The Magazine of
The National Parks
Conservation
Association

National Parks

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Wildlife Corridors

Connecting the Parks

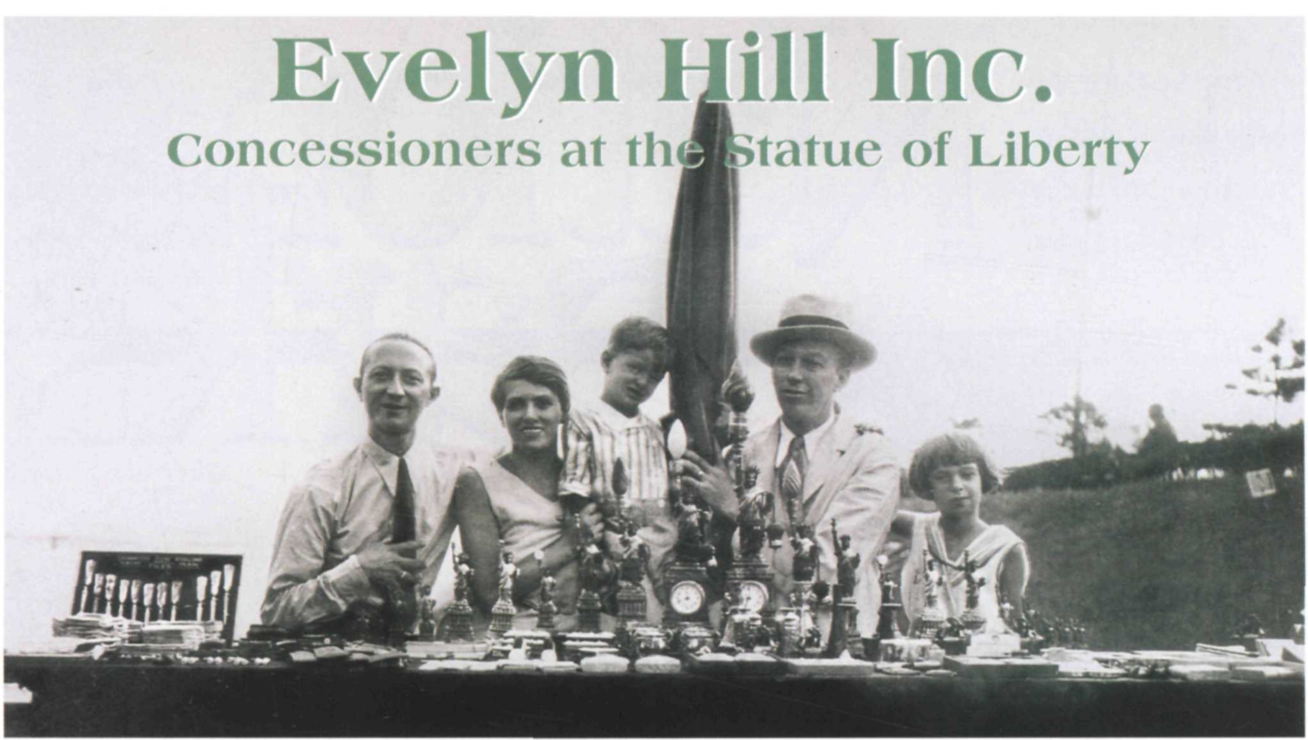
Glacier's Harlequin Duck

Energy vs. Parks

Washington In Bloom

Evelyn Hill Inc.

Concessioners at the Statue of Liberty



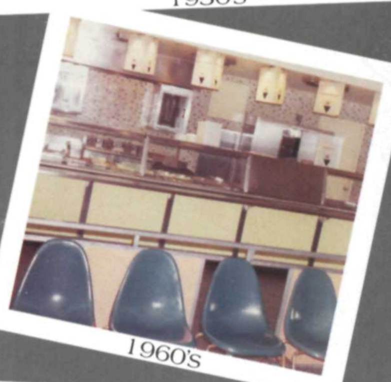
Opening Day 1931: Max, Evelyn, James, Aaron, and Charlotte Hill

1930's

75th Anniversary 1931-2006

We would like to thank the National Park Service for giving us the opportunity to serve millions of visitors at the Statue of Liberty National Monument over the past 75 years. It has been a great honor and pleasure. —Brad Hill

1940's



1960's

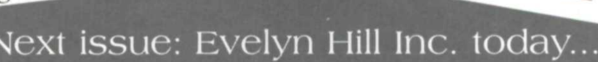
	Years of Service
Aaron G Hill	1931-1943
Evelyn Hill	1931-1990
James I. Hill	1943-1996
Bradford A. Hill	1981-Present

1950's-60's

1970's-80's

1960's

1980's



Next issue: Evelyn Hill Inc. today...

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National parks

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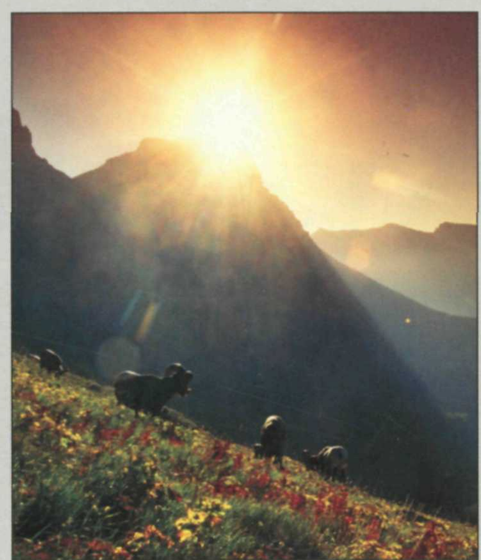

Bighorn sheep graze on the lush eastern slopes of Glacier National Park
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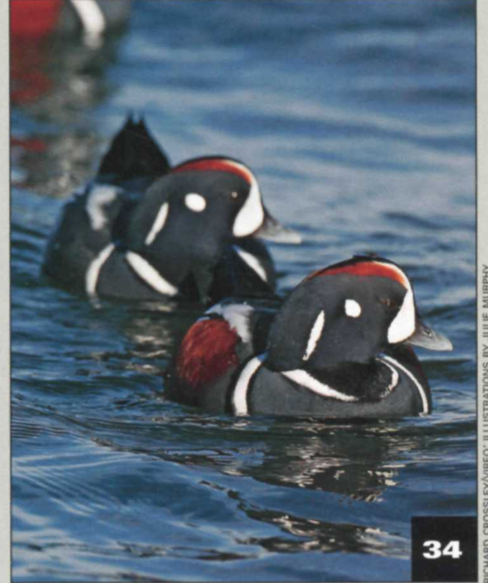

RICHARD CROSSLEY/VIREO; ILLUSTRATIONS BY JULIE MURPHY

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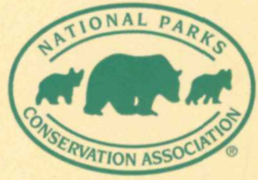

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Join the Chorus

KRISTA SCHLYER

The Everglades had Marjory Stoneman Douglas; Yosemite had John Muir; and Mesa Verde had Virginia McClurg.

Sometimes one individual provides the catalyst that sparks the move to preserve a historic site or significant landscape. They provide the steady drumbeat of information that spreads to the larger community until many voices join the chorus of support.

This past fall, NPCA and its partners served in the place of that one passionate individual. We began the drumbeat, and many of you joined our chorus, until it reached a historic magnitude of protest. The issue was the Department of the Interior's plan to transform the management policies of the National Park Service, the fundamental guide for countless decisions made every day by park managers across the country. Interior wanted to, in our view, unnecessarily rewrite the current policies in a way that would weaken the agency's long-standing preservation mandate by deleting and weakening important language that directed managers to preserve park soundscapes, protect air quality, prevent disruptive visitor activities, and regulate off-road vehicles.

The good news is that you heard our call for help. Members of Congress, outdoor industry companies, national park friends groups, community associations, and hundreds of others nationwide submitted an estimated 75,000 comments in response to the Department of the Interior's hasty and potentially harmful rewrite. This historic level of participation provided a loud, clear message: Do not weaken the protections for our national parks.

It is just this type and level of engagement that will be needed over the coming years to ensure that each unit of the National Park System is handed down to the next generation unimpaired. In just ten years, the park system will be marking its centennial. The parks continue to suffer from chronic funding shortfalls. This well-documented, pervasive problem has yet to be fully addressed by the Bush Administration or Congress.

The National Park System was created in 1916. Three years later, the first director of the Park Service, Stephen Tyng Mather, joined a group of conservationists and business owners to form NPCA. They could see that the National Park System needed its own, independent advocate. Our job, staff, volunteers, members, and partners combined, will become increasingly important as the pressure to develop the remaining open spaces becomes even more intense.

Each of us can and must play a role in ensuring that parks are protected. Stay informed about the most pressing park issues by visiting our Web site at www.npca.org. Make your voice heard through our Take Action Center. Get more involved today. Thank you.

Thomas C. Kiernan

EDITOR'S NOTE

Wild Places

CHAD EVANS WYATT

Not too many things would get me out of bed on the weekend in the darkness of a New England winter morning. But this unusual bird, sighted off of Newport, Rhode Island, was not an ordinary lure.

A raft of harlequin ducks, a mixture of brightly colored males and their duller female companions, was my reward that day 20 years ago. As you will discover, these small sea ducks (see page 34) are intriguing, both because of the male's coloring and the bird's secretive nesting habitats. The animals rely on unspoiled areas to mate and breed; as a result scientists view the birds as a reliable measure of the health of an ecosystem.

With the help of volunteers, scientists have begun an intensive look at the bird's breeding habits at Glacier National Park, an important site for the western population. Not surprisingly, in a climate of budget cutting and chronic funding shortfalls, finding money for research remains a challenge.

Glacier also plays a significant role in our cover story about the Yellowstone to Yukon Conservation Initiative—a move to create wildlife corridors along the Continental Divide.

What is a wildlife corridor? It is a greenway that provides safe passage for wolves, grizzlies, sheep, and other creatures from one wildland to another.

National parks continue to play a vital role in our lives as well as the lives of thousands of other living things. They provide feeding and breeding grounds for some of the most spectacular and exquisite creatures on Earth. Enjoy.

Linda M. Rancourt
Editor-in-Chief

National Parks

EDITOR-IN-CHIEF: LINDA M. RANCOURT
PRODUCTION MANAGER: BRIGGS CUNNINGHAM
SENIOR EDITOR: SCOTT KIRKWOOD
ASSISTANT EDITOR: AMY LEINBACH MARQUIS
DESIGN CONSULTANT: BATES CREATIVE GROUP

NATIONAL PARKS
1300 19th Street, N.W., Washington, DC 20036
202-223-6722; npmag@npca.org

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ADVERTISING REPRESENTATIVES
HOLLY BAKER: 913-344-1392; FAX: 913-469-0806
hbaker@ascendmedia.com
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National Parks Conservation Association®
Protecting Parks for Future Generations®

WHO WE ARE

Established in 1919, the National Parks Conservation Association is America's only private, nonprofit advocacy organization dedicated solely to protecting, preserving, and enhancing the U.S. National Park System.

WHAT WE DO

NPCA protects national parks by identifying problems and generating support to resolve them.

WHAT WE STAND FOR

The mission of NPCA is to protect and enhance America's National Park System for present and future generations.

EDITORIAL MISSION

The magazine is the only national publication focusing solely on national parks. *National Parks* creates an awareness of the need to protect and properly manage park resources, encourages an appreciation for the natural and historic treasures found in the parks, and informs and inspires individuals to help preserve them.

MAKE A DIFFERENCE

Members can help defend America's natural and cultural heritage. Activists alert Congress and the administration to park threats; comment on park planning and adjacent land-use decisions; assist NPCA in developing partnerships; and educate the public and the media. Please sign up to receive *Park Lines,* our biweekly e-mail newsletter. Go to www.npca.org to sign up.

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For more information on Partners for the Parks, contact our Membership Department, extension 213. For information about Trustees for the Parks, bequests, planned gifts, and matching gifts, call our Development Department, extension 145 or 146. You can also donate by shopping online at www. npca.org, where 5 percent of your purchases is donated to NPCA at no extra cost to you.

QUESTIONS?

If you have any questions about your membership, call Member Services at 1-800-628-7275. *National Parks* magazine is among a member's chief benefits. Of the $25 membership dues, $6 covers a one-year subscription to the magazine.

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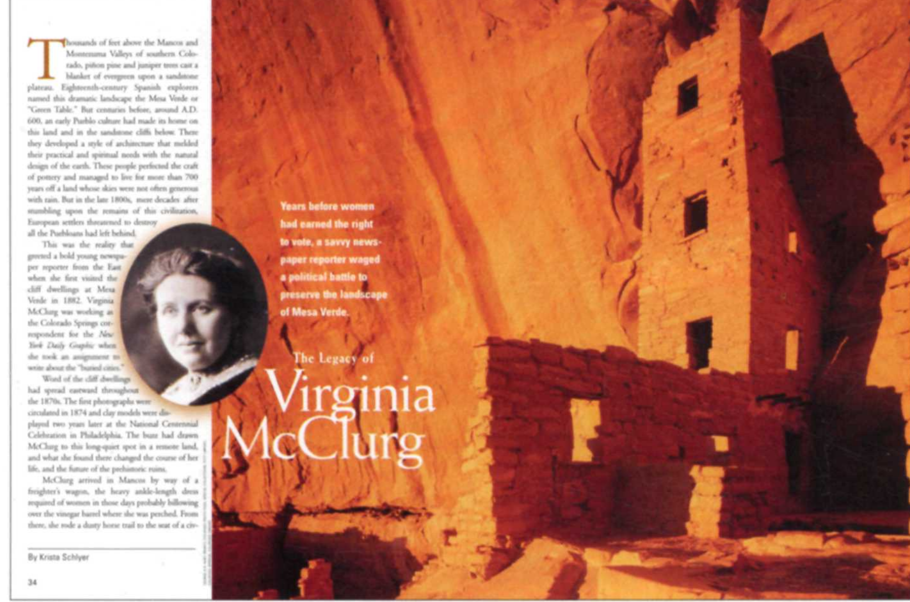
Women in Uniform, Diversity of Opinions

Women in Uniform

The article about Virginia McClurg and her role in preserving Mesa Verde was fascinating [Winter 2006]. I'd like to add a footnote: "National parks generally refused to hire women rangers until well into the 1960s."

Jean Pinkley served at Mesa Verde as early as 1948 when I worked as a bus boy for the concessionaire. I understand that she was classified as an archaeologist, not a park ranger. I enjoyed many campfire talks given by Ms. Pinkley. One of her best was on the role of women in Ancestral Puebloan society.

Robert W. Maule
Poulsbo, WA



Thousands of feet above the Mancos and Montezuma Valleys of southern Colorado, piñon pine and juniper trees cast a blanket of evergreen upon a sandstone plateau. Eighteenth-century Spanish explorers named this dramatic landscape the Mesa Verde or "Green Table." But centuries before, around A.D. 600, an early Pueblo culture had made its home on this land and in the sandstone cliffs below. There they developed a style of architecture that melded their practical and spiritual needs with the natural design of the earth. These people perfected the craft of pottery and managed to live for more than 700 years off a land whose skies were not often generous with rain. But in the late 1800s, mere decades after stumbling upon the remains of this civilization, European settlers threatened to destroy all the Puebloans had left behind.

This was the reality that greeted a bold young newspaper reporter from the East when she first visited the cliff dwellings at Mesa Verde in 1882. Virginia McClurg was working as the Colorado Springs correspondent for the *New York Daily Graphic* when she took an assignment to write about the "buried cities."

Word of the cliff dwellings had spread eastward throughout the 1870s. The first photographs were circulated in 1874 and clay models were displayed two years later at the National Centennial Celebration in Philadelphia. The buzz had drawn McClurg to this long-quiet spot in a remote land, and what she found there changed the course of her life, and the future of the prehistoric ruins.

McClurg arrived in Mancos by way of a freighter's wagon, the heavy ankle-length dress required of women in those days probably billowing over the vinegar barrel where she was perched. From there, she rode a dusty horse trail to the seat of a civ-

By Krista Schlyer

34

Years before women had earned the right to vote, a savvy newspaper reporter waged a political battle to preserve the landscape of Mesa Verde.

The Legacy of Virginia McClurg

Your article on Mesa Verde brought back memories of my teen-age years. There was a book called *Darek in Mesa Verde* about a teenage boy whose father was the ranger in Mesa Verde National Park. Darek Nusbann was among several young boys who sparked my interest in natural wonders, which has been with me ever since, as I approach the age of 70. Keep up the good work!

Charles F. Janes
via e-mail

Save the Maine Woods

I read your article about the proposed Maine Woods National Park and Preserve [Fall 2005], and I'm concerned that if action is not taken quickly, the land may suffer irreparable changes. I think it would be in the best interest of everyone concerned if some sort of temporary easement could be put in place preserving the land as it currently is—including all of its current uses—no matter who owns it, just to provide time for the decision-making process.

The article also noted problems in balancing the different users of the land and their desires and fears of a national park designation. This is an important debate, but the point will be moot if the whole forest is cut down and developed.

Eric Kindig
Endwell, NY

Settling Things

In an otherwise informative article, "Brave New World," [Winter 2006] included a statement that: "Most of us consider Jamestown the first permanent settlement in the Americas." This is obviously incorrect as the author took pains to point out. What we learn in textbooks or classrooms is that Jamestown was the first permanent *English* settlement in the New World. That's better, isn't it?

Ellen E. Dodge
via e-mail

Diversity of Opinions

My nightly ritual of reading while eating supper was interrupted after finishing the editorial reply to Mr. Herberg's letter relative to diversity within the National Park System [Winter 2006]. I felt compelled to immediately write a follow-up response to your editorial reply. Supper can wait.

I, too, am a "fan for life" of the National Park System, and I agree with Mr. Herberg's comments on how unfortunate it was that the article placed a racial spin on the subject. But the editor's reply to Mr. Herberg's letter was even more perplexing.

From childhood, I have enjoyed the park system. My parents chose parks for summer recreation because we could not afford anything more elaborate. In the 1950s, being white played no role in our decision to visit a park. My parents appreciated the beauty that came without an exorbitant price tag.

For the last 50 years, I can say I have

never seen signs—perceived or real—within the parks suggesting discrimination or double standards for non-white visitors. Therefore, I am confused by the editor's comment: "...Established in an era when all Americans were not equal..." What rules were established that focused on race?

Thankfully the park system has been open to anyone who wanted to visit. We are fortunate people who live in the most beautiful and diverse country in the world. It is and has always been an individual's prerogative whether or not to partake in this splendor.

Michelle L. Bilger
White Lake, MI

Editorial Reply: Although it is true that the parks have always been open, the same government that established the national parks also tolerated segregation and discrimination based on race. It is now entirely an individual's choice to visit our national parks, but not everyone has always felt welcome, and this is the obstacle, real or imagined, that the author was addressing in the original article ["Continental Divide," Fall 2005].

Corrections

We received faulty caption information for photographs in the Winter 2006 issue: Dry Tortugas National Park was mistaken for a historic fort in San Juan [page 49]. The Colorado River [page 42] flows into the Gulf of California. The grizzly bear photo on page 12 should have been credited to Jess Lee Photos/Photo Researchers, Inc./Corbis. We regret these errors.

Listen Up

Need an escape? Go to www.npca.org/magazine/sounds.asp to see and hear a slideshow featuring breathtaking photography and soothing park soundscapes.

Keep Up the Good Fight

Thanks for your efforts to help "Stop the Rewrite." The official comment period has ended, but the fight to protect current management policies isn't over yet. Visit www.npca.org for updates.

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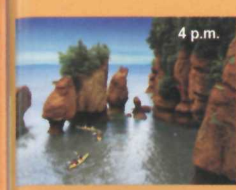


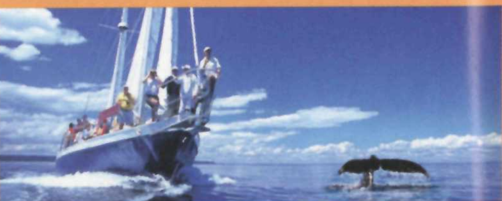
started here on the ocean floor.

The Hopewell Rocks, Hopewell Cape

a world wonder

Acadian coast

Irving Eco-Centre, La Dune de Bouctouche

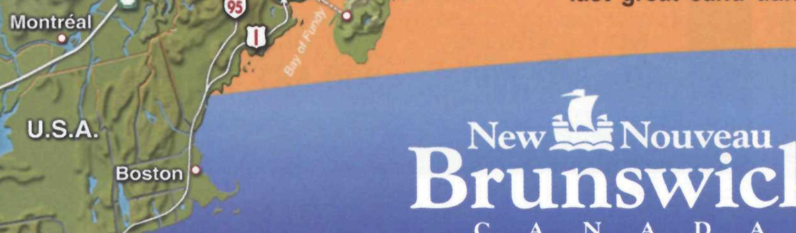


Bay of Fundy

St. John River Valley

Baie des Chaleurs

City of Fredericton



It was like walking on the moon... but it was the ocean floor and the views were out of this world! That's New Brunswick's phenomenal **Bay of Fundy**—One of the Marine Wonders of the World!

And we were just getting started... We strolled beside some the earth's **last great sand dunes.** A rich habitat for rare plants and birds.

no small wonders

When we got to the Baie des Chaleurs, we could see why it won such a distinction. **One of the world's most beautiful bays.** It was breathtaking, and so were the Appalachians nearby. We followed the mighty meandering **St. John River**—from its tranquil solitude to its raging tidal rapids. It led us between the towering walls of the Grand Falls Gorge, lush riverside valleys, and covered bridges as old as the river is long. There was something spectacular around every bend... **400 kilometres (248 mi.) of pure inspiration.**

There literally were no small wonders—from the World's Highest Tides and whales breaching before our eyes, to **saltwater beaches that stretch for miles.** We were charmed by the hometowns, the lively Acadian culture and succulent seafood. We were visitors, but we felt like we had lived here all our lives. It was all here, **next door, in New Brunswick, Canada!**

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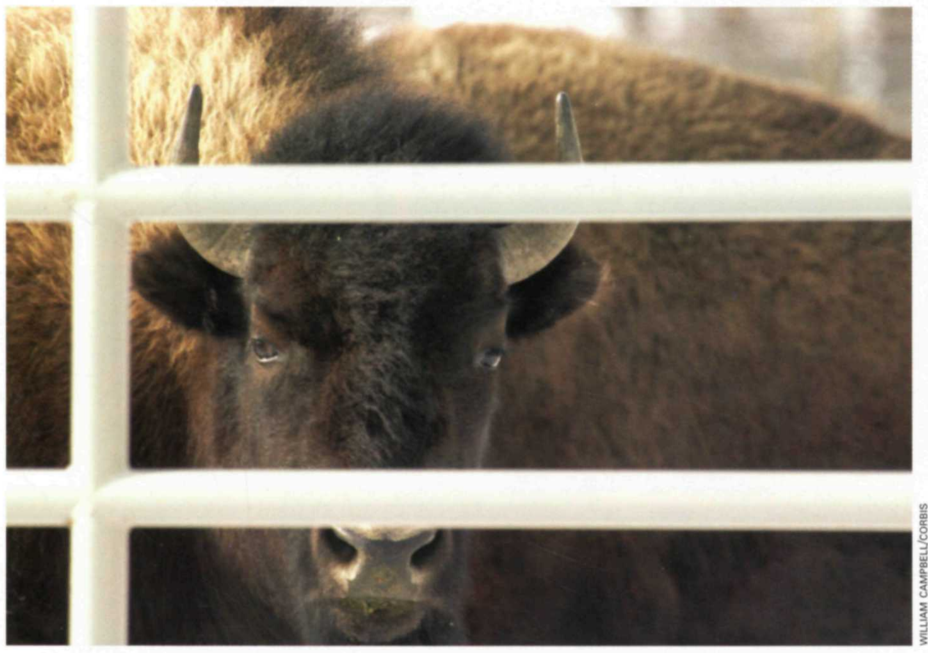
Out of Bounds

Nearly a thousand Yellowstone bison slaughtered for simply crossing the park's border

In the 100 years since concerted restoration efforts returned healthy numbers of bison to the plains of Wyoming, the animal has become as much a part of Yellowstone's landscape as the geysers and sulfur springs that dot the terrain. But in recent decades, bison have been treated less like wild animals and more like livestock.

By 1902, the number of bison in the Greater Yellowstone had dropped below 30, a far cry from the days when more than 30 million bison grazed on western lands. That year, Yellowstone officials brought back a few dozen members of the original herd that had been shipped out of the state years earlier. In the hundred years since, bison numbers have increased dramatically: Last summer, nearly 5,000 buffalo roamed throughout the park.

But today that tally is now closer to 4,000. This winter the Park Service sent more than 900 bison to slaughter, ostensibly because of the risks the animals pose to cattle grazing on adjacent lands. Bison and many other wild animals such as bear, elk, and coyotes are all susceptible to brucellosis—a disease that causes animals to abort their first young; once the animal builds up antibodies, further complications are rare.


WILLIAM CAMPBELL/CORBIS

One of 900 bison captured along Yellowstone's north border, to be slaughtered.

The issues concerning Yellowstone bison and brucellosis have been the source of contentious debate and even protests for more than 20 years, as bison advocates have urged the Park Service to seek out more practical and effective long-term approaches. In 2000, the USDA's Animal and Plant Health Inspection Service joined with the Park Service, Forest Service and several state agencies to draft the Interagency Buffalo Management Plan, an 841-page document that did little to put the issue to rest. The most disconcerting part of the plan is its narrow provision for solving the spread of the disease, namely, dictating that bison that cross the boundary should be harassed and coerced into returning to the park, or killed. The Park Service slaughtered 900 animals this

year, second only to the 1,084 killed in the winter of 1996-97. This year, none of the animals were even tested for brucellosis before being shipped off to slaughter. What's more, there isn't a single documented case of brucellosis transmission from wild bison to cattle.

"The Park Service has a responsibility to manage the north boundary of Yellowstone, to eliminate the risk of bison commingling with cattle," says Rick Wallen, a wildlife biologist at Yellowstone. "This year we tried really hard not to let that happen, but when animals persistently go to the park boundary, we have two choices: push all the animals back to the interior of the park or round them up and decide what to do with them. This year our field staff just wasn't able to keep up with the number of animals—bison were turning right around and leaving the park—it's all correlated with the population abundance that we're dealing with right now."

Are bison simply the victims of their own success?

"This is a habitat question, not a numbers question," says Tim Stevens, NPCA program manager for the Yellowstone field office. "It's not surprising to anyone that bison are moving on to their traditional winter habitat outside the park. Regardless of whether there are two animals or 2,000 animals, bison that are neck-deep in snow will move to the lower elevations north of the park to seek out their traditional winter range, where they can still graze."

So what's the solution?

"We'll never be able to eliminate brucellosis from all of Yellowstone's wild animals," says Stevens. "Elk and other wildlife carry the disease, too, and nobody's considering similar management plans for those animals. NPCA and many other organizations are calling for a different approach. We agree with the need to separate the wildlife and the bison so they don't intermingle, especially during critical periods like calving. But there has to be some level of tolerance for bison outside the park. Some of the affected lands are private property, and in those cases the government clearly needs to work with the owners. But much of the adjacent area is public land, and, frankly, these critical areas should be open to wildlife from our national parks."

The most contentious part of the equation is securing land north of the park where bison can roam and graze in winter months. In 1999, U. S. taxpayers ponied up $13 million to secure 7,000 acres of land and conservation easements in and around the Royal Teton Ranch, owned by the Church Universal and Triumphant. But the Department of Interior balked at the $3-million price tag associated with buffalo grazing rights, so the land is essentially open to all wildlife but bison.

But change may be about to come. Montana Governor Brian Schweitzer, a cattleman himself, has stepped into the fray and acknowledged the problem.

"We've started what we hope is a new era of better cooperation between the park and the state of Montana," says Hal Harper, chief policy advisor for Governor Schweitzer. "The Park Service has these animals 95 percent of the time, and the state of Montana only 5 percent of the time, but we have to deal with the problems when they [leave the park]. So we'll be working with land owners in the affected areas—we currently have negotiations underway for grazing easements on the Church's land. And we'll be looking for beneficial changes to the management plan to make it cheaper for the taxpayer and less threatening for the bison, while protecting our brucellosis-free status."

If Montana is going to manage bison as a wild animal, then the governor will clearly expect hunting to be one part of that equation. But rather than allow hunters to simply line up at the park boundary and take aim at bison, future game management would include a limited, fair-chase, public hunt that ensures a sustainable bison herd for yet another century.

If you want to make sure that Yellowstone's bison are safe next winter, thank the governor for his leadership and encourage him to follow through with his proposal by writing a letter to Governor Brian Schweitzer, Montana State Capitol, P.O. Box 200801, Helena, MT 59620-0801 or governor@mt.gov.

—Scott Kirkwood

News in Brief

Yellowstone National Park—In spite of a complicated winter-use planning process that has pitted conservation groups against the snowmobile industry for years, this winter brought evidence Yellowstone's winter visitors are ignoring the bureaucratic issues and choosing snowcoaches over snowmobiles. Park regulations currently allow 720 snowmobiles to enter the grounds every day—each accompanied with a guide—but only 200 visitors are actually choosing that route. In January, the number of visitors touring in the quiet comfort of a snowcoach increased more than 33 percent since the same time last year, following increases of more than 40 percent the previous two years. Local tour companies have noted the shift, and are hurrying to meet increased demand, a fact that bodes well for clean air, pristine views, and silent hiking excursions throughout the park.

RAYMOND GEHMAN/CORBIS

Telling the Rest of the Story

Rosie the Riveter is only one character in the larger narrative of the World War II home front.

The role of American women on the WWII homefront is forever etched in our minds, thanks to the iconic image of Rosie the Riveter and the indomitable words "We Can Do It!" But the stereotypical story of white women employed in factories and shipyards only hints at the American workforce that emerged as thousands of men fought a war overseas.

Richmond, California, is the home of the Rosie the Riveter/World War II Home Front National Historical Park, designated only six years ago. As the Park Service moves forward with a management plan to shape the visitor experience and define the park's role in the community, it's becoming clear that the city of Richmond has many more stories to tell.

Of all the industrial ports in the nation, Richmond was chosen as the park's home because it contains more WWII-era structures than any other city. Richmond was home to 56 different war industries. Its four shipyards produced a staggering 747 ships. Nearly 50,000 Jeeps rolled out of its factories, along with tanks, armored cars, half-tracks, and other vehicles.

But that productivity did not come without a cost. People flooded the city looking for work, expanding Richmond's population from 24,000 to 100,000 overnight, and overwhelming the available housing stock, roads, schools, businesses, and community services. In the beginning, white women filled the jobs, but black men and women soon joined the effort, coming from as far away as the deep South to lend their muscle.

African Americans needed the jobs, and Kaiser's shipyards needed their skills. But while the "Rosies" were the darlings of the propaganda effort, there were few songs written about African Americans, few posters trumpeting their efforts, and, when the war was over, few opportunities to continue working.

U.S. OFFICE OF WAR INFORMATION/LIBRARY OF CONGRESS

An African-American woman in one of Richmond's Kaiser shipyards, working on the U.S.S. *George Washington Carver*.

"After the war, the Kaiser Corporation picked up and moved on," says Betty Soskin, an African American who worked at a segregated union hall during the war, and now conducts community outreach for the Park Service. "The housing units constructed for black workers were bulldozed within three weeks of the war's end. The rusting elephants that remain on the shoreline aren't still standing because they were revered—they're here because of benign neglect." While the economy of nearby San Francisco took off in the latter half of the century, Richmond struggled in the post-war years.

Even so, the achievements of African Americans in Richmond created a baseline for much of the social change that followed 20 years later with the civil rights movement. Despite the fact that the Kaiser Corporation was more concerned with building ships than promoting social change, African Americans had seen opportunities they'd never seen before, and it made a difference. Today, African Americans in the city have a strong presence in the professional ranks and in politics. But Richmond remains a working-class community where crime and deteriorating housing conditions are all too common. Many residents look back on the ways the city changed during the war, and believe the park has simply enshrined a period of segregation. They anxiously anticipate the day that WWII-era buildings are torn down and replaced by something better.

The Park Service is hoping to change that by fostering a dialogue. The community relations staff has produced a short DVD that tells the overlooked stories of African Americans on the home front. Park Service employees are leading guided tours of downtown Richmond for community leaders including representatives of city government, local historical societies, and business owners, giving them glimpses

of the city's history at every turn.

"Many people don't even realize we're living and working in a national park and that they're surrounded by all these amazing historic structures," says Naomi Torres, community outreach specialist for the Park Service. "We're starting to change the way they see these old structures. Where they once might have said, 'This is a thing of the past—when are we going to knock it down and create something that's economically vibrant?' now they're realizing how important these structures are in telling their story. We've really raised that level of consciousness—people are already asking us, 'What can we do to save these buildings?' " —*Scott Kirkwood*

NPCA Notes

Washington, D.C.—Since *National Parks* magazine and dozens of media outlets drew public attention to marijuana being grown in Sequoia & Kings Canyon National Parks last year, Washington has begun to take action. In November, Rep. George Radanovich (R-CA) convened a congressional hearing on the matter, inviting NPCA's Central Valley Field Representative Laura Whitehouse to testify. Whitehouse highlighted safety issues affecting park visitors and staff as well as resource protection and funding concerns, noting that in 2005 the Park Service spent $50,000 on restoration efforts alone, beyond law enforcement and eradication efforts. NPCA will continue to raise awareness of this issue in coming months as Congress determines the 2007 federal budget.

TODD GIPSTEIN/CORBIS

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SPORTS TECH NEWS — 2006

New lure's catch rate may be too high for some tournaments.

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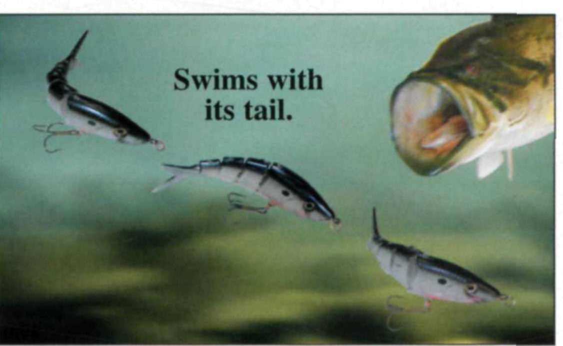
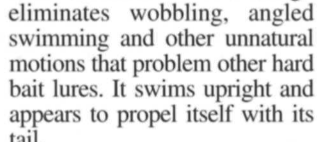


New lure swims like a real fish--nearly triples catch in Florida contest.

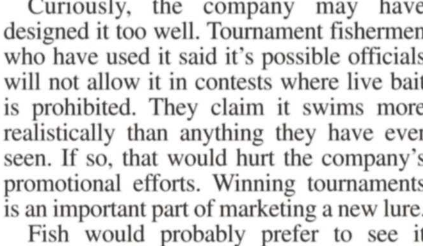
ORLANDO, FL— A small company in Connecticut has developed a new lure that mimics the motion of a real fish so realistically eight professionals couldn't tell the difference between it and a live shad when it "swam" toward them on retrieval. The design eliminates wobbling, angled swimming and other unnatural motions that problem other hard bait lures. It swims upright and appears to propel itself with its tail.



by Charlie Allen

Curiously, the company may have designed it too well. Tournament fishermen who have used it said it's possible officials will not allow it in contests where live bait is prohibited. They claim it swims more realistically than anything they have ever seen. If so, that would hurt the company's promotional efforts. Winning tournaments is an important part of marketing a new lure.

Fish would probably prefer to see it restricted. I watched eight veteran fishermen test the new lure (called The KickTail®) on a lake outside Orlando FL for about four hours. Four used the KickTail and four used a combination of their favorite lures and shiners (live bait). The four using the KickTail caught 41 fish versus 14 for the other four. In one boat the KickTail won 19 to 4. The KickTail also caught bigger fish, which suggests it triggers larger, less aggressive fish to strike. You can see why the company needs to get it into tournaments. An almost 3 to 1 advantage can mean thousands of dollars to a fisherman, and hundreds of thousands in sales to the company.



Patented Technology

The KickTail's magic comes from a patented technology that breaks the tail into five segments. As water rushes by on retrieval, a little-known principle called aeronautical flutter causes the tail to wag left and right, as if the lure were propelling itself with its tail. Unlike other hard baits, the head remains stationary—only the tail wags. A company spokesman told me this.

"Marine biologists will tell you that the more a lure swims like a real fish, the more fish it will catch. We've seen fish that have just eaten go for the KickTail. It's like having a dessert.

"To make the KickTail even more lifelike, we gave it a natural shad color and shaped it like the most prevalent bait fish of all, the threadfin.

Swims at surface

"The flutter technology also allows the KickTail to swim at the water's surface. Other top water lures must be worked to have any live action, or have a bill that makes them dive on retrieval. Our diver version is the only deep crank bait that let's you do tricks like 'walk the dog.' Twitch it at deep levels and it gives an irresistible, lifelike action. The five tail segments click together as you pull it through the water, calling fish from a distance."

Whether you fish for fun or profit, if you want a near 3 to 1 advantage, I would order now before the KickTail becomes known. The company even guarantees a refund, if you don't catch more fish and return the lures within 30 days. The lures come in sets of two, a floater and a diver. You can choose natural shad or chocolate shad (great for overcast days). One set costs $19.90; both cost $39.80. There is also a Super-10-Pack of five floaters and five divers that includes these colors and three others for only $79.95. You save $19.55! S/h is only $6.00 no matter how many you order.

To order call **1-800-873-4415** or click **www.ngcsports.com** anytime or day or send a check or M.O. (or cc number and exp. date) to NGC Sports **(Dept. KX-94)**, 60 Church Street, Yalesville, CT 06492. CT add sales tax. The KickTail is four inches long and works in salt and fresh water.

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MICHAEL DEYOUNG/CORBIS

Grand Canyon National Park is one of many park units that suffers from noise pollution.

A Sound Resolution

Curbing Noise Pollution in the Parks

There are few places left in the world where you can pitch a tent under the stars and drift off to the haunting sound of howling wolves. It's a healing, restorative experience to be so grounded in nature. But the scene changes dramatically when a car alarm goes off in the distance, or an airplane rumbles overhead. In that jarring moment, our connection to wilderness sputters and wanes, and we lose a little piece of the pristine experience.

As the world grows noisier, park soundscapes become polluted, just as water becomes polluted with mercury, or air with carbon emissions. Several years ago, the Park Service recognized that natural sound was a resource in need of protection. So in 2001, the Natural Sounds Program was born.

Its mission: to help parks protect soundscapes by monitoring sounds, both appropriate and intrusive—establishing ambient baselines, and assessing potential impacts. But a natural soundscape doesn't necessarily mean complete silence all the time. Cannons and gunshots make a perfectly acceptable soundscape at Gettysburg National Military Park. "We deal with whatever sounds are appropriate for individual parks and the reasons they were established," says Karen Trevino, Natural Sounds' program manager. "Certainly man-made sounds, where appropriate, are every bit as much of the soundscape."

After measuring sound in dozens of national parks, researchers defined two types of intrusive noises. One is a loud event that catches your attention, maybe even interrupts your activity—like the shrill ring of a cell phone. The second is a broad, diffuse background noise that veils your hearing like smog veils your sight—say, cars on a distant highway.

"Animals have been in the presence of thunderclaps for thousands of years, and presumably, they know how to deal with that," says Kurt Fristrup, a senior technician with the program. "But gradual elevation of the background noise level means they can't hear as far out as they used to. It's potentially a much more serious problem."

So what's to blame? Airplanes, snowmobiles, and other motorized vehicles are obvious culprits. An oil pump beyond the borders of Hovenweep National Monument in Utah reverberates like a distant drum through the park. But ironically, a large number of sources come from within, in the form of various Park Service operations.

World's Most Valuable Timepiece Disappears

Back in 1933, the single most important watch ever built was engineered for a quiet millionaire collector named Henry Graves. It took over three years and the most advanced horological technique to create the multifunction masterpiece. This one-of-a-kind watch was to become the most coveted piece in the collection of the Museum of Time near Chicago. Recently this ultra-rare innovation was auctioned off for the record price of $11,030,000 by Sotheby's to a secretive anonymous collector. Now the watch is locked away in a private vault in an unknown location. We believe that a classic like this should be available to true watch afficionados, so Stauer replicated the exact Graves design in the limited edition Graves '33.

The antique enameled face and Bruguet hands are true to the original. But the real beauty of this watch is on the inside. We replicated an extremely complicated automatic movement with 27 jewels and seven hands. There are over 210 individual parts that are assembled entirely by hand and then tested for over 15 days on Swiss calibrators to insure accuracy. The watches are then reinspected in the United States upon their arrival.

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27 jewels and 210 hand-assembled parts drive this classic masterpiece.

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"We do a lot of things to maintain national parks for our visitors," Trevino says. "Those things are done out of necessity and aren't always very quiet." It's a unique challenge for the Park Service, and one employees can't ignore.

The program is too new to provide hard and fast evidence on how wildlife is responding to noise intrusions in the parks. What researchers do know is that animals use sound to hunt, avoid predators, navigate, and find mates. A bull elk might struggle to attract a female if he's bugling over the steady hum of cars idling on congested park roads. A mouse that relies on its sense of hearing has insufficient warning if a plane muffles a predator's footfall.

History is telling, too: Endangered gray whales stopped migrating to a lagoon in Baja, Mexico, where they'd been breeding for thousands of years until a salt mine began operating on the coast. "Even though it was an entirely terrestrial operation, this happened almost certainly due to elevated noise levels," Fristrup says. The mine eventually closed on its own accord, but it took nearly six years for the whales to return.

How does the noise level affect humans? Every day, we're exposed to the constant hum of cars, televisions, air conditioners, and buzzing fluorescent lights. So we put on our headphones or crank up our white noise machines, and continue to push for technology that masks unwanted sounds, never mind the cost of our hearing.

"It's one of the sad things about our cities," Fristrup says. "We learn to ignore our ears because there are noise intrusions all over the place. It's possible that our urban environments have become so unpleasant that people use music to mask out the sounds, but in so doing they expose themselves to chronic levels that damage their hearing thresholds."

The national parks beckon Americans with quiet spaces—which poses a challenge, since inviting more people in tends to make a place noisier. "We need to educate park visitors about the importance of the soundscape as a resource, the impact noise has on them, and the impact they in turn have on the soundscape itself," Trevino says.

She suggests improving on ways people access parks—continuing to promote shuttle programs, for instance—to encourage the most natural conditions. Or investing in different construction materials that help roads better absorb noise. These are just two items on a long list of recommendations for noise control that Trevino's staff is developing for park managers and maintenance crews.

They're also joining forces with groups invested in noise-control technology. In 2000, the Park Service partnered with the Federal Aviation Administration to reduce the number of aircraft flying over Grand Canyon National Park. More recently, the Natural Sounds team led a brainstorming session to encourage information exchange between private companies, nonprofit organizations, and governmental agencies. An even bigger conference is scheduled for 2007.

"We're in a great position to help forge the development of better tools and technology for the parks," Trevino says. "It's cutting-edge science and cutting-edge policy. Our efforts to create a healthier, more enjoyable acoustic environment merely reflect where society as a whole is going. I see the future as a much quieter place than it is today."

—Amy Leinbach Marquis

Listen to park soundscapes, accompanied by gorgeous photography, at www.npca.org/magazine/sounds.asp

NPCA Notes

PHOTOS.COM

Washington, D.C.—It's been an uphill struggle for our national parks, between funding shortfalls and threats to management policies. But it's in hard times that heroes rise to the top—and this year, NPCA is honoring four of them.

The Stephen T. Mather Award recipient is a self-proclaimed "desert rat" named J.T. Reynolds, superintendent of Death Valley National Park. After nearly four decades in the Park Service, he's fighting harder than ever to protect park resources.

Arizona conservationist Dick Hingson received the prestigious Marjory Stoneman Douglas Award for his tireless efforts to promote natural quiet. His service to the parks goes way back: At age 16, he washed dishes in the kitchen of the Grand Canyon lodge.

Sen. Dianne Feinstein (D-CA) received the William Penn Mott Jr. Park Leadership Award for her consistent advocacy for national parks and other federal lands. In 1994, she sponsored the California Desert Protection Act, which preserved more than 7 million acres of land (including Joshua Tree, above).

The Robin W. Winks Award for Enhancing Public Understanding of National Parks went to James M. McPherson, a professor and author regarded as one of the top historians of the American Civil War. McPherson won a Pulitzer Prize for his book, *Battle Cry of Freedom: The Civil War Era*, and is credited with renewing national interest in historic Civil War sites, many of which are part of the National Park System.

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Winds of Change

Conservation advocates are fighting over proposed wind farms near popular recreation areas. Should park advocates be worried?

A wind farm proposed off the coast of Nantucket has pitted Greenpeace, Natural Resources Defense Council, and others against well-heeled enviros like Robert Kennedy, Jr., who support the general concept, but have concerns about the visual impacts and the effects on the fishing industry.

Although the area under consideration can't be seen from the shores of nearby Cape Cod National Recreation Area, the siting of wind farms on the shores of popular recreation areas is also raising plenty of eyebrows among park advocates. A few hundred nautical miles to the south, FPL Energy is planning to install a wind farm near the coast of Fire Island National Seashore. The turbines won't be visible from the beach, but they will certainly be seen by visitors who climb the steps of a historic lighthouse, making it impossible to experience the view enjoyed by lighthouse keepers decades ago. Research concerning the impact of off-shore wind turbines on bird mortality is sketchy, but the implications for Cape Cod and Fire Island could be substantial, given their location along the Atlantic Flyway, a major migration route.

Today, not a single wind turbine is poised off the coast of America—only Europe has seen significant development in recent years. According to the American Wind Energy Association (AWEA), the best source of wind energy in our nation is concentrated in the middle of the country, from Montana and the Dakotas south to Kansas, Nebraska, and even northern Texas—areas where national parks aren't particularly common. But wind farm developers are eyeing a mountain range in Maine that's visible from the Appalachian Trail. And coastal areas in Massachusetts, the Carolinas, and the Great Lakes are all considered prime locations because of large population centers, consistent winds, and shallow waters, which rein in the cost of construction.

Today, about 1 percent of all the nation's energy comes from wind turbines, but AWEA expects that number to climb to 6 percent by 2020, based largely on tax incentives designed to move the country from its traditional reliance on oil. Last year the wind industry erected enough turbines to power 650,000 homes.

"So much pollution is associated with almost every other form of energy production that wind power should definitely be a significant part of our nation's energy mix," says Bob Roy, an analyst with Woodlot Alternatives, an independent consulting firm that evaluates wind-energy proposals. "If you really care about the environment, you need to think about how much the production of a wind facility in the Appalachians replaces coal mining, which removes mountains and can destroy habitat for rare birds like cerulean warblers" (see "What Lies Beneath," page 40).

Although the construction of turbines on land has a clear impact on songbird populations and other wildlife, evidence reveals that in the years afterwards, most species return. Newer turbines with bigger, slower-turning blades have also minimized bird mortality; bat mortality is still a concern, largely because so little is known about the species.

VINCENT LELOUP/SYGMA/CORBIS

Off-shore wind turbines like these in Holland may become a more common sight in the United States.

For now, conservation advocates should support every project that doesn't have a direct impact on national parks, while carefully reviewing the potential impact on state parks. You can support alternative energy projects by purchasing wind energy from your local public utility to increase demand for the new technology. The Park Service is even doing its part: The Statue of Liberty and Ellis Island just signed a three-year contract with Pepco Energy Services to purchase an estimated 27 million kilowatt hours of electricity produced by wind turbines in the Midwest. —*Scott Kirkwood*

NATIONAL PARK CONSTRUCTION PLANS GIANT SEQUOIA SEQUOIA NATIONAL PARK, CA	NOTES: 1. Mass production for "forest effect" pending budget approval.		
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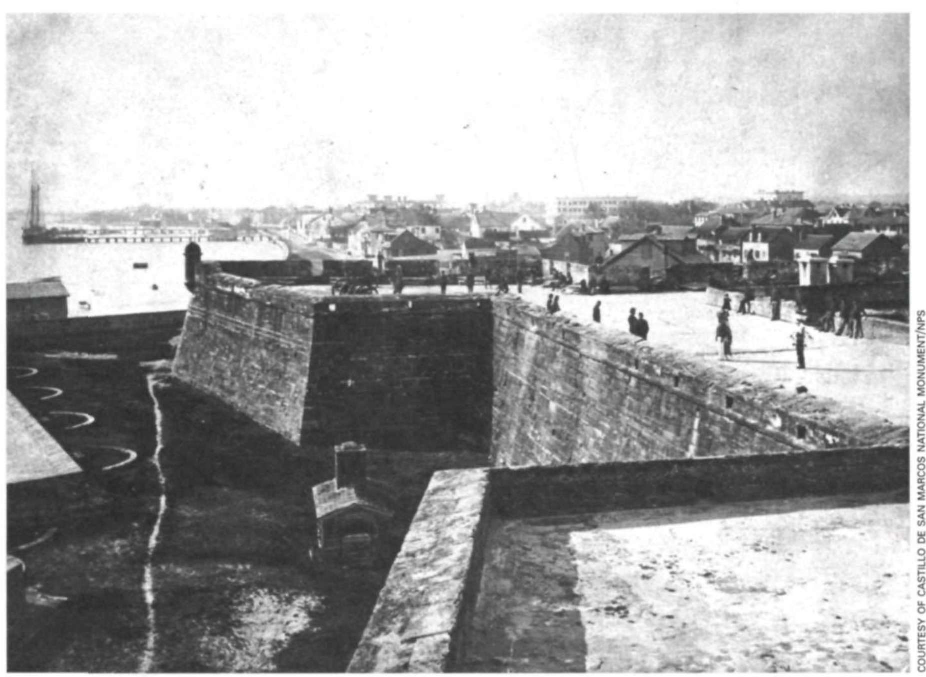
Drawing on Experience

Castillo de San Marcos National Monument tells the story of Native Americans imprisoned during America's westward expansion.

By Scott Kirkwood

Ask any high-school freshman about America's westward expansion and you'll hear all you need to know about "manifest destiny" and the heartbreaking fate of the native people who stood in the way. But few history textbooks tell the story of the Native Americans imprisoned in Fort Marion, Florida, hundreds of miles from the open plains where so many lives were lost.

Oklahoma, 1874. The Red River War ended in victory for the U.S. army, and thousands of American plains Indians were quickly removed to reservations like Fort Sill and the Darlington Agency. Seventy-four of these individuals—mostly male warriors—were sent east to St. Augustine, Florida, convicted of murder and rebellion without a trial. For three years, they were imprisoned in Fort Marion, now known as Castillo de San Marcos—the name given to the military installation when it was first established by the Spanish in 1695.


COURTESY OF CASTILLO DE SAN MARCOS NATIONAL MONUMENT/NPS

Fort Marion in the summer of 1875, during the time of the Native Americans' imprisonment.

The prisoners were members of five different tribes, primarily Cheyenne, Kiowa, and Comanche. After days of travel by wagon, rail, and steamboat, they arrived at a prison where conditions were quite bleak. Many slept on dirt flooring. Disease was a constant threat. But drastic changes were about to take place.

Captain Richard Henry Pratt, an officer in the 10th Cavalry, oversaw the prisoners from the moment they left Oklahoma. As the head of an African-American unit led by white officers, Pratt had spent several years coordinating the work of Indian scouts who offered guidance to American soldiers. Evidently, his experience with these repressed groups made him sympathetic to their plight, prompting him to speak out on their behalf.

"Pratt instituted some major changes in the first six months of their imprisonment, removing their chains and shackles and improving their living facilities," says Amy Harper, a park guide at Castillo de San Marcos. "In his autobiography, Pratt talks a lot about equal rights, and in reading his words, you get the sense he really felt very strongly about the need to assimilate Native Americans into white society. During a time of westward expansion, Native Americans were losing their land and their mobility, their horses were being captured and slaughtered, and buffalo were becoming more scarce—their whole way of life was really dying out. Pratt really believed assimilation was their only chance for their survival."

Pratt dismissed the local guard and had some of the young Indians serve as

Scott Kirkwood is senior editor for *National Parks* magazine.

guards for the rest of the imprisonment. He took the men on camping and fishing trips on Anastasia Island, across the bay. Local women volunteered to teach the prisoners for several hours every morning, helping them learn to speak, read, and write in English.

"Visitors were welcome to [come to the prison] every day except Sundays, [which were devoted to] instruction," Pratt wrote in his autobiography, *Battlefield & Classroom*. "I conceived it my highest duty to correct the unwarranted prejudice promoted among our people against the Indians through race hatred and the false history which tells our side and not theirs, and which has been so successfully nursed by keeping them remote and alleging that they alone have irredeemable qualities. It was just as important to remove from the Indian's mind this false notion that the greedy and vicious among our frontier outlaws fairly represented the white race."

Prisoners were encouraged to earn money by crafting products such as polished sea beans, toys, and bows and arrows, all sold to tourists. Many of the men also pursued art, transferring their skills from the canvas of a buffalo hide to accounting ledgers and any other scraps of paper that could be procured—a common practice among Indians in the west, as buffalo became more scarce and paper became more widely available.

Most of the childlike images depict life on the plains or typical prison activities including camping, swimming, and organized outings. At least 900 images were created during their internment, many of which are preserved in private collections, museums, and archives as the most tangible reminders of a complicated period in our nation's history.

COURTESY NATIONAL ANTHROPOLOGICAL ARCHIVES/SMITHSONIAN INSTITUTION

Ledger art created by a Native American prisoner at Fort Marion.

Although some considered Pratt their advocate, if not an outright savior, others point out that every day spent in the prison stripped these men of their tribal identities.

"Descendants of the prisoners at Fort Marion always have mixed opinions about Captain Pratt," says Harper. "As the founder of the Carlisle School—the model school for all Native American boarding schools of the era—Pratt was one of the first people to go west and actively recruit students. Although parents generally had to grant permission for their children to attend, coercion was common and many schools reported abuses, so Native Americans still have negative associations with these schools and the man who created them."

In 1878, Pratt successfully petitioned the government for the prisoners' release, and the Native Americans were transferred back to the care of the Indian Bureau. Some men returned to their families in the west, but 22 chose to stay on the east coast and continue their education. It's difficult to say if these men were eager to embrace the new world they'd found in the white man's lessons or if they simply recognized there was no going back to the world they'd left behind. ❖

Higher Learning

The science behind how trees get tall... and what keeps them from growing taller

By Amy Leinbach Marquis

Hiking through Redwood National and State Parks is a powerful experience. Trees as tall as 35-story skyscrapers stand in the same spot where they've stood for more than 2,000 years. What secrets do these ancient trees hold? And how do they get so tall?

Dr. Steve Sillett, a Humboldt State University professor researching redwood forest ecology, is working to answer these very questions. He spends his days scaling treetops in Redwood National and State Parks with a mere harness and rope, trying to figure out how trees work and how they grow. As simple as the concept sounds, it's a relatively unexplored frontier.

"Despite all the years of research on forests, we still don't really understand the functioning of an individual tree," Sillett says. What stumps scientists is the connection between a tree's "crown performance"—what's happening in the treetop—and what's going on below ground. Knowing how trees get tall is one small step toward answering that question.

Picture this: Water travels up from the ground through the tree's roots, creating a water column that reaches the tops of the highest leaves, assisted by a phenomenon called capillary action, which literally allows water to climb walls. But the column of water faces many challenges along the way—fighting gravity as it travels higher up in the tree; overcoming friction as it flows against cells in the wood; and finally evaporating when tiny pores in the leaves, *stomata*, open up to breathe in carbon dioxide for photosynthesis. Between this friction, gravity, and transpiration, the water column stretches tighter and thinner, like a rubber band being pulled from the top. But the rubber band can withstand only so much tension before breaking—and when it breaks, air bubbles form. Since tension increases with height, the top of a tree is more vulnerable. If an air bubble forms at the top of the tree, whatever growth is above it gets cut off from the water column and dies back. It's only when the water column is restored that new growth takes its place.

Redwoods overcome these obstacles better than most trees. But why? We know that the tallest individuals grow at low elevations along major streams on California's coast, where soils are rich and moist year-round. It's rare for these trees to become stressed over a lack of water—not only because of an ideal

DAVID MUENCH

Around the world, many of the tallest trees are still growing taller.

habitat, but because of a fascinating adaptation: Redwoods can actually absorb water through their leaves. "The vast majority of their water comes from the soil," Sillett says, "but fog and rain can supplement that, which might be just enough to give them an edge." Other adaptations, such as an impressive resistance to wood rot, fire, and shade contribute to its lofty heights.

"I've been measuring the tallest redwoods, eucalyptus, and Douglas fir, and they're still growing, sometimes up to a foot a year," Sillett says. "It's clear that they're capable of getting taller—so the question is what's limiting them? Will they reach a height at which they can't grow any further?"

Maybe. Redwoods face a challenge common to all trees whose leaves have evolved to close off their pores when water loss is a threat. Although this adapation preserves water at great heights, it shuts down carbon dioxide intake, forcing photosynthesis to come to a screeching halt. To what extent this tradeoff limits growth remains a mystery.

The answers, Sillett thinks, lie in the most ancient trees, whose complex crowns host entire ecosystems hundreds of feet off the ground. But only about 4 percent of original redwood forests remain today, scattered throughout 34 California redwood state parks, Muir Woods National Monument, and Redwood National and State Parks. That's bad news for species like the endangered marbled murrelet, an ocean bird that only nests in old growth forests; the fuzzy, mouse-like red tree vole; and the wandering salamander, who can spend its entire lifespan in the treetops.

Younger redwoods, which make up the majority, aren't complex enough to support this kind of wildlife. And that doesn't sit well with Sillett, who's not ready to admit that we must wait 500 years to see the forests mature. If he can figure out the mysteries behind tree growth, he might be able to simulate ancient forests by manipulating tree structure in younger, second-growth stands.

"Tree-crown complexity appears to be a response to disturbances in the form of injuries, like wind damage and fire," Sillett says. "We need to do experiments to find out if it's feasible to carefully injure trees to promote the development of crown-level complexity."

It's an ambitious mission to restore diversity in forests with a "heavy-duty industrial past." But success could foster a growth spurt of complex canopies, with all the charms and biological benefits of an old-growth forest. ❖

Amy Leinbach Marquis is assistant editor for *National Parks* magazine.

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Sp06

The Thin Places

The gulf separating the environmental movement and the evangelical community was once deep and wide, but that's starting to change.

By Peter Illyn

The early Celtic people—Irish Christians—had a name for the places in nature where they felt closer to God. They called them "the thin places." While worshiping next to the ocean or praying in a grove of ancient oak trees, they felt nearer to the presence of God. The wall separating them from God was thinner.

Encountering the Divine in the midst of the wild is as old as humanity. Throughout history, men and women have had profound epiphanies in the wilderness. The Bible, Torah, and the Koran all relate stories based on an individual's encounter with God in the midst of nature, from Buddha to Moses, Elijah, John the Baptist, Jesus, and Mohammed. Each went on to change the world.

As Americans, we should be proud that nearly a century ago wise political leaders recognized the spiritual and intrinsic value of our nation's "thin places" and protected many of them as national parks. Today, millions of people—individuals and families—encounter the divine in their midst.

For those with a religious faith, it's really a simple concept: If we love the Creator, we must take care of creation. It's a philosophy that puts environmentalists and evangelicals in the same boat—awkward companions to say the least. Although their divergent belief systems have led them to view each other with a fair degree of mistrust, they have much in common.

I've been reading my Bible in national parks for a long time. Years ago, while I was an evangelical minister, I trekked through the national parks of the Pacific Northwest, covering 1,000 miles in four months. While camping in an alpine meadow near Mount Rainier, I was awoken in the middle of the night. The sound of snapping twigs and rustling leaves told me something was walking around my tent. Then the stillness of the night was broken by a scream—a piercing, woeful, and eerie cry unlike anything I had heard before. Startled, scared, and suddenly wide awake, I quietly crawled out of my tent and hid in the moon shadows.

A bull elk and his harem of 20 cows had come into the meadow to graze under the full moon. Only 30 yards away, still ignoring my presence, the bull elk lifted his head, tipped his impressive rack of antlers toward the ground, his cold breath streaming to the heavens. Then he bellowed. It was a cry of power and of strength, of rut and of kingship. Watching him, I stood in awe. It was a magnificent expression of the wild.

Standing there, I was reminded of the verse in Genesis 1:31 that says, "God saw everything he had made and it was very good." The word "good" in Hebrew is *tovh*, meaning whole and complete. It is a word reminiscent of an artist who looks at his creation and declares it finished; something in his soul knows he has achieved a masterpiece. That night God revealed to me goodness—the goodness of the elk and the goodness of the wild places that provide a home for them. God allowed me to partake in a masterpiece. I had an epiphany of the soul, one that changed my life forever.

But my relationship with the Earth is more than that of art-lover. When we read the covenant between God and Noah we realize that God has placed humans into a special relationship with the rest of the living world.

"I now establish my covenant with you and your descendants after you and with every living thing that was with you—the birds, the livestock, and all the wild animals, all that came out of the ark with you—every living creature on earth," said God. "This is the sign of the covenant I am making between me and you and every living creature with you, a

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Peter Illyn is executive director of Restoring Eden, a ministry working to help Christians appreciate nature and make meaningful changes consistent with an environmental ethic.

covenant for all generations to come." Genesis 9:8,12,17

Micah 6:8 says, "He has shown you what is good, and what the Lord requires of you...to act justly, to love mercy, to walk humbly with your God." That is what natural wonders can do for us—they can call us to justice, to mercy, to humility. I am reminded of so many other Bible verses:

The mountains and the hills will burst into song before you. Isaiah 55:12

The wild animals honor me, the jackals, and the owls. Isaiah 43:20

Praise the Lord from the Earth, you great sea creatures...you mountains and all cedars, wild animals, and flying birds. Psalm 148

Standing in that ancient forest, surrounded by trees that were 800 years old, I also had an epiphany of insignificance. That moment when you realize what an awesome, wild, and majestic world surrounds us. The moment when you become small before God. The Bible gives us an example in Job who, in Chapter 38, complains about how poorly God has treated him. God responds by extolling the mighty works of creation—mountain goats giving birth, wild donkeys thriving in the salt flats, the soaring of an eagle, the strength of the horse, the majesty of mountains, and the relentlessness of the oceans. Chapter upon chapter, verse upon verse God chastises Job with examples from the natural wonders. Job, then properly rebuked, responds by saying, "I put my hand over my mouth!" an ancient Hebrew idiom for "I am small before you, Lord. I am humbled beyond speech!"

My faith tradition teaches that humans are unique in all of God's creation—only we are made in the image of God, and we alone have the divinely given capacity of self-awareness and of free-will. We alone create art and music, build tools, and construct language. Humanity has an exceptional place in the created order, but we seem to have forgotten that we were created last and designed by God not to be independent of the rest of creation. We were made from the dust of the Earth, we are still connected to the Earth, and we will return to the Earth. This is the epiphany of interconnectedness.

Our national parks—the geysers of Yellowstone, the grandeur of Yosemite, the deep blue waters of Crater Lake, and the peaks of Rocky Mountain National Park—are our nation's "thin places." My faith was renewed in the meadows of Mount Rainier National Park, and I can only pray that my great-grandchildren are able to experience them in much the same way. Whether we see these special places as reflections of our creator or simply reflections of nature's beauty, our national parks present a brilliant opportunity to find common ground, in every meaning of the words. ❖

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The heavens above Mount Rainier National Park in Washington.

Blazing A PATH

As human development crowds out wildlife migration routes, one man treks thousands of miles to learn if wildlife corridors can really make a difference.

Wolf tracks dot a frozen landscape along Sulphur Springs Creek in Yellowstone National Park.

JEFF HENRY

In the 1980s, when North American newspaper headlines generally focused on far-off issues like the Cold War, a few wild animals edged their way onto the front pages: A wolf from Montana had traveled all the way to Mile Zero of the Alaska Highway. A lynx from Canada's Yukon Territory turned up in a trap 800 miles south of its hunting grounds. The lengths of these journeys would never have been known if these animals hadn't sported the faded jewelry of wildlife research projects such as ear tags and radio-collars, which allowed the hunters and trappers who found them to cobble together their incredible stories.

"Strange," wrote reporters. "Such extraordinary movements are difficult to explain." Some dismissed them as simple anomalies.

But then, in the 1990s, came satellite transmitters, which, as quickly as scientists could fit them onto animals, showed the world that such "extraordinary" movements were, in fact, quite the norm. A bull trout swam more than 1,500 miles from central British Columbia to the Northwest Territories. A pair of cougars migrated from the east slopes of the Rockies to the interior ranges and back again. A grizzly bear wandered across the province of British Columbia. A wolverine loped 700 miles through snow.

None of those journeys, however, compared to the incredible travels of Pluie the wolf. Trapped and collared with a satellite transmitter just outside Canada's Banff National Park in summer 1991, the young female set off on a search for new territory and a mate, spanning two provinces, two states, two countries, and dozens of protected areas in the process, and covering an area equivalent to 15 Yellowstone National Parks (about 40,000 square miles).

By then enough evidence about inbreeding and other problems plaguing small, isolated populations had accumulated to the point that scientists couldn't ignore the zigzag message Pluie had scribbled across their maps: No national park—not even Yellowstone, Glacier, Banff, or Jasper—was big enough to meet the needs of such wide-ranging wildlife. To conserve them and their important top-down role in the ecosystem, a new conservation paradigm was needed—one that looked beyond the old model of protecting islands of wildlife habitat and, instead, connected them. A new Yellowstone to Yukon Conservation Initiative, or "Y2Y," aimed to engage the public, government, industry, and advocacy groups to work together to maintain wildlife movement between national parks in the Rockies.

Flash forward several years later to Banff National Park in Alberta, Canada, where I'm working as a ranger.

By Karsten Heuer

JEFF HENRY

Wildlife like wolf, bison, and bighorn sheep who roam the Rocky Mountain range don't recognize national park borders. But human development, like ranching and new home construction (right), can present serious obstacles to migration.

I'm summoned to the office of my supervisor, who rifles through a stack of papers, signing multiple requisitions before pausing at a thick document, which he slides to the side of his desk.

"Lots of development proposals coming in," he sighed. "A new parking lot at the ski area, another subdivision in the town site, a project to widen the highway.... The wildlife are running out of room."

I nodded but held my tongue.

"We need a study on wildlife corridors," he said. "Design one, run it, and come back with some results."

Having graduated with a university degree in biology only a couple of years earlier, I was flattered by the assignment but overwhelmed. It was 1993—Pluie had just finished her remarkable journey, Y2Y had grown into a group of 100+ conservation groups and scientists who were mapping the region, and other alliterative corridor proposals were cropping up around the continent: Algonquin to Adirondack (A2A) Rainforest to the Rockies (R2R), and Bering to Baja (B2B). But the science of wildlife corridors was in its infancy. I knew the definition—a conduit for the movement of wild animals, seeds, and other organisms to insulate against the negative effects of inbreeding, food shortages, and calamities like wildfire, flood, and other large-scale disturbances—but not much more.

"Wildlife corridors?" I blurted back to my boss. "Where are they? What do they look like? What shape? How wide?"

"That's what I want you to find out," he replied.

Banff's steep mountains, narrow valleys, and diverse human developments made it the perfect laboratory for such innovative research, for it provided a made-to-order combination of habitat patches (wide, valley-bottom swaths of land where wildlife feed, rest,

WOLF AND BISON BY FLORIAN SCHULZ

and reproduce unencumbered) linked by wildlife corridors of varying slope, length, width, and human impact. All we had to do was survey animal tracks at the entrances and exits to such natural and man-made squeeze points and, after a few winters, see what kinds of corridors did and didn't get used.

In the end, the answer was, "It depends." It depends on the species of animal, slope steepness, vegetative cover, human use within and adjacent to the corridor, and corridor length. We frequently found human-tolerant species like elk, deer, and coyotes using 100-yard-wide constrictions, for example, whereas wolves, cougars, and lynx seemed to avoid anything less than 300 yards wide. Corridors across steep slopes required greater width, as did those without many bushes or trees. Little to no human use was best, we discovered, and where it did occur, predictability made a huge difference. (A small suburban neighborhood with people and dogs spilling into an adjacent corridor was worse than one fringed by a busy, fenced highway, for example.) Finally, there were the physical dimensions. All else being equal, the longer the corridor was, the wider it needed to be.

Although we couldn't provide land developers, managers, and other people with one easy prescription for a functional corridor, we did create a simple series of sliding scales that not only matched corridor dimensions to a specific landscape and situation, but also helped form recommendations where such corridors had been lost. Where our guidelines were followed, we witnessed some remarkable results. After removal of a horse stable, army cadet camp, and grass airstrip from one such impacted corridor, for example, wolf use increased by 700% in 12 months.

It was every biologist's dream—not only had we pioneered new research, but it was being used to improve the situation for wildlife on the ground. But the movements of Pluie and other tagged wolves, lynx, bears, cougars, and wolverines still haunted me with their message to think big: Single-valley and single-park approaches weren't enough. Armed with my sliding scales, I reconsidered the Y2Y proposal and guesstimated inter-park corridor dimensions that, in some cases, would be hundreds of miles long.

BRAD MARKEL

MAP COURTESY OF THE YELLOWSTONE TO YUKON CONSERVATION INITIATIVE

A map illustrates the complex system of natural areas connected by wildlife corridors, and the author's journey of discovery.

Assuming they were well forested, they would need to be tens of miles wide.

Even with low-intensity developments—things like selective forestry and predator-friendly ranching—I wasn't sure such swaths of open land existed. And if they did, were they publicly owned or private? And would the people who lived and worked in these areas ever support such a scheme?

Curious, I called colleagues on both sides of the international border and visited the local university library. But I found no answers. Weeks passed, then months, and still the question burned in my mind. Was Y2Y possible? Finally I realized there was only one way to find out how a wolf or grizzly bear might move through the region: Walk the 2,200 miles from Yellowstone to Yukon myself.

Over the course of the next 18 months, I encountered ridge-top blizzards, dodged lightning storms, swam rivers, triggered avalanches, and encountered bears. During the journey, I ended a romantic relationship with my first hiking companion and began another with a second woman (whom I would eventually marry). Not only did we meet numerous people while walking and skiing the distance (loggers, trappers, hunters, fishermen, ranchers, canoeists, hikers, and off-road vehicle enthusiasts), but we also talked to more than 70 chambers of commerce and other community groups about the Y2Y idea, stopping in numerous towns along the way. The receptions varied—everything from warm, hearty welcomes to rooms full of scowling loggers—but the end result was always the same. Once we clarified that Y2Y wasn't a huge national park proposal but a necessary

KARSTEN HEUER

system of reserves linked by lightly developed corridors, arms unfolded and suspicious looks softened to smiles.

On our final leg of the journey, we encountered two hunters who were drying out after five days of chasing Stone sheep in the rain. They ushered us inside, and offered us whiskey and a wood stove. After we told them of our travels, they asked the question on everyone's mind: "So what did you find out about the wildlife corridors?"

Before answering, I explained that the line we'd taken from Yellowstone—zigzagging up Montana's Gallatin, Bridger, and Big Belt mountains and then the Continental Divide into Canada—was only one of many potential connections in the Y2Y system. From Yellowstone, for example, there was another, equally valuable route for wildlife along the Centennial Mountains, connecting to eastern Idaho's Salmon Selway Bitterroot and Frank Church Wilderness areas before it, too, headed north to Glacier National Park.

"I was pretty skeptical when we started out," I admitted. "But in terms of barriers to wildlife movement, the news is good. Only ten paved roads, only five railways, and of the unprotected lands we crossed, less than ten percent are private, of which half are in conservation easements."

The two hunters threw me a blank look.

"That means they'll never be subdivided or used for anything more than

JERRY MERCIER

Author Karsten Heuer stops to drink from Dean Lake in the Bob Marshall Wilderness complex (top), a watering hole for wildlife traveling the same route. In Banff National Park, Canada, an overpass (above) provides animals with a safer crossing, aiding the effort to preserve wildlife corridors.

KARSTEN HEUER

The author atop northern Montana's Crow Peak, celebrating the promise of the Yellowstone to Yukon Initiative, a growing network of more than 200 organizations. For more information, visit www.y2y.net.

ranching," I explained.

"Only ten paved roads?" asked one, wondering if he heard right.

I nodded, then qualified it with a summary of the hundreds of oil, gas, and forestry roads we'd crossed. "At last count, there's a road, pipeline, or oil exploration cut-line in all but 292 of the 320 watersheds in the Y2Y region," I said.

One of the hunters nodded.

"Those are the same reasons the two of us spent two grand to fly in here with a bush plane. Everything you're talking about—especially the industrial forestry and gas development—it's happening up here in northern British Columbia as well. It's getting to the point where we can't find a valley where someone isn't going to roar in on a motorbike, Jeep, or quad and ruin our hunt."

"I'm not against development," he quickly added. "Hell, I work in the oil industry. But there are problems. It's happening helter-skelter. We're cutting off wildlife. There's no greater plan."

The look on his face as he reached for the bottle matched my own sentiments about the Y2Y region—a love for its wild beauty tempered by a worry that it might not be saved in time. I watched him take a few swigs, then explained how hundreds of scientists and environmental groups were working hard under the Y2Y banner, mapping, identifying, and, in some cases, already securing critical wildlife corridors in the region.

"Believe me, those corridors still exist," I said, following up with the most encouraging discovery of the journey: In 2,000 miles of searching, we'd seen fresh signs of grizzly bears—tracks, digs, scat, rub trees, and the animals themselves—85 percent of the way.

We made a toast to the promise of Y2Y, and later that evening, as we prepared ourselves for bed, a pack of wolves echoed the sentiment, their howls fading into the black night. I imagined them padding along the same game trails we'd followed earlier that day, retracing our footsteps to the steep riverbank where my companion and I had lunched, the windy pass where we'd piled on clothing, and the valley where we'd camped on wildflower seeds as thick as snow. Maybe they would go farther south, I thought, traveling for days, even weeks. Maybe this was only the beginning of yet another extraordinary journey across the buckling canvas of Y2Y.

When the howling finally subsided, I rolled over, closed my eyes, and fell back to sleep with a satisfied sigh.

Karsten Heuer is a wildlife biologist, park warden, and author of *Walking the Big Wild: From Yellowstone to the Yukon on the Grizzly Bears' Trail* and *Being Caribou: Five Months on Foot with an Arctic Herd*, both published by Mountaineers Books.

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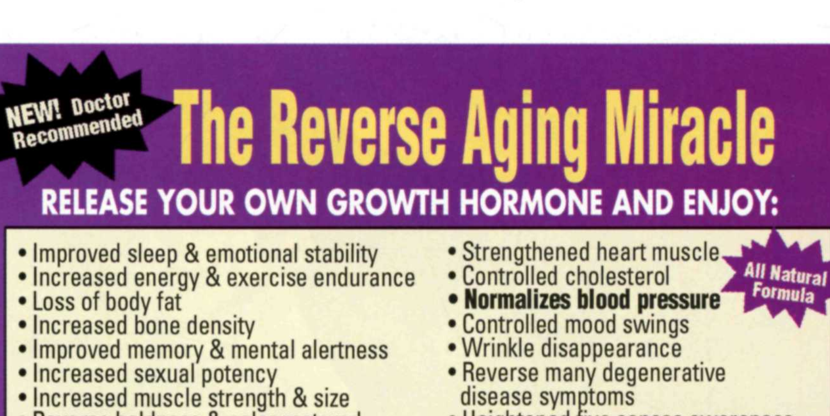

Harlequin Romance

Bird lovers and researchers flock to Glacier National Park in search of the elusive and mysterious harlequin duck. Does their relationship have a future?

On this May morning a relentless, shivering spring rain falls on Glacier National Park. It's the kind of rain that shrivels your skin and dissolves the last stubborn remnants of snow clinging to the shaded corners of this jagged landscape. At the soggy edge of Upper McDonald Creek, a hearty group of volunteers braces against the cold, preparing to scour the muted landscape in search of a creature that takes great pains to remain hidden. It's not one of the superstars of Glacier they seek—the grizzly, bighorn, or mountain goat—but a one-and-a-half pound sea duck called the harlequin.

Named for the raucous acrobatic clown of 16th-century Italian theater, the harlequin duck bears some of the most striking markings of any waterfowl. As with most ducks, the hen's plumage is fairly drab and nondescript—aside from her small size and a distinctive white patch on the side of her head, she's quite likely to be overlooked by the casual observer. But the costume of the flamboyant drake in breeding season calls to mind a mime who has downed a quart of espresso before applying his makeup. The male's deep slate blue feathers are painted with bright auburn patches on his belly and head, while white bands and dots dapple the drake's face, chest, and back.

Appearance is one in a long list of attributes that make the harlequin unique. Foremost among these may be its penchant for perilous places. This duck earns its bread and butter in places most creatures avoid, and like its namesake, the harlequin exhibits an acrobat's agility in its unusual ecological niche—whitewater.

Story by Krista Schlyer and Amy Grisak. Illustration by Julie Murphy

DAVID MUENCH

The rolling rapids and rocky hideaways of Glacier National Park make perfect breeding sites for the elusive harlequin duck. Here, water tumbles over boulders into Grinnell Lake.

Sea ducks generally favor sheltered lagoons or open ocean, but the harlequin's coastal wintering grounds are filled with the thunderous sound of surf, and the same roaring rapids characterize its preferred breeding habitat. Apparently the harlequin realized that no other creature was taking advantage of the cornucopia of tasty and nutritious critters that dwell where water and air collide in a violent tumble.

It is at this elemental crossroads that a group of volunteers will spend the day. They'll be trekking along a muddy nine-mile stretch of the creek, over downed logs and around dense creekside brush. They'll scan every inch of the assigned route, hoping to identify each and every harlequin, a creature that seems capable of fading into the scenery at will.

Population surveys of the harlequin have been ongoing since the early 1990s, when alarm bells sounded the decline of this secretive Glacier resident, one of the least studied birds in North America. In the early years, the counts were conducted primarily by park staff and trained biologists, but funding shortfalls have led park researchers to enlist volunteers in the search for clues to a complex and disturbing puzzle: Why and to what extent are the harlequins in decline? Could conditions at the park be responsible for the downturn? And what does their decline mean for the entire Glacier ecosystem?

According to Steve Gniadek, a veteran wildlife biologist who has spearheaded the project for more than 15 years, information on Glacier's population of harlequins is spotty at best. Biologists are confident that the ducks nest along McDonald Creek, but they've never actually set their eyes on a nest

inside the park. It's possible the ducks' decline came about after harlequins abandoned suitable nesting habitat because of visitor disturbance, but until researchers know where the nests are—or even where they once were—it's anybody's guess whether human impact plays a role.

Mystery comes with the territory: Because harlequins generally nest along the ground, they must stay well hidden from predators or risk their very survival. In Alaska, where the harlequin's population is believed to be quite high, only a handful of nests have been found.

Even in an ideal world, there may not be many nests to see. Harlequins are slow to reach breeding age and may not mate until they are three to five years old; only 50 percent of females nest each year. Harlequins generally lay four to seven eggs, compared with eight to 12 for the ubiquitous mallard. Harlequin eggs incubate for about a month, and only four are likely to live to maturity. Although many drakes remain with the hen and eggs for some time, the harlequin drake returns to the wintering grounds as soon as the eggs are laid. If a predator should steal the eggs or any other mishap should claim them, there's no chance of the pair breeding again for an entire year.

The animal's reproduction isn't the only process that relies on a number of critical factors. Scientists view the health of the harlequin duck as an important indicator of the health of the environment because it's one of the first to suffer from human-caused pollution and development. These ducks modified their behavior over thousands of years to take advantage of areas where other species couldn't eke out a living. But a new dam, coal mine, or logging operation can alter a stream overnight—killing off insect larvae or just making the waters too murky to forage—leaving the harlequin without a source of food.

DONALD M. JONES

The female harlequin, much less showy in appearance than the male, blends well with her rock and whitewater surroundings.

The eastern population—which ranges from southwest Greenland and Iceland to the eastern Canadian arctic and south to the Maritime Provinces—once numbered perhaps 10,000 individuals, but by the 1990s had fallen to a tenuous 1,000 or fewer. In 1990, the Canadian government listed the eastern harlequin as an endangered species and banned hunting, thought to be the primary threat to its survival. Its numbers appear to be rising in response, but the harlequin has yet to fully recover in the East.

The breeding range of the western harlequin extends from northeast Siberia, across to arctic Canada, and south to the Rocky Mountain region of the United States. Estimates for the western population once ranged as high as a million individuals and now hover around 250,000. But both historic and current counts are considered unreliable because the harlequin's range is so vast and remote and so little is really known about this duck.

Yet researchers know enough to be concerned. Some surveys of coastal populations have shown localized declines; harlequins have disappeared entirely from certain areas of the United States' northwestern interior. Populations in Colorado and California's northern Sierra Nevadas disappeared decades ago. And in Montana, Idaho, and Wyoming, harlequins have stopped breeding in streams they formerly occupied. The duck is considered a "species of concern" in all of the Pacific Northwest states and is listed as a "sensitive species" by the U.S. Forest Service.

Conservation of the harlequin has been hindered by a paucity of information. Since the eastern population was listed as endangered, the need for information has become more apparent, but research funding tends to follow the larger charismatic mammals such as wolves and bears, and animals that are known to be in immediate jeopardy. The pitfalls inherent in this approach to wildlife conservation are well known to scientists at Glacier, who have watched species disappear entirely from the park while awaiting funding.

"The porcupine is pretty much gone from the park," says Gniadek. Park managers overlooked the decline and disappearance of this animal largely because it

TOM ULRICH (LEFT AND TOP RIGHT); MALE DUO BY RICHARD CROSSLEY/VIREO

The decline of harlequin populations throughout the Northwest has sounded alarms in Glacier National Park, which struggles to fund thorough monitoring projects. Because the species' decline may signal larger problems within the ecosystem, the failure to conduct further research may lead to even bigger consequences.

was nocturnal and little was known of its habits. Proposals to attempt monitoring went unfunded in the '80s and '90s, and now it's simply too late. So far, the unfortunate outcome of the porcupine's story has not changed the funding outlook for animals like the harlequin.

"Funding for research and resource management in general has been a problem with the National Park Service," says Riley McClelland, a retired biologist who spent 25 years in Glacier. The emphasis here is on visitor use rather than landscape and wildlife preservation, he says. "You can see if a road has a pothole, but unless you do research, you don't know if a species is in trouble."

Gniadek agrees. He extends the analogy to funding repairs to Going-to-the-Sun Road, which winds through the heart of Glacier. The park has allocated several million dollars to fix the road but devoted relatively little for wildlife research, he says.

"If we applied the same resource-management principles to the roads that we do for wildlife, we would put off funding for the Going-to-the-Sun Road until it was falling off the mountain," says Gniadek. Hard choices become routine when Washington's decision makers cut park funding in favor of other priorities; the Bush administration's federal budget proposal for the coming year cuts national park funding by $100 million.

All of this bodes poorly for the harlequin. A last-minute approach to species recovery is untenable for animals like this, whose low reproductive rates make rebounding from serious decline improbable. A catastrophic event can devastate the harlequin's population for many years, as evidenced by the *Exxon Valdez* oil disaster in 1989, which spilled 11 million gallons of oil into Prince William Sound, killing or injuring thousands of ducks. More than 15 years later, Prince William's harlequin population has yet to recover.

As for the Glacier population, the health and size of the group remain undetermined. Gniadek estimates an average of 50 to 100 individuals in the park's breeding population (an accurate count is difficult because survey results vary so much from year to year). Although volunteers are integral to continuing the most minimal level of harlequin study, the species needs the attention of professional biologists. An in-depth study using radio or satellite transmitters attached to individual animals is the only reliable way to measure the population. But lack of funding for the harlequin makes that avenue impossible, a fact that clearly troubles Gniadek.

"If we're serious about protecting our resources, then we need to get serious about determining their status," says Gniadek. "If we don't know what they're doing to begin with, we won't know if they're blinking out."

And anyone who's seen that plucky duck bobbing like a cork in whitewater Eden knows what a tragedy it would be for this painted mime to slip silently into oblivion.

Krista Schlyer is a freelance writer living outside Washington, D.C. **Amy Grisak** is a freelance writer living in Kalispell, Montana, near Glacier National Park.

Urgent: Special Summer Driving Notice

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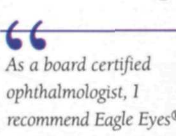

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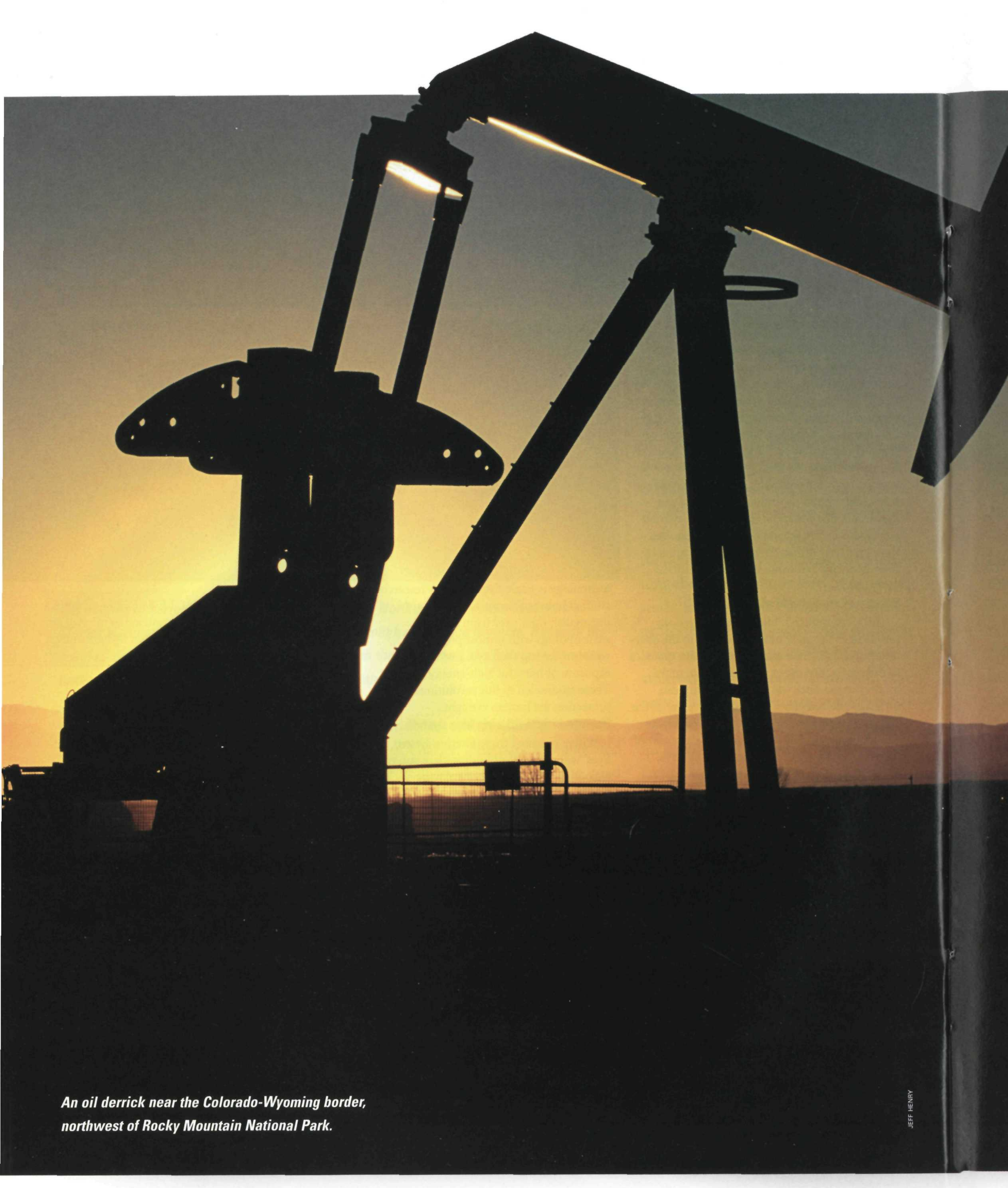


An oil derrick near the Colorado-Wyoming border, northwest of Rocky Mountain National Park.

WHAT LIES BENEATH

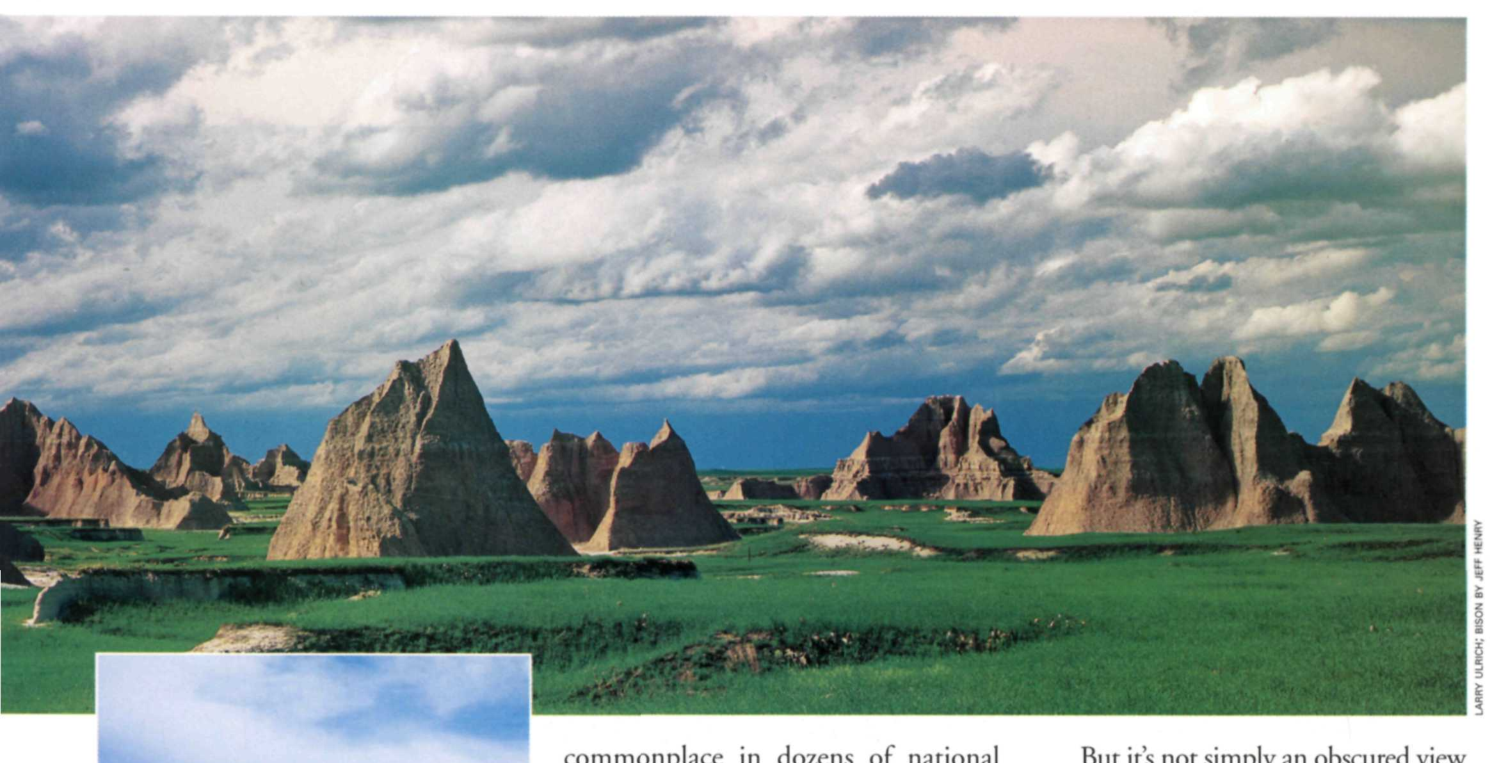
As our nation seeks more ways to extract energy from sources outside the Middle East, the Bush administration is increasingly turning to oil, minerals, and natural gas that lie within and just beyond the borders of our national parks.

As the afternoon sun casts a brilliant orange hue across the sandstone spires, a young girl and her father stop to rest, removing the burden of their backpacks, weighted down with water. The hike into the heart of Utah's red rock country wasn't particularly long, but it proved steep. Now nothing matters but the breathtaking view—until the child taps her father's arm and points at a strange figure in the distance, one that doesn't seem to belong.

On the horizon—shadowed, ominous, and unmistakable—stands an oil rig.

If the Bush administration continues its efforts to open federal land to energy extraction, such a scene could soon be

By Heidi Ridgley



LARRY ULRICH; BISON BY JEFF HENRY

Air pollution from gas drilling in Wyoming may drift as far as Badlands National Park in South Dakota (top), affecting the health of its bison (above) and other wildlife residents, as well as park visitors.

commonplace in dozens of national parks. In Utah alone—a land of staggering beauty and sprawling, surreal landscapes—more than 172,000 acres faced possible leasing by the Bureau of Land Management (BLM) for energy production as of last August. Two of the parcels, roughly 3,200 acres, stood just four miles outside Canyonlands National Park—and within eyeshot of park visitors. Protests scuttled the plans. But representatives of the nonprofit Grand Canyon Trust are convinced that the BLM will propose the sales again and they resent the fact that existing leases on the land already border the park on two sides.

Parks that boast far greater visitation are also at risk. According to BLM's own statistics, air pollution from gas drilling in Wyoming's Powder River Basin—where rolling hills meet meandering streams—will hinder visibility at Yellowstone National Park to the west and Badlands National Park to the east. Haze from the drilling boom, expected to last two decades, is also expected to veil Mount Rushmore for more than 150 days a year.

But it's not simply an obscured view that concerns many conservationists. Studies show that besides denuding wilderness of vegetation to make way for roads and machinery, the industry's gargantuan footprint on the land can pollute groundwater and waterways and drastically disrupt wildlife migration for up to 80 miles. And the damage starts long before oil or gas is even found, as "thumper trucks" cruise the land, pulverizing the fragile landscape as they search for deposits with seismic waves that travel beneath the Earth's crust. Other times, exploration for oil and gas entails exploding dynamite in a hole drilled several hundred feet deep. If and when the industry strikes liquid gold, in come the heavy guns: 18-wheelers, diesel engines, and turbines—which often run 24 hours a day, seven days a week—and toxic, oil-based fluids used to keep the hole open and the drill bit cool.

Pinning its policy on the need to reduce the nation's dependence on foreign oil and enhance national security, the Bush administration has also worked steadily to whittle away at a long-standing principle to protect

buffer zones just outside park boundaries from drilling and mining. According to a recent report by the Environmental Working Group (EWG), which analyzed well-by-well oil and gas production records obtained via the Freedom of Information Act, administration officials have removed barriers to drilling and lifted environmental protections on 45 million acres of public lands in 12 Western states.

According to EWG analyst Dusty Horwitt, 35 national parks in the region are at risk of environmental degradation due to mining, drilling, or both, and for no real reason. EWG's study found that from 1989 to 2003, the drilling on 229 million acres of federal land—the equivalent of more than Arizona, New Mexico, and Colorado combined—has provided the nation with only 53 days worth of oil and 221 days worth of natural gas. "Clearly, we're not going to drill our way to energy independence," says Horwitt. "Is it worth jeopardizing some of our most spectacular national treasures for a drop in the bucket?"

Farther east, another type of habitat destruction is endangering creatures protected under the Endangered Species Act while jeopardizing one of the best whitewater recreational rivers in the nation. At the headwaters of the Big South Fork of the Cumberland River in Tennessee, just outside the Big South Fork National River and Recreation Area, the coal industry is gaining headway in mountaintop removal mining—a process that blasts away hilltops to get to the coal underneath. Traditionally, the mountaintops are left flat and the removed rubble gets dumped in nearby hollows or valleys. But these "fills" have caused so many environmental problems that the industry created a variation of the process—one that attempts to recreate the mountain. When mining operations cease in a particular area, the loose rock is piled back up—ostensibly in a way that ensures it won't slide down and pollute rivers and streams below. But that's proving to be nearly impossible in a steep-sloped area of the country that gets 50 inches of rain a year.

"It's like trying to pile oatmeal against a wall and expecting it to stay

FEELING THE IMPACT

When a mining, oil, or gas corporation proposes to mine or drill on pristine public lands, the company often defends its development plans with statistics on the size of the operational footprint—the amount of land that will be denuded of vegetation for roads, buildings, concrete well pads, waste pits, processing facilities, and other infrastructure.

In reality, the footprint is rarely so remarkably contained as the industry would have officials believe: Government studies document that 40 percent of all Western headwaters are polluted with mine waste and that in some cases, plumes of smog rivaling those from big-city populations extend hundreds of miles from oil wells.

0.5 miles	Noise impacts from oil and gas drilling
5+ miles	Views marred by oil and gas wells
20 miles	Groundwater pollution from mining (not shown)
55 miles	Soiled contaminated by mining dust (not shown)
75–80 miles	Migrating wildlife affected
200 miles	Pollution from oil and gas drilling

ILLUSTRATION BY JEFF DEL NERO. INFORMATION ADAPTED FROM "LOSING GROUND," A REPORT ISSUED BY THE ENVIRONMENTAL WORKING GROUP, APRIL 2005, WWW.EWG.ORG.

CROSSING THE LINE: DRILLING IN PARKS

GEORGE H.H. HUEY (3)

Sadly, energy extraction doesn't always stop outside park gates. Because the process of creating a national park does not always include the transfer of mineral rights beneath the land, drilling platforms have cropped up inside a dozen of the nation's "crown jewels," and it's completely legal. Consider Padre Island National Seashore in Texas, the longest stretch of undeveloped barrier island in the world. Besides drawing almost a million visitors a year, a multitude of foraging shorebirds,125 species of migrating neotropical birds, and the gulf's largest concentration of bottlenose dolphins, its dunes, mudflats, freshwater marshes, and beaches attract more than a dozen threatened and endangered species. One is the Kemp's ridley sea turtle, considered the most endangered sea turtle in the world.

To ensure that sea turtles don't get run over during drilling operations, the National Park Service mandates that the process be completed before nesting season begins in April. But with as many as 20 semi-trailers traversing the beach each day, the drilling operations not only disturb park visitors, they also compact the sand, says Carole Allen, Gulf Coast director for the Sea Turtle Restoration Project.

"Even if 18-wheelers don't run over adult turtles or hatchlings," says Allen, "they still pound the sand to a very hard surface, making digging a nest far more difficult." Drilling could also affect turtle mating or nesting. "No one really knows what effect these vibrations have on sea turtles," she says. "In 2004, 28 Kemp's ridleys nested in the area of Padre Island National Seashore. Would there have been more if there had been no drilling?"

GEORGE H.H. HUEY

A fragile dune ecosystem in Padre Island National Seashore (above) hosts an array of seabirds, including (top, clockwise from left) the willet, curlew, and black skimmer.

there," says Don Barger, senior director of NPCA's Southeast regional office. "It's a fantasy to think the rubble won't eventually slide down the mountainside and smother the aquatic life in the valley below."

While canoeing on the Big South Fork for several days last summer, Barger paddled by numerous sandbars that contained chunks of coal the size of his fist—the fallout from eroding mountain mining sites. Several endangered mussel species—filter feeders all—live in the Big South Fork, and they are simply unable to filter out all the silt caused by mountaintop mining.

Also affected by the removal of mountaintops is the cerulean warbler, a bird that has the unfortunate distinction of being the fastest declining warbler species in North America. Its primary habitat is mature forests on mountaintops above 2,000 feet, which makes coal mining its primary threat.

"The industry claims that the mountaintops can be replaced and revegetated with trees, and that this will solve the birds' problems," says Melinda Welton, a biologist studying the impact of mining on the birds in Tennessee. "The fact is that the geology of the mountaintops will forever be altered by mining. Ceruleans like the biggest, oldest trees, and we just don't know if it's possible to reestablish a forest that these birds will find acceptable—and we certainly won't know the results of this 'reforestation experiment' within our lifetime." While the warbler may be the poster child for the ill effects of mountaintop removal mining, a number of interior forest birds, such as the Louisiana water thrush, the worm-eating warbler, and the wood thrush, are also seriously affected by coal mining.

Although the situation appears dire, it's not all doom and gloom. For the

time being, at least, Glacier National Park in Montana stands as a prime example of what can happen if people band together and say no to irresponsible drilling. A paradise for more than 70 species of mammals and more than 260 bird species, Glacier comprises a million acres of forests, alpine meadows, and lakes. "This region is one of the most important intact natural areas in the world," says Steve Thompson, NPCA's Glacier program manager. "It's more intact than the Yellowstone ecosystem and Banff National Park in Canada. But the only reason that still rings true is because everyone got together to knock back the proposed oil and gas drilling on the fringes of the park: An Indian tribe, conservationists, hunters, ranchers, and small-town media stood up and said, 'Not here.' "

At issue are Glacier's sensitive species—the grizzlies, elk, and mountain goats that need large open spaces to thrive and survive. Putting in oil- and gas-drilling infrastructures would have meant roads that fragment habitat, which displaces wildlife and affects mating and foraging behavior, invites wildlife and vehicle collisions, and provides poachers greater and easier access to the wilderness. Unfortunately, the fight isn't over—Glacier borders British Columbia, Canada, where the government is more likely to "lease now and analyze the environmental effects later," says Thompson. Industry lobbyists also continue to push for new drilling on Montana's Rocky Mountain Front on Glacier's southern boundary. "Drilling is still a very serious lingering threat to Glacier, but for now, we've won."

But as Horwit notes, until our leaders realize that it's impossible to drill our way to energy independence, until they recognize that drilling in our natural treasures destroys the very things that make this country worth cherishing and defending, and until they see that the only way to reduce foreign oil dependence is to raise fuel economy in cars and embrace alternative energy, the fight will never really be over.

Heidi Ridgley is a freelance writer living in Washington, D.C.

BRAD MARKEL; GLACIER NATIONAL PARK LANDSCAPE BY JEFF HENRY

Drilling threats still loom outside Glacier National Park (top). The iconic mountain goat (above) would likely suffer.

Each spring, hundreds of thousands of people visit Washington, D.C., to behold the spectacle of cherry trees in full bloom, but a trip to the nation's capital is always in season.

Behold the cherry blossom, harbinger of spring in the nation's capital, beguiler of both tourists and locals, queen of the festival, cause of celebration throughout the city. For about 12 days every year, from late March into early April, nearly 4,000 cherry trees burst into bloom along the Tidal Basin, Potomac River, and Washington Monument grounds. And then, in a slow-motion dissolve—like Cinderella at midnight—the blossoms disappear and the trees return to their more ordinary appearance.

Meanwhile, the grass turns green on the National Mall just in time for the annual Smithsonian Kite Festival, and tulips emerge

By Elise Hartman Ford

A CAPITAL IDEA

COLIN WINTERBOTTOM; CHARLIE ARCHAMBAULT/ FOLIO, INC. (INSET PHOTO REPEAT)

In 1812, the city of Tokyo, Japan, delivered 3,000 cherry trees to Washington, D.C., as an international gesture of friendship. Each spring, thousands of cherry blossoms burst into vibrant pink and white blooms, like these flowers framing the Jefferson Memorial at night.

A CAPITAL IDEA

The Franklin Delano Roosevelt Memorial and White House grounds (below) are popular sites for reflecting on the history and current state of the nation. From the Capitol balcony (right), the National Mall stretches beyond the Washington Monument to the Lincoln Memorial.

on the White House lawn, like advance men for the garden tours. This is a great time to come calling, and not just for the chance to see those spring cherry blossoms—a momentary pleasure, after all, and not guaranteed. Instead, plan a spring trip to the capital to tour Washington's lasting, reliable, and even more famous sites: the Lincoln Memorial, Washington Monument, and other treasures, all set within a landscape that grows more picturesque as the season progresses.

The capital's National Park units plot an excellent tour of the city, taking visitors from one part of town to another, including Georgetown, the Penn Quarter, U Street, Capitol Hill, and the Mall, on the trail of historic landmarks and recreational fun.

The National Mall and Memorials Park

First-time visitors to Washington, D.C., usually start on the National Mall, and rightly so. The two-mile green expanse that stretches westward from the Capitol reflecting pool to the Lincoln Memorial embodies the 1791 vision of city planner Pierre Charles L'Enfant—an open space where people might promenade and bustle in and out of public buildings that line the avenue. Today, 2,000 elms border the main Mall, and the public buildings that flank its northern and southern lanes include the U.S. Botanic Garden, the National Gallery of Art and Sculpture Garden, the National Archives, and 10 Smithsonian museums, all blissfully free to the public.

The challenge is how to take it all in. Many visitors hop on and off a narrated tour bus, like the Tourmobile, which travels on a continuous route to the major attractions. Another option is a free bike tour offered by National Park Service rangers, starting at the Jefferson Memorial every Saturday and Sunday at 1 p.m., mid-April through November; bring your own bike, helmet, and water and enjoy the leisurely three-hour ride as a ranger provides the historical context.

The Washington Monument sits on a hill, aligned with the Capitol and the Lincoln Memorial. Private funds financed its construction, which proceeded in fits and starts from 1848 to 1884. (A lack of funding halted construction for so long that stone taken from the original quarry was gone by the time work resumed, which explains why stone at the monument's base is of a slightly different color.) The Washington Monument is the world's tallest freestanding work of masonry, offering a 360-degree view of the city and beyond. Admission is free, but tickets are required; obtain same-day, timed passes at the onsite ticket booth or order in advance (but pay a $2 service fee; call 800-967-2283).

The Lincoln Memorial dominates the western edge of the park. The 19-foot-high statue of a somber Lincoln faces the monument to George Washington and the Capitol in the distance. Etched into the limestone walls of the inner chamber are the words he spoke at Gettysburg and his second inauguration. The memorial is also the site of Dr. Martin Luther King, Jr.'s "I Have a Dream" speech; an inscription marks the spot where King delivered those historic words.

Flanking the Lincoln Memorial are the war memorials commemorating

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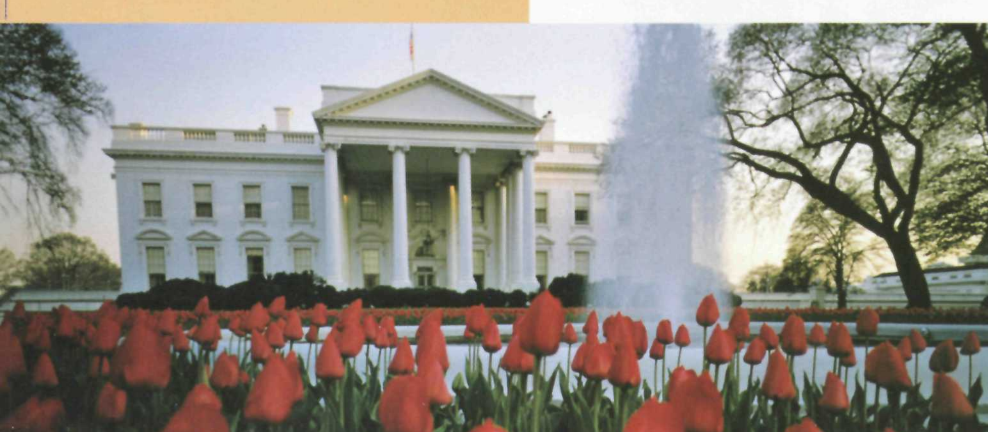

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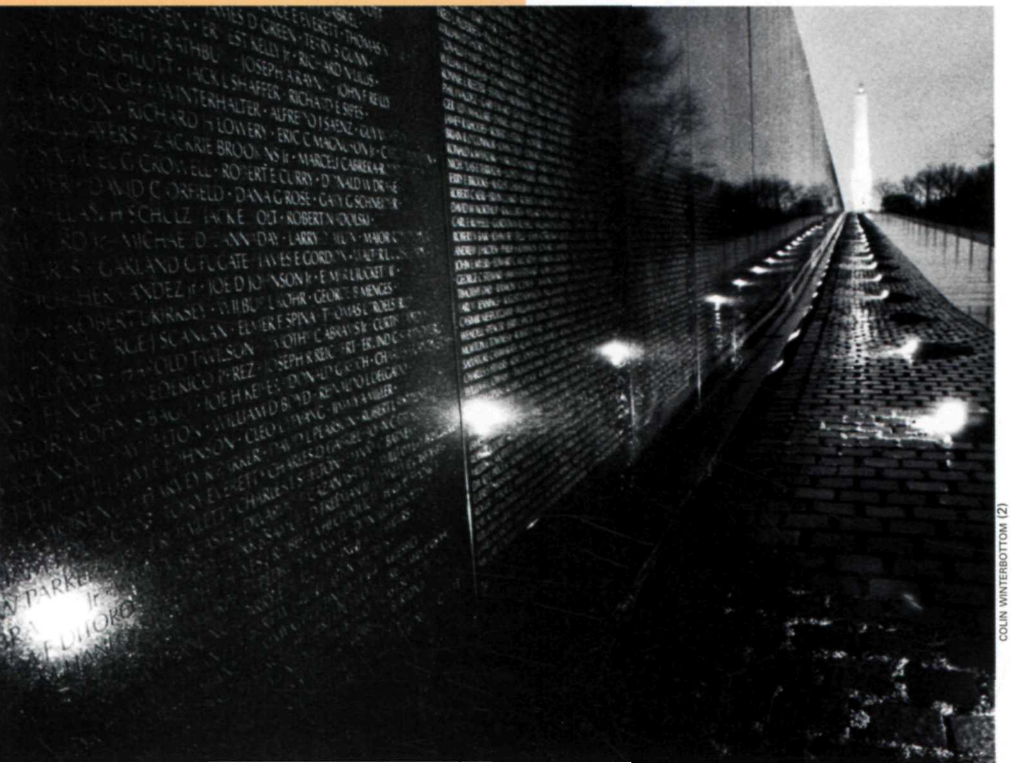
COLIN WINTERBOTTOM

those who fought in Korea, World War II, and Vietnam—and their placement is purposeful. The words of Lincoln's Gettysburg Address echo and embrace not just Civil War soldiers, but American soldiers in every war: "… that we here highly resolve that these dead shall not have died in vain."

Across Independence Avenue from the Lincoln and war memorials are shrines to Franklin Delano Roosevelt and Thomas Jefferson. The FDR Memorial debuted in 1997 and differs in design from its older counterparts. Instead of a single statue or an obelisk, the memorial lays out four "rooms" depicting FDR's four presidential terms in sculpture and inscriptions. Exiting the fourth gallery leads one directly around the cherry tree-bordered Tidal Basin path to the Jefferson Memorial, created in 1939. The 19-foot-high statue of Thomas Jefferson stands on a pedestal staring across the Tidal Basin to the White House. FDR was largely responsible for making sure the Jefferson Memorial was built and ensured that it could be seen from the president's residence; he ordered trees cut down on the White House and memorial grounds to provide an unobstructed view.

The World War II Memorial (below) is the newest addition to the Mall. It's only a short distance from the Vietnam Veterans Memorial (bottom), one of the most popular monuments to those who served our country.



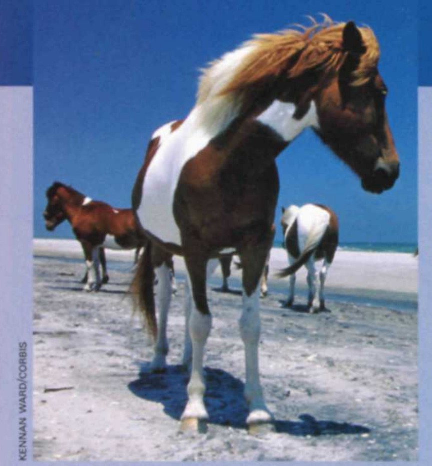
COLIN WINTERBOTTOM (2)

President's Park

President's Park encompasses the White House and its grounds, the Pennsylvania Avenue plaza, the Ellipse, and the White House Visitor Center. A stroll around the White House perimeter is in order, just to admire its architecture and historic significance. Security precautions that keep Pennsylvania Avenue closed to car traffic between 15th and 17th streets prove a boon for pedestrians. Ninety Princeton American elm trees line the 84-foot-wide avenue, whose granite sidewalks, benches, and pretty streetlights make this a pleasant route to wander, bike, even skateboard past the White House. Nearby attractions are the Smithsonian's Renwick Gallery of Art, right across the street from the White House, and the Corcoran Gallery of Art, on 17th Street.

Though the interior of the White House has undergone extensive renovations over the years, the building's exterior still appears very much as it did when first designed. George Washington, the

SIDETRIP: Assateague Island National Seashore



KENNAN WARD/CORBIS

Less than two hours away from the sidewalks, streets, and serious attitude of Washington, D.C., is a 37-mile-long island of sandy beaches, salt marshes, bayside waters, and pine forests. The National Park Service partners with Assateague State Park and the Chincoteague National Wildlife Refuge to maintain the natural beauty and quiet of this sanctuary and to protect it from development. Famous for the herds of horses that roam wild here, Assateague teems with all sorts of wildlife, including resident birds like red-winged blackbirds, yellow warblers, and egrets; white-tailed and sitka deer; and dolphins, stingrays, and other water creatures.

Assateague Island straddles Maryland and Virginia. Enter the park from the north (the Maryland side) and you'll have access to the island's beaches and camping facilities in Assateague State Park and to the wider, more private beaches and more rustic campground of the National Seashore. Be sure to stop at the Barrier Island Visitor Center for maps and information. In addition to camping, this section of the park offers "Life of Assateague" self-guided trails interpreting three different barrier island habitats, four miles of biking/hiking paths, clam-digging, and birdwatching. Enter from the Virginia side and you'll find yourself in Chincoteague, where you'll likewise have the opportunity to hike, bike, boat, and fish. Chincoteague is also the name of the little town here, which has a few restaurants and inns.

NATIONAL PARKS CONSERVATION ASSOCIATION®

PARKSCAPES 2006–07

JUNE 18–23
Grand Canyon Family Classic

JULY 16–21
Alaska Kenai Adventure

SEPT. 27– OCT. 1
Tall Grass Prairie National Preserve

OCT. 8–14
Big Bend Birding

OCT. 19–26
Fall Foliage on the Hudson River on the *Nantucket Clipper*

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New Year's in Yellowstone & Grand Teton National Parks

JUNE 18–23

Grand Canyon Family Classic Offering a wonderful blend of adventure and comfort, this journey combines two nights of deluxe camping on the South Rim of the Grand Canyon with two nights in a luxurious Sedona resort. There are many family activities, like the Oak Creek natural water slide, a jeep tour through red rock country, and a kid's night out where guides take the kids to dinner and adults can explore Sedona's fine restaurants.

visit us: **www.NPCATravel.com** *or call us:* **800.488.4080**

COLIN WINTERBOTTOM (2)

The C&O Canal (above) memorializes a major transportation system used from 1828-1924 to import coal into the city. Today, the modern Metro subway system (left) serves commuters and tourists visiting the greater Washington, D.C., area.

Travel Essentials

For general information about visiting Washington, including transportation, hotel, restaurant, and nightlife suggestions, contact the Washington Convention and Tourism Corporation at (800) 422-8644 or (202) 789-7000, or visit www.washington.org. For information about National Park Service events, call (202) 426-6841, or visit www.nps.gov/nacc. For information about Smithsonian events, call (202) 357-2700, or visit www.si.edu.

Special tips for visiting Washington: Always carry your government-issued photo ID with you, which some government buildings now require for entry. Be prepared to stand in line to enter museums and historic attractions, many of which screen visitors—checking handbags, employing metal detectors—for security reasons. For the same reason, leave backpacks and other large items at the hotel. Leave the car at home; heavy traffic and inadequate parking in popular tourist areas, like the National Mall, make the driving experience miserable. Take the modern and convenient "Metro" subway system like most locals, or just walk.

only president never to have lived here, chose James Hoban's winning design for the President's House, which was modeled on an Irish country house. When the British torched the mansion during the War of 1812, President Madison commissioned Hoban to restore the building to its original design; Hoban later added the North and South porticos as well. (Tours of the White House have been restricted since September 11th; call 202-456-7041 for general information about White House tours and 202-208-1631 for other information about the White House and garden tours.)

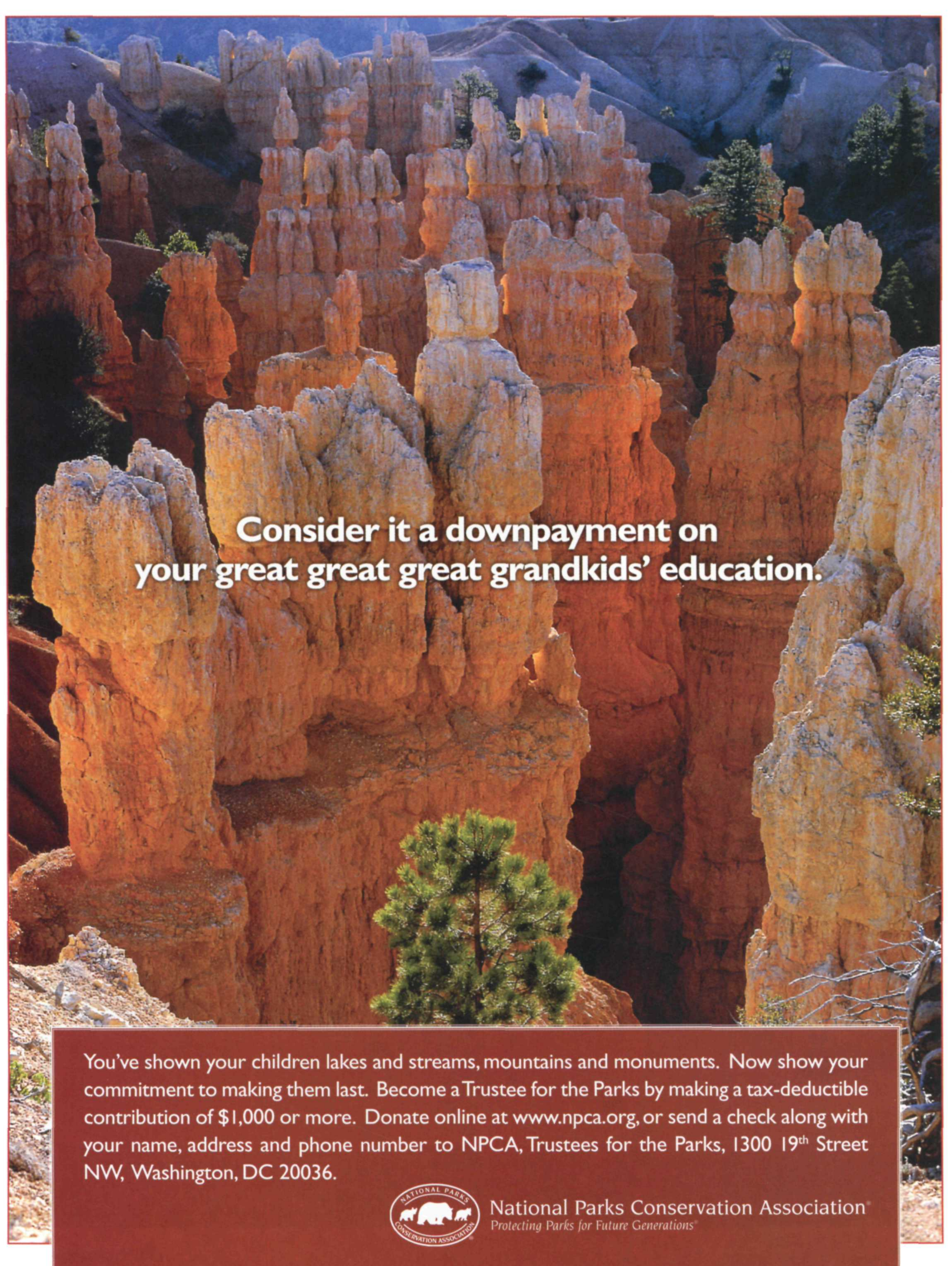
Around the corner, where Pennsylvania Avenue makes it way toward the Capitol, the White House Visitor Center is worth a stop. A 30-minute, continuously running video reveals much of what visitors see on a tour inside the White House, while exhibits cover topics ranging from First Family life to architectural history.

Other Notable Parks and Historic Sites

The capital holds a host of other parks and historic sites worth a visit. Fans of black history must be sure to tour the last residence of 19th-century abolitionist, Frederick Douglass, at the national historic site in Anacostia; the African-American Civil War Memorial and African-American Museum on U Street, two blocks from each other; and the Mary McLeod Bethune House on Vermont Avenue, where the civil rights leader and founder of the National Council of Negro Women lived and received heads of state and government officials.

Women's history aficionados will want to tour Capitol Hill's Sewall-Belmont House, launch pad for the women's suffrage movement. Early American history fans should not miss the Old Stone House, in Georgetown, which dates back to 1765, making it the oldest structure in the city. Those looking for outdoor recreational activities might want to explore Hains Point, in East Potomac Park, known not just for cherry trees, but also for its golf course, tennis courts, and popularity among cyclists; Rock Creek Park, whose bike and walking path stretches from suburban Maryland to the Lincoln Memorial; and Theodore Roosevelt Island, where easy hiking trails and a giant statue of Teddy draw Washingtonians in search of a break from the hectic pace of the city. ❖

Elise Hartman Ford is the author of Frommer's Washington, D.C., travel guide.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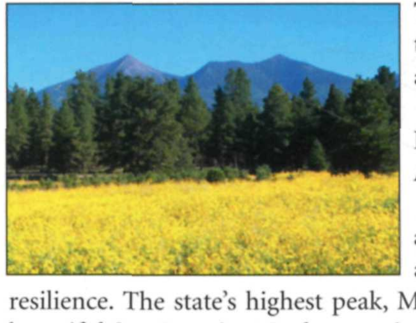
your great great great grandkids' education.
You've shown your children lakes and streams, mountains and monuments. Now show your commitment to making them last. Become a Trustee for the Parks by making a tax-deductible contribution of $1,000 or more. Donate online at www.npca.org, or send a check along with your name, address and phone number to NPCA, Trustees for the Parks, 1300 19th Street NW, Washington, DC 20036.
National Parks Conservation Association
NATIONAL PARKS CONSERVATION ASSOCIATION
National Parks Conservation Association®
Protecting Parks for Future Generations®

Guide to Historic Travel

Northern Arizona: Where the Grand Canyon is just the beginning

Northern Arizona is unlike anywhere else on earth: striking red rocks, towering pine trees, cool mountain meadows, prairie grasslands, spectacular desert lakes and the world's most magnificent natural wonder—the Grand Canyon.

Grand Canyon National Park is located entirely in northern Arizona amidst one of the highest concentrations of national parks and monuments in the nation. Early Native America is well preserved in Walnut Canyon, Wupatki, Montezuma Castle, and Tuzigoot National Monuments. Tribal lands of the Navajo Nation adjoin the Grand Canyon, and Monument Valley Tribal Park is located just two hours east of sparkling Lake Powell.



Amazingly, all of this natural beauty is located just a short drive north of Phoenix. Lodging, meals, and a tremendous variety of activities are available in the northern Arizona communities sprinkled throughout the landscape.

Sunset Crater National Monument, the youngest volcano on the Colorado Plateau, is a 1,000-foot-high cinder cone that last erupted 900 years ago. The crater serves as a reminder of nature's wrath and resilience. The state's highest peak, Mount Humphreys, is one of four peaks that make up the beautiful San Francisco Peaks towering over the community of Flagstaff.

In addition to these natural wonders, a journey through northern Arizona provides the opportunity to discover friendly communities steeped in history, each with their own unique charm.

Drive Route 66 and the state's scenic byways, travel back in time aboard a historic railway, see more stars than city lights and enjoy the great outdoors like never before.

For more information on northern Arizona, visit www.GrandCanyonandBeyond.com or call 1-866-770-3388.

Mtn Landscape image by Khamson Sirimanivong; Wapatki National Monument image by Chris Coe; Sunset Crater image by Larry D. Fellows.

Your adventure in the Grand Canyon taught you a lot – like it's not the hike that takes your breath away.

Seize the Day

Find out where this is. Visit arizonaguide.com.

Towering Ponderosa pines. Beautiful lakes. Historic small towns. Mystical red rocks. And the Grand Canyon's epic beauty. There's more to discover in Northern Arizona and definitely more than you expect. For your free travel packet, call 1-866-770-3388 toll-free or visit GrandCanyonandBeyond.com.

NORTHERN ARIZONA®
GRAND CANYON AND BEYOND

Guide to Historic Travel

New Mexico's "sweet-spot"

Situated at 7,800 feet, where the soft grasslands meet the rugged Rockies, lies a pristine retreat alive with history— both natural and manmade.

As the name alludes, Sugarite Canyon State Park is the sweetest spot to relax, rejuvenate, and restore that sacred tie to nature.

It is believed the name, "Sugarite", either derives from an Anglicized pronunciation for "chicarica," a Comanche expression for "land of many birds," since the park is alive with wildlife; or from the Spanish name "chicory," as the park is equally abundant in natural vegetation.

But Sugarite is defined more notably by its beauty and history. Sugarite Canyon, near Raton, New Mexico, was

formed some 60 to 80 million years ago as a result of deposited sedimentary rock. Extended cliffs of basaltic rock columns or "caprock" are the result of molten lava, which later formed layers of rock up to 100 feet thick.

The resulting coal and geologic history led to the establishment of the Sugarite Coal Camp, mined nearly 100 years ago. It is the only coal camp in the area that exists on public property, owned by New Mexico State Parks.

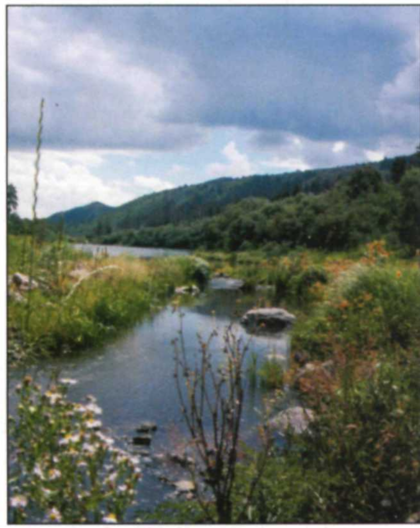
The "Coal Camp Interpretive Trail" winds through the ruins of the Sugarite coal camp, allowing visitors to trace back the steps of the most popular industry of that area and era.

Wildflowers abound as butterflies flutter over Sugarite's two breathtaking lakes—Lake Maloya and Lake Alice. Picnicking, camping and fishing are popular pastimes in a park full of beauty, history and geology.

For the "footloose and fancy free" who want to explore more of New Mexico, Clayton Lake State Park is less than two hours southeast of Sugarite, and contains over 500 dinosaur footprints dating back more than 100 million years ago.

The "dinosaur track way," half a mile from Clayton Lake's spillway, is internationally recognized as one of the premier locations to track the prints of plant-eating and carnivorous dinosaurs, as interpretive markers identify paleontological features along the walk. Locally recognized are the park's excellent trout, catfish and bass fishing conditions. In fact, four state-record walleye have been caught in the state since 1980.

Visitors to Clayton Lake will be able to visualize what it was like when the dinosaurs roamed the area at night, as the sharp night skies come alive with an array of galactic stars, planets and constellations. New Mexico State Parks offers numerous night sky interpretive programs, known as 'star parties,' that guide visitors' views of the sky through the eye of a telescope. Clayton Lake will soon be the recipient of State Parks' second observatory in the summer.



New Mexico State Parks has 34 parks in which to learn, relax, play, and be amazed. For more information, call 888-NMPARKS or log on at www.nmparks.com.

Guide to Historic Travel

Harbor hopping in New England

From the breathtaking mansions of Newport to the picture-perfect Gay Head Bluffs of Martha's Vineyard, New England has a distinct charm that visitors remember for years to come. The rustic seaport villages and quaint island towns of the northeastern shore are rich in maritime history, and accented with Victorian clapboard houses. This cozy corner of the United States offers a wealth of activities for every type of traveler. There is so much to do it's impossible to choose just one coastal town to visit!

Luckily, American Cruise Lines offers you the opportunity to "harbor hop" the islands of New England, wrapping all of the seafaring heritage, beauty and excitement of the northeast into one amazing trip. Spend eight days cruising along the calm shores, witnessing the ever-changing scenery, stopping at fabulous ports of call, and taking in the fresh salty air. In addition, passengers will enjoy the comforts of their brand new ship, part of the newest fleet in the industry, which includes extra spacious staterooms, lounges, and a well-stocked library. Specially arranged activities and lectures will be hosted by local historians and naturalists, and tantalizing feasts including scallops and lobsters will be prepared by the expert staff of chefs. With fewer than 100 fellow passengers, guests also relish in the personalized service and utmost attention given by the all American crew.

Why decide on one New England location to visit when you can see them all? Pack your suitcase once, and explore each charming island and bustling harbor with American Cruise Lines.

For those travelers who wish to witness the splendor of a different area along the east coast, American Cruise Lines offers eight other irresistible itineraries. Call 800-814-6880 to book your New England Islands Cruise, or to learn more about any of the other magnificent coastal tours or visit www.americancruiselines.com.

Experience Cody: the man, the town, the legend

Arguably the most famous figure of the American West, "Buffalo Bill" Cody, established the town of Cody as a hospitality center in the late 19th century—just a few miles from Yellowstone National Park. Today, the hospitality is alive and well: Cody is filled with fun and interesting attractions and activities, as well as friendly folks.

Cody is home to the Buffalo Bill Historical Center, the largest history and art museum in the West. The town's historic downtown bustles with gunfight re-enactments, trolley tours and restaurants, shops and galleries. Old Trail Town is a collection of frontier buildings chronicling the American West, while every night during the summer, that most famous of Western activities takes center stage: Cody Nite Rodeo. And, as always, Yellowstone is just up the road.

Even today, more than a century after Buffalo Bill established the city, Cody is still a wild ride.

For vacation planning information call, write or visit: Buffalo Bill's Cody/Yellowstone Country, 836 Sheridan Ave., Dept. NP, Cody, WY 82414; 800-393-2639; www.yellowstonecountry.org.

Guide to Historic Travel

Explore California's wild side at Mammoth Lake

The town of Mammoth Lakes sits high in the eastern Sierra Nevada Mountains of California. Mammoth Lakes is the perfect base from which to explore California's wild side. The rugged beauty of the High Sierras frame ghost towns, pristine national forest and wilderness lands, and crystal-clear lakes and streams.

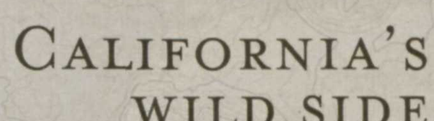
The ski area of Mammoth Mountain is consistently selected as one of the top winter sports destinations in North America, with a typical season lasting from early November to late May and averaging over four hundred inches of snow annually.

With the warmer summer months comes an almost unlimited choice of outdoor activities from trout fishing and hiking to mountain biking and golf. Mammoth Lakes is host to a number of popular music events throughout the year with outdoor jazz and blues concerts attracting a loyal following.

Mammoth Lakes has a full complement of services to make every visit a memorable one. There are a variety of lodging options-from campsites and cabins to hotels and luxury condominiums. Mammoth Lakes has a number of great bars and restaurants offering something for every taste.

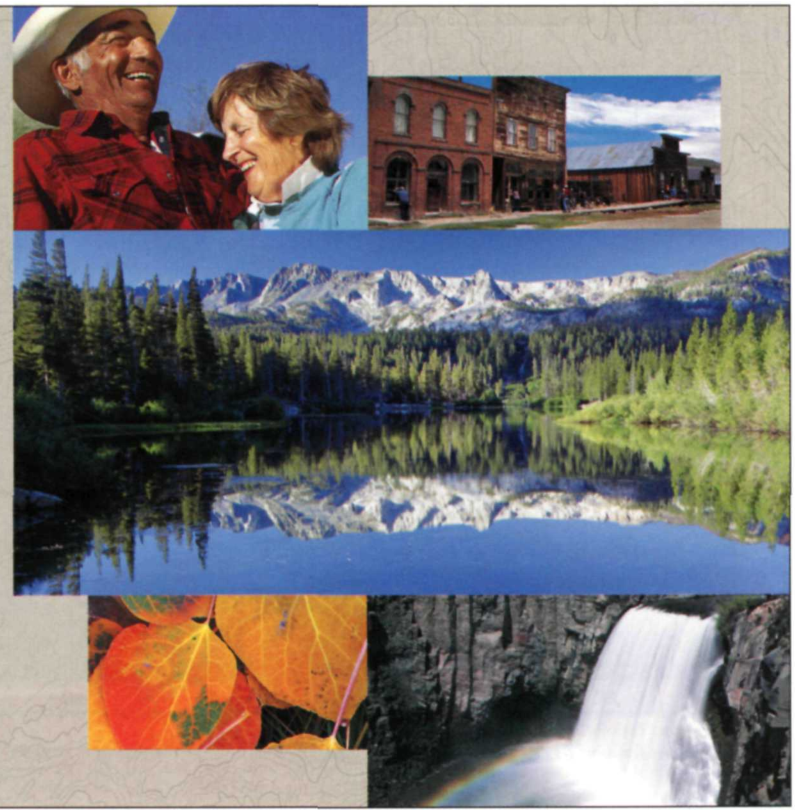
Mammoth Lakes is conveniently located within a half day's drive from Las Vegas, Los Angeles, Death Valley and San Francisco, and in the summer it is just a forty-five minute drive to the eastern entrance of Yosemite National Park.

To find out more or to request your vacation planning guide call 888-GoMammoth or visit www.VisitMammoth.com



Mammoth Lakes is your base camp for adventure and exploring Yosemite National Park, Devils Postpile National Monument, Mono Lake and Bodie State Historic Park. Cast a line, swing a club, hike a trail, enjoy music under the stars, savor fine cuisine or just relax and renew in the clear mountain air. Call or click for a free Vacation Planner.

California's Premier Mountain Resort
888 GO MAMMOTH VisitMammoth.com



Guide to Historic Travel

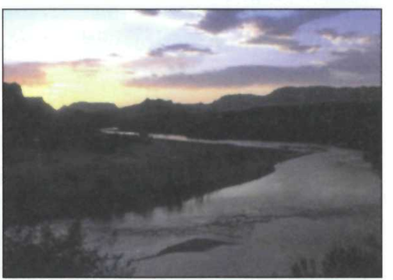
Discover the history and natural beauty of Texas

Welcome to Texas, where warm hospitality and year-round sunny weather lets visitors explore the Lone Star State to their heart's content. Whether you're a thrill-seeker or prefer a more relaxed experience, the something-for-everyone flavor of Texas will quench your vacation taste buds.

Even grander than the sheer size of Texas is its cultural diversity. People from all over the globe have settled here through the centuries, weaving a vibrant tapestry of languages, traditions and art forms. That's why Texas is like a whole other country. See how we celebrate our history and diversity through our many events, festivals and museums. Everywhere you look in Texas, you immediately see the rich beauty and history created by the many cultures that call Texas home.

Travelers can tour the Alamo, learn about the famed Texas Rangers or explore the rich traditions and religious icons in any of a number of Spanish missions. For those looking for fine art, the Dallas Museum of Art and The Museum of Fine Art in Houston are two of a number of establishments throughout the state providing patrons with cutting-edge exhibits in a big-city setting.

After you've enlightened yourself with our history and culture, be sure to take in some of the many outdoor adventures of Texas. Fast roller coasters, clear-running rivers, working dude ranches, fun-filled water parks, relaxing campgrounds, serene state and national parks and beautifully-kept beaches combine for all the rest and recreation you can muster.



For the golfers out there, more than 900 courses await; seven of which are stops on the PGA TOUR. So whether you're a duffer or thinking of taking your game to the next level, Texas has a course suited to your handicap.

Don't leave Texas without trying our many eclectic restaurants. In addition to our traditional fare of big steaks, spicy Tex-Mex and renowned barbecue, Texas offers a variety of other dining experiences. And no visit is complete without taking a bit of Texas home with you. Throughout the state, you'll discover shopping that's out of this world. The many big-city, outlet, museum, antique and cultural venues provide shopping experiences as unique as our state.

From the wide-ranging cultures to historic exploration to rugged outdoor adventures to endearing small-towns and big-city charm, traveling to Texas is guaranteed to have you joining the ranks of the state's many return visitors.

Showing you all there is to see and do in Texas is no easy task. In order to get a good start on where to go and what to do, order the Texas State Travel Guide, a 264 page, full color guide packed with information on more than 470 Texas cities, towns and their attractions; plus special sections on lakes and state parks. From the mountains of West Texas to the sandy beaches of the Gulf Coast, this guide will provide you with everything you need to plan the perfect Texas vacation.

For a free Texas State Travel Guide, Accommodations Guide and Official Travel Map, call 800-8888-TEX, ext. 3857 (United States and Canada), or to order online, go to www.TravelTex.com.

It's like a whole other country.

THE STATE OF TEXAS

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A flat Texas, put to rest	E-20

Come discover a Texas you never knew was here. Come scale our mountains. Come traverse our ravines. Come put those preconceived notions about us to bed. For your free Texas State Travel Guide, Accommodations Guide and Texas Highway Map, visit **TravelTex.com** or call **1-800-8888-TEX (ext. 3857).**

TEXAS

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Guide to Historic Travel

Kenan film captures the High Sierra Wilderness

This is an inspirational DVD about the value of wilderness in today's world, created by Bob Kenan, a 31-year veteran backcountry ranger with Sequoia/Kings Canyon National Parks. The original musical soundtrack creates lasting memories of this story.

A reviewer in the *The Inyo Register* said, "The film has a spirituality and reverence for wild places protected by the National Park Service. Its message will remind backpackers of their own journeys or inspire understanding in others who have not ventured beyond the horizon."

For more information about purchasing the DVD, visit them at www.messagefromthemountains.net or call 888-641-7933.

Discover Civil War history in Springfield, Mo.

Leap back in history at one of the nation's most pristine Civil War battlefields—Wilson's Creek National Battlefield. Here the first major battle west of the Mississippi took place and the first Union general died in combat.

While Missouri ranks third among states with the most Civil War engagements, the battle at Wilson's Creek was the largest and most pivotal in Missouri. You can also visit the original and biggest Bass Pro Shops® Outdoor World®, Wonders of Wildlife, Cardinals Double-A Minor League Baseball, and much more.

Call 800-678-8767 or visit www.visit-springfield.com today for a free visitors' guide.

Travel North America by rail

Noted for its exceptional service, fine dining, and décor, American Orient Express (AOE) has brought a return to the graceful Golden Age of rail travel. In addition to offering passengers a vintage rail experience, AOE's all-inclusive vacations include an exploration of America's cultural treasures with insight from historians, as well as off-train excursions which complement the theme of each carefully planned itinerary. In operation since 1985, American Orient Express offers seven regional itineraries throughout the United States and Canada. For information call 800-320-4206 or visit www.americanorientexpress.com.

Alpine hiking for the adventurous

Alpine Adventure Trails Tours Inc., the Swiss Alps specialist, has led day hikers exclusively in the Swiss Alps since 1977. The tours base weekly in small three- and four-star family owned and operated Swiss inns with fine cuisine; and day hike the surrounding area. One- and two-week trips are offered, with a maximum of 15 guests, and each has a choice of two hikes daily—one moderate, one more strenuous.

A new tour offering this year is the Isle of Skye, Scotland.

For more information, contact an owner guide at 888-478-4004, e-mail alpine@swisshiking.com, or visit www.swisshiking.com.

Guide to Historic Travel

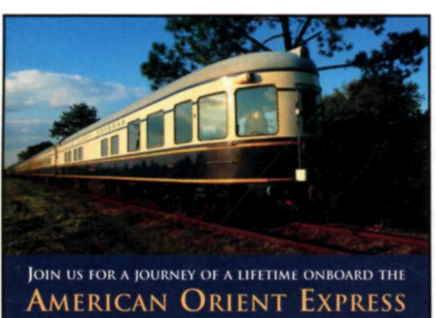
Outer Banks rich with history and culture

You'll find the Outer Banks of North Carolina the perfect setting for a great vacation. Millions of visitors flock here each year to enjoy more than 100 miles of beaches and scenic beauty. But they're also drawn by the area's unique place in American history.

Explorers of both the here-and-now find intrigue in the Outer Banks. After all, it is here that Wilbur and Orville Wright made the first powered airplane flight; re-live history at the Wright Brothers National Memorial. This is where English settlers in 1587 attempted colonization on Roanoke Island, predating the settlement of Jamestown by more than 20 years. Experience the Lost Colony Outdoor Drama's 69th year on Roanoke Island beginning June 2006.

Adventurers will find no fewer than nine major historical sites and cultural attractions waiting to be explored.

For more information on making your own adventure visit on the web at www.outerbanks.org.



Join us for a journey of a lifetime onboard the
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Grand cities of the Old South, Dixie's charming plantations, gardens ablaze with flowers, and the hushed historic forts and battlefields of the Civil War are brought back to life in this classic rail journey through the Antebellum South.

Antebellum South Rail Journey
March & April 2006

Seven other exciting itineraries available.
Call for a free brochure or request one online.

Civil War Theme Tours available
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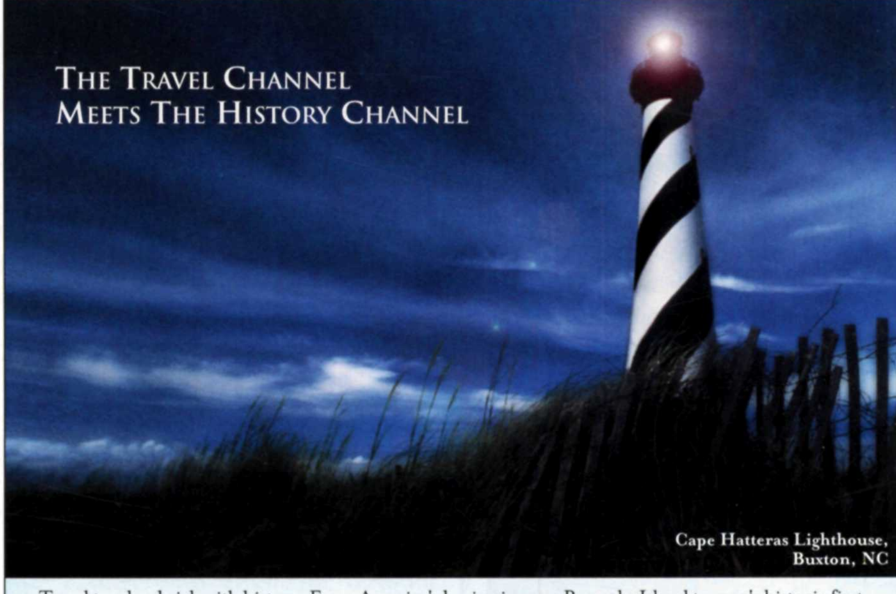


Cape Hatteras Lighthouse, Buxton, NC

Travel to a land rich with history. From America's beginnings on Roanoke Island to man's historic first powered flight, you'll discover an unspoiled oasis of natural beauty, history and culture. Surrounded by three National Parks, dozens of historical markers, and 130 miles of coastline, The Outer Banks has everything you need to make memories that last for generations. Call **1-877-OBX-4FUN** for your free Outer Banks Travel Guide and Getaway Card, or visit **outerbanks.org**

Duck • Southern Shores • Kitty Hawk • Kill Devil Hills • Nags Head • Roanoke Island • Hatteras Island • Dare Mainland

Guide to Historic Travel

Corinth rich with history and Southern hospitality

Corinth is filled with a rich Civil War heritage—offering a reflection of our nation's past. The new $9.5 million National Park Service Civil War Interpretive Center is now open. Its unique design and displays interpret Corinth's role during the Civil War and its effects on the Western Theater.

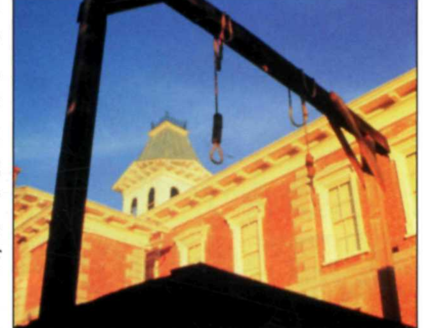
Corinth is located 20 minutes from Shiloh National Military Park. Visitors to Corinth will be surrounded by warm, Southern hospitality while they take in a delicious treat at an authentic drug-store soda fountain or indulge their senses at tasty restaurants. Shopaholics will revel in shopping venues that include items from the wacky and whimsical to the elegant and refined.

Corinth's excellent guest accommodations range from quiet, comfortable bed and breakfast inns to the modern, convenient services found at major chain hotels. Corinth also offers other enjoyable attractions such as the Corinth National Cemetery, the Black History Museum, the Verandah House, the Northeast Mississippi Museum, and currently under construction, the Civil War Contraband Camp.

To get your free travel planner, call 800-748-9048 or visit www.corinth.net.

Cultural treasures in Arizona State Parks

South of Tucson lies a cultural treasure trio of Arizona State Parks! Tubac Presidio State Historic Park, site of Arizona's first European settlement, was also chosen as the first State Park in Arizona. Walk among the grounds, check out the museum and see an underground archaeology display. Further east, in the town of Tombstone, is the old courthouse, now Tombstone Courthouse State Historic Park, where exhibits include an invitation to a hanging and a tax license for operating a brothel. Head north to Kartchner Caverns State Park, where colorful cave formations help tell a unique story of conservation and dedication.



Whether you're heading north or south, let Arizona's 27 State Parks introduce you to Arizona's cultural treasures! For more information, call 602-542-1993 or visit azstateparks.com.

Trace the Lewis and Clark Trail

Sunrise Tours has been offering its "Tracing the Trail of Lewis and Clark" historical tour for six years, and the popularity of the excursion has increased steadily. In 2005, travelers from 15 states joined Sunrise Tours on a trek from St. Louis to the coast of Oregon.

Besides deluxe motorcoach transportation, outstanding accommodations, two meals per day, and admission to all attractions, the tour features commentary by an experienced Sunrise Tours historian, a main component of the trip's success.

One traveler from Jamaica, N.Y. wrote, "Everything from the selected sites, to the lectures, to the comfort of the bus (and wonderful driver), to the hotels we stayed in … was exceptional."

Visit www.travelsunrise.com or call 800-881-8804.

A history of serving visitors

Since 1931 Evelyn Hill Inc. has been enhancing the experience of the millions of visitors to the Statue of Liberty National Monument. As concessioners at the Monument for 75 years, three generations of the Hill family have welcomed patrons. Offering to them a chance to find a treasured keepsake at the gift shop or a cold beverage at food service. Today Brad Hill carries on the family tradition and thanks the National Park Service for the opportunity, past and present.

Opening Day 1931

GUIDE TO HISTORIC TRAVEL

Northeast Tennessee's history beckons

More than two centuries ago, the Northeast Tennessee area served as the first great gateway for America's westward expansion. Today, it invites you to discover beautiful surroundings, rich history, lively culture and welcoming people.

Most any way you turn in Northeast Tennessee, a place of great history beckons the imagination. In historic Jonesborough, Tennessee's oldest town, the jaw-dropping, mind-spinning tall tales of master storytellers enrapture audiences of all ages each year at the National Storytelling Festival. This was a country of warm-hearted hospitality, the same genteelness you will experience today at inns, restaurants, and stopovers throughout the towns and countryside.

Northeast Tennessee blooms with originality, from the stages of the regional theater to friendly get-together venues where folks with banjos, guitars, mandolins and fiddles lay down some of the true soul music of the mountains. Bristol is the "birthplace of country music" and Abingdon, a short piece up the road, is home to Barter Theatre, celebrated State Theatre of Virginia. Textured crafts, quilts, sculptural art and dance, among other goings-on, say a lot about the artistic legacy you will find here.

America's first frontier is still out there in the rolling hills and mountains of Northeast Tennessee. Rafting the Nolichucky River takes you into the deepest gorge in the Southeast, a place of timeless beauty. Around here, you're never far away from kayaking, hiking, camping, backroad cycling, rock climbing, and, by any measure, excellent fishing.

The area is home to one of the nation's largest venues for sport, Bristol Motor Speedway. Here you can experience the excitement of world-class motor sports through the seasons. The world's fastest half-mile hosts two NASCAR races each year while the Bristol Dragway, known in these parts as "Thunder Valley", features numerous events of varying format. The Speedway also weaves community gatherings into its year, including outdoor concerts, a holiday season light display and an ice skating rink.

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Storyteller: Chuna McIntyre

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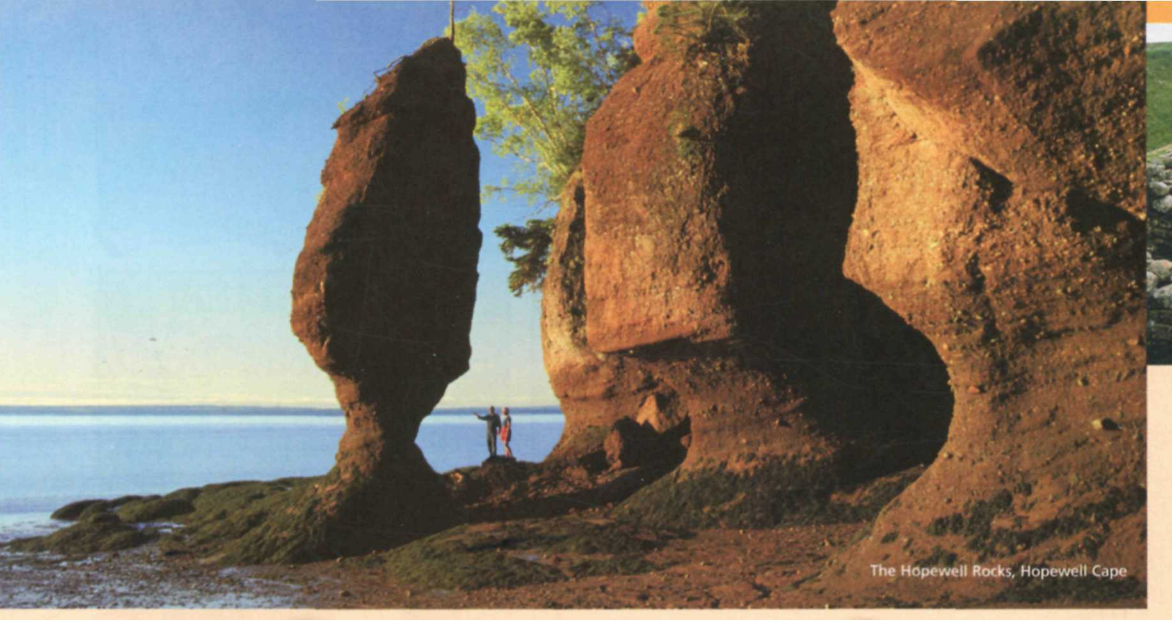
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Aulac

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Tides that rise up to a four-storey building only to flow out and lure you to walk on the ocean floor... The first people to witness this hundreds of years ago must have wondered what other feats of nature lay in store for them. They would have soon discovered that a river that reverses itself daily could also be found to flow through peaceful valleys and then thrash through the stony cliffs of a gorge. Such were the many faces of nature that still astounds people today. Of course, some secrets remained...

Through the years, the highest tides on the planet slowly eroded rock cliffs to reveal hidden 300-million-year-old fossils. Just as nature hides her history, you can be sure to find more than meets the eye in New Brunswick than just the buildings that remind us of times long ago.

The historic walls, monuments and sites that remain throughout the province tell of a rich past, but history here is more than something you merely observe.

The *joie de vivre* (joy of life) of our Acadians will quite literally take you by the hand. This is a lively culture with an unusual history that chooses celebration as a means of remembering. To learn of the Acadians' colourful past, it is as easy as following your senses. Taste time-honoured recipes that have been handed down through the generations, listen to the legends of locals and join in on the fun at dinner theatres and outdoor stage performances that offer lively interpretations of the Acadian deportation.

City of Saint John

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New Brunswick Botanical Garden, Saint-Jacques area, within the city of Edmundston

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Guide to Historic Travel

America's national parks reflect the nation's history

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Whatever your pleasure, Oklahoma State Parks are a treasure to discover. For more information, call 800-654-8240 or go to www.travelOK.com.

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The most remarkable historical building found in Yellowstone Park is this National Historic Landmark, the Old Faithful Inn. On a visit to Yellowstone be sure to allow time to stop in and see the lobby. Better yet, book a room, reserve a table for dinner, or take a tour of the inn. Start your trip at www.yellowstonetreasures.com.

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Guide to Historic Travel

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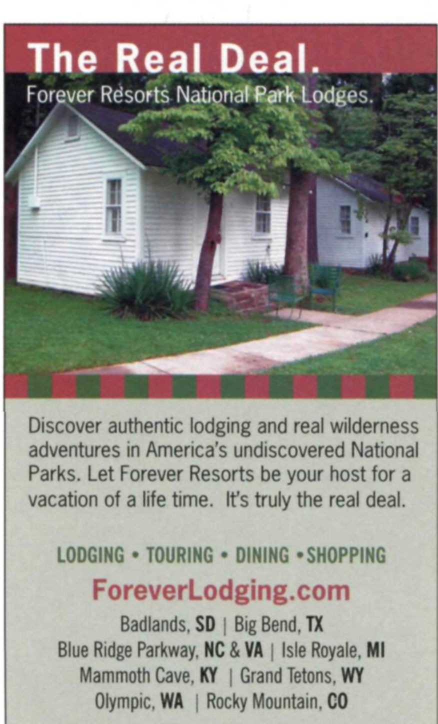

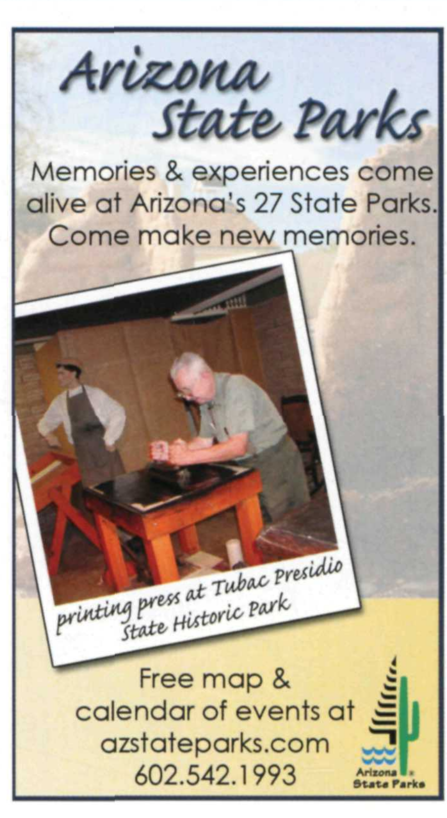

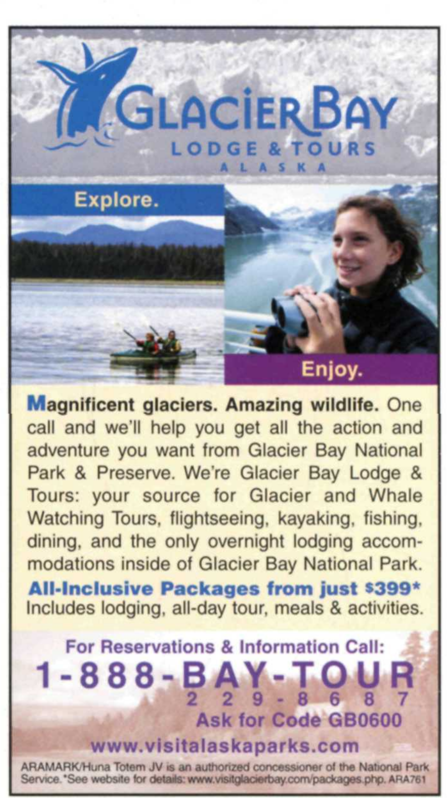

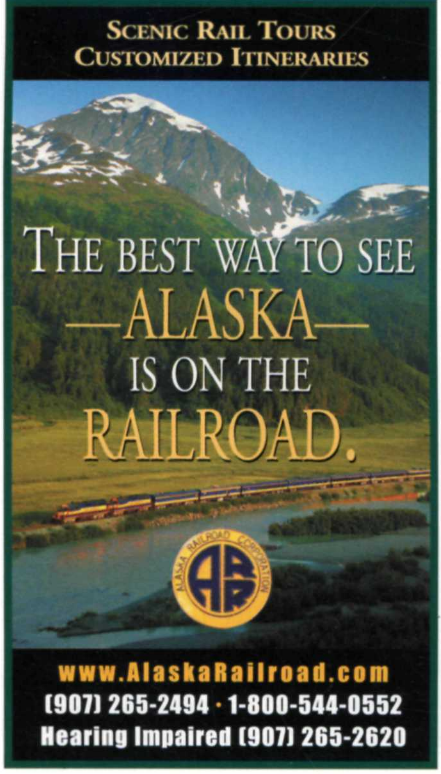

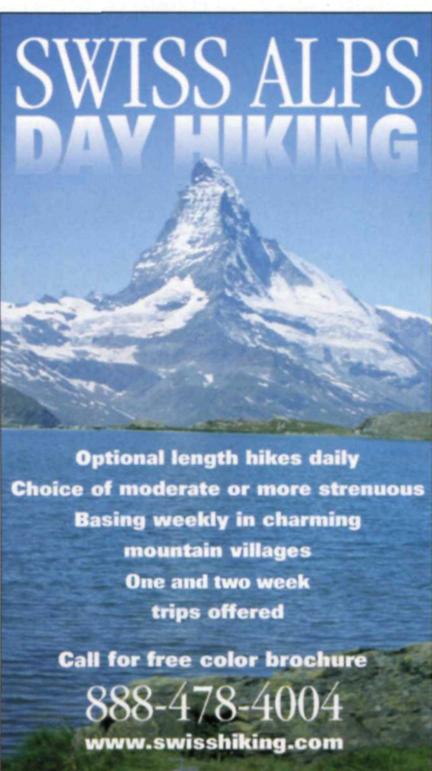

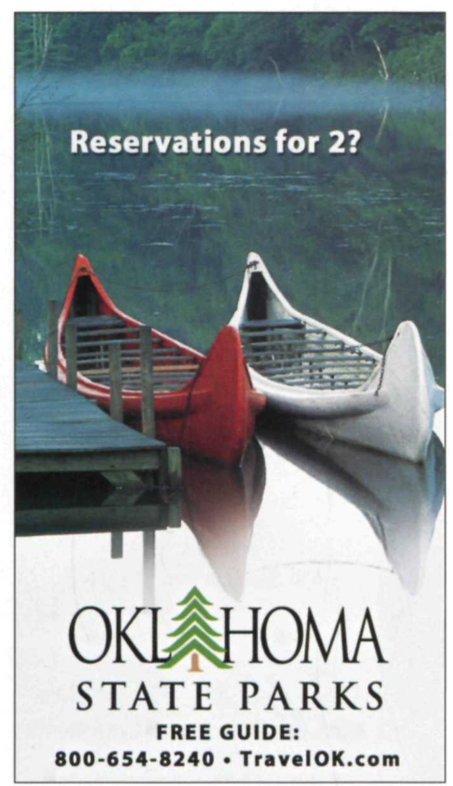

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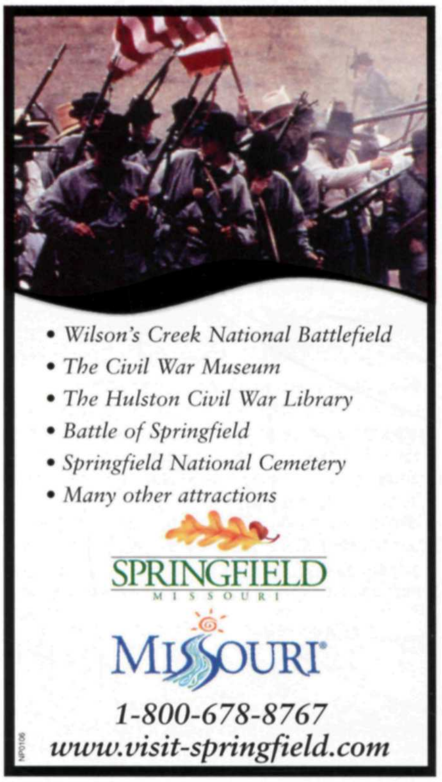

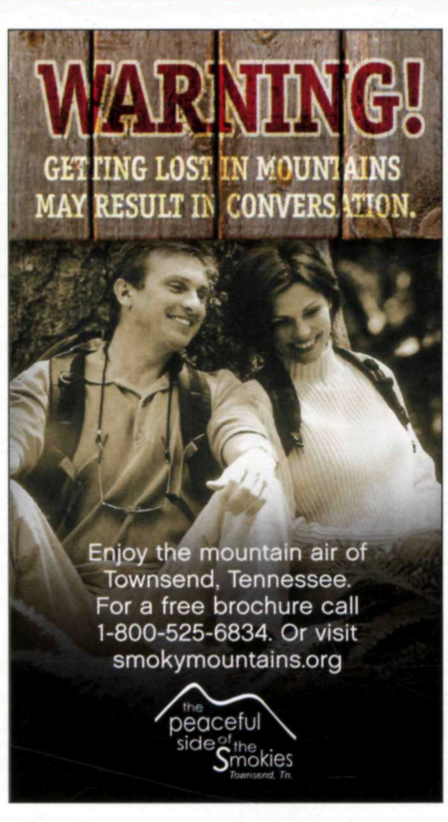

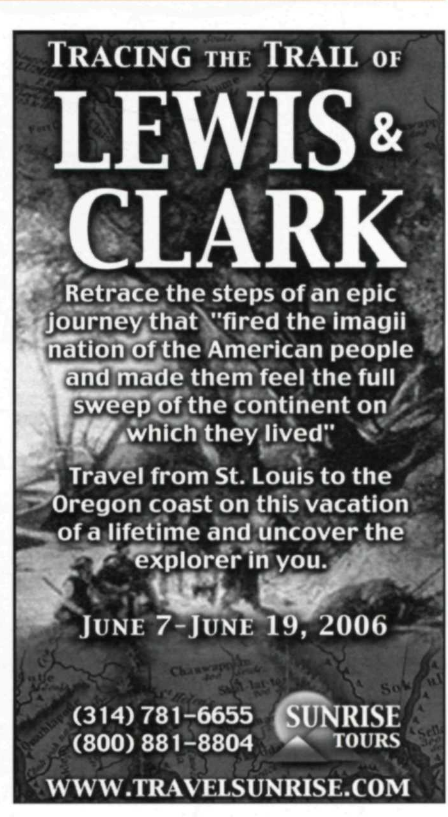

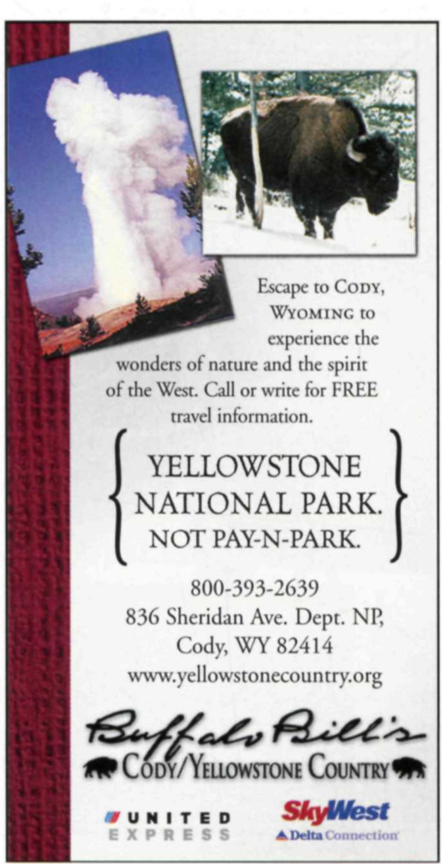

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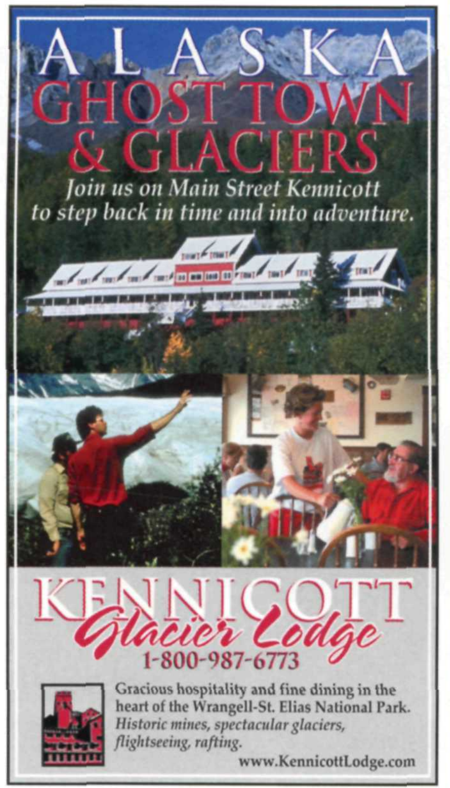

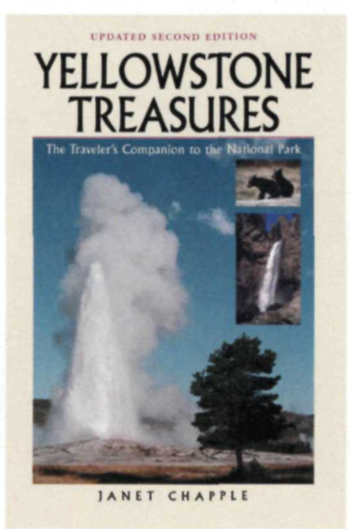

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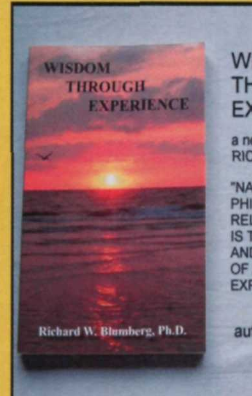

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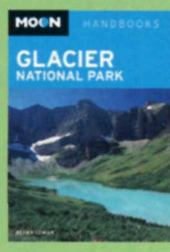

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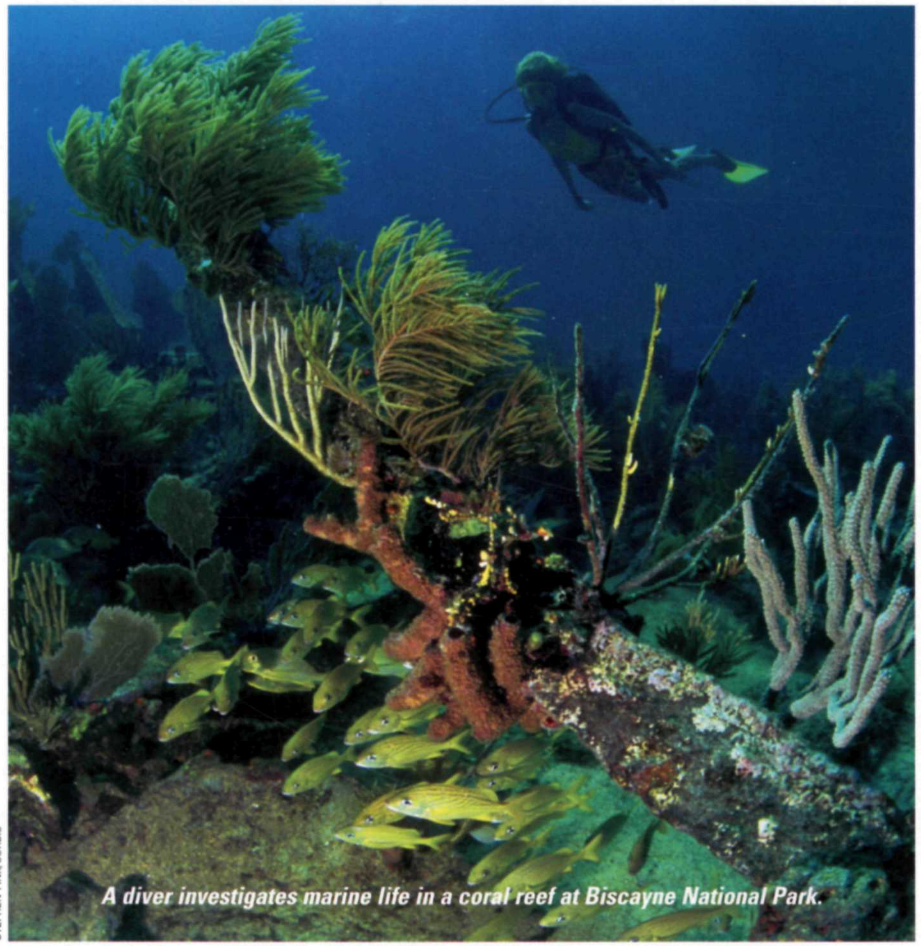


STEPHEN FINK/CORBIS

A diver investigates marine life in a coral reef at Biscayne National Park.

Lost at Sea

By Scott Kirkwood

Coral reefs, considered the "rainforests" of the marine world, now have even more in common with those fragile ecosystems.

Not far off the shores of coastal parks like Biscayne, Dry Tortugas, and Virgin Islands National Parks are the ancient skeletons of dozens of shipwreck victims. These aren't the remains of pirates from the 18th century who sailed too close to the shore, but rather coral reefs—living creatures known for their hulking skeletons. For centuries, the biggest hazard facing a coral reef was the hull of a wayward ship, but a recent report issued by NPCA's Center for the State of the Parks reveals that factors like pollution, global warming, and overfishing have become common culprits. But before getting into a detailed description of the prognosis facing coral reefs, let's learn a little bit more about the nature of the patient.

"Coral are colonial animals that get their vibrant colors from zooxanthellae, algae cells that live in coral tissue," says Richard Curry, science coordinator at Biscayne National Park. The millions of zooxanthellae (zoh-zan-THELL-ee) cells conduct photosynthesis, generating energy sources that coral can use, while also altering the coral's chemistry, allowing it to more easily secrete calcium carbonate and build its exoskeleton.

Strap on a snorkel and get a close-up look at a massive boulder coral or a brain coral—so named for obvious reasons—and you're looking at a skeleton that's been secreted over the last year or so, building on the mass generated over centuries. Some reefs are older than old-growth redwood forests, and still growing. In boulder and brain corals, a veneer of living tissue coats the outer surface of the skeleton. The branching corals—staghorn and elkhorn—are the two most important reef-building species in the Caribbean, and both are candidates for listing under the Endangered Species Act. Branching corals dominated the shallow areas of most Caribbean reefs until the early to mid-1980s when white band disease decimated populations in Virgin Islands National Park and Buck Island Reef National Monument. Twenty years later, their numbers are still recovering.

Although the outbreak of disease is hard to control and difficult to attribute to a single cause, researchers believe it's more likely when reefs are exposed to numerous stressors, such as rising water temperatures; boat groundings; fluctuating salinity; and pesticides and other contaminants from power plants and wastewater treatment plants. When such factors conspire against the symbiotic relationship between zooxanthellae and

the coral, the zooxanthellae often leave or are expelled, taking with them the coral's distinctive color—thus the term "bleaching." Coral can live in this tenuous condition for a short time and could eventually return to health, but as more corals are bleached, death rates generally climb while reproduction rates plummet.

"As marine managers we talk about ameliorating stresses, but some of the major stresses are out of our control," says Brian Keller, science coordinator with the Florida Keys National Marine Sanctuary. "The population of Florida is expected to double in two generations, which means those human impacts are just going to get worse. So one thing we're attempting in the Florida Keys is the concept of a national marine sanctuary—a fully protected area that aims to return these waters to an 'unfished' state, to get back the large top predators, the reef fish populations, and lobsters in the hopes that a restored ecosystem will improve the whole system, including the corals."

Unless you own SCUBA gear and a time-share in the Caribbean, you might be asking yourself: What's so important about coral reefs, anyway?

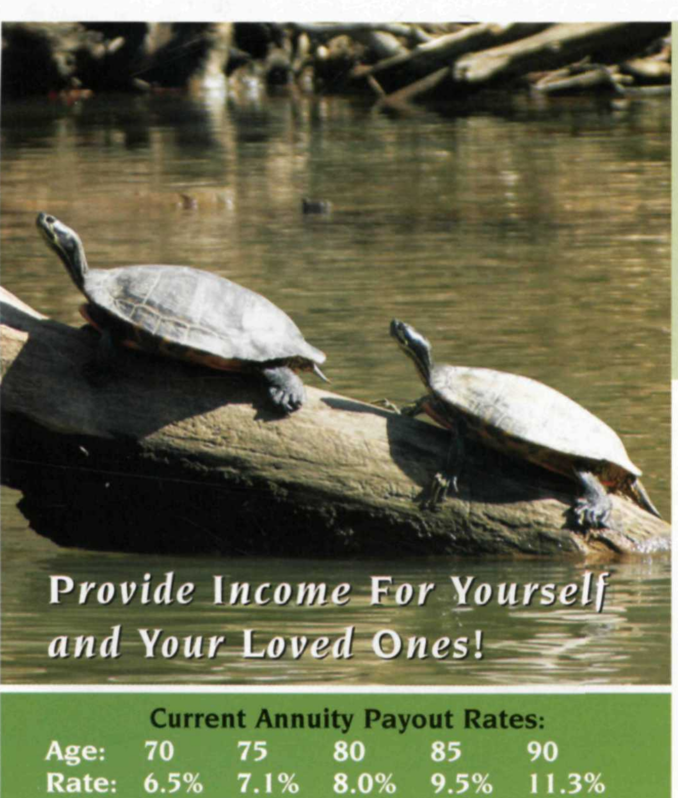
"Coral reefs account for less than 1 percent of the Earth's surface, but they house 70 percent of the Earth's marine organisms, so you can imagine the consequences of losing them," says Curry. Indeed, more species of fish alone exist in Biscayne National Park than all the fish, amphibians, reptiles, birds, and mammals in Yellowstone. Coral reefs have plenty to offer land lubbers as well, as potential sources of new medicines to cure cancer, arthritis, bacterial infections, heart disease, and viruses. Coral reefs even buffer shorelines against waves, storms, and floods; without them, parts of Florida would be underwater.

If it's a challenge to prevent damage to coral reefs, it's equally difficult to repair the damage once it's been done.

"When a vessel has destroyed an extensive area, coral reef biologists will often collect living coral colonies from surrounding reefs, then transplant those colonies to the restored area," says Curry. "But in reality, they're simply causing damage in one area to repair damage in another, which doesn't make much sense. So the Park Service started a coral nursery: We go to grounding sites and rescue all the coral fragments that are too small to be reattached, bring them into a controlled environment—like a typical plant nursery—and grow them until they can be returned to a natural reef, so we can restore the damaged area without sacrificing surrounding reefs."

Because many Caribbean corals grow about as fast as continents move, it could take as long as ten to 15 years to return rescued corals to the marine environment. The hope is that the search for a cure will outpace the causes of mortality. Otherwise cold, lifeless skeletons at the bottom of the ocean may be all that's left behind. ❖

Scott Kirkwood is senior editor for *National Parks* magazine.



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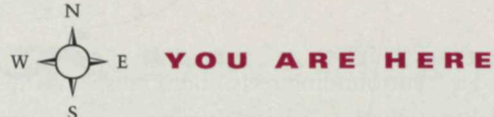

Three Parks In One

Tide pools, glacier-capped mountains, and temperate rainforests make up this magical landscape by the sea.

Bright orange sea stars, silver barnacles, and glowing green anemones paint a pristine shoreline in this place that's often referred to as "three parks in one." More than 600 miles of trails offer visitors access to the rest of the park, which comprises ancient forests, rivers, lakes, a temperate rainforest, and a series of craggy peaks that rise up out of the Pacific Ocean. The peninsula hosts plant and animal species that exist nowhere else on earth, while wider-ranging banana slugs, black bears, and spotted owls also depend on this unique mix of ecosystems. In 1988, Congress designated 95 percent of the park's 632,300 acres as wilderness, offering the highest level of protection for some of the most unspoiled land in the country. Do you recognize this park? Have you been here?

JAMES ZIPP/PHOTO RESEARCHERS, INC.

Answer: Olympic National Park, Washington

New Orleans Silver Dollars Saved From Destruction!

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