

# RANGER

The Journal of the Association of National Park Rangers

Stewards for parks, visitors & each other

Vol. 35, No. 3 | Summer 2019

## Water quality and the parks



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ON THE COVER: Colleen Allen and Mary Plumb with buoys encrusted with quagga mussels at Lake Powell. NPS photo



GO WEST

Evidence of America's love for national parks is everywhere. This vehicle from Wisconsin inched along in slow-moving urban traffic recently.

Protecting our nation's assets

National park enthusiasts are often struck by the ways our parks' resources and stories affect the mind, body and soul. Less often recognized are the complex efforts conducted behind the scenes to protect these wild, scenic, cultural and historical assets.

In speaking with the contributors for this issue and editing their articles, I was thrilled – yes, truly thrilled – by the work being done for parks that we are able to spotlight in these pages.

Our authors share insightful articles about qualitative and quantitative research and new and continuing preservation and protection initiatives on behalf of:

- Waterways in the Upper Midwest and West
- Caves across the United States
- Cultural and historical resources along the Eastern seashore and in the Southeast
- Not-so-wild wildlife in the most magnificent canyon in the world

In addition, the National Parks Conservation Association has provided a thorough summary of the

John D. Dingell, Jr. Conservation, Management, and Recreation Act, which protects more than 2 million acres of public lands. One can only imagine all the hours, discussions and documentation that went into this important legislation.

We live in a vast, diverse and amazing place that is worthy of every effort expended to protect and preserve it.

Another keeper

It's well-known that Association of National Park Rangers members keep their *Ranger* magazine issues as a record of the times and for future reference. Many readers have also told us they read the magazine from front to back before they file it.

Thanks to our contributors, this issue is so rich in content we hope you read, share, save and refer back to it for a very long time. It was a joy to pull it all together.

Ann Dee Allen,  
*Ranger* editor

# RANGER

THE JOURNAL OF THE ASSOCIATION OF NATIONAL PARK RANGERS

Vol. 35, No. 3



Summer 2019

*Ranger* (ISSN 1074-0678) is a quarterly publication of the Association of National Park Rangers, an organization created to communicate for, about and with National Park Service employees of all disciplines; to promote and enhance the professions, spirit and mission of National Park Service employees; to support management and the perpetuation of the National Park Service and the National Park System; and to provide a forum for professional enrichment.

In meeting these purposes, the Association provides education and other training to develop and/or improve the knowledge and skills of park professionals and those interested in the stewardship of national parks; provides a forum for discussion of common concerns of all employees; and provides information to the public.

The membership of ANPR is comprised of individuals who are entrusted with and committed to the care, study, explanation and/or protection of those natural, cultural and recreational resources included in the National Park System, and persons who support these efforts.

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## FINAL DEADLINES

Spring issue .....Jan. 31  
Summer issue .....April 30  
Fall issue .....July 31  
Winter issue .....Nov. 15



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GOAL: 100 NEW MEMBERS BY JULY 4, 2019!

# WIN a Ranger Rendezvous registration!

## Please participate in our ANPR membership drive



Selene Daniel



Clyde Anderson

The membership drive has inspired *Ranger* magazine editor Ann Dee Allen to provide ANPR gift memberships to Selene Daniel and Clyde Anderson. The rangers assisted Allen during a personal visit to the Martin Luther King Jr. National Historical Park in Atlanta this year. Neither was previously familiar with ANPR.

## ANPR IS HOLDING A COMPETITION DESIGNED TO ATTRACT 100 NEW MEMBERS BY JULY 4, 2019.

The ANPR member who donates the most memberships will win a free, transferable Ranger Rendezvous conference registration.

The digital-only gift memberships are available at the reduced price of \$20 each until July 4. Each gift membership donated to a Washington State resident counts double toward the registration giveaway.

If you're interested in giving more than one membership, send the following information to:

- Chris Reinhardt at [anprbusinessmanager@anpr.org](mailto:anprbusinessmanager@anpr.org)

- Your name, each recipient's name, email address and complete street/P.O. address.

## CHALLENGE GRANT

During the membership drive competition, *Ranger* magazine editor Ann Dee Allen will donate \$20 to ANPR for each of the first 10 new, first-time memberships given to NPS employees or seasonal employees working for NPS east of the Mississippi River or in urban parks anywhere in the U.S. To qualify for a \$20 donation, each gift membership must be provided to someone known to the membership donor, from a membership donor who was and is a current ANPR member as of April 30, 2019.

- Send one email to both [anprbusinessmanager@gmail.com](mailto:anprbusinessmanager@gmail.com) and [rangermag.editor@gmail.com](mailto:rangermag.editor@gmail.com). Allen will work with Chris Reinhardt to make the donations, up to a total of \$200.
- Please state all qualifying details about you and the recipient in one email.
- Please note if you read about this challenge grant in *Ranger* magazine.



# FIGHTING THE INVASION:

## PREVENTING INVASIVE MUSSELS

*By Colleen Allen with  
Mary Plumb, Glen Canyon*

**I'll never forget the day I saw the first quagga mussel on a boat at Glen Canyon National Recreation Area's Lake Powell. It was about half the size of my smallest fingernail.**

My emotions surged: anger, frustration, disappointment and sadness. Our stunning sandstone rocks would be forever impacted by this devastating invasive species. We had such high hopes that the extensive efforts put forth by so many would be successful at preventing this infestation.

### Early prevention efforts

In 1999, scientists predicted Lake Powell would be the first body of water west of the 100th meridian to become infested with zebra or quagga mussels. Glen Canyon National Recreation Area in Utah and Arizona began the first aquatic invasive species (AIS) prevention program of its kind in the West. Early stages included education and outreach, screening incoming vessels and monitoring of artificial substrates.

In 2002, the first boat with attached dead quagga mussels arrived at the lake.

In 2007, quagga mussels were discovered in Lake Mead National Recreation Area, a sister NPS unit located downstream on the Colorado River.

In 2008, I was one of the first park rangers at Glen Canyon dedicated full-time to coordinate the expanded mussel prevention efforts outlined in the Superintendent's Compendium.

Regulations required all vessels to be inspected and certified as "mussel free" by a park representative prior to launching. Year-round, lake-wide efforts from sun up to sundown included screening, inspecting and decontaminating water craft.

The process of decontamination consists of flushing 140-degree Fahrenheit water through engine outdrives and other components to kill the mussels.

Park biologists also expanded the detection program by utilizing a special DNA process to identify quagga mussels lake-wide.

Prevention efforts succeeded for more than a decade. In 2013, the first quagga mussel was found on a boat in Lake Powell. Glen Canyon organized the largest dive event ever undertaken in the National Park Service, looking for the source mussels that

had evaded the abatement process. More than 80 safety staff and 40 divers from around the nation explored three large down-lake marina structures and countless boats. Divers found and removed more than 400 mussels.

It was a noble effort, but the invasion had begun and Lake Powell would eventually be infested lake-wide, as mussel reproduction was already occurring at an alarming rate.

### Containing quagga mussels to Lake Powell

The passion we had for prevention is now just as important in our containment efforts. We want to keep quagga mussels confined to Lake Powell and support agencies managing other bodies of water in the American West. Once you have seen what quagga mussels can do to lakes, you certainly don't want infestations at other locations.

With ongoing containment, the importance of our partnerships in Utah and Arizona has grown. I am honored to work with both states. AIS partners also include boaters and dedicated individuals in the

West who have implemented invasive species prevention and containment programs.

“Clean, drain and dry” is the mantra for boaters all over the U.S. when it comes to invasive species. When boaters leave Lake Powell, their boats are inspected, tagged, cleaned, drained and decontaminated, when appropriate. Boaters are responsible for knowing and following destination state regulations for dry time prior to launching in other bodies of water.

## Expanding the fight nationally

Glen Canyon’s long-term prevention efforts and recent containment initiatives are nationally recognized as a model AIS program. In 2017, the Western Governors Association became more fully engaged in the fight to prevent the spread of quagga mussels to their waters. NPS efforts were championed at the highest level, resulting in the Department of Interior’s mussel initiative, Safeguarding the West. This effort is an example of how federal, state and tribal collaboration can be enhanced to address a range of invasive species risks.

## Why continue to fight?

We may have recently lost the battle to keep mussels out of Lake Powell, but together we can win the war against the spread of invasive species elsewhere. It’s important to maintain the hope that even against seemingly impossible odds people can prevent the spread of invasive species.

Glen Canyon’s precedent-setting prevention actions kept quaggas out of Lake Powell for more than a decade. Regardless of which invasive species individual parks are fighting, we hope that in partnership with their users and stakeholders they keep up the good fight.

Educated and enlightened recreationists are the key to success.

*Colleen Allen is the aquatic invasive species coordinator for Glen Canyon National Recreation Area in Utah and Arizona.*

*Mary Plumb is the public affairs specialist for Glen Canyon National Recreation Area.*



Quagga mussels on a boat engine at Lake Powell. NPS photo

## MUSSELS TOOK THE LAKE IN FIVE SHORT YEARS

“We had tried so hard to prevent quaggas from infesting Lake Powell that I had to set my personal feelings aside, dig deep, lead the program and support those who were just as tired and disappointed as I was.”

*Colleen Allen, reflecting on seeing the first adult quagga mussel at Lake Powell in 2013.*

# STOPPING THE SPREAD OF AQUATIC INVASIVE SPECIES

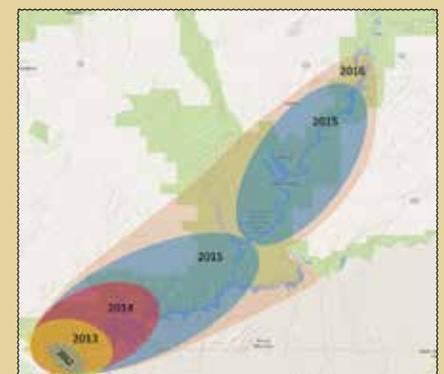
Aquatic invasive species can impair the delivery of water and power, diminish boating and fishing, and devastate lake ecosystem health. Once they are present, quagga mussels cannot be eradicated and the efforts to contain and manage the impacts can cost millions of dollars.

First introduced by the shipping industry to the Great Lakes in the 1980s, zebra and quagga mussels spread outward via natural dispersion and watercraft to other regions of the country. They are among the many invasive species causing economic and ecological harm across the United States.

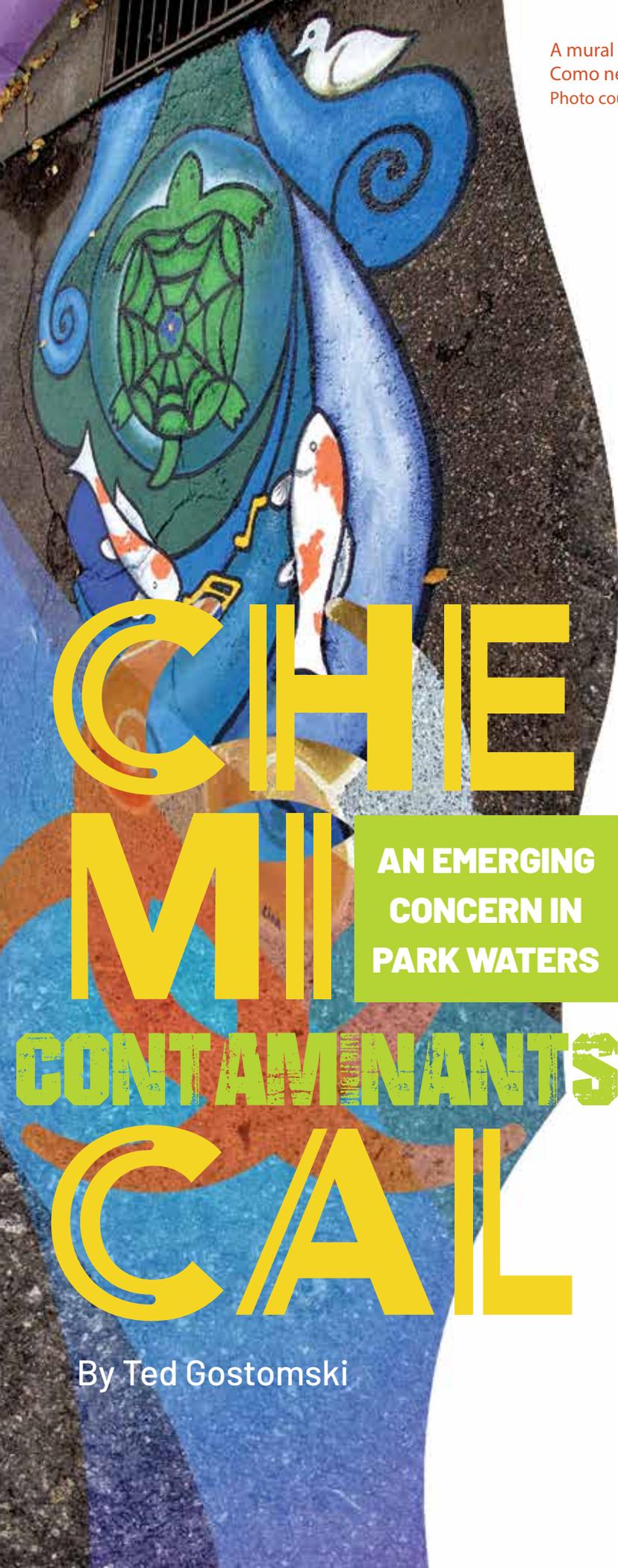
While inspection and decontamination efforts mitigate risk, they are not always 100 percent effective. All boaters are responsible to adequately clean, drain and dry their vessels after every use. Through containment and prevention programs and with the help of the boating community, we can safeguard our national parks, state and local lakes and reservoirs, and other waters.

Combining containment efforts with proactive prevention at receiving waters is the most effective way to stop the spread of zebra and quagga mussels. It cannot be done by one agency alone. It is only accomplished through agency collaboration and ongoing partnerships with the boating community.

The boating public is the first and most important line of defense. By effectively cleaning, draining and drying their vessels before launching in another body of water, boaters can help stop the spread of invasive species.



Veligers first identified in 2012 spread to the entirety of Lake Powell by 2016.



A mural by artist Gustavo Lira at a storm drain in the Como neighborhood of St. Paul, Minnesota.

Photo courtesy of Friends of Mississippi River

People who live in the many populated areas of northern lake country have a saying: “All drains lead to the lake.” The words refer to the grated curb-side drains that gather rainwater and snowmelt – along with cigarette butts, oil and road salt.

Chemical contaminants reach rivers and lakes via more than just curb drains, however. Water that goes down sinks, toilets and washing machines works its way through water treatment plants to the nearest river or lake. Some contaminants float on the wind, carried as small molecules attached to rain, snow or dust. And some are washed off the skin of swimmers on summer vacation.

Though not intentional, many things we do in the course of a day contribute to the contamination of lakes and streams in ways we cannot see. “Everyday chemicals” such as pesticides, pharmaceuticals and personal care products – collectively known as contaminants of emerging concern (CECs) – are turning up in lakes and streams, even in remote national parks.

Most often, soil and water in national parks are affected by activities occurring just outside their borders, such as agriculture, mining and wastewater treatment. A study of Lake Kabetogama in Voyageurs National Park in Minnesota identified numerous contaminants in nearshore waters, especially in areas close to houses using on-site wastewater treatment systems.

What about contaminants in remote parks with few if any neighbors? In remote areas, atmospheric transport may be the source of contamination. Studies on Isle Royale in Michigan found herbicides used on row crops (corn and sugarcane) and on turf (golf courses and residential lawns) in water samples collected from inland lakes on the island national park.

Elsewhere, pharmaceuticals such as sulfamethoxazole and ciprofloxacin (antibiotics used to treat bacterial infections) have been detected in precipitation and airborne particulates.

## NPS GREAT LAKES INVENTORY AND MONITORING NETWORK

In 2013, scientists with the National Park Service’s Great Lakes Inventory and Monitoring Network began working with the U.S. Environmental Protection Agency (USEPA) to collect water samples and analyze them for CECs. We collected water from lakes, rivers, streams and ditches in eight national park units in Minnesota, Wisconsin, Michigan and Indiana to develop a baseline dataset of CECs in those waters.

Before this effort began, we had very little knowledge about the CECs that were present, and even less about the levels of CECs. We have set a starting point, and now, through continued annual sampling, we can watch to see where the concentration levels go from here.

If future sampling shows that levels are increasing, followup studies could identify specific sources of the contaminants, or focus on the effects to a particular organism or system. Other state and federal agencies can use this information to advocate for standards or legislation that protect public and environmental health. Currently, we use such standards to determine when concentration levels are a threat to wildlife or human health.

AN EMERGING  
CONCERN IN  
PARK WATERS

# CEC MIL CONTAMINANTS CAIL

By Ted Gostomski

## MONITORING NETWORKS

Across the United States, more than 280 national park sites with significant natural resources are grouped into 32 networks based on geography and common natural resource issues. The Great Lakes Inventory and Monitoring Network is composed of nine parks that all have big water – lakes or rivers – in common. Scientists with the Great Lakes Network conduct long-term monitoring of critical natural resources in the nine parks. For more information about the Inventory and Monitoring Division, visit [www.nps.gov/im](http://www.nps.gov/im).

National Park Service biological technician Josh Dickey collects a water sample at Indiana Dunes National Lakeshore – now a national park. NPS photo



Between 2013 and 2017, we collected water samples from Indiana Dunes National Lakeshore (now Indiana Dunes National Park); Apostle Islands National Lakeshore and Isle Royale National Park in Wisconsin; Grand Portage National Monument, Mississippi National River and Recreation Area, and Voyageurs National Park in Minnesota, and Pictured Rocks National Lakeshore and Sleeping Bear Dunes National Lakeshore in Michigan.

Indiana Dunes and Mississippi River are located in urban areas, while the other units are more remote parks with little to no development on the lakeshores and streambanks. Only Indiana Dunes was visited in more than one year, as that park was where most CECs were detected.

### INSECT REPELLENT AND HERBICIDES TOP CONTAMINANTS

As expected, more types of chemicals and higher concentrations of them were detected at the two urban parks. Forty-nine different chemicals or chemical byproducts were detected at Indiana Dunes and 44 different chemicals or chemical byproducts were detected at Mississippi River. Fewer than 10 different contaminants were detected in waters from the six other parks.

The chemical compound N,N-diethyl-3-methylbenzamide – better known as DEET, the active ingredient in insect repellent – was the only contaminant found in water samples from all eight parks. The herbicide atrazine was found at all parks except Apostle Islands.

Flame retardants and bisphenol A – an industrial chemical used primarily to make

polycarbonate plastic and epoxy resins – were commonly detected in water from Indiana Dunes, Mississippi River and Apostle Islands.

Thirty different kinds of pharmaceuticals were detected across the eight parks, with gabapentin (anti-seizure medication) and metformin (anti-diabetic medication) the only medications detected in samples from parks other than Indiana Dunes or Mississippi River. Pain relievers, anticonvulsants, antidepressants and diuretics were among the other types of medications found.

### CECS AND HEALTH

We compared the CEC concentrations found in the park waters to human-health and aquatic-life screening values, and fortunately, none of the thresholds in those screening values were exceeded. In fact, with the exception of a few chemicals, detected concentrations were generally far below screening values or benchmarks at which human health can be affected.

The exceptions – metformin, atrazine, and simazine (an herbicide) – each had concentrations in at least one sample that approached human-health benchmarks.

Hydrochlorothiazide HCTZ (a diuretic medication) exceeded a human health-based screening value in seven samples. Fourteen wastewater indicators were detected across three parks, including two forms of estrogen – both of which were detected at concentrations >100 nanograms/liter (ng/L). Concentrations of > 5 ng/L are known to affect the reproduction of fathead minnows.

Simazine had the highest observed concentration among herbicides (>1000 ng/L) in two samples, both from Indiana Dunes. Those two, along with concentrations of metolachlor (another herbicide) at Mississippi River, were similar to concentrations reported for other major urban rivers in the United States. Fortunately, none of the samples exceeded the maximum contaminant levels for herbicides in drinking water set by the USEPA.

### WHAT COMES NEXT

We are working with the U.S. Geological Survey's Minnesota Water Science Center to compare our results with concentrations known to affect aquatic organisms, and with results from similar studies relevant to the parks. In some cases, focused studies will be made to identify the potential sources of contamination to these protected areas. For now, monitoring data such as this can be used by regulatory agencies and legislative bodies to advocate for decisions relative to public and environmental health.

National park managers cannot halt the presence of contaminants in park waters. The airborne transport of so many contaminants makes national parks vulnerable to any contaminant in the atmosphere. By monitoring contaminant levels in park waters and wildlife, we can show that less-toxic alternatives are needed and begin to explore options for improving negative effects on the natural world.

*Ted Gostomski is a writer and biologist with the National Park Service's Great Lakes Inventory and Monitoring Network based in Ashland, Wisconsin.*

# A VICTORY

## for our national parks and public lands

**PASSAGE OF THE JOHN D. DINGELL, JR. CONSERVATION, MANAGEMENT, AND RECREATION ACT REPRESENTS DECADES OF HARD WORK.** *By Theresa Pierno, NPCA*

**P**ublic lands bills rarely become law in these polarized political times. But in March, something extraordinary happened – Congress overwhelmingly passed the John D. Dingell, Jr. Conservation, Management, and Recreation Act, a package of more than 100 bipartisan bills that expand and improve America’s public lands system, making it the biggest bipartisan conservation and historic preservation law passed in years.

The public lands package represents decades of hard work by conservation groups like the National Parks Conservation Association (NPCA), elected officials and communities across the country, as well as years of negotiations among Republicans and Democrats. The bill was championed by lawmakers on both sides of the aisle, unifying Congress at a time when it has been bitterly at odds, and once again demonstrating that our national parks are powerful places that unite and inspire us.

The John D. Dingell, Jr. Conservation, Management, and Recreation Act provides new or enhanced protection for more than 2 million acres of public lands across the country. It protects some of our nation’s most treasured public lands, wilderness areas, waterways, wildlife and outstanding recreational opportunities. Through new park designations and expansions, it paves the way for a more diverse and inclusive National Park System that more adequately reflects our rich and diverse cultural heritage and evolving national narrative.

Now, future generations will have the opportunity to more easily access and experience all that their national parks and public lands have to offer.

### **TWO NEW HISTORICAL SOUTHERN MONUMENTS**

This historic law takes a strong stand to not only protect public lands but also

honor our national heritage, including the addition of two new national monuments, Medgar and Myrlie Evers Home National Monument in Mississippi and Mill Springs Battlefield National Monument in Kentucky.

Medgar Evers was a fighter and a visionary for change – from serving his country in the fight against fascism during World War II, to advocating for racial equality during the Civil Rights Movement. His



President Donald J. Trump signs S.47: The John D. Dingell, Jr. Conservation, Management and Recreation Act.

unwavering determination helped to educate thousands of African Americans about their basic human rights and encouraged the fight for equality in Mississippi and across the country.

As the nation’s premiere storyteller and keeper of our shared American heritage, the NPS is well prepared to share Evers’s story and accurately reflect how this pivotal time in our history is interpreted and shared for all.

Mill Spring Battlefield was the location of the Union Army’s first significant victory of the Civil War and the beginning of a series of Confederate military setbacks. Through interpretive trails and museum exhibits, visitors have the unique opportunity to travel back in time at Mill Springs Battlefield and learn about the events that changed the course of American history.

The designation of Mill Springs Battlefield as a national monument is an important step toward honoring and preserving the stories of African American soldiers who fought for the Union Army and for their freedom during the United States Civil War.

### **NEW CULTURAL SITES AND EXPANDED PARKS, TRAILS AND WATERWAYS**

The bill also established six new national heritage areas that preserve America’s cultural history.

With these additions, we now have 55 diverse heritage areas – including landscapes, museums, battlefields, historic buildings and other sites which are regionally distinct and nationally significant. These sites promote each area’s unique character and encourage cost-effective partnerships between local communities and the Park Service that create thousands of local jobs for communities around the country.

The Congressional package included numerous bills that expand national parks by more than 42,000 acres, adding new land to Death Valley and Joshua Tree national parks, Mojave National Preserve, Kennesaw Mountain National Battlefield Park, and Fort Frederica National Monument. In the California desert, a long-awaited expansion of Joshua Tree and Death Valley national parks was approved, adding new wilderness designations that promote landscape connectivity, protections for fragile waterways and increased habitat for wildlife including desert tortoise, mountain lion and bighorn sheep.

Ocmulgee National Monument in Georgia will also be re-designated as Ocmulgee Mounds National Historical Park, and the park will grow from 700 to nearly 3,000 acres. This site was already recognized as one of the most important archae-



**The Organ Mountains WSA,  
located in south-central New Mexico,  
was authorized expansion under  
the Dingell act**



**John D. Dingell Jr.**

ological landscapes in the country. Through this expansion, even more irreplaceable cultural resources and the ancestral stories of the Muscogee Creek and other Southeastern Native people will be preserved for future generations to experience.

An additional 2,600 miles was added to the National Trails System, including a 1,200-mile extension to the Lewis and Clark National Historic Trail and a 1,400-mile extension to the North Country National Scenic Trail, which will now connect it to the Appalachian Trail. The bill also expands the National Wild and Scenic Rivers System by 621 miles, including 77 miles managed by the NPS.

## **GREATER PROTECTION FROM HARMFUL IMPACTS**

For years, NPCA worked alongside Yellowstone Gateway Business Coalition to defend Yellowstone National Park and the livelihood of surrounding communities from the threats of two proposed industrial-scale gold mines. New mining operations north of the park would have had disastrous consequences on the ecosystem, the local businesses that depend on the area's strong tourist economy, and the park experience that draws visitors from across the globe.

Thanks to the unwavering efforts of business leaders, hunters and anglers, conservationists, real estate and tourism professionals, the John D. Dingell, Jr. Conservation, Management, and Recreation Act included permanent mineral withdrawals of approximately 30,000 acres of National Forest System lands at the doorstep of America's first national park.

Another historic provision included in the bill was the permanent reauthorization of the Land and Water Conservation Fund, one of our nation's most important conservation tools protecting public lands from incompatible development. Congress established this trust fund in 1965 to protect some of America's most vulnerable public lands using a small portion of federal income from existing offshore drilling royalties. These funds allow agencies such as the NPS to buy private land inside national parks from willing sellers that could otherwise become trophy homes, mini-marts or even mining operations.

## **WELCOME MAT FOR KIDS AND FAMILIES**

As a way to engage and provide more opportunities for America's youth to enjoy the outdoors, the Every Kid in a Park initiative was launched in 2015, providing every fourth-grade student and their family with free admission to national parks and other public lands and waters across the country for a full year. After serving more than half a million students over three

years, the public lands package authorized this program for seven years – ensuring that all kids will have an opportunity to visit and enjoy our shared public lands now and for generations to come.

The John D. Dingell, Jr. Conservation, Management, and Recreation Act marks a great victory for national parks and public lands. It's extraordinary that during these divisive times, when so little legislation is moving through Congress, people can find common ground in protecting more national parks and public lands.

Our national parks protect the stories that define and unite us as a nation. They are the landscapes our ancestors cherished and the battlefields where Americans fought for freedom and justice.

For 100 years, NPCA has been working to protect these places. As NPCA celebrates our Centennial year, we remain just as steadfast in our commitment to defend these places for 100 years more. But we can't do it alone. It's vital to have park advocates, communities and members of Congress from across the nation work together to protect these places – for all who experience them now and for those who will visit them long after us.

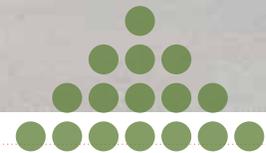
*Theresa Pierno is president and CEO of the National Parks Conservation Association.*

Home of Franklin D. Roosevelt National Historic Site was expanded by 89 acres.





# Challenges AND Opportunities IN THE SOUTHEAST REGION



**F**ormer National Park Service Director Jon Jarvis used to say that the NPS speaks for those who do not have a voice. We bring voice to those who have passed – the Harriet Tubmans, the Abraham Lincolns, the Carl Sandburgs and many others whose voices and stories become our responsibility to carry forward.

However, for much of our first century, the Park Service was limited in the stories we were telling. The history of our nation as represented by the national parks was predominantly male. The contributions of women and minorities to the American experience were vastly underrepresented in both the collection of places that we preserve and interpret as national park sites or recognize as national historic landmarks.

If the NPS truly wishes to be more relevant to all Americans and create the next generation of park visitors, supporters and advocates, at our sites need to reflect the contributions of women and minorities. And in recent years, we have made

tremendous strides in that area.

Research on the contributions of Latinos to the American experience, of women, of LGBTQ has led to new national parks – Cesar Chavez, Belmont-Paul Women's Equality, Stonewall Inn – representative of these segments of the population. The National Historic Landmark Program is likewise ensuring that the properties it designates reflect a full spectrum of people and events that participated in the building of our nation.

While the more traditional subjects of prominent leaders, monumental architecture, and the military and its conflicts continue to be honored with additional designations, the program also recognizes many other aspects of the past.

Beginning in May 2011, the American Latino Heritage Initiative, Asian American and Pacific Islander Heritage Initiative, and Women's History Heritage Initiative were implemented with the goal of furthering the representation of diverse stories within the National Historic Landmarks Program. Since that time, more than half of the

NHLs designated tell the story of women and minorities. This not-so-subtle shift acknowledges that our nation's history is not one narrative but many.

## NARRATIVES UNFOLDING

We have worked to tell the stories of those who have been ignored in the celebration of our past, of the once-disenfranchised, and the once-voiceless. In the Southeast Region we tell these stories at places like Cane River, where we help keep the Creole culture alive, and Tuskegee Airmen, where African Americans proved they had the capabilities to lead, fly military aircraft and the courage to fight in war.

I'm very proud that many of our newest sites that tell these previously untold stories are located in the Southeast Region. At Reconstruction Era National Monument in South Carolina, we discuss a time when the United States grappled with the question of how to integrate millions of newly freed African Americans into social, political, economic and labor systems.

Together with the Southeast Region superintendents I had the opportunity to visit Birmingham Civil Rights National Monument and Freedom Riders National Monument in Alabama. These two new national parks are reminders of an exceptionally painful period of our nation's history. It is an inspiring story of those whose non-violent protests struck a powerful blow to racial segregation.

I was also in Jessamine County, Kentucky to mark the creation of the nation's newest national park, Camp Nelson National Monument, a Union supply depot and hospital during the Civil War. Camp Nelson became a recruitment and training center for African American soldiers and a refugee camp for their wives and children. Thousands of slaves risked their lives escaping to the site with the hope of securing their freedom and, ultimately, controlling their futures by aiding in the destruction of slavery.

### ADDITIONAL CHANGES

As directed by Congress, NPS is in the process of completing the Mississippi Civil Rights Sites Special Resource Study to explore the most significant people and places representing civil rights history in Mississippi for possible recognition. Included are sites associated with 14-year-old Emmett Till, whose lynching in 1955 is one of the defining moments of the modern civil rights movement in America, and the home in Jackson where civil rights



Belmont-Paul Women's Equality National Monument

richness of the parks can be tapped a great deal more. To emphasize the role of parks in our society, we now regularly host citizenship ceremonies in partnership with the U.S. Citizenship and Immigration Service, welcoming new Americans to their country and their national parks.

The social challenges we face as a nation will require the action of informed, engaged, open-minded adults. For instruction and inspiration, they can look to our national parks, where America's highest ideals are enshrined. There, they learn about democracy, sacrifice, heroism and hope, not just in the abstract, but in the very places where those concepts shaped our history. It would be difficult to come up with more relevant issues than these.

While these new sites comes the opportunity to tell a more complete version of the American story, they also present challenges. With NPS resources already stretched thin, the addition of these new sites challenges us to think even more creatively about how to accomplish our mission. Fortunately, many of these sites are operated in partnership with local, state and private organizations that provide a wealth of knowledge about the park resources and complementary skill sets.

*Bob Vogel is the regional director of the National Park Service's Southeast Region. He presented these remarks at the ANPR Ranger Rendezvous in Bowling Green, Kentucky in 2018.*

activist Medgar Evers resided with his wife and was killed in 1963.

These are difficult and painful stories, but we understand that in addition to celebrating our greatest achievements, national parks must also commemorate our most somber moments. These places command our reverence not only because of what happened there, but because they help us understand the monumental trial and sacrifice that have shaped our nation, our government and our society.

At battlefields and military sites, the focus has shifted from maneuvers and tactics to include the social, political and economic conditions that brought war in the first place. These sites are powerfully symbolic and they embody issues that are very much relevant to today: immigration, tolerance, the meaning of the Constitution, civil rights, war, labor, the environment. These parks are critical to the nation's civic education and we have an obligation to use them in this way.

We're already doing that with place-based learning and lesson plans, such as Teaching with Historic Places. But the



Freedom Riders National Monument  
Photo by Ser Amantio di Nicolao

Park ranger takes visitors on tour of Jeff Smith's Parlor Museum at Klondike Gold Rush National Historical Park



# RANGER RENDEZVOUS 42

DELTA HOTELS  
BY MARRIOTT

EVERETT, WASHINGTON  
OCTOBER 16-20, 2019

The Association of National Park Rangers is excited to be venturing back to the Pacific Northwest for our first Ranger Rendezvous conference in Washington since 1992.

Everett is not far from Mt. Rainier, Olympic and North Cascades national parks. For those looking to fill their passport books with more stamps, Klondike Gold Rush – Seattle Unit and San Juan Island National Historic Park and Ebey's Landing National Historical Reserve are also in the region. If the extensive natural features of the area aren't enough, you can also tour the world's largest building at Boeing's Everett factory.

Many of our members call the area home. We plan to turn to our local experts to provide recommendations for our time in Washington.

In keeping with the traditions of ANPR, we'll of course need items of interest for the silent auction and raffle. Also make sure to take out your camera and capture what could be the winning submission for the annual ANPR photography contest.

As seasonal employees return to your park, make them aware of the Supernaugh Scholarships available to help subsidize travel and registration for new conference attendees.

Details are posted on [www.ANPR.org](http://www.ANPR.org) as they become available.

## DONATE TO WIN REGISTRATION

To boost membership in ANPR, we are running a competition between now and July 4. We've dropped the gift membership rate to \$20. The member who donates largest number of memberships will receive a free basic registration for Rendezvous 42.

Each gift membership for a Washington State resident will be counted twice.

Gift membership recipients can register for the conference at the ANPR member rate.

We hope this membership drive will boost ANPR membership and attendance at this year's Rendezvous. Your participation is key to this effort.

Visit [www.ANPR.org](http://www.ANPR.org) for all the details. Help us grow the organization and build excitement for Rendezvous 42!



## HOTEL ARRANGEMENTS

A block of rooms has been reserved at the Delta Hotels by Marriott at a rate of \$119 night for two people. Look for the link on the Ranger Rendezvous web page.

## TRAVEL ARRANGEMENTS

Ease of access was a major factor in choosing a location for Rendezvous this year. In early March, Snohomish County opened a new commercial terminal at Paine Field -- the same site Boeing uses to deliver its widebody planes.

SeaTac Airport is located 45 miles south of Everett offers even more travel options. With a single connection on public transit, you can get from the airport to the hotel for a mere \$8. As part of the site visit, ANPR members took public transit from SeaTac and we highly recommend it.

## HELP MAKE RENDEZVOUS A SUCCESS

ANPR is dependent on volunteers to present a successful conference. If you can help in any way, we would be honored to have you on the team. Please contact me for information about volunteering for Ranger Rendezvous.

— Chris Reinhardt  
*Ranger Rendezvous 42 Coordinator*  
[creinhardt@anpr.org](mailto:creinhardt@anpr.org)

**FIRST-TIMERS:  
DON'T WAIT TO APPLY FOR A  
RENDEZVOUS SCHOLARSHIP**

If you know someone who has never attended Ranger Rendezvous, would like to go this year, and could use a scholarship to attend, please encourage them to apply for a **Supernaugh Scholarship** today. The scholarships were established in 2006 to enable early-career employees, NPS volunteers and students to experience the annual Association of National Park Rangers conference. They include a one-year ANPR membership and basic Rendezvous registration, lodging and partial transportation reimbursement.

THE SCHOLARSHIP FUND HONORS FORMER ANPR LEADER BILL SUPERNAUGH.  
For information, visit [ANPR.org](http://ANPR.org) and contact Kate Sargeant at [anprmembership@gmail.com](mailto:anprmembership@gmail.com)

Photos Wikimedia Commons

# RENDEZVOUS EXHIBITORS

THANK YOU FOR SUPPORTING 2018 RANGER RENDEZVOUS

## SPONSORS

Arrowhead (\$1000+)

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## EXHIBITORS



INDIANA UNIVERSITY  
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FEEA  
CHILDCARE  
SERVICES INC.

## FEDERAL CHILD CARE SUBSIDY PROGRAM

The Federal Child Care Subsidy Program allows agencies to use appropriated and revolving funds to help eligible employees pay for child care. The National Park Service's subsidy is available for those earning up to \$68,100 or \$70,000. The program was established in 2001 by Public Law 107-67, Sec. 630, and until 2019 was managed by the Department of Agriculture.

- For more information, visit OPM guidance on child-care-subsidy and [https://nfc.usda.gov/FSS/client-services/Child\\_Care\\_Subsidy](https://nfc.usda.gov/FSS/client-services/Child_Care_Subsidy)
- Contact Magaly Green at [magaly\\_green@nps.gov](mailto:magaly_green@nps.gov) or (304) 535-6003 for assistance



Mongolian ranger's patch

## WORLD RANGER CONGRESS 2019

The International Ranger Federation (IRF) 9th World Ranger Congress is planned for Chitwan National Park in Nepal from November 12-16. The Congress will be a landmark event to support rangers in Asia.

Resources for the Congress include:

- Conference website: [www.rangercongress.org](http://www.rangercongress.org)
- ANPR contact Rebecca Harriett: [rlharriett@gmail.com](mailto:rlharriett@gmail.com)
- Facebook: @InternationalRangerFederation and @rangerfederationasia
- Twitter: @WRCNepal2019

## GARFIELD SYMPOSIUM PLANNED FOR NOVEMBER 9

Save the date for the Sixth Annual Garfield Symposium, "The Ohio Generals: From Garfield to Grant to Buckingham." The event is free and open to the public; event sponsorships are available. Papers are due by July 1. Posters and artwork are due by September 1. Registration is open through October 20.

- Contact Andrew C.M. Mizsak at (440) 550-9620 or [AndrewMizsak@gmail.com](mailto:AndrewMizsak@gmail.com) for information and to RSVP

## Kudos List

These people have either given someone a gift membership to ANPR or recruited a new member. Thanks for your help and support!

Rick Mossman  
Andrew Bronte  
Jin Prugsawan

## WELCOME TO THE ANPR family

Here are the newest members of the Association of National Park Rangers

(updated 5/1/19)

Andrew Bronte, *San Diego, CA*  
Josh Frazin, *Coram, MT*  
Nancy Goudy, *Estes Park, CO*  
Lauren Harre, *Alachua, FL*  
Mari Houck, *Wilmington, DE*  
Chelsey Stephenson, *Beaufort, NC*  
Tawnya Waggle, *Bradenville, PA*



Votes for Women Parade flowers

Photo Historical Society of Washington, D.C.



CULTURAL RESOURCES

# Inequality is a part of voting rights history

In March 1913, the National American Women's Suffrage Association (NAWSA) decided to hold a women's suffrage parade in Washington, D.C., the day before President-elect Woodrow Wilson's inauguration. The objectives of the march were clear: send a message to the president, Congress and the world, that the fight for women's suffrage was an undeniably strong presence in American politics and that the time had come to end discrimination with regard to voting rights on account of sex.

The task of organizing the march fell to Alice Paul. Paul had cut her teeth during her time in England where she had marched, protested and been arrested with members of Emmeline Pankhurst's Women's Social and Political Union (WSPU). Depending upon your politics, the WSPU was either famous or infamous for its radical activism in the fight for women's equality.

To ensure their voices were heard, the women of the WSPU often clashed with male counter-protestors who tried to shout them down or disrupt their events. Police officers who got in the way or attempted to apprehend WSPU members received an equally rough handling. At their most radical, the WSPU advocated property damage and arson as viable tactics.

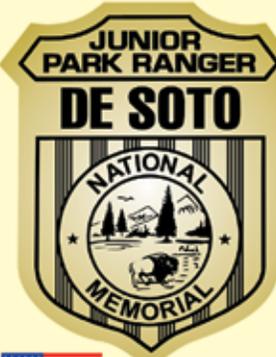
The D.C. march wasn't intended to be such a radical undertaking. Paul planned for a peaceful parade down Pennsylvania Avenue focused as much on pageant and spectacle as politics. She took to calling the march a "procession" in part to lessen tensions with local authorities but also to temper expectations about the number of participants the event would draw. And there was one other logistical component: black women who chose to march would be relegated to a segregated section at the back of the procession.

Paul initially wanted an integrated procession. She reasoned that only a handful of black women would choose to march and that they would be blended into the sections organized by their home states. But as the procession began attracting national media attention Paul panicked.

The presence of women of color in such a high-profile event could have disastrous consequences for Paul, NAWSA and the campaign to ratify the 19th amendment, which badly needed the support of



Program cover for the NAWSA procession of 1913  
Photo Library of Congress





## Custom Printed Junior Ranger Badge Stickers for Kids

Our custom printed badge stickers will bring a smile to a child's face. Our junior park ranger badge stickers are ideal for community events, school classroom visits or when children visit your battlefield, national park, heritage corridor, historic site, lakeshore, national monument, recreation area, scenic riverway, scenic trail or seashore. Badge stickers are printed on either shiny gold or silver foil. Customized for your location at no extra charge. Fast and reliable delivery.

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A horse-drawn suffrage parade bus  
Photo Library of Congress

pro-segregationist members of Congress. Alice Paul weighed the choices she felt she'd been dealt and segregated her march.

The story goes that when anti-lynching and civil rights activist Ida B. Wells learned that she and all the other African American women marchers would be relegated to the segregated rear of the procession she cried. Never one to give up easily, Wells devised a plan.

On March 3, 1913, as the procession made its way along Pennsylvania Avenue, Wells waited along the parade route biding her time. When the Illinois delegation marched passed, Wells stepped confidently out of the crowd and took her place with her state delegation, thus integrating the procession.

In August 2020, we'll mark the 100th anniversary of the ratification of the 19th amendment, which declared that the right of citizens of the United States to vote "shall not be denied or abridged by the United States, or any State, on account of sex." Alice Paul will be rightfully lionized as a warrior for gender equality. Yet, her uncomfortable but conscious choice to segregate the March 1913 suffrage procession has placed an enduring stain on her legacy.

Designation of the Belmont-Paul Women's Equality National Monument by President Barack Obama in April 2016 helped give Paul and the women's rights movement a much-deserved place in the National Park System. Moving forward, we need to ensure that a part of Belmont-Paul's mission, especially in the upcoming anniversary year, is devoted to telling a more inclusive story about all of the women who struggled and fought for equality and the double burden faced by women of color who battled against gender and racial discrimination.

Sisterhood is powerful and complicated. Let's not be afraid to talk about that.

— Alan Spears  
*Cultural Resources Director*  
*National Parks Conservation Association*  
[aspears@npca.org](mailto:aspears@npca.org)

## PROTECTION

# Mastering the work-life balancing act

**By appropriately balancing our time at work with our time away from work, we'll be better rangers – and better people.**

**We** give this job so much. And that's okay. After all, we are public servants. For most of us, rangers is much more than a job: It's our life's professional calling. We should be highly dedicated to it.

However, it is just our professional calling.

We have other callings, too. Ones that have nothing to do with work: family, religion, civic causes, recreational interests. We need to give these callings at least as much as we give to our work, if not more.

What this boils down to is work-life balance. In the National Park Service, mastering that balancing act can be a real challenge. But, we have to do it.

It's easier said than done sometimes.

Think of all the demands that sabotage our time off: SAR emergencies, training, court, coordinating this and that. For employees who live in the interior of large parks, time off is often limited to in-park activities and socializing with fellow employees.

Then there's the now-ubiquitous government-issued smart phone, a double-edged sword. It's terrific for helping us be effective communicators and providing a means by which we can get urgent work accomplished.

But it comes with the expectation that we shall be available 24/7. Voice-mails, emails, texts and threads that seem to go on forever when you're just trying to tuck your kid into bed.

Of course we can step away from it or hit the silence button, but let's not forget that 24/7 part.

For supervisors, this dilemma is even more pronounced: While off-duty, I wrote this column (a different kind of work) in the same week that I conducted reference checks for NPS candidates, who were also off duty.

My 4-year-old is pretty sharp. He knows when I'm on my personal cell versus my work cell. The other day when I should have been on personal time, he needed me and I asked him to hang on a second while I was on my cell. He looked at me with disappointed eyes and asked, "Daddy, is that your work phone?" I set it down right then and there.

Of course we embrace our professional duties, even those that cause us to work on short notice and during unusual hours. But at some point, we must take stock of our fuel tanks – physical, emotional and spiritual. We have to examine closely how well we're balancing our time attending to on-duty priorities versus off-duty priorities.

In order to be the best at our professional calling we must take time for our life's other callings. We have to take care of ourselves and invest in our non-work responsibilities, particularly our true passions. We owe this to ourselves and our loved ones.

— Kevin Moses  
*South District Ranger*  
*Shenandoah National Park*

# Cave Research Foundation

## active across the U.S. *By David West*

**T**he Cave Research Foundation (CRF) was formed in 1957 by a group of Ohio cavers that had been exploring and mapping the caves on Flint Ridge on the fringes of Mammoth Cave National Park in Kentucky. They soon connected the Mammoth Cave system to the Flint Ridge system, forming what has become the longest documented cave system in the world.

While the group enjoyed exploring and mapping the cave system, they also had a keen interest in supporting speleological research. Dr. Patty Jo Watson soon began studies on the archeological aspects of the system, specifically the early use by pre-history cultures. Dr. Tom Poulsen began studies of the cave cricket populations. Dr. Art Palmer began studying the geologic aspects of the system.

A major goal of the foundation was to take commitment to research and agency support to a higher level. Over time, the organization grew to cover other locations, and operational areas were established.

Mammoth Cave became the Eastern Operations Area.

In the southwest, work began in Carlsbad Caverns and Guadalupe Mountains national parks in New Mexico, forming Southwest Operations.

Closer to the west coast, Sequoia-Kings Canyon National Park in California became the SEKI operations area as members began work in Lilburn Cave there.

In northern California, Lava Beds National Monument and Modoc National Forest also became a focal point for mapping and research.

In the Midwest, the Ozarks stretch across Missouri, Arkansas, and Oklahoma, where CRF supports the Russell Cave Preserve and adjoining properties, Buffalo National River, Ozarks National Riverways, Mark Twain National Forest, Pioneer Forest, LAD Foundation, Missouri State Parks and the Missouri Department of Conservation.

Eastern Operations has since expanded into Cumberland Gap National Historical Park at the junction of Tennessee, Kentucky and Virginia, as well as the Monongahela National Forest in West Virginia.

We also have a newly established project at Craters of the Moon National Monument in Idaho.

Outside the continental United States, CRF members have supported projects in Hawaii and Puerto Rico. Internationally, our members have supported work in Mexico, the Galapagos Islands and Borneo. The foundation also established an educational exchange program between China and the United States.

### MANY SERVICES

We contribute to our hosts in many ways. Most prominent is the survey and exploration of caves, producing maps of high quality for use by managers in planning and by researchers as a frame of reference for their work.

The foundation supports its own members in their research and others, including university students and researchers working alongside CRF, and agency personnel requesting support for local projects in the caves – covering the full range of speleological study.

We have constructed gates for various caves at agency request. Our members assist with interpretive efforts, such as historical reenactments and providing materials for display at agency visitor centers. We assist with all aspects of cave management, up to and including all necessary services for an agency in a specific area where manpower shortages have severely limited agency resources, depending on local agency needs.

These services can include locating, mapping and monitoring caves within a specific geographic area, collection of biological and other resource information within specific caves, cave visitation management, and even assisting with posting signage.

Our group at Carlsbad Caverns has been very active in the restoration of trails and formations, mitigating the impact of frequent visitation by the public.

At Lava Beds, a need for a research center became obvious. CRF organized the funding, design and construction of a Research Center turned over to the monument, now utilized by numerous researchers from many organizations.

The foundation has constructed its own center bordering Mammoth Cave National Park, which is utilized by CRF, universities and other groups conducting speleological studies in the area.

With more than 60 years of experience supporting our various agency clients, CRF looks forward to finding new ways to enhance speleological research and the understanding of the cave resources in the U.S. and around the world.

*Dave West is president of the Cave Research Foundation. Visit [www.cave-research.org](http://www.cave-research.org) to learn more.*

*Photos by Ed Klausner*



Nancy Nordensten (left), Lava Beds National Monument chief of resource management, and Dawn Ryan, Sequoia & Kings Canyon National Parks transportation supervisor, conduct surveying at Lava Beds.

Rick Olson, Mammoth Cave National Park ecologist, prepares dye traps in Mammoth Cave.



# Quiz

## NPS SEARCH AND RESCUE HISTORY

By Butch Farabee

TEST YOUR KNOWLEDGE BY ANSWERING  
THE FOLLOWING QUESTIONS. QUIZ  
ANSWERS CAN BE FOUND ON PAGE 22.

- 1 In 1969, a search for a 7-year-old boy involved the largest number of people in NPS history. Name the park:  
(A) Shenandoah  
(B) Great Smoky Mountains  
(C) Big Bend  
(D) Olympic
- 2 On September 12, 1975, six NPS employees were killed while on duty in a plane wreck in a soon-to-be established Alaskan park. Name the park.
- 3 In 1980, a ranger left a park visitor center never to be seen again. Name the ranger and park.
- 4 The longest rappel in NPS history was in Yosemite in 1980. Cite the approximate length.
- 5 For two years beginning in 1924, a young J. Edgar Hoover directed a search for the Whitehead brothers. Name the NPS unit.
- 6 In 1956, 128 people were killed in a historic plane crash. Name the NPS site.
- 7 In 1931, Secretary of the Interior Lyman Wilbur, MD, performed an emergency appendectomy in a national park. Name the NPS site.
- 8 Name the NPS site of the deepest below-ground NPS SAR.
- 9 A short-lived TV series about NPS rangers was filmed in Yosemite in 1974. Name the title.
- 10 Perhaps the greatest cave rescue in the U.S. took place in Sand Cave in 1925. Name the soon-to-be declared national park.



**GRAND CANYON  
SQUIRRELS**



**NEW YORK  
CITY SQUIRRELS**



**Articles by Gabrielle Ross and Natacha Ross, Junior Ranger candidates**

**T**here are many differences between the Grand Canyon and New York, including the views, what is considered walking distance, noise levels, and of course the squirrels.

There are extreme size differences between Grand Canyon and New York City squirrels: Grand Canyon squirrels have so much more fat! This is partly because a *lot* of people feed the squirrels in the Canyon. They don't know or just don't care that you are not allowed to. In New York City nobody feeds the squirrels except the occasional tourist and person throwing dog treats.

We were talking to rangers Brendon Oates and Jacob Tung at Indian Garden in the Grand Canyon and were amazed at the size of the squirrels. The rangers told us they used to see a squirrel that would climb a tree about a foot, then take a break, then climb another foot, take another break, and go on like this until it

got to the top. Ranger Tung said that he hadn't seen that fat squirrel in a while so he thinks it was eaten by an owl.

A couple weeks before we went to the Canyon we had seen a squirrel in New York City that was eating a nut on a tree and was hanging upside down! A Grand Canyon squirrel certainly can't do that!

The Grand Canyon squirrels do not exercise. This is what is going through their walnut-sized brains: Why would we need to run around if all the food we wanted was at the campsites?

The last size difference in the squirrels is that New York City squirrels have very thick tails with plumage, while the Grand Canyon squirrels' tails just sit there and drag in the dirt.

The squirrels in the Grand Canyon are much more vicious and hostile than the squirrels in New York City. New York squirrels don't come up to you and are not hostile, but that is because there are also dogs in New York City. Most of the

dogs like to chase after the squirrels, so they are more fit, run faster and are more up in the trees.

The squirrels in the Grand Canyon lie down! I have never New York City squirrels lie down.

The squirrels in the Grand Canyon have this mix of bad behaviors because of the people that feed them. The environment that each type of squirrel lives in causes them to be the way they are. Environment influences culture, or in this case, squirrel behavior.

In Central Park, if someone drops food, the pigeons most of the time get to it first. In the Grand Canyon, the squirrels usually bunch together waiting for your food to be left unattended, whereas the squirrels in New York City are content on the natural foods like nuts they find in Central Park.

So as a reminder to all, don't feed the Grand Canyon squirrels.



**Why was the  
mushroom always  
invited to the cave?**



Because  
he was such  
a fungi!

# LEARNING ABOUT WHITE NOSE SYNDROME

**W**hite nose syndrome is not so fun. It is decimating bat populations in the eastern U.S. and is spreading as far west as New Mexico and the Dakotas.

White nose syndrome is a fungus that causes bats to wake up during winter hibernation to look for food. But because bugs, bats' main food supply, have died in the winter, the awakened bats likely starve to death.

White nose syndrome originated in Europe, where hikers went caving and the fungus got on their shoes and/or equipment. They came back to the U.S. and went caving again, where they unknowingly brought the fungus with them to the bats. The bats then spread the fungus from cave to cave and bat to bat. The fungus does not affect humans.

We had the privilege of seeing the bat and amphibian experts at Indian Garden as they checked for the syndrome in the Grand Canyon. This entailed catching the bats in huge nets and then recording data on them. The experts only do the checks three times a year: once at Phantom Ranch, once at Cotton Wood, and once at Indian Garden.

The bat experts have a theory that if the syndrome got into the Canyon, the bats might be okay because they could just fly down deeper in the Canyon to feed. Bugs would still be living there because it is hot enough for them to survive in the winter.

The bat experts brought flag poles and very thin tall nets to a place where there have been the most bat sightings at Indian Garden. They measured the bats' location using their phones, which pinpoints echolocation.

A bat would fly into the net, and would get caught but not hurt. One expert would then gingerly untangle the bat out of the net and hold it to collect data.

The bat experts had rabies vaccines to protect themselves. To protect the bats they wore baseball gloves (so the bats had something to hold onto) and on top of that a latex glove which they changed between each bat (just in case a bat had the syndrome).

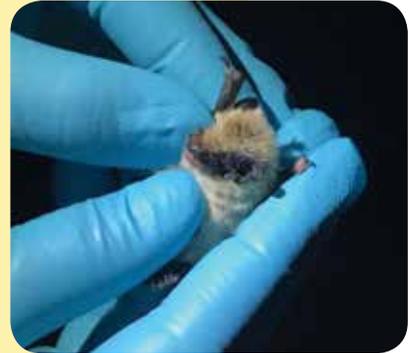
The person that caught the bat would then measure wingspan, find how old the bat was, the gender and species, and check for white nose syndrome.

The bat we saw them catch was an adult female of the smallest bat species in the Grand Canyon (there are 22 bat species in the Canyon). This particular bat had a tick that they needed to remove.

When we were there they only caught one bat because the wind was blowing; the bats could avoid getting caught because they pinpointed the moving net using echolocation. The expert gave the bat help lifting off by tossing it into the air. The bigger the bat, the higher they have to throw it.



Natacha Ross, 11, and Gabrielle Ross, 13, are students at The Brearley School in New York City. They completed a backpacking trip in the Grand Canyon in August 2018. This article is part of the requirements needed to complete their Junior Ranger badges at Indian Garden. Grand Canyon National Park backcountry rangers Jacob Tung and Brendan Oates ("Boats") helped to provide information for the article.



*Photos by Gabrielle Ross*

**MORE INFORMATION  
CAN BE FOUND AT**

<https://www.nps.gov/grca/learn/nature/current-bat-research.htm>

# MOVE, REMOVE

## CLIMATE CHANGE ADAPTATION OF CULTURAL RESOURCES AT CAPE LOOKOUT

By Allie McCreary

# OR ELEVATE?

The National Park Service is in charge of culturally significant resources within their jurisdiction. NPS Policy Memo 14-02 recommends that managers prioritize adaptation based on cultural resources' vulnerability and significance. The NPS Climate Change Response Program provides guidance on adaptation strategies.

The questions are: How do managers determine the most vulnerable and significant resources? How do they select the most appropriate adaptation techniques?

Partially, these decisions are made in collaboration with members of the public who hold a vested interest in, or connection to, the cultural resources.

A recent pilot project on Cape Lookout National Seashore included multiple stakeholder inquiries designed to assess how visitors, community members, NPS partners and experts in the field of cultural resource management perceive adaptation of historic structures located on Cape Lookout National Seashore.

On-site visitor interviews, phone interviews with former community members, and online questionnaires for members of Cape Lookout partner organizations and cultural resource management experts, were used to gather data on the topic between fall 2015 and spring 2017.

### Study participants were asked to consider Cape Lookout historic buildings and report their:

- Place connections and cultural resource values
- Preferred adaptation strategies
- Preservation priorities for the cultural resources collectively

## PLACE MEANINGS AND VALUES

Place connections, or place meanings, are the relationships individuals have with geographic locations, specific structures or

components of the landscape. Both instrumental values (appreciating a landscape for providing water) and intangible values (the ability of a place to bring together a certain social group) can create attachments and a sense of place.

### In the Cape Lookout study:

- Former community members reported the strongest place meanings, with meanings centered on intangible connections such as ancestry and family, and spirituality and recharging related to growing up near the sea.
- Partner organization representatives reported moderate place connections.
- Visitors reported the weakest connections. For them, place meanings were related to the site's national significance and the uniqueness of specific structures.
- Experts were not asked to report their place connections.

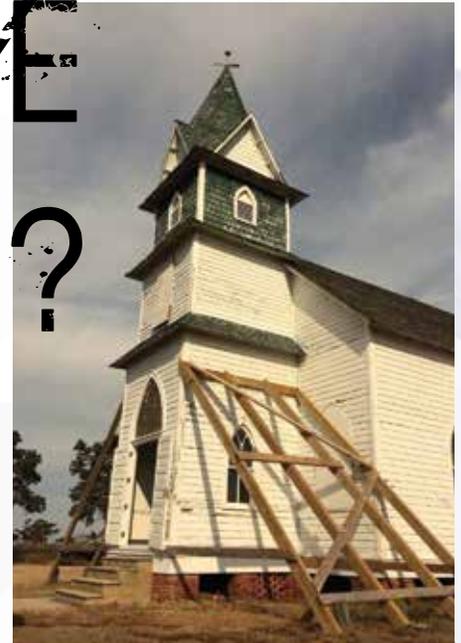
## GROUP PREFERENCES

The study identified different preferences among the groups for managing the impacts of climate change on cultural resources.

Community members most preferred short-term adaptation strategies such as improving structural integrity and documenting buildings for interpretive opportunities. They said allowing culturally related structures to succumb to the forces of nature would not necessarily negatively impact their intangible connections to the site.

Conversely, visitors and partners reported that the removal/deterioration of structures from Cape Lookout was likely to negatively impact their connections to the site.

Visitors most preferred elevating buildings and keeping them in place for future visits.



Portsmouth Village church with reinforcements, Cape Lookout National Seashore

Photo courtesy of Erin Seekamp

Partners preferred managing changes and improving structures' resilience while concurrently developing interpretive materials of the changes cultural resources were undergoing.

Experts most preferred strategies such as documenting and releasing buildings that were highly vulnerable and certain to be impacted by climate change, or, leaving things as they are for buildings with low vulnerability and less certainty of impact.

Visitors, partners and experts all agreed that, in terms of priorities for preservation, historic value should guide adaptation efforts.

Community members were not asked how they would prioritize structures for adaptation.

While partners and experts reported that national importance and scientific value should direct prioritization of cultural resources, visitors were keen to select specific structures for prioritization. Visitors selected the lighthouse and keeper's quarters – iconic components of the Cape Lookout cultural landscape – for prioritization of climate change adaptation efforts.

Experts agreed that buildings that play a central role in the cultural history of the island, such as those selected by visitors, should be prioritized.

For more information on this project please contact [allie.mccreary@wku.edu](mailto:allie.mccreary@wku.edu) or consult these resources:

- “Stakeholder Sentiments about Adaptation Strategies for Historic Buildings at Cape Lookout National Seashore” <http://www.georgewright.org/1720seekamp.pdf>
- **Visitor Survey Report:** <http://www.lib.ncsu.edu/resolver/1840.20/35223>
- **Cultural Resource Management and Historic Preservation Experts Survey Results:** <http://www.lib.ncsu.edu/resolver/1840.20/35224>
- **Partner Organizations’ Members Survey:** <http://www.lib.ncsu.edu/resolver/1840.20/35225>
- **Community Member Interviews Report:** <https://repository.lib.ncsu.edu/handle/1840.20/34902>

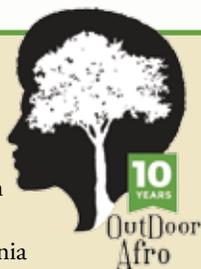
Stakeholder studies allow managers to make more informed decisions based on the preferences of those they serve and collaborate with, and the scientists studying the issues they manage. Documenting multiple stakeholder opinions also allows managers to better communicate their management decisions, which could enhance the public acceptability of selected adaptation strategies.

Comprehensive assessments can also help identify knowledge gaps and new innovations that may enhance the preservation of NPS cultural resources as climate change exacerbates these aging assets.

## Outdoor Afro

held its Fifth annual Leadership Training at the National Conservation Training Center in Shepherdstown, West Virginia in April. The trainings provide an opportunity for 85 Outdoor Afro volunteer leaders from 30 states to connect, share experiences and prepare more than 35,000 people to reconnect with nature all over the country. You can find @OutdoorAfro on Facebook and a video at <http://outdoorafro.com/outdoor-afro-leadership-training-video>.

CEO Rue Mapp talked about the organization and members in the national parks on [www.NRDC.org](http://www.NRDC.org).



Allie McCreary is an assistant professor in the School of Kinesiology, Recreation & Sport at Western Kentucky University. Her research explores the challenges park and recreation managers face, such as adapting to changing climatic conditions, effectively utilizing partnerships to deliver programs and services, and understanding what influences recreationists’ outdoor experiences and relationship with nature. She presented findings from the study summarized in this article at Ranger Rendezvous in Bowling Green, Kentucky, in 2018.

Acknowledgements: Erin Seekamp, associate professor, and students Malorey Henderson and Karly Bitsura from North Carolina State University. Janet Cakir and Cat Hawkins-Hoffmann from the NPS Climate Response Program. Pat Keeney and Jeri DeYoung from Cape Lookout National Seashore. Friends of Portsmouth Island. Core Sound Waterfowl Museum & Heritage Center. Cape Lookout visitors, former community members and cultural resource management experts who contributed to the study.

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# Quiz

## ANSWERS

- 1 Dennis Martin disappeared from a Great Smoky Mountains campground on Father's Day weekend. At least 1,400 searchers were involved. No clue has been found.
- 2 Eight people, including the pilot, were killed at Lake Clark. Six were from the Alaska Task Force and were preparing for the area to be admitted to the National Park System, which occurred in 1978.
- 3 Paul Fugate, 42, vanished after leaving the Chiricahua visitor center. In 2018, the investigation was re-activated with a \$60,000 reward. Also in 2018, bones of an unknown individual were found at the park and are being evaluated.
- 4 At the time, the 2,460-foot rappel off the nose of El Capitan set a world record. Vertical caving enthusiasts used a 4,000-foot-long static-line (non-stretch) rope developed by Pigeon Mountain Industries. The record lasted for one year.
- 5 Hoover, 29, was directed by President Calvin Coolidge to oversee the investigation at Glacier National Park and to report to the president periodically. No clue has been found.
- 6 A TWA four-engine "Super Connie" with 70 people on board and a United Airline DC-7 with 58 people collided over the Grand Canyon. Both had taken off within minutes of each other from Los Angeles and both had diverted from their flight plan to let passengers see the world wonder. Victims are buried in Flagstaff and the park cemetery.
- 7 Before Wilbur was appointed Secretary of the Interior by President Herbert Hoover, he was president of Stanford University and the American Medical Association. He was responsible for renaming Boulder Dam as Hoover Dam.
- 8 On March 31, 1991, Emily Davis Mobley, 40, was on a scientific exploration of Lechuguilla Cave within Carlsbad Caverns National Park. Lechuguilla is arguably the most beautiful cave in the world. About 1,000 feet below the surface, Mobley's lower leg was broken after a rock fell on it. It took 173 people 91 hours to rescue her.
- 9 Set in fictitious Sierra National Park, NBC's 11-episode series dramatized the work of NPS rangers. The technical advisor was former Yosemite Chief Ranger Jack Morehead. Despite being filmed largely in Yosemite, it was short-lived due to poor ratings and being up against The Waltons.
- 10 Floyd Collins became almost a household name in 1925 after being trapped by a 26-pound rock and dying in soon-to-be Mammoth Cave National Park. He was stuck in a coffin-sized tunnel for 17 days. The Associated Press voted this rescue effort as the third biggest news story between the two world wars.



## GET YOUR PARK SWAG

[www.parksproject.us](http://www.parksproject.us)

sells national park themed apparel, posters, greeting cards and other items and promotes volunteerism in the national parks. You can find updates about all of the projects and visitors the program supports by perusing the website.

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not an NPS employee or representative of another organization

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### 9th World Ranger Congress SAURAHA, NEPAL | NOV. 11-17

The 9th World Ranger Congress will be held in the village of Sauraha, on the border of Chitwan National Park in Nepal. Visit [internationalrangers.org](http://internationalrangers.org) for information or contact Rebecca Harriett at [rlharriett@gmail.com](mailto:rlharriett@gmail.com) if you'd like to know the benefits of attending a Congress.



## Ranger Rendezvous 42

EVERETT, WASHINGTON | OCT. 16-20

Ranger Rendezvous 42 is heading to Everett, Washington this fall! Located just 30 minutes north of Seattle, Everett's public transit options are second to none. Your help and support for this event are both needed and greatly appreciated. If you can assist in any way, contact Chris Reinhardt at [anprbusinessmanager@gmail.com](mailto:anprbusinessmanager@gmail.com).

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