

NationalParks

WINTER 2013
95

THE MAGAZINE OF THE NATIONAL PARKS CONSERVATION ASSOCIATION

**SAFE PASSAGE FOR
GLACIER WILDLIFE**

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National Parks

WINTER 2013 / Vol. 87 No. 1

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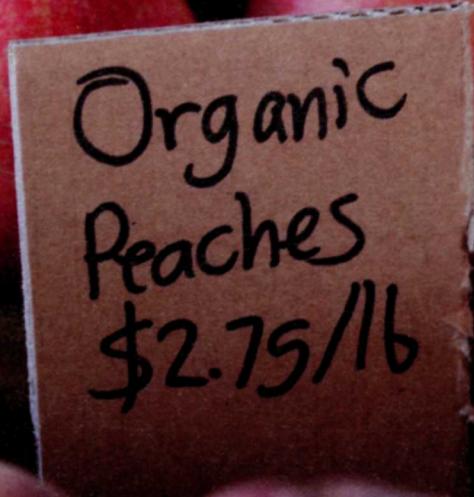
**JOANNA LETZ, GARDEN
MANAGER** at Slide Ranch
Farm, which delivers fresh
produce to Muir Woods Café.

© MICHELLE MCCARRON

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LOCAL PRODUCE from
Marin County now completes
the menu at some of
California's national parks.

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Park visitors are finding more local, organic food on the menu. Frozen burgers and rubbery pizza, your days are numbered.

By **Kallie Markle**

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There's a lot more to Antietam, Gettysburg, and Harpers Ferry than the X's and O's of Civil War tactics. Plan a visit, and discover the human stories behind these hallowed grounds.

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Ever since engineers paved the way for automobiles to traverse the Rockies, wildlife have been paying the price. Now there's another way, and Glacier National Park is at the center of it all.

By **Michael Jamison**

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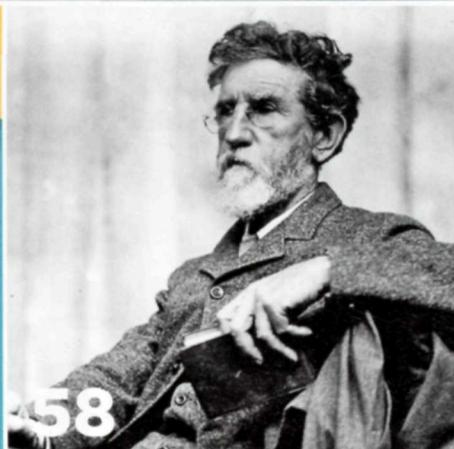
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ON THE WEB

For park news, insights into NPCA's work, and lighter fare like videos and photo tips, check out NPCA's blog at www.parkadvocate.org.



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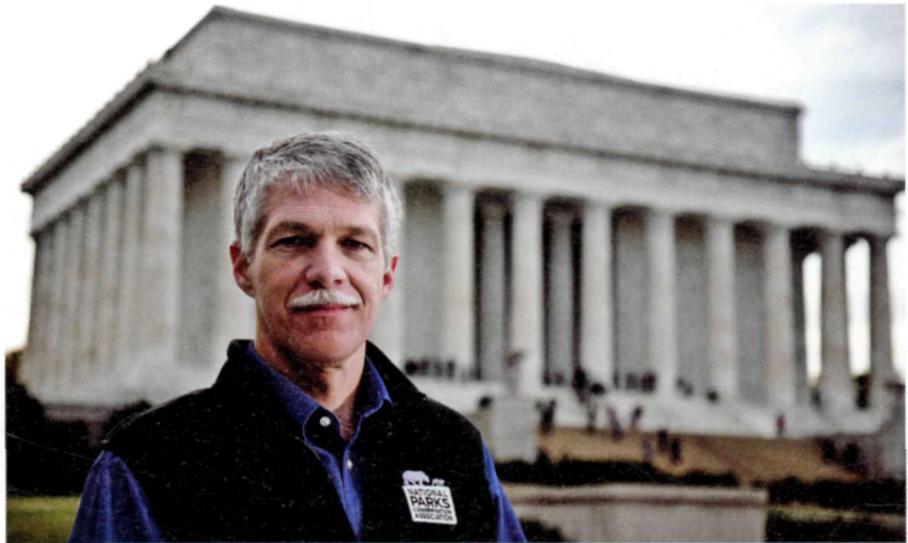
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BENJAMIN C. TANKERSLEY

Healing Our Waters

As a former river guide and an avid kayaker, I have a personal stake in NPCA's efforts to protect and restore waterways in and around our national parks. Whether you're boating at Glen Canyon National Recreation Area, viewing the sandstone cliffs at Pictured Rocks National Lakeshore, or watching wildlife in the Everglades, the health of the water is directly linked to the health of the surrounding landscape.

Protecting national parks means protecting rivers, lakes, streams, and estuaries, which is why NPCA works with other local and national groups to restore these aquatic ecosystems. For example, NPCA is a co-founder and co-chair of the Healing Our Waters—Great Lakes Coalition, which has secured more than \$1 billion for the Great Lakes Restoration Initiative, cleaning up polluted harbors, restoring wetlands, combating invasive species, and protecting the drinking-water supply for more than 30 million people. This initiative has provided the Park Service with more than \$18 million to respond to urgent needs in eight national parks throughout the Great Lakes region. At a time when park funding is under fire, these efforts have injected much-needed money and jobs into local communities, while bringing great benefits to our Great Lakes.

And it doesn't end there. NPCA leads efforts to restore Great Waters across the country, including the Everglades in Florida and the Colorado River. We also work to better connect people to parks through easier access to local waterways at Gateway National Recreation Area in the New York-New Jersey Harbor and in the Chesapeake Bay, site of the Captain John Smith Water Trail.

All of your generous support advances this work. By the time NPCA's *Renewing Our Promise* campaign draws to a close on December 31, it will surpass the \$125 million goal. Thanks to your gifts, NPCA will continue to lead the way in protecting the national parks so they endure well beyond our lifetimes.

Thomas C. Kiernan



Editor's Note



© MICHELLE MCCARRON

RASPBERRIES FROM SLIDE RANCH FARM, Marin county, California.

Food for Thought

Each year, 280 million people visit national parks, and we all need to eat. A handful of park lodges offer pricy cuisine served on white linens, but most of us end that long day of hiking in a casual restaurant or dining hall, where we focus on the company at the table rather than the offerings on our plates. (Thankfully, frozen pizza and instant mashed potatoes are more palatable after a day on the trail.) But there's reason to expect a little more the next time you look at the menu board. The Park Service is now factoring sustainability into the bidding process for food-service contracts, tilting the scale toward local and organic offerings. Visitors can taste the difference already. Writer Kate Siber and photographer Michelle McCarron provide all the mouthwatering news starting on page 30.

There's good news in bite-size portions, too. Last year, my coworker (and part-time pastry chef) Elizabeth Meyers spent her six-week sabbatical investigating innovative ways that national parks tell cultural stories through food and farming. Graphic artists LouLou & Tummie have turned her handiwork into a colorful map that shows where you can pick fruits and nuts in Utah, watch Native Hawaiians weave baskets made from coconut husks, and tap maple trees just like American Indians and Swedish immigrants once did in Indiana.

And days before this issue went to press, a central figure in farming finally got his due. César Chávez spent decades working to improve labor conditions for the men and women who put food on our plates. Read all about his life and achievements on page 16, and take just a moment to think about where your food came from the next time you lift a fork to your mouth.

Scott Kirkwood
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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 and enhances America's national parks for present and future generations by identifying problems and generating support to resolve them.

EDITORIAL MISSION

National Parks magazine fosters an appreciation of the natural and historic treasures found in the parks, educates readers about the need to preserve those resources, and illustrates how member contributions drive our organization's park-protection efforts. The magazine uses the power of imagery and language to forge a lasting bond between NPCA and its members, while inspiring new readers to join the cause. *National Parks* magazine is among a member's chief benefits. Of the \$25 membership dues, \$6 covers a one-year subscription to the magazine.

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 monthly e-mail newsletter. Go to npca.org to sign up.

HOW TO DONATE

To donate, please visit npca.org or call 800.628.7275. For information about bequests, planned gifts, and matching gifts, call our Development Department, extension 145 or 146.

QUESTIONS?

If you have any questions about your membership, call Member Services at 800.628.7275. On a selective basis, NPCA makes its membership list available to organizations that our members find of interest. If you would like your name to be removed from this list, please call us at the number listed above.

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FORGOTTEN SOLDIERS

Thank you for the informative article about the Buffalo Soldiers ["Standing Guard," Fall]. I am 83, born and raised in the San Francisco-Oakland Bay Area. When I was a child, my family traveled and camped in Kings Canyon and Sequoia National Parks, and frequently in Yosemite. We always listened to ranger talks, hiked all over, visited museums, and gathered all the information we could about our parks. We visited Golden Gate Park many times. How strange that it wasn't until I was 68 and visiting friends in Sierra Vista, Arizona, that I first heard of the Buffalo Soldiers. Your article described and gave tribute to a group of amazing Americans, our nation's first park rangers.

LOIS SERRE
Folsom, CA

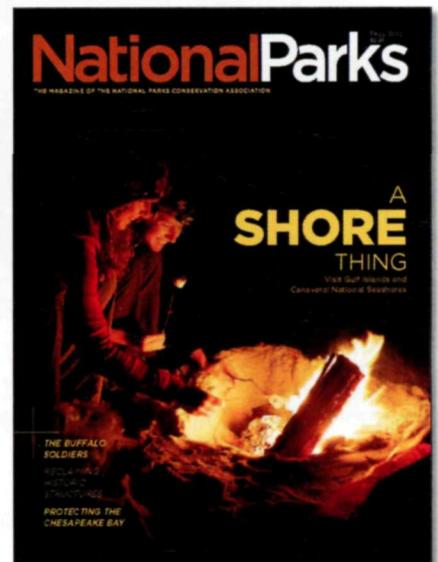
I am a park ranger working in the Golden Gate National Recreation Area—specifically, the Presidio of San Francisco, a 200-year-old former military post that's now part of the National Park System. One of my areas of special interest is the history and legacy of the Buffalo Soldiers. Shelton Johnson and I are like the book-ends of a shelf full of stories related to these intrepid soldiers of the Old West, their moral dilemma of serving during the Jim Crow era of that time, and the trials and tribulations of what it meant to be black in America while striving to accomplish an honorable duty. I relate to visitors here how the troopers left the Presidio with their comrades to go out to Yosemite, and Shelton tells the visitors what happened after they got there and what it meant for them to be where they were! Kate Siber's article, in the most recent issue of the magazine, was excellent. It did a wonderful job of exposing the public to this richly layered yet under-told story of these men, their families, and their contributions to American history. I

want to congratulate the staff at NPCA for keeping this part of our national park history alive and accessible.

FREDERIK PENN
San Francisco, CA

DOWN ON THE FARM

We appreciated the recent *National Parks* article on farming and the Chesapeake Bay. ["Back to the Land," Fall] Farming practices that benefit communities and the Chesapeake also benefit our national parks, including Antietam National Battlefield, the site of the September 17, 1862 Civil War battle. The National Park Service cooperates with local farmers to maintain the cultural landscape, setting aside about 1,200 acres—more than 60 percent of the battlefield—for crops like corn, and for pastured cattle. We maintain partnerships with farmers who lease parkland, and with local, state, and federal farm-related agencies. We're protecting the battlefield's signature waterway—Antietam Creek—and its



tributaries with tools like planting native trees in the floodplain, and fencing livestock out of the waterways.

We also work with the Farm Stewardship Certification and Assessment Program to acknowledge farmers who are good stewards of natural resources, and to encourage farmers to consider additional conservation practices like riparian buffers, stream-bank stabilization, stream fencing, crop rotation, integrated pest management, and reforestation and grassland establishment. These practices enhance wildlife corridors and benefit native species and recreation locally as well as downstream.

Like the farmers highlighted in your article, the NPS strives to be a good steward of the land with which it is entrusted.

ED WENSCHHOF, CHIEF RANGER
JOE CALZARETTE, NATURAL
RESOURCES MANAGER
Antietam National Battlefield
Sharpsburg, MD

A GOOD NIGHT'S REST

I just finished reading the Fall issue of *National Parks*, including Kevin Grange's article ["Sea Change"]. It's been more than seven years since Hurricane Katrina, and we still have no lodging for visitors at Flamingo, yet we continue to hear talk about "visioning" for or "considering" such. Everglades National Park is a very large national park, and Flamingo—a primary destination for most visitors—is many miles from any town or public lodging. It's a national embarrassment that we have no place other than a campground for the many international and domestic visitors who come to see and enjoy this internationally significant place. Please do not tell us again about budget challenges—in this great nation, federal, state, and local officials, nonprofits, and citizens can and must come together to start the construction of an appropriate lodging facility as soon as possible. The Everglades is too spectacular a place to lack a comfortable place to sleep.

MARK PERREAULT
Norfolk, VA

NPCA completely agrees that overnight accommodations in this incredible national park are a must. We believe there is no reason for budget challenges to prevent the Park Service from crafting a public-private partnership that would benefit the park and a lodging concession. Local residents and visitors are clamoring for accommodations, and we have every reason to believe the project can be

completed with minimal environmental impacts. With the help of our members, NPCA will continue to advocate for appropriate lodging in this stunning portion of the Everglades.

**—JOHN ADORNATO, DIRECTOR,
NPCA'S SUN COAST REGIONAL OFFICE,
Hollywood, FL**

COVER GIRLS

Thank you for the wonderful article on Clara Barton's home in Maryland ["Angel of the Battlefield," Fall]. It sent me off on a Google spree to learn more about this wonderful woman who did so very much for our country during the 1800s, and whose efforts are still paying off greatly every day now in the 2000s. Also, I couldn't help but notice—happily—that the cover of the issue had women on it! Women who, even better, weren't part of a tired article about women being able to camp (too!) or some other overdone story—just women being there, doing something in the outdoors, and making the front cover. I'm sure this isn't the first time you've run women on the cover, but it's always appreciated.

KRIS ANDERSON
Glendale, CA

KEEPING HISTORY ALIVE

I love getting new issues of your magazine and recently finished reading the article "Rebuilding the Past" in the Fall issue. I enjoyed hearing of new ways that the Park Service is preserving historic buildings in our park system. I greatly

appreciate the volunteers donating their time. My son is employed at the Historic Preservation Training Center in Frederick, Maryland, and is currently working at Harpers Ferry. The center was formed in 1977 to meet the growing demand for craft-skills development, so that its employees can care for the many structures your article mentions. The Park Service needs money to maintain park properties, and volunteer work is one way to offset the tremendous cost. Thank you for bringing attention to the fact that our national parks include more than just breathtaking scenery!

BONNIE RAVESLOOT
St. John, IN

NationalParks

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Echoes

This is great news for clean air in Voyageurs National Park and Isle Royale. This industry... has gone unchecked for decades. Finally, the EPA is requiring them to install technology that will make the air cleaner.

Christine Goepfert, NPCA's Upper Midwest program manager, quoted in the Duluth News Tribune in response to proposed regulations for Minnesota's taconite industry designed to reduce smokestack emissions, which cause haze and lung ailments.

This race would cut off the major transportation stem that goes through the park, closing the park for up to six hours and restricting visitor access to this national treasure. This decision [will protect] Colorado National Monument from [commercial activities] that aren't intrinsic to the operations of the park.

David Nimkin, senior director of NPCA's Southwest regional office, quoted in the Summit County Citizens Voice, in support of a Park Service decision to prevent a professional cycling race from being held at the park.

We should be putting solar projects on integrated lands that are close to where we'll be using the electricity, [not on lands] with wildlife of concern, such as desert tortoises.

Kevin Dahl, Arizona program manager for NPCA, quoted by the Cronkite News Service in response to a proposed solar-energy zone far from Arizona's major metropolitan areas, and within view of the Juan Bautista de Anza National Historic Trail.





SETTING THE TABLE

Pluck a sun-ripened peach from a historic orchard nestled along a river valley in Utah. Savor a warm, freshly made tortilla at a historical park in the Southwest. Learn how to bolster your home-garden harvest at a historic trading post in Minnesota. Thanks to the National Park System's diverse, innovative food programs, national parks offer cultural and historical experiences that you won't find anywhere else—not even at an upscale restaurant in Paris.

— Amy Leinbach Marquis and Elizabeth Meyers

Lewis and Clark National Historical Park, Washington
Watch reenactors demonstrate how Lewis and Clark collected ocean water to produce salt, an important meat preservative.

Capitol Reef National Park, Utah
Harvest fruits and nuts from the more than 2,500 heirloom trees that make up the largest collection of orchards in the National Park System.

Hawai'i Volcanoes National Park, Hawai'i
Sample taro, breadfruit, and other Hawaiian fare at the park's annual cultural festival, which features coconut basket-weaving lessons and local musicians playing ukuleles and other traditional instruments.

Grand Portage National Monument, Minnesota

Tour two different styles of historical gardens—the fur trade-era kitchen garden, with vegetables planted in rows, and traditional American-Indian gardens, with corn, beans, and squash planted on hillsides.

Cuyahoga Valley National Park, Ohio
Buy sustainably farmed produce, dairy, eggs, and meat at roadside stands and farmers markets inside the park, at historic farms rehabilitated by the Park Service.

Indiana Dunes National Lakeshore, Indiana
Help Park Service staff tap maple trees using both American-Indian techniques and the methods employed by Swedish immigrants.

Gullah/Geechee Cultural Heritage Corridor; Wilmington, North Carolina to Jacksonville, Florida
Learn about the Gullah/Geechee's unique cuisine at the park's cultural sites and community festivals. Peas and smoked meat, shrimp and okra stew, and collard greens and corn bread aren't just mouthwatering staples—they're the result of local, sustainable practices that allow the Gullah/Geechee to live in harmony with the land.



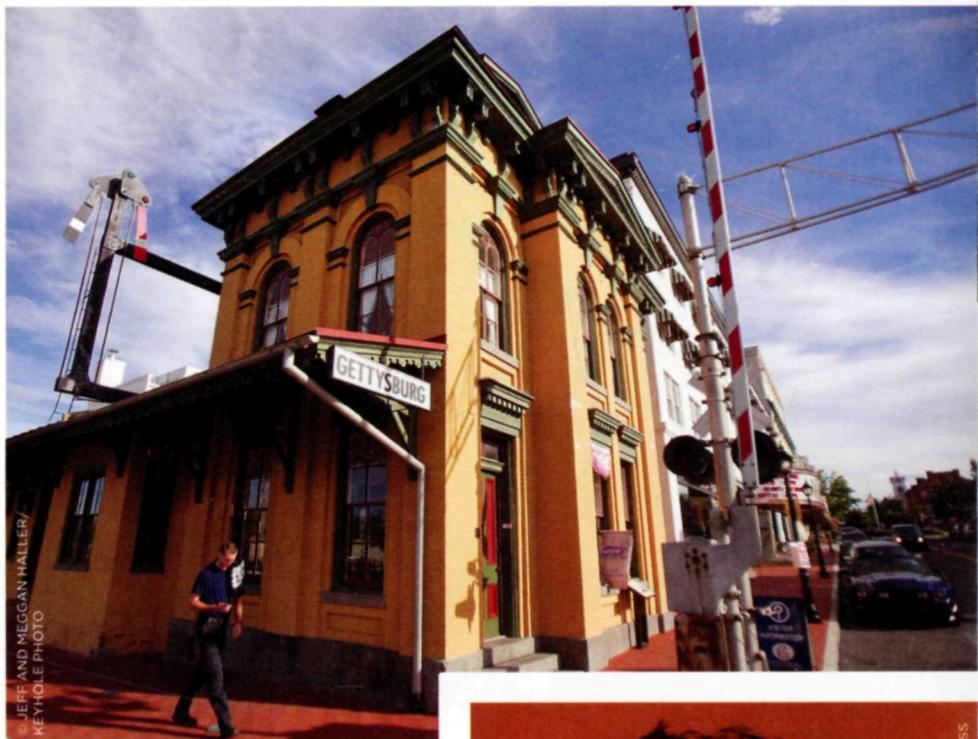
On the Right Track?

Gettysburg National Military Park could soon include a historic train station.

The modest two-story brick building located at 35 Carlisle Street has seen its share of history. The train station was built in 1859 to serve the growing population of Gettysburg, Pennsylvania. At the time, train depots were often the hub of city life, where locals picked up the mail, sent telegraphs, or reunited with loved ones returning from their journeys. But when the Civil War began, two years after the building's construction, train depots quickly became military targets that offered tactical advantages to men in blue and gray.

On June 27, 1863, Confederate forces led by Gen. Jubal Early cut off rail service to Gettysburg, severing a connection to Union forces days before the crucial battle. During the battle, the depot became a makeshift hospital. And when service was restored six days after the Union victory, 15,000 troops boarded trains here, many injured and bound for hospitals in Philadelphia, New York and Alexandria, Virginia.

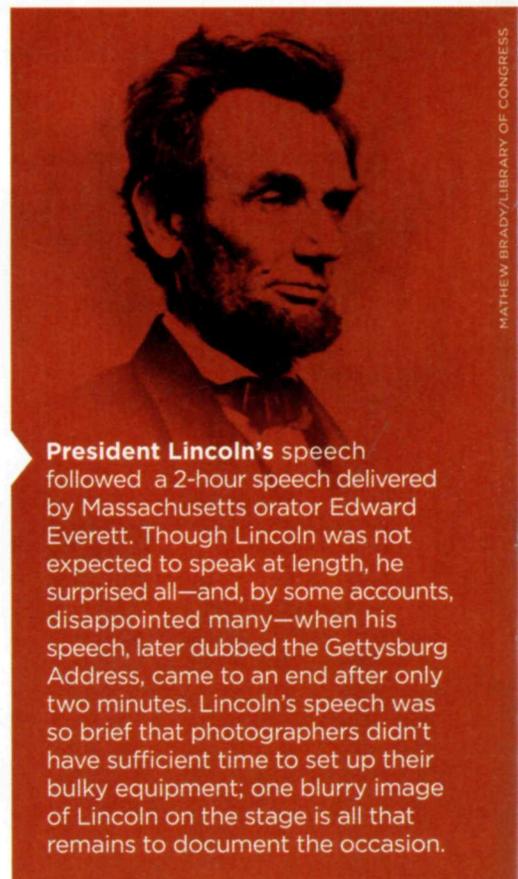
Most of the Union dead remained on the battlefield, where they would be interred at the new Soldiers National Cemetery. Four months later, President Abraham Lincoln was invited to speak at the dedication. He boarded a train in Washington, D.C., and during the short trip, he reviewed his notes for a speech he would deliver the next day. Lincoln arrived at the Gettysburg station at 6:30 on the evening of November 18 and walked a few blocks to the home of attorney David Wills, where he spent the night. The next



GETTYSBURG'S HISTORIC TRAIN STATION was cut off by Confederate forces a week before the battle and welcomed President Abraham Lincoln the day before he delivered the Gettysburg Address in November 1863.

day, Lincoln spoke those immortal words that begin, "Four score and seven years ago..." and end with "...government of the people, by the people, for the people, shall not perish from the earth."

After the war, passenger service to and from Gettysburg continued until 1942; telegraph and freight service ended in 1948. Over the next 50 years, the station slowly fell into disrepair. In 2006, the borough of Gettysburg cobbled together city funds and grants to refurbish the building and turn it into a museum, which it still operates. But now, city leaders and the Gettysburg superintendent believe the site is worthy of the Park Service arrowhead, and they have strong support from Rep. Todd Platts (R-PA) and Sens. Bob Casey Jr. (D-PA) and Pat Toomey (R-PA). Rep. Platts introduced legislation to designate



President Lincoln's speech followed a 2-hour speech delivered by Massachusetts orator Edward Everett. Though Lincoln was not expected to speak at length, he surprised all—and, by some accounts, disappointed many—when his speech, later dubbed the Gettysburg Address, came to an end after only two minutes. Lincoln's speech was so brief that photographers didn't have sufficient time to set up their bulky equipment; one blurry image of Lincoln on the stage is all that remains to document the occasion.

the site, which is in his district; he'll retire in December, so time is of the essence.

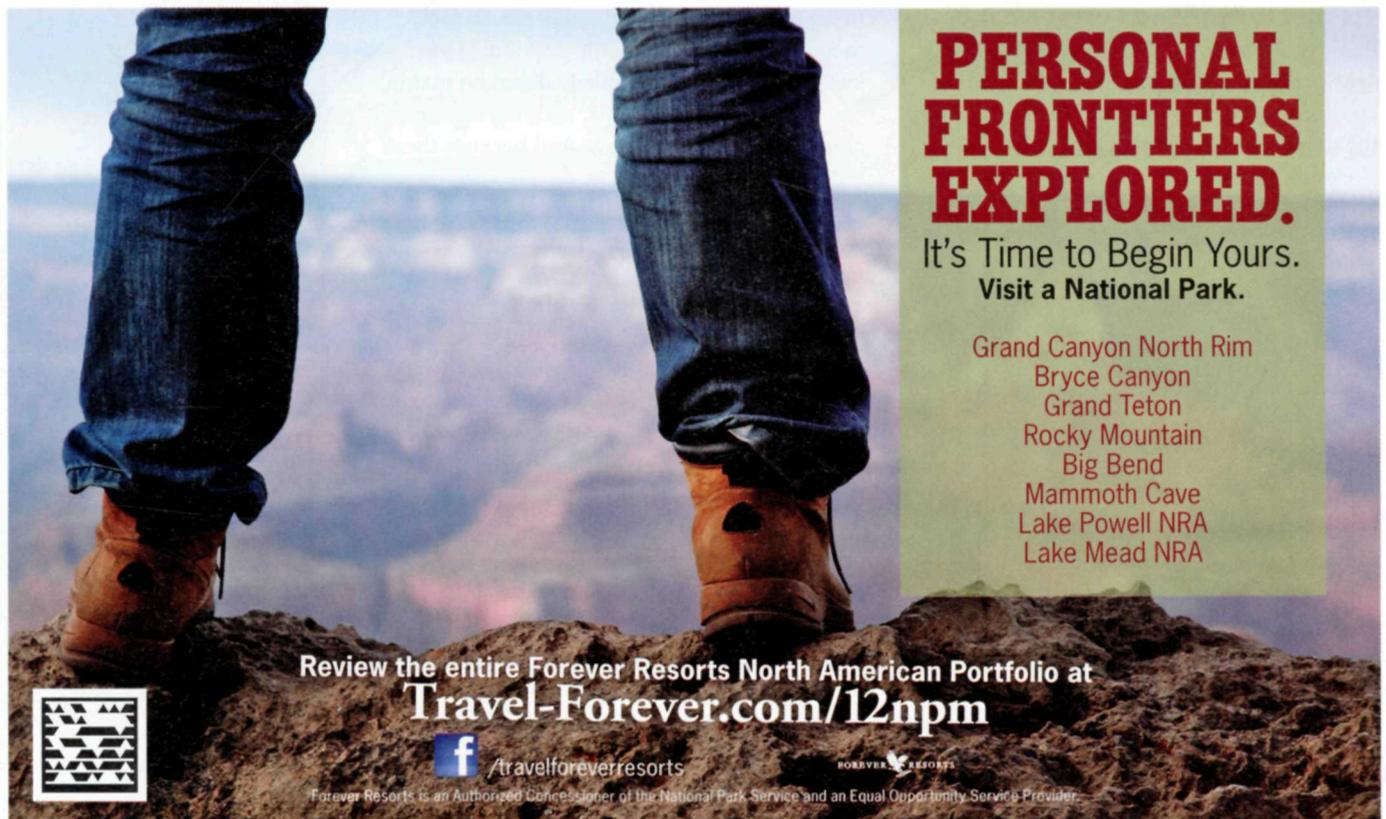
Given the Park Service's well-known budget woes, some might question the addition of another historic structure. But the Gettysburg Foundation has been raising funds to purchase the building, which would be staffed by the local convention and visitor bureau. If the train station becomes part of the park itself, it will operate as a satellite visitor center, connecting history buffs to sites of interest downtown; the federal government need only pay for utilities and security.

"This train station tells one of the greatest stories of one of our greatest presidents, after the nation's most famous battle."

"This train station tells one of the greatest stories of one of our greatest presidents, after the nation's most famous battle," says Nick Lund, Civil War associate in NPCA's Mid-Atlantic regional office. "You can sit at the station and imagine that train pulling in, see Lincoln with his stovepipe hat, and watch him walk up the

street to the Wills House, preparing to deliver the most famous speech in our nation's history. With the 150th anniversary of the Gettysburg Address so close and a Hollywood film about Lincoln in theaters, it's hard to imagine a better opportunity to make this vision a reality."

— SCOTT KIRKWOOD



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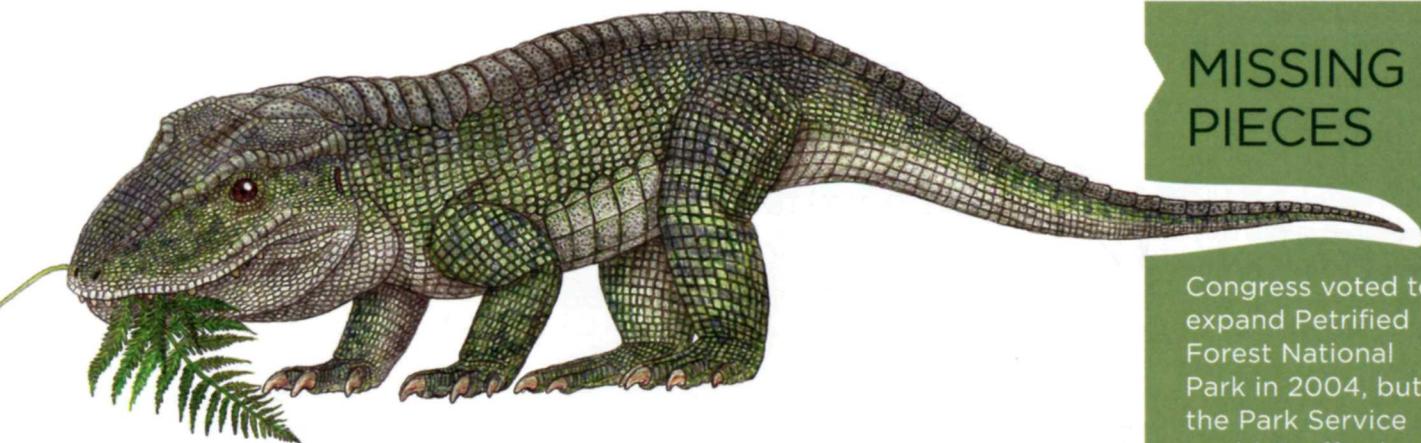


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REVUELTOSAURUS CALLENDERI, an ancestor of crocodiles, basked on Petrified Forest's ancient riverbanks 210 million years ago.

JEFF MARTZ/NPS



MISSING PIECES

Congress voted to expand Petrified Forest National Park in 2004, but the Park Service couldn't afford to buy any additional land until late 2011, when funding from the Land and Water Conservation Fund kicked in. "The Park Service has about 48,000 acres left to buy to complete the boundary expansion," says Kevin Dahl, NPCA's Arizona program manager. "When you think about the resources buried there, you realize why it's so important for Congress to fund these purchases."

Buried in the Sand

Ancient reptiles unearthed in Petrified Forest National Park

Visitors to Petrified Forest National Park in Arizona would have to squint their eyes pretty hard to imagine a lush, watery landscape. But 200 million years ago, when the desert Southwest was situated much closer to the equator, rivers as wide as the Mississippi may have flowed through here.

Park paleontologist Bill Parker suspects they were done in by a single event, such as a major flood.

Now, thanks to a recent dig in the park, we know a little more about the creatures that sunned themselves on those riverbanks.

The big find: 11 crocodile-like reptiles, *Revueltosaurus callenderi*. This isn't the first time someone's stumbled on fossils like this—paleontologists first documented the reptiles near a creek in New Mexico, and classified them as plant-eating dinosaurs. But the latest research from Petrified Forest reveals that

these three-foot-long creatures are, in fact, members of a reptile family previously unknown to science. They likely dined on plants, insects, and small animals, and had armor along parts of their bodies. And because these individuals were found clustered together, park paleontologist Bill Parker suspects they were done in by a single event, such as a major flood.

Next on Parker's to-do list: Investigate an additional 40 square miles of newly acquired land—a task that could take up to a decade or longer. But it's likely that work will return quick results. Already, Parker and his team have discovered the bones of an extinct, crocodile-like animal called *Doswellia*, previously known to exist in only Texas and Virginia; as well as the complete skull of a phytosaur, another river-dwelling, crocodile-like carnivore. New exhibits in the park will display the fossils for visitors.

"Every time we go out, we seem to find something new," he says. "Finds like this reinforce the importance of Petrified Forest in helping to drive global research on the Late Triassic Period and the very origins of dinosaurs."

— AMY LEINBACH MARQUIS



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Labor of Love

New California park site dedicated to the work of labor leader César Chávez.

In April 1966, on the steps of the California State Capitol, César Chávez stood in front of more than 10,000 people, his feet blistered, his body weary, and his spirit soaring. He had just led the longest protest march in U.S. history, some 300 miles from the farm town of Delano, California, to Sacramento. As a result, a massive grape grower that had been unwilling to negotiate with farm workers had finally capitulated.

In front of a jubilant audience, Chávez announced that they had done the impossible. He had just signed the first contract for farm workers in the United States. It was a great victory for Chávez, the charismatic farm-labor leader and civil-rights activist. “I remember with strong feelings the families who joined our movement and paid dues long before there was any

hope of winning contracts,” Chávez later said. “Sometimes, fathers and mothers would take money out of their meager food budgets just because they believed that farm workers could and must build their own union. I remember thinking then that with spirit like that... we had to win. No force on Earth could stop us.”

In 1962, Chávez and activist Dolores Huerta founded the United Farm Workers of America (UFW), the first agricultural union in the country. Over four decades, the UFW secured unprecedented victories for workers, including the banishment of the crippling short-handled hoe, the first union medical and retirement benefits, and the first contracts to stipulate bathrooms and clean drinking water in the fields.

These and other achievements are why

CÉSAR CHÁVEZ dropped out of school in the eighth grade, but his intelligence, grit, and determination helped him lead one of the most important civil-rights movements of the day.

President Obama established the César E. Chávez National Monument near Keene, California, on October 8. The 398th unit of the National Park System, it protects the historic property known as La Paz, which includes the Chávez family home and UFW’s headquarters. It is the first National Park Service site dedicated to a contemporary Latino American.

“The National Park System is about more than beautiful places, it’s about telling the story of America,” says Emily Schrepf, Central Valley program manager for NPCA, which helped secure the designation through lobbying, advocacy, and community work over the last decade. “This new designation reflects the diversity of the United States, which had long been missing from the park system.” It comes at a time when the Park Service is working to engage youth and minorities to better represent changing American demographics—and to secure more diverse advocates for the future.

Born in Yuma, Arizona, in 1927, Chávez grew up working as a migrant farm worker, which meant inhaling pesticides, rubbing fingers raw, and living the hardships of one of the country’s most marginalized groups. Though he dropped out of school after eighth grade to support his family, he never lost his love of learning and continued to read voraciously. In 1962 he left the only steady job he ever held—as staff director of a community service organization—to fight for migrant workers’ rights.

His tactics of non-violent action, fasting, and boycotts paid off with contracts for more than 100,000 workers, increased pay, regulations covering pesticides, and community service funds, among other groundbreaking wins. It was one of the most successful grassroots movements in

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the country's history.

"Latinos are an integral part of the country, and arguably the most important activist or political leader—a figure of immense importance—was César Chávez," says Ilan Stavans, professor of Latin-American culture at Amherst College and author of several books on Chávez. "It's a wonderful opportunity to have a monument like this to engage in a national dialogue about him. He is not a man without contradiction."

At the new monument, visitors can learn about Chávez at a visitor center designed by the César Chávez Foundation. They can also wander the family gardens, visit Chávez's burial site, and

see the rows of books and papers in his office, which remains how he left it when he died in 1993.

"This monument comes at a time when we are seeing the man from all sorts of perspectives, and that, in the end, is a good

thing," says Stavans. "Our historical figures are really ours when we see them as human beings." There is perhaps no better place to understand Chávez, both the legend and the man, than where he lived and worked.

— KATE SIBER

NEXT STEPS

The Park Service study that identified La Paz as nationally significant also identified four other sites that tell the story of Chávez and the UFW, including the 1966 march route, the former UFW headquarters in Delano, and a Phoenix community center where Chávez fasted to draw attention to the plight of Arizona farm workers. The new park site was already open to visitors while being managed by the Chávez Foundation, and its doors will remain open as management is transferred to the Park Service.

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ILLUSTRATION BY DUNG HOANG

Digging In Native Soil

At Bighorn Canyon in Montana and Wyoming, an innovative archaeological field school partners with descendant communities.

To a hiker crossing the scrubby, ochre flats of Bighorn Canyon National Recreation Area last July, the sprawling archaeological encampment would have seemed out of place. It's lonely in the high desert surrounding Bighorn Lake, a 72-mile-long reservoir in a thousand-foot canyon straddling the Montana-Wyoming border. The park averages just 200,000 recreational visits each year (Yellowstone, 90 miles to the west, sees that many in one mid-summer week), so when the dusty tents and tipis of the Bighorn Canyon Field School pop up for six weeks each summer, it's a bit like a circus rolling into a ghost town.

Since 2005, archaeology students from a handful of universities around the country have converged on Bighorn Canyon to document and map rock cairns, tool fragments, and stone tipi rings left by nomadic Plains Indians who traveled across the landscape for more

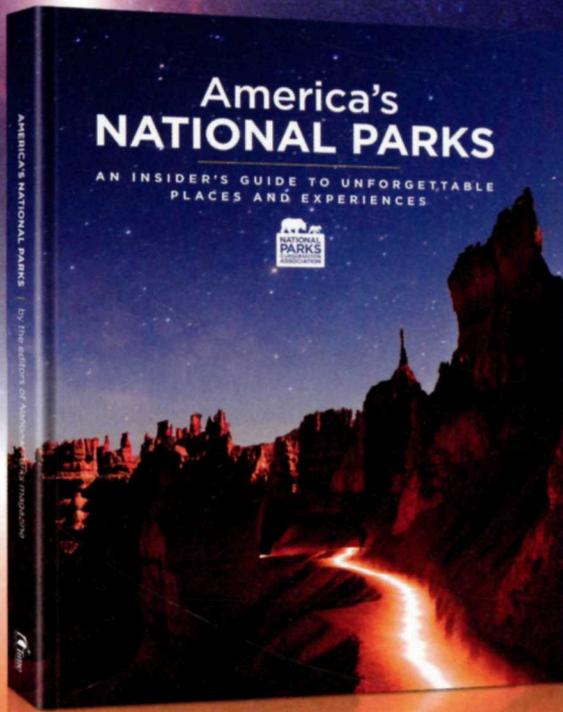
than 10,000 years. A partnership between the Park Service and a consortium of public and tribal colleges, the field school has long distinguished itself from other student digs with a commitment to engaging tribal members from the adjacent Crow and Northern Cheyenne Nations. In the past, participants have led Crow grade-schoolers and recent high-school grads in workshops and mini-camps dedicated to identifying and excavating historical artifacts. Then, in 2011, the field school went one step further, launching a unique job-training program that prepares adult tribal members to work on development crews as archaeological surveyors and cultural resource monitors.

"We try to treat archaeology as a community project rather than an academic research agenda," says Utah State University archaeologist Judson Finley, one of the field school's co-founders. Historically, Finley explains, archaeologists

RING LEADER

Tipi rings are the most prominent archaeological features in Bighorn Canyon NRA, and many exist along an ancient trade route called the Bad Pass Trail. In late September, the park opened its first cultural interpretive site, an 800-year-old Bad Pass campsite with 154 such rings.





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“We turn things on their heads by approaching people and asking, ‘What can we do for you? How can we meet your needs?’”

have paid little attention to whether their research involves or profits local and descendant communities. “We turn things on their heads by approaching people and asking, ‘What can we do for you? How can we meet your needs?’”

When representatives from the Park Service asked Northern Plains tribal leaders those questions in 2010, the tribes suggested more publications and workshops to help train tribal historic preservation staff and officials. Tribes have the authority to designate and protect culturally significant properties on reservation lands under a 1992 amendment to the National Historic Preservation Act. Some tribes, like the Navajos and Hopis, got a jump on this in the 1990s, but others lagged behind. Today, increased oil and gas exploration have helped prompt a renewed emphasis on preserving cultural resources (think pre-Columbian buffalo jumps and burial grounds), but many tribal preservation staff lack the professional training needed to identify and document historical sites and artifacts.

One Park Service staffer considering the tribes’ request was Judson Finley’s dad, Bighorn Canyon cultural resource manager Chris Finley. The father-son duo had been performing research around Bighorn Canyon since Judson was a young grad student, more than a decade ago. Rather than hire contractors for upcoming archaeological inventories, Chris thought, why not fund scholarships for tribal members to perform the work with the field school while earning certificates in archaeology and historic preservation?

For the camp’s non-native researchers, working alongside students from descen-

dant communities offers a chance to soak up cultural knowledge. The park itself benefits from essential inventory and mapping of archaeological sites, and the value of student researchers’ volunteer hours supersedes program costs. For the tribes, meanwhile, the field school fills an expertise gap and empowers native communities to better manage their own cultural resources in the face of development pressure.

What’s more, the program is reintroducing tribal members to a Bighorn Canyon landscape from which they’ve long been alienated. Until the 1930s, tribal members needed permits to travel off-reservation. In the ’50s and early ’60s, the U.S. government condemned thousands of acres of Crow land to construct the Yellowtail Dam, which birthed Bighorn Lake and flooded ancestral territory, restricting access to what’s now the park’s southern unit. Generations of Crow have never glimpsed the dramatic canyon walls and prairie-grass uplands mentioned in their oral histories. Today, however, Crow and Northern Cheyenne elders are returning to the region to talk with field-school participants about the prehistoric era that the Crow call *Biiakashissihipee*—“when we used stones to weigh down our lodges”—a reference to the circles of stone tipi-anchors that participants are documenting. As tribal students and elders bring family and friends to visit the park, their renewed interest in the landscape gradually ripples across the reservations.

For students like Marty Lopez, a 27-year-old Crow tribal member studying anthropology at the University of Montana, last summer’s field school offered invalu-

able training with GPS, data collection, and object identification. It also offered a profound sense of direction.

“The field school really kicked off an interest for me,” says Lopez, who now hopes to finish a master’s degree and pursue anthropological research on the reservation where he grew up. He’d never seen Bighorn Canyon before last summer, but mapping an ancient campsite overlooking the gorge drove home the importance of protecting his tribe’s cultural resources. Now he hopes other visitors—both native and non-native—can experience a landscape that he holds on par with the country’s greatest natural and archaeological treasures.

“I was just blown away,” Lopez says. “It’s one step down from the Grand Canyon, in my eyes.”

— BRIAN KEVIN

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DESIGNS THAT EMERGED from the competition include Rutgers' interpretation of Hopewell Furnace (above), which uses iconic branding inspired by historic quilt patterns (opposite), and Cornell's vision for the Chattahoochee River (far right).

Picture This

Design students reimagine the park experience for the 21st century.

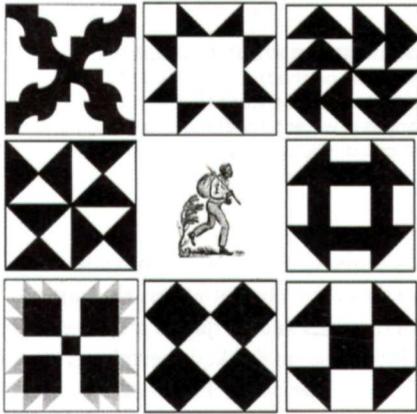
Few of us think of national parks as being “designed.” Yosemite and Arches were carved by the forces of nature. And those hundreds of historic sites gained attention because of what happened *before* they were designated, not after. But they are, after all, physical spaces that we experience with all of our senses, and that experience is almost always part of a concerted effort. Natural sites require roads and trails to get people from Point A to Point B, and visitor centers offer maps, schedules, a short film, and yes, those all-important restrooms. Historic sites are far more than the pages of a text book slapped on the wall—the best of them take us by

the hand and usher us into a new world. That doesn't happen without some serious effort. At least, it shouldn't.

“Five years ago, a number of us recognized that design in the Park Service was becoming a lost art,” says Shaun Eyring, chief of Resource Planning and Compliance in Philadelphia. “The agency was once a real leader in public park design, and we wanted to revive that connection to the early days when Park Service designers and private landscape architecture professionals like Frederick Law Olmsted, Jr., thoughtfully designed access to Western parks like Yosemite, Yellowstone, and Glacier. They had a way of looking at a place as a whole, choreographing the visitor experience without destroying the scenery, and therefore protecting the very reasons these places were set aside. As parks look to welcome a more diverse population and address issues like climate change and sustainability, the design of our national parks will have an enormous impact on our success.”

THE ASSIGNMENT

The Van Alen Institute and the Park Service invited students to submit briefs on one of seven sites including Biscayne (FL), Chattahoochee River (GA), Civil War Defenses of Washington (DC), Hopewell Furnace (PA), Nicodemus (KS), Valles Caldera (NM), and San Juan Island (WA). Forty-two teams submitted proposals and nine finalists were selected to devote an entire semester to the project, including at least one site visit. Review their design plans and some short videos at www.vanalen.org/parksforthepeople.



So Eyring joined with colleagues in offices across the country to craft an approach to re-engage Park Service employees in thinking about the evolution of park design—the one discipline that lacked any standards or guidelines in an agency flush with guidelines. The effort kicked off with two conferences that engaged thought leaders, including experts at national, state, and local parks, private design firms, colleges and universities, and nonprofit organizations including NPCA. It ended with a collection of six design principles and a directive to test and refine those principles even further. Alex Brash, director of NPCA’s Northeast regional office, and staff at the nonprofit design education and advocacy group Van Alen Institute suggested a student competition that would engage the next generation of park visitors.

“We laid out a number of broad questions for the students,” says Jeff Byles, Van Alen’s interim executive director. “Who

Furnace, which tells the story of the Industrial Revolution, among others. There, students devised smartphone apps and billboards that incorporated an innovative branding scheme drawn from the coded quilt patterns that safehouses posted to signal runaway slaves along the Underground Railroad. The students also suggested that visitors enter the site from a workers’ point of view, rather than starting at a visitor center overlooking the grand Ironmaster’s house and iron-making complex.

Students from Cornell’s design studio were invited to stay in park housing during their visit, but they insisted on camping, so they could truly experience the landscape. From their work emerged a proposal for a roving mobile unit that would travel beyond the park boundaries to offer educational opportunities to disadvantaged communities, making the park more accessible.

At Nicodemus, a site devoted to the first settlement of freed slaves after Civil War

historic 5-mile trek that the earliest settlers made from the nearby town of Ellis—a journey that could be incorporated into the “Homecoming” celebrated every June, when hundreds of descendants return to the park. “This project definitely opened my eyes to the parks,” says Grace Ng, now a second-year student pursuing a master’s degree in landscape architecture at CCNY. “I knew about the stunning beauty of the natural parks, but I wasn’t aware of the vast richness of these amazing cultural and historical resources. At Nicodemus, we were able to talk to people in the community and think about all the different forces that go into making a historic site viable and sustainable. And at the end of the project I was able to go back to the site and present our class proposal, and even get feedback from the community—it was a great experience.”

Some parks have already put the students’ smaller innovations to work, and several bigger ideas are being considered during the creation of the parks’ management plans at Hopewell Furnace and the Civil War Defenses of Washington. Eyring and her colleagues are also considering inviting park superintendents from across the nation to bring specific, immediate design challenges to a workshop, where students and staff from top design schools would help craft solutions on the spot. So there’s an outside chance you’ll discover a new-and-improved park experience on your next summer vacation.

—SCOTT KIRKWOOD

What does sustainability mean? What role does technology play in the park experience?

are the users of the national parks today? How can we make parks more accessible? What does sustainability mean? What role does technology play in the park experience?’ All of these questions help us think about what the national park of the 21st century can be.”

The Rutgers team focused on Hopewell

Reconstruction, students from the City College of New York (CCNY) were dropped off in the middle of a wintry Kansas landscape to survey the land, still home to two dozen descendants from the original town. Their experience led them to design three trails that symbolize the site’s past, present, and future. One would recreate the



Hot on the Trail

So-called supercorals in the National Park of American Samoa may hold clues to saving coral reefs everywhere.

PETER CRAIG WAS CURIOUS. The recently retired chief biologist for the National Park of American Samoa for 20 years, Craig was on the island of Ofu, about 60 miles east of the main island (in the neighborhood of Fiji), when he came across a lagoon with a number of shallow pools, arrayed, he says, "like a string of pearls." The pools were of varying depths, and supported almost 100 species of vibrant corals. And during the low afternoon tides in the summer, when the pools were cut off from the sea, they got really, really hot.

RESEARCHERS HAVE DISCOVERED that coral reefs on the tropical island of Ofu are incredibly resistant to dramatic changes in water temperature—a finding that could help save coral in other national parks and beyond.

Corals, Craig knew, are not supposed to thrive in hot water. He wanted to see what, exactly, these corals were enduring, so he dunked thermometers in some of the pools. He found that the temperatures fluctuated by as much as 11° F during a single day. Sometimes, the water was well over 90° F. Craig was astounded. Corals elsewhere died when water temperatures rose by less than 2° F. Yet these corals seemed at home in swings more than five times that.

He suspected he had stumbled onto something big. To lure an academic scientist to investigate even more, he published his observations in the journal *Coral Reefs* in 2001 and more generally spread the word that Ofu was worth a look. "We certainly played up the romantic pictures of the South Pacific," he says. "We played that card pretty shamelessly, actually."

As hosts to some of the richest biodiversity in the ocean, corals are usually not a hard sell. More than half a billion people live near corals, relying on them for food, shelter from storm surges, and the income that tourism brings. And while a coral may look like a single entity, it's actually a partnership between two microscopic organisms: a polyp, which is a tiny assemblage of mouths and tentacles; and a single-celled organism, usually an alga or dinoflagellate, which lives within that assemblage. The former builds a tiny calcium-carbonate structure that shelters the latter, and, through photosynthesis, the latter provides food to the former. Millions of these little partnerships accrete to form enormous, iconic reefs.

Globally, though, coral reefs are in trouble, and the reefs in American Samoa are no exception. Some suffer from heavy fishing pressures, while others are sullied by pollution. More broadly, there is the

looming specter of climate change, which is predicted to increase sea temperatures. Rising temperatures can cause corals to expel their algal partners. The corals turn bone white and die—a phenomenon called “bleaching.” The national park, as Craig well knew, had endured major bleaching events in 1994, and would again in 2002.

Fortunately, Craig’s paper caught the attention of Stephen Palumbi, a biologist at Stanford University. Palumbi first visited Ofu in 2004 and has studied corals there ever since. Through a series of experiments, he and his students have shown that the Ofu corals are uniquely equipped to handle high water temperatures. In one recent study, published in *Coral Reefs* in 2011, Palumbi and Tom Oliver, a postdoctoral researcher, examined how corals from shallow



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SMALL SIZE, BIG IMPACT

Coral reefs in Biscayne, Dry Tortugas, and Virgin Islands have died off at alarming rates in recent years. Scientists may be a long way from incorporating the lessons from American Samoa, so NPCA is urging the Park Service to approve a proposed no-take fishing area in Biscayne, following the successful model carried out for six years in Dry Tortugas.

Park staff have gone out of their way to make the island welcoming to research.

pools on Ofu would fare in conditions predicted under climate change, compared with corals from nearby deeper pools that weren’t thought to be as robust. They filled two tubs, one with water at the same temperature as the ocean, the other with water 9°F warmer—a potentially fatal difference. They found that 50 percent of the corals from deeper pools died, but the corals from shallower pools were none the worse for wear. Not only that, but those shallow-pool corals grew faster than the same species from deeper pools. “It was almost like they hadn’t read the literature,” Palumbi says. “They didn’t know that they were supposed to be dead.”

That such important work can come from a place as isolated as Ofu might be a surprise, but park staff have gone out of their way to make the island welcoming to research. In the past, there wasn’t much in the way of facilities. Scientists had to bring their own equipment, and often left it behind for others to use. The park saw an opportunity to provide a more permanent space and built an elaborate seawater filtration system, and now everyone has a sophisticated lab at their disposal—perhaps the most remote in the National Park System. Scientists and park staff depend on local Samoans to help maintain some experiments. “It’s a great way to tie research in with the community,” says Carlo Caruso, a park ranger at Ofu.

Now, Palumbi and his lab are trying to figure out why Ofu corals thrive. Is it their partner alga that helps them? (Some corals will exchange one alga for a stronger one when temperatures rise.) Or have they been conditioned to the high temperatures after being exposed to them for so long, leading to some kind of genetic advantage? “What we’re doing now is delving into the gene level,” says Dan Barshis, another of Palumbi’s postdoctoral researchers. “Our goal is to find a few genes that are diagnostic of strong corals and then go out and survey for those genes over a bunch of different areas. If we can identify corals with those genes, we can prioritize targets of protection.”

More encouraging still is that biologists now know that heat-resistant corals aren’t only at Ofu, having turned up in the Caribbean, in Indonesia, and off the coast of Hawai’i, among other places. Palumbi is conducting a series of transplant experiments to see whether it’s possible to move these so-called supercorals to areas with weaker corals and perhaps make them stronger, restoring shrinking reefs. If so, there’s a chance our coral reefs may not be in such hot water, after all. **NP**

ERIC WAGNER lives in Seattle with his wife and daughter. His writing has appeared in *Smithsonian*, *Orion*, and *High Country News*.



NATIVE BROOK TROUT are making a comeback in the Smokies, thanks to the Park Service's aggressive efforts to remove the species' biggest rivals.



Southern Appalachian Brook Trout

© CANDY DAY

Native Waters

Brook trout are making a comeback in Great Smoky Mountains National Park.

SEVERAL TIMES A YEAR in Great Smoky Mountains National Park, fisheries biologist Steve Moore straps a 35-pound generator onto his back, wades into a stream, and plunges two charged poles below the surface, delivering 650 volts of energy to the water. (Rubber boots and waders prevent him from zapping himself.) One by one, Moore and his team sort through stunned fish that float to the surface. If the stream is small enough, they remove and kill the rainbow and brown trout that invaded these waters a century ago. In larger, deeper sections, they'll scoop up as many native brook trout as possible, shuttle them to safe waters, then release an EPA-approved antibiotic called antimycin to kill off the remaining offenders.

The idea of electrocuting and poisoning fish might not sit well with some park lovers. I know—I was raised by a fly-fishing father and an environmentally conscious mother just a day's drive from the Smokies. I have the fondest memories of scrambling down steep, wooded banks with my dad to reach prime trout habitat, quietly searching for snails in leaf litter, and picnicking in the trunk of our hatchback Honda. The idea of causing such destruction to my childhood haunts gives me serious heartburn.

But the fact is, native brook trout—those colorful little fish that made my dad's eyes sparkle like sunlight on water—are finally making a comeback after a century-long decline. And we have Moore's techniques to thank for it.

The problems began in the early 1900s, when large-scale logging operations began rumbling through Tennessee and North Carolina's Smoky Mountains, clear cutting on steep mountainsides and along stream banks. Soil eroded into waterways, burying trout eggs laid in the gravel. Once-shaded streams heated up in the sun, killing scores of brook trout that can't survive temperatures above 68° F. It wasn't long before the species disappeared from every stream below 3,000 feet.

Thankfully, brook trout had some friends in their corner—anglers—who took notice of the decline and demanded that the loggers repair the damage. The companies responded. But what seemed like a good solution in 1910—restocking streams with non-native rainbow trout from the western United States, brown trout from Europe, and brook trout from the northern United

States—only pushed the natives closer to the brink when the newbies out-competed and interbred with brook trout. Stocking of these non-native fish continued for decades before biologists recognized the damage and halted the program completely. By then, only a relentless management program could help the native species recover.

Enter Steve Moore, a curious graduate student at the time, who set out to test the effectiveness of electrofishing. His research revealed that the technique works best in small, shallow streams, and that larger, deeper waters require additional help from antimycin. His approach revolutionized the way biologists manage fisheries across the country.

Such aggressive tactics, however, bear consequences. Not only do they kill the fish that aren't supposed to be there; native brook trout and insects occasionally perish in the process, too. "I don't like losing any of the good guys," Moore says. "I've spent nearly 30 years trying to save native brook trout in the Smokies. But it's better to lose a small number for the long-term gain of the entire population."

Case-in-point: Although Moore lost approximately 200 native fish after treating a three-quarter-mile section of a stream, as many as 1,800 brook trout

"I'm pleasantly surprised that so many anglers got behind this effort."

are swimming that very same stretch today. And that's along just one mile of roughly 32 miles of park streams that have been successfully restocked.

But all the restoration efforts in the world won't save the species if the water is polluted—and nearby coal plants, large-scale agriculture, and automobiles continue to spew toxins into the environment. In April 2011, thanks to pressure from the Environmental Protection Agency, southeastern states, and conservation groups (including NPCA), the Tennessee Valley Authority helped slow that trend by phasing out dozens of dirty units and installing modern pollution controls in the region's coal-fired power plants. Recent monitoring in Great Smoky Mountains shows that although sulfates have decreased significantly, nitrates haven't. As a result, streams are becoming more acidic and, basically, uninhabitable.

The good news? Park staff are working on a plan that moves the region toward cleaner air and water. Organizations like Trout Unlimited fill the funding void by raising money and rallying volunteers to measure

water acidification, electroshock streams, and catch—and eat—as many non-native trout as possible prior to a chemical treatment.

"I'm pleasantly surprised that so many anglers got behind this effort," Moore says. "These guys believe in us, and that's very gratifying."

Plenty of work remains in the park—35–40 miles worth, in fact. And biologists aren't sure how rising water temperatures associated with climate change might affect the species down the road. But the fact that native trout are making a slow, steady comeback today can only help their success in the future.

"Our predecessors didn't know any better when they destroyed habitat and stocked non-native fish," Moore says. "Now we have the opportunity to turn back the clock and do the right thing for a species on the brink."

And that's an effort that would make my father smile. **NP**

NATIONAL PARKS' ASSOCIATE EDITOR

AMY LEINBACH recently began fly fishing near her home in Boulder, Colorado, in memory of her father.



OPEN SEASON

For 30 years, anglers were prohibited from fishing for native brook trout in Great Smoky Mountains National Park because of the species' precarious state. Biologists have since determined that fishing and harvesting brook trout pose no threat to the species' recovery, and only recently restored streams remain closed.

© CURTIS WRIGHT OUTFITTERS



THE SUSTAINABLE
Spread

National park eateries are serving more healthy, local, sustainable fare, and you can already taste the difference.

By Kallie Markle Photos by Michelle McCarron

INSTITUTIONAL FOOD. It conjures visions of indeterminate mush ladled onto plastic trays, cellophane-wrapped fudge that could survive nuclear fallout, or lukewarm bottled water and a rubbery, slightly frozen corn dog. Such fare was once the norm when you visited the national parks to partake of the wonders of nature. Not so, these days: Several passionate foodies decided a day at the park needn't mean a belly full of regret and a year off your lifespan, so they've begun to make healthy, sustainable options requisite for parks concessioners. Little by little, food options in the parks are looking less like B-roll footage from an "American obesity" newsreel and more like, well, nature.



As the story goes, the legendary late superintendent of Golden Gate National Recreation Area, Brian O'Neill, was approached in 2003 by a funder who criticized the disparity between the parks' offering the best of nature but the worst of gastronomy. Most concessions at the time were "like a museum of everything bad about our food system," as Larry Bain, a leading consultant on healthy and sustainable food, put it. Health wasn't often an option, and taste hardly seemed a priority. Everything arrived frozen or packaged, shipped en masse from somewhere no farmer dare tread. O'Neill decided to make healthy, sustainable park food one cornerstone of his tenure; it was no leap of logic that an institution dedicated to preservation should endeavor toward sustainability, and really, the food should be as "green" as the scenery.

The Institute at the Golden Gate, a partner of the Park Service, embraced the momentum and published *Food for the Parks*, case studies of sustainable food concessions. When Park Service Director Jon Jarvis announced in his 2010 Call to Action that a healthy food program would be manifest, the idea became less theoretical and more like something the agency could sink its teeth into. The move toward healthy, sustainable concessions wasn't happening fast enough on its own, so the Park Service began to examine ways to include it in the all-powerful fine print.

Food-service concessions come in many shapes and sizes. Some are larger companies that service several parks, hospitals,



and stadiums, whereas others service only a single site. The Park Service has long believed that private enterprise is the best supplier of food service, so whenever a concession opportunity opens up, companies bid for the prize: typically, a 10- to 15-year contract. Companies are required to meet certain needs of park visitors, but they can also sweeten the deal by sharing more of their revenue with the park, offering extra amenities, or proposing innovative ideas in décor, waste management, or menu. A panel of park staff—advised by a neutral, industry-savvy outsider—weighs the merits of each bid and crowns the winning company.

Getting the contract requirements in place at Golden Gate took a team of legal, logistical, and culinary visionaries. "The big challenge was having words and intent that were easily discernible and measurable," Bain, culinary visionary, explains. "What is 'sustainable'? What's 'organic'? After a year [of work and legal scrutiny], we'd created a request for proposal that the Park Service felt comfortable with. The criteria were not only set forth, but there was follow-up. So: 'If you do this, how will you do it? What will it cost? What will the bottom line look like?'" Bain even made menus that demonstrated where food could come from, how much it would cost the concessioners, what they could charge for it, and so on.

Golden Gate National Recreation Area Superintendent Frank Dean, who is spearheading the initiative as part of

MUIR WOODS CAFÉ (below) purchases bread, cookies, and other baked goods from Rustic Bakery, whose head baker is Maudilia de Leon (far left). The restaurant also buys products from Marin Organic, an association of organic producers that includes Cowgirl Creamery and Slide Ranch Farm, where teacher-in-residence Xochi Battle offers up a handful of raspberries.



Director Jarvis's Call to Action, admits there was uncertainty as to how the revised contract would work. "Would it be attractive to a businessperson?" he remembers wondering. "Would it be financially feasible? It turned out it was." One palatable prototype? The café at Muir Woods National Monument, in Mill Valley, California.

The Muir Woods contract was one of the first to be open for bids after the healthy food program was initiated at Golden Gate. Several concessioners applied, some with considerable weight to throw behind their bid. When the bids came in, many of the larger concessioners proposed to achieve the minimum, but "this little company—which had only one other park contract—promised to not just meet the criteria but to exceed the standards of what would be organic and how it would be sourced," says Bain. Muir Woods Trading Company (MWTC), a subsidiary of Ortega Family Enterprises, outbid the heavies, usurped the incumbent, and won the contract.

The Muir Woods Café, a grab-and-go eatery and retail shop, feeds the monument's roughly 780,000

annual visitors and earns about \$3.1 million in annual revenue. MWTC partnered with local farms and bakers for a variety of sustainable ingredients and products, sourcing from Veritable Vegetable, Rustic Bakery, and Marin Organic. The menu eschews forgettable standards like fried chicken strips and feckless bagged salads, offering flavorful alternatives such as turkey chili, organic pastries, and a grilled cheese sandwich featured on the Food Network series, "The Best Thing I Ever Ate." Vegan, vegetarian, and gluten-free options abound, as does kid-friendly food that won't turn your little cherub into a sugar-fueled fiend or a grease-soaked grump. Yelp reviewers, who overwhelmingly rate the café with four or five stars, declare the fare "delightful," "surprising," "one of the best post-hike meals you can have," and of course, "delicious awesomeness." One particularly enthusiastic patron even said the food was the "main attraction" of the park.

Muir Woods Café's dining room is as appealing as the edibles. Tabletops are made from recycled beverage bottles, counter fronts are reclaimed sorghum straw, and the flooring keeps it in the family: repurposed picnic tables from Carlsbad Caverns National Park. Local farmers are profiled on café signage, and diners are directed to receptacles for "compost," "recycle," or "landfill," harmonizing the concessions experience with the park's spirit of conservation.

California, with its abundance of fresh flora and hearty fauna, isn't the only state serving healthy, sustainable food. The Yellowstone Lodges at the Wyoming park have served locally sourced foods since the early 2000s; local vendors provide almost everything from bison to huckleberries. In less fertile months, the concessioner, Xanterra, expands the definition of "local" to a 500-mile radius, which allows it to serve organic wine. "We recognize that a lot of parks aren't in urban areas, so we look at what's feasible," says Dean, Golden Gate's superintendent. "If you're in the desert or a remote area, the standards can be adjusted."

The efforts extend beyond the table; according to Food for the Parks, "Xanterra has been able to divert 73 percent of its waste from landfills [and] operates a composting facility that turned 2.2 million pounds of waste into compost in 2009." Health and environmental benefits are accompanied by ripple-effect economic advantages: the volume of food service for Yellowstone's 3.3 million annual visitors means higher profits for local vendors.

Nationwide, the numbers prove that healthy food endeavors are good for business. The re-envisioned

Customers happily pay
for their soup or juice, even
when it's more expensive
than fries or soda.





eateries are popular, and customers happily pay for their soup or juice, even when it's more expensive than fries or soda. The cost difference was a concern from the outset, but in the spirit of the parks, the goal was always accessibility. "There is a real interest in serving food that's affordable," says Cleveland Justis, former director of the Institute at the Golden Gate. "The concessioners don't want to pass on expenses to customers and increase prices. Some things will cost more, but if you offset that cost by being more efficient in energy use or being more disposable, you can make up that expense." At Mt. Rushmore National Memorial in South Dakota, park concessioner Xanterra constructed a small greenhouse atop its gift shop, and started a small vegetable garden a mile off-site to compensate for the region's scarcity of fresh produce.

The big park concessioners aren't the only environmentally conscious menu makers, and the healthy foods initiative isn't limited to cafes and restaurants. The kitchen at NatureBridge, inside Golden Gate National Recreation Area, serves 91,000 meals a year, mostly to K-12 students attending two- to five-day field science programs. Chef Thomas Dreke and Director Aaron Rich don't lower the culinary standards simply because

of the youth and captivity of their diners. On the contrary, Dreke and Rich relish the opportunity to serve healthy food to their young charges and heighten the students' instructive experience.

Food education is part of the educational experience here, including garbology: following every meal, the students weigh the waste after everything compostable is removed. They present their findings at their meetings, striving to be a zero-waste school, even competing with other schools attending this NatureBridge program. Instructors cover the whole spectrum of food, from production to disposal: "They talk about the energy it takes to get food here, about water use, where that food would go if it did go in the trash, landfills, and so on," says Rich. There's philosophy, science, and to drive the points home, there is salad.

"We're not going to serve a canned vegetable that kids won't eat anyway," Dreke says, so the centerpiece of every dinner is an extensive salad bar, which the students consistently devour, proving that lettuce artistry may be the key to winning dinner-table standoffs.

Breakfasts boast a fruit bar and fresh eggs. A container of liquid eggs may require less cost and effort than buying and cracking 45 dozen eggs from pasture-raised hens, but Dreke



JULIA AND DREW CHEN enjoy lunch at the Muir Woods Café. **ABOVE**, Frank Dean, superintendent of Golden Gate National Recreation Area, is spearheading a broad initiative to factor sustainability into park concession bids.

THANKS TO MUIR WOODS CAFÉ, visitors to Muir Woods National Monument can spend an entire day at the park without stashing every meal in their backpack. **BELOW,** Larry Bain helped the Park Service incorporate sustainability into the bidding process, and even produced menus that illustrate how concessioners can source their food and keep making a profit.

believes there's no comparison. "We spend more money on that product because it's so superior [to the ready-made alternative]," he says. "It makes a huge difference to kids." To offset such costs, Dreke eliminated the evening dessert and lets Pillsbury handle the cookies at lunch. "We try to make as many things as we can," he says, "but not everything is made here; you can buy frozen cookie dough that you couldn't make much better." The cookies are always freshly baked, so no one seems to mind.

The overall experience is transformative for many students. "They're seeing things done in a different way," explains Rich. "Kids become amazing advocates for change, then they hassle their parents. Imagine that impact multiplied over 10,000 kids per year."

This sense of the aggregate pervades the Park Service's food philosophy. Dean sees the number of meals served throughout the national parks as enough to move the needle in terms of what suppliers provide to their customers. "Costco and Walmart can drive the market because they have the clout," he says. "[Sourcing directly from farmers] is

different from having a typical food supplier bringing in a truck with processed, packaged food. The Park Service has enough clout to make a difference in those situations."

Once the new guidelines are met throughout the park system, visitors could be looking at a substantial buffet: billions of healthy, sustainable meals served every year throughout the United States' national, state, city, and regional parks. When the bulk of ingredients are coming from local farms, it can improve the food chain in powerful ways. As Bain points out, "parks have the potential to be tremendous customers, both for volume and predictability, because they've been open for generations and they know the busiest and the slowest months. Farmers need that more than anything else."

"What I love about this," says Justis, "is that it aligns the interests of the local community with the park and the visitors. [A given concessioner is] probably spending hundreds of thousands of dollars that are supporting the local community." Food that looks, tastes, and even does good? It's just as nature intended. **NP**

When the bulk of ingredients are coming from local farms, it can improve the food chain in powerful ways.





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RANGER SCOTT DEVERS LIGHTS A LANTERN
as evening falls during a nighttime tour of Harpers
Ferry National Historical Park in West Virginia.



THE ANNIVERSARY GIFT

BY MELANIE D.G. KAPLAN

PHOTOS BY JEFF AND MEGGAN HALLER/KEYHOLE PHOTO

As Civil War sites continue to mark 150 years since
America's most important conflict, Harpers Ferry,
Antietam, and Gettysburg tell old stories in a new light.

Before daybreak one summer morning, I leave Washington, D.C., and head northwest, more or less parallel to the Potomac River, until it meets the Shenandoah River in Harpers Ferry. I park my car and soon find myself walking along a quiet sidewalk in the 19th century. It is early still, and the park rangers are just beginning their shifts. I walk by a building with a Fancy Goods sign, which now houses the park bookstore. The historic blacksmith and dry goods buildings open to reveal museum exhibits. And the first person I pass on the street, on this already scorching day, is a woman dressed in period clothing.

Although I live within an hour's drive from a handful of Civil War battlefields,

the last time I visited one, I was young enough to need a chaperone. So I decided, in honor of the Civil War's 150th anniversary, it was time to take a field trip. My plan was to visit three national parks in two days and take on Civil War history as a grown-up, rather than as a social studies student. My first adult thoughts on visiting Harpers Ferry: I wanted to know what life was like for the baker and the blacksmith as the country headed into America's costliest and bloodiest war.

A TOWN, A STORY, A HIKING HOUND

I walk into the John Brown Museum to meet David Fox, a national park ranger. We're now about halfway through the war's sesquicentennial, but one of the first things he tells me is that we're still having

some of the same discussions today as our forebears did 150 years ago.

“My job is to interpret and make things relevant today,” Fox says, as we walk out of his office and back onto the quiet street. “We’re really repeating history. When does terrorism become freedom fighting?” Big questions like that—and what it means to be an American—have kept Fox here for 23 years, endlessly inspired by the past.

We walk to the point where the Potomac and Shenandoah Rivers converge and the Appalachian National Scenic Trail cuts through town. Fox points out the gap in the Blue Ridge Mountains that has given people access to this spot for thousands of years. The natural beauty is striking, and it’s clear to me why this town is so seductive to hikers, rafters, and kayakers. It is equally clear—seeing the powerful moving water—how this spot once became a bustling industrial center.

The park extends to three states, which meet about a mile down river from where we stand. But it’s simply too precarious for a visitor to stand in all three at



you; he is referring to George Washington—who more than two centuries ago wanted an armory here so American soldiers could defend our growing country. In time, weapons manufacturing became the town’s big business, with the armory churning out more than 10,000 rifles and muskets a year. It also played a hand in the future of our nation. “Without an armory,” Fox explains, “there are no

Brown was captured by U.S. marines led by Lt. Robert E. Lee. “There were more than 2,000 spectators,” he says, “some yelling, ‘Lynch him!’ He was almost 60 years old, he’d been here 36 hours with no food....” Then he stops abruptly. “Oh, I’m falling into the John Brown trap,” he says, smiling. “It happens to all the rangers.”

Brown’s trial and execution that same year forced the nation to look at the issue of slavery, and set a spark that would ignite the war. Harpers Ferry, trapped on the border between North and South, changed hands eight times during the war.

I mention to Fox that I plan to walk to lunch in the neighboring town, and he points me in the right direction. I walk up a steep hill, outside the park borders, and discover a side of Harpers Ferry that brings me back to the 21st century—a tavern, souvenir shops, houses with porch swings and ornamental animals. En route to the town of Bolivar, I stop at the Appalachian Trail Visitor Center, where I run into a few folks who are hiking the entire stretch from Georgia to Maine. The distinctive odor of a perpetual camper drifts behind them. I meet Polly, a miniature dachshund wearing a pink bow, who has been hiking with her owner for three months. They have stocked up on camping cookware and are ready to hit the trail again. And I’m pretty

It’s clear to me why this town is so seductive to hikers, rafters, and kayakers.

once. “You’d have to have one foot in the river in Maryland and one foot straddling the Virginia-West Virginia boundary on the shore,” Fox says with a laugh. “It’s a very rocky and steep bank, and you’d probably get poison ivy.”

As we walk past the historic buildings, Fox talks about a U.S. president trying to increase his defense budget to promote democracy. Not a modern president, mind

weapons for the Lewis and Clark expedition, no John Brown raid, and no start of the Civil War.”

In 1859, John Brown attempted to seize the stored weapons as part of his scheme to abolish slavery. Fox and I walk into the fire-engine house, the only existing armory structure. He becomes animated, recounting in theatrical detail the scene in this very building when



STUNNING NATURAL LANDSCAPES

and engaging historical reenactments lure visitors to Harpers Ferry, perched at the confluence of the Shenandoah and Potomac Rivers.





hungry for lunch at this point, so I continue walking, preoccupied with the exhausting thought of hiking through entire states.

CORNFIELDS AND ICE CREAM CONES

After lunch, I head to Antietam National Battlefield in Sharpsburg, Maryland. As I approach the visitor center, I am overwhelmed by the beauty of the cornfields and the landscape, remarkably unchanged in the past century and a half. If Harpers Ferry is wild and unpredictable, with its floods, hard edges, and whitewater, then Antietam's gift is a backdrop of quiet rolling hills, eerily calming and peaceful. The Antietam battlefield covers more than 3,200 acres of farmland, pastures, and forests, and it looks very much as it did in 1862, down to the zig-zag wooden fences.

But these beautiful stretches of land are best known for their role in hosting the bloodiest single-day battle in American history. On September 17, 1862, a battle began in the Miller cornfield north of town. Twelve hours later, 23,110 soldiers were dead, wounded, or missing. To put that in perspective, the Iraq war has seen about 37,000 casualties (dead and wounded) in nearly 10 years.

I catch a ranger talk in the visitor center observation room, which looks out to

a rolling sea of green fields and woods. There is something incongruous about absorbing this serene panorama while listening to the story of this land—a story of men standing shoulder to shoulder, killing each other. The visitor center includes a small museum, but I find it easier to soak up the story on the self-guided driving tour. I am struck by the expanse of the fields and how quickly the battles swallowed entire communities, from farmhouses to churches.

The tour crosses a couple of main thoroughfares, and near the end, I take a

hand, isn't quite so charming, but you have to appreciate a retailer that can stock Civil War action figures next to fish hooks and bait and offer sandwich specials called the Robert E. Lee and the Lincoln.

That night, I sit in on the weekly bluegrass jam at O'Hurley's General Store in Shepherdstown, a town that essentially served as a sprawling field hospital after the Battle of Antietam. For an hour after the jam begins, musicians trickle in, unfolding chairs and sitting down with some bygone-era instruments like the mountain dulcimer (a relative of the zither

Antietam's gift is a backdrop of quiet rolling hills, eerily calming and peaceful.

detour into town for a scoop of ice cream at Nutter's, where the line snakes nearly out the door. Walls and shelves are covered with decades-old knickknacks (including a large collection of ceramic cows) and photos of local Little League teams. Nearby Battlefield Market, on the other

that looks like an elongated fiddle). The old Appalachian and Irish tunes range from uplifting to haunting, and the musicians eventually outnumber those of us in the audience. It is a joy to watch them circle around, selecting songs and delighting in their music-making. I get the feeling that



AT ANTIETAM, A PEACEFUL, ROLLING LANDSCAPE offers a stark contrast to reenactors commemorating the bloodiest single-day battle in American history.

they would be having just as much fun had none of us shown up to listen.

GETTYSBURG BY FOOT, WHEEL, OR HOOF

I spend the night in Harpers Ferry and awake the next morning to the sound of a train passing through one of the few working train stations in a national park. After a short hike on the Appalachian Trail (and a pause to take in the spectacular view from Jefferson Rock), I hit the road and continue hopscotching between states, passing sweet corn and peach stands along Rte. 15.

My first stop in Gettysburg is the town hall. I find Mayor Bill Troxell sitting behind a desk adorned with a jar of Tootsie Rolls and a jar of no. 2 pencils. Troxell's great-great-great-grandfather is known as Gettysburg's first settler, and his great-grandfather owned a carriage factory that was damaged during the Civil War.

I've heard Troxell is one of about 150 licensed battlefield guides here, so I ask if he'd show me around. We head out in his Chrysler sedan, passing businesses like Union Cigar Club and Hunt's Battlefield Fries and Café. "Every night we take our toy poodle for a drive through the battlefield," Troxell tells me. He was 11 years old at the battle's 75th anniversary in 1938 and fully expects to be around for the 150th this summer.

We enter the park, which surrounds the town, and make several stops at monuments and markers. The three-day battle in early July—nine and a half months after Antietam—was a turning point in the war, ending the Confederacy's invasion of the North. The lively town of 2,400—Gettysburg had three newspapers at the time—was left to nurse thousands of wounded. The recovery effort for Gettysburg was staggering: When the armies left town, the dead and

wounded outnumbered the living 11 to one. The Confederate retreat included a wagon train full of wounded men, which stretched 17 miles. No matter where we stop, there are other tour groups nearby—Segway tours, bus tours, horse tours. Compared with my previous two park visits, Gettysburg is bustling.

After my tour, I stop by the restored train station where President Lincoln arrived the night before his Gettysburg Address. (Read about efforts to add the site to the park on page 12.) Then I continue to the Gettysburg National Military Park Museum and Visitor Center, a gorgeous building that opened in 2008. The famous 1884 cyclorama painting of the battle (which I'd seen in the '80s) recently underwent a multi-million-dollar restoration, and today, it's extraordinary. Standing on an observation platform, visitors have a 360-degree view of the painting—which becomes three-dimensional, thanks to dioramas dotted with boulders,



FROM THE NEW YORK STATE AUXILIARY MONUMENT to scenic overlooks like Devil's Den (opposite), Gettysburg offers a full range of opportunities for visitors to immerse themselves in history. **BELOW**, the historic train depot where President Lincoln arrived the evening before delivering the Gettysburg Address in 1863.



TRAVEL ESSENTIALS

The battlefields are busiest, and event schedules most robust, in the summer months. Harpers Ferry is about 50 minutes from Dulles International Airport and 90 minutes from Washington Reagan National Airport in D.C. and Thurgood Marshall BWI Airport in Baltimore. Amtrak's Capitol Limited between D.C. and Chicago stops in Harpers Ferry every evening. And the Journey Through Hallowed Ground National Heritage Area, including scenic Rte. 15 (the Catoctin Mountain National Scenic Byway), connects the three national park sites: Harpers Ferry, Antietam, and Gettysburg. Harpers Ferry is the approximate mid-point of the 2,184-mile Appalachian National Scenic Trail and has 20 miles of its own hiking trails. Outfitters offer whitewater

bushes, and artillery reaching out from the base of the canvas. There is a short presentation with dramatic lighting and audio that is so powerful, the painting comes alive like a Ken Burns film. Engulfed by the sights and sounds of battle all around me, I have a glimpse of the devastation that comes with war. Out of everything I've seen over two days, this giant display of oil paint and canvas provides one of the best and most concise insights yet into the character of a Civil War battle.

I quickly walk through the visitor center museum, where I pass grown men gripped by a display of love letters from the war. Outside, I sit under a tent with a group of a dozen visitors for a talk on Civil War medicine. The ranger explains that there was no concept of germs in the Civil War era, so doctors would innocently pack lint from the floor of a textile factory into a wound to stop the bleeding. We all cringe. But germs aside, medical advancement—like the ideas of triage and medical records—is considered a major legacy of this war. The ranger passes around old photos and medical tools to the group and shares one fascinating tidbit after another. From under the tent, I hear a few rumbles. The forecast is calling for rain but, still in a battlefield mindset, I'm not sure whether it's thunder or a recording of cannon fire. In either case, it's late in the day, so I walk toward the enormous parking area, passing tourists armed with cameras and water bottles.

On Rte. 15, I'm whisked back to the present. But I am surprised by how much of these three parks—our history, our land, our people—I've brought with me. Sitting next to a seat filled with brochures and

a chaperone would say something succinct and clever to conclude the field trip. Alone, my thoughts are less tidy. But I can't help agreeing with Fox from Harpers Ferry—scores of years later, many things



maps, I find myself looking out the windshield through a slightly different lens. I pass a billboard advertising a gun show, followed by signs welcoming me to Maryland and announcing the Mason-Dixon Line. Soon, I'm following the Potomac home again—back to the city named for the president who wanted an armory built on the river. Perhaps at this point,

haven't changed. We remain a land seeking protection, a populace struggling for a certain way of life, and above all, a country endlessly debating the solutions. **NP**

MELANIE D.G. KAPLAN is a Washington-based freelance journalist. She is a travel writer for the Washington Post and a contributing editor at SmartPlanet/CBS interactive.

rafting, tubing, and kayaking excursions. It's worth the walk or short drive into Bolivar for a meal at the Canal House Restaurant, located in an 1820s stone house (locally sourced ingredients; BYOB).

The best way to see Antietam is through the 8-mile, 11-stop self-guided driving tour. You can purchase a CD program at the bookstore, and you can also inquire about bicycle tours. Schedule customized tours through Antietam Battlefield Guides (www.antietamguides.com) or RoadRunner Transportation (www.roadrunnerservices.com), or a guided carriage tour through Bonnymeed Farms (www.bonnymeedfarm.com).

The Ledge House B&B in Harpers Ferry sits beside the Appalachian Trail and is an ideal overnight spot, especially if you're charmed (rather than irked) by periodic whistles from the nearby train tracks. Alternatively: Thomas Shepherd Inn B&B in Shepherdstown, West Virginia (hit Blue Moon Café for dinner); Jacob Rohrbach Inn in Sharpsburg, Mary-

land (Battlefield Market for sandwiches, and Nutter's for ice cream after 1:00 p.m.); or Federal Pointe Inn in Gettysburg, Pennsylvania, a boutique hotel that recently opened in an old school building (Appalachian Brewing Co. for brew and food), or the historic Dobbin House, a stop on the Underground Railroad in the years leading up to the Civil War.

Gettysburg marks its 150th anniversary in 2013, with a full calendar of talks, tours, musical performances, author signings, and reenactments, especially around the anniversaries of the battle in July and the Gettysburg Address in November (learn more at www.gettysburgcivilwar150.com). The self-guided auto tour of the battlefield is 24 miles with 16 stops. Spring, summer, and fall, regular ranger-guided programs and weekend living history programs portray infantry, artillery and cavalry organizations, and surgical units. The park also offers extended battlefield walking tours and campfire programs in the summer.

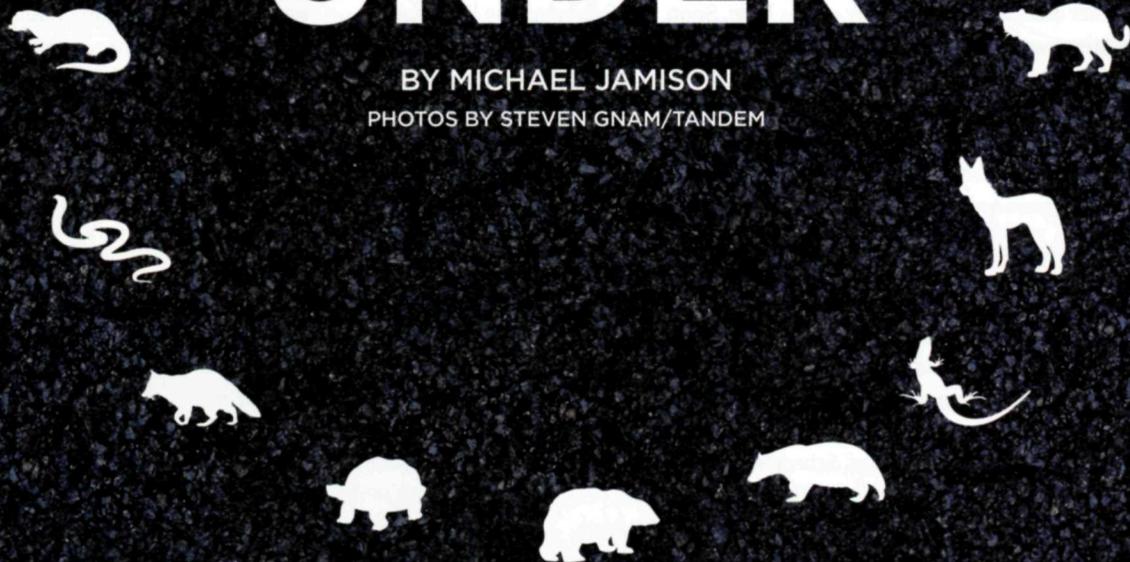


OVER

On the outskirts of Glacier National Park, dozens of new wildlife crossings allow animals to traverse areas that once posed serious risks to human and critter alike. And it's just the beginning.

UNDER

BY MICHAEL JAMISON
PHOTOS BY STEVEN GNAM/TANDEM



A SUMMER HAZE SHIMMERS OVER BLACKTOP,
swirling amid the sizzling hiss of tire on
tarmac. Piercing glints of sun—strings of cars
and trucks and rumbling Harleys—flash fast
and bright before vanishing around the bend.

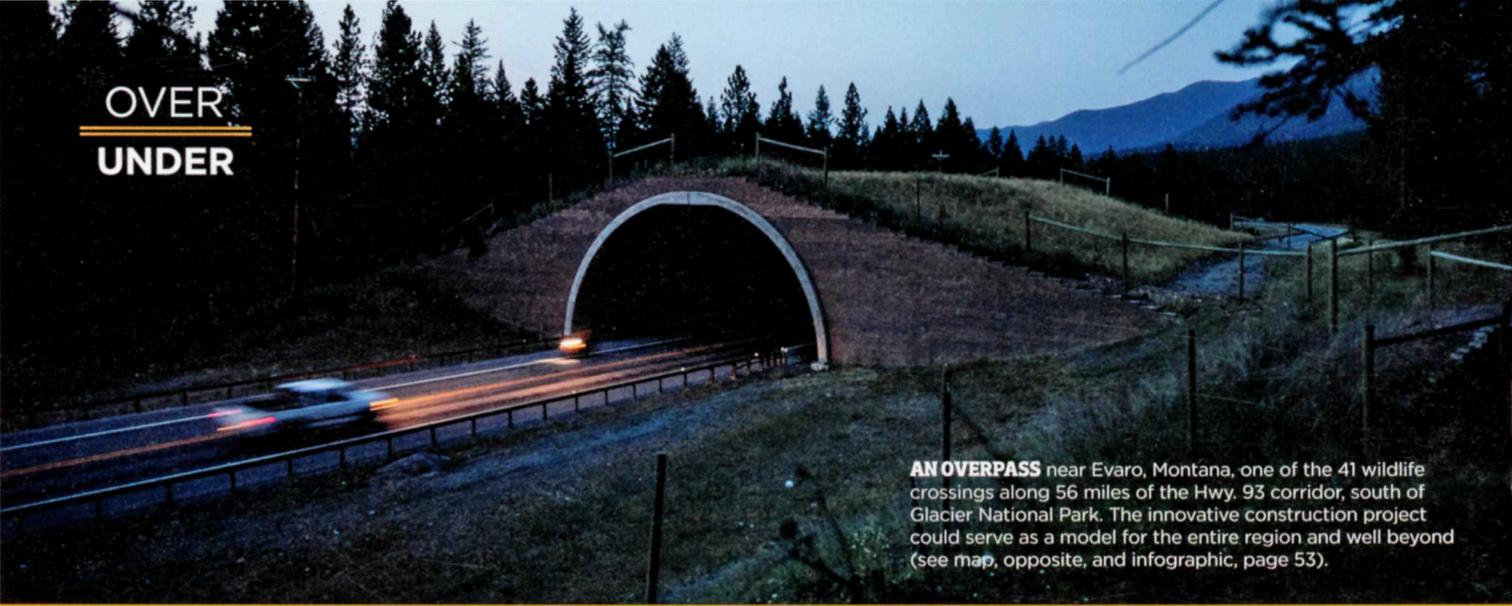
On one side of the road, upland forests step into dry August foothills. On the other, cattail rushes shade pools of cool wetland. Trapped between these habitats the wide-eyed deer balk, blocked by sun-scorched metal guardrails, buffeted by the wind, set upon from either side—to step into this fray is as much a leap of faith as a calculated risk.

That age-old riddle, it seems, had posed the wrong question. The issue is not *why* the chicken crossed the road, but *how*. Or, to be even more precise, how the deer, the bear, the coyote, the elk, and the otter managed to cross the road.

And the answer, until very recently, was seldom, fearfully, and at great risk. But now there is a new answer to how the critters cross the road. Now they cross over and under, through thickets and brambles and in quiet shade along a whisper of clear water. Now, on U.S.

Highway 93 North, they cross safely, and slowly, and surely unseen.

The designers of this stretch of road, a ribbon of blacktop drawn tight through the heart of Montana's Flathead Indian Reservation, say the number of miles and the number of crossings make this the most extensive wildlife-mitigation project of its kind in North America. Completed in 2010, it features 41 fish and wildlife crossing structures across 56 miles—overpasses and underpasses, culverts and bridges linking rivers and streams and ancient migration paths—all lined with more than 8 miles of exclusion fencing to funnel animals in the right direction. To the east, icy Mission Mountain peaks rise like white-haired elders, overlooking the valley below. To the west, prairies and pothole lakes are strung with miles of lowland marsh and fen. These diverse habitats are why the critters cross; the highway's unique design helps them stay alive in the process.



AN OVERPASS near Evaro, Montana, one of the 41 wildlife crossings along 56 miles of the Hwy. 93 corridor, south of Glacier National Park. The innovative construction project could serve as a model for the entire region and well beyond (see map, opposite, and infographic, page 53).

“People subsisted and survived here for centuries thanks to the wildlife and the natural resources,” says Dale Becker, wildlife program manager for the Confederated Salish and Kootenai Tribes. “When you’re tied to the environment that closely, to the point of basic survival, then your entire culture becomes deeply entwined with the land.”

“Protecting our wildlife,” he says, “is really another way of protecting our culture. The road is just a road, but the Crown of the Continent is our home.”

THE CROWN OF THE CONTINENT ECOSYSTEM

sprawls across 18 million Rocky Mountain acres at the transboundary intersection of Montana, British Columbia, and Alberta, crossing four degrees of latitude and the ancestral homelands of the Blackfeet, Kainai, Kootenai, Ktunaxa, Pend d’Oreille, Piikani, Salish and Siksiska peoples.

The Crown also is home to wolves and wolverines, elk, and moose and mountain lions—the greatest assemblage of mid- to large-size carnivores and prey species found anywhere in the Rocky Mountains and the largest population of grizzly bears in the Lower 48. There are 300 bird species here, 1,200 plant species, and 160,000 people, many of whom live along the blacktop bustle of U.S. Highway 93.

At the geographic and cultural center of the Crown sits Glacier National Park and its neighbor to the north, Waterton Lakes National Park in Alberta, Canada. Together, they form Waterton-Glacier International Peace Park, the core of a transboundary wilderness complex totaling nearly 3 million acres. The park’s most iconic species roam this rugged backcountry through tremendous home ranges; a male grizzly’s territory tracks some 300

They gave their project a motto, which became a touchstone throughout construction: “The road,” they declared, “is a visitor.”

square miles. As our climate changes, their survival depends increasingly upon protected corridors connecting parks to surrounding wildlands.

“When we started this project, most people just saw a road,” says Whisper Camel-Means, wildlife biologist with the Confederated Salish and Kootenai Tribes. “We needed a paradigm shift. We needed them to see it for what it really was—a barrier to wildlife connectivity and a disruption to social connectivity.”

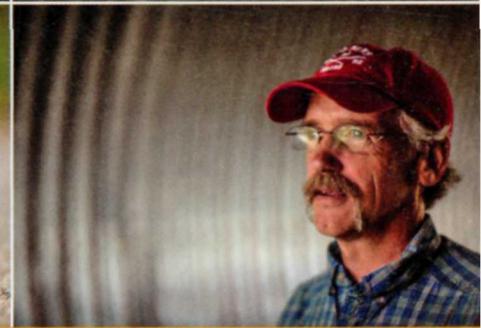
“**PRAY FOR ME—I DRIVE HIGHWAY 93.**” For years, merchants along this scenic route did a bang-up business with those bumper stickers. The road was notoriously dangerous—narrow and fast, with small shoulders and big herds of deer. It was, in a word, deadly.

“Everyone has lost someone,” Becker says, and many of those fatal accidents involved collisions between animals and vehicles.

So it was no surprise, he said, when the Montana Department of Transportation (MDT) showed up with a plan to fix it. They wanted to widen the road,



MOUNTAIN GOATS, painted turtles, and bighorn sheep (right) can thank (clockwise) Dale Becker, wildlife program manager with the Confederated Salish and Kootenai Tribes; Pat Basting, a biologist with the Montana Department of Transportation; and Whisper Camel-Means, a wildlife biologist for the tribes.



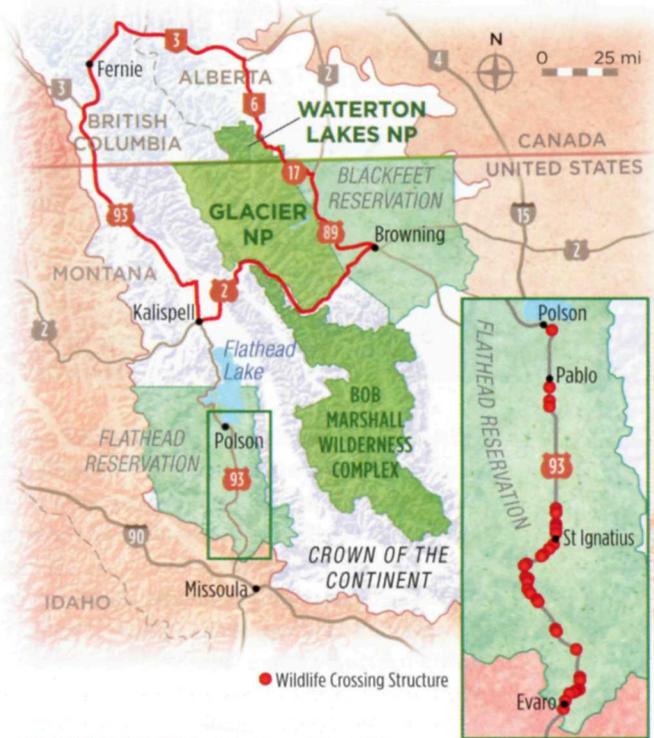
straighten it, engineer it until it was better, safer, faster. But that is not the speed at which residents of the Flathead Indian Reservation move. And as a sovereign nation, the Confederated Salish and Kootenai Tribes held a powerful trump card in the ensuing debate over how best to get from here to there.

“Our big concern was wildlife connectivity and avoiding habitat fragmentation,” Becker says. The tribal elders weighed in with an ancient world-view in which everything is connected and part of a greater whole. The agency biologists stepped in with a modern version of precisely that same story, emphasizing the integrity of the ecological web.

“It was an easy and very natural fit,” Becker says, “between the elders and the scientists.”

Ultimately, the highway engineers were steered into a design built around “spirit of place,” a notion that any vision for the road should “encompass a broader environmental continuum that includes the surrounding mountains, plains, hills, forest, valley, and sky, and the paths of waters, glaciers, winds, plants, animals, and native peoples.”

“What it implies to me,” says Pat Basting, biologist with MDT, “is a whole new way of thinking—that roads need to be built not only in the context of the



WITH THE SUCCESS of the Hwy. 93 wildlife crossings, NPCA is advocating for some of the same approaches for highways surrounding Glacier National Park.

© KAREN MINOT



WILDLIFE BIOLOGIST WHISPER CAMEL-MEANS and her colleagues needed to know precisely where to build crossing structures, so they talked to locals, set up video cameras, mapped roadkill, counted deer scat, and tracked animals using GPS collars.

“When we started this project, most people just saw a road. We needed a paradigm shift.”

landscape, but also in the context of the beliefs and cultures of the people who live on that landscape.”

Fortunately, there were some old examples of that new thinking close at hand, right up the road in Glacier National Park.

NEARLY 90 YEARS AGO, IN THE HEAT OF August 1924, three men met near the saddle of Glacier National Park’s scenic Logan Pass to settle an argument that would define once and for all the look of America’s national parks.

The veteran engineer, George Goodwin, proposed a route to the pass that tracked up 15 switchbacks, cutting a zigzag zipper into the McDonald Creek basin.

The greenhorn landscape architect, Tom Vint, was dismayed, said it would “look like miners had been there,” and pleaded for a lighter touch. Put in one switchback, Vint pleaded, and then pin the rest

of Going-to-the-Sun Road to the cliffs along Glacier’s soaring Garden Wall.

Too expensive, Goodwin countered. Too difficult.

The third man there at the pass was Stephen Mather, the first director of the National Park Service (and one of NPCA’s founders). The day was hot, and he’d heard enough. As official park history tells it, “as the argument continued, Mather looked at Goodwin, looked at Vint, glanced at their horses, turned and stormed off toward another appointment.”

The men saddled up but couldn’t catch the boss. Two days later, Mather made his decision: A park as fine as Glacier should not be marred by an unsightly road.

It was a stunning precedent—the first time the landscape architect’s aesthetic had trumped the engineer’s practicality—and it ultimately set the standard for all the scenic national park roads that followed, including iconic routes such as the Blue Ridge Parkway.

In 1924, we didn’t build for beauty, at least, not until Glacier National Park was factored into the equation. In 2010, we didn’t build for wildlife, at least, not until we found a place as fine as the Crown of the Continent. Twice the engineers said it couldn’t be done, and twice the people of the Crown proved them wrong.

Nearly a century after Mather made his decision, the biologists, elders, and road engineers were improving on that history, setting an important new



WHITE-TAILED DEER are a less-common sight along Hwy. 93 these days. Deer used the new crossing structures more than 6,700 times in 2010, which not only saves Bambi, but also saves human lives, and prevents millions in property damage.

THE ROAD AHEAD

National parks include 8,000 miles of paved and unpaved roads; 1,800 bridges; and 112 transit systems (such as ferries and shuttles), providing access to millions of visitors in some of the harshest conditions the country has to offer. Roughly every six years, Congress passes a federal transportation bill, which allocates revenues from the federal gas tax to fund those transportation systems. In July, NPCA helped ensure the Park Service would receive \$240 million annually for transit throughout all 398 parks, holding the agency's funding steady while others saw significant cuts. NPCA also supported Sen. Max Baucus (D-MT) in his successful effort to create new guidelines that allow states to use federal highway safety dollars for wildlife crossings, a move that will protect drivers and help migratory animals such as Yellowstone's pronghorn and Glacier's grizzlies.

precedent, partnering to build a road that was easy not only on the eye but also on the critters—a road that connected an entire ecosystem. And they gave their project a motto, which became a touchstone throughout construction: “The road,” they declared, “is a visitor.”

The first step, according to Camel-Means, was to figure out how animals were using the old two-lane route. Where did the bears cross? Which of the many culverts—those corrugated metal pipes buried beneath the blacktop—still allowed fish passage up and down the small streams? And what about those lumbering painted turtles, inching along between the lanes from pond to pond?

They turned to local knowledge about where the critters crossed, then tracked wildlife movements up and down the road. They mapped roadkill locations and cross-referenced with habitat types, land use, ownership, and topography. They counted everything—cars and deer poop and even the animal prints left in the “sandtracking beds” built at road's edge. They caught critters on video and still cameras and captured location data from animals sporting GPS tracking collars. They caught fish, tagged them, then followed them through streams beneath the highway. They measured turtle migration (longest: 2,625 yards) and measured mortality rates for the turtles that braved the road (50 percent). They studied

wildlife population dynamics, behavior, demographics, and even genetic flow across the Crown of the Continent. And then they factored in precipitation, temperature, annual weather, and climate fluctuations, working to pin down which species crossed which stretch of road during which season and why.

“It was fairly exhaustive,” Becker said of the process. “I think by then we recognized that what we were doing was pretty unprecedented in terms of landscape connectivity, and we wanted to create a model that could be studied and replicated.”

All agreed this was fast becoming a benchmark case-study for testing how to build wildlife crossings

OVER UNDER



CAMERA TRAPS in and near Hwy. 93 overpasses and underpasses (below) show that deer, grizzlies, coyotes, otters, and other animals were quick to use the safe crossings, making scenes like this one less common.



COURTESY OF THE CONFEDERATED SALISH AND KOOTENAI TRIBES AND MONTANA DEPARTMENT OF TRANSPORTATION.

across a busy, multiple-use landscape. And according to Marcel Huijser, research ecologist at the Western Transportation Institute, that's important not only because wildlife need safe passage between natural areas such as parks but because more than 1 million motorists collide with large mammals every year in this country, resulting in 200

human deaths, 29,000 injuries, and more than \$1 billion in vehicular damage.

"It's just so rare to see a project like this at the landscape level," Basting said. "It really is unprecedented. Everyone wants to know what we're learning."

A FEW MILES FARTHER NORTH ON HIGHWAY 93, NPCA's Glacier Field Office sits perched on the doorstep of Glacier National Park, at a junction of international roadways that ring Waterton-Glacier like an asphalt moat. To better connect the parks with surrounding wildlands, NPCA has partnered with the University of Montana to map known wildlife corridors on those roads. The plan, according

to Glacier Field Representative Sarah Lundstrum, is to compare those migration routes with maps of existing highway culverts (or drainage pipes), then find out when those corrugated pipes are scheduled to be repaired or replaced.

"When it's time to replace a culvert in a wildlife corridor," Lundstrum says, "we'll be able to upgrade it to an animal-friendly crossing structure with minimal added cost. We're just building on what they've learned on the Flathead Reservation."

What they've learned, Basting says, is that amphibians don't like long, dry passages, and they don't like dramatic temperature changes. Mountain lions don't like artificial light. Male bears are more likely to cross than females. Whitetail deer are more accepting of crossing structures than are mule deer. Predators, with their eyes up front, like small underpasses that feel like dens. Prey, with eyes set wide, like a little more open space. And grizzly bears, for whatever reason, prefer overpasses to underpasses.

To meet all those needs, Basting said, designers have turned to a whole host of crossing structures, depending on habitat and species. Some underpasses are big and square and cavernous, while some appear to be little more than oversized drainage pipes. Inside all, though, the heat and fury of the highway give way to birdsong and cool breezes, the

THE NUMBERS

8.3
MILES OF FENCING

41
WILD LIFE
CROSSINGS

56
MILES

41%

Decrease in animal carcasses on the road one year after the project's completion.

\$9 MILLION

Cost of wildlife mitigation on Hwy. 93 highway-expansion project

\$1.5 MILLION-\$2 MILLION

Cost of large-mammal collisions in U.S. each year
211 HUMAN FATALITIES | 29,000 INJURIES | MORE THAN \$1 BILLION IN PROPERTY DAMAGE

Assuming **35%** reduction in deer-vehicle collisions, the project pays for itself in **25 YEARS.**

Given a **60%** reduction, the project pays for itself in **15 YEARS.**

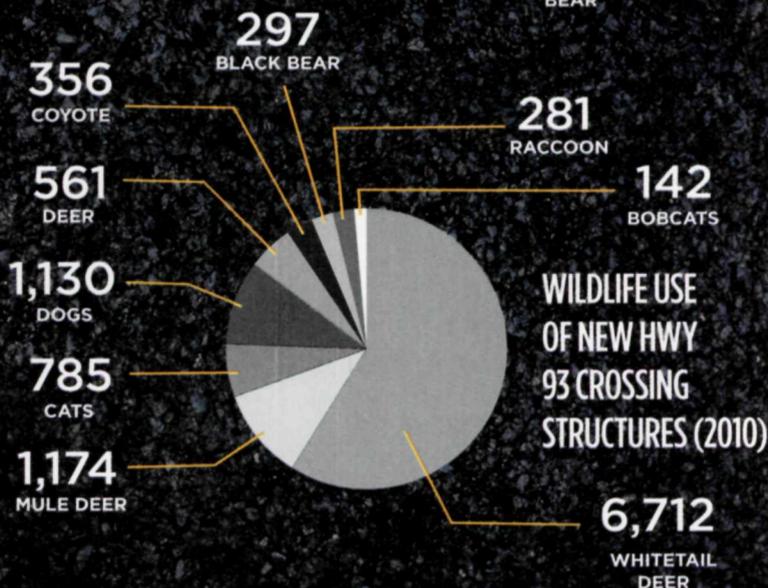
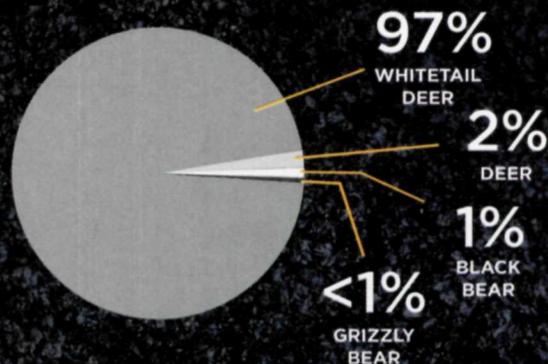
MORE WILDLIFE-CROSSING PROJECTS NEAR NATIONAL PARK UNITS:

I-75 "Alligator Alley" in south Florida, near Big Cypress National Preserve and the Florida Panther Wildlife Refuge:
36 crossings over 40 miles helped increase the population of panthers from 30 in 1990 to estimates of 100-160 today

I-90, Snoqualmie Pass East, Washington, between Mount Rainier and North Cascades National Parks:
Construction has begun on Phase I of a larger project to include dozens of crossing structures over 15 miles—from small, inexpensive culverts to 150-foot-wide overpasses spanning 6 lanes of traffic.

Highway 191, Wyoming's Green River Valley, near Grand Teton National Park:
2 wildlife overpasses and 6 wildlife underpasses, primarily for pronghorn antelope, completed in Fall 2012

SPECIES INVOLVED IN HWY 93 CRASHES (1998-2010)



road muffled by many feet of earth overhead. Cat-tails and cottonwood shade the entrances, mixing with serviceberry, chokecherry, and willow; amid the foliage, prints of dozens of species track the sandy soil. Fish move through cold shallows, while bear and deer tread wide, dry paths under the road. Along the walls of the underpasses biologists have stacked a jumble of sticks and branches—habitat for small mammals making the crossing. And at intervals are small sheets of plywood, providing cover for snakes and frogs, lizards and long-toed salamanders.

“We were thinking about bear and deer when we built the project,” Becker said, “but the real surprises have been smaller.”

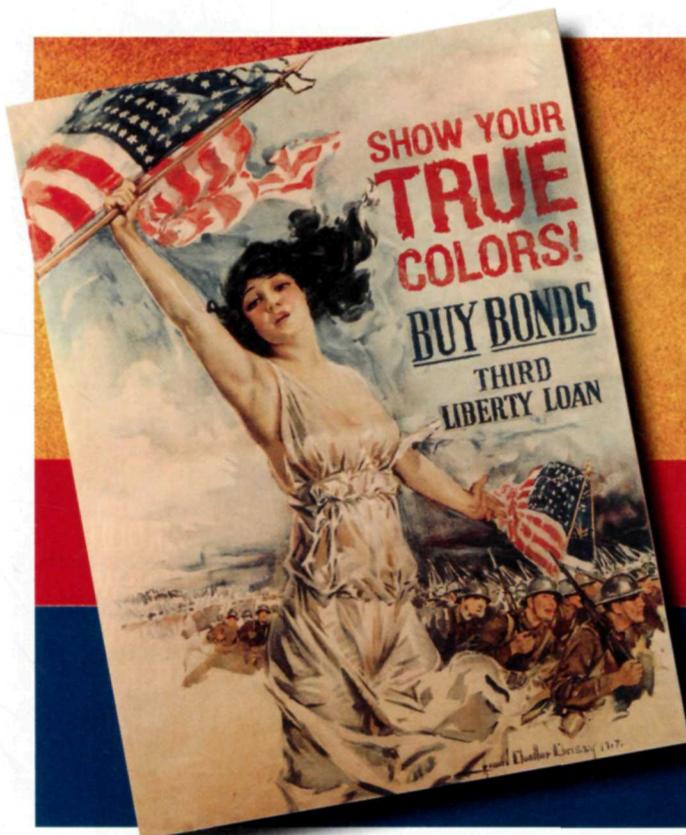
The skunk family, for instance, and the playful otters. The beaver dragging a stick back to his lodge on the other side. The owls and bats and small-footed shrews. Cameras, triggered by heat and motion, have captured some wonderful surprises. Huijser’s favorites are the images of a teenage black bear darting for the safety of a small underpass, tongue lolling and wide-eyed, with a big grumpy boar hot on his tail.

“We’ve actually seen bobcats and coyotes scent-marking the underpasses,” Huijser said. “It appears they’re laying claim to the site, as if a safe crossing is a valued possession.”

And indeed it is. Almost immediately upon its completion, the number of animals killed along this road dropped by more than 40 percent—and every animal caught on camera, Becker says, is an animal still alive. To Becker, each image is powerful evidence of success, and hope for a culture intimately connected with the wild.

“You can measure success in many ways,” Basting said, “but at the end of the day, when you look at the tracks passing through, well, I believe we’ve done some good here.” **NP**

MICHAEL JAMISON is a former journalist who spent 14 years as a Flathead Valley bureau chief for the Missoulian newspaper. Jamison lived on the Flathead Indian Reservation for 10 years, commuting daily on Highway 93, before taking over his current role as manager of NPCA’s Crown of the Continent program in Whitefish, Montana, near Glacier National Park.



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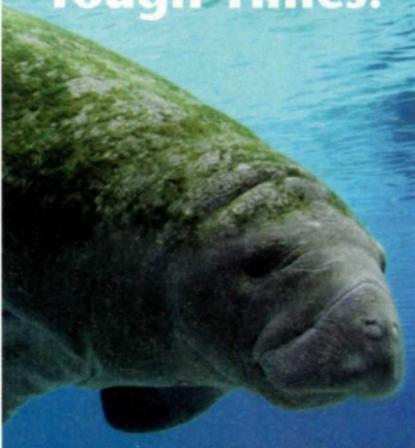
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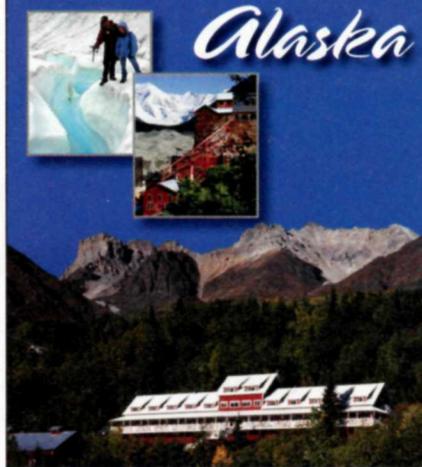
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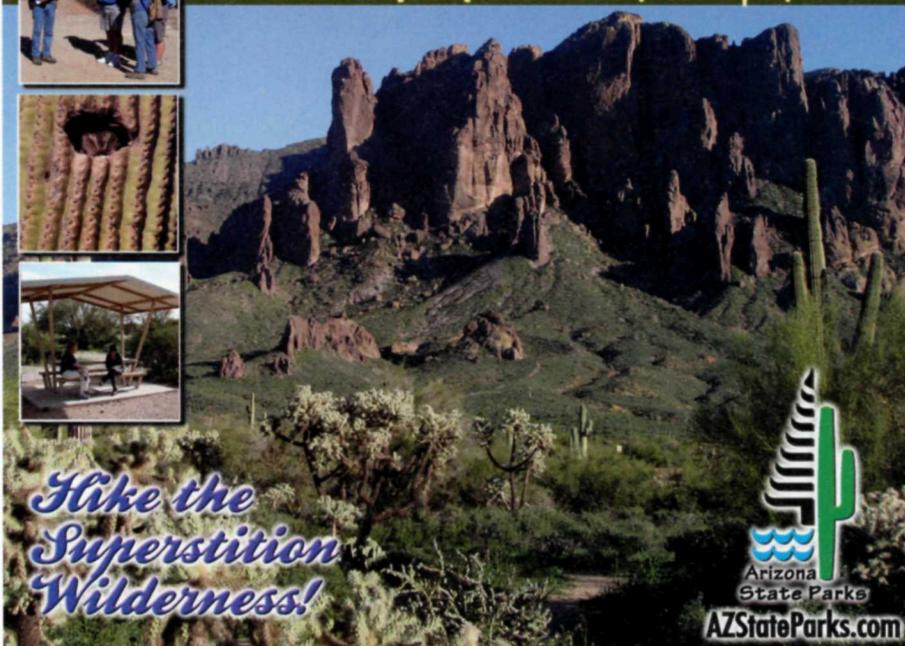


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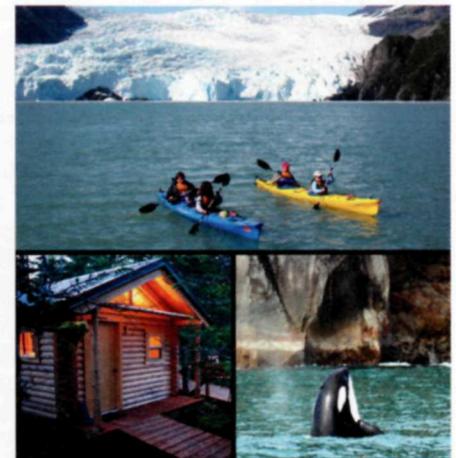


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AUGUSTUS SAINT GAUDENS, pictured in his studio, created some of the country's first heroic depictions of African Americans, such as this memorial to Col. Robert Gould Shaw and the 54th Regiment, the Civil War's first African-American brigade.



BOSTON AFRICAN-AMERICAN NATIONAL HISTORIC SITE

Symphony in Bronze

Saint-Gaudens National Historic Site celebrates the sculptor who gave form to some of our nation's memories.

ON THE MORNING OF MAY 31, 1897, hundreds of people assembled on Boston's Beacon Street for the unveiling of a monument to Civil War Col. Robert Gould Shaw, commander of the war's first African-American regiment. Just after 11 a.m. two of Shaw's nephews removed American flags draped over the towering 11-by-14-foot memorial. A band launched into "Battle Hymn of the Republic," and a 21-gun salute resounded across the city. And here was Shaw, riding off to battle

among his marching soldiers, under the protective gaze of a floating angel. The crowd cheered, the soldiers beamed with pride, and the sculptor, Augustus Saint-Gaudens, let out a contented sigh. It had taken him nearly 14 years to finish the monument, but that morning, the suffering of such difficult labor disappeared in moments.

Today, a bronze cast of the memorial sits on display at Saint-Gaudens National Historic Site in Cornish, New Hampshire. Set amid rolling green mountains, 143 miles north of the original (which now stands as a part of the Boston African-American National Historic Site), the bronze figures look alive, making it easy to see why the site is often considered a living memorial.

"It's the way a thing is done that makes it right or wrong. That's the only creed I have in art," Saint-Gaudens once said. He converted an old inn into his home and a hay barn into a studio and spent years in that barn completing a project. This site, where Saint-Gaudens summured with his family for 15 years and spent his last days, offers not only an intimate look into his life and work but a glimpse into the American Renaissance.

"A visit to Saint-Gaudens National Historic Site is a window into the time,"

says Park Superintendent Rick Kendall. The park showcases Saint-Gaudens' furnished home, exhibition galleries display his art, and his most famous monuments decorate the grounds. Each year, the park welcomes a sculptor-in-residence who helps preserve the creative spirit of the site.

Born in 1848 in Dublin, Ireland, Saint-Gaudens moved with his family to New York City when he was six months old. Growing up, he watched patriotic parades, Civil War soldiers marching off to battle, and on one historic morning, Abraham Lincoln on the way to his inauguration. These experiences captured the young man's heart and hands, and he decided to become a sculptor. Leaving school at age 13, Saint-Gaudens spent six years as a cameo cutter's apprentice, creating miniature relief sculptures, then traveled to Paris to study sculpture at the famed *École des Beaux-Arts*. In 1870 he relocated to Rome, where he honed his craft for five years and courted his future wife, Augusta Homer. Saint-Gaudens returned to America when he was 27, and received his first major commission a year later.

ALL WORK AND SOME PLAY

Although Saint-Gaudens made his name as a serious artist, he took entertaining his guests to a new level when he built a 30-foot-tall toboggan slide on his property. After zooming down the long, steep hill, guests would catch a ride back to the top in a donkey-drawn sled.

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The sculptor created more than 150 artworks during his life, ranging from public monuments to portrait pieces. He created the 12-foot Standing Lincoln in Chicago's Lincoln Park and the Sherman Monument on Manhattan's Fifth Avenue, designed the \$20 double-eagle gold piece—often considered the most beautiful U.S. coin ever minted—and served on the creative team that redesigned the National Mall in Washington, D.C. Saint-Gaudens was elected to the American Academy of Arts and Sciences in 1896; he received honorary degrees from Harvard, Princeton, and Yale.

Saint-Gaudens is renowned for his mastery of bas-relief, a difficult technique in which figures protrude slightly from a flat background. He is also known for creating some of the country's first heroic depictions of African Americans, affirming their humanity and patriotism years before the civil rights movement.

"It is entirely possible to produce technically stunning works that are lifeless," says Amanda J. Sisk, the park's 2012 sculptor-in-residence. "But Augustus merged his classical training with contemporary subjects, and went beyond many of his colleagues by successfully infusing his works with an extra breath of life."

New Hampshire held a special place in Saint-Gaudens' heart. Reflecting his belief that America was the heir to Greek democracy, an enlight-

ened system of law and Renaissance humanism, Saint-Gaudens designed parts of his Cornish estate to reflect the Italian countryside, named his home "Aspet" after a village in the Pyrenees, and declared nearby Mt. Ascutney his Mt. Olympus. When Saint-Gaudens invited students and other artists to visit the area, the Cornish Arts Colony quickly became the epicenter of the American Renaissance.

Even after being diagnosed with colon cancer in 1900, Saint-Gaudens continued to create art and mentor students until his death in 1907. His home opened as a museum in 1927, and in 1965, Saint-Gaudens National Historic Site was established—the first site devoted to a visual artist and the only national park unit in New Hampshire.

Today, visitors can tour his home and studio, gaze at nearly 100 of his artworks, and enjoy summer concerts from Memorial Day through the end of October. Although the exhibit buildings close for winter, the grounds remain open and accessible during daylight hours.

"Saint-Gaudens National Historic Site is devoted to arts and culture and creativity—the beauty and entertainment that make up our everyday lives," says Kendall. "It is a park unlike any other." **NP**

KEVIN GRANGE grew up in New Hampshire and is now a freelance writer living in California.



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SKATERS ON MIRROR LAKE, Yosemite National Park, California, circa 1911.



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