activists from the Yellowstone area, and developers in Dayton. "The response was tremendous," said Pritchard.

The 2,400 marchers in Portland received red cedar seedlings at their march. Much of the local community near Florissant Fossil Beds National Monument, Colorado, turned out for their march. Citizens in Santa Monica, California, had two marches, totaling approximately 4,000 people.

Each marcher collected donations, and the money raised at each march will be divided: half will go to a local project chosen by each local march group. These projects will include tree plantings, education, land purchases, and the like. The other half of March for Parks contributions will be used by NPCA for national park wildlife issues and for education.

Jim Fowler, host of Mutual of Omaha's *Wild Kingdom*, led NPCA's March for Parks as its National March Leader, and his remarks on the *Today Show* spurred additional interest in March for Parks.

If you would like information concerning next year's March, write NPCA March for Parks, 1015 Thirty-first St. NW, Washington, D.C. 20007. Or call 1-800-NAT-PARK.

Gift in Kind

NPCA would like to thank the Lotus Development Corporation for donating to the association two computer software programs. Lotus 1-2-3 and Lotus Metro will help NPCA administratively in its efforts to protect the resources of the National Park System.

PARK EDUCATION CENTER SPRING 1990 LISTINGS

BOOKS AND PARK GUIDES

The Complete Guide to America's National Parks: 1990–1991 Edition	W115	$11.95
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The National Seashores: The Complete Guide to America's Scenic Coastal Parks	W102	$ 9.95
A special National Geographic set: National Parks of the United States (guide) and Our National Parks, A Seasonal Tour (video)	P199	$30.50
Enemy Ancestors: The Anasazi World with a Guide to Sites	D147	$19.95
Big Bend: Official National Park Handbook	D102	$ 6.50
Many Storied Mountains: The Life of Glacier National Park	C123	$ 7.00
Great Smoky Mountains National Park: Official National Park Handbook	F113	$ 7.00
Grand Teton: Official National Park Handbook	C129	$ 5.50
First Guide to Birds: A Simplified Field Guide to the Common Birds of North America	Z101	$ 3.95
North Cascades National Park	A113	$ 5.50
The Life of Isle Royale	E104	$ 7.00

HIKING GUIDES

The Bryce Canyon Auto and Hiking Guide	C104	$ 2.95
Hiker's Guide to Glacier National Park	C122	$ 5.95
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Along the Rim: A Road Guide to the South Rim	B125	$ 2.95
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Roads and Trails of Waterton Glacier International Peace Park	C124	$ 6.95
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The Hiker's Guide to Washington	A118	$ 9.95
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NPCA T-shirts (white only; adult S,M,L,XL)	N114	$ 9.95
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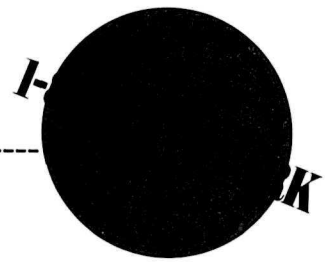
For a complete listing of books, videos, hiking guides, maps, and official guides to national parks, please call 1-800-NAT-PARK.



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Moral Economics

THE PREMISE OF *For the Common Good: Redirecting the Economy Toward Community, the Environment and a Sustainable Future* is simple, "the neglect of the physical world in economic theory has led to its degradation in economic practice."

The authors, World Bank economist Herman E. Daly and philosopher/theologian John B. Cobb, Jr., suggest an alternative economic model that emphasizes moral priorities as a means to address global environmental trends. Their suggestions are an amazing amalgamation of ideas.

Some solutions may be characterized as left of communism, others right of free-market capitalism. Hidden in the book, however, are some modest proposals. One is the adoption of a new measure of economic well-being, an Index of Sustainable Economic Welfare (ISEW), to replace today's GNP, which the authors claim is not accurate. The ISEW does not encourage the growing gap between the rich and the poor, and it discourages unsustainable economic practices. Also, they suggest taxing corporations that use nonrecyclable packaging, as well as taxing them for the pollution they generate.

While some may find the authors' suggestions too radical, their ideas cannot be brushed aside. It is this kind of innovative book that gives economists and policymakers a much-needed whack on the side of the head, stimulating thought about the kind of economy needed in the future to sustain our fragile planet and its people.

For the Common Good, by Herman E. Daly and John B. Cobb, Jr., Beacon Press; hardback, 482 pages; $24.95.

—Bruce Craig
NPCA cultural resources coordinator

First Battle for Wilderness

In 1913, America was faced with its first national controversy over wilderness. That year, Congress and the public heatedly debated the building of a dam in Hetch Hetchy Valley in Yosemite.

The Wilderness Idea (1989, color, 58 min.) not only brings to life this important moment in history, but also provides a context for understanding the ongoing debate on preserving or managing the natural environment. The film combines archival footage with stunning scenes of Yosemite to tell the story of two founders of American conservation, John Muir and Gifford Pinchot, and their showdown over the fate of the valley. The documentary is well suited for history and ecology classes, public libraries, and community groups.

To buy or rent, contact Direct Cinema Limited, P.O. Box 69799, Los Angeles, CA 90069, (213) 652-8000.

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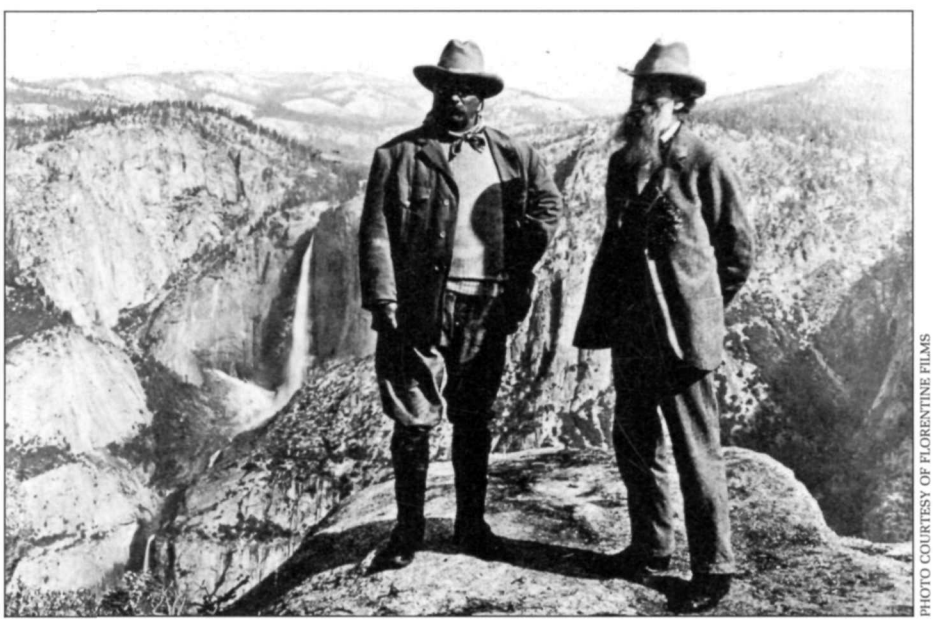
JOBSource is available to organizations, schools, and individuals as a computer software package or a printout and is accessible 24 hours a day through a phone modem.

For more information, call or write Computerized Employment Systems, Inc., 1720 W. Mulberry Unit B9, Fort Collins, CO 80521, (800) 727-JOBS.

Final Note: The entry deadline for the fourth annual Arts for the Parks is June 1, 1990. Now open to both American and Canadian artists, the entries will be juried first by slides, and the entry fee has been reduced to $30. For further information and an entry packet, write Arts for the Parks, P.O. Box 1158, Jackson, WY 83001, or call (800) 553-2787.

John Muir (right) and President Theodore Roosevelt at Glacier Point in Yosemite.



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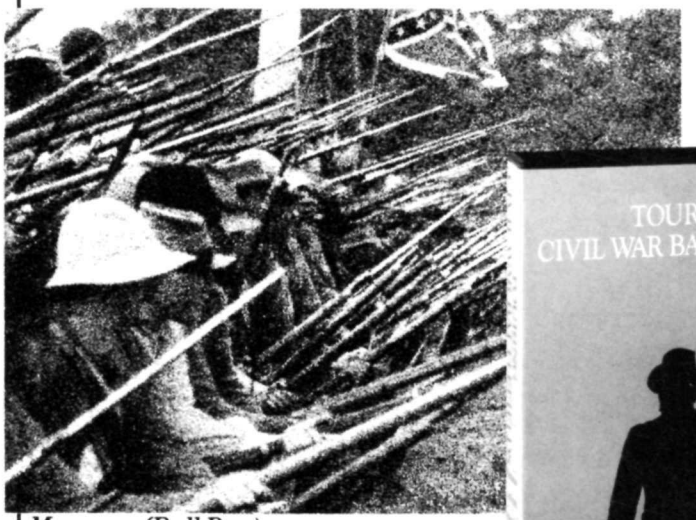
Award-winning video remembers the Blue and the Gray



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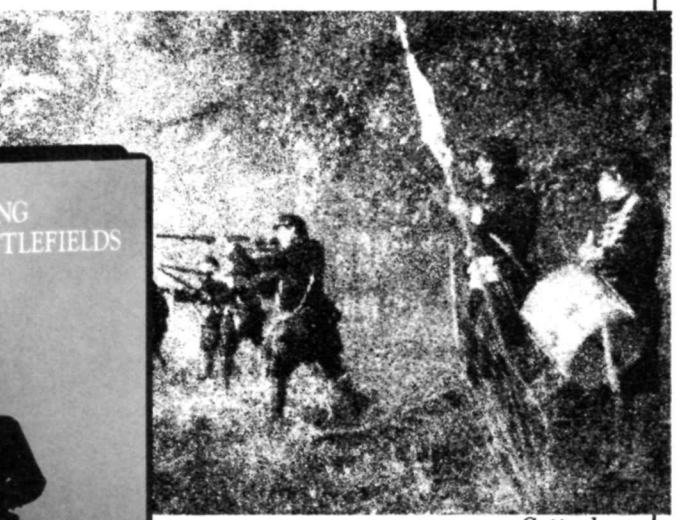

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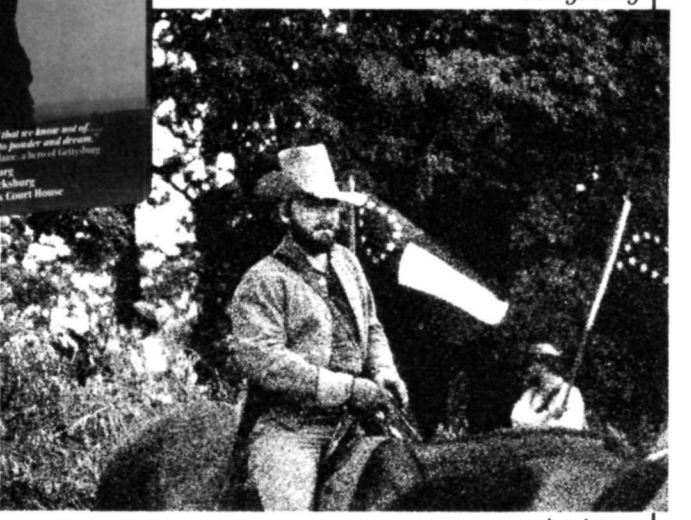

Antietam

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In honor of the 125th Anniversary of the Civil War, this award-winning video is an accurate portrayal of the heroic soldiers who fought for the Blue and the Gray. No battlefields have greater appeal than the meticulously preserved meadows and forests where four heroic encounters of the Civil War were decided: Manassas, Antietam, Fredericksburg and Gettysburg. Relive the story of each conflict as thousands recreate these battles. Visit the small village of Appomattox Court House, where the solemn surrender took place. Battlefield historians were consulted throughout for content and accuracy. This emotionally charged video combines action, information and insights. Most of all, this portrayal humanizes and brings to life names that appear in Civil War history, character weaknesses in military leaders, the plight of the lowly foot soldier, and bravery that every viewer will admire.

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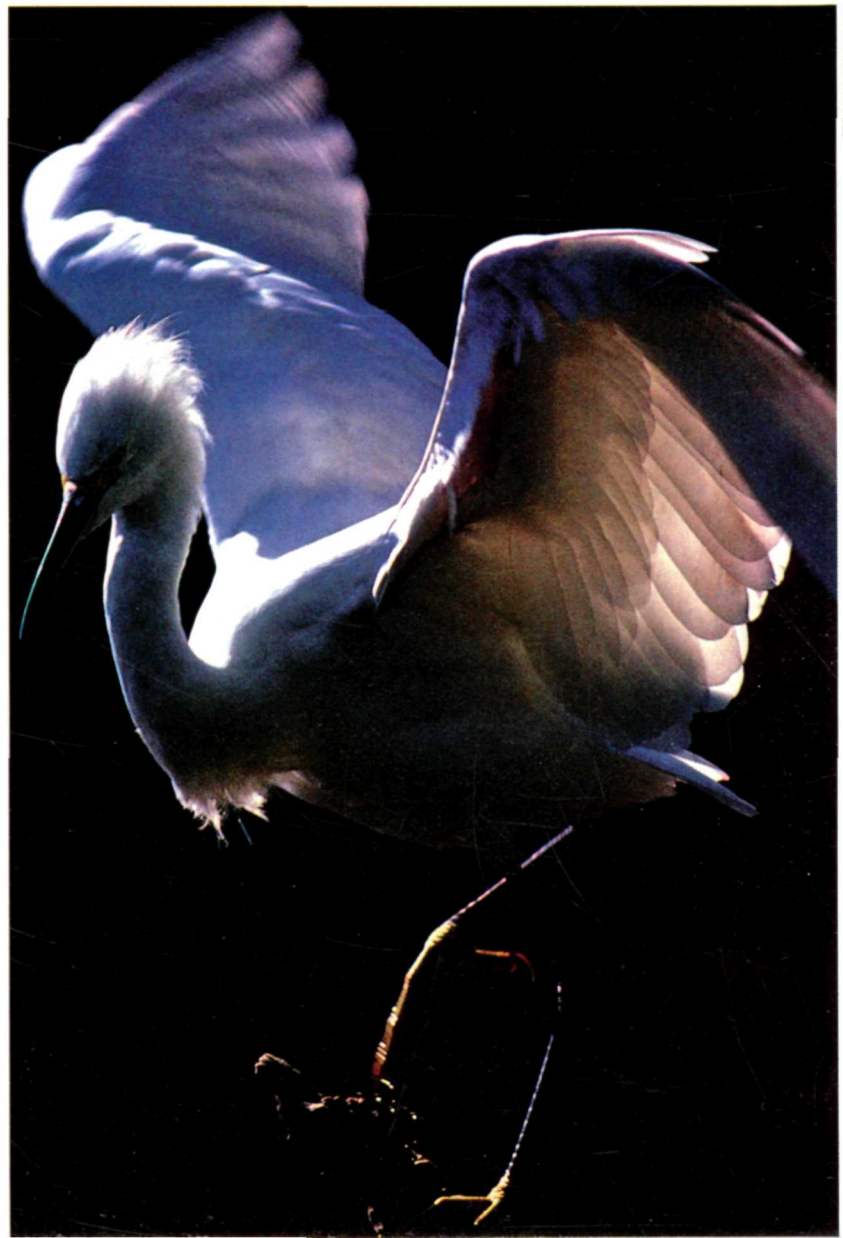
Everglades

THE BEAUTY of the Everglades is enhanced by its birds, even as the tragedy of the Everglades is being told by its birds. Breeding season is timed [by the availability of] food. During dry seasons, when water becomes more shallow and pools form that collect fish, birds feed easily and abundantly. Artificial water-level fluctuation can, therefore, determine the success or failure of breeding and nesting. Population loss occurred initially from 30 to 40 years of plume [poaching] and continues because of habitat destruction and the absence of a natural water flow through the park. Consider this startling fact: The population of nesting wading birds in the park has decreased from 300,000 in the 1930s to 5,000 in the 1980s.

Excerpted from Everglades: The Continuing Story *by W. Eugene Cox; KC Publications. Available from NPCA Park Education Center, 1015 Thirty-first St., N.W., Washington, D.C. 20007; 48 pp, pb, $5.50 (includes postage/handling).*



FRED HIRSCHMANN

Counterclockwise from facing page: Largest of the North American herons, the great blue stands motionless in the shallows of a marsh or lake for long periods, its keen eyes scanning the depths for fish, frog, or crayfish.

The purple gallinule's exceptionally large feet help disperse its weight so it can walk across aquatic plants looking for insects.

The snowy egret is an energetic hunter, stabbing continually into the water after small prey, and occasionally stirring up the bottom with a flash of its yellow toes, which have earned it the nickname "golden slippers."

The endangered wood stork is referred to as the "barometer of the Everglades." Its long nesting cycle starts late in the Everglades due to continued loss of both peripheral wetlands and dry season feeding grounds.

The brown pelican's color and habit of diving headfirst into the water after its prey distinguish this species from the white pelican.

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