



Fish & Wildlife *News*



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Refuge in
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TIMOTHY H. KAUFMAN/
USFWS

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Greg Sheehan, Principal Deputy Director of the U.S. Fish and Wildlife Service

Working with Others

Midway through my first year with the U.S. Fish and Wildlife Service after coming from the Utah Division of Wildlife Resources, I have seen from both sides many critical conservation collaborations. States and the Service should be joined at the hip. Luckily, for both wildlife and people, they often are.

As important as that partnership is, there are so many others we need to develop and strengthen. The Service mission—Working with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people—demands it.

That mission creates the possibility for top-notch conservation.

Everyone who has been in conservation knows that it most often works best at a local level. The closer you can get to the people on the ground, the better it works in the end. I firmly believe that. I've seen it. I've been part of those efforts, and those local working groups that can be formed with private property owners and local government deliver some of the best conservation results.

In October, I was in Maine for the 10th annual Private Lands Partners Day. Certainly, much of our work with partners is on the public lands we manage, but approximately two thirds of all the land in the U.S. is privately owned.

Simply put, we can't succeed in conserving America's native fish and wildlife, or in expanding opportunities for all Americans to enjoy them, unless we successfully engage private landowners. That includes our industry partners.

That is just the way conservation has to work in the 21st century.

Our Partners for Fish and Wildlife Program has an outstanding record of voluntary private lands conservation. And it is one of our many amazing programs that parlay limited resources into big successes. For every one program dollar expended, four non-program dollars are spent on project delivery.

But beyond return-on-investment and science, people are what really make a partnership work.

We have found that no matter how complex the environmental equation is, people are the most important variable, and all solutions run through them.

In this issue of *Fish & Wildlife News*, you'll read about Partners biologist and reluctant coffee drinker Mark Hogan who learns what a landowner needs from the land and then works on restoration projects that help the landowner and the local wildlife.

If we start with people and commit to finding collaborative solutions, we can achieve amazing things together.

Mark does.

It's not just our Partners Program, either. You'll read a story about a conservation bank in California that has allowed a ranching family to keep working their land.

Another reason we need partners: We can focus our work on critical areas and avoid duplication.

In Utah, we started a program called the Watershed Restoration Initiative. It is a partnership-based program designed to improve high priority watersheds throughout the state for wildlife, livestock and improved water quality and quantity.

Before this partnership, small-scale "postage-stamp" types of projects were the norm. With conservation partners, we said let's go look at focal areas in our state of Utah. So we pooled our money and went to work. Since 2006, partners have completed nearly 1,500 projects, treating nearly 1.5 million acres statewide.

We are fortunate so many people and groups care deeply about the state of the nation's natural resources and are willing to put their own resources—money, time, back-breaking labor, their minds—to ensure the future of conservation.

This issue of *Fish and Wildlife News* highlights just a few of our partners and the standout work we've done together—with tribes, landowners, nongovernmental organizations, companies, the list goes on. States, too, of course. □

The Dirt Road Connection: Arkansas Multipartner Project Benefits Residents and At-Risk Species

Judge Stacey Avey has been serving on the bench for 17 years in Arkansas' Stone County, a rural county in the Ozarks a little south of the Arkansas-Missouri state line. Along with 13,000 residents, there are a lot of unpaved dirt and gravel roads.

Thanks to a new multipartner project called the Arkansas Unpaved Roads Program, some of those roads are now in much better shape, which benefits both the residents and the wildlife, including some at-risk species that live there.

"I hear a lot of people say that the fish count for fishermen in the Little Red River is better," Judge Avey says. In Arkansas, county judges oversee road maintenance. "It's been a win-win for us. We've got better roads and less sediment in areas that would not have gotten much

attention because they are very, very rural."

The program, which has raised about \$1 million so far from multiple partners, including the Service, trains local road crews and awards funds to reduce erosion and the flow of sediment from roads into the water system, which is one of the biggest stressors for aquatic species. The crews also stabilize ditches and culverts so water flows more freely and roads provide a more durable driving surface. It is administered through the Arkansas Economic Development Commission Division of Rural Services.

"There are almost 69,000 miles of unpaved dirt and gravel roads in Arkansas," says Chris Davidson, the Service's deputy field supervisor in Conway, Arkansas, who drives on many of them in his job.

"That's mind-boggling. You think about all the little streams these roads intersect, and every one is a potential conduit to transport sediment into rivers."

Sand, dust and gravel can clog fishes' gills, as well as clouding their habitat.

Unpaved Roads is one of those success stories where everything is connected: Gravel and dirt roads are upgraded, cleaner water flows more freely, less sediment enters the watershed, better fishing leads to tourism and economic development, and habitat conditions improve for species with colorful names, such as the Arkansas fatmucket and the speckled pocketbook (mollusks protected as threatened and endangered, respectively), and at-risk fish species such as the Ozark chub and Ozark shiner.

"In the Stone County project, we reduced sediment by 93 percent," says Clayton Knighten of The Nature Conservancy in Arkansas, one of the driving partners of the program. "We've seen anywhere from 70 percent to the low 90s in sediment reduction."

Other partners include the University of Arkansas and the Arkansas Game and Fish Commission.

In June, Calhoun County Judge Floyd Nutt wrote a letter of thanks to the project partners for the improvements to a local road, which had flooded repeatedly in recent years, causing more than \$150,000 in damages. The road elevation, he wrote, "will save counties, states and federal funding in the future instead of watching our money go down our streams and rivers."

Arkansas Unpaved Roads Program is modeled after an older, highly successful program in Pennsylvania. The Arkansas program started in 2016 and is still ramping up, but is already showing successes in its sophomore year.

"The Arkansas Unpaved Roads Program has proven to be a tremendous benefit to our counties and to the state as a whole," says Chris Villines, executive director of the Association of Arkansas Counties, one of the partners in the project.

"A better unpaved roads system preserves the public's access to recreational and tourist activities, and in turn preserves our state's economy, which relies heavily on tourism," he adds. □

PHIL KLOER, External Affairs, Southeast Region



Better unpaved roads help people and wildlife.

CHRIS GORSKI/FLICKR CREATIVE COMMONS

Service Apologizes for Aleut Evacuation and Internment

Greg Fratis Sr. was 2 years old the day his village of St. Paul, Alaska, was forcibly evacuated during World War II. Years later, he heard the full story from his elders: The town's annual baseball tournament was underway when a relative ran home with the news on June 14, 1942.

"We're gonna have to leave St. Paul. One suitcase. The boat is here. Just take that suitcase, don't say anymore. We're going to East Landing and we're going to go aboard the ship they call Delarof," Fratis recounted at an event in June commemorating the 75th anniversary of the evacuation.

In the decades that followed the war, St. Paul and neighboring island St. George have memorialized the day of dislocation with a community walk to the remains of East Landing boat launch, the evacuation point. This year, at the invitation of tribal president Amos Philemonof, officials from the Service joined the islands' residents to apologize for their agency's role in the internment of Fratis and the Aleut people.

Within six months of the U.S. declaration of war on Japan and Germany, the U.S. Navy issued orders to evacuate the civilians on the Aleutian Chain and Pribilof Islands. Although military personnel evacuated the Pribilofs, the Fish and Wildlife Service had a significant



(Top) Aquilina Lestenkof leads the procession in commemoration of the forced evacuation. (Bottom) Deputy Director Jim Kurth and survivor Greg Fratis Sr. embrace.



presence on the islands as managers of the fur seal pelt industry, a for-profit government venture for which the Aleut people were forced to work.

Nineteen Service agents would soon become wards of the Aleut evacuees at a location far away from their homeland in the Bering Sea. The agents and 477 residents from St. Paul and St. George were loaded onto the U.S. Army Transport Delarof, destined for an abandoned cannery in Funter Bay in Southeast Alaska.

"My love for this place is so great, I cannot imagine walking out there to East Landing, with one bag with your belongings... to get on the Delarof and look back and not know if you'll ever come back again," said Aquilina Lestenkof, the director of Cultural Affairs for the Tribal Government of St. Paul and organizer of the commemorative events.

The Aleut peoples' internment at Funter Bay lasted two years under the supervision of the Service, and many did not make it back. Nearly 50 people died from the cold, crowded, difficult and inhumane conditions. Their graves remain in Funter Bay.

In his remarks, Service Deputy Director Jim Kurth offered "my and our agency's most sincere apology to the Aleut people interned at Funter Bay and their descendants who continue to carry this burden. For our actions during World War II in the Pribilofs and Funter Bay, I am sorry. For loved ones lost and for internees who suffered from hunger, coldness and illness, I am sorry."

At the June ceremony, Fratis told the crowd that there had been "anger in my heart" when he read and heard the stories of the suffering, but now he was changed.

"Let's not let it happen again," he said, as he closed with the words of the late Mary Bourdukofsky, a village elder who survived the internment: "Let's be who we are. We are Aleuts. Let the people know. Everybody be proud of your heritage."

Later that day, the 77 year-old Fratis took to the ball fields to throw the honorary first pitch of the summer's games as part of the evacuation commemoration. □

SARA BOARIO and CRYSTAL LEONETTI, External Affairs, Alaska Region

Butterflies Take Wing at Restored Oregon Refuge Prairie



An Oregon silverspot butterfly at Nestucca Bay National Wildlife Refuge.

The transformation from caterpillar to butterfly is one of nature's great feats. An equally amazing transformation is the one going on at Nestucca Bay National Wildlife Refuge that is helping the Oregon silverspot butterfly make a comeback on the Oregon coast.

The rolling hills at Nestucca Bay Refuge were once a dairy farm, covered with a variety of non-native grasses that were great for cattle but poor for pollinators and other prairie-dependent wildlife. That's no longer the case as the Service and many indispensable partners have worked together to make big changes on the upland fields of this 1,200-acre refuge, located where the Nestucca and Little Nestucca rivers converge and flow into the Pacific Ocean.

The grassy upland fields are being restored to native coastal prairie and in mid-summer were awash with colorful plants such as goldenrod, yarrow, clarkia and — most importantly for the butterflies — early blue violets. The small violets are the only plants that Oregon silverspot caterpillars eat before they to form a chrysalis and turn into butterflies over a period of about three months.

On July 28, the Service and partners released Oregon silverspot butterfly caterpillars into restored prairie at Nestucca Bay Refuge. Then, on August 21, just after the total solar eclipse, longtime volunteer Bill Medlen, who has devoted thousands of hours to restoring this prairie over the past six years, spotted the first butterflies.

For Rebecca Chuck, deputy project leader for the Service's Oregon Coast National Wildlife Refuge Complex, which includes Nestucca Bay Refuge, it was a doubly special day. When asked which was better, the total eclipse or seeing the butterflies on the refuge, she said: "They were equally amazing. But I'll be able to continue seeing the butterflies and you can, too."

Further releases of Oregon silverspot caterpillars are planned for 2018 on Oregon's Saddle Mountain State Park.

Eight years ago, the restoration was just a dream for Chuck and Anne Walker, a wildlife biologist from the Service's Newport Field Office in Oregon. Together, they turned their dream into an action plan to restore native coastal prairie habitat and Oregon silverspot butterflies on the refuge.

"We have been restoring the prairie for seven or eight years now so we can establish a butterfly population on this refuge," Chuck says. "Over the years we have been removing invasive species, planting native plants, seeding and removing more invasives. We have put almost 60,000 violet plants here along with hundreds of pounds of native plant seeds."

Prescribed burns have been one of the most effective tools in the management of non-native plants at Nestucca Bay Refuge. Prescribed burns safely reduce excessive amounts of plants or brush, which then encourages new growth of vegetation.



Volunteers release Oregon silverspot caterpillars.

"Fire is an important tool in prairie restoration, and particularly this one at Nestucca because there was no better way to get the incredible biomass [of dead and decaying plants] off the ground here," Chuck says. "The fire helped reduce the amount of dense grasses and weeds and gave us a bed to put in the native nectaring flowers needed by the butterfly."

These large efforts have benefits beyond the butterfly. Ensuring the habitat is suitable for the Oregon silverspot butterfly also makes it a haven for a multitude of other important native plants and animals.

Only five populations of the butterfly currently remain—four in Oregon and one in California. All of these populations are restricted to the immediate coast, in salt-spray meadows, or within a few miles of the coastline in similar meadow-type habitat.

If successful, the reintroductions at Nestucca Bay Refuge and Saddle Mountain would increase

the number of populations to seven, with the ultimate goal of 10 self-sustaining populations.

"Just having more population sites will provide an extra buffer against extinction," Walker says. "Plus, it gets us closer to the recovery goal of 10 populations. We'd love to see the day where we can talk about them being recovered and no longer needing the protection of the Endangered Species Act." □

BRENT LAWRENCE, External Affairs, Pacific Region

Service Helps Southwest Tribes Address Fish Health Issue

National fish hatcheries have responded to fisheries conservation challenges since 1871. Building on this conservation legacy, the Service maintains a cadre of experts in fish health who support national, state and tribal hatcheries through cutting edge science and technology that helps improve conservation techniques and methods.

In 2016, tribal fish hatcheries in the Southwest detected bacterial kidney disease (BKD), a chronic and often lethal disease that has plagued fisheries since the 1930s. This was the first outbreak of BKD on tribal hatcheries, and created complications and financial concerns for the tribes in their restoration and recovery programs of native and recreationally important species on tribal lands.

The Service recognized an opportunity to offer tribes technical expertise and help them address outbreaks like this, and volun-

teered to partner on a pilot effort that would bring subject-matter experts to the tribes and provide hands-on training. The Service developed a two-day workshop, hosted by the Southwest Tribal Fisheries Commission and the Mescalero Apache Tribe, at the Mescalero Tribal Fish Hatchery in Otero and Lincoln counties in New Mexico. The goal of this training was to help tribal partners identify and manage the BKD outbreak as well as any other potential emerging fish health issues.

Interest in this pilot project was high, with 22 participants representing the Navajo Nation, Pueblos of Sandia, Laguna and Zuni, and the Mescalero Apache, White Mountain Apache, Jicarilla Apache and Southern Ute tribes. All participants were able to gain a better understanding of BKD and its effect on fisheries through classroom lectures followed by necropsies in a laboratory.

The good news is that the BKD outbreak is under control. Better news is that the tribal hatcheries will be better able to handle a future outbreak. Perhaps the best is the stronger bond between the Service and tribal conservation partners in the Southwest. □

Dr. Susan Gutenberger, BKD expert from the Pacific Region Fish Health Program, provides instructions on conducting fish necropsy.



A harmonious Future for Profits, Pine and At-risk Species Along the Florida-Alabama Line



A field of young longleaf pine at the Coastal Headwaters Forest.

Longleaf pine forests once covered 90 million acres from Virginia to Texas, a biodiverse swath of timber prized by shipbuilders and gopher tortoises alike.

Sprawling cities, large farms and commercial pine plantations, though, replaced much of the longleaf habitat. Today, less than 5 million acres remain. America's Longleaf Restoration Initiative's goal of 8 million acres by 2025 seemed laughable.

Until Resource Management Service and Jimmy Bullock came along.

Bullock, in charge of forest sustainability for the Alabama-based timber management company, caught longleaf fever about five years ago and approached nonprofit, state and federal agencies with the idea of

turning 200,000 acres of mostly loblolly stands straddling the Alabama-Florida line into longleaf forest. The Service and the rest of the conservation community hustled to find the money to set aside the 200,000 acres.

The Coastal Headwaters Forest project is unprecedented and could revolutionize the relationship between Southern timber, conservation and rural communities. It would become the largest privately owned longleaf timber tract in the nation and provide critical habitat for many threatened and endangered species, such as the gopher tortoise, red-cockaded woodpecker and eastern indigo snake.

The project seeks to test a new conservation model where private, working forests would be restored and managed as a

working longleaf forest, protected from development through easements.

"This is an opportunity to show that landscape-scale restoration work can meet both conservation and economic needs," says Bullock, a senior RMS vice president. "We think we can produce longleaf at scale to create jobs, bolster rural economies and, hopefully, build new markets."

Coastal Headwaters would also underscore—in a major way—the Service's push to conserve southern lands, create green corridors for protected and at-risk wildlife, and protect prime hunting and fishing grounds. The so-called Southeast Conservation Adaptation Strategy, a priority of the Service and more than two dozen southern state wildlife agencies, conservation groups and others, seeks to knit together large tracts of public and private land by 2060.

Loblolly vs. longleaf

Matt Ezekiel stopped the GMC Sierra at the sandy crossroads in this corner of the Florida Panhandle. On one side of the road stood a stand of loblolly pine; on the other, planted in 2013, was a field of longleaf pines ranging in size from two to 12 feet. A deer feeder announced the tract's recreational bounty. Yaupon holly, ty ty and sedge competed with the longleaf. Gopher tortoise burrows abounded.

"Historically speaking, longleaf is a stronger, straighter, better tree," says Ezekiel, a land manager with Resource Management. "It just feels like the right thing to do to plant

longleaf. But there's a lot of pressure on the land: development; hunting; row crops."

But, if all goes well, 150,000 acres will be swathed in longleaf, burned every four years to produce ideal wildlife habitat and returned to its prehistoric splendor forever. (Protected streams and wetlands would comprise the remaining 50,000 acres.) The project's longleaf will typically be grown for 45 years; loblolly, the commercial favorite, can be harvested in about half that time.

The first 4,500-acre parcel is all but ready for its longleaf makeover. RMS is negotiating the details with the Natural Resources Conservation Service, a branch of the U.S. Department of Agriculture, and The Conservation Fund. An easement is anticipated by year's end.

"Certainly, the returns are front and center," says Bullock, whose company manages \$4.5 billion worth of timber and land in the United States, Australia, New Zealand, Brazil and China. "But being able to do it in a pretty cool, environmentally sustainable manner like Coastal Headwaters is of prime importance, too."

"We envision this as a private working forest with conservation easements in perpetuity," Bullock says. "And it's also changed the dynamic for other large landowners who see us willing to think long term and on a regional level. They're thinking, 'Maybe we should plug into that conservation vision, too.'" □

DAN CHAPMAN, External Affairs, Southeast Region

Partners in Alabama Conserve Bats

On a fall day in Daphne, Alabama, you can sometimes find Service biologist Shannon Holbrook in her happy place—in front of a classroom of students, teaching them about an often misunderstood species: bats. “When kids think about bats, they often think of the pop-culture definition...sinister-looking and fanged, which incites fear,”

says Holbrook, who works in the Service’s Alabama Field Office. “They have no idea how important this animal is to our ecosystem in Alabama.”

“Bats are critically important to the U.S. economy because they consume between 600 to 1,300 tons of insects per year,” explains Holbrook. “Bats in other parts of the world are effective pollinators for plants that only bloom at night, such as agave. Some are also efficient at dispersing seeds.”

Sixteen bat species are found in Alabama, and three of them are on the endangered species list: gray bats, Indiana bats and northern long-eared bats. They face significant environmental threats, including wind turbines, habitat destruction, water pollution, pesticides and white-nose syndrome, a deadly disease that affects North American bats.

With so many potential threats, Service biologists know they need help to conserve Alabama’s bats. That’s why they’re teaming up with conservationists throughout the state and beyond to protect these unique animals. Alabama Power, the Alabama Department of Transportation and the Tennessee Valley Authority have joined the Service to help learn more about bats in the state, committing funds as well as people to the field work. Holbrook says partnerships are the only way to achieve the best available science.

“Understanding these species’ habitat use in Alabama during the critical spring and summer months is essential for future protection and conservation of important resources needed for the survival of bats. These groups are providing funds and manpower to help with the study. Without them, the study would not be possible,” says Holbrook.

“We look forward to supporting this important research,” says Jason Carlee, environmental affairs supervisor at Alabama Power. “The information gathered in these studies will help us better understand the movement of bats within our service territory. That, in turn, could help us reduce the potential impacts of our activities, such as right-of-way maintenance and forestry operations, on these species.”

Scientists started their research this spring. In the meantime, Holbrook continues to travel to different classrooms, hoping to shed some necessary light on bats in Alabama. “The kids have been really receptive during my classroom visits. They are starting to understand that bats play a pivotal role in our ecosystem, and they really aren’t *that* scary,” laughs Holbrook. “Hopefully, future generations will continue the bat work that we’ve started here in the state.” □



These students are all smiles after learning about bats. (Right) Townsend’s big-eared bat (*Corynorhinus townsendii*)



ANN PROSCHAUER/USFWS

Working Together to Ensure Healthy Ginseng Populations

Harvest of American ginseng roots, popularized in recent years by television series such as the History Channel's *Appalachian Outlaws* and National Geographic's *Smoky Mountain Money*, has traditionally been a trade passed down through generations, carving an important role in the culture and economy of parts of rural America. The annual harvest of wild American ginseng roots averages 65,000 pounds, and harvesters, often called "diggers," receive \$300 to \$500 or more per pound for dried roots. Conservative estimates have placed the wholesale value of wild American ginseng roots at roughly \$26.9 million per year.

The Service relies on partnerships with states and tribes to manage this trade, while also ensuring the long-term viability of the ginseng population and, in turn, the industry. As part of its ongoing efforts to improve coordination, the Service hosted an American Ginseng Program Coordination Meeting in July in West Virginia, bringing together state and tribal ginseng program officials to discuss pressing issues, including management and regulatory efforts, and necessary steps to improve the sustainability of wild ginseng.

Demand for ginseng is driven by consumers in Asia, where it has long been used in traditional



ERIC BURKHART

medicine, with recent evidence showing that it may help boost the immune system, reduce risk of cancer, and improve mental performance and well-being. Because wild roots of American ginseng are sometimes shaped like a human, it is considered "good for the whole man" and revered for its medicinal value. Nearly all wild American ginseng roots are exported, primarily to Hong Kong, where they are sorted and graded for the Asian market.

American ginseng has been protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since

The wholesale value of wild American ginseng roots is estimated at roughly \$26.9 million per year.

the treaty went into effect on July 1, 1975.* Beginning in 1978, the Service approved state and tribal programs for ginseng export where harvest is conducted in a way that supports the long-term survival of the plant. Today, the ginseng export program includes 19 states and one tribe, which regulate the harvest, inspection and certification of harvested ginseng roots. CITES permits must be obtained from the Service before export.

"The meeting provided an excellent opportunity for meaningful discussion on the management, conservation and international trade of American ginseng," says Carolyn Caldwell, CITES Technical Work Group representative for the Midwest Association of Fish and Wildlife Agencies. "With the continued collaboration of the state, tribal and federal personnel, appropriate measures are being implemented to ensure international trade in wild ginseng is sustainable."

For nearly 40 years, the Service and the states have cooperatively managed ginseng and supported rural livelihoods. That, in and of itself, is a success. But, as new pressures emerge, such as increasing global demand for ginseng and poaching by unscrupulous individuals out to make a quick buck, the long-term survival of ginseng and an entire industry are at risk. The July meeting provided an opportunity to strengthen coordination and ensure many more decades of enjoying all the benefits of American ginseng. □

**It's worth noting that the CITES listing only covers export of ginseng roots whole, sliced or parts. If you're traveling overseas and want to take ginseng capsules, teas or other products with you, that's perfectly fine.*

DANIELLE KESSLER, International Affairs, Headquarters

Banding Together for Ducks

Did you know that the oldest known mallard was more than 27 years old? Thanks to duck banding and a network of biologists, hunters and birders across North America, we know a lot about species' lifespans, populations and migration patterns. Come behind the scenes as we join biologists in Minnesota to band the next round of ducks!

While we can't tell you everything about every duck out there, we know a lot about the lives of the migratory waterfowl that pass through the Midwest. We are in the heart of the Mississippi Flyway, a corridor of lands and waters that runs from Canada's extreme northern provinces all the way to southern Gulf states. More than 400 species of birds depend on quality wetlands, prairie and forested habitats across this huge geography. Every year we estimate these populations, and in 2017 those numbers seem to be up in many parts of the Midwest.

So what's involved in banding ducks? First, we have to catch them! Next, we check their general health, then fit their legs with individually numbered metal bands. These bands will help tell biologists where these ducks travel in the months and years to follow. We also work collaboratively with Animal and Plant Health Inspection Service biologists with U.S. Department of Agriculture to test for avian influenza in these wild populations. These samples are helpful in the national effort to monitor the extent of the disease across the continent. So far, we haven't had any wild ducks test positive for high pathogenic avian influenza this year.

Our banding operation at Minnesota Valley National Wildlife Refuge, just a few miles away from the Mall of America, gave some local Girl Scouts from Troop 15261 a hands-on experience in banding wood ducks and mallards, two of the

most common species we see in this area. After a safety briefing and demonstration about how to properly hold and release the ducks, scouts assisted us in documenting each bird's life history and band number. While many of these birds hadn't been banded before, some, known as recaptures, wore bands from last spring and even earlier. Understanding the health and vitality of wild birds is an important issue for many of our elected officials in Minnesota as well. Congresswoman Betty McCollum joined the scouts for this morning of banding.

We band thousands of ducks every fall and the data that we gather from these brief interactions with wildlife help to support the national population estimates that we forecast every year. Bands also help us see trends over time. In the many decades that we've been tracking migratory waterfowl through banding, we've learned a great deal about how migration is linked to breeding and wintering populations across state and national boundaries.

"Even after banding ducks for more than 20 years, I'm still amazed at what we learn about them through banding data. We've recaptured some ducks that were banded more than a decade ago. Minnesota Valley ducks have been recovered throughout the country, with most coming from the lower Mississippi River Valley. Banding information is vital for responsibly managing waterfowl populations," says Midwest Region Migratory Birds Chief Tom Cooper. □

Prescription for Success at Great Swamp National Wildlife Refuge

What does it take for a 30-year-old dream of using prescribed fire to improve wildlife habitat to become reality? Mike Horne, refuge manager at Great Swamp National Wildlife Refuge in New Jersey, knows: a lot of planning, communication and partners—and more than a little patience.

After many months of preparation, partners from multiple states and federal agencies finally came together in early April at the refuge just 26 miles west of New York City, to successfully and safely conduct the first-ever prescribed burn at Great Swamp. Horne's staff joined forces with 34 firefighters from Pennsylvania, New Jersey, the National Park Service, Albany Pine Bush Preserve, several refuges and the Service's Northeast Region Fire Program to treat nearly 200 acres.

Since the early 1980s, the refuge had wanted to use fire to unclog ponds choked by the accumulation of live and dead plants because heavy equipment cannot be used in sensitive wetlands. The buildup kept waterfowl from using the ponds to stop, rest and feed during their migration.

For one reason or another, work to burn the ponds never materialized until 2016 when the refuge put together a comprehensive prescribed burn plan. "There is a great deal of up-front work that goes into making a fire successful before the drip torches are lit," »

Duck banding at Minnesota Valley National Wildlife Refuge.



TINA SHAW/USFWS



says Horne. Some of the most important advance effort, he says, “is communicating with neighbors and partners about how prescribed fire works.”

Thanks to the refuge’s outreach efforts, no one called to complain after the smoke became visible on the day of the fire at the suburban refuge because the public already understood what was happening and why.

Conducting a prescribed burn is no easy task. On the day of the burn, weather conditions must be right, and properly trained fire leaders must be present to ensure the safety of the public and firefighters—the number one priority on any burn. This requires close coordination with the National Weather Service and partners to make sure there are enough firefighters with the right skills.

Gerald Vickers gives a briefing before the first-ever prescribed burn at Great Swamp National Wildlife Refuge.

“Fire is giving us the ability to recover these wetlands into manageable units, helping to remove layers of dead vegetation as well as trees and shrubs we have been struggling with for years,” says deputy refuge manager Lia McLaughlin. The project demonstrates that burning can be used as a viable tool to maintain grasslands in the Northeast, and shows how partners with limited resources can cooperate to achieve meaningful conservation goals across the landscape. □

GERALD VICKERS, Regional Fire Management Specialist, Northeast Region

Achieving Conservation Goals through Collaboration

Over the summer, Headquarters staff had the pleasure of connecting with nearby Belvedere Elementary School, the first elementary school in Fairfax County, Virginia, to be designated as an International Baccalaureate World School. Belvedere strives to help its highly diverse student body learn about, get involved in and make a difference in the world. The school also works to develop the next generation of conservationists.

A few fifth-graders contacted the Service through a school mentor to ask questions about foreign endangered species and what students could do to help protect them. After that initial connection, the Service discovered that Belvedere has a strong environmental education program that is making a difference.

Belvedere’s school grounds include a native plant garden, a butterfly garden, a rainwater collection system, a composting system and a permeable paver patio. Students engage in outdoor learning activities on school grounds, an adjacent park and other locations via field trips. Outdoor learning activities include bluebird monitoring, removal of invasive plant species, trail maintenance and raising trout to help stock local streams.

Belvedere has also been designated as a Virginia Naturally School. The recognition is part of a program administered by the Virginia Department of Game and Inland Fisheries. To receive the designation, a school’s environmental education program must



Belvedere students weeding a pollinator garden.

meet specific requirements that increase with each successive year to promote student environmental awareness and stewardship.

Clearly the Service and Belvedere share some common goals. So the Service did more than simply respond to the inquiry from students, also providing posters and other educational materials. In addition, the start of a new school year provides Service members an opportunity to participate in educational events to share their knowledge and experiences with students.

The connection made with Belvedere is only one small example of how conservation goals are met through collaboration. And every day, across all programs and regions, Service staff are demonstrating their commitment to conservation and the American people by connecting and collaborating with diverse people and groups to achieve conservation goals for the benefit of all. □

EDWARD STOKER, External Affairs, Headquarters

Tribal Alliance will Conserve Monarchs

On September 28, the Service's Southwest and Mountain-Prairie regions celebrated the newly formed Tribal Alliance for Pollinators Partnership. The regions will be working with multiple Native American tribes in partnership with The Learning Center at the Eucjee Butterfly Farm and Monarch Watch to conserve the monarch butterfly on tribal lands. Together, the alliance will enable tribes to build and expand their capacity for monarch conservation, increase seed banks for pollinator habitat restoration, and just as importantly, fulfill traditional cultural obligations to protect the land and the wildlife that dwell on it. Ultimately, the partnership hopes that tribes across the entire country will participate and reap the benefits.

Monarch tribal conservation actions started from a National Fish and Wildlife Federation Monarch Butterfly Conservation Fund project with Monarch Watch and seven Native American tribes in eastern Oklahoma in 2015. The project provided the training needed to plant milkweed and to collect, process, store and propagate seeds of native milkweeds and wildflowers. It also established seed production plots, creation of demonstration plots and the development of conservation plans, including site selection and preparation, as well as long term maintenance of restored properties.

The Eucjee Butterfly Farm, operated by members of the Muscogee (Creek) Nation, took on a leadership role working with tribes in Oklahoma as Monarch Watch began implementing tribal conservation actions through

their 2015 grant. The Eucjee Butterfly Farm is a founding member of Tribal Environmental Action for Monarchs, a unique coalition of tribes working together to reduce the catastrophic population loss of the monarch butterfly by replanting tribal lands with the native milkweeds and wildflowers that have been extirpated from their natural ecosystems. The Eucjee Butterfly Farm provides ongoing support to all aspects of the project, and maintains a seed bank of locally sourced native milkweeds and wildflowers as a resource for tribal habitat restoration. This is the only tribal coalition in the world working on monarch conservation.

Dr. Chip Taylor from Monarch Watch teaches tribes about nectaring plants essential for monarchs and other pollinators.

Given the success of that program and increased interest from other tribal partners, the Eucjee Butterfly Farm and Monarch Watch recognized a potential niche they could fill to enable tribes nationwide to engage in monarch conservation activities. Service tribal liaisons and regional pollinator and monarch coordinators hosted two tribal workshops with more than 26 Native American tribes from Oklahoma, New Mexico and Arizona. Funding was provided by the Native American Fish and Wildlife Society. This was first time many of them sat together; it happened because of monarchs. They gathered to conserve this culturally significant insect.

The history of the monarch and other butterflies has direct ties to tribal heritage. Many of the Southwest tribes originate elsewhere in the United States. The monarch butterfly connects them to their ancestral land. The Hopi and Cherokee have a traditional social dance that recognizes the butterfly for its beauty and its contribution in pollinating plant life. It is considered one of the most beautiful ceremonial dances. □

MARA KOENIG, External Affairs,
Midwest Region



KATE MIYAMOTO/USFWS

Partners

Making the conservation challenge easier



ASHLEY SPRATT/USFWS



**When you tackle a big task,
you better have a lot of help.**

The Service's work to conserve the world's wild things and wild places is a challenge that grows bigger every day.

Fortunately, we have tremendous partners: states, tribes, businesses, private landowners, communities; the list goes on and on.

The Service's mission — *Work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people* — makes it clear: Partners are an essential part of our work.

The following stories show some of the people and groups that we are lucky to work with. »



JAMES ATKINSON/USFWS

Strongholds for Sonoran Pronghorn

Disparate groups join the Service to help advance conservation of the endangered mammal

by CRAIG SPRINGER

If sound had color, what fills your ears on a Sonoran summer day would be a matte monochrome. The flat nasally shrill of insects that go sight unseen rises to a crescendo and falls away to a lull, like water swelling and falling in a slow rhythm lapping on a sandy shoal.

(Above) Female pronghorns do have horns, but they're short and look more like a bump.

It's sandy there to be sure, but with little natural water. It's locked up in the pulp of cactus or the waxy leaves of sparse green plants. Some of that plant matter is food for the Sonoran pronghorn, an endangered species that's found nowhere else in the world outside the far southwest corner of Arizona and northern Sonora, Mexico.

The core of what is left of the rare mammal is centered on Cabeza Prieta and Kofa National Wildlife Refuges. But the animal with a habit to move around in small caravans ranges widely onto other federal public lands: the Barry M. Goldwater Range, Organ Pipe National

Monument and Yuma Proving Ground. The pronghorn exists on the Tohono O'odham Nation as well. Two additional populations live in Sonora, Mexico.

Searing summer heat reaching 120 degrees Fahrenheit scorches the Sonoran Desert floor. It's exceedingly arid and the spaces between stands of low shrubs and patches of grasses are wide with more earth and stone and sand showing than vegetative matter. That wildlife can survive here is a testament to the press of time—the flora and fauna are adapted to a life determined by the sky that day in and day out is a cloudless cobalt blue.

The Sonoran pronghorn is one of five subspecies of the animal symbolic of the open plains of North America. This Sonoran form of pronghorn is set apart from the other more common forms by its prominent skeletal features described by zoologists in the 1940s. The Sonoran pronghorn is smaller and lighter in color. Where the animal naturally ranges—the Sonoran Desert—is a small geographic area compared to the range of the other pronghorn subspecies.

The Sonoran pronghorn looks like an animal put together by committee: widely spaced ebony eyes protrude on the side of its head just under its horns in front of tall ears. Its legs are as skinny as willow slips that hold up a barrel-shaped torso wrapped in a tan pelt the color of ripe wheat. But form follows function here. Its eyes afford a broad field of vision. The pelt melds the animal into its habitat. That big chest holds large lungs and a huge heart and those little legs carry a pronghorn over land quicker than any other animal in North America—60 miles per hour tops for short sprints. Slower speeds can be sustained for longer distances thanks to its impressive cardiopulmonary system. A pronghorn would rather be out in the open where it can see danger coming from nearly 360 degrees and from a good distance away. And to evade the perils of a would-be predator, a pronghorn doesn't have to hide—it just has to outrun it.

Despite unparalleled vision and speed, Sonoran pronghorn could not evade widespread habitat loss as a result, in part, of incompatible cattle grazing practices that in some areas contributed to accelerated erosion and the growth of plants unfavorable to pronghorn. Moreover, pronghorn avoid the artifices and presence of people, such as canals and roads and increased activity around some areas of the border. The crush of tires over gravel roads perturbs the animals; paved roads are shied and canals carrying domestic water to cities are simply foreign and avoided, but not because of the water.



Captive breeding has resulted in 241 pronghorn being released from captivity.

Water seems to be a limiting factor in Sonoran pronghorn conservation. That was brought to light with a dreadful drought in 2002. The animal limped through a crippling 13-month dearth of rain and it nearly fell into the abyss of extinction. Through the previous two decades, the population averaged about 140 animals. In 2002, it sank to a mere 19 individuals when the summer monsoonal rains that usually come pouring down in July waited until September to arrive. The drought lowered fawn survival and left the population with fewer healthy adults in the population to breed. The population was top-heavy with older animals.

From dire circumstances come drastic measures: In late 2003, seven of the remaining 19 animals were caught and placed in a 640-acre pen on Cabeza Prieta Refuge to facilitate captive breeding and re-stocking as habitat improved. Over the last decade, the populations have trended in the right direction; 241 pronghorn have been released from captivity. Rangeland numbers are steadily climbing from the dangerous low point of 2002. Approximately 1,300 Sonoran pronghorn now roam the ranges in the United States and Mexico combined.

U.S. Customs and Border Patrol keeps up its necessary work along the international border and has supported essential conservation endeavors underway, such

as captive breeding. The Service's Wildlife and Sport Fish Restoration Program, funded by taxes paid by hunters and anglers, has granted funds to the Arizona Game and Fish Department to build 18 water catchment systems on the national wildlife refuges. The structures catch rain, collect it underground and let the water gravity-feed to a lower point where wildlife can drink it. It's been hugely successful in improving the lot of Sonoran pronghorn. The larger of the catchments can collect enough water during summer monsoons to store and deliver water for pronghorn until they are replenished when rain falls upon the land the following summer.

Pronghorn can also find water structures on Barry M. Goldwater Range, which is operated jointly by the U.S. Air Force and U.S. Army, and the U.S. Marine Corps' Yuma Proving Ground. All three military entities also provide substantial conservation funding as well as personnel, some of whom serve on the pronghorn's recovery team.

The Tohono O'odham Nation welcomes Sonoran pronghorn onto the reservation as the animals wander in.

Population monitoring continues on the ground and in the air. Some animals carry radio transmitters. Every two years aircraft fly over the same lines above Sonoran pronghorn habitats, spotting and counting the number of animals seen and heard by telemetry, to count the population in the wild. Captive breeding continues as well, with 82 pronghorn presently kept at Cabeza Prieta Refuge and 28 housed at Kofa Refuge.

With the drought of 2002 behind us, the future of the endangered Sonoran pronghorn looks relatively sunny. What a sight to see when they ruffle their white rump and bolt away with ease—far faster than any would-be predator can possibly run. □

CRAIG SPRINGER, External Affairs,
Southwest Region



Service biologist works with private landowners to benefit people and wildlife

COFFEE BREAK

by JENNIFER STRICKLAND

A cow pauses on the dirt road that weaves through a national forest and into the Little Snake River Valley.

Once upon a time, Mark Hogan was a biologist who disliked coffee.

Why then has he spent the past 20 years training himself to drink the stuff? According to Hogan, “An invention that brings people together is coffee.”

Hogan’s passion is bringing people together to do good things for wildlife. As Wyoming’s state coordinator for the Service’s Partners for Fish and Wildlife Program, his business model is simple: focus on the most important habitats for wildlife, and learn what the landowners living and working in the area want and need from the land. What better way to do that than over a cup of coffee? With those key pieces of information, you can then collaboratively design and execute restoration projects that will benefit the landowner’s bottom line as well as fish and wildlife populations.

JENNIFER STRICKLAND/USFWS

“The philosophy of the Partners Program has always been, ‘Where can we help? What can the land do, and what do you want it to do?’” Hogan says. “In a sense we’re design biologists, and the technical assistance we can provide to landowners is second to none.”

Throughout his career Hogan has worked with a variety of partners in the state, ranging from families who have been ranching their lands for generations to the Eastern Shoshone and Northern Arapaho tribes on the Wind River Reservation. In Wyoming, where the Rocky Mountains meet the Great Plains, the landscape is characterized by its sagebrush uplands, grassy prairies and soaring peaks. Eighty-five percent of the state is considered rangelands, and domestic livestock production is an important component of the state’s cultural and economic identity.

Despite its tremendous natural resources, water is scarce in Wyoming. As the nation’s third driest state, the wet habitats of Wyoming are few and far between. Featuring a wide diversity and high density of vegetation and prey species, these places are of high value to wildlife and people alike.

“Wet meadows and riparian areas only make up about 2–3 percent of the state, but 80 percent of the wildlife in Wyoming relies on those wet areas for all or a portion of their lifecycle,” says Hogan.

The majority of these wet places are on private rangelands, which makes ranching families the guardians of much of the state’s water resources. That means successful conservation of wildlife populations depends on their support. Hogan recognized his ranching neighbors were in a unique position to make a difference for native fish species in decline, such as the Colorado cutthroat trout.

“Like our birds, our fish are migratory. They have to be able to move up and down a [river] system to find the right conditions to complete their lifecycles,” he says. “Part of my job is to help push stream restoration, stream stability and fish passage into the forefront.”

Hogan knew that if native fish species reached the point where one required federal protection under the Endangered Species Act (ESA), that listing could impact local agricultural practices.

“The lifeblood of a ranch is its water,” Hogan says, knowing that local, voluntary conservation partnerships are the best method for safeguarding American species and working lands.

Coffee might bring people together for breakfast, but it is water that brings life to the planet. With a clear focus on improving Wyoming’s water resources for people and wildlife, Hogan began the journey that would guide his career for decades.

As Hogan was getting his feet wet in Wyoming, the late George Salisbury Jr. was having water-related challenges on the family ranch in Savery, Wyoming.

At the time, George and his wife, Laura, were the owners and operators of the Ladder Livestock Company, a cattle and sheep operation employing rotational grazing practices across a patchwork of private, state and federally owned lands. Nestled in the Little Snake River Valley along the Wyoming/Colorado line, the ranch employs irrigation techniques in Battle Creek, a tributary of the Little Snake River.

But Battle Creek had decided to move and was waging a battle of its own. The stream was wandering and cutting into Salisbury’s hay fields, threatening the health of a crop essential for feeding livestock during the winter months. Salisbury had tried various methods to ease the problem, such as building dams, but each time an adjustment was made, >>

Sharon O’Toole and her granddaughter, Siobhan. O’Toole and her family operate Ladder Livestock Company, which has shown a commitment to resource stewardship.



JENNIFER STRICKLAND/USFWS



JENNIFER STRICKLAND/USFWS

Pat O'Toole walks with Mark Hogan along Battle Creek.

the stream reacted in a different way than intended.

“Old George was a classic—he was so smart, so cool. He was like a father and grandfather to everyone,” Hogan remembers. “Ranchers like George have a respect for and understanding of the land. They know its cycles and recognize when something changes, but in some cases they might not know what’s driving that change. They may not know the ‘why.’ The Partners Program came in to answer that question.”

Through a network of conservation-minded friends and partners, Hogan was introduced to Salisbury, who invited him to visit Ladder Ranch to survey the stream. What Hogan observed was a body of water responding to change, and he saw this as an opportunity.

“We can use a stream’s tendencies to heal itself, so that was our strategy,” he says.

“Our project really protects the banks and the creek from erosion during times of high water, and that keeps the soil from going downstream.”

He knew that if they could modify the flow patterns of Battle Creek to get the stream to a stable state, they could not only save Salisbury’s hay fields but also improve fish passage for the Colorado cutthroat trout and other native fishes.

“For somebody like Mark to show up at my father’s door was really a gift,” recalls Sharon O’Toole, Salisbury’s daughter, who now operates Ladder Livestock Company alongside her husband, Pat, and their children, Meghan and Eamon. “My father was always a range management guy. He’d manage the range just as much as he did his livestock. One thing he’d say is, ‘Landscape is too important to be managed generically, it must be managed specifically.’”

Specific management of the land was exactly what Salisbury, Hogan, the Service, the Wyoming Game and Fish Department, the Natural Resources Conservation Service, Trout Unlimited and the Little Snake River Conservation District accomplished. The pilot project on Battle Creek was successfully completed in 2000.

“Our project really protects the banks and the creek from erosion during times of high water, and that keeps the soil from going downstream,” O’Toole says. “It matters; it makes a difference. I’m sure the cost has been returned many times over in public benefits, and none of that would have happened without Mark and [his colleague] Mindy.”



(Left) A portion of Battle Creek before restoration activities. (Right) A portion of Battle Creek three years after restoration.

Not only did the Salisbury/O'Toole family see benefits to their ranch, they also provided Hogan with an outdoor classroom for testing a variety of stream restoration techniques. "The O'Tooles allowed us to experiment and come up with different design criteria. We learned a lot, and I am very thankful that they allowed us to come in and try new things."

"There are so many projects you can work on with the same people for a long period of time that you build these incredible relationships. You get to know the families because you're working with them long-term on projects that require surveying, designing, coming back to stake it out, and then construction," Hogan says. "In any given year you may stay with a landowner for a full three weeks, so you become kind of like those in-laws that just...show up!"

A federal biologist and honorary in-law? Now there's a unique title.

"We've known Mark so long it seems like forever," says O'Toole. "He just has the perfect personality for the job. Great people skills and he really knows his stuff. If you're somebody like Mark, it's also not

just about being a nice person, it's about getting stuff done. He's not hard driving, but he's focused and he pays attention to what needs to be done, like deadlines and making sure everyone does their piece of the puzzle. It took Mark and the Partners Program to bring things into focus and get something major done."

Today, the Little Snake River watershed is home to the largest fish passage project in the United States. Hogan, Ladder Ranch, their neighbors, and a plethora of public and private partners continue to improve stream banks, wetlands, irrigation systems and wildlife habitat in the area. In fact, the history of successful partnerships in wetlands has expanded into even more conservation victories in the nearby sagebrush uplands, where the O'Tooles are engaged in official agreements under the ESA that provide benefits to the greater sage-grouse.

It's no question that the conservation successes of the Little Snake River Valley are built upon a foundation of mutual respect for the resource and sense of camaraderie among neighbors and families, ranchers and biologists.

When looking toward what will guide the future of natural resources conservation in the West, Hogan points to the ever-growing body of shared conservation knowledge that the partners have developed over the years.

"We learn as much from a landowner when we're on their land as I hope they're learning from us," he says. "The next generation will understand even more about what makes a healthy system. When George's great granddaughter Siobhan goes out, she will know *why* the creek meanders and that she needs to maintain different age classes of cottonwoods along a stream's banks to keep it healthy."

So what is the silver bullet that develops successful partnerships between natural resource organizations and private landowners? Hogan's answer is simple: bringing the right people together at the right time to learn from one another.

"It's an easy job; it's just so easy working here," he tells me with a smile I can hear through the phone. "It's about having that cup of coffee or sitting down for breakfast with local ranchers before they start their day. They truly are stewards of the land and have been for generations. We've just come to the table at the right time, offering the type of assistance landowners have been looking for to facilitate their ideas. We want to enable success, it's just in our nature as Partners biologists." □

JENNIFER STRICKLAND, External Affairs,
Mountain-Prairie Region



JUSTIN DALABA/USFWS

A spotted turtle found during survey work.

Slow & Steady

Service, Partners work to conserve three turtle species

by JUSTIN DALABA

You may have heard the saying, “slow and steady wins the race,” the moral of the fable *The Tortoise and the Hare*. In many ways, that’s true for the biologists, researchers, conservationists and landowners who hope to reverse the decline of three rare turtle species. A major mile marker looms in 2023 — when the Service plans to determine if spotted, Blanding’s or wood turtles need protection under the Endangered Species Act (ESA).

“While wood turtles, spotted turtles and Blanding’s turtles are considered species at risk of needing Endangered Species Act protection, we have the opportunity to change that,” says Julie Slacum, a biologist at the Service’s Chesapeake Bay Field Office.

Meet the problem

Some researchers have estimated that these turtles’ populations are on average about half what they once were. While definitive population figures aren’t available, it’s clear these rare turtles are becoming even rarer. Why?

First, they are slow to mature. They wait until they’re upward of 20 years old (as is the case for Blanding’s turtles) to have young. Dr. Glenn Johnson, a professor of biology at the State University of New York at Potsdam, explains how “the older they are, the better they are at producing more babies.” It’s the old turtles, however, that are crossing roads many more times in their lifetime, making their way across large tracts of land year after year to reach their favorite breeding spots. And every crossing is potentially lethal.

“They develop a mental map of their landscape and they want to do the same thing, more or less, every year,” says Lori Erb, a herpetologist at the Mid-Atlantic Center for Herpetology and Conservation.

While roads turn their home ranges in to a dangerous maze, landscape changes for agriculture and housing degrade and divide wetlands and natural areas with new hazards.

New York State Department of Environmental Conservation (NYSDEC) biologist Mike Morgan explains another problem: “It’s the dry upland where turtles nest that is also highly desirable for farmers, builders and everyone else that wants to develop land.” >>

(Top) Lori Erb documents a spotted turtle found during a survey. (Bottom) Dr. Glenn Johnson (left) and Mike Morgan at an old crop field that’s been restored as Blanding’s turtle nesting habitat.



JUSTIN DALABA/USFWS



JUSTIN DALABA/USFWS

Roads and development also make spotted and wood turtles even more vulnerable for illegal collection. The species are highly desired for the illegal pet trade.

“Just hitting a single turtle as it crosses the road or taking one home as a pet has ripple effects on their slow-growing population,” says Slacum.

Johnson agrees that each impact adds up to one big problem. “It’s like anything,” he says, if you take one brick out here and another brick there—“eventually the whole system collapses. We can’t let that happen.”

In New York State alone, the Partners Program has protected, restored and enhanced more than 15,000 acres of wetlands and partnered with more than 675 landowners and 60 partners.

Meet the partners

With a range stretching from the Northeast into the Midwest, southern Canada and, in the case of spotted turtles, as far south as Florida, the right partnerships and collaborations are needed to meet conservation goals for these three turtle species.

In 2004, Mike Marchand, a New Hampshire Fish and Game biologist, attended a meeting to discuss Blanding’s turtle conservation, recognizing “immediately that this is a species that moves wide distances and requires interstate communication and coordination.”

And so began the Northeast Blanding’s Turtle Working Group. Today, the states of



JUSTIN DALABA/USFWS

New Hampshire, Maine, Massachusetts, New York and Pennsylvania, the Service, U.S. Geological Survey and several universities are working collaboratively to restore habitat through competitive state wildlife grants.

In 2009, the Wood Turtle Working Group was formed under the Northeast Partners in Amphibian and Reptile Conservation (NEPARC). “NEPARC is great in that it provides a forum for region-wide collaboration between various partners and the public regarding a number of species, not just turtles,” says Noelle Rayman-Metcalf, an endangered species biologist in the Service’s New York Field Office.

Benefiting both turtles and people

When it comes down to it, the same goal is shared across the turtles’ ranges: to avoid the need to protect these three species

Blanding’s turtle (left) and a wood turtle at the Robert Moses Nature Center in Massena, New York.

under the ESA. With around 75 percent of remaining wetlands privately owned, private landowners have a lot of influence over the larger effort.

Two federal programs in particular offer technical and monetary assistance to private landowners. The Service’s Partners for Fish and Wildlife Program works with landowners to protect and restore wetlands, as well as streams and grasslands, for the greater benefit of the people and wildlife that live on them. Many of the restoration projects by the Partners Program provide benefits to Blanding’s, spotted and wood turtles. In New York State alone, the Partners Program has protected, restored and enhanced more than 15,000 acres of



JUSTIN DALABA/USFWS

A Blanding's turtle nesting site in St. Lawrence County, New York.

wetlands and partnered with more than 675 landowners and 60 partners.

For private landowners who have rare turtles on their land, the Department of Agriculture's Natural Resources Conservation Service's (NRCS) ongoing Working Lands for Wildlife (WLFW) initiative offers the opportunity to accomplish shared conservation goals. Spotted, Blanding's and wood turtles were added this year to the list of target species for the WLFW.

This partnership work might include planting cover crops to better deal with high rain events and nutrient containment, or replanting riparian buffers and wetlands to improve water quality. For a

private landowner in Dutchess County, New York, prescribed grazing with livestock such as goats and cows is a more eco-friendly way to maintain encroaching shrubs and weeds, while providing ideal habitat for nesting turtles.

The landowner, who has participated with NRCS since 2005 to restore nine acres of habitat, was as happy with the work as the turtles. "I would encourage [private landowners] to get involved as I did," the landowner says. An added benefit was that "the project was able to clear a substantial amount of invasive [plant] species from the area," helping both agriculture and turtles.

The list of benefits doesn't stop there. "You can think of a lot of these turtle species as umbrella species — when you're protecting their habitat, you're protecting all of the other species that use the area,"

says herpetologist Erb. To name a few: New England cottontail, wood duck, American woodcock, brook trout, bobcat and moose.

At a restored Blanding's turtle nesting site in St. Lawrence County, New York, it's the grasshopper sparrow that appears to be benefitting. NYSDEC's Morgan says for sites like this, "There are a lot of initiatives that all come together and overlap in the same spot, so it's a great opportunity to work with the Service and other partners."

It's a slow race to 2023, but the collaborative work between agencies and private landowners to secure and restore habitat for these turtle species is what's needed to determine the future of these rare turtle species. □

JUSTIN DALABA, New York Field Office, Northeast Region



JOHN MAXWELL FOR USEWS

CONSERVING PARADISE

A fire tickles
longleaf pine
needles.

*Many partners
work together
to protect 'the
Amazon of
the South' for
generations to
come*

by DAN CHAPMAN

It meanders 137 miles through the wild heart of Georgia, a blackwater beauty that nourishes longleaf pine forests, cypress swamps, saltwater estuaries and the barrier islands that protect the Atlantic Coast and migratory birds alike.

The Altamaha River — “the Amazon of the South” — flows free with few latter-day intrusions like bridges or factories. It’s a biodiverse playground for West Indian manatees, piping plovers, eastern indigo snakes, gopher tortoises, the hairy rattlesnake and dozens of at-risk species. It’s a recreational oasis, too, for deer and turkey hunters, fresh and saltwater anglers and, increasingly, kayakers, birders and hikers. Its history fascinates; its culture abounds.

It’s also a river corridor under siege.

A paper mill, municipal wastewater and agricultural runoff pollute the Altamaha. Development, anything from a 10-acre subdivision to a 5,000-acre horse farm, gobbles up precious buffer lands. Rising seas, warmer temperatures and killer droughts harm flora and fauna.

The river, though, benefits from one of the nation’s most ambitious, successful and little-known conservation efforts. Nearly \$100 million has been spent the last dozen years buying up huge swaths of land along the Altamaha. A 40-mile-long corridor, from Jesup to Wolf Island National Wildlife Refuge, has been protected — along both sides of the river.

“Looking back 15 years ago to where we are today, you’ve just got to say ‘Wow,’” said Dink NeSmith, a newspaper publisher in Jesup who has placed five miles of Altamaha River frontage in a conservation easement. “This is a cornucopia of wildlife. We got deer, wild turkey — unfortunately too many hog — squirrels, rabbits, duck hunting, dove hunting, oxbow lakes and cypress trees. These are natural resource heirlooms that we want to pass on to our children, their children and their children’s children.”

Saving a river corridor, of course, requires much more than nature-loving benefactors, nonprofits and private foundations. The Altamaha received generous support from an alphabet soup’s worth of federal and state agencies. Georgia’s Department of Natural Resources (DNR) and the Service top the list. The U.S. Department of Defense (DoD) also plays a critical financial and environmental role in the Altamaha’s survival.

The river is a stellar example of a “conservation corridor,” a lengthy, protected bulwark against the ravages of over-development and a warming climate. Within 45 years, for example, the Southeast is projected to lose a South Carolina-sized amount of forest. The region’s population could double. The South’s natural, historical and cultural worlds are threatened. Unless something is done.

The Southeast Conservation Adaptation Strategy (SECAS), created by a coalition of government and nonprofit groups, aims to protect large swaths of land, myriad at-risk species and a distinctly Southern way of life heavy on hunting and fishing. The plan, with a target date of 2060, enlists business, industry and the military — entities not typically synonymous with conservation — in “a connected network of landscapes and seascapes that supports thriving fish and wildlife populations and improved quality of life for people.”

“The Altamaha River fits perfectly into the SECAS mold,” says Cindy Dohner, the recently retired Regional Director for the Service’s Southeast Region. “It’s a wild and beautiful river corridor teeming with at-risk, threatened and endangered species as well as recreational opportunities. It’s also a testament to the

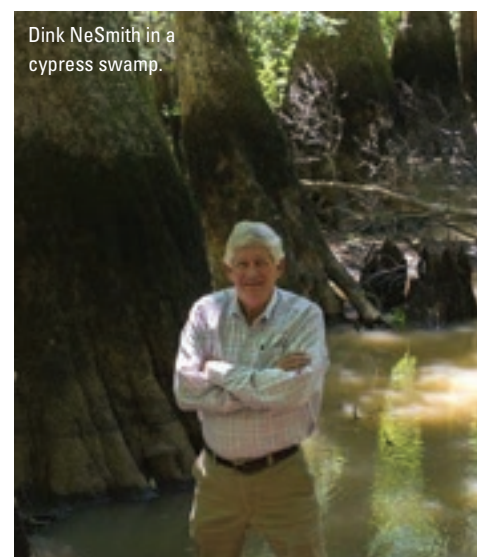
power of cooperation — between the feds, the state of Georgia, the military and private landowners — to keep working lands working for the betterment of the economy.”

Pelicans and Plantations

Wolf Island is fast eroding. Shifting sands and rising seas have lopped hundreds of feet of beach and marsh from its seaward side. The refuge, though, remains quite popular with migrating birds who traverse the Atlantic Flyway. And, as the easternmost reach of the Altamaha River basin, Wolf Island is an ideal spot to begin a 40-mile upriver sojourn.

A handful of piping plovers, a species threatened with extinction, waddle along the beach before heading back north for the summer. Hundreds of red knots fly from ocean to beach to marsh and back again in search of clams, oysters and mussels. Orange-beaked American oystercatchers, lumbering brown pelicans, least and royal terns, black skimmers, godwits and any number of ducks parade and preen along the shore.

The Altamaha dumps 100,000 gallons of water into the Altamaha Sound each second, concocting a hearty fresh-salt water cocktail that nurtures everything from tiny food-source plankton to »



Dink NeSmith in a cypress swamp.

NICOLE VIDAL/USFWS



Salt marsh
along the
Altamaha River.

NICOLE VIDAL/USFWS

endangered Atlantic and shortnose sturgeons. Clams, sea worms, snails, crabs, black drum, croaker and spotted sea trout all depend on the watery mix. Pickerelweed, a plant favorite of threatened West Indian manatees, grows in the marsh. White shrimp—a commercial fishing stalwart—spawn offshore, migrate upstream into tidal creeks before returning downriver as adults to the estuary and open waters to spawn or get scooped up in nets.

“You need to keep the river clean for the fishing and all the tourists and the yachts and the kayakers coming through,” says Benton Wilson, while gutting flounder and whiting for a wholesaler along the docks of Darien. A nearby shrimp boat readies for a five-night trawl. An American alligator suns along the banks of the river below the U.S. 17 bridge.

“If you don’t protect it, then you get pollution and the river’s [quality] will go down and all the fish are going to die, the crabs are going to die,” Wilson, 74, continues. “You need to protect it now so you can save it for the future.”

Fishing and tourism are big business in the Altamaha corridor. Duck, turkey, deer and boar hunters roam the state-run wildlife management areas (WMAs) that line the river from below Darien to above Jesup.

The WMAs protect more than 141,000 acres. Add property managed or controlled by the U.S. Marine Corps, the Service and The Nature Conservancy (TNC) and nearly 200,000 acres are protected. In all, more than 40 miles of property, from Wolf Island to Jesup, will forever remain undeveloped.

In 2011, the Service designated the Altamaha a “critical habitat.” TNC labels

it one of “America’s Last Great Places.” The state of Georgia says the river, with more than 120 rare or endangered plants, fish, mussels and animals, is a “high priority” for conservation.

“The Altamaha corridor is spectacular, with such a range of species and habitats: tidal areas with forests; salt marshes; longleaf pine forests; and the wonderful delta,” says Christi Lambert, who has spent 25 years protecting the river for TNC. “I love the river. It’s such a special place. It takes care of us.”

Most of the land bordering the Altamaha was once slash and loblolly pine bought from Rayonier, International Paper and other timber companies and set aside for hunting and fishing. The timber companies work diligently with the state, the Service and others to make sure the deals work in a timely fashion. And one can find other recreational activities, too. Altama Plantation, for example, a 4,000-acre state-owned tract outside Brunswick, offers hikers, bikers and birders miles of carriage roads and sandy trails wending through an old rice plantation steeped in history.

“How quietly flow thy peaceful floods”

The King of England granted William Hopeton, a wealthy South Carolina grower, the title to Altama in 1763. Rice gave way to Sea Island cotton, which was shipped downriver to Darien for export to England. The Civil War and slavery’s demise killed cotton, but wealthy industrialists, including the DuPonts, bought Altama and added stately homes, a horse track, an airstrip and a swimming pool.

Naturalist William Bartram—“How quietly flow thy peaceful floods, O Altamaha!”—took a mesmerizing 50-mile

canoe trek upriver in 1773 and discovered a tree found nowhere else. (He named it for Benjamin Franklin.) Flat boats filled with cotton and tobacco floated from the headwater Ogeechee and Oconee rivers down to Darien in the early 1800s. Hand-hewn cypress, oak, sweetgum and poplar were fashioned into gigantic rafts and guided downstream to the bustling port town.

Trains and trucks, and the denuded forests, killed river traffic. Timber companies returned the corridor to a natural state, albeit with quick-growing pine trees devoid of the majesty of the swamp cypress and Ogeechee lime.

Longleaf Pine to the Rescue

“This,” says Jason Lee atop a 40-foot bluff overlooking the Altamaha, “is Sansavilla.”

Just upriver from Altama Plantation, Sansavilla has taken on almost mythical status among conservationists. It was the corridor’s missing piece: a 19,500-acre chunk of land finally cobbled together last year by the Service, the state, the military, the U.S. Forest Service, TNC and the Conservation Fund.

Native American, Spanish and English troops and travelers traversed the river here on a footpath to St. Augustine, Florida. Mary Musgrove—perhaps the most interesting woman in Georgia history—ran a trading post and ferry in the mid-1700s. The Old Post Road hugged the sandy ridge through the otherwise impenetrable forest.

Today, the former slash and loblolly pine farms are being clear-cut or thinned and replaced with wildlife-friendly longleaf pine. The tracts will be burned every few years to create a healthy undergrowth of grasses and legumes for endangered species, gopher tortoises in particular.

The Service and other conservation agencies have spent millions of dollars to keep the tortoise off the endangered species list. Sansavilla, and much of the Altamaha corridor, is considered prime

tortoise habitat. Already, 400 turtles have been tallied at Sansavilla. The goal is 1,000 or more.

“Once they began clear-cutting or thinning heavily, and burning, the tortoises just came in and took over,” says Lee, a Georgia DNR program manager, pointing out burrows under a power line. “It has exceeded our expectations, definitely. And the tortoise population will just fan out further and further as the habitat improves.”

The gopher tortoise is considered a keystone species, without which the entire ecosystem would suffer. Its burrow, for example, is favored by eastern indigo snakes, burrowing owls, gopher frogs, the Florida mouse and more than 350 other species. Lee shared rare photos of an endangered indigo photographed alongside a burrow at the nearby Penholloway Creek WMA.

“We pride ourselves on what we call proactive conservation: trying to protect species while they’re still abundant,” says Lee, a landscape ecologist. “It’s a way to identify habitat and prevent those species from being federally listed. The Altamaha corridor is a perfect spot to protect the gopher tortoise.”

Georgia, in its 1978 land-use study, said the corridor must be protected. Tracts

were added piecemeal over the years. Since 2005, though, public and private groups have spent \$93 million protecting the river via fee-simple purchases or permanent easements. Typically, TNC or the Conservation Fund would buy a tract of forest land and hold it until the Service or the state—leveraging dollars from various sources—came up with enough money to take control of the land.

Georgia and non-military federal partners put up about \$23 million each, with the Service contributing the lion’s share of the federal cost, largely through bird and wetlands conservation grants.

Peaceful Coexistence with the Military

The Altamaha corridor is critical habitat for the U.S. Marine Corps, too. F-18s, A-10s and other war birds follow the river up from the coast to the Townsend Bombing Range, across from Sansavilla, and drop “inert” (non-explosive) bombs on targets. The mostly undeveloped corridor makes for an ideal bombing run and buffer zone. Various DoD grants have helped buy land or easements along the corridor with the proviso that tall structures can’t be built.

The range today is 5,200 acres. Soon it will expand to 34,000 acres—with thousands of acres re-planted in longleaf pine. Numerous threatened, endangered or candidate species, including the gopher tortoise, indigo snake and frosted flatwoods salamander, live seemingly in harmony with the bombs.

“We’ll be managing an entire ecosystem,” says Gary Herndon, a natural resource manager at the Marine air station in Beaufort, South

Carolina. “We’ll enhance the habitat, preserve and promote a diversity of species, all while protecting our mission.”

One day, the bombing range will link with Fort Stewart to the north, creating an even larger wildlife corridor and further buffering the two military installations. Lee, the DNR ecologist, is also cobbling together a 120-mile corridor from Florida through the Okefenokee National Wildlife Refuge and up to Fort Stewart.

Corridors, in essence, are what SECAS is all about: conserving public or private lands now so that the ravages of urbanization, industrialization and climate change don’t harm flora and fauna in the future.

NeSmith, the newspaperman, sees the river’s threats firsthand. Pollution from a paper mill coloring the river an unnatural brown. Toxic chemicals seeping from factories in Brunswick. Herbicide running off pine plantations. Saltwater creeping upstream killing live oaks.

A Jesup native, NeSmith began buying up Altamaha River property in the early ‘80s. Nearly 3,000 acres of his land—oxbow lakes, cypress swamps and hardwood forests—have been placed in everlasting conservation easements with TNC and the U.S. Department of Agriculture. That translates into five miles of protected riverfront.

“I can remember paddling in one of these oxbow lakes when my daughter Emily was about 8 years old. She was shaking her head, pigtails flopping and she said, ‘Dad, why does God even make red bugs, ticks and mosquitos? Why?’” NeSmith recalls. “I said, ‘Miss Em, that’s His way of reminding us we aren’t in heaven yet. Because if you took those annoyances away, this is pretty close to heaven already.’” □

DAN CHAPMAN, External Affairs, Southeast Region



Kayaking in Darien, Georgia.



KATE AQUINO/USFWS

People, Places & a Plant

*From Massachusetts to
South Carolina, sowing
faith in and recovering
seabeach amaranth*

by JENNIFER KOCHES

Yes, this is a story about people, places and a plant — but it's more than just that. This is a story about faith in a tiny little seed and the huge potential for recovering a threatened species. First things first — the plant.

Most people have probably never heard of seabeach amaranth, but for such an obscure little dune plant, it bears a mighty burden. This low-growing annual colonizes newly disturbed habitats such as over-wash areas at the end of barrier islands and flat, low-lying areas along the foremost dunes. It is perfectly designed for trapping sand and plays an important role in the dune-building process. As sand builds around the sprawling amaranth (some healthy plants can grow more than three feet in diameter), other plants move in, aiding in the establishment of dunes and eventually out-competing the amaranth. The amaranth moves on to new areas, and the cycle repeats. Because of this, seabeach amaranth is noted in the botanical world as a “fugitive” species.

Its ecological role cannot be overstated. The more sand that is trapped, the more vegetation can become established; the more stable the dunes, the more protected the beaches – you get the picture. It wouldn't be a stretch to refer to seabeach amaranth as the Atlas of the beach-plant world, bearing the weight of coastal protection on its back.

Seabeach amaranth inhabits the dynamic shores of the Atlantic Coast, historically from Massachusetts to South Carolina, setting its roots wherever suitable habitat is available. First described in the early 1800s, it was frequently collected and written about. But by the 1900s with the advent of bulkheads and seawalls, the decline began. Increasing pressures on coastal habitats from development, human foot traffic, beach driving and such disastrous storms as Hurricane Hugo in 1989 sounded major alarms for the species, eventually resulting in its listing as a threatened species by the Service in 1993. Populations had declined to the point that the plant was only found in New York, North Carolina and South Carolina—Long Island being the northernmost population in existence. Since listing, additional threats have been identified such as beach nourishment projects, grazing by herbivores and invasive species.

Just like the environments in which seabeach amaranth grows, populations can be highly dynamic with numbers fluctuating widely from year to year. But something noteworthy has happened over the last decade, something more than just a fluctuation. A significant decline from a high of almost 250,000 plants tanked to just around 1,300 rangewide. Time to rally the troops.

The People

Dale Suiter, an endangered species biologist in the Service's Raleigh Field Office, was behind the number crunching. As recovery lead for the species, he has kept up-to-date on seabeach amaranth populations since 2003. And being the lead for a species that historically spans nine states, he has had the opportunity to get to know quite a few folks who are working hard to recover this plant, including Erin King, biologist at Stewart B. McKinney National Wildlife Refuge in Connecticut. The two began to craft a rangewide recovery project to bolster the species. In short, the plan involved collecting seabeach amaranth seeds from existing populations and establishing seed plots on beaches at coastal refuges throughout the species' historical range.



They realized that establishing more self-sustaining populations in natural areas less vulnerable to man-made threats was needed to prevent seabeach amaranth from going extinct.

A major component of the plan is a “seed increase” at the North Carolina Botanical Garden, the Center for Plant Conservation’s designated repository for seabeach amaranth seeds. An aging seabeach amaranth seed bank created an urgent need to collect new seeds from as many populations as possible to preserve genetic diversity, safeguard the species against extinction, and provide seeds for future research and reintroduction projects. The seed increase involved growing plants from seeds that were collected in the wild and then harvesting seeds from those plants. In total, 12,000 seeds went to establish seed plots in the field this season while an additional 80,000 seeds are being kept in long-term storage.

The Places

The work began in May, first at Cape Romain National Wildlife Refuge in South Carolina and progressing northward to Chincoteague National Wildlife Refuge in Virginia, Cape May National Wildlife Refuge (and the adjacent U.S. Coast Guard LORAN Support Unit beach) and Edwin B. Forsythe National Wildlife Refuge in New Jersey, Nantucket National Wildlife Refuge (and lands owned by the Nantucket Conservation Foundation and the Massachusetts Trustees of Reservations) in Massachusetts and lastly Monomoy National Wildlife Refuge, also in Massachusetts. With the help of two Service regions, six refuges, dozens of volunteers, partners and Service staff, one by one, the seeds were planted in carefully planned and plotted transects.

The seabeach amaranth planting team at Chincoteague National Wildlife Refuge.

“This recovery project has been a great opportunity to work with other Service biologists and conservation partners to try to establish seabeach amaranth populations on national wildlife refuges and adjacent conservation lands,” says Suiter. “I’m eager to see the results of everyone’s hard work.”

And as the weeks passed, monitoring crews noted some amazing early success—beautiful, healthy seabeach amaranth plants springing up—some in places that haven’t seen plants in decades.

The hope is that as each of these plants will reach maturity and produce a wealth of seeds on the shores of these refuges, giving rise to a next generation of amaranth plants. From the beaches of Monomoy Refuge south to Cape Romain Refuge, this obscure little beach plant has gotten a hero’s welcome. Many of the people working this recovery project have never met face-to-face, but there is nevertheless a common thread connecting them all—faith in a tiny little seed that so many hands worked diligently to sow.

As Melanie Cucunato, an intern at Cape May Refuge, so eloquently says: “The only thing I can keep thinking is that in 20 years, when there is a steady seabeach amaranth population on the refuge, I will be able to visit and tell my children and my grandchildren, ‘I was a part of planting this seabeach amaranth and look at it now!’ I can’t think of anything more rewarding than that.” □

JENNIFER KOCHES, External Affairs,
Southeast Region



SEARCH PARTY

*In Maine, partners
find common ground
in cold water*

by BRIDGET MACDONALD

"If you were a salmon, where would you want to be in the summertime?" Service fisheries biologist Scott Craig asks about a dozen people at Moosehorn National Wildlife Refuge in Maine.

They aren't there to hear the answers. They are there to help find them. A few hours later, most are knee-deep in Popple Flowage learning how to install data loggers underwater to find sites that offer prime habitat for salmon—or could if restored.

Once the loggers are installed, they can be left alone to record water temperatures for up to three years. But up front, it requires a lot of time in the field, toting a lot of equipment—tape, epoxy, a wire brush and a camera to document the site well enough to find it again. Preferably a waterproof camera.

"I already fell in this morning when I was out scouting the site," says Service biologist Kirstin Underwood, who was co-leading the training with Craig.

It's worth the trouble. For young Atlantic salmon—called parr—summer is the time to forage, mature and grow, which they can only do in water 44 to 72 degrees Fahrenheit. For reference: That's cold. The low end of the temperature range for an Olympic swimming pool is 77 degrees.

When water temperatures pass that threshold, salmon suffer. “They still eat, but they don’t gain weight because their metabolisms are running so high,” says Craig. When water temperatures stay high for several days, salmon will relocate in search of cold water. When they’re traveling, they’re not growing, and the likelihood that they will live long enough to reproduce begins to diminish.

That’s not just a problem for fish; it’s a problem for Maine.

“Cold water is our natural heritage,” explains Merry Gallagher of the Maine Department of Inland Fisheries and Wildlife. As a native fish conservation biologist, Gallagher’s primary focus is Eastern brook trout—a species of special concern in Maine—and as with salmon, temperature is everything. Brook trout do best in water between 54 and 68 degrees.

The challenge, Gallagher says, is that “Maine is a big state, with a lot of water.” More than 44,000 miles of rivers and streams in 10 major watershed regions, encompassing more than 35,000 square miles. Just 1,000 square miles shy of the total area of the five other New England states combined.

That’s why partners from Native American tribes, universities, watershed councils, land trusts, nonprofit organizations, and several state and federal agencies in the United States and Canada formed the Maine Stream Temperature Working Group. They all share a stake in Maine’s cold water heritage, and now they are sharing resources that can help them preserve it.

“There were a lot of organizations keyed into streams and stream temperature in Maine, and many people were collecting data in different places at different times across the state,” says Service biologist Serena Doose, former coordinator of the working group. “We knew that all of that data would be of greater value if it was collected and shared.” That’s because when all of the information is one place, it’s easier to see where the gaps are.

Ecologist Ben Letcher of the U.S. Geological Survey’s Conte Anadromous Fish Research Center was thinking the same thing on an even bigger scale. With support from the Service and a regional conservation collaborative, his research group had been developing the Spatial Hydro-Ecological Decision System (SHEDS)—a regional stream temperature database and more—designed to support better management of aquatic resources across the Northeast.

The goal was to build a model that could predict daily stream temperature at most locations in the region—except sites with unusual groundwater inputs or water management practice—based on weather conditions, characteristics of the surrounding watershed and actual measurements taken by people in the field. The perfect tool to find sweet spots for species such as salmon and brook trout.

Just as the coordinators of the Maine partnership were looking for a central repository for partners to store their data, Letcher approached them about piloting the SHEDS database.

They dove right in.

“I was surprised to see how many different organizations were involved,” says Jeff Walker, an environmental and water resources engineer who helped design the SHEDS database.

But for participants, it seemed natural. “As soon as I got wind of the group, I thought: ‘Yes! We want to be involved,’” says Jeff Stern of the Androscoggin River Watershed Council. Stern focuses on habitat restoration projects for brook trout and says he has noticed that the main stem of the river has been getting increasingly warmer in the summer.

“In the long run, the tributaries are going to be the saving grace for brook trout,” Stern says. The streams “are smaller; more shaded and will stay cooler as the climate changes,” he explains. “SHEDS

will help us focus in on exactly where we need to be concentrating our efforts.”

And the focus gets sharper as more partners contribute. Courtney Nickerson, a board member of the Merrymeeting Bay Chapter of Trout Unlimited and of Fly Fishing in Maine, was looking for a way to channel his local knowledge of aquatic systems into a project that aligned with the missions of his organizations when he heard about the working group. He attended a training in November 2016 and went home with 10 data loggers to deploy.

“As someone who is out on the water a lot, I understand how important cold water is to an entire river system,” says Nickerson. “Trout Unlimited can use the information we collect to keep track of streams and be better stewards at the local level, but anyone who goes into SHEDS can use that data to help make better management decisions now, and hopefully 10 years and 50 years into the future.”

According to Underwood, who is now the coordinator for the working group, SHEDS has temperature data from 1,773 sites in Maine—that includes data from 194 active sites where data loggers have been installed, as well as historic data.

There are now almost 100 million stream temperature measurements in SHEDS for the entire Northeast, and nearly half of them are in Maine.

While there is still more ground to cover, the picture is coming into focus.

“There are some areas where, until recently, we didn’t have any data at all,” says Gallagher. “We are continually getting new information, and every iteration of the model is an improvement.”

They are getting warmer in their search for cold water. □

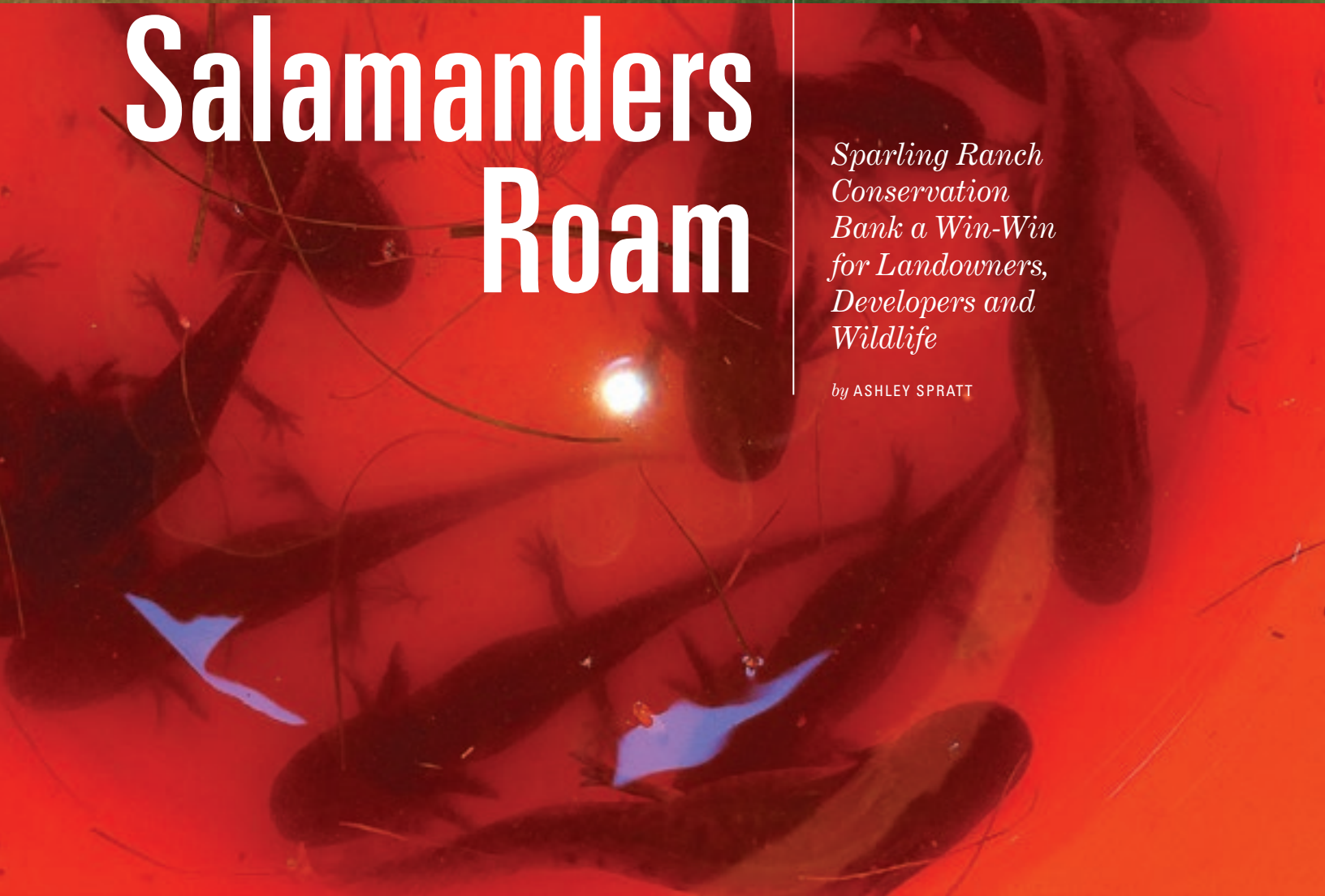
BRIDGET MACDONALD, External Affairs,
Northeast Region



Where Cattle Graze & Salamanders Roam

*Sparling Ranch
Conservation
Bank a Win-Win
for Landowners,
Developers and
Wildlife*

by ASHLEY SPRATT



Amid the rolling grasslands and oak woodlands of Santa Clara and San Benito counties lies Sparling Ranch, just outside the small town of Hollister, California. On warm summer days, herds of cattle graze and rest on the sloping hillsides.

(Top: previous page)

Researchers sample a pond on Sparling Ranch during a statewide study of California tiger salamander genetic diversity; this pond supported numerous California tiger salamander larvae.

(Bottom: previous page)

California tiger salamander larvae from a pond on Sparling Ranch, temporarily held in a bucket during a monitoring survey.

During nighttime winter rains, small, brightly colored amphibians called California tiger salamanders leave the protection of ground squirrel burrows to visit stock ponds that dot the landscape. There, they breed and keep company with another rare amphibian, the California red-legged frog. As their names suggest, both species are unique to California, and both are protected under the Endangered Species Act (ESA).

At Sparling Ranch, cattle, salamanders and frogs peacefully coexist, and will continue to for years with the establishment of the Sparling Ranch Conservation Bank.

Cattle ranching and healthy habitat for these native, rare amphibians prove to go hand in hand, explains Service biologist Jeff Phillips.

“California tiger salamanders historically used naturally occurring ponds in valley bottoms to breed. But those valley bottoms also became attractive to people, and over time, many of the ponds were drained permanently and were bulldozed over to make way for houses or farms,” Phillips says. “Ranching in the foothills, however, provided large, contiguous open spaces, including grassland and chaparral habitat ideal for salamanders. The stock ponds that were built by ranchers also

became suitable breeding grounds for the salamanders and frogs that were pushed out of the valleys.”

Thanks to the Sparling Ranch Conservation Bank, more than 2,000 acres of valuable habitat will be permanently protected for California tiger salamanders and California red-legged frogs, including 14 breeding ponds, while the Sparling family continues to raise and graze cattle on their land.

Cousins Tom and Ed Sparling reminisce about the history amid these hills, where their families have ranched, hunted and fished for six generations. Their great-great grandfather was T.S. Hawkins, who traveled hundreds of miles by wagon from Missouri to California and originally settled the land at the turn of the century.

“It’s been a good thing,” Tom says of establishment of the bank. “We’re keeping the property in the family. By treading lightly on the land, not overgrazing, and developing water, we were already managing the land in a way that was good for these species.”

The land has been used for cattle ranching for more than a century. “It’s been my livelihood. I’ve lived here since I was 3 months old,” Ed says. Ed, his son and other ranchers who lease land on the property will continue their ranching operations on the bank.

A herd of cattle kicks up dust underneath a beautiful old bay tree as Tom parks his truck a few hundred yards from McClure

Pond. Ed's sister was married under that bay tree. According to biologists, McClure Pond is one of the most productive California red-legged frog ponds in the area.

In exchange for permanently protecting the land and managing it for these species, the Service and the California Department of Fish and Wildlife approved a specified number of species credits that the conservation bank may sell to project developers in surrounding areas to mitigate project impacts on federally protected species, such as the California tiger salamander, as required under the ESA.

Sparling Ranch sits just outside of Hollister, 50 miles south of the bustling Silicon Valley towns of San Jose and Palo Alto. For developers in the Hollister area and beyond, the Sparling Ranch Conservation Bank provides a simple, economical opportunity to save both time and money while ensuring their project doesn't negatively impact a species' chance at recovering. Developers with projects in designated service areas stretching from Alameda County southward to Kern County may be authorized by the Service to purchase credits in the bank.

Michael Anderson is a property developer and established South Bay Conservation Resources to work with landowners and state and federal officials to identify high quality habitat for rare wildlife that could be preserved as part of regulatory compliance for property development. Anderson's team is developing Santana Ranch, a master planned community in Hollister with a variety of homes, parks and a school site, and will be the first to purchase credits in the conservation bank.

"We saw there would be an increasing need for conserving California tiger salamander and California red-legged frog habitat, so we searched for properties with high-quality habitat until we found Sparling Ranch," Anderson says.



JEFF WILKINSON

Phillips coordinates the Service's Conservation Banking Program along the central California coast and says that conservation banks can also achieve strategic conservation over a large area of the landscape. Land conservation opportunities can be sought out in the most valuable habitat for recovering the species, such as essential population connectivity or migration corridors, and conserved by selling credits to offset impacts to less important habitat by development projects elsewhere in the species' range.

"If you're a housing developer, you don't typically specialize in biology or ecological restoration," Phillips says. "Developers that I've worked with have appreciated conservation banks as a mitigation option, because they can simply purchase credits and know their project is in compliance with the ESA, and get back to their work," he explains.

Tom recalls the fateful day biologists surveying the property discovered California tiger salamanders in 2011. At that time, the family was considering selling the property. "They scooped 'em up

A large California tiger salamander larva being measured during a monitoring survey on Sparling Ranch.

and couldn't believe it. But it makes sense. We have cattle, we have squirrels, and we have vernal pools. It's the magic three."

Other native species that may use the area include the burrowing owl, golden eagle, loggerhead shrike, Western spadefoot toad and Western pond turtle.

Tom abruptly pumps the brakes of his truck and peers out the window to the sky overhead. "Look there, a golden eagle." The eagle flies low over the grasslands before ascending out of eyesight into the blazing sun. "That's the thing about this place. You always see something new. It's always changing."

David Hacker, a conservation and mitigation banking coordinator with CDFW says the number of species that will benefit is too long to list. "Banks like this benefit the whole wildlife community, not just the species for which credits will be sold."

Tom Sparling (left) and Ed Sparling are among the more than six generations of Sparling family members who have run Sparling Ranch near Hollister, Calif., since the turn of the century.



ASHLEY SPRATT/USFWS

Tom slows the truck as a doe and her two young buck cross the road in front of us. “We’re sportsmen, hunters and fisherman. So are our kids. Six generations,” he says. “Ed looks at it from a cattleman’s perspective, I look at it from a hunting and fishing standpoint. In the end we all came together,” he says.

In some cases, landowners face financial pressure to sell or develop their land because of the expense of maintaining open space. But for landowners who want to maintain their undeveloped land the way it is, conservation banks can be a financially attractive option. The presence of endangered species on a property is a good indication that the landowner has been an excellent steward of their land. In many cases a landowner can continue to do

what they have always done with the land while generating additional income.

Many threatened and endangered species continue to face the threat of extinction because their habitat is fragmented or destroyed. At Sparling Ranch, large connected areas of contiguous upland and breeding habitat play a critical role in supporting the California tiger salamander’s life cycle, and thus its chance at recovery and removal from federal protection.

Of the 167 conservation banks that have been established nationwide, 109 are in the Golden State. While Phillips says the majority of existing conservation banks are in the Central Valley and northern and southern California, he is hopeful that the

growing trend will make its way to California’s Central Coast.

“What’s great about conservation banks is that everyone walks away from the process better off,” Phillips says. “You have permanently protected habitat for rare wildlife, landowners continue their activities on the land and generate additional income, and project developers complete and certify their mitigation in advance. Everybody wins.”

The Sparling Conservation Bank is considering adding another 1,282 acres, including seven more ponds in the future. □

ASHLEY SPRATT, External Affairs,
Pacific Southwest Region

Members of the Klamath Basin Tribal Youth Program work in a stream.

MAKING DREAMS

Klamath Basin Tribal Youth Program helps young people become stewards of nature

by SUSAN SAWYER

COME TRUE

Growing up on the Yurok Reservation in northern California, Jaycee Owsley dreamed of becoming a marine biologist, and the Service's Klamath Basin Tribal Youth Program helped her pursue that dream. When Owsley entered high school, she was accepted into the program. Five weeks later, she knew exactly how to make her dream become real.

The program was established in 2011 by the Service to provide hands-on natural resource and career education to local tribal youth. Since then, more than 75 percent of the program's participants have pursued college degrees, an impressive success by any measure.

Today, Owsley is studying biology at Humboldt State University in Arcata, California.

"The Tribal Youth Program not only helped me understand the problems of a changing climate in our native communities, but to also be a part of the solution," Owsley says. "After the Inter-Tribal Youth Leadership Congress...I wanted to stay in the local area, become a fisheries biologist and work with the tribes to help our rivers."

Trevor Super, a member of the Quartz Valley Indian Reservation and youth program coordinator, was a college intern with the U.S. Forest



Service when the tribal youth program was created. Today, he directs it.

Upon graduating, Super was offered a permanent position by the Service in Yreka to develop and coordinate the program, which combines practical skills in field work with mentoring from resource management professionals in real-world scenarios.

Each student works alongside biologists, hydrologists, botanists, engineers, foresters, scientists and land managers in the Klamath Basin. Youth can either volunteer, apply for a five-week high school leadership congress or a 10-week college level paid internship. The 10-week opportunity is for youth selected from each of the six federally recognized Klamath Basin tribes.

During the program, each student designs a research project based on a climate-related challenge. They establish a topic, study protocol, methods and materials, then present their findings at the program conclusion.

“Students are encouraged to incorporate tribal culture and traditions, and how their findings could benefit their tribe and the Klamath Basin resources,” Super says.

Partners and sponsors, such as the U.S. Forest Service, Bureau of Land Management, NASA, Bureau of Indian Affairs, Humboldt State University, CSU Sacramento, UC Davis, American River College and Southern Oregon University, provide additional resources and support.

Liston Case, of the Klamath Tribes, graduated last summer from Oregon Institute of Technology with a degree in environmental science, and is a former participant. While finishing his degree program, he began his 10-week internship. Less than a month after completing the program, he was hired by the Service in Klamath Falls as a hydrologist doing restoration work throughout the Upper Klamath Basin.



(Top) Liston Case prepares to collect water samples on the Klamath River as part of his new permanent position as a Service hydrologist. (Bottom) Jaycee Owsley works on a trail improvement project during the Inter-Tribal Youth Climate Leadership Congress in West Virginia.



“I figured I would have to leave my tribal ancestral territory to find work,” he says. “If I didn’t have the youth program opportunity, my education and professional work would be disconnected from the basin.”

McQuillen began his career path first by working on a Pacific fisher translocation project, then as a tribal wildlife grant assistant with the Service. In 2013, he was accepted into a Service 10-week internship program and was part of a team that received the Department of the Interior Partners in Conservation Award from former Interior Secretary Sally Jewell.

Last summer, McQuillen served as research project lead adviser for the youth program before starting his master’s degree in natural resources at Humboldt State University.

“Elders have used the [Klamath Basin] for subsistence and cultural activities since ancient times, so extending my education and career to conserve this ecosystem is just a tweak on tribal management style,” McQuillen says.

Super is quietly proud of the program he helped create. “We have given students a vision for their future,” he says. “The focus will continue to be on the students, and through successful collaboration, they are able to connect tribal traditions with a future in natural resource conservation on their ancestral land.” □

SUSAN SAWYER, External Affairs, Pacific Southwest Region

“I gained experience in different fields of study such as fish and wildlife biology, river restoration, topographical surveys and cultural resource monitoring,” Case says. “What this program did was allow me to move forward much faster and advance into a permanent career.”

The program also enabled him to give back by setting an example for younger Native Americans, he says. “I think I’ve showed that being a college graduate isn’t out of reach. It can be attained through hard work and perseverance.”

Yurok Tribe member Kagat McQuillen says his experience enabled him to stay near his home.

full circle

Jana Myers grew up on a reservation and is now the first tribal liaison for the Service's Migratory Bird Program

by CHRISTOPHER DEETS



January Myers at Spring Creek National Fish Hatchery in Washington.

Sometimes you are completing a circle without even knowing it, and no one more so than Presidential Management Fellows (PMF) Program graduate, January Myers, whose path to full-time Service employee unknowingly ended in a reconnection with her roots.

January “Jana” Myers grew up on the Lower Brule Sioux Reservation in South Dakota. She attended a Native American high school, which she found very rewarding, with exposure to a diversity of cultures, as many of the more than 500 federally recognized tribes were represented. This appreciation of diversity would serve her well in the years to come.

She had always dreamed of joining the Army and enlisted right after graduation. She served more than eight years as an ammunition specialist while deploying to Afghanistan and rising to the rank of sergeant.

After finishing her military career, she continued to work with the Department of Defense while earning both a bachelor’s degree and a master’s degree in business. She believes in the idea of serving the public through government service, and she wanted to both return to public service and continue developing her leadership skills. She found a program that would do just that: PMF.

The program is government-wide and designed to give graduate students and recent college graduates a unique leadership and career development opportunity through an entry-level placement, training and developmental assignments. At the end of a two-year assignment, fellows have an opportunity to be converted to a career appointment. For Myers, this seemed like an ideal opportunity.

Myers was one of about 500 finalists eligible to apply for a federal placement, and after a long search, she found the Service’s Duck Stamp Office, housed in the Migratory Bird Program. Although

she was not familiar with wildlife issues, she thought it would be a good fit with her background in managing inventory.

“It was hard to leave behind my family in North Carolina,” she says, “but I was really excited to continue my career of service and develop my skills.”

She started work as a program analyst in November 2014. She also served a six-month developmental assignment in the Ecological Services Office in Raleigh, North Carolina. Myers had a special opportunity to work on developing a tool to document and manage collaboration with landowners. “I can’t imagine a better development opportunity.”

Myers had several other assignments during her development phase, including a stint in the National Wildlife Refuge System Budget Office. However, it was the unexpected one that had the most impact on her. Myers was invited to participate on a call that included several tribal members and Service Tribal Liaison Scott Aikin.

That invitation changed her life.

“I had no idea something like that existed,” she says. “But once I found out, I knew I wanted to be a part of it.”

She was able to spend more time with Aikin, learning more about the Service’s involvement with tribal consultation. At the end, she was more determined than ever to make this part of her career path, and she did not let the fact that there had never been such a position in the Migratory Bird Program deter her. After many discussions among Service leaders and Myers’ completion of the PMF Program, she joined the Service as the

first-ever Migratory Bird Program tribal liaison in November 2016.

She has worked closely with the Native American Liaison Office updating the Service’s Tribal Consultation Handbook and taking training for liaisons.

Myers also serves as the program’s Freedom of Information Act (FOIA) coordinator. Her FOIA work covers the entire spectrum of the Migratory Bird Program’s activities.

Assistant Director Jerome Ford of the Migratory Bird Program had nothing but praise for Myers. “She brings a strong sense of discipline and regimented approach to accomplishing her work,” he says. “Her military background and leadership aids her in our program by making sure a plan of operation is always clear and then executing that plan accordingly. January’s work ethic is one of her greatest assets.”

As for Myers, not only did she end up connecting back to her tribal roots, but she is fulfilling a dream of her father’s. “I never knew, but he studied fish and wildlife in school, and was connected to that world. He couldn’t believe it when I told him where I was working!”

As Myers’ path comes full-circle and she embarks upon a new stage in her life, she has some words for those who would consider following in her footsteps: “If you can dream it, you can do it. If you want it badly enough, you can work hard and make it happen.” With a drive, vision and ability like that, Jana’s journey is just beginning. □

CHRISTOPHER DEETS, Migratory Bird Program, Headquarters

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.

Our First Modern Logo



After using a series of embroidered felt patches adorned with rudimentary birds and lettering in various configurations to signify the U. S. Biological Survey, a more modern or intricate logo was needed to depict the U.S. Fish and Wildlife Service. So where

did our first modern logo, which mirrors our current logo, come from? The idea came from Doug Swanson on February 22, 1948. Doug found some color pictures of a Canada goose in flight in an Ethyl advertisement in the *Saturday Evening Post*. Then he shopped for a can of salmon that had a properly sized picture of a salmon on the label. He arranged these cutouts within a circle. Then he added the Department of the Interior and Fish and Wildlife Service lettering in black and orange in the bordering circle. A flying waterfowl over a jumping salmon has been used from then until modern times. Our logo story began with a salmon can and an advertisement.

Shooting Birds, Not Dinosaurs



This large-caliber weapon shown off by Biological Survey officer George Lawyer is not the real reason dinosaurs met their doom. Actually, It is a confiscated "punt gun," which was mounted onto the front of a "punt" boat, loaded with shot or even nails, and fired at groups of waterfowl to illegally

harvest large numbers of ducks and geese for sale on the black market by bootleggers, or "duckleggers" as they were called. Either way, dinosaurs or ducks, extinction could be the result. Luckily our diligent law enforcement officers saved the day and prevented waterfowl extinction in the early 20th century.

WWII Mini Subs and Us



Russ Earnest, one of the first Service folks to work on forming a Heritage Committee, has a favorite "object" that he always wanted to preserve. It is one of two 78-foot-long mini submarines located on Kiska Island, far out on the Aleutian chain in Alaska. The battery-powered subs were abandoned 14 months after they were deployed there in July 1942 by the Japanese after they failed to

deploy the subs at Midway Atoll. The subs' range was only 90 miles at about six knots, and they could only dive to 100 feet. Batteries could not be recharged at sea, and they were meant to be recovered by a ship. Subs like this were used during the attack at Pearl Harbor. The old subs, one on the beach and one inland a bit on a grassy area, along with the rails to move the subs into and out of the ocean, are just rusting away in the salty air. Colder temperatures in Alaska have helped them to survive, but they will be gone soon enough. I must admit, as a curator, I would love to have one in our collection (it is on property we manage), but it is just too darn big and fragile, and rotting batteries are not exactly safe. Logistics are the enemy of museum curation!

CREDIT BRIAN HOFFMAN, FLICKR CREATIVE COMMONS

An Artistic File Clerk



In February 1950, with Doug Swanson's prototype patch as a guide, Mary Westfall, a file clerk in Juneau, Alaska, drew two watercolor designs for Regional Director Clarence Rhode. She drew one with a male mallard duck in flight and one with a Canada goose.

Rhode thought that the Canada goose design "would be ideal for use as a shoulder patch and for decals on Service aircraft." Director Al Day approved the final design. In 1952, a patch was made from the marriage of her design and that of Doug Swanson. It was used first in Alaska in 1958, then Region 2 in 1959. It, along with the taupe uniform, became official for the entire Service with the adoption of the National Uniform Policy on June 30, 1962. Special thanks to retiree Jim Shaw for all the information he has sent me about patches and uniforms.



Alaska's Potter Marsh Calls to Retired HQ Employee

Linda Purviance leading nature and wildlife tour at Potter Marsh, Anchorage, Alaska.



Do you ever wonder how you can continue to contribute after retirement and still have fun? Retiree **Linda Purviance** (who retired from Headquarters Endangered Species Program) has found her answer. Linda and her husband, Mike, volunteer for the Alaska Department of Fish and Game for four months every summer. They are volunteer hosts at Potter Marsh Boardwalk, part of the Anchorage Coastal Wildlife Refuge. They walk the boardwalk several times every day, interacting with visitors, pointing out and identifying wildlife, leading regularly scheduled bird walks (jointly with Audubon Alaska), educating youth groups from schools and day camps, and ensuring everyone enjoys their visit to Potter Marsh and leaves a little more knowledgeable about Alaska wildlife.

"It's a real privilege to have this opportunity to watch how Potter Marsh changes with the seasons and to see the excitement of visitors," Linda says. The marsh is still partially frozen when the couple arrives in late April after driving up from the Lower 48. Trumpeter swans,

sandhill cranes, Arctic terns and many other birds stop at Potter Marsh on their migration north. Trees are bare, marsh grasses are brown, and snow caps the surrounding Chugach Mountains. In just a few weeks, the ice melts and leaves start to emerge on the trees. Throughout summer, resident bald eagles raise their young. Swallows, warblers and flycatchers court, mate and lay their eggs, and the juveniles fledge. Moose cows with their calves wander through the marsh, delighting visitors. Salmon struggle up Rabbit Creek to spawn. As fall arrives in early August, a myriad of shorebirds and ducks stop at Potter Marsh as they begin their migration south. The bald eagle juveniles fledge and learn how to fly, hunt and fish in Potter Marsh.

Mike and Linda live in their RV on the refuge during these four months, getting their electricity from a generator and their water delivered. "We love being here," says Linda. "We get a real feeling of satisfaction knowing that we are doing our part to protect this unique area and help others appreciate it."

National wildlife refuges, national fish hatcheries and other Service facilities also need volunteers; you can find out about those opportunities on the facility's website. □

SKIP LADD, Board of Directors, Association of Retired Fish and Wildlife Service Employees

All folks who at one time worked for the Service or were members of a Friends group are automatically members of the nonprofit Association of Retired Fish and Wildlife Service Employees (FWS Retirees Association). They can become active members who stay up-to-date with their former agency and its issues, and connect with former colleagues.

The FWS Retirees Association aims to foster camaraderie among retirees and active employees; recognize and preserve the rich history of the Service and the many contributions of employees; foster the preservation and use of objects and information relating to the Service's unique history; and involve present and past employees in the history and heritage of the Service.

Our members and their families and friends enjoy reminiscing at reunions, traveling, gathering stories, conducting oral history interviews and mentoring.

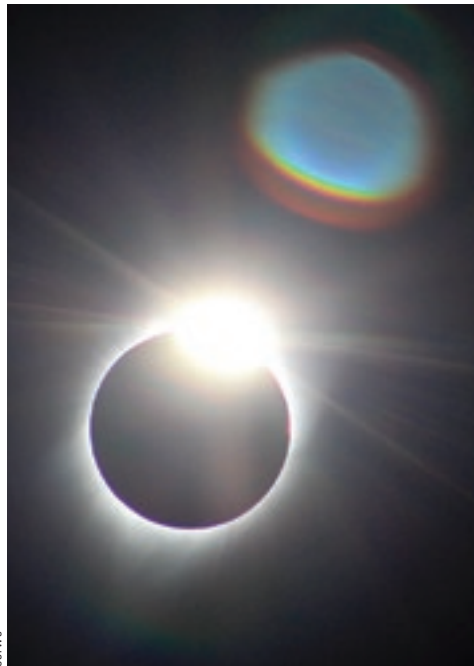
Want travel? We are planning a volunteer/safari trip to South Africa in February. We hold reunions at interesting locations around the country about every year and a half. The next one will be in May along the Oregon Coast. **Want to help youth become more involved in conservation?** We are partners in numerous youth projects, such as the Monarch Butterfly Joint Venture, and many other conservation programs. We help with field station anniversary celebrations and keep our members informed about issues associated with the Service and its people as well as retirement information. Find out more about us at our website, <fwsretirees.org>.



Total Eclipse of the Heart

Kindness of strangers outshines the sun during solar eclipse

by BRENT LAWRENCE



I saw an amazing spectacle August 21, and it wasn't the solar eclipse.

The people who showed up to watch the eclipse at Baskett Slough National Wildlife Refuge in Oregon simply blew me away.

Service staff opened the gate to the parking area at 6 a.m., and by 6:03 it was full. A three-quarter-mile-long line of cars were soon parked along the access road. With bladders bursting after long drives fueled by coffee and energy drinks, visitors quickly formed a long line to use the single toilet in the parking lot. The

wait was more than an hour at times.

More cars kept arriving, each driver frantically looking for a parking spot so they could watch the eclipse from perhaps the best spot in the county. With an estimated 2,500 visitors on the refuge grounds, dwarfing any other single event in this refuge's history, all the ingredients were there for an explosion of the worst human emotions.

(William L. Finley and Ankeny) were destinations for many of the visitors.

They were thankful for having an opportunity to be around so many other people enjoying a natural spectacle. Moreover, the visitors were thankful for our staff and volunteers being there to help make it such a special day.



New friends at Baskett Slough Refuge.

It was an unprecedented situation for refuge staff and volunteers, who had prepared for the worst and could now only hope for the best.

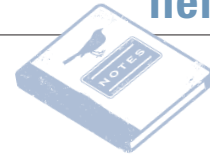
As a public affairs officer who went to the refuge to help as needed and tell the story of the eclipse and our refuge, I was admittedly nervous. With a high percentage of the visitors being new to the refuge, I figured we'd spend a lot of the day asking people to put out cigarettes (a huge fire danger) or herding them out of areas closed for threatened and endangered species habitat.

Dressed in my U.S. Fish and Wildlife Service polo with the logo on the chest, I walked into the parking lot prepared for

a long day. What I got in return was all smiles, handshakes and a lot of genuine thank yous.

We got the best—the very best—of people. All the visitors were friendly, helpful and thankful. The kindness of this hoard that everyone had tirelessly planned for was awe-inspiring, eclipsing the eclipse itself.

People were thankful for the national wildlife refuge and it being public land, open for them to use. With 97 percent of the Willamette Valley privately owned, Baskett Slough and its two sister refuges



This potential pressure-cooker of a day never came close to reaching its boiling point. As a result, staff and volunteers were able to relax and showcase the refuge. We were able to make it special for our guests.

The good vibes started early with a large group of friendly eclipse-watchers already gathered in the small parking lot at the Rich Guadagno Trailhead.

Then she introduced me to her 10 newest friends.

“It was amazing,” Tammy said. “People were offering up their own food and water, and everybody sharing [their cameras and telescopes]. To have that many people out there being so kind and nice, saying please and thank you. I got to have a full experience and wouldn’t trade it for anything in the world. It was spectacular!”

Dana Crowley of Cambridge, Massachusetts, took the red-eye flight from Boston the morning of the eclipse to see the eclipse at Baskett Slough Refuge, and then flew back early the next morning. She watched with hundreds of other people from the field around the observation deck.

“This is a tough one to put into words. It’s quite difficult to describe to my friends here in Massachusetts,” Dana said after she had returned home. “Undoubtedly, there was a connection to experience it with people who were drawn to the refuge and shared the same interest. The experience was perfect because staff was so lovely in terms of how we were welcomed and introduced to the [Fender’s blue] butterfly, [streaked horned] lark and the refuge. It added a degree of meaning to see the eclipse on land that is protected. I’m deeply grateful for the experience and [the staff’s] work.”

The six national wildlife refuges in Oregon and Idaho that were in the path of totality had an estimated total crowd of 8,500, with another 1,500 people watching from other area national wildlife refuges outside the path of totality. Many were international travelers, coming from Germany, South Korea, India, Ukraine, France, Japan, Australia and New Zealand just to see the eclipse.

Experiencing the solar eclipse with this incredible group of visitors lifted my spirits. In a time where division and our differences seem to flood the media, on this day we were one. I will never forget that.

And the total solar eclipse was pretty cool, too. □

BRENT LAWRENCE, External Affairs, Pacific Region



The line of cars at Baskett Slough Refuge.

While walking up the trail to the overlook platform, I ran into Tammy Black. Tammy, a local teacher from Salem, Oregon, who regularly hikes the trails at Baskett Slough Refuge, was quick to smile and strike up a pleasant conversation about her love of the refuge as we hiked toward the overlook.

Later, I found her again on the observation deck, and she greeted me again with a smile and said: “You finally made it up here! Pretty amazing isn’t it?”

I wouldn’t have wanted to be anywhere else than the refuge.”

Among the crowd was Benjamin May from Los Angeles, a jazz musician who drove up by himself just to see the eclipse. He had met Tammy at an eclipse event a day earlier.

“I was just a stranger in a strange land, and it all came together,” Benjamin said of his first visit to Oregon and to a national wildlife refuge. “Overall, we all shared the same values and wanted to get the best experience. It goes to show you that when people are united by nature, you get good quality people. We were all there to bask in the wonder of what was going on.”

honors

Mountain-Prairie Region

Service data manager and GIS specialist **Matthew Heller** of Montana has received the Western Association of Fish and Wildlife Agencies' (WAFWA) Federal Conservation Partner of the Year Award. Heller was nominated by WAFWA's Crucial Habitat Assessment Tool Technical Team for his efforts supporting increased efficiency and effectiveness of access to state wildlife data that informs on-the-ground conservation. □



The **Prairies Conservation Campaign**, of which the Service is a founding member, received the TV Access Top 20 Award in recognition of its public service announcements (PSA). Its PSA campaign ranked in the top 20 percent of all PSA campaigns nationally for 2016. These TV and radio spots were broadcast across America's Prairie Pothole Region, sharing important information with the public about financial and technical assistance programs available to willing landowners interested in pursuing conservation activities on their properties.

During their first 12 months of airing, the spots were played more than 18,000 times across five states, resulting in more than \$1.6 million in free airtime. □

Service-wide

Three Service staff members received Department of the Interior Valor Awards for unusual courage involving a high degree of personal risk in the face of danger.

Two of the honorees took action during severe storms in May 2015 at Wichita Mountains Wildlife Refuge in Oklahoma.



On May 16, former Federal Wildlife Officer **Matt Belew** came to the

rescue of Boy Scouts camping at Wichita Mountains when a tornado blew through the area.

Belew had been monitoring the weather conditions and received information that a severe storm was approaching. Knowing a Scout troop was camping at the refuge, he immediately drove to the campground and evacuated the entire troop and their leaders to safety. He then returned to the campground to ensure that no one was left behind. □



A week later, on May 23, a storm produced extremely heavy rain in a short period of time. The rain caused flash flooding throughout the refuge, including the refuge employee residence where maintenance supervisor **Joseph A. D'Arrigo**,

his family, and other refuge employees and their families lived.

D'Arrigo told the Service's *Friends Forward in 2015*: "I was Paul Revere. I was eating dinner and saw the water coming over the top of the gutters. I started putting bags in the basement. Then I saw a wall of water coming out of the creek and ran to tell other people to get out."

About 30 people, including infants and children, made it safely to a bunkhouse on higher ground. He led the evacuation and later risked his own safety in going back to help others.

There was no loss of life. □



Finally, Federal Wildlife Officer **Deb Goeb** got a call on the morning of April 5, 2016, to help find an overdue boating party on Charles M. Russell National Wildlife Refuge in Montana.

She spotted the boat, which had run aground on a shallow delta during storm the prior evening, and the rescue team maneuvered to within 100 yards of the stranded vessel. One of the two boaters tried to wade out to the rescue boat. He immediately sank up to his waist in silt and could not free himself.

Officer Goeb got out of the rescue craft and began belly-crawling through the silt to reach the first man. She secured a line around him and got him into the rescue boat. Officer Goeb then repeated the process to retrieve the second boater. Both boaters have made a complete and full recovery.

Secretary of the Interior Ryan Zinke, a former Navy SEAL commander, had this to say of Officer Goeb: "Belly-crawling through sinking silt sounds like a job for a Navy SEAL." □

Midwest Region



The U.S. Environmental Protection Agency-led **Urban Waters Federal Partnership Program** has won the prestigious Service to America People's Choice Award, presented by the nonprofit, nonpartisan Partnership for Public Service. In 2016, Ed Grace, the Acting Chief of the Service's Office of Law Enforcement, and the Operation Crash team won the the People's Choice Award. The Urban Waters team's focus is on the creation of public-private partnerships to clean up and bring vitality to neglected urban waterways and adjacent lands.

The interdepartmental Urban Waters Federal Partnership is comprised of 14 federal agencies. Four Department of the Interior bureaus are

involved in the team, including the Service. The Department of the Interior has 19 Urban Waters sites, one of which is the Grand River in Michigan. The Midwest Region team is spearheaded by the Green Bay Fish and Wildlife Conservation Office and the East Lansing Ecological Services Field Office. Together, they are working with partners to address an array of issues that has led to the decay of the Grand River.

In the stretch of the Grand River that runs through Grand Rapids (pictured; photo courtesy of D. O'Keefe/Michigan Sea Grant), the combination of low head dams, floodwalls, dredging and grading, and the intrusion of urban growth has resulted in a deteriorated environment for native fish and the creation of safety hazards for recreational users of the waterway. Starting with a reduction in pollution and a public and private commitment to economic development oriented around the river, the Grand River Urban Waters project is well on its way to making it a safer and more accessible river for people and wildlife alike. In addition to creating enhanced recreational opportunities for anglers, rowers, paddlers and whitewater enthusiasts, restoration work also improves the environment for state threatened lake sturgeon and native mussels. □

in memoriam

Mountain-Prairie Region



Jose "Adam" Deras, wildlife refuge specialist at Medicine Lake National Wildlife Refuge in Montana, died January 10.

Adam was well known for sharing his joy and optimism with everyone around him. Still early in his career he stood out as a dedicated and passionate conservationist. He was eager to gain as much experience and knowledge as he could.

Adam received his bachelor's degree in biology, with an emphasis in ecology, from Missouri Southern State University in Joplin in 2014. He began his Service career as a student trainee at Fort Niobrara then to Rainwater Basin, both in Nebraska. Most recently, Adam was the wildlife refuge specialist at Medicine Lake. In addition to his refuge work, his passion for community service led him to volunteer as an EMT, ambulance driver and firefighter for the local communities.

Adam loved and lived his life to the fullest, an avid traveler, master scuba diver, fisherman and recently a novice hunter. He will be greatly missed by his family, the Service and the world of conservation. □

Pacific Region



David "Dave" Tessler, deputy field supervisor for geographic operations in the Pacific Islands Fish and Wildlife Office, died unexpectedly in June.

Dave was a lifelong advocate for wildlife conservation and endangered species whose ability to build relationships with partners and within the Service was profound. He was known for his enthusiastic support of his staff, his passion for conservation, his contributions to science excellence and his compelling advocacy for endangered species and habitats across the Pacific. Throughout his career he worked tirelessly to protect wildlife and habitat—from Alaska to the far reaches of the Pacific Ocean. He had a special love for the forests of Hawaii Island and Kauai. Dave's infectious laughter and optimism were his hallmarks and will be greatly missed by his family, friends and colleagues.

Dave served for two years as deputy field supervisor, managing a broad array of research, recovery and regulatory programs across the Pacific. He supervised three geographically based island teams covering Hawaii, the

Marianas and American Samoa, along with the strategic habitat conservation and invasive species programs. He was well-known for his ability to build relationships with diverse groups of people, partners and stakeholders. Dave was particularly effective at dealing with complex natural resource conundrums, and he encouraged his staff to look for creative solutions to achieve true conservation.

Before coming to Hawaii, Dave worked in Alaska as the regional wildlife biologist for the Wildlife Diversity Program at Alaska Department of Fish and Game, as well as for the U.S. Geological Survey as a wildlife biologist. Dave had a broad background in wildlife biology and ecological research, including rare and threatened species, biodiversity conservation, and investigating the relationships between species, habitats and ecosystems of concern. □

Southeast Region

Craig Cavalli, a longtime member of the Southeast Region WSFR Program, died July 27 after a 4½-year battle with cancer. Those who knew him will always remember his kindness and his encyclopedic knowledge of sports trivia.

He graduated from the University of Wyoming with a business degree and Arizona State University with an accounting degree, and went to work with J. C. Penney Co., the IRS and the Service. In January, he retired after 20 years with the Service. □

Fish & Wildlife *News*

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Rising to the Occasion

Brutal hurricanes and wildfires battered parts of the country in September, taking a toll on people and wildlife. The Service family, both members of the affected communities and those from regions far away, deployed to help with rescue, recovery and firefighting efforts. Others shouldered extra work, so the normal jobs of those deployed colleagues would get done. This sacrifice, Principal Deputy Director Greg Sheehan wrote, embodies “the best of what we expect from ourselves as public servants.” Here, a Service staffer clears a public road on Aransas National Wildlife Refuge in Texas after Hurricane Harvey.



USFWS JEFF ADAMS/USFWS

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