NATIONAL Parks

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INSIDE
PARK BOOKS CATALOGUE

In This Issue

GATEWAY:
WILD EDGE OF
NEW YORK CITY

YELLOWSTONE'S
NEW GRIZZLIES

BIRTH OF THE
DINOSAURS

0 31077 74202 9

The wild places are where we began.

When they end, so do we.

David Brower

GrandCanyon
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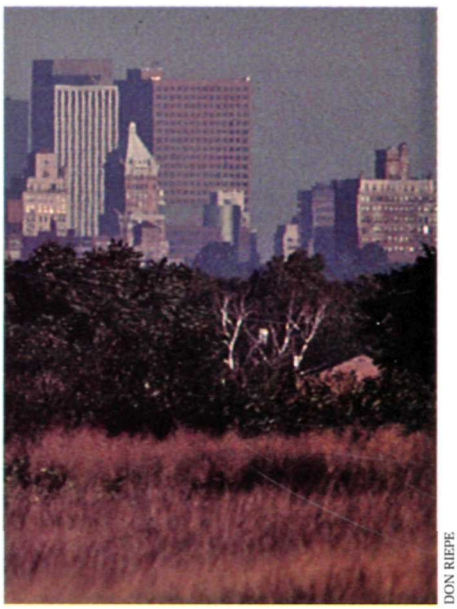

DON RIEPE

Gateway, page 30

EDITOR'S NOTE

In "Forum," Ed McMahon talks about the homogenization and commercialization of America's roads. When you're in a hurry, it doesn't much matter that all you see from the interstates are median strips, road shoulders, and a 50-foot Ramada sign way up ahead. But if you're in a hurry, you've missed the point and you might as well have flown. If you're out to experience America and all you experience is the next Burger King—well, it's okay for a fast fillup, but you could have gotten that at home.

McMahon also talks about road trips as a quintessential American experience. They signal freedom, wide open spaces, the essence of this country. If all our roads become interstates or cluttered with junk-food signs, then that becomes the essence of America.

NATIONAL PARKS

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NATIONAL Parks

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Vol. 63, No. 11–12
November/December 1989

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Cover: *Petrified Forest National Park, by Fred Hirschmann/Nature's Design*
Phytosaurs, generally 19 feet long with three-inch teeth, were among the most common reptiles in the Petrified Forest area.

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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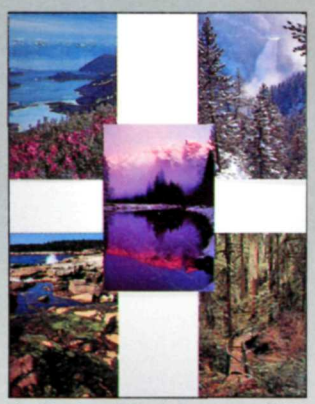

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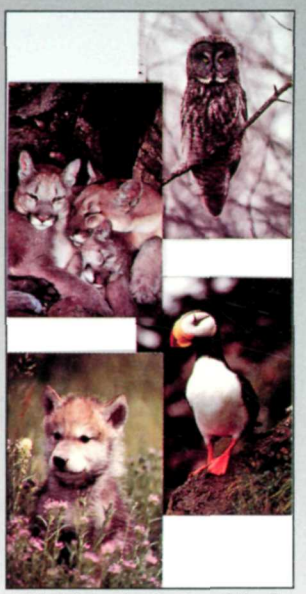

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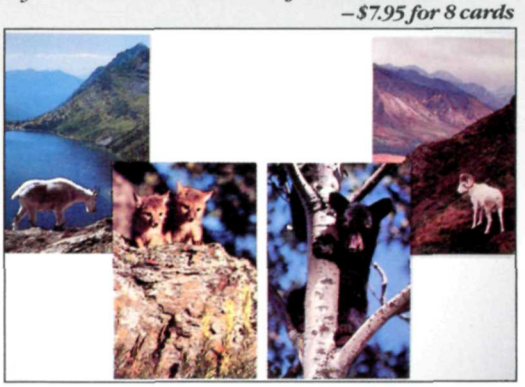

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March for Parks

MARIA BUCHINGER, my friend in Argentina who heads their National Park Association, once told me that her biggest problem was in not having "stamp money." I thought she was overstating the problem of most citizen organizations. Certainly, I know every dollar is hard to come by. But why was this Buchinger's number-one problem?

Yet, over the years, I have come back to her comment again and again. Without enough money to buy stamps, to duplicate letters, and to make telephone calls, environmentalists and others in citizen-based movements do not have the basic instruments necessary in order to deliver their message to the public.

Buchinger and other leaders of citizen movements are like conductors who must mount a platform ready to lead the strings, the wind section, the entire orchestra in a performance for an eager audience—and find they do not have the money to purchase scores.

For us in the environmental movement, the numbers tell of the plight. In 1978, three cents of every federal dollar was spent on the environment. In 1989, barely one cent went to the environment. Parks are symbolic of this problem. In 1978, we—as a nation—spent more than $800 million through the Land and Water Conservation Fund on federal, state, and local parks. In 1990, we will spend only $200 million.

The problem is widespread, from government to grassroots. But having "stamp money" to get the message out is a crucial first step. Citizen awareness and intelligent response to any problem depend on knowledge. Knowledge depends upon having the facts.

NPCA wants to help grassroots organizations protect their national, state, and local parks, buy inholdings in the parks, clean up waterways, replant gardens, and restore historic places. Therefore, we have created the March for Parks, an event that will generate funds for local organizations and national committees who want to protect their special places [see "Notices," page 50]. The March for Parks, which will match walkers with donors, will take place in towns and cities across the country and will:

▲ Create community awareness about the importance of that community's own parks;

▲ Raise funds for purchasing land, planting trees, creating ball fields and picnic areas—enhancing local parks;

▲ Build commitment for the green spaces that are crucial for the well being of every city, town, and neighborhood.

We at NPCA are excited by the potential that March for Parks has for building a parks movement that can bring more green space to every community, build public awareness and local leadership needed to protect those parks. The March will provide funds for "scores" and allow a thousand local orchestras to play.

Paul C. Pritchard

LETTERS

Save the Redwoods

Your article on the logging of park-quality sequoia ["News," May/June 1989] reminds environmentalists that federal jurisdiction does not mean federal protection. Your article sounds an alert that can create letters to Congress to protest the destruction of Sierra redwoods.

Such a response, however, has only a temporary effect. As soon as we look the other way, logging will return to Sequoia National Forest because the demand for this wood in the marketplace remains unaltered.

What is needed sorely is a campaign to burn into the consciousness of the American public that it is their demand for redwood that creates the threat to these trees. I am not suggesting a boycott of redwood products. I am suggesting abstinence, simply eschewing redwood. The message would be simple: Don't buy redwood.

Charles ReVelle
Towson, Maryland

The "Voyage"

Thank you for an interesting article on Thomas Cole ["The American Canvas," September/October 1989]. We learned something about an old friend.

The four paintings comprising his *Voyage of Life* are very familiar to us. We saw them frequently when they hung in the chapel at Scarlet Oaks, a United Methodist-related retirement home in Cincinnati, before they were discovered by the National Gallery of Art in Washington, D.C.

As children we frequently accompanied our parents on visits to the elderly residents at the "old folks' home," and they would take us into the chapel and explain the meaning of each scene. They were wonderful moments, and wonderfully meaningful paintings.

Thank you for the insight into their painter.

Elisabeth Anger
Cincinnati, Ohio

Turning Up the Praise

Hooray for Claudine Schneider ["Turning Down the Heat," July/August 1989]. In the face of tremendous foot-dragging in the business and political communities concerning our environmental problems, Ms. Schneider is surely one of the great national resources herself.

Nancy B. Greist
Suffern, New York

Don't Blame the Birds

James Lazell ["Pushy Wildlife," September/October 1989] seems to be missing the point. Instead of being happy that some waterfowl species have adapted to civilization, he urges that these birds be exterminated. According to him, they are the sole reason some of our native waterfowl are declining.

Did these birds cause acid rain? Are they draining our marshes? All too often exotic animals are blamed for things they did not do. The overwhelming reason for our wildlife disappearing is man. People should learn to appreciate the little wildlife we have left, not kill it.

Paul Gallant
New York, New York

Will Rangers Take a Hike?

I wonder if the Park Service will be able to retain quality field personnel at a salary less than $16,000 per year ["News," September/October 1989]. I wonder why an employee who picks up litter is paid a higher wage than a field ranger.

Almost everyone agrees that the majority of today's rangers are qualified and dedicated employees. Unfortunately, there seems to be a small but increasing number of incompetent personnel. The question is, if the current salary structure is maintained, what will be the quality of rangers in the year 2000? Officials may paint a bright picture, but common sense will tell a story nobody wants to hear.

Mark Plona
Akron, Ohio

Do your articles ever address the state of the National Park Service seasonal rangers, including the extremely low pay scale, lack of benefits, and the move of rangers into other government agencies and private industries that advance quicker, pay better, and give benefits?

The seasonal ranger is the backbone of the National Park System. It amazes me that very few if any Park Service officials address this problem.

Martha Talbot, Ranger
Moab, Utah

On the Right Track

I think using the railroad system to reduce traffic at the Grand Canyon ["News," July/August 1989], or any other threatened national park, is a good idea.

One town I have visited, Zermatt, Switzerland, has done just that, successfully! No gas-powered vehicles are allowed within the community. Small electric buses deliver items from the train to the stores and restaurants.

All residents may park their vehicles in a parking lot at the edge of the town. Visitors must park in the next town, nine miles away, and must use the train. The train ride costs roughly ten dollars and runs from about six a.m. to midnight.

Michael Mullins
Marlboro, Massachusetts

Losing Heart

Jim Erickson ["The Regeneration Gap," July/August 1989] quotes a botanist as saying "that air pollution has lowered [the saguaro's] winter heartiness." Could it really be that these centenarian desert denizens are "losing heart" over the onslaught of poisons, pollutants, and pressures produced by modern man? I certainly couldn't blame them. However, I believe he means winter hardiness—the ability of plants to withstand below-freezing temperatures.

Rick Kedrowski
Fairbanks, Alaska

For the Record

In the July/August 1989 issue ["News"], it is stated that "the Presidio. . .is the oldest continuously active military installation in the United States."

I would like to find out the source of this information, having heard the claim of "oldest continuously active military post" made for at least three other places in the United States.

Robert D. Zink
King George, Virginia

According to Colonel Milton Halsey, executive director of the Fort Point and Army Museum at the Presidio, it is not clear what site can be called the oldest continuously active U.S. military installation. Except for a hiatus in the 19th century, there has been military activity on the site of the Presidio since 1776; however, it has only been an American base since 1846, having been occupied by the Spanish until 1821, and then by the Mexicans.

—the Editors

Could you please tell me whether Landscape Arch in Arches National Park still exists? I remember it (about 1947) as a thin ribbon of stone; we saw it after a mile hike through the desert on a July noon expedition. We were on an all-summer tent camping trip through the West. I never see Landscape Arch on the maps anymore, and wonder if it has finally worn away and collapsed.

Lillian Lewicki
Centerport, New York

Landscape Arch is still standing, according to Arches National Park.

—the Editors

Please check the September/October 1989 issue ["Park Portfolio"]. Is that really redwood sorrel? It looks more like Indian paintbrush.

Mary Pauline Fox
Pikeville, Kentucky

You're right.

—the Editors

Corrections

The photograph of terns and their chicks on page 21 of the September/October issue should be credited to Ted Levin/Animals Animals.

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

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 Mather, founder of NPCA, and first director of the National Park Service:

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If you are interested in joining the Stephen Tyng Mather Society, please contact NPCA at 1-800-628-7275.

NEWS

NPCA

Convoys Set For Yellowstone

National Park Service (NPS) officials have proposed allowing commercial timber companies to haul logs through Yellowstone National Park. NPCA and other conservation groups have strongly protested the plan.

"Coordination and cooperation among federal agencies does not mean giving Forest Service timber-production programs priority over the protection of park resources and visitor safety," said Bill Lienesch, NPCA's director of federal activities.

According to a draft environmental assessment (EA) released in July, Yellowstone officials plan to allow logging trucks to haul timber cut on nearby Gallatin and Shoshone national forests across about 50 miles of park roads over the next two years.

The Forest Service requested that the NPS grant logging contractors special permission to use park roads. The agency claims that it must sell timber damaged by the extensive wildfires of 1988 over the next two years, before the market value of the logs substantially diminishes. Fire-damaged timber is subject to "checking"—cracking from dessication—if not harvested within a few years.

The Forest Service claims that sawmills close to logging sites will not be able to handle the necessary volume of timber in the time allotted. According to the agency, this makes transportation of logs to a mill across the park necessary in order to sell timber while it is still valuable as lumber.

NATIONAL FOREST SERVICE

Forty-ton log trucks could be dangerous on park roads.

Federal regulations prohibit commercial vehicles from using park roads unless the vehicles are necessary to the park's operation. Regulations allow a park superintendent to suspend the ban in cases of emergency, however. Yellowstone officials want to allow use of the roads under this emergency provision.

NPCA contends that commercial hauling through the park is unnecessary and illegal, and that the park failed to analyze reasonable alternatives. For example, at least one route outside the park offers a safe alternative to using park roads.

In letters to Yellowstone Superintendent Robert Barbee, Forest Service officials offered further economic justification for admitting trucks to Yellowstone roads, claiming the timber would generate revenues for both federal and county treasuries.

In fact, however, in late July the Forest Service forsook considerable revenues by conducting a below-cost timber sale. Officials at the Gallatin National Forest awarded a contract on fire-damaged timber to a logger for $8,350. Forest Service estimates put the expected net value of the timber, once harvested, at $145,295.

In addition, the sale was completed more than two weeks before the public comment period on the Park Service's decision expired.

The NPS plans several restrictions on truckers designed to reduce negative effects on the park. Restrictions would include grouping trucks in convoys, boosting safety on roads, and increasing road maintenance.

Conservationists dismissed the mea-

sures as ineffective, and charged that commercial hauling in the park is illegal under the Organic Act. This 1916 law established the NPS to protect the national parks unimpaired for future generations. It prohibits activities that will harm park resources.

And, according to the Park Service's own EA, hauling in Yellowstone will cause significant negative effects. Despite mitigation measures, hauling logs through the park would:

- displace wildlife and increase the possibility that animals may be struck and killed by vehicles;
- accelerate deterioration of park roads and bridges;
- increase traffic hazards on Yellowstone's narrow, often shoulderless roads;
- cause intrusions, such as noise and traffic, on the visitors' experience.

The area that would be affected—from the northeast entrance near Cooke City, Montana, to the north entrance near Gardiner, Montana—is abundant in wildlife and attracts many visitors.

Wolf Hunts Restricted In Alaska Parks

The National Park Service (NPS) has proposed reenacting, permanently, regulations restricting wolf hunting in Alaska's national preserves.

At present, under a federal regulation in effect for the past year, the NPS prohibits same-day, land-and-shoot hunting of wolves in preserves. The rule prohibits hunters from taking their quarry on the same calendar day they land an airplane.

It is designed to end, in national preserves, the practice of stalking the animals with airplanes, chasing them to exhaustion, then landing and killing them.

"We think the philosophy of fair chase should prevail in the national preserves," said John Quinley, spokesman for the National Park Service Alaska regional office. "Same-day airborne shooting does not match up to these standards."

The new rule will expire November 21, when Alaskan state rules allowing the practice will again apply. The National Park Service has begun proceedings to make the federal regulation, which supercedes state regulations, permanent.

JOHN EBELING

New rules limit airborne hunting.

The state of Alaska has protested, and is trying to block the measure. State officials have criticized the Park Service for basing its decision on an ethical, rather than an ecological, rationale. (The wolf is neither threatened nor endangered in Alaska.)

According to Quinley, public opinion is largely in agreement with the National Park Service. Of 1,900 letters the Park Service has received on the issue, fewer than 30 of them have opposed the NPS changes.

Alaska prohibits same-day airborne hunting for all species except the wolf, which is prized by hunters for its valuable pelt.

Though national preserves are administered by the National Park Service, hunting and mineral extraction are permitted in these areas. Alaska's ten national preserves were created by the 1980 Alaska National Interest Lands Conservation Act. In order to designate National Park System areas, conservationists compromised with the state's powerful hunting and mining interests to designate the preserves.

Park Media Outdated, Says Study

In July, the National Park Service completed a study of its interpretive media and facilities and found many of them in poor condition. The study concluded that $186 million is necessary to bring interpretation up to standard.

"Visitors frequently encounter outdated and deteriorated facilities and media," the study states. "This is particularly troublesome as the public's expectations are increasing."

The study examined the broad range of facilities that enable the NPS to ex-

NEWSUPDATE

- **Oil spill laws.** In the wake of the *Exxon Valdez* oil spill disaster, Congress is nearing completion of comprehensive oil spill liability legislation. In early August the Senate unanimously passed S. 686, a tough bill that would impose strict liability on oil companies for spills. The bill would set up a $1-billion fund for immediate spill cleanup, establish unlimited liability in cases of negligence, maintain citizens' access to suits, and would not preempt stronger state laws.

  Two House bills however, H.R. 1465 and H.R. 3027, would relieve responsible parties from much of the burden of spill liability. The bills, similar and likely to be merged, would set arbitrary limits for spill liability and would supercede strict state laws.
- **Mining in parks.** Interior Secretary Manuel Lujan has withdrawn a proposal that would have loosened restrictions on mining in the national parks. The proposal to alter the federal mining regulations had been offered in the final days of the Reagan administration. The change would have allowed states to interpret a key phrase of the 1977 law prohibiting surface mining within and adjacent to national parks. State interpretation would have rendered the law far less restrictive, affecting 33 national park areas.

plain, or interpret, to the public the varied natural and cultural resources in its charge. These include museum and visitor center exhibits, wayside signs and exhibits, audio-visual programs, and historic furnishings.

The document, prepared by NPS officials at the Harpers Ferry Center in Harpers Ferry, West Virginia, recommends increasing funds to $12.4 million per year over the next 15 years to overcome this backlog. Allocations for interpretive materials now run approximately $4 million per year.

Given recent visitation levels, the funding recommended by the report would represent a cost of about 4.3 cents per visitor. Although entrance fees are charged at 136 of the 354 park units, interpretation has not benefitted in any measureable way from fee revenue.

Researchers based their findings on data gathered during the summer and early fall of 1988. Study results revealed that 47 percent of Park Service exhibits are at least 13 years old. The study also indicated that a large portion of visitor facilities—such as museums and visitor centers—are at least 30 years old, and are often in need of rehabilitation.

In addition, the study found that about half of the National Park System's 224 theaters—where visitors view interpretive audio-visual programs—are not considered in good condition, and are in need of renovation. Only about a quarter of the system's outdoor amphitheaters are considered to be in adequate condition.

LOGGING POSES THREAT TO BANDELIER

Logging this past summer in a national forest adjacent to Bandelier National Monument, New Mexico, may harm wilderness areas in the monument.

After protests from NPCA and the National Park Service, the Forest Service began some measures, such as reseeding and damming, to offset damage caused by poor logging practices at Santa Fe National Forest.

Conservationists, however, are angered over the Forest Service's failure to abide by written assurances made to NPCA in 1981 expressly eschewing those logging methods in that area.

TOM RIBE

Despite promises, logs were piled in this dry streambed, increasing erosion.

The Los Utes timber sale, the contract logging operation in question, took place in what is known as the Dome area, about three miles from designated Bandelier wilderness. The area adjoins the western border of Bandelier, and is upstream on the region's water table.

"NPCA has been double-crossed," said Russ Butcher, the association's Southwest and California representative. "We feel that the trust we placed in the Forest Service was torpedoed."

Despite Forest Service assurances to the contrary, loggers significantly disturbed streambeds and harvested timber on steep slopes. Both of these practices increase erosion. Depending on rainfall, soil erosion could significantly increase, increasing sediment flow to Bandelier. This could choke streams and creeks, killing aquatic life.

In a 1981 letter to NPCA President Paul Pritchard, Max Peterson, then chief of the Forest Service, assured the association that timber harvesting in the Dome area would be carried out in an environmentally sensitive manner. Specifically, Peterson declared that "slopes greater than 40 percent will not be logged." He also stated that the area would be "designated for stream course protection, and any timber harvesting will be modified to protect this watercourse."

In several instances, however, loggers on the Los Utes project harvested timber on slopes of greater than 40-percent incline, gouging the fragile forest floor. Logs were then slid down hillsides, often along natural drainage gullies, to storage platforms built in drainage bottoms or dry streambeds.

These practices also violate the environmental assessment prepared for the Los Utes sale in 1981. That assessment forbids logging on inclines of greater than 40 percent.

The 1981 analysis also contains provisions to protect the area's sensitive watercourses. Siting log platforms and portions of log hauling routes along streambeds violates these provisions.

As of mid-September, area rainfall had not been above average, but the possibility of excessive rainstorms—and damage to fish and other aquatic life in the monument's streams—still exists.

After protests from NPCA and the NPS, the Forest Service began attempts to mitigate the damage caused to the soil, and to prevent sediment from reaching Bandelier. Measures included draining water away from log-slide trails, reseeding some areas, stirring up soil packed hard by loggers, and erecting hay-bale dams to check silt run.

"The logging hasn't directly affected the park yet," said one National Park Service official, "but the Forest Service risked a definite impact on the park."

NPCA Halts Parkland Sell-off Plan

The state of Utah has shelved its plan to market state-held lands within several Utah national parks. Utah Governor Norm Bangerter (R) jettisoned the plan—promoted by Utah's land board—in the face of a loud public outcry.

Meanwhile, Representative Wayne Owens (D-Utah) plans to introduce legislation to establish guidelines for trading the state-owned lands for federal tracts outside the parks.

NPCA led public opposition to the marketing plan, alerting Utah citizens, writing officials, and organizing protests. The state held several well-attended public-comment hearings over the summer, at which an overwhelming majority of speakers soundly criticized the plan. A poll conducted in August by a Salt Lake City newspaper and television station showed 77 percent of Utahns in opposition to the board's proposal.

Governor Bangerter announced on August 31 that he had asked the Board of State Lands and Forestry to drop the plan, saying it would have proven impractical.

In early July the state announced its intention to aggressively market nearly 82,000 acres of so-called "school trust lands" scattered in parcels throughout Arches and Capitol Reef national parks, Dinosaur National Monument, and Glen Canyon National Recreation Area. The state planned to offer tracts to the highest bidders—commercial developers and mining concerns included.

Granted by the federal government when Utah attained statehood, the school trust lands were intended to generate revenue for the state's educational system. Some of these lands were eventually included within national park areas as they were later created.

The board had threatened to begin acting on the marketing plan by October if the federal government did not agree to an earlier land trade proposed by the governor. Under this proposal, the state wanted to trade its scattered parcels for large, developable blocks of parkland on the shores of Lake Powell, in Glen Canyon National Recreation Area.

The National Park Service and conservationists have opposed this plan. Opponents cite the inappropriateness of further development in the park, and studies that indicate that Lake Powell has already reached its carrying capacity—the number of users it can reasonably be expected to serve without serious degradation.

Representative Owens' bill would trade the state's parcels for tracts in appropriate areas outside the park.

NPCA Disputes Signal Tower Abutting Park

NPCA has taken action to contest the construction of a television tower on National Forest Service land adjacent to Kings Canyon National Park in northern California. Represented by the Sierra Club Legal Defense Fund, NPCA and the Sierra Club filed a lawsuit in September challenging the Sequoia National Forest, which issued Pappas Telecasting, Inc., a special-use permit to build the tower.

The project for KMPH, Visalia, California, would erect a 499-foot metal transmission tower on Big Baldy Ridge, 600 to 700 feet from the park boundary. The tower and associated buildings would intrude on views in wilderness areas and backcountry hiking trails.

The tower's cement footing had been laid by mid-September. Further construction is scheduled for the spring.

After objecting to the project in a letter to the Forest Service, NPCA filed suit against the agency in federal district court in Fresno to halt construction of the tower. NPCA argued that Pappas Telecasting did not comply with standards specified in the National Environmental Policy Act (NEPA).

"In a project of such national significance, an environmental impact statement should have been completed," said Bill Lienesch, NPCA's director of federal activities.

In addition, NPCA contends that alternative sites for the television tower were eliminated prematurely. Recent studies by independent consultants suggest that other, less environmentally sensitive sites would offer comparable television service for the station's viewers.

The Federal Communications Commission approved the tower's construction in 1983. Since the Forest Service failed to provide adequate public notice, as is required by law, the project largely escaped the attention of conservationists.

After reviewing the matter, NPCA found that the permit authorized a 405-foot tower rather than the 499-foot structure planned. No modification permit was granted to KMPH.

This base may support a 499-foot tower adjacent to Kings Canyon National Park.

GENE ROSE, FRESNO BEE

PARK DIG YIELDS CUSTER ARTIFACTS

Early last summer, National Park Service (NPS) archeologists completed a series of excavations at Custer Battlefield National Monument located in southeastern Montana.

Researchers unearthed human bones, several bullets, and hundreds of everyday items such as nails, buckles, and rivets on two sites at the monument.

Though researchers do not expect the findings to answer major questions about the 1876 Battle of the Little Bighorn, data gathered from the artifacts should help fill gaps in the historical record. For instance, findings will help establish some Indian and cavalry battle positions. Also, according to park historian Doug McCristian, findings at the battlefield will provide a useful benchmark for dating future archeological sites relating to the period.

The 765-acre monument was the site of the 1876 Battle of the Little Bighorn, in which several companies of U.S. cavalry, led by Lt. Col. George A. Custer, were overwhelmed by several thousand Sioux and Cheyenne, led by Crazy Horse and Sitting Bull. The battle was a key conflict in the struggle for control of the northern plains.

Since none of Custer's men survived the battle, and since Native accounts were sketchy, many details of the battle remain unclear.

The NPS began the first of the summer's excavations near the famous Last Stand Hill, after a park visitor happened upon several bones exposed by erosion on the side of a trail. Digging at the site turned up three bullets and several human bones, including a lumbar vertebra, skull fragments, and foot bones.

The human remains were apparently missed by a reburial party that reinterred the fallen troopers in a mass grave on Last Stand Hill five years after the battle.

The Park Service also excavated an area five miles away known as the Reno-Benteen defense site. The NPS decided to excavate in an effort to retrieve and document artifacts before relic hunters alter or destroy the site. Artifact theft is a problem at Custer Battlefield.

An archeological survey in 1985 identified the Reno-Benteen site as the location of a related battle that immediately followed Custer's defeat. After this battle, Sioux and Cheyenne warriors withdrew from the field, and troopers heaped and burned all equipment that could not be carried out of the territory.

Over the three-week project, the site yielded hundreds of items, including tacks and nails from burned ammunition and ration boxes, metal rings and rivets from saddles and bridles, and buckles and canteen parts. Archeologists photographed and mapped artifacts before removing them for analysis.

"It is important for excavations like these to occur before the research value of such sites are lost," said Bruce Craig, NPCA's cultural resources coordinator.

Relic hunting is a problem at Custer Battlefield. Located on an open plain, the area is extremely accessible. Also, much of the actual battlefield is not federally owned and protected.

Even minor artifacts, such as spent rifle shells, can fetch up to $100 from collectors. A group of Custer artifacts mounted on a board commanded $5,300 at a recent San Francisco auction.

In a related development, NPS archeologists unearthed a skull, a clavicle, and a humerus from a river bank on private land adjacent to the park. A park volunteer happened on the bones while walking the banks of the Little Bighorn River. Experts determined the remains to be of a white male, aged 25 to 40. The remains are likely those of one of about 40 soldiers of Maj. Marcus Reno's command killed near the Little Bighorn. The soldiers fell while retreating to the Reno-Benteen defense site after an attack on Sitting Bull's village.

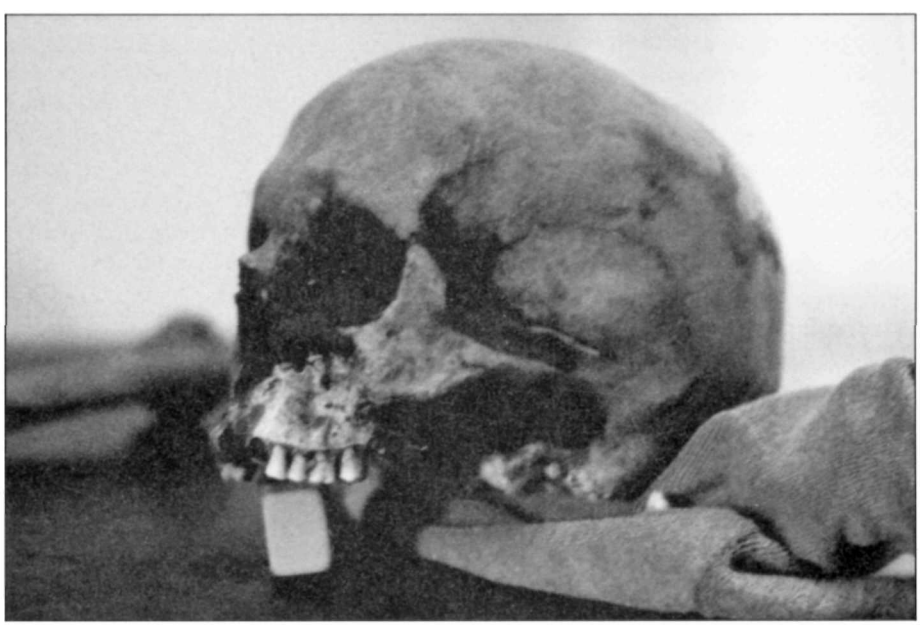
Analysis suggests that the trooper had arthritis in the elbow, a common ailment among horsemen, who often developed the disease from holding reins for long periods of time.

"The discovery of the soldier on private lands points out the need for expanding the legislative boundary at Custer Battlefield," said NPCA's Craig. "Luckily, the remains were found on lands owned by the Custer Battlefield Preservation Committee and, as a result, could be properly excavated."

The locally based committee—a private, nonprofit group—works in cooperation with the NPS and with NPCA to preserve and expand the monument.

The monument's present boundaries preserve only 765 acres of battlefield, while the conflict actually raged over an area six miles long and more than a mile wide. The Park Service's 1986 management plans call for the addition of some 11,800 acres to the monument.

Skull, experts say, of a soldier who died retreating across the Little Bighorn.



NATIONAL PARK SERVICE

To expand the monument, the Custer Battlefield Preservation Committee purchases tracts of land for donation to the NPS. The group assures donors that contributions will go entirely toward land acquisition.

For more information, contact the Custer Battlefield Preservation Committee, P.O. Box 7, Hardin, MT 59034, or the National Park Trust, NPCA, 1015 Thirty-first St., NW, Washington, D.C. 20007.

GATEWAY THEME PARK PLANS DROPPED

A controversial plan that would allow a private development company to undertake public-private development and rehabilitation of Jacob Riis Park, a unit of Gateway National Recreation Area, was withdrawn on August 16. Both Gateway Superintendent Robert McIntosh, Jr., and developer Joseph Halper have decided not to pursue the planned project.

The Halper Project, as it was named, called for the construction of an aquatic theme park at Jacob Riis. In exchange for the use of public lands for private enterprise, the developers would have refurbished Riis Park, including its decaying, Art Deco bathhouse.

Riis Park is located on the Rockaway peninsula in Queens, New York. It offers recreational facilities and a mile of oceanfront beach. Its proximity to the New York metropolitan area has made the park extremely popular, with a yearly average of 3.5 million visitors.

"Riis Park, which was placed on the National Register of Historic Places in 1981, is home to buildings and grounds that have survived relatively unaltered since 1937 and remain good examples of architectural design of the 1930s," said Representative Floyd Flake (D-N.Y.).

Even so, Riis Park has typically received inadequate federal funding to maintain its buildings and beach. The estimated cost to rehabilitate Riis Park alone amounts to $14 million. In Fiscal Year 1988, only $12.5 million was appropriated for the maintenance of the entire Gateway NRA.

From its introduction, the Halper Project faced opposition from citizens, politicians, and environmental groups, including NPCA. Many opponents felt that Gateway would be compromising park management by relying too heavily on a private developer to rehabilitate the area.

Others could find no justification for the presence of a commercial theme park in a national park, and park neighbors protested the predicted increase in traffic in the area.

Representative Flake, with the support of other New York delegates, sponsored the inclusion of $934,000 in H.R. 2788, which passed the House before summer recess. This money is for architectural and engineering studies for rehabilitation of the bathhouse.

The inclusion of this money convinced Superintendent McIntosh to withdraw the Halper Project. He now believes that the House's action is a good sign that funding for repairs will follow.

David Cohen, vice president of Educators for Gateway, a voluntary support group of citizens and educators, is concerned that passage of the bill would cause the public to believe that the threat to Riis Park is over.

"We must be proactive, not reactive. The issue is still very much alive with us," he said. "We must provide environmentally concerned officials with vocal and visible support to ensure that Riis Park receives federal funding."

—Judy Weinberg, NPCA intern

COUNTY VOTE HELPS SHIELD ANTIETAM

Officials of Washington County, Maryland, voted in June to impose zoning restrictions around Antietam National Battlefield to help control future development surrounding the park.

By a four-to-one vote, the Washington County Commissioners established a zoning overlay on about 4,150 acres surrounding the 815-acre tract owned by the National Park Service. The vote gave the county a measure of control over the outward appearance of new buildings in the zone, and over forest management on an important park viewshed.

"Although we would like to see stronger restrictions, the commissioners should be congratulated for a good, initial effort," said Bruce Craig, NPCA's cultural resources coordinator.

County commissioners said that the purpose of the overlay was to ensure that new buildings would be in aesthetic harmony with others in the area and would preserve the present setting of the battlefield.

Officials had originally sought tighter controls. In January, commissioners proposed rezoning the entire area from agriculture to conservation, which would have precluded development altogether.

Local residents organized to protest the measure, however. Landowners near the battlefield saw it as a threat to the rights of property owners, and feared the ordinance would have the effect of lowering property values.

Antietam is considered by preservationsts among the most pristine Civil War battlefields in the country. Located near the town of Sharpsburg, in rural western Maryland, the battlefield and surrounding area appear much as they did on the day of the September 1862 battle.

Antietam is typical of many national park units located near urban areas. Though presently a small town, suburban development is quickly approaching Sharpsburg from Washington, D.C., an hour and a half to the southeast. Many officials predict that in less than a decade Sharpsburg, like Virginia's once-rural Manassas, will begin to see the traffic, housing developments, and shopping centers that accompany suburban sprawl.

Historians consider the September 17, 1862, Battle of Antietam the bloodiest of the Civil War, with more than 23,000 casualties. Union and Confederate forces struggled fiercely for 12 hours on the hilly fields surrounding Antietam Creek, as Robert E. Lee's first invasion of the North was halted.

NPCA is now working with local preservationists and the park to rewrite Antietam's general management plan so that it better protects park resources from development.

Open Roads

KEEPING AMERICA'S SCENIC ROADS FREE OF BILLBOARD BLIGHT

BY EDWARD MCMAHON

AMERICANS HAVE a love affair with the road and with the journey. It began with trails through the wilderness.

The pioneers had more on their minds than scenery, of course; but, as our nation settled down and our wilderness dwindled in the wake of development, more and more we began to appreciate the scenery that was left. Eventually, with the advent of the automobile, a leisurely Sunday drive in the country became the way to experience the outdoors.

For better or worse, most of us see America—including our parks—through a car window. In recognition of this fact, every President since Harry Truman has recommended establishing a national network of scenic roads. For the first time, legislation to create such a network is before the Congress and the long-held dream may be on the road to realization.

Recently, best-selling Native American author William Least Heat-Moon found himself testifying before the Congress, explaining why our legislators should protect the back roads of America. Heat-Moon also explained why approximately four million people have read a first book by an unknown author:

His book, *Blue Highways*, gives readers "a flickering hope that if you take to the open road as Walt Whitman recommended that we do in another century, if you look hard and you go slowly enough you can find real America still there. You can find an America that is not yet trammelled by billboards, by excessive commercialism."

Heat-Moon believes in a kind of genetic memory that is unique to Americans. He says that we have "in our blood a belief that when things go bad, you correct that by taking to the road"—even if it only means a vacation once or twice a year. He also says that "Road travel to an American is something that makes us what we are," like rain to the Irish or sand to the Bedouin.

At Gettysburg, the path of Pickett's charge seems to sweep through Burger King.

Vacations are a time for healing, but it is difficult to feel healed when auto vacations resemble a drive through the Yellow Pages. Have you ever left a national park feeling inspired and reinvigorated only to journey home through endless commercial strips and crass homogenized developments that leave you feeling empty again?

Take the causeway leading from Assateague National Seashore and Chincoteague National Wildlife Refuge. You're greeted by a four-mile-long barrage of billboards ruining a marsh once filled with ducks, geese, and other migratory birds.

At Gettysburg, the path of Pickett's charge seems to sweep through the parking lots of Burger King and Tasti Freeze. And what happens when you drive out of Great Smoky Mountains National Park?

At the foot of a mountain, the national park ends and suddenly the landscape turns squalid: tacky commercialism, tourist traps, a clutter of signs—you name it. The state of Tennessee tried to provide some measure of protection to one national park access route—Highway 66 in Sevier County—by making it a state scenic parkway.

This past June billboard companies illegally erected 17 gigantic poles on the parkway in one four-hour period from midnight to 4:00 a.m. At press time in September, the state had gotten only half of them down.

We now know that natural ecosystems don't follow artificial park boundary lines, but we have yet to realize that the same holds true for cultural landscapes and scenic vistas.

In his new book, *The Lost Continent*, British author Bill Bryson says that Americans have compartmentalized their thinking. He points out that while we prohibit all commercial activities within national parks, we allow unrestrained development just outside park boundaries.

Bryson claims, "America has never quite grasped that you can live in a place without making it ugly, that beauty doesn't have to be confined behind fences, as if a national park were a sort of zoo of nature."

The day is fast approaching, however, when unspoiled American landscapes

will endure—like endangered species—only within national parks and preserves.

We shouldn't have to drive to a national park to see America the Beautiful. We should place as much emphasis on the journey as on the destination. We should recognize that what we view within parks and what we see on the way to national parks is part of the total experience.

The federal government has already incorporated some of America's most scenic routes into the National Park System. And the popularity of these scenic roads is demonstrated by the fact that the Blue Ridge Parkway, in North Carolina and Virginia, is considered to be the most heavily visited unit in the park system.

Others scenic roads that are included in the National Park System include George Washington Memorial Parkway, Denali and Going-to-the-Sun highways, the Columbia River Gorge, and the Natchez Trace.

In *Blue Highways*, Heat-Moon describes the serenity of the Natchez Trace Parkway, the kind of serenity that should be preserved along scenic routes that lie all across the country.

"I drove onto the Natchez Trace Parkway, a two-lane that runs from Natchez to near Nashville, following a 500-mile trail first opened by buffalo and Indians. Chickasaws called it the Path of Peace.

"Now new road, opening the woods again, went in among redbuds and white blossoms of dogwood, curving under a cool evergreen cover. For miles no powerlines or billboards. Just tree, rock, water, bush, and road.

"The new Trace, like a river, followed natural contours and gave focus to the land; it so brought out the beauty that every road commissioner in the nation should drive the Trace to see that highway does not have to outrage landscape."

But other notable highways still need protection, particularly the "blue highways"—those secondary roads marked in blue on road maps, the highways where William Least Heat-Moon found the genuine America. Along these roads you can discover both unspoiled landscapes and quaint small towns whose unique qualities have not yet been homogenized by development.

To preserve such roadways, in 1987 the President's Commission on Americans Outdoors called for establishing and protecting a national network of existing roads that pass through areas of outstanding scenic, cultural, and historic significance.

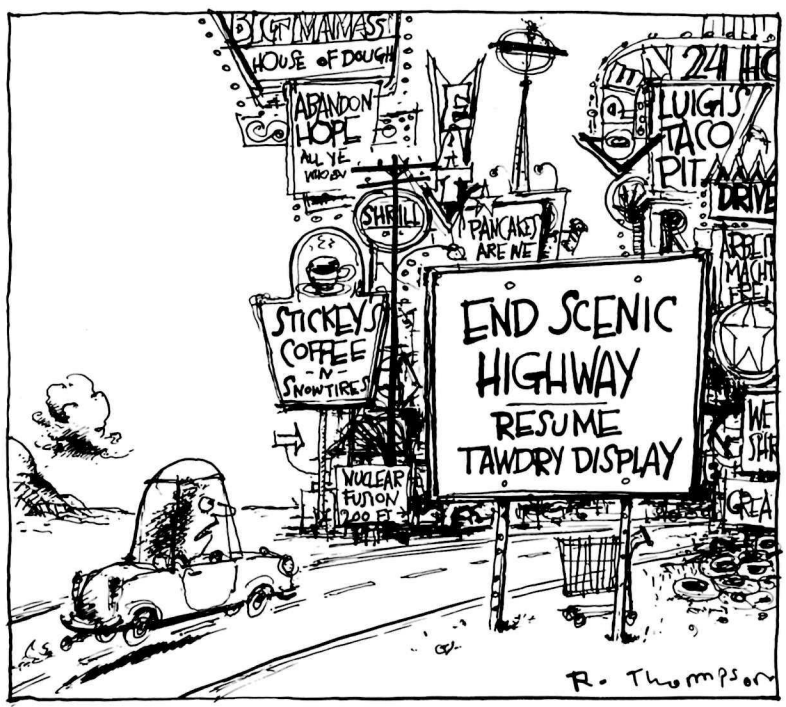


ILLUSTRATION BY RICHARD THOMPSON

As examples of these kinds of roads, the President's Commission cited routes such as State Highway 1, the coast highway in California; Route 100, the "Autumn Glory Road" in Vermont; Going-to-the-Sun Highway in Montana; and the Saw Mill River, Taconic, and Long Island parkways in New York. Other possibilities for a national scenic road network include the Seaway Trail in New York and the Great River Road along the Mississippi River.

Senator Jay Rockefeller (D-W.V.), Senator Daniel Patrick Moynihan (D-N.Y.), Representative Peter DeFazio (D-Oreg.), and Representative Jim Oberstar (D-Minn.) have introduced the Scenic Byways Study Act of 1989, the first legislative proposal aimed at fulfilling the long-time dream of creating a scenic roadway system.

At press time, an appropriation for the study appeared headed for approval this Congress.

The Scenic Byways Study Act does not designate particular roads, but rather the act lays the foundation for a scenic byways system by directing the Secretary of Transportation to develop—within the space of a year—an inventory and a long-range plan for identifying, designating, protecting, promoting, and enhancing existing scenic and historic roads.

Low-cost conservation measures that are needed include billboard removal, junkyard screening, and acquisition of scenic easements. States, cities, and counties can continue to administer these roads, but should follow national guidelines for protecting them.

Special attention should be given to protecting the gateways to our national parks.

In a new Scenic America video on scenic roads, which is partially funded by the National Geographic Society, Heat-Moon reveals, "I was raised by my father with the notion that the main gift that a person receives is the gift of the journey.

"The gift of the journey is almost everything. The arrival, the journey's end, is something that happens as a matter of course."

It is our hope that the Scenic Byways Study Act will lead to the creation of a coast-to-coast network of unspoiled byways so that, once again, the American road can reveal vistas and visions that belong to us all.

Edward T. McMahon is executive director of Scenic America, a conservation group that is devoted solely to cleaning up visual pollution and protecting this country's scenic landscapes.

NATIONAL
Parks

Birth of the Dinosaurs

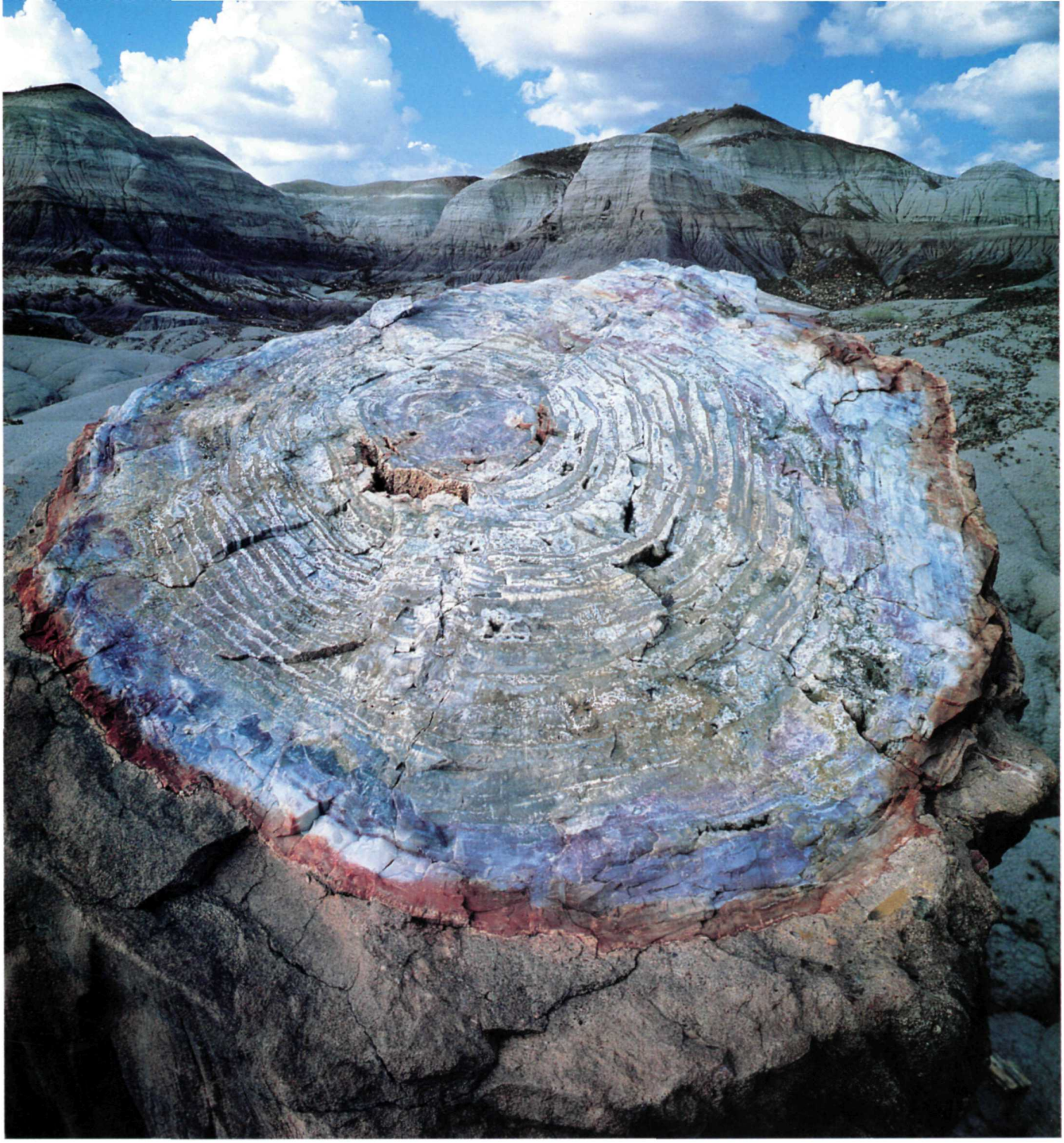
AT PETRIFIED FOREST, SCIENTISTS PROBE THE RICHEST VEIN OF TRIASSIC FOSSILS

BY STEPHEN NASH

A SUDDEN CHANGE seems unlikely along the timeless expanses of Petrified Forest National Park. No great fire will turn its namesake fossil logs to ash; no urban encroachment threatens the park's barren red washes and strata-striped hills. But a lengthening list of scientific discoveries there has, in just the last few years, transformed our view of the national park.

Petrified Forest, in Arizona, has become a focus of intense interest among geologists and paleontologists. The complex, 225-million-year-old ecology of the Late Triassic period—from megavertebrates to tiny grains of pollen—is being unearthed and analyzed, piece by fossilized piece.

"Suddenly," says Carl Bowman, the park's resource management



PRECEDING PAGE: DESMATOSUCHUS INSET BY FRED HIRSCHMANN/NATURE'S DESIGN; PETRIFIED FOREST AERIAL BY ROB LONG

DAVID MUENCH

Petrified logs were primitive conifers approximately 225 million years ago.

specialist, "we have a lot more of a picture of Petrified Forest as a forest, rather than a bunch of trees."

The picture shows that strata at Petrified Forest date from a time before continents went their separate ways. They were locked in a single large land mass we now call Pangaea.

At that time, the park region was near the equator, and 400 miles inland from a great western ocean. Slow, meandering waterways drained to the northwest, swelling and receding.

Scientific opinions differ, but the majority view for now is that the climate was tropical, with little variation year-round. The land was low, wet and, at least on the margins of the rivers, a fecund green, with lush ferns, 20-foot horsetails, and the primitive conifers that, much later, became petrified logs.

Torrential floods swept over the area and carried along trees, ferns, fish, animals of all kinds, and mud. The park area was in a basin-like depression where sediments were dropped as the current slowed. These layers built up, over time, into a thousand-foot-thick blanket of fossil-bearing sediment that, uplifted, exposed and eroded, is now the topography of the park.

No other Triassic site has thus far yielded so great a range of nonmarine

fossils, the researchers say, and none has as much scientific work underway. Ten separate research projects may be in gear during a typical summer.

In the mid-1970s, five land vertebrates had been documented in the park. The current box score is 34 different vertebrate species, about 200 plants, "and all kinds of invertebrates as well," Bowman says. Fossil material has been found at 200 collecting sites, and the list continues to grow.

"Some people would go so far as to say we can reconstruct the ecology," Bowman says. "That might be overstating. It's hard enough to construct the ecology of a living ecosystem. But we certainly are starting to get a handle on who was eating whom."

At Petrified Forest there was far more on the menu than huge reptiles. Much of the rest of the food chain has also been fossilized here: plants, microvertebrates such as fish and lizards, and invertebrates, "the little things that run the world," as one biologist calls them.

As scientists fill in a more detailed picture of Triassic life, this range of discoveries is "taking the park out of the freak-of-nature category," says Ed Gastellum, who was superintendent at Petrified Forest until his recent promotion to North Cascades National Park. Gastellum had even considered that the national park's name be changed to reflect its broader scope as the nation's premier paleontological park.

NATURALIST JOHN MUIR first located fossil bones here during a two-year sojourn that began in 1905, and it was Muir who persuaded Teddy Roosevelt and Congress to set aside the area as a national monument (it was granted national park status in 1962). He was followed in the 1920s and 1930s by University of California paleontologist Charles Camp.

The acknowledged pioneer among the current group is paleobotanist Sidney Ash, who has patiently picked at and sifted through the ancient sediment beds of the park nearly every summer since the early 1960s.

In 1981, UC-Berkeley paleontologist Rob Long arrived with a few coworkers to reconnoiter Camp's old digs. The visit inaugurated a phenomenal run of discoveries, including the first dinosaurs found at the park.

As of this year, six dinosaurs have turned up: three plant-eaters and three meat-eaters. They were all relatively small—by no means the dominant vertebrates—and very primitive. Indeed, the late Triassic has been called the "dawn of the dinosaurs."

It was a period of evolutionary experimentation, when nature was trying out different lines of development.

There were reptiles that looked like huge, coarsened crocodiles, though not related to them. There were smaller reptiles that probably are the ancestors of crocodiles, but these resembled well-fanged lizards perched on long, swift legs. There were mammal-like reptiles, slowly declining to extinction. And—though no proof has surfaced as of yet—perhaps even mammals themselves appeared as the Triassic faded into the Jurassic.

Some groups, like the dinosaurs, were later to adapt successfully and gain ground. Others, the "ruling reptiles" of the time such as *Postosuchus*, evolved down genetic blind alleys, perfectly specialized for one set of environmental circumstances but unable to change radically enough or quickly enough when new competition or, perhaps, a changing climate arose.

The species of the late Triassic bestiary are known in increasing detail, thanks in large part to research at Petrified Forest. But it may be awhile before they grace the movie posters and school lunchpails of modern man.

Dinosaurs such as brontosaurus and tyrannosaurus have attained a kind of companionable familiarity. The Triassic heavyweights look strange.

Postosuchus might easily have eaten the comparatively small dinosaurs of the

JEFF KIDA

JEFF KIDA

The paw above belonged to *Placerias*, a bulky, eight-ton reptile prevalent in the Petrified Forest area. Bottom: Ferns such as *Phlebopteris* were common during the Triassic period.

time as a snack. Typically 15 feet long, it had three-inch teeth with steak-knife serrations for shearing flesh, and a bony crest extending from its massive skull to the end of its tail. It ruled the land-based food chain.

Placerias was something like a two-ton rhinoceros with two sharp tusks undergirding a huge, parrot-shaped beak. It was a member of the dicynodont group, mammal-like reptiles that were the most prevalent land-based vertebrates 250 million years ago. By the time of the Triassic, 25 million years later, they were on their way out.

Metoposaurus was an amphibian, ten feet long: four feet of thick tail, four feet of shapeless trunk with stubby legs, and two feet of jaws. The eyes perched, like pop-up headlights, at the front of a flattened head. At this distance, it is a design that looks menacing and endearing at the same time.

These specimens and a large assortment of others, however, are only the most visible fraction of the payoff for scientists.

Paleontologists can go to other Triassic sites and find either a number of fish or plants or terrestrial reptiles or insects. But the composite environmental picture, the relationships among all these species, is speculative.

The abundant number of contemporaneous plant and animal fossils at Petrified Forest eliminates much of that guesswork.

"We're not just dealing with one petrified forest, but with many petrified forests, one on top of the other," as Long puts it. Evolutionary forces created new varieties of trees that appear in younger, upper beds overlaying the beds of older species.

Collections of certain types of plants and animals are complete enough to chart evolutionary shifts. *Postosuchus'* sprawling legs, for example, were slowly pulled under its body by the force of evolutionary adaptation, allowing greater mobility on land.

Two-foot-long spikes, like finely sharpened handlebars, stuck out from the base of the neck of *Desmatosuchus*, an early form of aetosaur—heavily armored, low-bodied reptiles.

Near the end of the epoch, the body shape had spread and flattened radically. From above, this late-model aetosaur looked like a spiky, elliptoid frisbee with a head and tail attached.

PETRIFIED FOREST MUSEUM ASSOCIATION/DOUGLAS HENDERSON

Cynodonts were reptiles whose bodies resembled modern canines. One line eventually developed into true mammals.

Phytosaurs, 20-foot amphibious reptiles with yard-long skulls, probably preyed on metoposaurs and fishes. The fossil record at Petrified Forest also shows that, over some time, phytosaurs' nostrils migrated backward along its huge snout.

This adaptation moved the nostrils higher up on the animal's skull, so, like a hippopotamus, it could sink lower in the water and still breathe. In a semiaquatic habitat, survival may have depended on having as little as possible showing above the waterline.

PETRIFIED FOREST CAN make even a tyro feel like an accomplished bone-hunter. Park on a turnout in the southern section and a ten-minute hike can take you back among hills of soft, wrinkled mudstone, along intermittent streambeds.

At the head of one of these streambeds, rivulets that formed during rainstorms have sluiced lines of petrified wood chips and other debris together. They seem as common as gravel, but a closer look reveals pieces of reptilian armor plate, fossilized feces called coprolites, sometimes amphibian or reptile teeth.

These fossils have been buried for a couple of hundred million years. Erosion has exposed them, perhaps only during the last season or two.

In this smashed-to-bits condition, the fossil record is often an incomprehensible story. "Disarticulated" handfuls are hard to read. As with any paleontological enterprise, digging things up is only part of the job. Piecing them together—articulating them—and then relating species to each other is a more strenuous effort.

Ron Litwin, for example, a fossil pollen specialist with the U.S. Geological Survey, spends only a few days at Petrified Forest each season, gathering fist-sized rocks that will take much of the rest of the year to analyze. His specimens are too small to see without a microscope: 30 in a row would span a period on this page.

Separating pollen from rock begins with weeks of acid baths, alternating with rinses in distilled water. The mud that is left is centrifuged to tease out the tiny fossils. Only then does Litwin know whether his sample is a good one.

"At Petrified Forest, the fossil record is phenomenal," he says. "The pollen is extremely well preserved, and tells a very complete story."

Through a microscope, Litwin can differentiate among plant species, estimate their relative abundance at certain times, and trace evolutionary changes. His find-

DAVID MUENCH

Triassic conifers, now petrified logs, were 90 to 160 feet tall.

ings help tie together the work of others as they patiently attempt to relate plants, animals, and rocks in their proper sequences.

Establishing the order and age of sediment layers by such techniques is painstaking work. Radiologic dating is a much easier method, based on the known rates of deterioration for certain elements. Unfortunately, radiologic dating does not work on Petrified Forest sediments, probably because the chemistry of the rocks has been altered, over time, by groundwater.

Because of the difficulties in dating sediment layers at Petrified Forest, the sequence of strata in the northern Painted Desert section has not been securely related to those in the south. Litwin hopes to make progress on the problem during "lab season" this winter.

He patrols the Triassic in eastern parks, too, waiting for opportune excavations. Civil War armies sometimes marched along valley floors lined with Triassic deposits, so Manassas and other battlefield sites merit his attention.

But intrusions of molten rocks in this part of the continent have often baked the pollen badly. Then, too, much of the landscape is now covered by woods, or by townhouses.

As Montana paleontologist John Horner has written: "You don't hunt fossils in a lush forest. You want something to have removed the trees, brush, topsoil, and a good bit of the rock to get it ready for you."

Despite the richness of the fossil record at Petrified Forest, there are puzzles enough to baffle scientists for a long time to come. One open question involves the exquisitely colored petrified logs that used to be the park's only claim to fame.

One theory is that they grew here in dense forests. Only a few upright trees with attached root systems have emerged from the eroding hills, however, so another theory suggests that there were only widely spaced groves of trees. Proponents of this view believe the rest were washed in from other areas and deposited during ancient floods.

Some believe that the Late Triassic here was almost arid. But many scientists say the evidence points to a moist, tropical climate.

Estimates of the time spanned by the park's fossil-rich deposits range from one to several million years. The geologic activity, too, is in question. Layers of volcanic ash were thought to have come from eruptions in highland areas 200 miles south. New research may be moving those eruptions to the west.

TEXAS PALEONTOLOGIST Phil Murry, who studies microvertebrates such as fish and lizards, spent the past two summers at Petrified Forest concentrating on some puzzling rock sequences. He and his field crew came across several species that, pending analysis, may be new to the park area. These finds—he calls them "microcritters"—include freshwater sharks, several types of fishes, and a four-

inch amphibian related to the thousand-pound, ten-foot metoposaurs.

Murry has worked with Ash, Litwin, and Long, each trading ideas and information in the kind of synergy that makes this area exciting not only for the scientists, but also for visitors, who are rewarded by new museum displays and greatly expanded park interpretation.

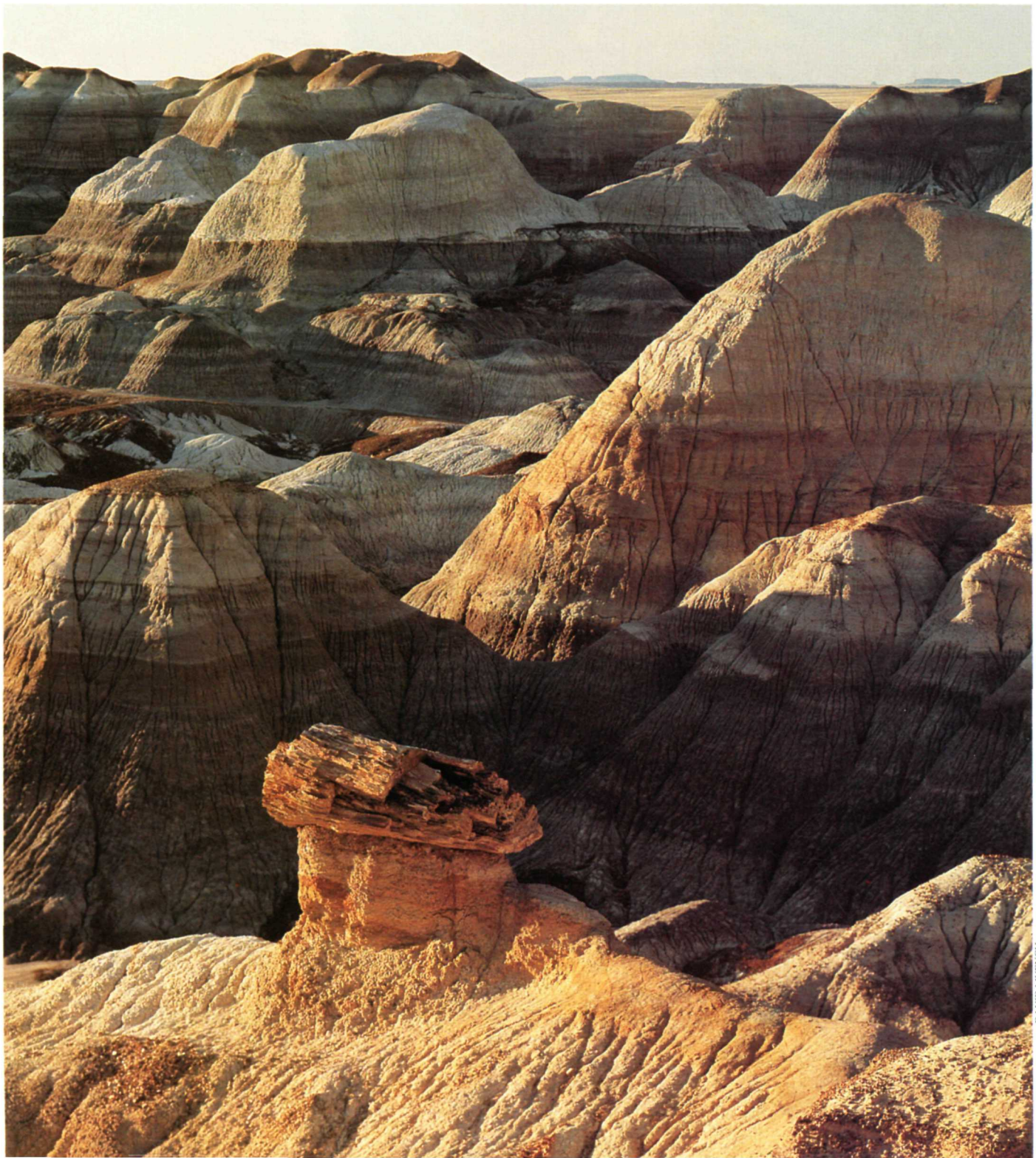
Wet and tropical or arid—scientists are in hot debate over the Triassic climate.

"This is the only place in the Triassic that I know of worldwide that has so many people working in such a restricted area," Murry says.

Ironically, although paleontology enjoys great popular interest, it draws comparatively little financial support. The field adds to scientific knowledge, and enlarges our appreciation of the circumstances of our existence, but it has few practical applications.

So the concentration of scientific effort at Petrified Forest is not just the natural result of news of rich fossil beds, like a gold strike attracting miners. Instead, the work has been carefully fostered by national park administrators—including Gastellum, whose superintendency spanned five of the most active research years—and by a strong local museum association.

Park staff who share the enthusiasm for scientific discoveries are indispensable sources of moral support, and even



DAVID MUENCH

advise on potential new fossil sites. The Petrified Forest Museum Association provides seed money to finance research projects that are deemed important, but not mature enough to attract outside grants.

Once a research project is reviewed and approved, a collecting permit is granted for specific materials. (Law forbids anyone without the proper permits to remove anything from the park.) Although bones and fossils may travel to universities and other accredited institutions, they remain part of the national park's catalogued collection and belong to the public.

The National Park Service has been justly criticized for the paucity of its national scientific enterprise. Even the U.S. Forest Service spends a five-times-greater portion of its budget on research. Petrified Forest sets an instructive contrasting example.

As Sidney Ash recalls, it has not always been that way.

"I have seen a change in attitude generally in the personnel at the park," he says. During his early years at Petrified Forest, "they would allow me to work there, but they couldn't care less about what I found out.

"They didn't care if they were cannonballs they were taking care of or petrified logs. They didn't care what they meant, or if there was anything else there. . . ."

Gastellum has suggested bringing some of the laboratory work—the fossil preparation and analysis—to the national park itself, to allow the visiting public to watch scientific progress and process. Having a laboratory site at the park could also help eliminate a research bottleneck.

"We could be a clearinghouse for research in a lot of other fossil parks in the West, and this would be a central point for getting some of those things done," he says.

"[University of California at] Berkeley has a warehouse full of excavated fossils that have been sitting for years. No preparation has been done on them. We don't want to get in that situation where we have such a backlog."

In a museum near the national park's southern boundary, a life-sized, skeletal *Postosuchus* is poised to overtake a *Desmatosuchus*. The fiberglass reconstructions, the only ones of these animals anywhere, are the product of years of patient detective work.

PETRIFIED FOREST MUSEUM ASSOCIATION/DOUGLAS HENDERSON

This coelacanth was about five feet long and fierce. Believed extinct, coelacanths were discovered in the Indian Ocean in 1938.

The *Desmatosuchus* odyssey began with a few fragments of armor plating found in the Crystal Forest section of the park in late 1981. Researchers were fairly certain about the species because the pits and bumps on the plates were specific to this reptile.

Several hundred disconnected *Desmatosuchus* bones, collected at another Arizona site, gave scientists a pretty good idea of relative bone sizes. The search also led to the University of Michigan, the resting place of a more complete set of armor, found in Texas some 70 years ago. Using this sample, Long and his coworkers were able to figure out where their armor pieces belonged.

Complete, articulated skeletons of a related species had been found in Germany in the 1860s, so drawings and photos of that material were closely scrutinized. Another clue was provided by the tail armor of a close relative collected a half-century ago at a New Mexico site called Ghost Ranch. While the work was underway, some new *Desmatosuchus* bones and skulls were found in a Texas quarry.

Fourteen individual animals, 1,000 little pieces, and two and a half years of effort are represented in the reconstruction now on display. No feet or complete sets of ribs have been found, so they were an educated guess, but Petrified Forest now displays the state-of-the-art *Desmatosuchus*. Long has 100 percent confidence in about 70 percent of the reconstruction.

"It's a long, long process to try to get it right," he says.

This meticulous array of remade bones has the power to conjure us back, if only for an instant, to the Triassic. It is now a more complex and clearly imagined terrain, and it will absorb many who gaze out over the Petrified Forest:

"You're not just seeing isolated animals," Long says. "You feel like you're time-traveling. You're going back and seeing all of it. You're getting an idea where the valleys were, the sizes of the rivers and what was in the rivers, what was on the land, and in the trees and bushes.

"This is the only place that I know where you can get the whole feeling of this environment, at the beginning of the age of dinosaurs."

Steve Nash, who last wrote for National Parks *on Isle Royale wolves, was recently awarded the Forest History Society's Collier Award for his coverage of chestnut research in the July/August 1988 issue.*

Yellowstone GRIZZLIES The New Breed

Weaned from Dumps, Today's Bears Survive as Predators

By Paul Schullery

EARLY THIS SPRING I spent a cold, wet, and exciting day with grizzly bear researchers Steve and Marilyn French in central Yellowstone Park. Many park roads were closed, and there was little traffic. Grizzly bears were feeding, sometimes quite near the empty roads, on elk and bison that had died the previous winter or earlier in the spring.

First, we backtracked a mating pair a short distance from the road near Dunraven Pass, and found where the bears had bedded down within sight of one another, in the shelter of trees.

We later caught a brief glimpse of a sow and cub in northern Hayden Valley, and watched them from the road with spotting scopes until a curtain of rain and mist obscured their part of the valley.

We then slogged along the rainy, mushy trail a mile or so back from the road and watched a pair of subadult bears feed on a bison carcass for perhaps 20 minutes.

At times one would feed while the other sat nearby, or both would stand on the carcass as they worried pieces of meat loose from the bones. While we watched from 400 yards away something spooked them. After they retreated we hiked out, spotting yet another grizzly along a ridge about half a mile away.

ERWIN & PEGGY BAUER

By the standards of scientific bear watchers it was an extraordinary day, which was made possible largely by the power of observation and skill of the Frenches.

It also suggests that things are going well for the Yellowstone National Park grizzly bear.

The last two centuries have been hard on the grizzly in North America. In 1800, grizzly bears ranged throughout most of the western half of North America as well as across a substantial portion of northern Mexico.

Settlement, hunting, and predator control programs rapidly reduced grizzly bear range in the 1800s and early 1900s, removing bears first from the prairie states (Texas' last known bear died in 1890; North Dakota's in 1897), then from the mountains (California, 1922; Utah, 1923; New Mexico, 1931). Today, less than 1,000 grizzly bears remain in the lower 48 states.

Most of these are in and near Yellowstone and Glacier national parks, and additional animals are known to survive in four other mountainous areas in Montana, Idaho, and Washington.

By far the most famous remaining grizzlies are those in the Greater Yellowstone Area, which includes Yellowstone and Grand Teton national parks and the six national forests that surround them. This population—studied intensively for 30 years—has fueled a long-running controversy over how best to preserve and manage these wild animals in an increasingly human-dominated world.

IN THE GREATER Yellowstone area today there are some people who believe that the grizzly bear is virtually gone. There are others who believe that the grizzly has become so common that sport hunting should be reopened in some of the national forests around the park in order to control the bear population.

It has been more than 20 years since the controversy over the management of Yellowstone park's grizzly bears began. Today, managers, scientists, and independent conservationists are always dealing with the complicated legacy of this debate. The early years of the controversy were often dominated by vigorous debates over just how many bears there were.

When the National Park Service closed Yellowstone's major dumps in 1969 and 1970, the bears were divorced abruptly from a food source that they had depended on for several decades.

As the bears adjusted to the loss of an easy food source, they wandered farther in search of food. They frequently got in trouble at human food sources—campgrounds, for example, or community dumps outside the park—where they threatened human safety.

Management kills and removals—often the unfortunate result of bear-human encounters—rose to record highs of about 40 a year in 1970 and 1971, then declined in number. By 1973, these drastic control measures had shrunk to levels below those of the 1960s. Many researchers believe the bears most dependent on the dumps were killed or removed, while others adapted to natural food sources.

The closing of the dumps coincided with the completion, under a cloud of controversy, of the pioneering study of the bears by Drs. John and Frank Craighead, independent biologists who collaborated with the NPS. The size of the population prior to the dump closures, the effects of removing many bears in the early 1970s, and the subsequent size of the population have been hotly debated ever since.

From a distance it all might seem a little peculiar. In 1967 the Craigheads estimated that the grizzly bear population in the Yellowstone area was about 174 animals. In 1988, a special task force headed by Dr. Richard Knight of the Interagency Grizzly Bear Study Team (IGBST)—a cooperative research group formed by the NPS, the Forest Service, and state agencies from Montana, Wyoming, and Idaho—calculated that the total population was probably about 170-180 bears. (IGBST is fairly certain there are more bears in the population. Unlike the 1967 Craighead estimate, the study team's number is a minimum, not a total.)

But look where this leaves the casual observer: The best scientific estimate of the population 21 years into the controversy is the same as at the beginning. Why is everyone so worked up?

After the Fires

LIKE MOST large mammals in Yellowstone, the grizzly bears were able to adapt to the fire season with little trouble. Americans, conditioned by "Bambi," were surprised to discover that only rarely are elk, deer, bears, and other large mammals caught by forest fires.

Most of the time the animals just step aside and let the fires pass. According to Dr. Richard Knight and his colleagues in the IGBST, there were 21 radio-collared bears whose ranges included burned areas.

Of these, "Thirteen moved into burned areas after the fire front passed, three remained within active burns, three stayed outside burn lines, and two may have perished in fire storms," said IGBST officials. "The fires had no apparent effect on overall choice of den sites, annual range sizes, or mean rates of movement."

The IGBST concluded that the most significant short-term result of the fires, as far as the bears were concerned, was to provide bears with an unusually large quantity of meat. Some 246 elk were known to have been killed by the fires in the park; bear use of these carcasses was documented by mid-September.

Dr. French has pointed out that relatively few of the grizzly bears would have benefited from these carcasses; the dead elk were not uniformly distributed throughout Yellowstone, and thus were not available to all the bears. But those that found the carcasses certainly made the most of them.

The most frequently mentioned concern about the long-term effects of the 1988 fires *(Continued on page 49)*

When the grizzly bear in the Yellowstone area was classified as threatened under the terms of the Endangered Species Act, in 1975, many observers and commentators concentrated on the importance of restoring the population to some certain minimum size. Over the past 21 years, population estimates have ranged from 136 to 540 animals, and none of these estimates has proven trustworthy or satisfactory to most observers. Bears are hard to count.

Those numbers seemed so mightily important because grizzly bears are slow to reproduce. If a population is small enough—though there is little agreement on how small that might be—only a slight change in its reproductive success can be disastrous.

What has come out of this debate is a different, and more scientifically sensitive, way of looking at the bear population. Dr. Richard Knight, who has headed IGBST since 1973, has taken the lead in making people—both in government agencies and in the media—realize that there is no magic number by which to gauge the population's health. It has become clear that a bear population's health is measured in more complex ways: distribution through the available habitat, reproductive rate, the quality of available habitat, and the quality of the management.

Such factors don't make headlines, but they are more realistic in terms of the bears' needs. Wildlife populations vary with the quality of their habitat.

And so there is much less talk among researchers today of coming up with some right number of bears.

The Grizzly Bear Recovery Plan, developed by the U.S. Fish and Wildlife Service in the late 1970s and early 1980s, concentrated on restoring the bears to a minimum size. The plan established as a goal a population of 301 bears.

Researchers based that number on a combination of computations by the Craigheads, National Park biologist Glen Cole, and a committee of the National Academy of Sciences.

But recently this approach has been dropped. Instead, the recovery plan is now based on four conditions that must be met:

- Adult females with young must appear in 15 of 18 delineated areas within known grizzly habitat, and must maintain a certain level of distribution over a three-year period.
- Average annual man-caused mortality cannot exceed 11, no more than two of which can be adult females, over six-year periods.
- A six-year average of 15 known females with cubs must be achieved.
- The management agencies must establish adequate regulations in order to protect and maintain this population and its habitat.

STEVE GROAT

A bear near Fishing Bridge campground is sedated by rangers for relocation.

Based on those conditions, and considering recent research findings from IGBST, the Yellowstone grizzly is doing better than it has in many years. Distribution of sows with young throughout the ecosystem is considered good. In 1986-1988, known mortality averaged six bears a year, with an average of less than two adult females a year.

The females-with-cubs average for that same period was more than 18 sows. As of late August 1989, 14 sows with cubs had been observed. Even if no more of them are seen, the running average for 1986-1989 is still well above the targeted 15.

But though managers, researchers, and many conservationists are breathing a little easier these days, nobody dares to relax yet.

"I still refer to the status of the population as tenuous," says Gary Brown, Yellowstone's assistant chief ranger for bear management. "Three years doesn't tell us the whole story. A lot of good is being done, but more needs to be done."

That good is in part the result of increasingly refined interagency cooperation—including better integrated law enforcement, public education, and monitoring of threats to bears—throughout the Greater Yellowstone ecosystem.

Most parties seem to agree that it is not a perfect system, but the last few years reveal that it can work, and can provide the protection the bears need.

The most recurrent theme I hear from managers and observers these days is one of vigilance. As the sense of urgency about immediate, short-term threats eases, there is grave risk that that sense of vigilance will also relax.

Christopher Servheen, Grizzly Bear Recovery Coordinator with the U.S. Fish and Wildlife Service, says that "funding is beginning to get shaky because there's no crisis any more."

What this comes down to, again and again, is ensuring that the bear's habitat gets adequate protection.

"[Bear habitat] user groups are contin-

ually testing to see if the standards are weakened," says Dr. Servheen.

If we reach the point that the grizzly bear can be "delisted" and considered recovered, Dr. Servheen fears that the many prospective users will feel that Greater Yellowstone is again an open field.

The developments already existing in and around Yellowstone National Park, including mineral exploration, timber harvesting, community growth, and recreational pressures, as well as others being proposed, are an ominous threat to the habitat of grizzly bears.

"Delisting the bear is not going back to business as usual. We can never go back to business as usual. We're still going to have to maintain all the systems."

There is considerable skepticism in the public sector over just that maintenance of systems. Most of the law enforcement and monitoring systems, for example, are vulnerable to funding cuts.

The Greater Yellowstone Coalition in Bozeman, a Montana-based umbrella group of conservation organizations, continues to take a more gloomy view of the grizzly population's present status and prospects.

A new report released by the coalition emphasizes the staggering number of development threats in the ecosystem and expresses concern about the long-term genetic health of what is an island population of grizzly bears.

Though many of these threats—perhaps most—are focused on lands outside Yellowstone Park, existing developments within the park, such as Fishing Bridge, continue to attract attention for their parts in displacing grizzly bears from habitat or in causing bear deaths through unnecessary bear-human encounters. No element of the Greater Yellowstone ecosystem is immune from criticism.

And so, though the news is better than it has been for a long time, and though many participants in the bear dialogue will speak of "cautious optimism," this is no time to relax.

But it is a great time to learn about bears, and to learn just how much this population of bears has changed in the past 20 years.

ERWIN & PEGGY BAUER

Because of a biological clock, female grizzlies only bear cubs in midwinter.

Consider food habits. It has long been fashionable—I've probably done it myself—to say that Yellowstone, with its vast stands of unbroken forest, is poor bear habitat, an impoverished ecosystem. It is common knowledge in the communities around the park that since the dumps were closed the bears have not had enough to eat.

Now some of this "common knowledge" is just silly. It is nonsense to think that bears today, almost 20 years after the dumps were closed, are stumbling around feeling the direct effects of losing that food source. Animal populations adjust to new conditions, and do not simply go on being hungry for decades.

But the adjustments have been profound. Without the easy food of the dumps, Yellowstone grizzly bears became smaller, and their ranges necessarily became much larger. Some saw this as proof that they needed the dumps to stay big and healthy. To stay big, certainly; but to stay healthy, no.

A bear that has French fries and biscuits delivered to it every day is going to look different from a bear that has to work for a living. The smaller, far-ranging grizzly bears are necessarily better adapted to the hard work of catching food. They, not the butterballs at the dumps, are the norm for bears making a real living in the Yellowstone country, and they are still well within the range of sizes and weights of grizzly bears in other populations.

But there is still the question of how they replaced the lost food source. This is where the complications of Yellowstone management reveal themselves.

At the same time that the dumps were closed, the park embarked on a series of interrelated—and still controversial—changes in management. Bison numbers, kept low for many years by NPS managers, were allowed to increase. Elk were treated likewise. The trout population of Yellowstone Lake, by then collapsed under excessive fishing pressure, was given increased protection.

Bison increased from 200 in 1966 to 2,000 in 1986. Elk in the park's famous northern herd increased from approximately 3,000 in 1968 to at least 20,000 in 1988. Yellowstone Lake spawning runs increased by more than 200 tons of fish from 1966 to 1985.

It is now clear that grizzly bears are using those new food resources to replace the dumps to a great extent.The newly restored relationships of these predators and prey have resulted in some fascinating studies.

Dr. Steve French, founder of the independently funded Yellowstone Grizzly

Foundation, has led a study of grizzly bear behavior in the park for several years. He has documented, often with motion pictures, the reeducation of grizzly bears in the fine points of elk hunting.

In the period 1986-1988, he observed 60 attempts at predation by grizzly bears during the elk calving season, including 29 confirmed kills of calves. His footage is fascinating; the bears often run at a herd of elk, get them all moving, and then watch for slower animals.

As the bears learn to chase, the elk learn to avoid; sometimes elk will circle around beside the bear and cross in front of it in an effort to distract it from a slow-moving calf.

The process has all the drama and power of any African predator's behavior, and is also a striking lesson in what Yellowstone park's animals must have been like before we started tinkering with them.

Dr. French's work has been reinforced by NPS Biological Technician Kerry Gunther's similar study in another part of the park. Grizzlies are eating elk meat when they can get it: as calves, as vulnerable rutting bulls in the fall, and, perhaps most important of all, as spring carrion after hard winters.

Always the opportunists, the grizzly bears were quick to take advantage of fire-killed animals in 1988 (see sidebar). In late September 1988, after the fires had begun to subside, I visited the site of the biggest single elk kill discovered after the fires.

Almost 150 elk—bulls, cows, and calves—were caught in the smoke of the fast-moving North Fork Fire, and their carcasses were scattered over an area about the size of two football fields. They were not discovered until almost two weeks after the fire passed, and by the time we arrived to conduct a count, many had been partly consumed by bears, coyotes, and other scavengers.

The blackened, hairless elk carcasses gave off surprisingly little odor. I suspect it even took a little while for the bears to find them. Two cow elk, lying together near the edge of the group, had been partially buried by a bear, behavior that seemed a bit peculiar in the midst of so much meat.

As early as 1974, it was clear that bears were taking advantage of spawning runs of cutthroat trout near Yellowstone Lake. That use has increased as the fish population has been restored, and is now a significant seasonal food preference for some bears.

Dr. French recently watched a bear kill an average of 100 fish each day for ten days (a tremendous nutritional load, not only for the bear but also for any scavengers that are hanging around for leftovers).

Dr. Knight pointed out to me that bears are still exploring and discovering spawning streams they weren't fishing a few years ago.

Yellowstone's grizzly bears continue to surprise researchers with food sources that were unknown in the past. This diversity of appetite is reflected in the current well being of the grizzly population.

"The common misconception is that Yellowstone's bears are out there starving," says Dr. French. "That is not the case. Without the good food sources you just wouldn't get the cub crops we've seen the last few years. Some sows are getting pregnant at three and a half years of age; that never even happened during the dump years, as far as we know."

What these bears are still teaching us—about themselves, about the ecosystem they occupy, and about our responsibilities to the protection of extraordinary settings like the Yellowstone country—seems to me to be one of the most important reasons we have for ensuring their survival, if we can.

But to succeed in saving them we will have to adjust to their needs: to be prepared to sacrifice some of our own wants—such as energy and timber development, or recreational space—when we use Yellowstone.

The jury is still out on whether or not we, as a people and as a government, are willing to make that sacrifice. In the last few years we've proven we *can* do it, but proving we *will* is something we must do again every year, forever.

Paul Schullery, a writer with the research division in Yellowstone, wrote The Bears of Yellowstone. *Two of his books,* The Bear Hunter's Century *and* The Grand Canyon: Early Impressions, *were republished this summer.*

A Cautionary

THE GREATER YELLOWSTONE Coalition's (GYC) recent "Status Report on Yellowstone Grizzly Bear" sorts through existing data and draws some pessimistic conclusions on the fate of the Yellowstone grizzly bear.

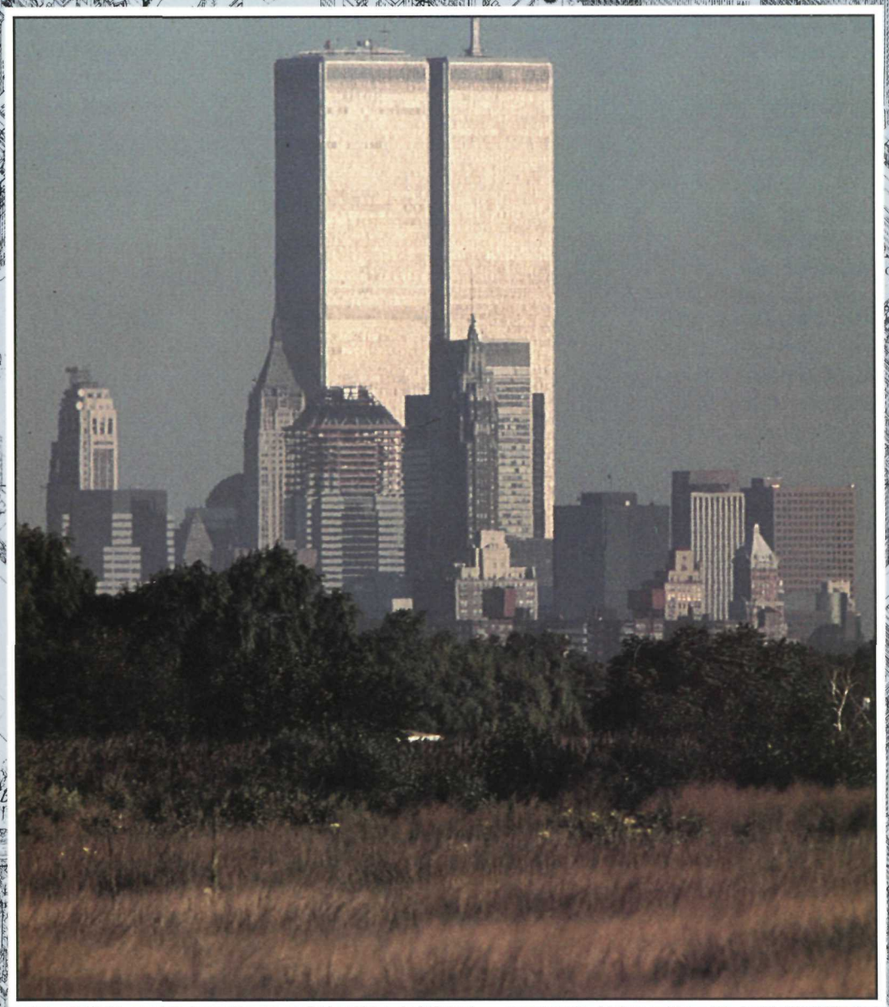
Human-caused death is the primary threat to grizzly recovery, GYC reports, making up 83 percent of grizzly deaths from 1975 to 1987. The leading cause—38 percent—is poaching [see "The Quiet Kill," *National Parks* May/June 1989]. Management control actions are second, at 21 percent.

When bears are killed, GYC concludes, the root cause is the use humans make of the land. Human activity that fragments grizzly habitat or lowers its quality forces bears into more heavily populated areas. Human food also draws bears.

At present, GYC reports, development known to have such results takes place on more than 25 percent of the grizzlies' habitat. This includes logging, oil, gas, and mineral drilling, livestock grazing, recreational use of public lands, and private land development. While officials have set up a Cumulative Effects Model to measure the impact of such activities, GYC believes the model is not adequately designed or applied.

The official Grizzly Bear Recovery Plan did create a system of habitat protection. This system, however, has been controversial. GYC reports charges made by some experts that the stratification is based on "political rather than biological realities." GYC finds this particularly worrisome. *(Continued on page 49)*

WHERE THE SIDEWALK ENDS



GATEWAY BY DON RIEPE

Gateway Offers New Yorkers a Taste of Wilderness

THE SIGHTS FROM THE Q35 GREEN LINE BUS ON Flatbush Avenue to Gateway National Recreation Area are those of any commercial strip with Midas Muffler, Radio Shack, and Buy Rite Liquor storefronts. About a half-mile from the park, the country opens up with a National Park Service brown sign identifying the entrance to Gateway. The bus stops and the driver warns the lone departing passenger, "Nothing there but emptiness."

Linda Canzanelli, a ranger formerly at Gateway, sees the park differently: "When I drove into Floyd Bennett Field in the morning, sometimes a pheasant with beautiful tail feathers would run in front of my car. Pheasants in New York City, running wild."

Urban parks like Gateway are new to the Park Service as well as

By Andrew Lachman

to the rangers who served their apprenticeships in wilderness parks such as Yellowstone or Yosemite. Twenty years after venturing into the cities, the NPS still struggles to link urban park experiences with conservation ideas originally conceived in the wilderness parks.

As explained by the 1982 report, *Urban Parks: Are They Successful or Unrealistic?* by the Conservation Foundation:

> "The challenge of bringing national park philosophy, policies, resource management skills, and professionalism to national parks in urban settings has brought fresh thinking and vitality to the new parks and to the entire system; it has made the national park experience available in new places and to new audiences; it also has brought disturbingly high costs, questionable acquisitions, and unfulfilled grandiose promises."

WHEN THE LOBBYing for urban parks began in the 1960s, most of the great national parks were in the West, accessible to those who could afford crosscountry motor trips. The civil rights movement and Earth Day celebrations of the 1960s and 1970s forced politicians to acknowledge that the Park Service had neglected the cities.

The NPS also came to realize that an urbanized society needed parks that could easily be reached by mass transit and emphasized recreation activities as well as nature preservation. Today, there are some urban parks that were created as national recreation areas (NRA) and others that became urban parks as the city grew up around them. They include Cuyahoga Valley NRA near Cleveland; Chattahoochee River NRA near Atlanta; Jean Lafitte National Historical Park near New Orleans; Indiana Dunes National Lakeshore near Chicago; Santa Monica Mountains NRA near Los Angeles; and, of course, Golden Gate NRA near San Francisco.

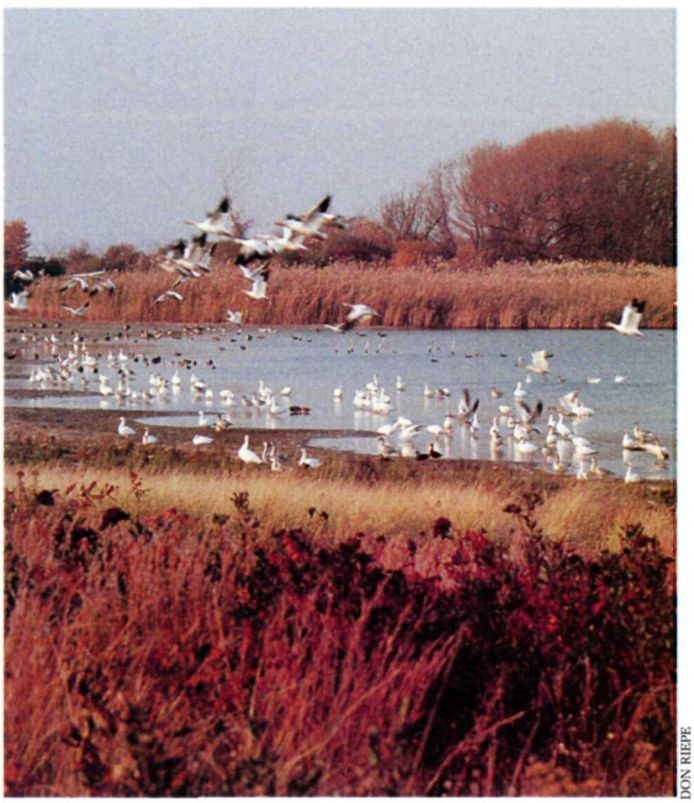
One of the first major sites selected as an urban park was Gateway National Recreation Area in New York City and northern New Jersey. Environmental and urban interest groups such as the former Gateway Citizens Committee and the Regional Plan Association, Inc., spearheaded an effort to pull together a national recreation area from a collection of city parks and federal lands.

In fact, a financially strapped city government was relieved to have a federal agency take over some of the management and cost of protecting resources and providing recreation to its residents.

Authorized by Congress in 1972 and opened two years later, Gateway NRA has become the eighth most visited park unit in the system, with six million visits in 1988. This urban park's popularity is superseded by San Francisco's Golden Gate NRA, which had 20 million visits in 1988.

Gateway is a patchwork of 26,000 acres of holly forest, salt marsh, and landfill; the land is marked by abandoned forts and an obsolete airfield. Each of Gateway's four units has its own unique problems and purposes.

Jamaica Bay Unit, on the southeastern shore of Long Island, includes Jamaica Bay Wildlife Refuge. The marshland and woods of this man-made refuge, established in 1953, comprise about half of Gateway's acreage. Although polluted by landfills and sewage, throughout the year it is a sanctuary for more than 326 species of birds.



DON RIEPE

Snow geese and other migratory birds use Jamaica Bay, in Brooklyn, as a stopover on the Atlantic Flyway.

The unit includes Floyd Bennett Field, the first municipal airport in New York City (where Wiley Post took off in 1933 for the first solo flight around the world). Created by landfill, part of the field is being managed as an open grassland habitat for grasshopper sparrows, upland sand piper, short-eared owls, and other native species.

The Breezy Point Unit, near New York Harbor, includes Fort Tilden, a former U.S. Army base, and Jacob Riis Park, one of New York City's most popular beaches with more than a mile of sand and boardwalk. Gateway traditionally gets 100,000 to 200,000 visitors on Riis Park beaches on a summer weekend. In addition, the barrier beaches of Breezy Point Tip are home to endangered birds such as the piping plover and the least tern as well as to a private beach club.

The Sandy Hook Unit, located on a peninsula at the northern end of New Jersey's Atlantic shoreline, includes seven and a half miles of beaches and coves. Fort Hancock, which is the oldest operating lighthouse in the country, was built in 1764 on Sandy Hook in order to protect the shipping channels into New York Harbor.

On the southeastern shore of Staten Island, a former sanitary landfill—which is habitat for birds, rabbits, and a stopover for migrating monarch butterflies—is being allowed to return to a natural state. At the same unit, a swamp white oak forest, where

many trees were toppled by vandals, is being restored. Swimming is sometimes prohibited in the polluted bay near the popular playgrounds of Miller Field, a former Army air base.

ALTHOUGH GATEWAY is only one percent the size of Yellowstone, it had four times as many visitors in 1979 and more than twice that of Yellowstone and Yosemite combined.

Park rangers, however, do not measure the success of a park just by the number of its visitors, but also by the quality of its resources and interpretation. In the urban parks, where a small oak forest or meadow near a landfill lacks the character of the Grand Canyon, rangers still want nature to be nurtured.

Trained to talk about such matters as how glaciers carved out Yosemite Valley and the role of deer in the food chain, rangers are often distressed that urban park visitors resist the conservation message and, sometimes, reject it altogether. Local residents, the majority of visitors to urban parks, are more often attracted by a beach or baseball diamond.

Many rangers think providing mass recreation as well as dealing with unruly and unreceptive visitors sabotages the original NPS mission to preserve and educate. To many rangers, the management of a national recreation area within the boundaries of the nation's largest city can be overwhelming.

Many national park rangers feel cooped up at Gateway NRA. "I don't feel like I am really a park ranger in the National Park Service," said one. "Gateway is just a small strip of land surrounded by shopping malls and houses. It takes the adventure and pleasure out of the job."

Before the Park Service took over the Staten Island tract, fistfights and car races on the playing fields were common. Wild parties with bonfires further damaged the grounds.

"Some of the park's city-bred visitors call me 'parkee' and 'jerkee' and consider me a nuisance," the ranger said.

To illustrate his point, the ranger recalled an incident that occurred when he arrived at Gateway as a recreation specialist. Once, when he asked to see a soccer coach's permit, the coach shouted, "You're a ranger, so what? Get out of here."

Interested only in a day of fun, visitors still typically resist ranger efforts both to regulate their activities and to see that they experience a special quality of recreation and education usually not found in city parks and playgrounds.

On a summer's weekend Staten Island unit's baseball and soccer fields, tennis courts, and roller rink are used by more than 8,000 visitors. Typically, they choose sports and gardening (available at Breezy Point, Staten Island, and Jamaica Bay units) rather than nature hikes at the park.

Only about 10 percent of visitors hike the two-and-a-half-mile nature trail at the unit's Great Kills Park or come to the nature programs. With the best athletic fields on Staten Island, the park cannot accommodate all of the individuals and groups—churches, companies, and leagues—that want to use them.

"They tell me that they've been living here for 25 years and could always do what they wanted," said Ranger William Tate. Rangers are not accustomed to facing such disrespect; it leaves them uncertain about how to approach the urban park visitor.

"Most visitors don't understand that a national park is to be preserved for future generations to use."

Tate feels ambivalent about his time at Gateway. "At a bigger park like Yellowstone, there is a greater variety of work. At Staten Island, I spend too much time checking out sports equipment or washing government cars."

Many rangers and administrators who come to Gateway experience "cultural shock" as he did, said Tate, and leave as soon as they can. In the last couple of years there have been two permanent superintendents and two acting superintendents at Staten Island. Of the 15 seasonal rangers that worked at Staten Island in the summer of 1987, only one returned in 1988.

One of every ten Americans lives within a day's drive of Gateway National Recreation Area.

Duncan Morrow, NPS chief of media information and a ranger for 18 years, said it has always been a problem getting career rangers to transfer to urban parks. Morrow fears that the NPS would lose some good people if it forced rangers to go to urban parks.

"Rangers have a rural orientation," Morrow said, "even those who were raised in urban areas."

Larry May, a 20-year career man who was formerly deputy superintendent of Gateway, believes rangers are reluctant to work at urban parks because "they are unsure of how an urban assignment will affect their career advancement."

The 43-year-old May said a wilderness park such as Mount Rainier in the Cascade Mountains of Washington State may have six times as many applicants for one opening at Gateway.

"Urban parks are perceived as not having the same job duties as traditional parks," said May. "Rangers are concerned that they will not develop the skills necessary to compete for the better jobs or more desirable parks."

Although several rangers were promoted after being at Gateway, May said, "Many are afraid of being typecast as urban rangers."

Robert Nunn, who coordinates the urban parks and was acting superintendent of Gateway for five months, agreed that many rangers feel they do not have the skills to work in cities. Nunn recommended to former NPS Director William Mott, Jr., that a task force be formed to recruit people who are motivated and qualified to work in urban parks but who may not want to go to remote areas.

Nunn thinks, however, there are enough opportunities for advancement within urban settings, so a city person could do well in the NPS without having to transfer to a wilderness park.

Nunn, special assistant to the NPS director, thinks hiring more minorities would bring a greater diversity of people to urban parks. When, as a black ranger in the 1950s, he took his family to Yellowstone, "We were more of an attraction than Old Faithful."

At Harpers Ferry National Historic Park in West Virginia, Nunn said groups from black churches were afraid to get off the bus until they saw him. Then, "they felt safe and marveled that I was a ranger. I was spit and polish in my uniform and after seeing me they would flow off the bus, reassured."

WITH FEDERAL FUNDS evaporating, the NPS lacks the money to hire additional rangers and to develop needed facilities for recreation and education at Gateway National Recreation Area.

The main bathhouse at Jacob Riis Park, in disrepair and contaminated by asbestos, was closed by the NPS over the objections of visitors. (See "News," page 13.)

Last summer, there were 110 fewer part-time rangers at Gateway compared to 1985, because of budget cuts. May said, "We have deplorable roads, trails, and buildings."

John Tanacredi, the research ecologist who grew up in Brooklyn, said the prevailing attitude among rangers at the park is that ecological studies to determine how to respond to polluted estuaries and sand dunes are not a priority. Tanacredi, who has been at Gateway for ten years, said, "The bulk of the budget goes toward recreation and cleaning the beaches. Little money is designated for research or resource management. It is insane. We manage nature by the seat of our pants."

The 1979 general plan for converting the existing Gateway into a high-quality urban park was developed with extensive community participation. Community members who worked to establish Gateway are frustrated that such little progress has been made toward rehabilitating the park.

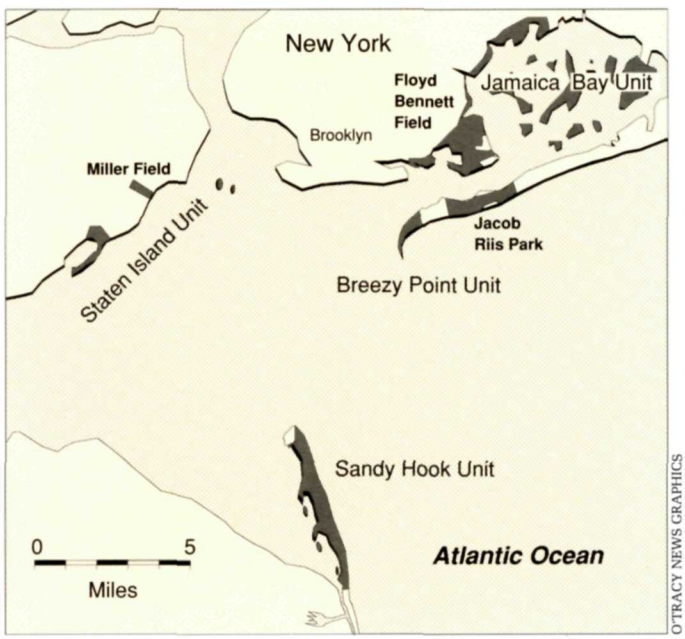
The plan called for the creation of "Gateway Villages," which would be testing grounds of the latest solar, wind, and waste systems. Regional nurseries were to provide native plants for the park and for city residents to restore damaged landscapes in their neighborhoods. An elaborate museum was planned for Floyd Bennett Field and its hangars. Those projects and others have gone unrealized.

"Improvements at Gateway and the development of proposed projects," said Jack Hoyt, of Friends of Gateway, "are coming much slower that we had hoped, for lack of money."

The national park area does have unique needs. The general management plan called for $301 million to rehabilitate the park, but Gateway received only $30 million. And almost half of that amount of money was used to bring sand to the eroded beaches of Sandy Hook that are in danger of detaching from the mainland.

Another million dollars was spent to demolish dilapidated military buildings. Removing graffiti and litter drains ten percent of the budget as compared with one percent of more remote parks.

"Some people think that urban parks are too expensive to operate and drain money from the more spectacular parks," said May. Excluding the U.S. park police (only at Sandy Hook do rangers do law enforcement), Job Corps and Youth Conservation Corps programs at the park, the annual budget for Gateway National Recreation Area is about $9.6 million. Most parks have a budget of less than one million dollars.



But one out of every ten Americans lives within a day's drive of Gateway, which has some of the best beaches in New York and New Jersey. The Grand Canyon, with a budget of about $6 million has less than half as many visitors. Unlike most national parks that charge a $3 to $5 entrance fee, admittance to national recreation areas is free.

May said it costs an average of one dollar per visitor to provide most activities at Gateway, much less than in other parks. For example, Michigan's Isle Royal National Park costs about five dollars per visitor to operate.

May, who was assistant superintendent at another early urban park, Indiana Dunes National Lakeshore near Chicago, said Gateway is "a safety valve for an intensely crowded city. It is a place to be refreshed mentally and physically."

THE NPS IS concerned, however, that Gateway could develop into a park primarily for the more affluent communities that border it, unless public transit to the park is improved.

Gateway's master plan calls for improved bus service and development of NPS shuttle vans, bike paths, and a ferryboat system linking the detached park units. But 15 years after Gateway opened, the plan remains stalled for lack of funds and because some surrounding communities do not want buses on their streets.

As reported by a 1976 environmental assessment: The densely populated working-class, poor, and minority communities of Manhattan's Harlem and Lower East Side, the South Bronx, and Brooklyn's Bedford Stuyvesant—with perhaps the

greatest need for open space and recreational facilities—are far from the park.

More than 90 percent of the park visitors come by car, but one-third of the households in the region do not have automobiles. Only Jamaica Bay has direct subway service.

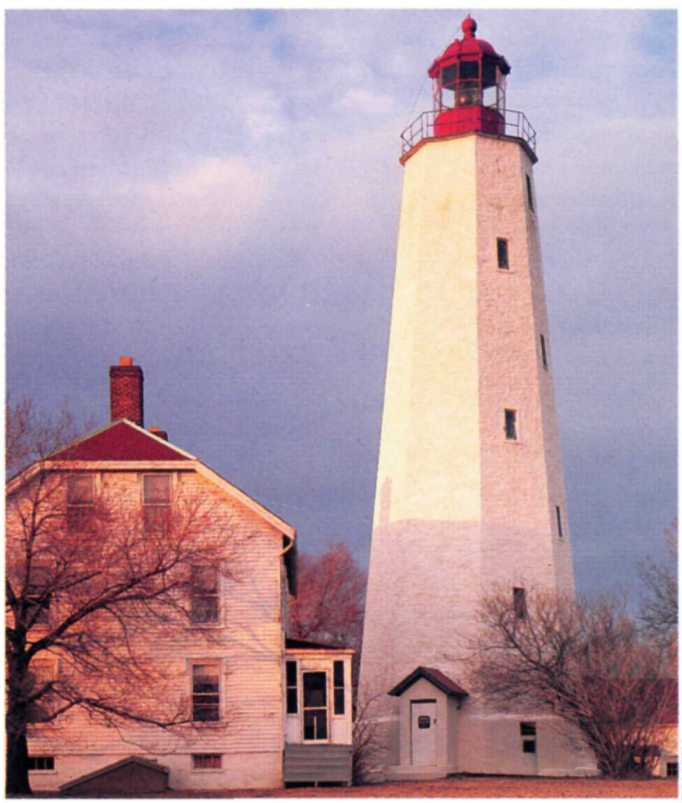
From the Upper West Side it takes an hour-and-a-half subway and bus ride to get to Breezy Point. Only about 20 percent of the visitors to Breezy Point's Jacob Riis Park beaches come by public transportation, the highest percentage of mass transit users in any part of Gateway.

BUT, VISITORS CAN cause problems. When the NPS first took over Jacob Riis Park from the city, problems with visitors using drugs and alcohol were particularly severe. Groups staked out their territory at the beach. Frank Kiernan, a park nature specialist, said friction among the Puerto Ricans, Italians, and other groups is still a problem.

"When the beaches are crowded sometimes the federal mounted police are called in to keep order."

Vandalism, said Canzanelli, is the most discouraging part of being a ranger at Gateway, which has a high number of arson fires for a park area. "You put a lot of time and effort into restoring something and it's spray-painted, burned, or torn down."

The wooden walkway to protect the dunes was burned a few weeks after it was built. "We didn't replace it," said Canzanelli. "At times it becomes too discouraging."



TOM TILL

The lighthouse at Gateway's Sandy Hook Unit, in New Jersey, is the country's oldest operating lighthouse.

Kiernan said visitors vandalize monuments, military bunkers, and fences, swim in unprotected areas, and park illegally.

"Sometimes I am frustrated because people know we don't carry a gun and can't give tickets," said Kiernan. "We have to wait for the federal police to arrive."

Because of these very problems, urban parks can serve as important learning laboratories for the National Park Service.

"These parks face tensions and an intensity of use the more remote natural parks may face in five to ten years," said May. "At Gateway we are learning how to cope with increased traffic and crowds. Through trial and error we are finding out how many people the park can handle without damaging the environment."

In urban parks, rangers are also learning how to restore disturbed land and water. At Gateway's Jamaica Bay Wildlife Refuge, the only refuge in America penetrated by a subway (the elevated Rockaway line), rangers are working to restore a marshland that had supported 500 oyster fishermen before sewage contamination closed the area to fishing in 1921.

Don Riepe, a resource management specialist, is working to bring back amphibians and reptiles that once flourished in Gateway. Memories of growing up on one of the last farms in Queens spurred his interest in environmental education.

From his office in Floyd Bennett Field, the administrative headquarters for Gateway, Riepe watched a marsh hawk brave the rain.

Later, driving to the Jamaica Bay Wildlife Refuge, Riepe said, "It's difficult to get people to realize the value of a saltmarsh as a breeding place for birds and fish. Too many people see Jamaica Bay as a place to dump mattresses, industrial chemicals, and old cars."

Some consider the Pennsylvania Avenue dump site on the north side of Jamaica Bay an eyesore, even though it is partially revegetated. Although the landfills of Jamaica Bay were closed January of 1986, chemicals from buried garbage seep into the water and poison the fish.

Oil runoff from Kennedy International Airport, which was built on 4,500 acres of filled-in marshland, is a potential problem. The bay will be further damaged if developers are allowed to build on the approximately 700 acres of open space that border the wildlife refuge. The Audubon Society and the Trust for Public Land want the city to buy the remaining 150 acres it does not already own and give the land to the New York City Parks and Recreation Department.

In many ways these problems are also suffered in other urban parks and in parks that have become urbanized as cities grew up around them.

For instance, Manassas National Battlefield Park, established to preserve the site of the first battle of the Civil War in 1861, has slowly been surrounded by houses and other development of the Washington, D.C., metropolitan area. People who live in the area use the battlefield for recreation, hiking, and picnics. They are often not interested in the park's historical significance and do not understand the rangers' interpretive role.

"It's hard for visitors to understand that many of the activities they normally do in a park are not allowed here," said Superintendent Kenneth Apschnikat.

SINCE 1933, WHEN SAGUARO National Monument was established, Tucson, Arizona, has been steadily creeping toward the park. Now, housing actually abuts the park boundary, and the city's board of supervisors approved a plan that would allow for population growth of 70,000 to 90,000 within the park's immediate vicinity. In the face of this, the National Park Service worries whether they will be able to protect Saguaro's desert.

Development will interrupt wildlife territory, and the exotic species that follow human communities—species such as sparrows and starlings—will compete with woodpeckers, gilded flickers, and elf owls that nest in cavities of the giant saguaro cacti.

"In the 1940s and 1950s, the issues park officials grappled with related to cattle grazing, but now it's people problems and development," said Superintendent Bill Paleck.

Shenandoah National Park offers spectacular views of the Appalachian Mountains from Skyline Drive. At one time the air was so clear that it was possible to see the Washington Monument from the park. The vista is increasingly dominated by subdivisions and commercial development, and the view is often murky from air pollution. Last summer, dangerous levels of ozone were recorded.

"Some days you can't see beyond the treeline that forms the overlook," said Superintendent William Wade. "Some people drive hours to get here and can't see a thing."

Canzanelli, who was chief of interpretation programs at Gateway, has spent ten years in the NPS urban parks. She has been most successful working with the schools to bring city children to Gateway for educational programs.

About 3,000 children a year go on nature hikes with rangers and learn about marine biology at Ecology Village, the rather modest nature center at Floyd Bennett Field.

"We bring children to camp in the open grasslands of Floyd Bennett Field, which is only a half-mile from Flatbush and the busy Belt Parkway in Brooklyn, and they are worried about bears," said Canzanelli.

"It's so great because, to the children, it's the middle of nowhere. This is a good environment in which to sensitize city kids to the cycles of nature and the importance of a balanced environment. They learn that not every bird is a pigeon."

One advantage to urban parks, Canzanelli said, is that visitors can return every week for nature programs. "I am able to provide more in-depth information to visitors who regularly use the park. Whereas visitors to Yellowstone stay a couple of hours or a week and may never return. Gateway can have a greater impact on their lives."

At the 1987 Urban Parks Conference in New York City, Jessyn McDonald, a former NPS environmental education specialist, said, "If you can't reach, you can't teach. Urban parks can operate as extensions of the community, doubling back and affecting surrounding areas, tending to make whole neighborhoods more parklike, engendering pride and effort."

For four years Kiernan has been teaching children and adults about the plants, animals, and history of Gateway. The tall, lanky naturalist grew up in Flatbush, 15 minutes away from Breezy Point.

On a hike with Kiernan, one youngster asks questions about the great herons and clapper rails that feed and nest in the tidal wetlands. Near a stone jetty covered with algae and barnacles they discover an abundance of seashells and the children excitedly try to see as many as they can.

"Many kids from the inner city have never seen the ocean," said Kiernan. "They're excited to be out in the fresh air and see things they don't see in their neighborhood."

Herbert Cables, Jr., currently deputy director of the NPS and formerly superintendent of Gateway from 1977 to 1981, said, "My best days in the National Park Service were when I looked out the window from my office at Floyd Bennett Field and saw wide-eyed kids from Bedford Stuyvesant sleeping outside in tents and enjoying it."

In addition, according to Cables, "Gateway's outreach programs have had some effect in getting the kids' parents out to the parks."

On a Saturday morning, Maureen Meehan, a visitor from 84th Street in Queens, was escorted on a group hike through Fort Tilden, which is nestled among the bayberry shrubs and poplar trees that dot the sand dunes of Breezy Point.

"If I couldn't come to this open space, I couldn't live in New York City. I hang out, walk, and identify some plants. I don't feel closed in as when you ride the A-Train every day. I come out here to a world that isn't littered," she said.

"I feel like I am in charge of the area, like it's personally mine to take care of. I can come here and feel a kind of space that I think a lot of people feel in the suburbs."

"But I don't like the hard outdoors," said Meehan. "I don't mind hiking as long as you get me to a bathroom, and I can return home to my nice bed at night.

"I am not putting up any tent. I am not digging any little trenches to go to the bathroom. None of that stuff. I only do day hikes."

We bring [city] children to camp in the park a half-mile from Flatbush and they worry about bears.

Andrew Lachman lives in Santa Cruz, California, where he works as a reporter for Newsweek *and the* Salinas Californian.

NPCA's report, *National Parks in Urban Areas*, is available for $7.50 from NPCA/PEC, 1015 Thirty-first St. NW, Washington, D.C. 20007.

At City's Edge

URBAN PARKS PROVIDE OPEN SPACE AND RECREATION

BY LIZA TUTTLE

GAZING AT the Manhattan skyline from Brooklyn may be the closest many Americans come to the awe of standing in front of the Rocky Mountains, but it need not be the closest they come to visiting a national park. Since the early 1970s, a number of urban national parks have been designated to serve the needs and desires of the less footloose among us.

In the late 1960s, when urban parks were first discussed, President Lyndon Johnson was beginning his campaign for the Great Society. In his words, "A park, however splendid, has little appeal to a family that cannot reach it. . . ." His new conservationism was built on a promise to bring parks closer to people.

Traditionalists believe, however, that parks close to urban centers—created primarily for recreation—are beyond the role and purpose of the National Park Service. The NPS is responsible for vast natural parks and important cultural sites, they say, and that is enough.

Urban parks test the standards that were created to evaluate whether an area is worthy of national park status. When Yellowstone, the world's first national park, was created in 1872, high standards were set.

Robert Sterling Yard (director of the National Parks Association, NPCA's predecessor) worried that creating "dozens of little parks" in every congressman's district would reduce the significance of world-class parks and lead to a "National Park Pork Barrel."

By the 1960s, the public's urge to stem unbridled urbanization gave the urban parks movement its biggest boost. Creating urban national parks could save land from being turned into endless housing developments, and could also teach urban Americans to preserve the natural environment. The urban park movement really took shape when President Richard Nixon signed legislation establishing Golden Gate and Gateway national recreation areas in 1972.

Since then, politics and shifting priorities have stalled the urban parks movement. Urban sprawl has sent land values soaring, appreciating NPS holdings and leading many to ask if it would be better to sell that land and put the profits into existing natural parks that are already suffering from extreme wear and tear.

In parks where extensive private lands are within park boundaries, the NPS often does not have the money to buy increasingly expensive land. In fact, most urban parks are a mix of land ownership. The NPS may only own a portion, but it usually regulates the use of all land within the park boundary. That way, state and city governments can share in the pride and burden of the parks.

Yet another issue is the role of park rangers in urban parks, where city crime

NPS/INDIANA DUNES NATIONAL LAKESHORE

has crossed into the parks. Drugs, theft, and rape have made policing certain parks a necessity. These increased law-enforcement duties have added to the argument over the role of ranger as interpreter versus enforcer.

Despite increasing use of urban parks, the urban park movement has failed in providing adequate public access. Public transportation is not available to most national park areas located near cities, leaving the urban poor without access to them.

One example of success, however, is Golden Gate National Recreation Area, which is but a cable-car ride away from San Francisco, at the end of the Hyde Street line. In 1988, the park attracted more than 26 million visitors, compared to 3 million for Yellowstone.

Golden Gate

Boldly striped windsurf sails cut through waves under the Golden Gate Bridge while echoing stripes carry hang gliders on air currents along the cliffs of San Francisco Bay. Golden Gate National Recreation Area is a recreation haven, with 11 beaches and 100 miles of hiking trails, all within 30 minutes of downtown San Francisco.

Golden Gate NRA combines 28 miles of undeveloped coastal headlands on both sides of the Golden Gate Bridge with a collection of military and historic sites for a total of 26,000 acres. That's two and a half times the size of the San Francisco peninsula itself.

More than 20 park structures, including Fort Point, the Presidio, are listed on the National Register of Historic Places. The nearby National Maritime Museum chronicles the West Coast's development and nautical history. Restored ships are open for touring.

With world-famous attractions such as Alcatraz Prison and San Francisco's shoreline, GGNRA attracts a mix of national and international visitors. In fact, park brochures are printed in at least 14 languages. But a solid majority are from the surrounding area, out to enjoy biking, jogging, and camping on park trails and beaches. For information, contact Golden Gate NRA, San Francisco, CA 94123, (415) 556-0560.

Gateway

Established as a pair of experimental urban parks in 1972, Gateway and Golden Gate national recreation areas were referred to by President Nixon, who signed them into being, as Gateway East and Gateway West.

This Gateway consists of four separate units, three in New York and one in New Jersey. Among the park's ten million visitors are scores of school groups from the city's boroughs, out to experience a world quite different from their neighborhood streets.

The park's Sandy Hook and Breezy Point units are long spits of sand dunes and grassland that guard the entrance to New York Harbor. Both have swimming beaches and fishing areas. Historic Fort Tilden and Fort Hancock are restored and open to visitors.

The Jamaica Bay Wildlife Refuge, a stop in the Atlantic avian flyway, swarms with ducks and geese during spring and fall migrations. Rich marine ecosystems thrive within the refuge's bays and estuaries, which lie just down harbor from towering Manhattan.

For more information, contact Gateway NRA, Brooklyn, NY 11234, (718) 338-3575.

Cuyahoga Valley

The ultimate multiuse urban park, Cuyahoga's 33,000 acres include Boy and Girl Scout Camps, the summer home of the Cleveland Orchestra, a dramatic arts theater, a working 19th-century farm, two downhill ski areas, and four golf courses, all of which are owned and operated by private groups. The park also preserves relics of the historic Ohio and Erie Canal, built in 1827 to open the Midwest to trade and travel.

Cuyahoga Valley NRA stretches 22 miles along the Cuyahoga (Indian for "crooked river") lowland, linking Cleveland and Akron. Though far changed from the dense virgin forests that once existed, Cuyahoga's subtly sculpted farmlands and intricate river system has a gentle, compelling beauty.

A groundswell of local activism, spurred by the fear that the scenic countryside was being swallowed by the expanding cities, helped Congressman John Seiberling get the park designated in 1974. For information, contact Cuyahoga Valley NRA, Breckville, OH 44141, (216) 650-4636.

NATIONAL PARK SERVICE

Sailing instruction aboard *Mary E* at Sandy Hook in Gateway NRA.

Indiana Dunes

Created in 1966, just before the urban park movement took off, Indiana Dunes National Lakeshore is a beautiful stretch of pristine Lake Michigan shoreline lodged between the factory towns of Gary and Michigan City. It is also practically in Chicago's backyard. The Chicago South Shore and South Bend Railroad can get you there in just over an hour for less than $5.

Huge sand dunes, some anchored by forest, some left to the wind, offer excellent beach walking and hiking on 13,000 acres. For information, contact Indiana Dunes National Lakeshore, Porter, IN 46304, (219) 926-7561.

Santa Monica Mountains

Often referred to as "Hollywood's own national park," the park borders some of Los Angeles County's most sophisticated neighborhoods. Filming for commercials, movies, and TV's *The Fall Guy* took place at the studio-owned Paramount Ranch within the park.

Santa Monica Mountains has been one of the most problematic of the urban parks. Land costs in this area are sky high, and NPS and state holdings combined are less than half the park area. Both agencies have exhausted their budgets and the park is likely to remain a tenuous balance of interest between urban communities, universities, and private groups operating within its borders.

Still, the park's checkerboard property preserves critical habitat for birds of prey. While some national park areas are minutes from Los Angeles, others are remote and wild.

Bicycling, rock climbing, and beach sports are particularly popular in the park. Whale watching is a favorite pastime along the high ridges of famous Mulholland Scenic Drive. From Castro Crest, a 360-degree view contrasts the sprawling urban landscape of L.A. with the unmarred blues of the Pacific. For information, contact Santa Monica Mountains NRA, Woodland Hills, CA 91364, (818) 888-3770.

Chattahoochee River

Serving a community of three million, Chattahoochee consists of 14 riverside units scattered throughout the Atlanta region. The NPS controls all 48 miles of river, connecting the units. Unfortunately, no public buses reach the park, although plans for them are being considered.

Administrator John Maple says a majority of the park's visitors are local residents enjoying the fitness trails, nature walks, and river sports so near their city. In the summer, flotillas of rubber rafts and kayaks descend on the river, and sun worshippers and picnickers cover the exposed midriver rocks.

Downstream, trout fishing in Georgia's coldest river is always a big draw. Of all the seasons, spring is arguably the most beautiful, when the redbuds and dogwood trees bloom, bringing swatches of color to the river banks. For information, contact Chattahoochee River NRA, Dunwoody, GA 30338, (404) 394-7912.

Jean Lafitte

The War of 1812, the roots of jazz, French joie de vivre, Cajun cooking, and alligators floating in Louisiana swampland—quite a mix for one park. Jean Lafitte National Historical Park and Preserve's three cultural areas and one natural reserve pay tribute to both the history and biology of the Mississippi Delta region.

The Chalmette Unit, seven miles from the city, protects the site of the War of 1812's Battle of New Orleans. A visitor center in the city's French Quarter offers walking tours of this colorful neighborhood. The new Acadian Unit, 200 miles away, highlights the rich folklore of the Acadians, a French community that moved to the Delta after being run out of Canada in the mid-1700s.

Barataria, the one natural site, is located 15 miles into swamp and bayou country. In its three ecosystems—hardwood forest, bald cypress swamp, and freshwater marsh—wildlife abounds and alligators, along with more than 200 bird species, attract park visitors. Wading birds, such as herons and roseate spoonbills, are particular delights.

Jambalaya, the title of the park's introductory film, says it all. Defined as a piquant Creole stew made with most kinds of meat and some vegetables, jambalaya is what Louisiana culture is all about. And don't forget the spice, plenty of spice. For more information, contact Jean Lafitte National Historical Park and Preserve, New Orleans, LA 70130, (504) 589-3882.

Liza Tuttle, formerly assistant editor of National Parks, *is currently studying at the Medill School of Journalism.*

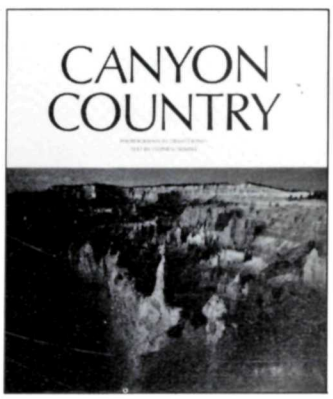
TRIBUTE TO EXCELLENCE

Marjory Stoneman Douglas Award

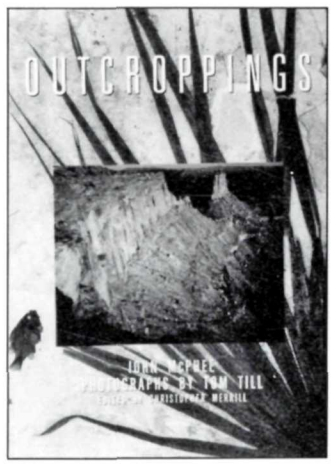
Jimm Roberts, Orlando Florida

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.

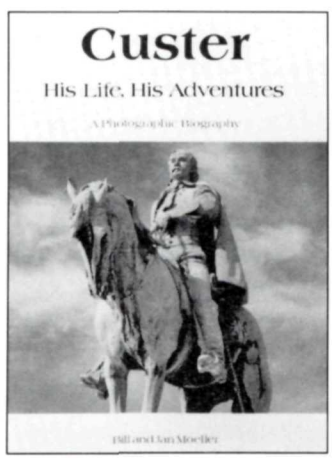
Nature's America ■ David Muench; 160 pp, color photos; HB, X110, $40.00. In the first collection devoted to his work, America's master nature photographer brings together photographs from the West and the East, the North and the South. Asking, "What is an American?", Muench looks for the answer in the landscape that has shaped the country's history and spirit. The result is a portrait of a nation through its wild places and green retreats, its open spaces and hidden beauties.



Canyon Country ■ Dewitt Jones, text by Stephen Trimble; 160 pp, color photos; HB, X109, $37.50. The Navajo say that in Canyon Country Father Sky meets Mother Earth. From the famous Arches and Grand Canyon to the remote desert, Jones captures on film the landscape's glory, which lies in the rock leaping up to meet the sky or plummeting in sheer cliffs to the water's edge, in the stark forms and blossoming color. The text provides commentary and a sense of the significance Canyon Country has had for all who have lived there.



Outcroppings ■ John McPhee; 130 pp, color photos by Tom Till; HB, X107, $34.95. "The West is where the rocks are," says writer McPhee; there, rock is history made into dramatic scenery. In these excerpts from McPhee's writings, he fuses natural and human history in striking prose, exploring the relationships between the land and the people — settlers, geologists, conservationists — whose lives have been shaped by it. Tom Till's photographs reveal the grandeur and poetry of the rocky West landscape.



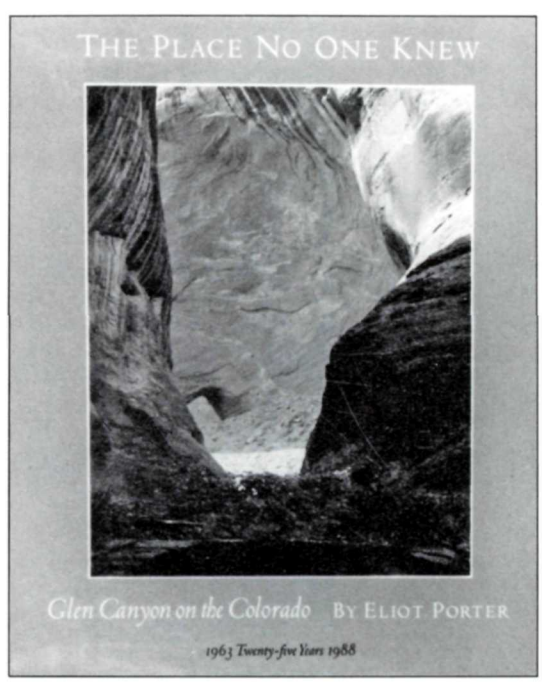
Custer, His Life, His Adventures ■ Bill and Jan Moeller; 144 pp, color photos; HB, C199, $34.95. The authors explore the career and battles of the controversial general in a new way, through photographs of the landscapes, buildings, and battlefields that formed the backdrop to his life. They appear here as they did in Custer's time, and bring a fresh perspective to the history narrated in the accompanying text.

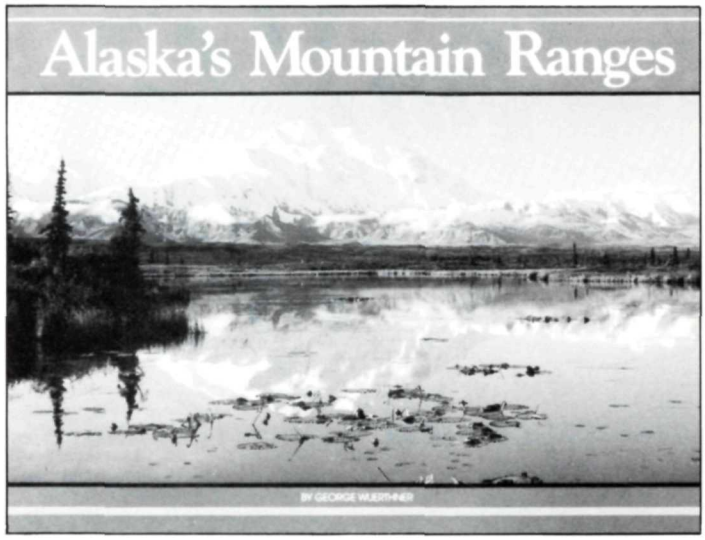
PARK PUBLICATIONS 1989

The Park Education Center at the National Parks and Conservation Association is pleased to present a choice sampling of some of our nearly 400 titles that we offer on the national parks. There are a number of new items in this listing as well as some popular favorites. We invite you to call 1-800-NAT-PARK if you did not receive our spring catalog with the complete listing of national park titles available. Since 1919, NPCA has been preserving and protecting your national parks. The proceeds from your order will be used to further educational programs at NPCA and the National Park Service. We encourage you to do your holiday shopping by mail this year and support the parks by doing so.

Order early to ensure delivery and use our 800 number for faster service. Please plan on a 4 to 6 week delivery time, rush orders add $3.00.

The Place No One Knew: Glen Canyon on the Colorado ■ Eliot Porter; 184 pp, color photos; HB, X108, $45.00. An elegy to Glen Canyon, "an irreplacable grandeur" of steep cliff and mysterious color that was lost forever in 1963 with the construction of the Glen Canyon Dam. Porter's photographs of this wild, magical place go beyond documentation of what disappeared. They form a cry for a renewed sense of awe and for vigilance against another such loss. Limited availability — order now.



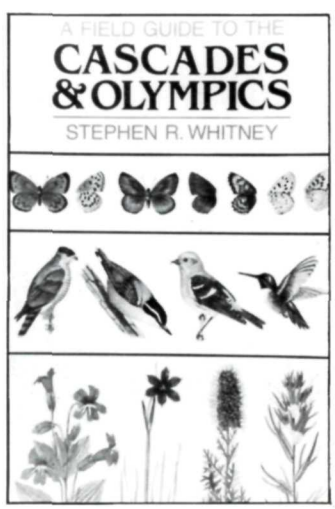


Alaska Parks

Alaska's Mountain Ranges ■ G. Wuerthner; 104 pp, color photos, maps; PB, A100, $15.95. An exceptional book filled with photos of the Alaskan mountain ranges and discussion of the geology, vegetation, wildlife and people of the Alaskan mountains.

Pacific Northwest Regions

NEW A Field Guide to the Cascades and Olympics ■ Stephen R. Whitney; 288 pp, color and black and white illustrations; PB, A150, $14.95. More than 500 species of plants and animals found in the Cascade Range and the Olympic Mountains appear in this compact, beautifully illustrated guide, along with surveys of geology, geography, and ecology.



The Hiker's Guide to Washington ■ Ron Adkison; maps, b/w photos; PB, A118, $9.95. Detailed information on 75 hiking trips in Washington State including the Rocky Mountains, the Cascades and the San Juan Islands.

Grand Canyon NP

Grand Canyon: An Anthology ■ Compiled and introduced by former Arizona Senator Bruce Babbitt; b/w photos; PB, B179, $11.95. An outstanding selection of writings examining the Grand Canyon from several different viewpoints. Authors include John Wesley Powell, Edward Abbey, and Teddy Roosevelt.

The Great Unknown: The Journals of the Historic First Expedition Down the Colorado River ■ John Cooley; 207 pp, maps, historical drawings; HB, B164, $21.95. A beautiful addition to anyone's library. This book tells the story of the Powell expedition, the first group of white men to explore the Grand Canyon. A collective narrative of all the surviving journals, letters and accounts of the 1871 trip.

Western Region

Bicycle Touring Arizona ■ D. Coello; 136 pp, maps; PB, B170, $11.95. A complete guide with equipment lists, maps, side trips. Nine different loops including the Grand Canyon, Zion, Canyon de Chelly, Mesa Verde and Petrified Forest.

NEW Coast Walks: One Hundred Adventures Along the California Coast ■ John McKinney; 264 pp, black and white photographs and maps; PB, B199, $10.95. Ranging from easy one-mile strolls to challenging ten-mile hikes, this series of walks explores the wildlife, beaches, forests, and natural variety of the California coastal park units.

NEW Day Hiker's Guide to Southern California ■ John McKinney; 264 pp, black and white photographs and maps; PB, B199, $10.95. More than one hundred hikes fill this book, which includes clear maps and directions, and interesting natural and historical details.

California Deserts ■ Jerry Schad; 104 pp, color photos, maps; PB, B171, $19.95. Featuring the East Mojave NSA, Joshua Tree NM and Death Valley NM. An in-depth look at desert life: the geology, history, climate, flora and fauna. Beautiful photos capture the stark power of the desert.

Hawaii Parklands ■ Marnie Hagmann; 112 pp, color photos, maps; PB, B172, $14.95. A beautifully photographed interpretive guide to the parks in Hawaii.Includes an informational directory of all Hawaii parklands and their facilities.

Utah Canyon Country ■ F.A. Barnes; 120 pp, color photos, maps; PB, B176, $17.95. Utah parklands: the natural history, human history, national parks and monuments, and the outdoor activities available in Canyon Country. Stunning photos capture the beauty of the state.

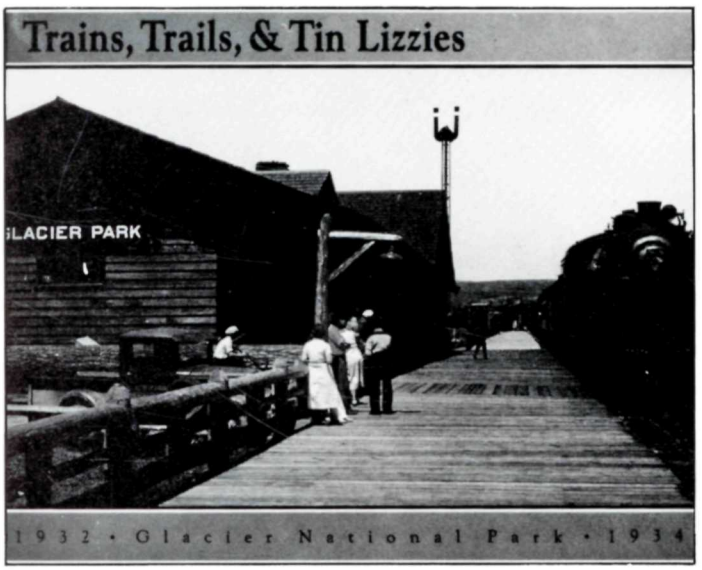
Visions of the Colorado Plateau Postcards ■ Tom Till & John Telford; 28 postcards, color; B178, $7.95. A beautiful set of postcards showcasing the Southwestern park areas.

Bryce Canyon NP

Bryce Canyon ■ Fred Hirschmann; 112 pp, color photos; PB, C161, $12.95; HB, C162, $19.95. A photo essay of Bryce Canyon National Park.

Glacier NP

Glacier Country: Montana's Glacier National Park ■ Dave Alt et al; 104 pp, b/w and color photos; PB, C163, $13.95. Filled with beautiful photographs and a fascinating discussion of the park by four experts: a geologist, an historian, a naturalist and a ranger.



Trains, Trails & Tin Lizzies ■ G. McFarland; 72 pp, quadtone photos; HB, C125, $34.95. Features the phenomenal photography of George A. Grant. Documents travel and the early Glacier visitors in the 1930s. The book's text is excerpted from historic superintendent and ranger reports during the era. A truly wonderful book for lovers of Glacier National Park.

Yellowstone NP

Summer of Fire ■ Jim Carrier; 100 pp, color photos; PB, C167, $12.95. A close-up look at the historic fires of 1988 in Yellowstone National Park. This book examines the complex issues brought forward as a result of the fires, including firsthand accounts from those directly involved. Forward by Robert Barbee, superintendent of Yellowstone National Park.

Rocky Mountain Region

National Parks of the Rocky Mountains ■ K. & D. Dannen; 120 pp, color photos; HB, C171, $14.95. Beautiful photos and important travel information on Rocky Mountain, Grand Teton, Yellowstone and Glacier/Waterton Lakes National Parks.

Secrets in Yellowstone and Grand Teton National Parks ■ Lorraine Salem Tufts; 82 pp, 110 color photos; PB, C172, $19.95. For the nature enthusiast, this large format work is a photographic delight including wildlife, scenic wilderness, and hydrothermal highlights as well as detailed photographic information with each picture.

Native American Culture of the Southwest Region

Enemy Ancestors: The Anasazi World with a Guide to Sites ■ Gary Matlock; 128 pp, b/w drawings, color photos; PB, D147, $19.95. Explore the world of the Anasazi, the Ancient Ones; featuring Mesa Verde and Chaco Canyon.

Kiva Art of the Anasazi ■ KC Publications; PB, D140, $14.95; HB, D141, $35.00.

Isle Royale NP

NEW **Isle Royale National Park: Foot Trails and Water Routes** ■ Jim DuFresne; 136 pp, black and white photographs and maps; PB, E108, $9.95. The first island to have been included in the National Park system offers 170 miles of trails, a dozen lakes, wolves, moose and more, documented in this detailed and authoritative guidebook. Includes a history of the island, flora and fauna descriptions and means of transportation to the island.

Voyageurs NP

Voyageurs National Park ■ Greg Breining; 56 pp, color photos, b/w illustrations; PB, E106, $8.95.

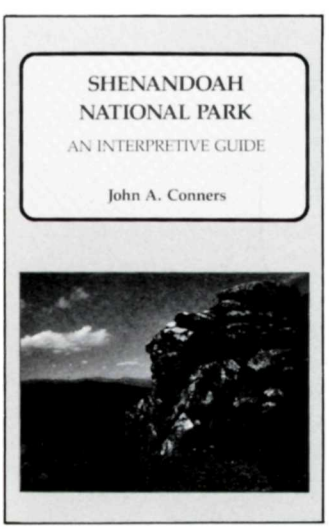
NEW **Voyageurs National Park: Water Routes, Foot Paths, and Ski Trails** ■ Jim DuFresne; 176 pp, black and white photographs and maps; PB, E109, $9.95. Voyageurs is the most water-dominated national park, and this guide provides routes for those paddling, skiing, or walking within it, as well as overviews of history and wildlife.

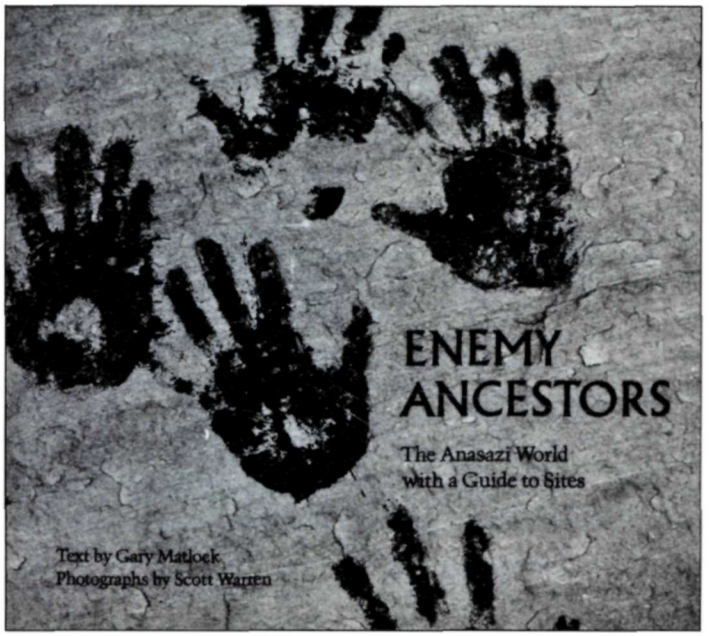
Midwest Region

Northwoods Wildlife: A Watcher's Guide to Habitats ■ Janine M. Benyus; 456 pp, black and white illustrations and maps; PB, E110, $19.95. This guide to the woodland animals of Minnesota, Wisconsin, and Michigan is organized by habitat, and provides advice for wildlife watching as well as detailed information about the animals.

Shenandoah NP

Shenandoah National Park: An Interpretive Guide ■ John Conners; 214 pp, b/w photos, maps; PB, G126, $14.95. A general guide covering the geology, weather, flora, human history of Shenandoah as well as giving detailed visitor information including hiking trails. A helpful addition to trip planning.





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Regional Guides to the National Parks

NEW **The Complete Guide to America's National Parks: 1988-1989 Edition** ■ National Park Foundation; 572 pp, black and white maps and charts; PB, W115, $9.95. All 354 national park areas are covered in this comprehensive handbook, which should prove indispensible for planning a trip. It lists activities, points of interest, lodging, directions, phone numbers, and other useful information, including year-round temperature charts for each park.

Guide to the National Park Areas: Eastern States ■ D. & K. Scott; 255 pp, b/w photos, maps; PB, W101, $10.95. Covering 200 park areas east of the Mississippi. A helpful car guide and an excellent tool for pre-trip planning. Historical information, phone numbers, addresses and facility descriptions.

NEW **Guide to the National Park Areas: Western States, second edition** ■ David L. and Kay W. Scott; 346 pp, black and white maps and charts; PB, W108, $10.95. This guide provides brief descriptions of the history and natural beauties of each park, directions, and detailed information on facilities and activities.

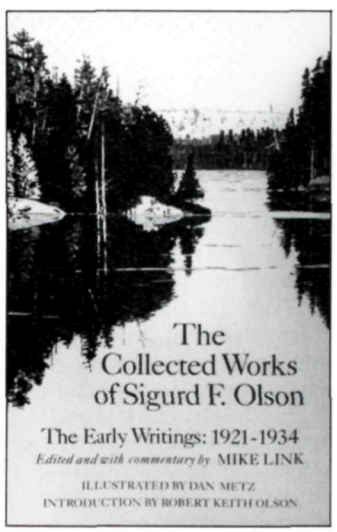
The National Seashores: The Complete Guide to America's Scenic Coastal Parks ■ R. & W. Wolverton; 290 pp, b/w maps, illustrations; PB, W102, $9.95. An in-depth guide to the ten national seashores, including Cape Cod, Assateague, Cape Hatteras, Canaveral and Point Reyes. Maps, history, things to do, flora and fauna descriptions, and much more.

Arlington House, The Robert E. Lee Memorial

Arlington National Cemetery: Shrine to America's Heroes ■ James Peters; 340 pp, b/w photos; PB, G125, $9.95. A wonderful accompaniment for one's trip to Arlington and a fascinating collection of information. This book covers the history of Arlington House, Robert E. Lee's home, as well as giving in-depth histories of those buried in Arlington Cemetery. A helpful fold-out map is included.

The Writings of Naturalists

NEW **The Collected Works of Sigurd F. Olson, The Early Writings: 1921-1934** ■ Ed. by Mike Link; 281 pp, black and white illustrations; HB, X111, $17.95. One of this century's most popular nature writers, Sigurd Olson delighted America with his books about the rugged wilderness of northern Minnesota and Canada. In this collection of his early writings, readers can trace his development as an environmentalist through his nature essays and fictional pieces.



Desert Solitaire ■ Edward Abbey; 255 pp, b/w illustrations; HB, X101, $24.95. A commemorative edition in celebration of the twentieth anniversary of publication. This is a classic of contemporary nature writing on the Southwest.

NEW **The Earth Speaks** ■ Ed. by Steve Van Matre and Bill Weiler; 190 pp, black and white illustrations; PB, X106, $9.95. Writers who "speak for the earth" from many countries and times appear in this selection of nature meditations. This book gathers together many quotes and passages on nature: some are old favorites, some are newly insightful. A wonderful collection of line drawings complements the text. A perfect gift for an "earth lover."

NEW **Mirror of America: Literary Encounters with the National Parks** ■ Ed. by David Harmon; 191 pp, black and white illustrations; HB, X105, $25.00. Abraham Lincoln, Charles Dickens, Mark Twain, Rudyard Kipling, and the great American nature writers of the past and present: all have contemplated the lands that are today the national parks. This diverse assembly of their writings not only reflects the beauty of the parks, but also provides a fascinating set of perspectives on America.

The Natural History Essays ■ Henry David Thoreau; 262 pp, PB, X102, $9.95. A collection of all of Thoreau's known natural history essays.

Wilderness Essays ■ John Muir; 264 pp, PB, X103, $9.95. A collection of essays by the incomparable Muir reflecting his belief in the fundamental necessity of nature in our lives.

Words from the Land: Encounters with Natural History Writing ■ Edited by Stephen Trimble ; 303 pp, HB, X104, $17.95. Celebrate the marvel of nature through eloquent, passionate selections by contemporary natural history authors. A beautiful addition to any library.

Special Titles of Interest

Backpacking Basics ■ T. Winnett, with M. Findling; 136 pp, black and white illustrations; PB, K119, $7.95. This guide to "enjoying the mountains" explains the elements of backpacking and camping for first-timers. It covers food, getting in shape, how to set up a campsite and how to help children enjoy the wilderness.

NEW **The Civil War** ■ Bruce Catton; 382 pp, black and white illustrations and maps; PB, G130, $9.95. Bruce Catton is one of America's best-known historians on any subject, and the pre-eminent historian of the Civil War. His classic one-volume survey remains a clear, authoritative account of the war's military and political aspects.

NEW **Desert Hiking** ■ Dave Ganci; 180 pp, black and white illustrations; PB, K120, $9.95. Hikers are increasingly drawn by the challenge and beauty of deserts, and the author outlines for them the elements of planning and enjoying a safe trip. Tips include clothing, first aid, food and trip planning.

NEW **Sharing the Joy of Nature: Nature Activities for All Ages** ■ Joseph Cornell; 176 pp, black and white photos; PB, J199, $6.95. An experienced nature educator shares his "flow learning" method of teaching nature awareness. His four stages build upon one another for a full experience of the natural world. The book contains a wide range of activities which can be used for groups of any size, age, and appreciation level. An excellent book for anyone considering park/nature interpretation or wishing to involve their children in the natural world.

Video Tapes

NEW **The Civil War Generals Video Set** ■ Three videos which trace the remarkable lives of three American military legends: Robert E. Lee, Ulysses S. Grant and Stonewall Jackson. These biographies blend contemporary footage of the historical sites with archiaval photographs, drawings and rare documents. The Civil War Generals series chronicles the histories of the men who changed American history. 30 minutes each. VHS. P126, $59.85 Price includes attractive box for storage. Individual tapes $19.95 each. Robert E. Lee, P127; Ulysses S. Grant, P128; Stonewall Jackson, P129.

Acadia National Park: American Visions ■ A beautiful portrait of one of America's best-loved parks. VHS, P111, $19.95.

The Great Smoky Mountains: American Visions ■ A reflection of the timeless beauty of Great Smoky National Park. Featuring the photography of David Muench and Pat O'Hara and original music by Jackson Berkey, member of Mannheim Steamroller. VHS. P113, $19.95.

Hidden Worlds of Big Cypress Swamp ■ This Everglades wildlife video is an interesting look at the vast array of life in the waters of Everglades National Park. 45 minutes. VHS. P175, $19.95.

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Rivers of Fire: An Eruption of Hawaii's Mauna Loa Volcano ■ Witness an actual volcano erupting! A dramatic and unbelievable video. 30 minutes. VHS P105, BETA P118, $39.95.

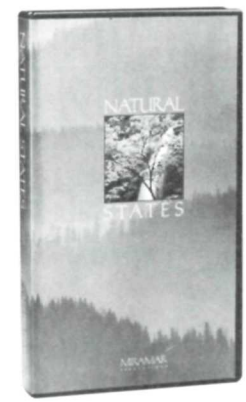
River Song: A Natural History of the Colorado River ■ Narrated by Richard Chamberlain. 40 minutes. VHS. P106, $29.95.

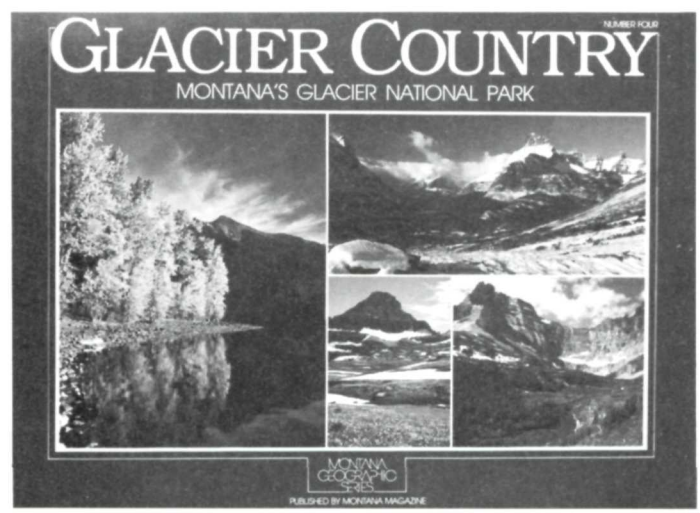
Touring Alaska ■ A 52-minute glimpse of America's last frontier. Travel to Mt. McKinley, Glacier Bay, the Inside Passage, Juneau and Sitka. VHS. P107, $29.95.

Touring America's National Parks ■ A 60 minute journey through 17 of America's greatest treasures. VHS. P108, $29.95.

Touring Civil War Battlefields ■ The Civil War comes to life in this award-winning 60 minute sojourn through Manassas, Antietam, Fredericksburg, Gettysburg, ending with the Surrender at Appomattox Court House. VHS. P109, $29.95.

Wild Alaska! ■ View Alaska's wildlife in their struggle for survival on the alpine tundra in the shadow of Mt. McKinley, and the vast expanses of the frozen North Slope. 60 minutes. VHS. P110, $29.95.





Games

National "Park Wit" Discovery Games ■ A unique card game focusing on our national parks. Each card features a color photograph and intriguing park questions. 4 versions, each with 108 different cards. $5.95 each. National Park Wit, N115. Yellowstone & Grand Teton Wit, N116. Civil War Wit, N117. Northwest National Park & Forest Wit, N118. **BONUS:** Entire set of 4 games, N119, $23.75.

National Park Jigsaw Puzzles ■ Full-color, 500 piece puzzles accurately reproduced from U. S. Geological Survey maps. Once assembled, the puzzles show scenic routes, trails, elevations and contour lines, and fascinating points of interest. $10.50 each.
Grand Canyon National Park Puzzle N120.
Yosemite National Park Puzzle N121.
Yellowstone National Park Puzzle N122.
Mount McKinley, Denali National Park Puzzle N123.
Acadia National Park Puzzle N124.

Three new puzzles this fall!
Mount Rainier National Park N126
Rocky Mountain National Park N127
Washington, D.C., including Arlington National Cemetery N128

BONUS: Any five of the above puzzles for $47.25 (please indicate by order number which five puzzles you choose) N125

Predator: The Food Chain Game ■ 40 illustrated cards; J114, $7.95, Ages 8-adult. This game is a terrific way to teach children about the natural food relationships in a forest. The perfect game for wildlife educators. Small enough to take on trips.

Collectibles

NEW **Endangered Wildlife Jewelry** ■ Sterling Silver jewelry is a beautiful way to express your feelings about the preservation of wildlife. These pieces are unique designs from Fiskin LaBarge and a portion of all revenues will be contributed to animal preservation causes. Give the gift of life this holiday season.

A special NPCA cause, wolf reintroduction into natural habitat, is reflected in the wolf keychain and earrings shown here. Wolf earrings, $42.50 pair, WE101 (pierced only, not returnable); Wolf keychain, $22.50, WKC102.

The power of an elephant in the wild is felt in the spirit of the elephant bolo tie and necklace. Elephant bolo tie with genuine leather cord and sterling silver tips, $62.50, EB101; Elephant pendant with 18" sterling silver chain, $62.50, EP102.

NPCA Hamilton Bay Pullover ■ Heavyweight 100% polyester arctic fleece, tailored collar, hand pockets, knit cuffs and waistband, machine washable. Features embroidered NPCA logo. Sizes: S, M, L, XL. White or Gray. N101, $32.50.

NPCA Popover Pouch Jacket ■ 100% ripstop nylon, drawstring hood, elastic cuffs. Folds into zipper pouch pocket. Royal blue with white NPCA logo. Adult sizes: S, M, L, XL. N102, $19.95.

NPCA Polo Shirts ■ Cotton/polyester knit with NPCA logo. Green or White. Adult Sizes: S, M, L, XL. N103, $16.95.

NEW **NPCA T-shirts** ■ 100% Cotton by Long John Shirts. White with green silk-screened NPCA logo. Adult sizes S, M, L, XL. N114, $9.95.

NPCA Patch ■ NPCA bear logo embroidered in green, gold and brown on white background. N109, $2.50.

NEW **NPCA Long-sleeve, three button shirts.** ■ 100% Cotton by Long John Shirts. White with small green silk-screened NPCA logo. Adult sizes S, M, L, XL. Unisex. N115, $19.95.

NPCA Stuffed Bear ■ Plush 8" toy made of safe, non-flammable synthetic material. N126, $15.95.

NPCA Coffee Mug ■ Handsome, 11 ounce stoneware coffee mug, dishwasher safe. Green NPCA logo fired on an almond mug or a white mug. N128, $5.50.

Children's Books

Not Even Footprints ■ Marj Dunmire; 64 pp, PB, J113, $4.95, Grades 4-8. This terrific book uses games, stories, and puzzles to introduce children to the ways of the outdoors. The ideal book for home enjoyment as well as a must for long car trips.

Washington, D.C., Guidebook for Kids ■ C. Bluestone and S. Irwin; 64 pp, b/w photos, PB, J117, $5.95. A great collection of facts, games, puzzles and maps for pre-teens visiting our Nation's Capital. A wonderful book for all ages with an excellent city map and detailed information about the monuments and historical sites.

NEW **Wildlife of Cactus and Canyon Country** ■ Marj Dunmire; 48 pp, PB, J118, $3.95; Ages 6-10. A coloring book that teaches children about wildlife through games, puzzles and lifelike drawings.

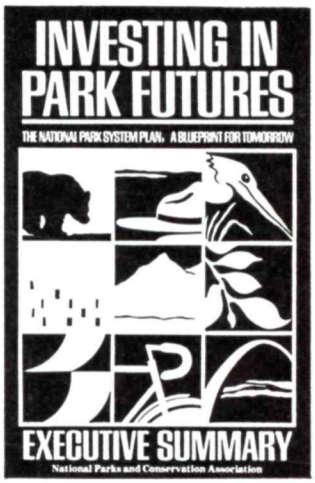
NPCA Publications

INVESTING IN PARK FUTURES. The National Park System Plan: A Blueprint for Tomorrow:

Executive Summary ■ Details NPCA's landmark three-year study of the National Park System. Includes brief discussions and recommendations on nine major issues. 1988. PB, L102, $9.95

National Parks: From Vignettes to a Global View ■ A 17-member citizen science commission rethinks park policies and poses a new vision for the National Park System. PB, L111, $9.95.

Our Common Lands: Defending the National Parks ■ Essays on the legal issues of protecting public lands. The most comprehensive book to date on the legal problems facing our parks. PB, L107, $24.95; HB L108, $45.00



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Return of the Rails

VISITORS CAN now, after a 21-year hiatus, ride the rails into Arizona's Grand Canyon National Park. The Grand Canyon Railway, which returned to service on September 17, will run 64 miles between Williams, Arizona, and the South Rim of the canyon on a route first used in 1901.

The steam engines and passenger cars are authentically restored in the style of the 1920s. It was a nostalgic journey for many, reminiscent of childhood trips. Many on the "reinaugural " ride said the 64-mile route is more scenic and varied than the drive from Williams to Grand Canyon Highway, and far more relaxing.

It passes volcanic cinder cone mountains, winds through forests of pine and juniper, and glides across open sagebrush desert, finally curving down a small canyon onto the South Rim.

NPCA is particularly pleased about the new route because it offers visitors an alternative to using their cars on the already crowded roads to the park. During peak tourist season, heavily visited parks such as Grand Canyon, Yosemite, Yellowstone, and Acadia face severe traffic congestion that can resemble an urban rush-hour scene. NPCA expects improved air quality to be another benefit of the railway.

Grand Canyon will be the fourth national park to feature such a railroad service. The other three are Glacier National Park, Montana; Denali National Park, Alaska; and New River Gorge National River, West Virginia.

The NPS is also planning a shuttle service for rail passengers once they are in the park.

The trip takes two and a half hours. Round-trip fare is $37 per person ($21 for children under 12). Regular weekend service is offered this fall through December 2. Daily service is scheduled to begin March 1. Reservations are advised. Call 800-The Train.

When the first train on the new Grand Canyon Railway steamed into the park's South Rim, a celebration complete with a marching band was there to greet it.

RUSSELL BUTCHER

Insights Into Architecture

So many children's books are being published that teach natural and cultural history that sometimes it is difficult to know what's good.

One of the best we've seen is an introduction to architecture, *I Know That Building!* by Jane D'Alelio. This clever, sophisticated book is as much fun for adults as it is for children. It manages to instruct without talking down to its readers and make jokes without being cute. Full of color and art, there are 200 illustrations and 30 games.

Many pages are perforated so you can detach them to play the cards or some of the other games offered. You learn a little history, a little physics, some design, and a lot about popular culture—better than much public television.

I Know That Building!, Discovering Architecture with Activities and Games, by Jane D'Alelio, The Preservation Press, Washington, D.C., 1989, 88 pages, color illustrations.

Animal Architects

A children's architecture book that takes a different tack is *The Architecture of Animals* by Adrian Forsyth. This book explores the animal kingdom, from mollusks to mammals, and describes the kinds of shelters animals build for themselves. With animals, form follows function. For instance, even the book's slightly wooden prose cannot mask the fascinating paper-making skills of wasps, whose nests are built in hexagonal units, the most stable design in nature. *The Architecture of Animals*, by Adrian Forsyth, Camden House Publishers, Charlotte, VT, 1989, 72 pages, color photographs.

A Perennial Favorite

The new *Helping Out in the Outdoors* is out in its 18th edition, another good job by the American Hiking Society (AHS). This directory of volunteer work on American public lands offers more than 400 opportunities for an outdoors, working vacation. Jobs include campground hosts, trail maintenance, crew, and wilderness and backcountry rangers. For a copy, send $3.00 to the American Hiking Society, 1015 Thirty-first St., N.W., Washington, D.C. 20007.

GRIZZLY

Continued from page 26

involves the whitebark pine. Preliminary mapping suggests that between 10 and 20 percent of the whitebark pine trees in the greater Yellowstone ecosystem were affected by fire.

Whitebark pine nuts are a critical fall food source for grizzly bears, and continued study and monitoring will be necessary to determine how much this loss will affect the bears. Park officals are not sure why, but, despite the loss of trees, as of late August, 1989, it was clear that this year's pine nut crop will be an exceptional one.

It is too early to report anything conclusive about the fire's effects on grizzly bears in 1989. As of late August, there have been relatively few problems with the bears, who seem to be foraging and preying with enthusiasm and success.

General scientific speculation has it that the fires will have at least short-term advantages for Yellowstone's grizzly bears. By opening the dense forest canopy, the fires should increase forage production for both bears and their prey. The further, complex effects of fire in such a large area will certainly merit study over the next few years.

—Paul Schullery

GRIZZLY

Continued from page 29

Protecting such areas, the coalition says, would then become critical. The GYC cites, however, the existence of "black holes," places where grizzly deaths are concentrated, as evidence that the dangers have only been partially eliminated. Most black holes are places where bears can still find human food. At Fishing Bridge/Yellowstone Lake area, for example, grease from park food services flows into a sewage lagoon. Ten bears have been killed here in management controls since 1975.

Looking ahead, the GYC stresses the uncertainty of the bears' future. While no one human use of bear habitat will doom the grizzlies, GYC fears that the cumulative effects may do so and that officials are paying inadequate attention to the problem.

—Elizabeth Hedstrom

NOTICES

Poaching Hotline

In our May/June issue, *National Parks* covered one of the biggest threats now facing the parks: wildlife poaching.

Public response to the article was so great that NPCA has started a confidential, 24-hour, toll-free hotline for reporting any wildlife poaching or illegal collection activities. If you see any activity in the national parks that you believe may be poaching, call 1-800-448-NPCA.

As we reported, profiteers equipped with helicopters, high-caliber weapons, and two-way radios are targeting national park wildlife. After the kills, poachers sell body parts to trophy collectors or on the international black market, where such "medicines" as bear gall bladder and elk antler can be worth their weight in gold.

There are not enough rangers and federal wildlife agents to catch more than a tiny fraction of offenders, who may be endangering the survival of Yellowstone grizzlies and Great Smoky Mountain black bears, and threatening elk, wolves, bighorn sheep, rare southwestern reptiles, and other animals in national parks across America.

The hotline is part of NPCA's Save Park Wildlife Now! action campaign, which also includes:

- ▲ Investigating each poaching report and notifying the appropriate law enforcement authorities;
- ▲ Encouraging a crackdown on poachers, in cooperation with the National Park Service and the U.S. Fish and Wildlife Service;
- ▲ Working to improve the enforcement of poaching laws through increased funding;
- ▲ Launching a massive public education campaign.

March for Parks

Join the National Parks and Conservation Association in its March for Parks, Saturday, March 24, and Sunday, March 25, 1990. The 5K-to-10K walk event will take place along scenic walk routes in approximately 100 cities and towns across America. Community groups will organize the March in each location, and funds raised will benefit national, state, and local parks. [See "Outlook," page 5.] Look for Woody Woodpecker as official March for Parks mascot.

The March for Parks is a kick-off event for Earth Day 1990 activities. Contact NPCA at 1-800-NAT-PARK in order to get involved.

Celebration

You are invited to an evening of dinner and dancing on November 16, 1989, when NPCA holds its Tenth Annual Members Reception and Dinner at the Grand Hyatt Hotel in Washington, D.C. For more information, contact Elliot Gruber, NPCA, 1015 Thirty-first Street, N.W., Washington, D.C. 20007, (202) 944-8530.

◆ THINK OF NPCA THIS HOLIDAY SEASON ◆

Legal protection for our national parks . . . Saving international parks . . . Rewarding outstanding park protection journalism . . . There are countless ways in which you can help NPCA expand its programs on the national parks!

At NPCA we have many ideas for new and exciting programs, and for more efficient ways of doing what we already do. Help us make some of these holiday wishes come true with your gift, in whole or in part, of any of the following items. And thank you for your support!

1. To open new areas of NPCA policy and park protection:
- Fund a John Steinbeck Theme Study, to pave the way for national park recognition of one of America's greatest writers: $12,000
- Establish a National Parks Litigation Fund, to increase legal protection of national park resources: $150,000
- Establish an endowed chair for International Park Protection: $350,000

2. To encourage the thoughtful discussion of national park issues:
- Establish NPCA media awards for outstanding park protection journalism: $50,000
- Produce an educational video on national park issues: $10,000
- Update NPCA's "National Parks: More Than Just Places" educational slide show: $5,000

3. To bring NPCA headquarters into the 1990s:
- Laser printer: $1,800
- MAC computer with Pagemaker software: $10,000
- Fax machine for an NPCA regional office: $1,600

4. To encourage individual leadership on behalf of the national parks:
- Fund rewards for information leading to the conviction of poachers: No limit
- Fund the Holland-Utley Award for outstanding National Park Service staff contribution to cultural resources: $2,500
- Purchase a *National Parks* gift subscription for a senator, representative, or other elected official: $25
- Fund a targeted mailing to senators and representatives on clean air issues: $250

5. To assist program and administrative work at NPCA headquarters:
- Fund a summer internship: $3,000
- Purchase a subscription to *Environmental and Energy Weekly Bulletin*: $295
- Design and print a new NPCA membership brochure: $6,000

Send your contribution to NPCA's Holiday Wish List, 1015 31st Street, NW, Washington, DC 20007. For more information contact Elliot Gruber, Director of Development and Public Relations, at (202) 944-8530.

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NPCA POACHING HOTLINE

See pages 6 and 50 for details

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BLM:	Bureau of Land Management	NPCA:	National Parks and Conservation Association
LWCF:	Land and Water Conservation Fund	NPres:	National Preserve
NB:	National Battlefield	NPS:	National Park Service
NHP:	National Historical Park	NR:	National River
NL:	National Lakeshore	NRA:	National Recreation Area
NM:	National Monument	NS:	National Seashore
NP:	National Park		

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LYNDON B. JOHNSON NHP

LBJ Ranch: Heart's Home

THE VOICES of grandfathers still ring clear in Texas Hill Country. These people knew their roots long before it became fashionable to trace one's family history.

Lyndon Johnson was fond of quoting his ancestors. He, too, lived in Hill Country, like his father and his father's father before him. In a distance of less than a quarter mile, Lyndon Baines Johnson was born and is buried. He always remembered his beginnings—and he was drawn back to the hills throughout his life, as he said, "to refill my cup, to recharge myself."

It could be the tenacious stone fences, crumbling now and partly hidden by brush, the solid, hand-hewn limestone barns beside the road, or the cool shade cast by a venerable live oak. All seem artfully designed to make a person want to come back, to remember.

Elemental applies to Hill Country. Its essentials are sun, rock, and water. This is the beginning of the Texas "big sky" country, where the greys give way to blues and the horizon opens out like a pair of big arms.

The lovely, hardy bluebonnets, as much a trademark of Texas as Stetson hats, thrive in caliche-packed soil. Tall grasses, juicy and delectable to grazing animals, also know the secrets of the hills.

But newcomers from the East, having heard overblown promises of wealth and good fortune to be skimmed from the land, did not have time to learn. The demands of food and shelter were imminent. They did not discover soon enough the new formula of living that the plains demanded.

Many Hill Country pioneers felt the pain of defeat. Some gave up and left for good, like the one who chalked this inscription on his Blanco County log cabin:

250 miles to the nearest post office.
100 miles to wood.
20 miles to water.
6 inches to hell.
God bless our home.

As a consequence of the elements dealt them by the Hill Country, the people developed a strong strain of independence.

Their region was the birthplace of an agrarian, populist political tradition that would forever see the small farmer as a greater good. Teetering precariously on the brink of disaster if they could not achieve self-sufficiency, they began to realize the tentativeness of their existence on this land.

From this somehow curious mixture of eastern and western values, in which the individual and the lessons of the past counted, rose Lyndon Baines Johnson.

Excerpted from Heart's Home, Lyndon B. Johnson's Hill Country; *by Rose Houk; photography by John Oldenkamp & Cynthia Sabransky; Southwest Parks and Monument Assoc.; from NPCA Park Education Center, 1015 Thirty-first St., NW, Washington, D.C. 20007; 42 pp. PB, $4.95 plus postage/handling.*

Top: Step into a classic kitchen of the early 1900s, with its wood-burning stove and cold-water sink. Above: Lyndon Johnson's nursery. Left: Dried herbs hang in Eliza Bunton Johnson's (Lyndon's grandmother) frontier kitchen.

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