U.S. Fish & Wildlife Service Spring 2017

Fish & Wildlife *News*

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SPOTLIGHT

Why I Conserve 10
Stories from Service staff

Unique Partnership / 24

Restore & Protect / 26

what's inside

features

spotlight

Why I Conserve 10

We asked staff why the Service's mission is important to them. Read their stories.

The Path That Chose Me / 11

Susan Jewell conserves to restore harmony within the environment

Lifelong Love / 13

Days spent outside chasing butterflies started Kate Miyamoto on the path of conservation; now she helps engage others

Nothing Better / 15

Biologist Michael Glenn inspires a 'Sense of Wonder' in children living in southern California's urban environment

Impressionism & Native Trout / 17

A trip to a mountain stream as a boy keeps Craig Springer working for native species

For You & for Me / 19

College student Elizabeth Braatz finds practicing conservation brings overwhelming benefits

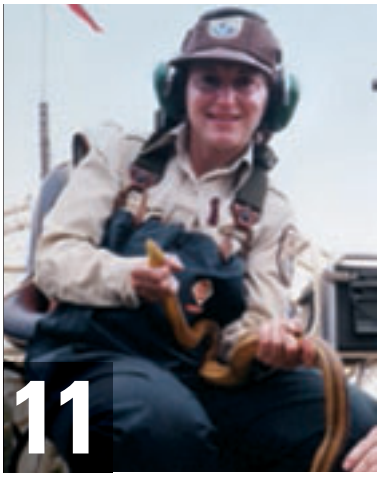
more features

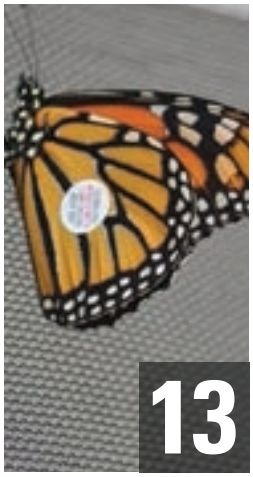
Unique Partnership / 24

Working with the Oregon Zoo, Service is charting an innovative approach to engage our nation's public

Restore & Protect / 26

Oil spill funds help protect shorebird nesting and improve monarch butterfly habitat.





departments

From the Directorate / 1

News / 2

Field Journal / 28

Curator's Corner / 29

Our People / 30

ON THE COVER: SOCKEYE SALMON IN SOUTHCENTRAL, ALASKA. CREDIT: KATRINA LIEBICH/USFWS

Jim Kurth, Acting Director of the U.S. Fish and Wildlife Service

Why I Conserve

Now that I have been sitting at a desk and pushing paper around the headquarters office for 15 years, some might be surprised to learn that I still consider myself first and foremost a conservationist. Although it has been a long time since I was out in the field wearing a uniform and "saving dirt," I connected with conservation early, and I've never looked back.

Going to school at the College of Natural Resources at the University of Wisconsin—Stevens Point, I immersed myself in the land ethic pioneered by Aldo Leopold in nearby Sand County. Leopold taught me the need to recognize our intertwined relationship with the natural world and tend that relationship with great care. And so I enthusiastically embarked on my career in conservation as a steward of wildlife and the wild land and waters.

This calling has taken me all across the nation, from my first U.S. Fish and Wildlife Service job at Mississippi SandhiIl Crane National Wildlife Refuge in 1979 to Arctic National Wildlife Refuge in Alaska to my stints in Washington, DC, and many places in between.

At each one of those stops, I've taken something unique away that further cemented my connection with nature, sometimes in unexpected ways.

At Arctic Refuge I saw the hawk owl. In a way, it became my very own hawk owl.

I was exploring the refuge's Firth River Valley with a few colleagues, enjoying the peaceful nature of the place. The bird flew low along the horizon to the south. Someone quickly identified it as a hawk owl, and I recalled a biological survey of the Firth conducted some 15 years earlier.

The survey recorded a hawk owl nesting in nearly the exact location we were exploring. I wondered if the hawk owl soaring above us was the grandson or great-granddaughter of that bird.

Had this bird's ancestors seen the first humans, or the scimitar cat and the short–faced bear? Did they hear the thunder of the mastodon? And I thought about my descendants, and whether they'll be lucky enough to see a hawk owl if they visit the Firth generations from now.

My hawk owl captivated me and connected me to the past and future of nature.

So did a clutch of mallard eggs.

My first trip to the field after moving to Service Headquarters in 1999 was to Windom Wetland Management District in Minnesota. It was a beautiful spring day at Windom, full of songs of meadowlarks, bobolinks and red–winged blackbirds. I joined refuge staff and walked across a waterfowl production area, when a hen mallard flushed a few feet ahead of us. One of our group gently pulled back some of the grasses, and there it was—the nest with the eggs.

I remember feeling incredibly happy and proud. Those eggs were a reminder of the past—we successfully worked to protect wetlands in the Prairie Pothole Region for waterfowl. But they also reminded me of an uncertain future. With new and accelerating old threats, it's hard to envision what the Prairie Pothole Region will look like a hundred years from now.

Working to secure a better future for wildlife in the Pothole Region and across North America is why I conserve and am still excited to come to work every day for the Fish and Wildlife Service.

Every Service employee has similar touchstones that have shaped their career and outlook on life. For Craig Springer in our Southwest Region, it's native trout. Kate Miyamoto in our Mountain-Prairie Region chased butterflies as a child in Texas and now hopes to give the next generation the same spark butterflies gave her. You can read these and other compelling stories about why we do what we do in this issue of *Fish & Wildlife News*.

We have incredibly challenging jobs (even me!), but we are also truly lucky. We get to "play in the dirt," to experience the blessings that nature offers, some of us on a daily basis. Even when others of us are cooped up in meetings, we can take some solace knowing that we are still conserving the nature of America.

Thank you for all you do.

Americans Call Nature Very Important, But Many Don't Take Advantage of It

More than half of American adults say they spend just five hours or less in nature each week, a study out in late April says, adding that children are spending 6.6 hours a week outdoors on average.

At the same time, "Americans of all types report that exposure to nature promoted their physical, psychological, and social well-being," according to the study.

This "interest-action gap" is a key finding of the *Nature of Americans National Report: Disconnection and Recommendations for Reconnection*, which presents findings from an unprecedented study commissioned and released by the Service and other conservation partners that surveyed nearly 12,000 adults, children and parents across the nation in 2015-2016.

Time, money, access and safety are among the reasons the study gives as to why it has become increasingly normal to spend so little time outside.

Richard Louv, author of *Last Child in the Woods* and chairman emeritus of the Children & Nature Network, summed it up by saying that the study "illuminates both the longing for and barriers to the natural world."

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A family enjoys a hike at Sabine National Wildlife Refuge in Louisiana.

> *"...to encourage people to think of nature activities as social experiences..."*

The report goes beyond just pointing out this gap and the hurdles disconnecting Americans from nature. It offers 22 recommendations to help connect all Americans with nature.

One is to encourage people to think of nature activities as social experiences, which can lead to the most memorable moments. An added benefit: Being in a group can ease the concerns of people who are wary of the outdoors.

"This study will be of great importance to us as we look for ways to best engage Americans of all backgrounds in nature, wildlife conservation and their public lands," says Jim Kurth, Acting Director of the Service. "It's our job not only to help friends and families connect their passion for the outdoors with their great National Wildlife Refuge System heritage, but also to ensure that this unparalleled American legacy of public lands stewardship for the benefit of all continues long into the future." □

? MORE INFORMATION

More information and reports are available at <NatureofAmericans.org.>

Bison Return to Wind River Reservation

As of November 2, the Eastern Shoshone Tribe had restored six of the seven ungulates found in the area of Wind River Reservation in Wyoming before the arrival of Lewis and Clark: moose, whitetail and mule deer, elk, pronghorn and bighorn sheep. On November 3, came No. 7: bison, a result of a partnership among the Service, the National Wildlife Federation (NWF) and the Eastern Shoshone.

"Recognizing both the ecological significance of buffalo as well as the importance to tribal communities, NWF has partnered with tribes for over 20 years to restore and protect bison," says Garrit Voggesser, NWF's tribal partnerships director.

Pat Hnilicka, project leader of the Lander Fish and Wildlife Conservation Office in Lander, Wyoming, says that one of the jobs that the partners worked on was habitat improvement. They removed about a mile of decrepit barbed-wire fencing that bison could get tangled in. They are also working to restore some irrigated meadows to make them more productive and can support more bison.

Beyond ensuring that the land would be hospitable to bison, the project also needed bison that were of the type that roamed there hundreds of years ago.

The Service's Lee Jones worked to find a herd of bison that not only fit that genetic requirement but also had a sterling reputation for being disease-free.

The disease brucellosis has cost billions in direct expenses and money spent to develop a treatment. Brucellosis infects bison, and Jones says, the disease "is a huge concern in Wyoming."

That led her to Neal Smith National Wildlife Refuge in Iowa. The bison there trace their lineage to the National Bison Range in Montana, and are ecologically appropriate for restoration in the Rocky Mountains. Iowa has also been brucellosis- and tuberculosis-free for many years, Jones says.

So on November 3, 10 bison were released on the reservation.

"While this was a culmination of years of hard work, it was a new beginning, not an ending. We plan to release more this coming fall," Voggesser says. "We hope to have hundreds of buffalo on thousands of acres in the next few years."

With those 10 bison, they are starting a new herd, which is not easy, Jones says. "It is an incredible step they took, absolutely incredible."

The day of the release was equally incredible.

"'This is the best day of my life bringing the bison here,'" Jones remembers a bystander telling her.

This project is "a career highlight," Hnilicka says.

"Today, boy-shan bi-den—buffalo return in the Shoshone language—has become a reality," says Jason Baldes, bison representative for the Eastern Shoshone Tribe. "This restoration effort, 40 years in the making, returns buffalo to our lands, our culture, our community and generations to come."

Note: While bison and buffalo are used interchangeably, the name for the North American animal is bison. □

PAT HNILICKA/USFWS

(Left) Dan Dewey and a Service crew remove more than a mile of decrepit barbed-wire fence, a potential hazard to bison, within the pasture on the Wind River Reservation. (Below) People watch the release of the bison.

PAT HNILICKA/USFWS

Parasitologists' Love Story

They found each other in life, and now their parasite namesakes have found each other, too.

Dr. Becky Lasee, retired project leader of the Service's La Crosse Fish Health Center, was recently honored by Eric Leis, a former student and colleague, with a new parasite named in her honor. *Henneguya laseeae* was discovered and characterized by researchers from La Crosse and Mississippi State University. While learning about the new parasite, a remarkable discovery was made. Nestled close to *H. laseeae* on the parasite's family tree was *Henneguya sutherlandi*, named for Dr. Daniel Sutherland, Lasee's late husband.

"I was overwhelmed when Eric told me the *Henneguya* parasites were closely aligned. The trained biologist in me would attribute this to coincidence, but the love, admiration and respect I have for my husband, Dan, led me to believe that it is more likely destiny."

Dr. Lasee and Dr. Sutherland are known in the fish health community for sharing their love and enthusiasm for parasites with students and colleagues. Their top priority was to transfer knowledge and an understanding of the amazing biology that can be observed in parasites. Sutherland's personable lecture style captivated the classroom, as did his knack for engaging students through humorous anecdotes. Lasee's style of instructing others in parasitology was one of absolute kindness »

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Dr. Becky Lasee works with a youngster sampling collecting fish health samples from bluegill.

and patience. The care she conveyed while working with her students on sometimes tedious tasks, such as using taxonomic keys to identify parasites, left a lasting impression on many.

"I couldn't believe that these accomplished scientists would give me the time of day, but they both took the time to interview me for graduate school," says former student and La Crosse fish biologist Jennifer Bailey. "They were so kind and so funny."

The *Henneguya* parasites continue to fascinate scientists with intriguing infections and a truly amazing level of species diversity.

Dr. Lasee stood out for her knowledge and for the way that she made her students and employees feel appreciated. Out of deep respect, her former students and colleagues are proud she is immortalized with the naming of *Henneguya laseeae*, and pleased to find it so close to *Henneguya sutherlandi*.

In the world of humans and in the world of parasites, some things are meant to be. □

ERIC LEIS, La Crosse Fish Health Center, Midwest Region

Rare Butterfly Reintroduced on San Diego National Wildlife Refuge

The recovery of an endangered butterfly in southern San Diego made history last year and is seeing early success.

A team of biologists from San Diego Zoo Global, the Service, San Diego State University and the Conservation Biology Institute released 742 larvae of the endangered Quino checkerspot butterfly onto San Diego National Wildlife Refuge last December, the first release of captive-reared Quino larvae.

In January, 771 more larvae were released, bringing the total to 1,513.

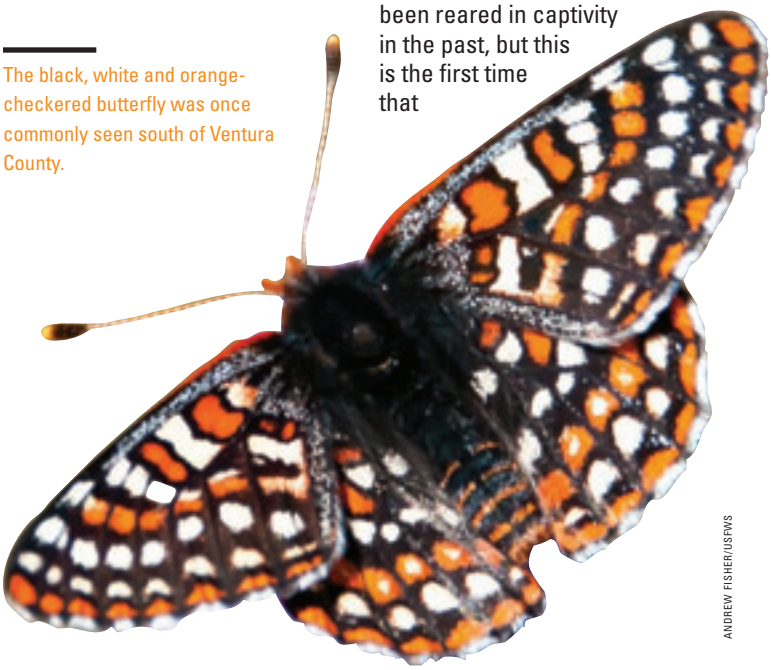
The Quino population drastically declined over the last decade, and losing the native pollinator could hurt the coastal sage scrub ecosystems around San Diego.

"This is the first time we've attempted to release Quino checkerspot butterfly larvae here, and we expect to learn a lot from our work here," says biologist John Martin of San Diego Refuge. "It's important to help the Quino maintain its distribution, and we hope they will thrive here and disperse to nearby suitable areas of the refuge."

To save the butterfly, the team raised larvae in captivity in the San Diego Zoo's Butterfly Conservation Lab, where zoo entomologists cared for the eggs, larvae and adults. The lab is funded by a Service Cooperative Recovery Initiative grant, which supports projects to help recover some of the nation's most at-risk species on or near national wildlife refuges, and mitigation funds from CalTrans. The long-term goal of the grant is to help the Quino checkerspot butterfly's population recover sufficiently to downlist it from the endangered species list.

"Quino checkerspots have been reared in captivity in the past, but this is the first time that

The black, white and orange-checkered butterfly was once commonly seen south of Ventura County.



ANDREW FISHER/USFWS

LISA COX/USFWS

Refuge manager Jill Terp and zoo keeper Brandon Rowley prepare protective pods for the larvae's arrival onto the refuge.

captive-reared Quino have been returned to the wild to augment wild populations," Martin says.

A member of the brushfoot family, the black, white and orange-checkered 1-inch-long butterfly was once commonly seen south of Ventura County, ranging to the inland valleys south of the Tehachapi Mountains and into northern Baja California. The last time Martin spotted one on San Diego Refuge before this spring was in 2012.

The butterfly's rarity presented a challenge: how to capture enough butterflies to start the breeding program.

Since the Quino's population was too low to gather adult butterflies from San Diego County, biologists collected them from the Riverside population, about 60 miles northeast of San Diego.

"The genetic work we've done indicates that Quino populations throughout their entire range are basically the same," says Susan Wynn, a biologist with the Service's Carlsbad Fish and Wildlife Office. "Although these populations are widely separated geographically, they are genetically similar and should have similar biological needs. So we think they should do quite well."

In recent years, the species' drastic decline was primarily due to the loss of its habitat from increased urban development. Climate change, drought, pollution, invasive plants and fire pose additional threats to the butterfly.

"Humans have had a significant impact on the decline of the Quino checkerspot butterfly," says Paige Howorth, associate curator of invertebrates at San Diego Zoo Global. "But humans are also playing a critical role in their recovery and today's release is an important first step in doing that."

At the zoo last summer, the new larvae from the captured butterflies entered a period of dormancy, called diapause. This is a natural condition that coincides with the lack of availability of their host plant, dwarf plantain. During this time, the larvae retreat into silken webs and cease all activity. The biologists released them to the wild in this condition.

Beginning in February, biologists started checking the pods once a week, looking for signs of success. In early March, Martin counted 20-30 butterflies on the refuge in one day.

It's still early, but not bad for a first try. □

LISA COX, San Diego National Wildlife Refuge Complex, Pacific Southwest Region

Bitter Creek Wildlife Refuge Creates Ideal Habitat for Giant Kangaroo Rat

With more than 14,000 acres of habitat supporting hundreds of animal and plant species, there is no such thing as a "typical day" on Bitter Creek National Wildlife Refuge in California, but some days stand out more than others. That was certainly the case on September 30 when an endangered giant kangaroo rat was discovered in the northwestern portion of the refuge. "It's nice to get the documentation that it's on the refuge," says California State University (CSU), Stanislaus research technician Larry Saslaw. He set the live trap that caught the giant kangaroo rat and thinks Bitter Creek can be the link connecting several neighboring areas that already serve as habitat to the species, thereby broadening its range.

The presence of giant kangaroo rats and other small mammals on the refuge indicates a healthy ecosystem. The northwestern portion of the refuge borders Carrizo Plain National Monument (managed by the Bureau of Land Management), and it is not uncommon for species from Carrizo Plain to cross into Bitter Creek. There are occasional sightings of San Joaquin kit fox and pronghorn, but the September capture of the giant kangaroo rat marks the first sighting of the species on Bitter Creek.

"I think it's important because it demonstrates that our goals for Bitter Creek are achievable," says Michael Brady, project leader for Hopper Mountain National Wildlife Refuge Complex, which manages Bitter Creek. »

Habitat improvements on Bitter Creek National Wildlife Refuge have led to the first capture of a giant kangaroo rat.

LARRY SASLAW/ CSU STANISLAUS

The refuge undertook habitat enhancements that target giant kangaroo rat and San Joaquin kit fox populations—providing an area outside Carrizo Plain that offers suitable habitat. "We're very proud of the work that we've done…and the partnerships we've developed," Brady says. "We're looking to do more for these species in the future."

Saslaw is a member of CSU Stanislaus' Endangered Species Recovery Program. Bitter Creek established a partnership with the university three years ago to enhance the refuge's small mammal monitoring efforts. The Endangered Species Recovery Program helped Bitter Creek set up their monitoring program and is actively working with staff to build capacity. According to the Service's Pacific Southwest Regional Director, Paul Souza: "This collaboration demonstrates the power of conservation partnerships—which are a priority for the Service. Both of our programs are benefitting from the close coordination and our shared goal to ensure threatened and endangered species have suitable habitat where they can thrive."

Another critical partnership is with Eureka Livestock, LLC. Nick Etcheverry is a partner in the family-owned business, and he has worked closely with Bitter Creek for three years as his organic natural/grass-fed SimAngus cattle have been grazing designated portions of the refuge. Both the San Joaquin kit fox and the giant kangaroo rat prefer grasslands with low vegetation. Bitter Creek has used managed grazing as a tool to create the ideal habitat for these species, a win for Etcheverry and the endangered species.

"My dad and I were very excited when we heard about the sighting of the giant kangaroo rat on the fields that we had grazed last season. We know that all the work that the refuge has put in, the work that we put in, it actually paid off. We've been grazing on endangered species habitat for the last 40 years. We do care about it — it's not just all for us and the benefit of my cows. I want the elk and kit fox and kangaroo rat, I want everybody out there," says Etcheverry. "Working with Bitter Creek, we both have the same goals, we want to promote endangered species habitat along with good habitat where more species of plants can grow."

Well-managed grazing promotes plant species diversity that will increase over time. According to Etcheverry, in the years to come, this diversity will be even more beneficial to his grazing cattle.

The giant kangaroo rat is a keystone species of the desert ecosystem. Its burrows serve as home to federally protected blunt-nosed leopard lizards and other species, and it is prey for larger animals, such as the San Joaquin kit fox.

"We're looking for evidence to determine whether or not the species has colonized the refuge yet and made it a permanent home," Brady says. While there have not been any sightings since September, he seems confident that both the giant kangaroo rat and San Joaquin kit fox will either become regular visitors or full-time Bitter Creek residents in the near future. □

VERONICA DAVISON, Sacramento Fish & Wildlife Office, Pacific Southwest Region

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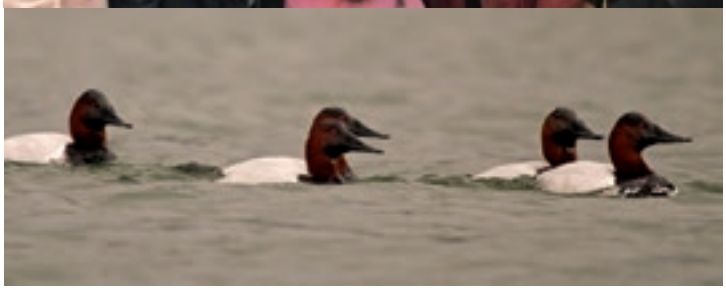

PETER PEARSALL/USFWS

Canvasback Connects 'Sister Refuges' in Alaska, California

(Top) Julie Mahler shows off some Yukon Flats attire. (Bottom)The canvasback is the largest diving duck in North America.

At first glance, an urban national wildlife refuge on the coast of California and a remote refuge in the interior of Alaska don't seem to have much in common. Take a closer look and the connections become clear and important.

The striking and regal canvasback, the largest diving duck in North America, is the primary species that connects Yukon Flats National Wildlife Refuge in Alaska to San Pablo Bay National Wildlife Refuge in California. In the 1950s and '60s, biologists banded thousands of ducks on what is now Yukon Flats Refuge. Of these banded ducks, 313 canvasbacks were harvested and recovered—and 89 of those were returned by hunters in the San Francisco Bay area.

So when staff at Yukon Flats sought to establish a "sister refuge" relationship with a Lower 48 refuge—a relationship based on a shared resource—the Alaskans followed the canvasbacks to San Pablo Bay Refuge in San Francisco's North Bay. This pairing of refuges provides an opportunity to educate residents in the Bay Area and the Yukon River Basin about how wildlife refuges function together as a national network of lands despite their apparent differences and the great distances that separate them.

Arctic National Wildlife Refuge in Alaska has a sister refuge relationship with Tualatin National Wildlife Refuge in Oregon, which gets more visitors on a busy afternoon than Arctic Refuge gets in a year.

In February, three Yukon Flats Refuge employees "migrated" to the canvasbacks' wintering habitats in the North Bay with a simple goal: to reach a new audience with knowledge that Yukon Flats Refuge exists. Although a seemingly basic message, most people are unaware of this hidden and vitally important conservation gem in Alaska.

Presentations to Bay Area classrooms, refuge staff and Friends group members, and attendees of the 21st annual San Francisco Bay Flyway Festival showed how integral Yukon Flats Refuge is to the waterfowl flyways as well as to the Alaska residents who subsist on the refuge's resources.

Julie Mahler, refuge information technician at Yukon Flats, has spent her entire life in the Yukon River Basin. She captivated audiences young and old with stories about raising her family while living off the abundant, but challenging, resources in the wilds of Alaska. Bay Area residents could only imagine the isolation and self-reliance that are the reality of living in such a remote place. A home without electricity or running water, a town without a grocery store or gas station—not to mention the nearest neighbor a three-day boat ride away! Mahler also brought examples of her homemade handicrafts to demonstrate her and her family's reliance on the Yukon Flats resources: a hat made of lynx fur, boots sewn from caribou and moose hides, and mittens she lined with beaver fur.

"With Yukon Flats taking such initiative and San Pablo Bay able to host their visit made a brilliant way to help a population understand a way of life unlike anything they know" says Don Brubaker, manager of San Pablo Bay Refuge. "People gasped and felt sorry for the creatures relieved of their furs, yet when they hear that a run to a store can be a 10-day round-trip, they begin to understand the animal is a clothiers and deli all in one!"

Through the presentations, Bay Area residents gained a better understanding about this treasured place in the heart of Alaska. Even today in modern America, wild and unaltered landscapes such as Yukon Flats still remain for the American public to enjoy. □

HEATHER BARTLETT, Yukon Flats National Wildlife Refuge, Alaska Region

'Livers of the Rivers': Proactive Stakeholder Collaboration Aims to Benefit Freshwater Mussels in Texas

Freshwater mussels may lack charisma, as they look like nothing more than rocks. But that belies the natural wonders of their life history and their incredibly important role in the ecology of streams, and the people and economies that rely on them. Work getting underway in Texas holds promise for mussels in most need, including four freshwater mussel species unique to Central Texas now being considered for protection under the Endangered Species Act (ESA): the false spike, Texas fatmucket, Texas fawnsfoot and the Texas pimpleback.

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Mussels help keep water clean.

Mussels Matter

Freshwater mussels spend almost their entire adult life buried in one spot in the sediment at the bottom of lakes and streams. They eat by siphoning water, and filtering algae, plankton and other minute materials. These "livers of the rivers" purify water but are susceptible to changes in water quality and quantity.

Although their lives may seem boring, mussels have a fascinating lifecycle. Male mussels release sperm into the water, and nearby females siphon the sperm from the water, fertilizing eggs. These hatch into larvae known as glochidia that must latch onto fish as parasites to transform into adults. Pregnant females lure unsuspecting fish by putting their flesh outside their shells in a way that mimics prey. Would-be predators get close and are blasted with glochidia that attach to a fish's gills and eat blood for a few weeks while they metamorphose into true juvenile mussels. Once this metamorphosis is complete, they drop from their fish host into, with luck, suitable habitat to begin filter feeding. Some mussels require very specific host-fish species, and without their presence, the mussels may fail to produce offspring to the juvenile stage.

Central Texas Mussels

Traveling over the expanse of Texas, east to west, there's a natural decline in the abundance and number of species that is related to rainfall. Humid East Texas is rich in mussel species. The arid West Texas has far fewer, including the Texas hornshell, which was recently proposed for ESA protection and occupies only 15 percent of its historic U.S. range. Central Texas has its four unique species partially because of a distinctive underlying porous limestone geology and the waters that percolate from below and into the Brazos, Colorado and Guadalupe river basins.

Mussels everywhere face similar threats: habitat loss from land use changes, forest cover removal with subsequent sedimentation and impoundments. The false spike, Texas fatmucket, Texas fawnsfoot and the Texas pimpleback are no different. They require clean, reliable flowing water over a stable stream bottom. Consequently, impoundments hurt mussel populations by limiting their ranges and their ability to survive in these waterways. »

Collaborative Efforts
Texas waters are the life blood of the Texas economy and provide water for municipal, agricultural, industrial, recreation and conservation purposes. They also provide habitat for more than 50 of the 300 known species of freshwater mussels that inhabit North America. The Service recognizes the need for stakeholder input into the conservation of the mussels. "We view this process as an opportunity to have discussions about the science needs and the voluntary conservation activities that can sustain and improve water quality and aquatic habitats upon which mussels depend," says Dr. Benjamin Tuggle, the Service's Southwest Regional Director.

Tuggle applauds Texas' mussel research program and a stakeholder process to be led by the Texas Comptroller's office that affords the opportunity to voluntarily conserve mussels and their habitats. "This effort represents a great opportunity to identify conservation needs and balance those needs with water demands," he adds.

Voluntary conservation efforts have paid off in Texas before. In West Texas, stakeholders implemented a conservation plan for the dunes sagebrush lizard that kept it off the endangered species list. And Georgetown, Texas, passed an ordinance to protect water quality for the Georgetown salamander that ultimately led to its listing as threatened rather than endangered.

"There is real, palpable, positive energy surrounding this effort," says Texas Comptroller Glenn Hegar. "Having grown up on land my family has farmed for six generations, I understand the importance of both protecting our natural resources and providing sustainable economic opportunity for our children and grandchildren. After meeting with stakeholders and visiting with Dr. Tuggle, I am confident that we can find collaborative solutions that strike that balance." □

ADAM ZERRENNER, Austin Ecological Services Field Office, Southwest Region

Mussels need clean, reliable flowing water over a stable stream bottom.

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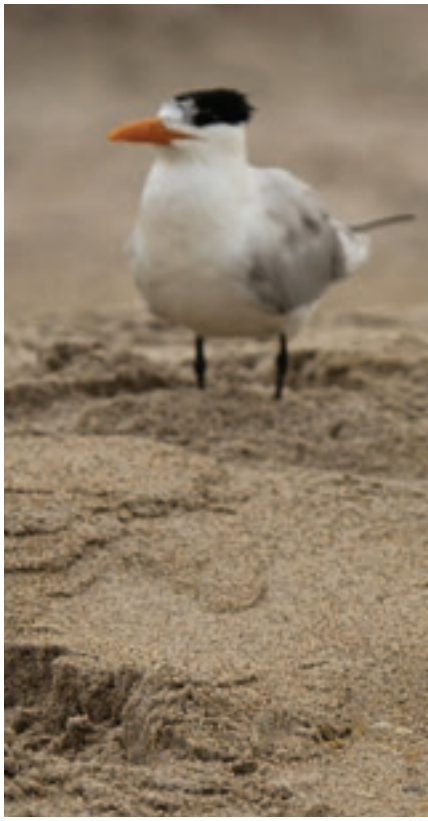
Silver Lining: Gulf of Mexico Avian Monitoring Network

Many people were upset as they watched the unfolding devastation of wildlife and habitat caused by the 2010 Deepwater Horizon oil spill in the Gulf of Mexico. Some were also troubled by the realization that there weren't adequate baseline data on the birds of the Gulf to assist decision-makers responding to the crisis.

"There were bird data, but the bird data were limited and very disjointed," says the Service's Randy Wilson. His colleague, Jeff Gleason, agrees: "Outside of the Deepwater Horizon Natural Resource Damage Assessment effort, there was no standardization. Monitoring efforts had been site-specific and short-term."

"The spill highlighted our need to do a better job monitoring," Wilson says. "It was the impetus for us to come together as a group."

Approximately 20 conservation professionals began to address the situation in November 2013. The group, now known as the Gulf of Mexico Avian Monitoring Network (GOMAMN), has grown to include more than 100 individuals from state and federal agencies, nongovernmental organizations, academic institutions and partnerships. Wilson and Gleason lead the network's coordination committee.



GOMAMN provides a forum for conservation partners to collaboratively identify gaps in data, share information, advance standardization, and combine resources and expertise. The common goal is a comprehensive, coordinated, integrated, scientifically rigorous Gulf-wide bird monitoring program. Without such a monitoring program, it is difficult to gauge the effectiveness of management and restoration efforts.

"The goal is to learn what bird populations are doing in and around the Gulf," says John Tirpak, the Science Coordinator for the Service's Gulf Restoration Team and GOMAMN member. "Because the better you understand them, the better you can restore them."

RYAN HAGERTY/USFWS

Royal terns.

The members of GOMAMN are working toward answering the fundamental questions: the "what, where, when and how" of monitoring birds in the Gulf. Wilson says that although there's still work to be done, GOMAMN is helping develop monitoring projects to better assess restoration projects. "So the network's products are already influencing restoration on the ground," he adds.

For instance, the Seabird Surveys being implemented under the Gulf of Mexico Marine Assessment Project for Protected Species use GOMAMN models to inform the fundamental project objectives and survey design for seabirds.

When, inevitably, the next crisis hits the Gulf, such as a large oil spill or severe hurricane, GOMAMN will be ready to assist with baseline data and standards that all the parties have already agreed upon. As a result, Tirpak says, "You'll see a coordinated response arrive at faster."

The 2010 oil spill was a disaster of unprecedented proportion, and it's hard to find a positive side to it. Nonetheless, Tirpak says, "We saw an opportunity to bring everyone together, to really talk about what we collectively need, not what we individually need."

NADINE LEAVITT SIAK, Gulf Restoration Team, Southeast Region

Taking Out the Trash at the Edge of the World

In April, the Service, Hawaii and the National Oceanic and Atmospheric Administration (NOAA) removed more than 100,000 pounds of marine debris that had been collecting on the shores of Kure Atoll State Wildlife Sanctuary and Midway Atoll National Wildlife Refuge and Battle of Midway National Memorial within Papahanaumokuakea Marine National Monument.

The mountain of marine debris—12 shipping containers—was collected from the reefs and beaches of Midway and Kure atolls over the last six years and stored on the tarmac at Midway until it could be removed and shipped to Honolulu. Now, through the Nets to Energy Program, it will be processed by Schnitzer Steel Corporation and transported to the City and County of Honolulu's H-POWER plant, where it is incinerated to produce electricity.

Marine debris is a potentially lethal entanglement and ingestion hazard for wildlife. Plastic debris and fishing line are often ingested by wildlife and can lead to their starvation and death.

At Midway and Kure atolls, plastics, derelict fishing gear and other marine debris is present in nests along the beach and often consumed by albatross chicks. More than five tons of plastics end up on Midway Atoll each year because adult albatrosses feed their chicks plastics they forage in the ocean, mistaken for food. Plastics break down into smaller pieces but never go away, affecting all levels of the ocean ecosystem.

NOAA

Each year the Service works with the state of Hawaii, NOAA and volunteers to collect tons of marine debris from the atolls and throughout Papahanaumokuakea Marine National Monument.

"Marine debris is not something you can clean up just once; it takes a sustained effort over time," says the Service's Matt Brown. "By working with the state of Hawaii, Office of Hawaiian Affairs and NOAA, we can accomplish more than any one agency on its own to clean up marine debris and educate the public to prevent it from entering the ecosystem."

Each year the three partners and volunteers collect tons of marine debris from the atolls and throughout the monument.

"With the high rate of marine debris accumulation in the Northwestern Hawaiian Islands, removing debris is imperative to ensure the health of this valuable habitat and the species that call it home," says Mark Manuel of NOAA. "We are happy to have the opportunity to work with partners on this important initiative." □

WHY I CONSERVE

Service Staff Share Stories

According to our mission,the U.S. Fish and Wildlife Service "works with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people." // If you come to work for the Service, you become a conservationist (on the off-chance that you weren't already). That's the nature of the job—everyone, whether a writer, IT specialist, administrator or biologist, is working to conserve the wild things and wild places where they live. // We asked some folks why they conserve and got some beautiful answers.

The **Path** That Chose Me

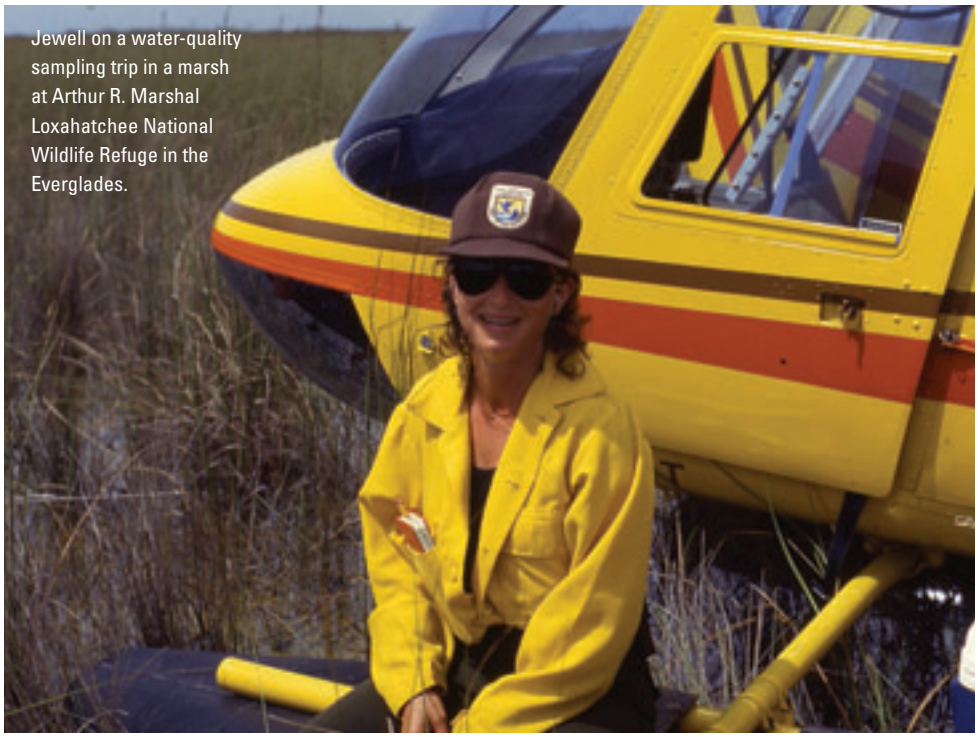
Susan Jewell conserves to restore harmony within the environment

More than a few times I have wondered how I came to be so enamored with the natural world. I grew up in flat, monotonous, suburban New Jersey. Although I probably inherited my penchant for science from my father, a physician, no one in my family had shown such an all-consuming affinity for the outdoors. In the early years, I doubt that my parents or siblings understood my career choice. To them, I was a forest ranger, or more likely, a forest stranger—an enigma—not quite a black sheep, but something more baffling. I was the green sheep of the family.

While coming of age in the 1960s, I saw news stories about water and air pollution, and I learned the connection between people and the natural world by the time I was a teenager. I joined my high school's fledgling ecology class, started recycling at home, went on litter-collecting patrols, and have never let up on conserving natural resources since. My path was laid out for me after high school. I already knew what would give meaning to my life. Off I went to college and graduate school to learn how to take care of the earth.

In my university days, the faculty repeatedly drilled into our heads how demanding the field of wildlife biology would be, both physically and mentally. They were right. Even our curriculum required more credit hours than most other majors, including pre-medical. As budding scientists in the 1970s, we discussed all types of environmental issues, including the emerging news about how greenhouse gases from the release of fossil fuels could be causing the earth to warm.

In addition to the occupation's physical and academic demands, the faculty impressed upon us students that, as wildlife biologists, "You'll never get rich." Those who had enrolled with visions of a romantic career in the wilderness soon found their dreams extinguished. They dropped out, one by one, until only a few die-hards remained.



Jewell on a water-quality sampling trip in a marsh at Arthur R. Marshal Loxahatchee National Wildlife Refuge in the Everglades.

COURTESY OF SUSAN JEWELL/USFWS

We were then delivered into a life of grueling physical labor, shaky employment prospects and general uncertainty about the future.

On the Job

I persevered, not anticipating the dim probability of succeeding as a petite woman in a so-called man's occupation. Now, after early jobs with environmental organizations and the National Park Service and 25 years with the U.S. Fish and Wildlife Service, I don't regret the path that chose me. I have worked in many hazardous field situations, endured chronic injuries and worked long hours to make deadlines. As an endangered species listing biologist, ignoring quitting time could mean protecting a species before it was too late. In my current position, I can write a regulation to designate species as injurious (usually foreign invasive species). Injurious species can't legally be imported, except by permit for certain purposes. That is a truly efficient and effective way of keeping harmful species out of our country and from entering new regions if they ››

are already here, and only the Service has the authority to designate an injurious species.

Far from Trivial

Throughout time, people's lives have been entwined with the land and the natural world. In the past we didn't need to know why herons move their nesting sites around the Everglades or why alligators are smaller in the Everglades than in Louisiana, as long as herons still nested and alligators lived. But in today's world, we do need to know why the herons relocate and why the gators are smaller, to ensure there will always be herons and alligators.

As the senior biologist at Arthur R. Marshal Loxahatchee National Wildlife Refuge in the Everglades, I learned that herons have a keen insight into future water levels, knowing before we do when a marsh will go dry. And the alligators in the Everglades are smaller because of the changes to the food web caused by people draining, diverting and otherwise tampering with the surface water. While these tidbits of information may seem trivial, collecting them represents a tremendous amount of work—long, backbreaking hours in the field, sometimes at a risk to a biologist's life. This is what it takes to find the answers needed to restore harmony within the environment.

Sadly, many people spend their whole lives never comprehending how deeply entwined we all are with the natural world. I am grateful that I do comprehend, and I know that, by working for the Service, one person's actions can help restore the harmony of the environment that is the foundation of all life. □

SUSAN JEWELL, Fish and Aquatic Conservation, Headquarters

For Don MacLean, Conservation Is Just 'the Right Thing to Do'

The Service's Don MacLean firmly believes that conservation "is the right thing to do" but admits he has trouble explaining why.

One of his first jobs out of college was working for a civil engineering firm.

"We were a small group of biologists who helped the engineers do the necessary environmental work prior to land development," he says.

He found it satisfying because, he says, "we shaped a group of non-biologists who never thought of the environment into engineers who actually came to us with environmental concerns."

But, he adds, he wasn't totally happy because at the end of the day, the conservation achieved was just done so the land could be developed.

"I wanted to work in a place where the mission was conservation, not land development. I wanted to work in a place where the people around me were working toward conservation because it was the right thing to do, not because they had to do so."

MacLean has been with Service 22 years as a habitat restoration specialist and later as an invasive species expert.

In explaining his career choice, he says, "To me, at my deepest root level, deep in my psyche, conservation's just the right thing to do for many reasons."

COURTESY OF DON MACLEAN

Don MacLean: "It makes me feel good to know that I am helping conserve our nation's natural resources."

First, as any scientist, he talks science. "Certainly the scientist in me understands the value in natural biodiversity; ecosystems have a certain level of diversity—some are more diverse than others—but that level of natural diversity is inherently healthier."

But it is more than that, he says. "These plants and animals and ecosystems are part of our world, and they should continue to be part of our world." And, he adds, "Who are we to make decisions on which ones should no longer exist?"

From a spiritual perspective, he says, "We should practice conservation because it does our soul some good. It makes me feel good to know that I am helping conserve our nation's natural resources."

The simplest answer to MacLean: "We should conserve our natural resources because they are part of our culture, our art, our history, our recreation, our survival. We should conserve them so that we can continue to enjoy them, watch them, hunt them, fish them, draw them, learn from them and much more." □

MATT TROTT, External Affairs, Headquarters

LIFELONG **LOVE**

Days spent outside chasing butterflies started Kate Miyamoto on the path of conservation; now she helps engage others

Miyamoto's first customer.

USFWS

After 20 minutes of twists and turns on a gravel road, I arrived at a small building and parked next to a wall of grass. My watch read 8:00 a.m., but the sun was barely shining through the thick fog. I stepped out of my car and gazed at the surrounding prairie. Unlike Dorothy in *The Wizard of Oz*, I was definitely in Kansas.

Quivira National Wildlife Refuge in Kansas lies in the heart of the Great Plains, in the center of the continental United States. The refuge is at an ecological crossroads, where eastern tallgrass prairie meets western shortgrass prairie. Its 22,135 acres feature a unique combination of rare inland salt marsh and sand prairie. More than 340 species of birds have been observed at the refuge, thanks to its rich habitat and location.

Monarch Mania

It was early, but people bustled around the Environmental Education Classroom building, the home base for Monarch Mania, an event at the refuge. Two large bins near the entrance of the building overflowed with dozens of butterfly nets.

Inside the small room, a group of people folded paper into butterfly shapes. A large chicken-wire cage filled with green leaves caught my eye. I approached the display and noticed the bright yellow and black stripes of a monarch caterpillar munching on its only food source, milkweed.

More than 100 native milkweed species exist in North America, but pesticide use, agricultural development and mowing along roadways have reduced milkweed across much of the monarch butterfly's range. As a result, monarch populations are in decline. The Service is working with partners and the public to increase milkweed and nectar plants for monarchs across their range.

After a quick tutorial on how to tag monarchs, identify their sex and record important data, I was ready for Monarch Mania.

The monarch butterfly is one of the most recognizable insects and undertakes one of the longest insect migrations in the world. Each fall, the eastern population travels up to 3,000 miles from Canada, through the United States, down to Mexico. During this migration, monarchs travel up to 250 miles per day. The monarch butterfly is an indicator species for pollinator health across the nation. Protecting the monarch and its migration benefits many other North American species, such as grassland birds and other pollinators.

At 9 a.m. the event officially began. I wore a bright orange vest to indicate I was an official monarch butterfly tagger and waited for visitors to bring me monarchs. A smiley, young boy in an orange T-shirt and blue jeans tucked into shark-adorned rain boots was my first customer.

He swung his net within my reach and I gently retrieved the monarch inside. In less than a minute, I recorded the sex of the butterfly and the number of the tag I would place on it, tagged the butterfly with the small round tag, and placed the monarch into the boy's outstretched palm for release back into the wild. His face lit up as the monarch lingered for a ››

USFWS

Miyamoto tallies a monarch.

moment before it fluttered its wings and took off. We watched it fly away and then he walked off, net in hand, to search for another monarch.

The next four hours passed quickly, and I tagged and recorded data for dozens of monarch. The thick fog from the early morning lifted, and by the end of the event at noon, the sun shone brightly.

Every visitor I saw wore a smile, happy for the chance to interact with the celebrated butterfly.

Tagging

People often ask, how do you tag a butterfly? The answer is, carefully! To tag a monarch, the butterfly is caught in a net. Next, you retrieve the monarch from the net by lightly grabbing its closed wings between two fingers. Make sure to hold the monarch's wings at the leading edge, just above its head. The tags are tiny discs of polypropylene that are gently stuck on the monarch's discal cell, a mitten-shaped cell on the underside of the hind wing at the butterfly's center of lift and gravity, so not to impede its flight. Each tag weighs approximately 0.006 g— approximately 1.2 percent of the mass of an average monarch—and has a unique ID code and a phone number that people can call if they find one on a dead butterfly. These recoveries can provide critical information about the species' migration, habitat and population status. Tagging monarchs is a great way for kids and adults to get involved in monarch conservation. More information and how to get involved in this citizen science project is available at <bit.ly/2nrunTc>.

Quivira hosts the family-friendly Monarch Mania event every year to support Monarch Watch, educate the public about monarchs, encourage citizen science and connect kids with nature. Monarch Watch strives to provide the public with information about monarch butterflies, and engages in research on monarch migration biology and population dynamics to better understand how to conserve the monarch and their migration.

USFWS

A tagged monarch.

For the past seven years, Quivira visitor services specialist Barry Jones has run the event.

"This year was the 20th year the refuge has hosted this event," says Jones. "I love seeing visitors' enthusiasm to learn about and interact with monarch butterflies."

In total, 303 monarch butterflies were tagged in just four hours. It was the second largest tagging total for the event; the highest was 400 in 2007.

At the end of the event, I felt connected to nature and more in awe of monarch butterflies. The experience brought back fond memories from my youth, when I frequently chased butterflies with my mom and sister in a field near our apartment in Texas. Those days started a lifelong love and appreciation for wildlife and conservation, and I hope the Monarch Mania event sparked that same love and appreciation in at least one young visitor that day. □

KATE MIYAMOTO, External Affairs, Mountain-Prairie Region

Nothing **Better**

Biologist Michael Glenn inspires a 'Sense of Wonder' in children living in southern California's urban environment

Michael Glenn has a knack for getting kids to dig in the dirt, which is particularly impressive given he lives in one of the most heavily urbanized areas in the country, just 66 miles north of Los Angeles in southern California.

Last year, on his 10th anniversary with the Service, Glenn's work was recognized by the agency with a nomination for the national Rachel Carson Sense of Wonder Award. The award honors individuals who embody the storytelling legacy of Rachel Carson, who inspired an entire generation to become stewards of the environment.

Glenn smiles as he fondly reminisces about the past 10 years. His memory overflows with stories of children, from kindergarteners to college grads, finding their sense of wonder in nature.

"Building a lifelong appreciation for nature begins through childhood experiences," Glenn says. "By giving opportunities for kids to learn about our co-inhabitants—from the bugs on the plants to the birds in the skies—we can ignite a passion for wild things and wild places that carries on throughout their lives."

Glenn and a group of kids and adults at a Schoolyard Habitat Program planting day.

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Schoolyard Habitat

Glenn leads the Service's Schoolyard Habitat program in Ventura County and has worked alongside 16 schools and more than 10,000 students to design and plant native gardens that help feed and grow pollinators such as the monarch butterfly, and provide habitat for native wildlife such as Western fence lizards and an array of songbirds. Replacing grass lawns with drought-tolerant native plants has also meant these schools have had to use less water, and in California, every drop counts.

On a warm November morning, Curren School fourth-grader Nicholas stares intently at a newly formed chrysalis on a milkweed plant in his school's native pollinator garden, a garden designed and developed through the Service's Schoolyard Habitat program.

"We all worked hard on these plants," Nicholas says, as he delicately points out the chrysalis with both respect and admiration. "Monarchs have a really cool lifecycle and they have beautiful wings."

Erin, a fifth grader at Curren School, says she has become an expert pollinator gardener and credits her knowledge about native plants and pollinators to Glenn's visits to her school. Erin has been recruited as a mentor for the younger students by her teacher to help place plants, add soil and care for the garden. At a planting event last spring, she wiped a bit of dirt off her hands and said, "Mr. Glenn came to our school to talk about native plants, and ever since then I started growing my own." For kids like Erin and Nicholas, all it takes is a single seed to grow a lifelong love of the outdoors.

Last fall, Glenn worked with Curren School teachers, students and parents to host its first Dia de los Muertos Monarch Butterfly Festival, an event inspired by their native pollinator garden and cultural connections between monarch butterflies and the Dia de los Muertos tradition. In some Mexican cultures, monarch butterflies embody the souls of their ››

ASHLEY SPRATT/USFWS

Biologist Michael Glenn speaking to children during a Schoolyard Habitat project.

> *"We all have a responsibility to tell the stories of the fish, wildlife and plants that we work to protect every day."*
>
> **—Steve Henry, Mike Glen's field supervisor**

ancestors; the butterflies' migration from Canada and the United States to Mexico representing their forebears' spiritual journey, which they celebrate each year between October 31 and November 2 on Dia de los Muertos—Day of the Dead.

Reaching Out

Glenn also leads the charge for environmental education programs about threatened and endangered wildlife, and works with partners to provide outdoor recreation opportunities for families and community organizations, particularly in underserved communities.

In partnership with the National Park Service, Glenn provides opportunities for families served by the Salvation Army to learn camping skills in the Santa Monica Mountains National Recreation Area, and take hiking adventures on Santa Cruz Island, part of Channel Islands National Park.

Maya, a mom who accompanied her two daughters on a trip to Santa Cruz Island, says she never imagined visiting the Channel Islands. "I had never been on a boat before," she says. For many of the children, seeing the island foxes on the island, and whales and dolphins on the return trip to the mainland, left a lasting impression.

Steve Henry, field supervisor for the Service in Ventura, has championed the agency's efforts to connect people to nature in the local community.

"By leading classroom and community discussions about wildlife and conservation issues, Mike [Glenn] is not only building a foundation of natural resource stewardship amongst our neighbors, but he is also serving as a role model for young people within our agency," Henry says. "We all have a responsibility to tell the stories of the fish, wildlife and plants that we work to protect every day."

Glenn is ready to meet and introduce the next generation of Ventura County children to the sense of wonder that hooked him on nature at an early age. "There's nothing better in my job, or in my life, than seeing a little kid discover a frog or a horned lizard for the first time. Seeing the smile on their face is something I never forget." □

ASHLEY SPRATT, Ventura Fish and Wildlife Office, Pacific Southwest Region

Impressionism & **Native** Trout

A trip to a mountain stream as a boy keeps Craig Springer working for native species

COURTESY OF CRAIG SPRINGER

COURTESY OF CRAIG SPRINGER

(Left) Springer with a native Rio Grande cutthroat trout. (Above) A shadow of Springer hunting Mearns' quail in Cibola National Forest in New Mexico.

I'm no art critic, but I know a good piece when I see it. Impressionistic paintings by the likes of Monet, Renoir and Degas certainly do impress me, but maybe not in the way you might think. Invariably to me these beautiful works in the genre appear unfinished, as though the artist lost the creative capital to complete the job or had to find wage work and didn't come back to wrap up. To my mind, the genre blurs the contours between illusion and reality, and that is part of its allure.

I have a recollection of a day spent fishing many years ago that whenever I call it to mind, I summon an impressionistic scene in the opus behind my eyes: A tiny mountain creek pours over cream-colored marl in little pools and flat riffles of pea-sized gravels in water shallow enough to step in and not get your ankles wet. Sprigs of green and tan grasses lie beneath scrawny alder branches, drooping over the creek banks. Early-morning sunshine dapples like wet diamonds on the water and backlights a stand of tall, fat ponderosa pines in the flat bottoms. Dust and bugs aloft illuminated in sunlight waft in the quiet air. The sun rises sharply over a steep hillside where adventurous pinons cling to the striated layers of bare gray rock and fine volcanic tuff cones so common in the Jemez Mountains of northern New Mexico. Little trout as big as a young boy's hand dash for the dark confines afforded by the streamside grasses after one of their own throws caution aside and bites a hook. The trout's pint-sized wet body writhes in my palm; I can feel its cold muscles flex as it glistens back at me in flashes of silver over orange specks on an olive body.

The wonder of that moment has never left me. That sense of marvel was inscribed on my psyche that day: A little piece of a cold mountain stream, slender enough in places to straddle, harbored colorful living creatures. The wonderment still feeds my desire to stay involved in conservation.

Family History

My family made weekend forays into the Jemez Mountains when I was very young. We often visited this brook that coursed past a piece of property on which my great grandparents homesteaded beginning in the late 1890s. My granddad was born there in 1903, nearly a full decade before New Mexico was welcomed into the union. My great grandma held title to the ››

COURTESY OF CRAIG SPRINGER

Springer and daughter Willow hunt turkeys in the Manzano Mountains of New Mexico.

parcel surrounded by Santa Fe National Forest until around 1935.

I will never know this for sure, but I fancy that my folks caught native Rio Grande cutthroat trout from these waters before non-native trout species swamped the native fish. It's easy for me to imagine the surprise and wonderment another would feel pulling a small trout from a dark undercut, its red underside appearing covered in blood as though its throat had been slit. I know from their own writings that my ancestors lived a hardscrabble life. My folks likely had very little time to for recreating, too busy ensuring they had the resources for the next day or next week or next season at this high-elevation homestead. Cold comes on early and stays late at 7,400 feet.

I have no illusion that my family would ever own this parcel of land again. And I have to square with the reality that trout, no matter the species, will probably not swim here again in my lifetime. A wildfire obliterated a large swath of forest six years ago, taking trees and trout, and sending them into the stratosphere in towering anvil-headed plumes of smoke. A green forest turned into a gray moonscape that will surely take a long span of time to heal.

But longing is the heart's treasury. I have a longing to see native trout in native habitats—a nostalgia for what was and what could be—to see Southwestern trout species swim in waters as nature would have it. Rio Grande cutthroat trout, Apache trout and Gila trout, all three of them naturally adorned the Southwestern landscape. They carry in their colors the imprint of nature. Pretty trout live in pretty places, and they own enough crimson, copper and cream that any impressionist would be pleased to paint them. Native trout conservation, like impressionism, is unfinished business. □

CRAIG SPRINGER, External Affairs, Southwest Region

Alicia Protus Works 'to Keep Every Cog and Wheel' for Future Generations

Alicia Protus, a fish and wildlife biologist in the New Jersey Field Office, says she's "always been inspired by people that 'fight the good fight' and lend a voice to those that cannot advocate for themselves," so a conservation career was probably fate—especially for someone with "a small obsession with bats."

Initially, she says, she was "drawn to the conservation field by the glitz and glamour of international conservation."

But when she came back to the United States, she "became engrossed in the conservation of our own homegrown endemics and listed species." The names might be less familiar, but she says that each species faces a "conservation plight no less interesting than their overseas brethren."

After graduation, a Service fellowship and volunteer work, she took her position in New Jersey.

Aldo Leopold's famous quote "to keep every cog and wheel is the first precaution of intelligent tinkering" drives her. She says she works "to safeguard the existence of vulnerable species on our landscape and ensure the resiliency of our ecosystems for generations to come." □

MATT TROTT, External Affairs, Headquarters

For **You** and for **Me**

College student Elizabeth Braatz finds practicing conservation brings overwhelming benefits

I conserve with the U.S. Fish and Wildlife Service because the flight of the monarchs in the summer and the gleam of flowers in the prairies fill me with joy.

(Above) Braatz (center front) and the other interns show off some mounted birds.

COURTESY OF ELIZABETH BRAATZ

I conserve because the smiles of neighborhood friends, family and children as they fish in clean waters or hike through golden prairies are a treasure beyond anything that money can buy. I conserve because I once spent a summer exhausted, dirty and muddy kayaking through wetlands, and it was one of the best summers of my life. I conserve for the lakes, the fields and the forests. I conserve for you. I conserve for the children of the future.

It didn't start that poetically. It started with an email. I am a member of the club Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS), and through it I learned about the Career Discovery Internship Program (CDIP) with the Student Conservation Association and the Service. As a Chinese American, I really appreciated that these organizations reached out to MANRRS, and with the encouragement of a Service biologist and MANRRS member, I applied and, to my absolute delight, was hired.

Interning

That summer was a summer of firsts. It was the first time I drove a large truck, and the first time I learned that, yes, I can drive these things (though I still prefer ››

> *I conserve with the U.S. Fish and Wildlife Service for the lakes, the fields and the forests. I conserve for you. I conserve for the children of the future.*

my little Honda Civic). It was the first time that I banded geese, and the first time I learned just how soft, adorable and vicious those creatures are. Yet in a summer of firsts, three things stuck out for me.

First of all, I will always remember the staff at St. Croix Wetland Management District in Wisconsin. They are a remarkable team of people, and they made us interns feel at home. Although we only worked with them for a few months, the staff showed us how people working in conservation should interact with each other, the public and temporary hires.

Secondly, I remember the other interns. We were a dang good team. We would go out in chest-high waders to map invasive species and come back exhausted, soaked and grinning ear to ear, full of ridiculous stories to share with our fellow interns. We collected prairie seeds, created habitats for endangered Karner blue butterflies and found five ways to accidentally erase all of the data points on a GPS unit. Although we all had to follow our own paths afterward, I know that our time with the Service enriched and affected us all.

COURTESY OF ELIZABETH BRAATZ

Braatz collects wild lupin seeds for endangered Karner blue butterflies.

Big Effects

Finally, I remember the impact we had. It's easy to get caught up in challenging day-to-day activities, but the big picture effects were incredibly rewarding. Waterfowl surveys will help us responsibly manage birds for hunting season. The invasive plant surveys helped create healthy wetlands for ducks to nest in and visitors to enjoy. The private lands program allows nearby landowners to directly improve the quality of their lands and waters, which in turn helps animals, plants and even other neighbors. The mission of the Service is working with "others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people." My experience taught me firsthand how true this is—because when we take care of the land around us, we take care of ourselves.

My summer with the Service on the CDIP program ended, but my career with conservation has not. Last summer I was hired by the Service as a Directorate Fellow at St. Croix, where I got to work more closely with the staff on an incredibly rewarding project: monarch butterflies. I helped set up butterfly gardens, and plan for ways that local citizens, government agencies and companies can all work together to protect the pollinators that we all rely upon and enjoy in our gardens.

I conserve with the U.S. Fish and Wildlife Service for the lakes, the fields and the forests. I conserve for you. I conserve for the children of the future. But, when I think of how much conservation has given back to me—the mentorships, the laughter, the friendships, the cry of a hawk and the splash of a fish—to be completely honest, I think that I mostly conserve for myself.

Elizabeth Braatz is a senior at the University of Minnesota-Twin Cities studying environmental science, policy and management. She hopes to continue to work in the conservation field to promote sustainability for both people and the environment. □

Beautiful Future Drives Student Deja Perkins

Being the oldest of 10 kids, I see how different the world is for my younger siblings than it was for me growing up. I can see the changes the world has gone through in just 10 years, and I know I want to be a part of the force that helps conserve the biodiversity we have. I believe in the old proverb, "We do not inherit the earth from our ancestors; we borrow it from our children." I want my siblings and their children to be able to see natural wonders such as coral reefs as beautiful city centers full of life and not as colorless dead wastelands.

Growing up in Chicago, I did not have what might be considered the "traditional" conservationist background of a youth spent in the outdoors. My favorite places as a child were the zoo and the aquarium, which is where I found my passion for animals. In high school I joined the Fishin' Buddies Youth Conservation Conference, and, I learned about deforestation, invasive species, pollinators, the U.S. Fish and Wildlife Service and other government agencies whose mission (in my 16-year-old eyes) was essentially to save the world.

Now, as an environmental science and natural resource major at Tuskegee University, I have learned how interdisciplinary saving the future of our planet is. Conservation is not just about saving certain species from extinction. Conserving the earth is about convincing others that plants, pollinators, water quality, soil chemistry and much more are important to them. It's about giving people the knowledge, tools and inspiration to restore habitats in their neighborhoods. Or letting them know that cleaning up plastics and other trash helps prevent micro-plastics from being consumed by sea life, resulting in healthier food for people to eat.

COURTESY OF DEJA PERKINS

Just as someone educated me on the importance of conservation, my role in conservation is to share my knowledge and spark the interest in children and those growing up in the nontraditional conservationist environment.

Conservation is not a battle for any one person but a battle for all of us that share space on this earth. Imagine what we could change if we could teach the next generation to be environmentally conscious? The next generation of lawyers, architects, urban planners, politicians and innovators would all be able to pitch in behind the same effort.

Deja Perkins, a member of Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS), interned at Minnesota Valley National Wildlife Refuge as a visitor services intern. □

> *"Conservation is not a battle for any one person but a battle for all of us that share space on this earth.*

COURTESY OF MIKAELA OLES

RICK HANSEN/USFWS

This is not just a job, it is a passion.

Intern Mikaela Oles Wants to Make Sure Everyone Has a Connection to Nature

Last summer, I was a visitor services intern at Shiawassee National Wildlife Refuge in Saginaw, Michigan, where I was involved in environmental education and interpretation. Shiawassee is an urban national wildlife refuge in an area with a diverse population.

There, I found my passion in the social aspect of conservation. I worked with children who had never experienced the outdoors before, and it was such an enlightening experience.

I was lucky enough to watch their eyes light up as they discovered something new like a flower, a painted turtle or a swallowtail butterfly. I was lucky enough to witness the creation of the connection between those children and the environment. And I was lucky enough to be part of what fostered their newfound love for the outdoors. It was absolutely amazing, and I wanted to do it again. I wanted THAT to be my career.

Many people may believe that conservation is solely about the resources and what the resources need. And it is. But creating a connection for other people is of equal importance. How will people understand that it is imperative to conserve our environment and natural resources if they have not gained a love and appreciation for them? My goal is to help create a new connection to the environment for every person I encounter. Being a woman and of Japanese descent, I want to lead by example by proving that anyone can be active and successful in the world of conservation. This is not just a job, it is a passion.

Nature is healing and beautiful, and it should be available for current and future generations. But that cannot happen unless enough people care about the well-being of the environment. I thoroughly believe that if we can help people find at least one aspect of the outdoors that they fall in love with, they will be more willing to help conserve it. Why should we only have a handful of conservationists and environmentalists when we can create a world full of them?

Mikaela Oles is a junior at Colorado State University studying natural resources recreation and tourism with a concentration in natural resource tourism accompanied by a double minor in business administration and global environmental sustainability. She is the vice president of CSU's chapter of Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS). □

JOSH HULL/USFWS

WHAT is MANRRS?

Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) is a national society that works to promote the agricultural sciences and related fields among ethnic minorities. It also engages minorities working in those fields to mentor student members. Several Service members, including wildlife biologist Jeramie Strickland at Upper Mississippi River National Wildlife and Fish Refuge and visitor services manager Lionel Grant at Shiawassee National Wildlife Refuge, came to the Service through MANRRS and remain active with the group. Visit <manrrs.org>.

VERONICA DAVISON/USFWS

Not Why, But **What**

For Earth Day this year, the Service's Sacramento Fish and Wildlife Office asked some staffers what their work supports. For **Valerie Hentges**, it's habitats for the California tiger salamander and California red-legged frog. **Kellie Berry** works on vernal pool conservation at Mather Field. **Josh Hull** supports conservation of national parks.

Josh Hull

Kellie Berry

Valerie Hentges

UNIQUE PARTNERSHIP

Working with the Oregon Zoo, the Service is charting an innovative approach to engage our nation's public

by ELIZABETH MATERNA *and* LEAH SCHRODT

Leah Schrodt, a Service interpretive specialist, is stationed at the Education Center.

The Service has officially "broken new ground" on an exciting way to effectively connect with the public and tell our Service story. We partnered with the Oregon Zoo in the development of the zoo's new Education Center. The sustainably built, aesthetically pleasing center was designed to foster a conservation ethic among the zoo's 1.6 million annual visitors. With a Service staffer on-site, the facility provides an opportunity to take the partnership a significant step further.

Opportunity Knocks

It all started in 2013 during a groundbreaking ceremony for a new exhibit at the Oregon Zoo called Condors of the Columbia, one of several projects on which the Service has partnered with the zoo over the years. Paul Henson, the Service's Oregon state supervisor, was inspired by a conversation with Grant Spickelmier, the zoo's education curator, who described a voter-approved bond measure to build a new state-of-the-art education facility. Henson saw a phenomenal opportunity to spread the conservation message to a broader, more diverse urban audience, and suggested to

Spickelmier the idea of having a Service employee stationed at the Education Center. This small spark of an idea led to a unique partnership, the first of its kind for the Service.

"Joining the Oregon Zoo in their new Education Center is a natural extension of our shared conservation mission and an innovative way for the Service to connect with a broader audience," says Henson. "We have a long history of working together to recover species, and now we look forward to continuing our collective efforts on an education mission to tell the wildlife conservation story and to build a strong conservation ethic in present and future generations."

Spickelmier adds, "The Oregon Zoo is thrilled to have the U.S. Fish and Wildlife Service partner with us at the zoo's new Education Center. Having USFWS scientists and educators work directly with the zoo's 1.6 million guests greatly increases our ability to raise awareness about wildlife conservation and inspire conservation action."

A New Way of Reaching Out

The high visibility of the Oregon Zoo provides an ideal venue to tell the story of fish and wildlife conservation to visitors from a variety of economic, racial and cultural backgrounds.

"Small Things Matter" is the primary theme of the Education Center, which includes small creatures, small habitats and small actions people can take. The center helps visitors learn that nature is closer than they think, even in urban areas. Visitors walk away with direct application for how they, too, can protect wildlife. Key features of the center include a Nature Exploration Station with hands-on activities, interpretive displays and daily presentations from subject specialists; a wildlife garden with information about pollinators, native plants and ways the public can transform their yard into a place for wildlife, a Western pond turtle recovery lab; a 150-seat hall; and three classrooms, including a science lab.

The Service's decision to station a full-time interpretive specialist at the zoo, working hand-in-hand with zoo staff in the development of activities, displays and programs designed to communicate our shared conservation messages, is a first for our agency. Leah Schrodt was selected for this role, and serves as a liaison to a broad range of Service experts. She works to draw out and share their wealth of conservation knowledge in areas such as endangered species, fisheries, pollinators, wildlife refuges, invasive species, law enforcement, wildlife forensics and much more.

And it won't be just Oregon staff. Service experts from across the nation will have an opportunity to come to the center and talk about the important work of the Service and our conservation mission.

"The Oregon Zoo Education Center is an ideal venue for instilling a stewardship ethic in the public we serve," says Schrodt. "The true spirit of collaboration, and what can be accomplished when we work together in partnership to achieve our conservation goals, is beautifully modeled in this endeavor."

A History of Partnership

The Service has developed partnerships with a number of zoos and aquariums across the nation. These relationships are critical to our recovery work as we rely on zoo expertise in species propagation and animal husbandry for reintroductions. The Oregon Zoo has assited our efforts to recover many endangered species:

The zoo houses one of four California condor breeding facilities, which produces more than 30 birds annually, most of which are released into the wild. Birds that cannot be released make their home in the Condors of the Columbia exhibit, which educates visitors about the bird's plight.

The Oregon Zoo and Woodland Park Zoo (in Seattle, Washington) participate in a project to help vulnerable hatchling Western pond turtles evade predators. More than 1,800 turtles have been released to suitable sites. Western pond turtles are protected in several states.

In 2002, only 16 pygmy rabbits remained in Washington. Soon after, the Oregon Zoo developed a breeding program and was the first zoo in the world to successfully breed pygmy rabbits. While the zoo's breeding program concluded in 2012, it continues to actively participate in pygmy rabbit conservation efforts.

Oregon silverspot butterfly numbers crashed in 1998, prompting the Service to begin efforts to supplement the population in partnership with the Oregon and Woodland Park zoos. The zoos are able to release about 2,000 butterflies each year on the Oregon Coast. The Oregon Zoo also helps rear and release Taylor's checkerspot butterfly, a threatened species.

The Oregon Zoo and various partners work collaboratively with the Service to monitor, study and recover populations of Oregon spotted frog, which was recently protected under the ESA.

In 1998, the Service signed an official memorandum of understanding with the Association of Zoos and Aquariums to work together for the conservation of native North American animals, plants and their habitats, and to educate the American public about the biological, economic and aesthetic contributions these species make to our quality of life. This partnership with the Oregon Zoo shows what can be accomplished when the Service works with zoos and aquariums to achieve our conservation missions.

For more information about the Service's Education Center partnership at the Oregon Zoo, please contact Leah Schrodt: leah_schrodt@fws.gov. □

ELIZABETH MATERNA, Oregon Fish and Wildlife Office, and LEAH SCHRODT, Interpretive Lead for Oregon Zoo Partnership, Pacific Region

RESTORE & PROTECT

Oil spill funds help protect shorebird nesting and improve monarch butterfly habitat.

by NANCIANN REGALADO

Signs at Bon Secour alert visitors.

The sparkling beaches of Bon Secour National Wildlife Refuge in Alabama attract visitors of all shapes and size—and species. Bon Secour's beaches and dunes are visited not only by tens of thousands of people each year but also by the many kinds of wildlife our refuge managers are charged with protecting and preserving every day. On any warm spring day at Bon Secour, you may find sunbathers, swimmers, nature lovers, birds, beach mice, crabs, foxes, insects and scores of others.

Shorebirds also love Bon Secour, and those visiting and nesting on the refuge are some of the beneficiaries of a restoration project being funded by a landmark $20 billion settlement with the petroleum giant BP for the damage caused by 2010's Deepwater Horizon oil spill. The spill not only deposited oil on the beaches of Bon Secour Refuge but also triggered cleanup work that disturbed wildlife habitat along the refuge's beaches and dunes. "After the spill, we calculated that as many as 102,000 birds were killed by the oil spill, either by exposure to the oil or by encounters with cleanup activities," says Kate Healy, a Service restoration biologist. "That's why the Service has worked so hard to create projects that restore and protect bird habitat along the Gulf Coast. "

The Service is working with The American Bird Conservancy at Bon Secour to complete a shorebird project aimed at protecting nesting areas used by least terns, snowy plovers, American oystercatchers, black skimmers and other shorebirds. The partners are posting warning signs and erecting temporary fencing around key nesting and foraging sites. "It's important to warn people that nests, eggs and chicks are in the area. They're easy to miss because they're naturally camouflaged—they blend in very well with the sand and shells around them," Healy explains. "While their camouflage may foil predators such as foxes and raccoons, it makes them almost invisible to beachgoers." Work this year will complete the five-year effort.

Although not injured by the spill, monarch butterflies will benefit, from a dune restoration project at Bon Secour that will also help beach mice and reptiles, including lizrds and snakes.

The dune project includes re-vegetation of disturbed dunes with native plants, including milkweed, a plant that plays a vital role in the conservation of monarch populations. "We're encouraging people everywhere to do as much as they can to save monarchs by planting native milkweed," says Ben Frater, assistant restoration manager for the Department of the Interior's Gulf Restoration effort. "At Bon Secour, we're doing our part to improve the butterflies' habitat there. By winter 2017, we expect to plant hundreds of seedlings along the refuges' dunes."

These are just two early projects in the effort to restore the natural vitality of the Gulf. Many more are coming. □

NANCIANN REGALADO, Gulf Restoration Team, Southeast Region

USFWS

A monarch caterpillar crawls on milkweed at Bon Secour National Wildlife Refuge.

KAITI TITHERINGTON/USFWS

Piping plovers can be too camouflaged.

AMERICAN BIRD CONSERVANCY

Thank a Hunter

by BRENT LAWRENCE

A few years ago I was at a conference when the man across the elevator saw my U.S. Fish and Wildlife Service badge. He smiled and said, "Thank you for all you do. I love watching wildlife.…Do you think you could issue a license to shoot hunters? I hate what they do to wildlife."

After a brief pause, I leaned in close and said: "You know what you should do next time you see a hunter?…Thank him."

He was surprised by my response, and replied, "Really! Why?" As we rode down the elevator, I shared some history.

I talked about how since the late 1800s, hunters, anglers and recreational shooters have been the driving force behind the North American Model of Wildlife Conservation, a set of home-grown wildlife management principles that set forth the radical idea that wildlife belongs to everyone, not just the rich and privileged.

In our nation's early years, I explained, there were few laws protecting fish and wildlife, and our wildlife resources took a heavy blow. Some species, such as the passenger pigeon, disappeared; others, such as bison, white-tailed deer and wild turkeys, were pushed to the edge of extinction. Concerned leaders within the hunting, angling and shooting communities (i.e., sportsmen) banded together, using their influence to make great strides for conserving our wildlife resources. Important laws were advocated for and passed, laws that became a cornerstone of the Service's mission.

I told my increasingly intrigued acquaintance that according to the Association of Fish and Wildlife Agencies, sporting-generated funds make up, on average, more than 75 percent of a state fish and wildlife agency's annual budget.

Through self-imposed excise taxes on hunting, shooting, archery and angling equipment, and boating fuels, hunters, recreational shooters and anglers have contributed billions for wildlife and habitat conservation since 1937.

I explained how excise taxes, commonly known as Pittman-Robertson Act and Dingell-Johnson Act monies, can only be used by state wildlife agencies for a primary wildlife purpose, such as purchasing public land, improving essential habitat and creating additional outdoor recreation opportunities that also benefit hikers and bikers, wildlife photographers, birders, canoeists and campers.

The North American Model of Wildlife Conservation, I told him as we walked through the lobby, is about more than money. It's a philosophy.

It has seven basic tenets supporting the notion that wildlife is a public trust, an American birthright, and that wildlife species need to be managed in a way that their populations will be sustained forever. These tenets benefit a wide range of fish and wildlife, including non-game species, as well as everyone who enjoys nature.

As we reached the lobby door, we stopped and he asked what a non-hunter should do. The answers quickly rolled off my tongue.

First, buy a hunting or fishing license every year even if you don't hunt or fish. The license fee goes directly to the state wildlife agency to help with all types of wildlife management.

Next, I told him, buy a Federal Duck Stamp. For every dollar spent on Federal Duck Stamps, 98 cents go directly to protect vital waterfowl habitat in the National Wildlife Refuge System. A Federal Duck Stamp also gets you free admission to the Service's national wildlife refuges, which help protect our wildlife and offer some great hunting, fishing and wildlife watching opportunities.

COURTESY OF BRENT LAWRENCE

The author says that by harvesting and processing his own food he knows where it came from and how it has been handled.

We walked outside, and he hailed a taxi. He turned and said, "Well, thank you for ruining my night.…Now I have to figure out how to thank a hunter."

The moral of this story could be that hunters, anglers and recreational shooters all play a pivotal role in wildlife conservation. This is true.

But to me, the real story is that people with the most to lose fight the hardest to protect it. As a hunter and angler, I know the joy of hearing a turkey gobble from across the ridge or seeing a flock of mallards descending. Those are my memories, my treasures.

I'll always fight to save them. And so will other sportsmen and -women because it's what we do. □

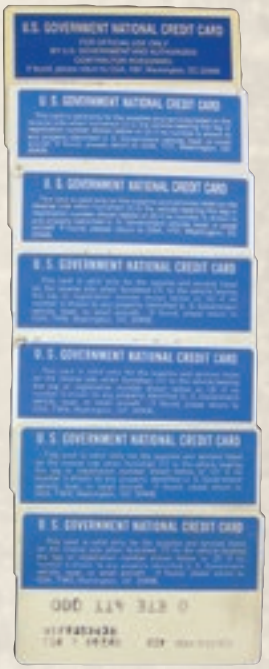
BRENT LAWRENCE, External Affairs, Pacific Region

MUSEUM OBJECTS COME TO LIFE

This is a series of curiosities of the Service's history from the U.S. Fish and Wildlife Service Museum and Archives. As the first and only curator of the museum, Jeanne M. Harold says the history surrounding the objects in the museum give them life.

Organization!

Recently, we received a collection of IDs, awards and old purchasing credit cards from an employee, probably now retired, from a fish hatchery in Washington State. They were in perfect condition but expired. He had saved about a dozen of the cards as far back as 1983. This is a testament to how organized the gentleman who saved them was. Wow, I bet those fish swam in line at that fish hatchery! P.S. I always cut up my credit cards when they expire.



Extra Antlers

If you have ever been to the National Conservation Training Center, I am sure that you have noticed the elk antler chandelier in the back windowed area in the bar. I got the antlers from special agents in Richmond, Virginia. I had the chandelier made by a local taxidermist, Tom Flynn. There were many other antlers left over, and the special agents did not need them back. They said we could put them in the woods for the little woodland critters to chew on for calcium. I still have them in the archives, because I figured that, with my luck, hikers at the facility would see them and spread rumors that West Virginia now has a large population of elk.

Big Band Story

It is nice to know that we all still appreciate a good laugh. A 1975 edition of *Fish & Wildlife News* featured an article and photo of two Service biologists "banding the world's largest Laysan albatross" They were putting a fake band on a very large statue of an albatross on Midway Island. Some things never change, including silly articles from Service folk—like curators!

Another Child's Favorite

I wrote an article earlier about the favorite taxidermied specimen in the archives storage room for children being the snowy owl because of Hedwig from the Harry Potter books. Well, I should also mention that there is another favorite stuffed animal in the archives for children who are a little older. Can you guess which animal that is? It is the wolf, and that is because of Jacob in the *Twilight* series of books. I bet if we had a stuffed vampire named Edward, it would certainly supplant both the owl and the wolf by a million votes!

honors

Pacific

Gary Young, who recently retired as Special Agent in Charge for the Pacific Region, was named the national 2017 Guy Bradley Award winner by National Fish and Wildlife Foundation (NFWF) for his superior federal law enforcement career accomplishments in the protection of wildlife and natural resources. Named after Guy Bradley, the first wildlife law enforcement officer to be killed in the line of duty in 1905, this award is presented by NFWF each year to one state and one federal agent for outstanding lifetime achievements in wildlife law enforcement.

"Gary has been a tireless protector of our wildlife resources," says Jeff Trandahl, executive director and CEO of NFWF. "From Texas to Alaska, and now in the Pacific Northwest and Hawaii, Gary's leadership has been essential in combating illegal wildlife trafficking in the United States and internationally. We are honored to recognize his lasting contribution to wildlife law enforcement."

Adds William C. Woody, the Service's Chief of Law Enforcement: "Throughout his career, Gary has been a dedicated and exemplary special agent who has fought to protect our wildlife resources. He has worked to build strong relationships with state, tribal, federal and international law enforcement agencies. In addition, Gary believes strongly in developing the next generation of wildlife law enforcement leaders and has demonstrated it by providing training to countless federal, state, tribal and foreign officers."

Gary began his wildlife law enforcement career in 1982 for the Texas Parks and Wildlife Department before joining the Service's Office of Law Enforcement in 1993 as a special agent. He has worked in various law enforcement positions in the Service in Kansas, Utah, Alaska and Texas. In 2012, he was named Special Agent in Charge for the Pacific Region.

"I am deeply humbled to be selected for this award," he says. "Our wildlife resources have always played an important part in my life. But this huge honor isn't about me. It's about all the wonderful people I've worked with who helped me learn and progress, and it's about the agents who work so many long, hard days in the name of conservation. They make me proud to be a part of the U.S. Fish and Wildlife Service's Office of Law Enforcement." □

Northeast

Fire Management Officer **Tim Craig** from Great Dismal Swamp National Wildlife Refuge (seen here with the Service's national fire operations lead, Shane McDonald (left)) has won the 2016 National Fire Safety Award. Tim, who retired April 30, was honored for his sustained safety performance spanning a long and prolific career in Fire Management. Employee safety and health is a top priority for the Service.

Part of Tim's excellence came from his continuous adjustments to prevent small errors from becoming large errors. He also constantly played "what if" games and evaluated worse-case scenarios for incidents in the Northeast Region. His theory was that any organization would eventually be surprised by the unexpected, and he continuously developed the capacity to respond, cope and bounce back from the unexpected.

In a letter congratulating Tim, Chris Wilcox, Chief of the Branch of Fire Management, says: "Throughout your career in Fire Management, you have sustained a combination of anticipation, alertness and adaptability that keeps you a constant learner of your trade and a valuable teacher and mentor for fellow firefighters." □

in memoriam

Northeast

Renowned Service ornithologist **Chandler "Chan" Robbins** died March 20. He was 98. Born July 17, 1918, in Boston, Robbins devoted his life to birds, their study and protection.

He graduated from Harvard with a degree in physics and began teaching math and science in Vermont. Robbins joined the Service in 1945 as a junior biologist at Patuxent Research Refuge, where he engaged in early research on the effects of DDT and had his papers edited by his colleague Rachel Carson.

Service retiree David Klinger remembers: "Several of us from the National Conservation Training Center got together at Patuxent around 2007, about the time of the centennial of Rachel Carson's birth. We wanted to know what Chan Robbins could tell us about Carson, as well as about his own eventful life. We were smart enough to know we needed an oral history with this 'grand old man' of ornithology, and, for hours, he didn't disappoint."

Robbins was also the one who first banded the Laysan albatross named Wisdom in 1956. He re-banded the world's oldest known banded bird in 2002.

"Chandler Robbins was the 'dean' of the bird conservation world, one might say," says Jerome Ford, Assistant Director of the Migratory Bird Program. "His amazing legacy lives on every day in the work of our dedicated Migratory Bird Program employees."

During his 60 years of full-time work at Patuxent (he retired in 2005) both for FWS and later the U.S. Geological Survey's Patuxent Wildlife Research Center, Robbins made critical contributions to research on forest fragmentation, bird banding, breeding bird surveys and bird identification. He was a senior author of *The Field Guide to Birds of North America*, organizer of the North American Breeding Bird Survery, and much more.

"Chan was a gentle giant among colleagues, a humble man who made huge contributions but was very modest about his achievements," says Brad Bortner, Chief of the Division of Migratory Bird Management.

"What symbolized Chan Robbins most eloquently to me was his worn-out old pair of government binoculars," Klinger says. "Dented, heavy as lead and beat to hell. I hope they go into a Fish and Wildlife Service museum some day. He could have afforded the finest optics in the world, but he was comfortable with what he had. His acuity of eye and ear exceeded the powers of mere physics."

In "retirement," Robbins became "Scientist Emeritus" at Patuxent.

"I got to bird with two true recognized luminaries in the birding world—Roger Tory Peterson and Chandler Robbins—so I guess you can say I've lived a full life," says Klinger. □

Retired wildlife biologist **Irvin W. Ailes**, 72, died October 29, a victim of dementia.

Born in Buena Vista, Indiana, Ailes was one of seven children living in a one-bedroom home without running water. He attended a one-room school where the first assignment each morning was to chop wood for the stove. He followed the example of his older brother, Ken Ailes, joining the Air Force upon graduation from high school.

Upon discharge, he married Marilyn Stevens and moved north. He earned a bachelor's degree in wildlife biology from the University of Alaska, Fairbanks. He followed this with his master's degree in the same field from the University of Wisconsin, Stevens Point.

His first summer job was as a janitor in the post office at Anchorage. The second was doing research on shorebirds of the Arctic tundra within sight of the Arctic Ocean at Prudhoe Bay. Based with an oil exploration camp, he spent his days alone on the tundra with the bears, wolves and other wildlife, including the shorebirds he learned to love. His master's thesis followed up on this love with a study of the upland sandpiper. His first permanent job was with the Bureau of Land Management in Utah. He backpacked for weeks into the wilderness to analyze forage in the high country, herded cattle by horseback, monitored cliff-dwelling raptors by hanging out the door of a helicopter, and led a team of firefighters on a wilderness wildfire in Zion National Park.

In 1977 he joined the Service. He was at Back Bay National Wildlife Refuge on the Virginia/North Carolina line for two years before moving to Chincoteague National Wildlife Refuge, where he remained until he retired in 2004. There he worked with Delmarva fox squirrels, piping plovers, the famous horses, Phragmites weed invasion, migrant and resident raptors, bark beetles, and more. For three years he served with the waterfowl survey to determine duck breeding success in Prairie Pothole country. This involved flying low over the prairies of the United States and Canada, counting birds from a small, low-flying fixed-wing aircraft. The results, then and now, help determine hunting limits throughout the United States. He also surveyed seabirds from Florida to Canada by small aircraft.

As a volunteer, Ailes organized the Wachapreague (Virginia) Christmas Bird Count for several decades, and with his wife ran the breeding bird censuses both on Chincoteague and through northern Accomack County.

For recreation, Ailes enjoyed camping and traveling with wife Marilyn and two children. He and Marilyn traveled each year across the country with the kids to visit family in Indiana and California, exploring the country in the process, including camping in all 50 states and many of Canada's provinces (even at minus 40°F). He enjoyed exploring foreign countries, staying in youth hostels and doing lots of hiking. At home, he enjoyed bike riding and jogging on the refuge, and working in the woods around his home.

His many years of hard work to preserve the beauty of the country in general and the Eastern Shore in particular have left this world a better place for his passage. May the same be said of each of us. □

Midwest

Cleveland Vaughn, one of the Service's first African-American Law Enforcement officers, died November 4. He was 72.

Omaha World-Herald columnist Erin Grace says Vaughn once said: "Somebody has to stand up for those birds. I'm the person that has to do that. I love the birds."

Known as Cleve to all his friends, Vaughn worked much of his 28-year Service career in Nebraska.

Grace quotes a local attorney as saying: "He was a public servant whose public service didn't stop." □

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Nice on Ice

More than 600 people turned out at Genoa National Fish Hatchery in Wisconsin in February to learn more about ice fishing and give kids ages 5-12 an opportunity to fish a stocked pond for rainbow trout at the hatchery. This annual event, and dozens of similar fishing and hunting days the Service sponsors, gives children a chance to develop fun memories of an outdoor outing, which then blossom into a conservation ethic to preserve the riches of our natural resources.

LAURA HERONIMUS/USFWS

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