



Fish & Wildlife *News*



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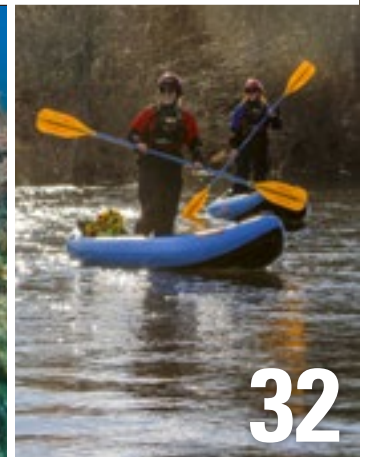
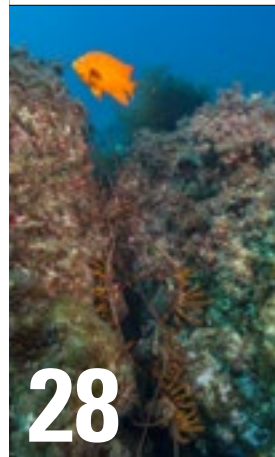
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Aurelia Skipwith, Director

Deepwater Horizon—10 Years Later

Ten years ago, in April 2010, about 41 miles off the coast of Louisiana, an oil rig in the Gulf of Mexico caught fire, exploded and sank, killing 11. Over the next 87 days, the well below the rig spewed 134 million gallons of oil, which spread into the Gulf and washed up on more than 1,300 miles of shoreline across five states.

The Deepwater Horizon spill activated the U.S. Fish and Wildlife Service to do what we do so well: healing and recovery of our nation's natural resources. Our goal is to restore the Gulf and shorelines from Texas to Florida, and hundreds of Service employees and an untold number of partners and volunteers are making that goal a reality.

Almost immediately after the spill, the Deepwater Horizon Natural Resource Damage Assessment (NRDA) Trustee Council began its work to determine what it would take to restore the Gulf and how to do it. The Service, through the Department of the Interior, is a trustee as are the Environmental Protection Agency, National Oceanic and Atmospheric Administration, and Department of Agriculture. The Gulf states—Alabama, Florida, Louisiana, Mississippi and Texas—make up the rest of the trustees.

The work has not been easy. The loss, in terms of wildlife, was devastating, including:

- Around 100,000 birds, with brown pelicans, laughing gulls, terns, skimmers and northern gannets most affected,
- 168,000 sea turtles,
- Trillions of larval fish, which translate to millions, even billions, of fish,
- 8.3 billion oysters and untold numbers of shrimp.

Damage also disrupted the area's recreational opportunities and economy, and the livelihood of many people.

With our mandated stewardship of the nation's natural resources, we took advantage of relationships to save, heal and restore our wildlife and their habitats. Each agency and organization is playing a specific role to enable the Gulf communities to return.

The Nature Conservancy (TNC), The Conservation

Fund (CF) and the Trust for Public Land (TPL) have been instrumental in land acquisitions. In this *Fish & Wildlife News*, you'll read about growth at Laguna Atascosa National Wildlife Refuge in Texas that TNC worked on (p. 18). We also relied on the National Fish and Wildlife Foundation, Ducks Unlimited and other partners, including Texas agencies and the landowners who sold us the land.

Like Texas' work at Laguna Atascosa, the other Gulf states help on restoration projects, as well as work on the NRDA. Mississippi, for instance, is partnering with us at Grand Bay National Wildlife Refuge, where newly added lands and waters have made "the hunting is a lot better."

Other nongovernmental organizations working with us include the American Bird Conservancy, Gulf Restoration Network, National Audubon Society, National Wildlife Federation, Ocean Conservancy and many more.

With our partners, we're implementing 36 projects with an estimated cost of more than \$500 million and making great progress. We are also working to develop additional projects. Beyond the wonderful ones in this magazine, our current work includes:

- Restoring and protecting islands off Texas used as rookeries by birds such as herons, egrets and more,
- Acquiring more than 800 acres of beach/dune habitat on Alabama's Dauphin Island, which will aid sea turtles and the federally protected piping plover, among other species,
- Improving water quality in Florida's Yellow River and Pensacola Bay through road stabilization and culvert replacement.

As with many things in conservation, we are stronger when together. Our mission directs us to "work with others to conserve, protect and enhance fish, wildlife and plants and their habitats..." More than a mission, it's a roadmap to success.

With partners, we achieve more than if we were all working independently. Collaboration with countless partners, communities, volunteers, companies and landowners is enabling the area's wildlife and ecosystems to come back. □

Portraits of Alaska

Each year within Alaska's 16 national wildlife refuges, the frigid temperatures, darkness and compounding snow of winter slowly give way to tundra bursting with berries in summer. A quick couple of months bring sunlit abundance in the form of millions of salmon and migratory birds, and thousands of migrating caribou. Countless living beings rely on this cycle before darkness returns.

As an artist in residence with the Service, Los Angeles-based Lindsay Carron travels into the heart of refuge lands and meets Alaska Native people who have called them home for thousands of years. Carron creates intricate drawings with ink and colored pencil over vintage topographic maps that honor the lifeways of the people she meets. She learns firsthand the importance of these wild places from people deeply connected to them. She gives the final artwork back to the communities and, as they permit, shares it with broader audiences. The drawings, she hopes, "light a fire of stewardship in our hearts and urge for the care of these lands for generations to come."

Here are two of Carron's drawings, each paired with a short reflection by the artist.

"As Above, So Below" features Trimble Gilbert of Arctic Village.

"The continuity and the connection of all things surface through the layered complexities of the Arctic landscape. The Arctic loon calls out from the mouth of the Teedrinjik River, cutting through mighty mountains



and sparse spruce forest. The call is met by the swans flying above and the caribou grazing below. Merging with the mountainside is Gwich'in elder Trimble Gilbert bearing a look that is telling of the understanding of the People of the Caribou of the land that is their home."

"Made of This" features Elsie Abraham, Aubrey Gosuk and Skylar Wassillie of Togiak.

"It's salmon season in Togiak Village, and everyone's on the water. Home to the Yup'ik people, the village is nestled in Togiak Bay, with Togiak National Wildlife Refuge spilling for 4.7 million acres behind it. Here, the Ahklun Mountains give way to tundra and willow-edged rivers carrying fleets of spawning salmon inland from the Bering Sea. Togiak elder Elsie Abraham portrays the precious balance of her homeland, and teaches the younger generation like Aubrey



Gosuk and Skylar Wassillie, whose joy is palpable as they reel in jack salmon and rainbow trout from Togiak River. Complete with harvests of sour dock, stinkweed and salmon berries, the natural abundance here fills bellies and hearts." □

Ink and colored pencil drawings over vintage topographic maps by Lindsay Carron. (Top) "Made of This." (Bottom) "As Above, So Below." See more at <<https://go.usa.gov/xGaXS>>

A Small Bird Makes a Big Splash in Southern Massachusetts

The last time a common loon hatched in southern Massachusetts, there were only 37 states in the United States; Ulysses S. Grant was president; and there was no such thing as a telephone.

So imagine the excitement one charcoal ball-of-fluff bobbing between its protective parents near Fall River has caused among those who have been working to bring this bird back for years.

“Seeing the first loon chick in over a century in southern Massachusetts creates hope that, with persistence, other systems can be made whole again,” says David C. Evers, Ph.D., executive director and chief scientist for Biodiversity Research Institute (BRI).

BRI has been working for years to establish a breeding population of loons in this part of the state—work that will continue and expand thanks to funding from the Bouchard Barge 120 oil spill natural resource damage settlement, which the Service worked on.

By the start of the 20th century, common loons were anything but in Massachusetts—although native to the state, they no longer nested there. According to BRI, the last successful breeding effort there was in 1872. Human activities, primarily hunting, led to the population decline.

Then in 1975, a pair of breeding loons was found on the Quabbin Reservoir, in the middle of the



The first common loon to hatch in southern Massachusetts in more than a century swims with its parents.

state. Later, a pair nested on Wachusett Reservoir, a little to the east. Massachusetts is the only state where loons have returned of their own volition to reestablish a breeding population. There are about 45 pairs in 2020.

In the summer of 2015, BRI began a three-year pilot study with the New York State Department of Environmental Conservation and the Massachusetts Division of Fisheries and Wildlife to move loon chicks from Adirondack Park in New York to the Assawompsett Pond Complex (APC) in southeastern Massachusetts. That first year, the researchers successfully raised and released seven loon chicks.

In 2016, the Maine Department of Inland Fisheries and Wildlife joined the effort, and BRI brought nine chicks from New York and Maine to the APC. The following year, eight chicks were moved from Maine to Massachusetts.

Because loons spend their first three years maturing along the coast, researchers had to wait

until 2018 to see whether the chicks released the first year of the study would return to the southeastern Massachusetts waters from which they fledged.

By this spring, nine of the 24 loon chicks brought to the APC had been seen in the area. That’s a return rate of more than 37 percent—similar to wild populations.

Then, on the last day of June, came the phone call.

A local resident spotted a couple of loons with a chick and alerted BRI. When staff arrived, they identified the father as a male imported from New York in 2015. He had paired with a female that was not part of the study.

Local volunteers are keeping an eye on the trio.

Evers calls it “visible evidence that breeding loon populations can be restored to their former habitat.”

When the Bouchard Barge 120 struck rocks off the coast of Westport, Massachusetts, in 2003, it emptied nearly 100,000 gallons of fuel oil into Buzzards Bay. In a 2017 settlement,

Bouchard Transportation Company, Inc., and others paid more than \$13 million to compensate for natural resource impacts of the spill. Of this, more than \$8 million was set aside for restoration of common loons and other bird species affected by the event, including \$2.5 million to BRI to continue their loon translocation work in southeastern Massachusetts, as well as begin a similar effort in the western part of the state.

“We’re pleased to work with the Massachusetts Division of Fisheries and Wildlife and BRI to restore common loons to historic sites and to boost populations of birds at locations across New England,” says Tom Chapman, supervisor of the Service’s New England Field Office. “Not only will these projects restore birds affected by the 2003 oil spill, but they’ll ultimately help people connect with nature, perhaps by spotting loons on the water or hearing their iconic calls.”

For Evers, all this good news has been a long time coming.

“The idea of translocating, rearing and releasing loon chicks for restoring new breeding populations was novel when I proposed it 17 years ago,” he says. “Belief in that idea, coupled with years of additional research, created opportunities to test the concept.”

With the discovery of this tiny chick, one test is passed. And with additional funding, this novel approach may one day become... well, common. □

LAURI MUNROE-HULTMAN, External Affairs, North Atlantic-Appalachian Region

Invasion of the Hairy-Clawed Crustaceans

Sounds like a spoof horror flick, doesn't it? Unfortunately, hairy-clawed crustaceans have been transported out of their native Asian waters and have invaded North America and Europe! They are better known as mitten crabs (*Eriocheir sp.*).

Mitten crabs are a medium-sized burrowing crab native to Asian rivers, lakes and coastal habitats of China and Korea. They have dense amounts of setae, or hair, covering their claws causing them to resemble mittens, thus the name. They sound cute, but their introduction to U.S. ecosystems can cause serious harm.

On June 22, 1989, mitten crabs were listed as injurious wildlife under the Lacey Act. These crabs are a hazard to human health, the economy and natural resources. Mitten crabs can outcompete native species for food and space. Their burrowing activity can damage levees, resulting in significant erosion. They can harm industrial plants by causing filter screens, pumps and water intake structures to fail. Mitten crabs can have a serious effect on the commercial fishing industry. These crabs are known to host the oriental lung fluke and other zoonotic organisms, which can be transferred to humans in raw or undercooked crab meat. In addition, their "mittens" can transport hundreds of tiny nuisance organisms. Confirmed mitten crabs have been found in the Great Lakes, Chesapeake Bay, Delaware Bay, Hudson River, Mississippi River, San Francisco Bay and Columbia River, but the oriental lung fluke has not yet been found in mitten



Ink and colored pencil drawings over vintage topographic maps by Lindsay Carno. (Top) "Mitten Crabs." (Bottom) A. Above, So Below."

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crabs collected within the United States.

Mitten crab season begins around September 1, coinciding with the female crabs' roe maturation, running through December and often into the new year. The crabs are a delicacy in some Asian cuisines. This desire creates a lucrative market, which drives black market smuggling of live mitten crabs from Asia into the United States every year.

The Service's Wildlife Inspection Program is the nation's front-line defense against the illegal wildlife trade. The program consists of about 120 wildlife inspectors who protect our country's vital natural resources at major ports of entry throughout the United States. Wildlife inspectors also help the United States fulfill its commitment to global wildlife conservation by intercepting illegal shipments of smuggled wildlife and wildlife products.

In 2019, the Service created the Wildlife Inspection Interdiction Team (WIIT), and Operation Hidden Mitten was the first international inspection operation initiated by the newly formed group. The team consists of seasoned Service law enforcement professionals who are committed to closing international wildlife trafficking pathways, generating intelligence

Agents arrange some of the seized mitten crabs.

and coordinating national wildlife inspection efforts.

Each fall, wildlife inspectors search for live mitten crabs being smuggled into the United States. The crabs are mainly shipped via express couriers that aim to have a single package offloaded from a plane, sorted and reloaded onto the next plane within 15–30 minutes—the perfect pathway for shipping live, perishable animals.

Under the leadership of the WIIT, more than 14,000 live mitten crabs were seized from 137 illegal shipments last fall though the new year. Smugglers had falsely declared the shipments as T-shirts, jeans, auto-parts samples, shopping bags, photo albums and other commercial products.

You can do your part to help stop these invaders from entering our country. If you see mitten crabs in the marketplace or in our waterways, please contact the U.S. Fish and Wildlife Service by calling toll free at: 1-844-397-8477 or email: fws_tips@fws.gov. □

EVA LARA, Regional Supervisor
Wildlife Inspector, South Atlantic-
Gulf and Mississippi Basin Regions

Preserving a Conservation Legacy for Future Generations in Santa Barbara County

This appeared in the Santa Barbara Independent.

The rolling hills of the Santa Barbara backcountry offer a pristine backdrop of undeveloped, contiguous lands that provide safe haven for wildlife and a way of life for generations of Californians. From orchards and vineyards, to cattle ranches and preserved open spaces, these lands make Santa Barbara County one of the most picturesque and serene places on Earth.

Above ground, cattle lazily graze the hillside. Below ground, small yellow and black salamanders rest after mile-long treks to meet their mates in the vernal pools and stock ponds that dot the landscape after winter rains.

Family-run ranches and neighboring open spaces serve a vital role for the local economy. Their preservation is vital for the survival of the native wildlife that find respite on their lands, from the majestic bald eagle to the enigmatic California tiger salamander. The expansion of human population and development continue to threaten this way of life.

The Service is committed to "working with others to preserve fish, wildlife, plants, and their habitats, for the continuing benefit of the American people." We cannot achieve this »

mission alone, and we recognize that conservation successes require partnerships with local communities to promote voluntary stewardship on non-federal lands.

In 2020, in partnership with the Santa Barbara Land Trust, the Service helped secure federal and state funding for a conservation easement on 644 acres of ranch land, protecting a multi-generational ranching legacy, and the wildlife it supports, in perpetuity. This partnership serves as a model as we embark on similar partnerships with other willing landowners across the county. These grant programs provide landowners with financial compensation that supports their livelihoods while preserving the open spaces wildlife need to thrive.

In recent years, we developed two conservation plans for cultivation activities to support growers and the communities they feed, while balancing the needs of rare wildlife in the area. These plans cover

more than 100,000 acres and help make Endangered Species Act regulations less cumbersome for local farmers and landowners. They ensure activities do not hinder the recovery of rare wildlife, based on the best available science about those species' needs.

These conservation plans, along with federal funding programs, help restore trust with local communities while bringing endangered wildlife one step closer to removal from Endangered Species Act protection.

As we look ahead, we will continue to collaborate within the communities in which we serve to preserve a conservation legacy and way of life for future generations of Californians in Santa Barbara County. □

STEVE HENRY, Ventura Fish and Wildlife Office, California-Great Basin Region

Rolling hills of Santa Barbara County.

Whoop, Cackle, Quack: How Restoring Habitat Brings the Birds Back

Healthy Illinois wetlands are loud and full of life. If they were a breakfast cereal, you'd hear them say "whoop, cackle, quack," and being soggy would not only be expected, it would be welcome.

While the majority of wetlands in Illinois were drained or filled-in starting more than 100 years ago to make way for homes, crops and other developments, today they're making a comeback. Restored wetlands are bringing birds.

One recent example: George and Ann Ihrke, of Ford County, Illinois, hosted one of only 14 wild-hatched whooping cranes from the eastern population on their farm in April. The whooper waded among the quacking of waterfowl, as pheasants cackled in the adjoining upland habitat, all just one year after restoration.

The Service is actively working to replicate the Ihrke wetlands in east-central Illinois. Most farm fields in that part of the state are covered with small depressions, or bowls, that fill up after measurable rains. These small bowls were historically wetlands, but today they dry up within a day or two, as drain tile lines or ditches suck the water away. These tile lines are similar to someone drilling holes into the side of your cereal bowl and inserting a straw. If you start eating fast enough after pouring the milk, you might get milk and cereal in the first couple of bites, but in a few minutes, your breakfast is ruined.



Blue-winged teal

COURTESY OF RYAN ASKREN

The Service's Partners for Fish and Wildlife Program works with landowners to sever, re-route or add control structures to these straws to ensure that the bowls stay full. Biologists are setting the breakfast table, so the birds have a place to rest and eat.

Of course, we aren't going at this alone. This is a team effort among the Service, Pheasants Forever, the Illinois Department of Natural Resources, Ducks Unlimited and private landowners.

"Our team's goal is to provide exceptional recreational opportunities, promote waterfowl reproduction and quality migratory bird habitat in an area with a rich hunting heritage. These wetlands also dry up in the summer, which allows them to grow a diversity of nectar sources for pollinators and monarchs. These wetlands have it all!" says the Service's Illinois Private Lands Biologist Brian Hidden.

Because more than 90 percent of Illinois is privately owned, the future of the state's wildlife conservation rests with landowners. Habitat restoration is expensive and a serious time commitment, but the return on investment is invaluable.

As George Ihrke explains, "We're just starting with our wetland projects, but the increase in wildlife with the pollinator and wetland projects has been tremendous for upland game and shorebirds, as well as ducks." □



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10

YEARS

AFTER

DEEPWATER

HORIZON

HOPE FOR THE GULF OF MEXICO

On April 20, 2010, the Deepwater Horizon oil rig exploded killing 11 people and causing widespread ecological damage across the Gulf of Mexico. Six years later, a historically large settlement with BP, the company deemed primarily responsible for the spill, provided \$20.8 billion for ecological and economic restoration of the Gulf and coastal communities to be paid out over 15 years.

From that total, two funding streams were earmarked exclusively for restoration of the Gulf ecosystem. Restoration of natural resources such as wildlife and their habitat, and the services they provide, such as recreation, that were injured and had their injuries documented by the Deepwater Horizon Natural Resource Damage Assessment Trustees will receive up to \$8.8 billion. Also for ecosystem restoration, \$4.4 billion was directed to the Gulf Coast Ecosystem Restoration Council, a group established in 2012 through the RESTORE Act. A third major stream of funding for ecosystem restoration—\$2.5 million was provided to the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund via a previous settlement with a different company. Today, a large group of federal and state agencies, nonprofits and other stakeholders is using these three funding streams to restore the Gulf of Mexico.

The Service plays a critical role in determining how these funds are used. We are implementing more than 30 restoration projects to improve habitat,

water quality, living coastal and marine resources, and recreational opportunities, as well as utilizing monitoring, adaptive management and administrative oversight to support restoration implementation. Many of these projects benefit national wildlife refuges. The National Park Service is leading multiple projects, some that replace recreational use lost as a result of the spill and others that restore wetlands, other habitat and wildlife at Gulf Islands and Padre Island national seashores and Jean Lafitte National Historical Park and Preserve.

The stories featured here showcase the progress that we've made since the spill through myriad projects. Each featured story touches on a different type of restoration: help for sea turtles in Florida and Texas, recreation—a refurbished trail in Alabama and passenger ferries in Florida, restoration of nesting bird habitat in Louisiana, and conserving wildlife corridors in Texas. The success of each project is due in large part to the continued collaboration of the federal and state partners, and the perseverance of passionate stakeholders. Through these collaborative partnerships, we are making advancements in restoration of the Gulf of Mexico now that will endure long into the future. □

(Previous page) Kemps ridley hatchlings making their way to the open waters of the Gulf. The hatchlings are imprinted to this beach, which means that if it is a female, it will return here to nest.



RESTORING THE GULF COAST

10 years after Deepwater Horizon, the Service launches a massive restoration in Louisiana. | BY DAN CHAPMAN

Venice, Louisiana—On April 20, 2010, late in the evening, an explosion ripped through the *Deepwater Horizon* oil rig in the Gulf of Mexico and killed 11 workers.

The flaming rig, which BP leased from Transocean, sank into the Gulf two days later, yet the oil continued to pour from the mile-deep well head for another three months. In the end, more than 3 million barrels spilled into the Gulf and coated beaches, wetlands, estuaries and underwater habitats from Texas to Florida.

It was the worst marine oil spill in U.S. history.

And it led to the largest environmental settlement in history—\$20.8 billion. This money is being paid over 15 years.

Now, 10 years later, billions of restoration dollars are flowing to restore the damage to the region's ecology, economy and way of life. Work will soon begin on Breton National Wildlife Refuge, an \$80 million beach and habitat restoration project to rebuild the spit of land for migratory birds. For the Department of the Interior and the Service, it's the largest and most expensive project thus far funded by the *Deepwater Horizon* settlement money.

The Department, three other federal agencies and the five Gulf Coast states—Texas, Louisiana, Mississippi, Alabama and Florida—will share the \$8.8 billion portion of the settlement that is earmarked for restoration of the Gulf's natural resources—beaches, wetlands, bays, estuaries, wildlife and their habitat, and other components of the Gulf environment. Louisiana, which bore the brunt of the spill's damage, will receive the lion's share of the money—\$5 billion.

“A lot of that \$8 billion is going right where it needs to go, to the barrier islands and the shorelines,” says Randy Wilson, a bird biologist and one of the first Service workers on the scene after the *Deepwater Horizon* blew. “On the conservation side of things, we can do a lot of good work with that money.”

Wilson served a 100-day detail flying the shorelines of Texas and Louisiana in the Service's A-Star helicopter looking for oil-slicked pelicans and gannets. He'd then call in their location for a rescue operation. Sometimes, the helicopter would land and Wilson would capture the bird and take it to rehab.

“The worst day was at Pass a Loutre (near Breton) at the mouth of the Mississippi River when the big oil rolled in,” he recalls. “Just seeing those pelicans all soaked and covered in oil. That was hard to take. I remember thinking, ‘Damn, this is some bad stuff.’”

A Slow-Moving Disaster

Highway 23 runs southeast of New Orleans mimicking every twist and turn the mighty Mississippi makes. Not that you can see the river. Levees as high as 20 feet block it from view. The highway, for 75 miles, passes cow pastures and salt marshes, refineries and shipyards, trailer parks and stilt houses, and the towns of Empire, Triumph, Port Sulphur and West Pointe a la Hache. It ends, fittingly, below the town of Venice where a storm-wracked sign tells passersby “you have reached the southernmost point in Louisiana.”

You're also as close as you're going to get by car to the *Deepwater Horizon* disaster site, 41 miles farther out into the Gulf.

The horrific images—of pelicans and turtles coated in black goo, of dolphins jumping through oil slicks, of sandy beaches covered in muck—remain seared into the nation's collective consciousness. The federal government, along with ›

Shrimp boats docked alongside a sign for Delta/Breton National Wildlife Refuge in Venice, Louisiana.



(Previous page) Barret Fortier inspects nesting sites during the nesting season on North Breton Island.



USFWS

BP raced to contain the out-of-control spill with floating booms and chemical dispersants. Nearly 50,000 federal, state and contract workers cleaned-up the oily mess that spread across 1,300 miles of shoreline.

The wildlife death toll was staggering, according to the Service, the National Oceanic and Atmospheric Administration and other agencies: approximately 105,000 migratory birds that stay near the Gulf all year round, 168,000 sea turtles, hundreds of dolphins, 8.3 billion oysters and incalculable numbers of shrimp.

And those are just the damages we know. Wilson and other researchers are studying how the spill impacted land birds that live in Gulf marshes. Much of the oil sank to the bottom of the Gulf, harming the invertebrates and plankton that serve as food sources for countless aquatic creatures. Deepwater corals covered in a brown sheen near the blowout site were damaged.

The spill, in some ways, was a slow-moving disaster. It took a while for the oil to reach the barrier islands and shorelines from Texas to Florida. Some days, depending on the wind and the currents, Wilson wouldn't see a slick or a slickened bird. Other days, he was ankle-deep in it, as was Earl Armstrong.

Armstrong, 76, has lived at the highway's end his entire life. He was born in Pilottown at the mouth of the Mississippi, a deserted village below Venice that has succumbed to hurricanes and rising waters. Armstrong's a cattle rancher, shrimper, nutria hunter (\$6 bounty per kill) and oil-industry supplier whose three air boats ran full-out during the cleanup.

"You could smell the oil before it got here," he says while driving his heavy-duty pickup through knee-high water alongside a cypress swamp and gas processing plant. "There was oil in some places bad. Other places, not a whole lot."

The Refuge Teddy Roosevelt Created

It's a 45-minute boat ride across the Mississippi River from Venice to Breton Island, through Baptiste Collette Bayou and into the Breton Sound. There's not much there there, except for three miles of low-lying, fishhook-shaped beach, marsh and shrubby vegetation. Breton, though, is one of the country's top bird nesting spots welcoming upward of 100,000 pelicans, terns and skimmers each spring. The refuge, including the 40-mile chain of Chandeleur Islands to the north, also provides critical wintering habitat for federally threatened red knots and piping plovers.

In the spring, Breton's a zoo. Tens of thousands of brown pelicans, laughing gulls and royal terns turn the island into an air traffic controller's nightmare. Watch where you walk—colonies of birds nest in the marsh and dune grasses through August. In the winter, redheads, canvasbacks and scaups move in.

Breton has long been a favorite hunting and fishing ground—at times with devastating consequences. Plume hunters in the late 19th and early 20th centuries decimated the island's egret and gull populations all in the name of millinery fashion. President Theodore Roosevelt, incensed at the "ruthless extermination" of birds whose nestlings were left to starve, created the Breton Island Federal Bird Reservation in 1904. It was the



DAN CHAPMAN/USFWS

(Top) North Breton Island at is appears today; the restoration project will add more than 400 acres of habitat for birds. (Bottom) Earl Armstrong stands on his cattle barge in Venice, Louisiana.

nation's second wildlife refuge and the only one Roosevelt ever visited.

Breton, like all barrier islands, is fragile and ever-shifting, at the whim of hurricanes, rising seas and oil spills. An unnamed hurricane in 1915 wiped away its fishing village. Hurricanes Rita and Katrina in 2005 scoured the island chain, destroying dunes and further shrinking its footprint.

Then came *Deepwater Horizon*.

Day after day, Wilson flew the Louisiana coast after the spill. Some days, he'd see >>

nothing. Other days, depending on the winds and tides, he'd see tar balls or oily sheens invading the marshes and mangroves. Breton and other shorelines were eventually wrapped in a protective floating boom. It was easy to spot the oiled and dead birds. Harder to determine was the impact on hatchlings. Pelicans, for example, foraged in oily waters transferring tainted shrimp or menhaden to their babies. Or the fish moved farther afield to avoid the oil, forcing the birds to expend more energy to eat.

"Productivity for a lot of species was hit pretty hard that first year," Wilson says.

'It's All Worth Saving'

Jimmy Laurent and Barret Fortier, the Service's refuge manager and senior wildlife biologist, respectively, at Southeast Louisiana National Wildlife Refuge Complex, sampled and surveyed Breton in late February. They were pleased to discover that nearly a mile of sand had naturally been deposited on the island's southern tip since 2014.

"This was at low tide," Fortier says, "but impressive nonetheless."

The bird population, too, had recovered.

"We are probably back to historical numbers prior to the spill," he adds.

Now, the hard work begins. With \$72 million in restoration money from BP, and \$8 million from a 2005 Hess Corporation oil spill settlement, the Service intends to pump 10.4 million cubic yards of sand onto Breton's beaches and dunes. The sand will be dredged from the Gulf floor three miles away. In all, the island should grow by more than 400 acres, or roughly 13 percent. Fifty acres of fill will be placed adjacent to existing mangroves, so the storm-resistant mangroves and important nesting habitat for brown pelicans, can expand. The project is scheduled to start this fall, after nesting season, and work where the brown pelicans nest will be completed before next year's nesting season.

"There'll be more area for breeding grounds, for foraging and nesting," Laurent says. "It's a substantial amount of money that should buy us some time and extend the lifespan of the island."

And then what? Critics question plowing billions of dollars into beach re-nourishment projects as the seas rise and hurricanes batter—if not obliterate—barrier islands. But what's the alternative? Louisiana's barrier islands—from Raccoon Island in the west to the Chandeleurs in the east—buffer the coast. They act as natural speed bumps absorbing the winds and waves and protecting towns, including low-lying New Orleans.

"The money is there. The research is there. And, most importantly, the determination is there to not only support the birds but also to protect the coastline," Laurent says. "These are all huge benefits until we can find the next technology."

Earl Armstrong, the cowboy shrimper, likens southeast Louisiana to a journeyman boxer who gets knocked down a lot but won't throw in the towel. Armstrong rode out every hurricane to hit the coast over the last 75 years, including killers Betsy and Camille, except for Katrina, whose 12-foot waters washed over Pilottown and drowned 1,800 of his cows. He watches the Gulf rise, the marshes disappear and the dry land turn to swamp. And he knows firsthand the damage oil spills do to the coast and a disappearing way of life.

"If they pump that sand out there, it's going to be helpful," says Armstrong checking on his cattle barge at the shipyard at the end of the road. "I figure it's a roll of the dice, something I've been knowing about my whole life. If you worry about what you may lose, you might as well just go somewhere else. But this is my home. It's why I stay here. It's all worth saving." □

DAN CHAPMAN, External Affairs, South Atlantic-Gulf and Mississippi Basin Regions



(Top) Brown pelicans nesting on North Breton Island; the young pelicans are white and still in the nest. (Bottom) Royal terns.

HELP, HOPE FOR TURTLES

Cash, conservation promote preservation programs. | BY MARK DAVIS



Corpus Christi, Texas—Day came to Padre Island National Seashore the way it always has and always will—with a light in the east, a breeze moving across the Gulf of Mexico, and sea grass bending in the wind.

As she has done countless times in decades of conservation work, Donna Shaver stood at the water's edge to greet the day. The wind reached under the brim of her ranger's hat and tugged at Shaver's hair—a metaphor, perhaps, for the pull sea turtles have on her and others who work to conserve them.



“These turtles have been my life,” says Shaver, Chief of the Division of Sea Turtle Science & Recovery at the national seashore. She’s referring to the Kemp’s ridley sea turtle, the rarest of all sea turtles and a species that nests in large numbers on Padre Island beaches. She is one of a cadre of dedicated professional conservationists who have focused energy on saving sea turtles in the wake of the *Deepwater Horizon* oil spill.

April 20, 2020, marked 10 years since a drilling platform some 50 miles off the Louisiana coast exploded and unleashed plumes of oil that threatened a vast ecosystem. As the oil spread, people who work with turtles all along the Gulf Coast watched with breath held and fingers crossed.

The Gulf hosts five species of sea turtles—green, leatherback, loggerhead, hawksbill and Shaver’s beloved Kemp’s ridley. While the long-term impact on each of these species remains to be seen, biologists modeled the effects of the oil spill and are working to address the harm already done.

Officials with the Department of the Interior, three other federal agencies and each of the five Gulf states, are busy with many projects, including those that reduce the accidental capture of sea turtles by shrimpers and fishermen, restore sea turtle nesting habitat, and support teams that find and protect nests and ones that rescue stranded sea turtles.

They’re aided by funding through Natural Resource Damage Assessment (NRDA), a program created to assess the impact of oil spills and repair that damage. Also assisting in conservation: the National Fish and Wildlife Foundation, or NFWF.



Donna Shaver, National Park Service sea turtle biologist, surveys the beach on North Padre Island.

Now, 10 years later, two noteworthy NRDA- and NFWF-funded efforts have helped make southeastern shores more welcoming to turtles.

One focuses on the sky; the other, on the land.

A Change in Night Skies

Biologists have long known that bright lights on beachfront homes and businesses interfere with successful nesting by sea turtles. Hatchlings, confused by bright lights, crawl toward the lights—not the waves. For years, biologists had been urging people to dim their lights during nesting season; some municipalities have even created ordinances requiring residents to accommodate hatchlings making their precarious way to the surf.

Since *Deepwater Horizon*, the momentum to change lights on beaches has picked up—driven, in part, by settlement funds. The U.S. Fish and Wildlife >>



Before and after photos show a reduction in nighttime light, which aids turtle habitat.

Service and National Park Service have worked to assess and replace lighting on federal and other public and private lands. More than 200 fixtures were changed in Pensacola Beach, Florida, and Gulf State Park, Alabama, with plans to convert more at the state park by 2021.

With a significant contribution of NFWF funds made soon after the settlement was reached, the pace of nesting habitat restoration by eliminating light pollution with retrofitted lighting across Florida and Alabama beaches markedly increased.

The money is well-spent, says Dianne Ingram, a restoration biologist with the Service. The funds have paid for amber LED lights to illuminate parking lots, streets and public facilities.

Amber lights, says Ingram, emit a different wavelength. Without getting too technical, that means they don't distract turtles the way traditional, white lights do.

More people also are aiming their lights to the ground and putting shields on them so as not to light up the sky. Again, this enhances a hatchling's chances of making it to the ocean.

Homeowners and businesses contacted about switching lights often agree to make the change, Ingram says.

"You get a better reception when you say, 'If you are willing to do this, we'll pay for it,'" Ingram says.

A bit of marketing savvy doesn't hurt, either. "It (a business) says, 'We've got turtle-friendly lighting.' That's good PR," Ingram says.

Archie Carr National Wildlife Refuge, on the east coast of Florida, has almost 21 miles of Atlantic shoreline. It hosts more turtle nests than anywhere in the United States—an estimated 1,300 nests per mile.

Adding land to this refuge has long been a top priority included in plans to protect sea turtles, so it's no surprise that *Deepwater Horizon* funds have been targeted there to help restore turtle populations and habitat.

Service specialists, working with agencies in Florida, have identified the types of tracts they'd like to acquire and add to the refuge to ensure protection of more nesting area. Getting more shoreline space at the refuge had long been a Service goal, Ingram says. The spill underscored how important the goal was, she said.

"As soon as the spill happened, it became our No. 1 hope to restore habitat for turtles."

With money from NFWF and NRDA, conservationists aim to add 1/4 mile or more of protected beachfront nesting area.

Why spend money on a refuge facing the Atlantic Ocean when the *Deepwater Horizon* event happened in the Gulf?

Simple, Ingram says. "Turtles swim."

Some turtles that spend time in the Gulf may swim to Archie Carr Refuge to nest, and some turtles that

traditionally travel in Atlantic waters may periodically make their way to the Gulf.

Inconclusive Research

Meantime, in Texas, Shaver and others ponder the future. Much of their work, post-spill, has focused on piecing together information on the oil's impact.

In the early 2000s, says Shaver, “things were looking really rosy” for Kemp’s ridley turtles. Their nesting had increased along the Texas coast; reports from Mexico were equally encouraging. But, in 2010—the same year as *Deepwater Horizon*—surveys showed a decline in Kemp’s ridley nesting. Was it because of the spill? Research is inconclusive.

Another survey tracked female turtles, outfitted with satellite transmitters, as they fed offshore from east Texas to Florida. Of that number, 51 percent were exposed to oil.

That statistic troubles Shaver. “When you extrapolate the number of female turtles in the population, that’s a lot—a lot.”

Questions surround the long-term impact of *Deepwater Horizon*, says Mary Kay Skoruppa, a Service biologist who oversees sea-turtle conservation in Texas. She and Shaver communicate almost daily.

While other turtles also nest on Texas shores, says Skoruppa, Kemp’s ridley turtles are different. They don’t have the extended, “almost global” range of other, larger sea turtles. They roam primarily in the Gulf. Unlike other species, they nest during daylight hours—increasing the chance that hatchlings may be snatched by predators or inadvertently run over by humans driving along Texas beaches.

Researchers at Sea Turtle Inc. on South Padre Island are among the people waiting to see if events of 10 years ago will have an impact on this season’s nesting.

Founded in 1977, the group is the only entity authorized to do turtle conservation



A Kemp’s ridley sea turtle, as seen in 2010, oiled by the Deepwater Horizon oil spill. Many oiled sea turtles were captured by biologists and volunteers cleaned and returned to the Gulf after the threat of repeat oiling was reduced.



Donna Shaver shows a newly hatched Kemp’s ridley sea turtle to park visitors before she releases it into the Gulf of Mexico. Hatchling releases are the high point of Shaver’s sea turtle protection efforts and attract hundreds of excited visitors each year.

and research along a 50-mile stretch of Texas coastline that ends at the U.S.-Mexico border. It operates with permits issued from the Service.

“We don’t know yet” the full impact of *Deepwater Horizon*, says Mariana Devlin, Sea Turtle Inc.’s conservation coordinator. “It’s been a fluctuation from 2010 on.”

Other researchers have the same questions. *Deepwater Horizon* may have

occurred a decade ago, but that hardly means it’s forgotten—not on Texas shores, Florida beaches or other spots where turtles leave the surf to lay eggs.

Sea turtles aren’t forgotten either, and—with the help of smart conservation—never will be. □

MARK DAVIS, External Affairs, South Atlantic-Gulf and Mississippi Basin Regions



A REFUGE GROWS IN TEXAS

*Laguna Atascosa expands
in wake of incident.*

by MARK DAVIS

Los Fresnos, Texas—Boyd Blihovde looked across the Chevy Tahoe’s wide hood to an even greater expanse of Texas flatland.



(Previous page) Green jays can be found at Laguna Atascosa National Wildlife Refuge. These jays are one of the few North American birds know to use tools—they use sticks to pry up loose tree bark to find insects. (Above) Many bird species rest, feed or nest on Laguna Atascosa National Wildlife Refuge, or migrate through it.

“All of this,” says Blihovde, gesturing toward the broad field where farmers once labored long ago, “is included in the refuge.”

For the record: That’s 3,500 acres recently acquired for Laguna Atascosa National Wildlife Refuge, the refuge Blihovde manages. It’s one of the latest tracts the Service has added to the refuge as part of the *Deepwater Horizon* settlement.

The *Deepwater Horizon* oil spill occurred 10 years ago on April 20, 2010. It’s a date conservationists know well. In Florida, Alabama, Louisiana and Mississippi, biologists, scientists, elected and appointed officials, volunteers, and countless others dealt with injured wildlife and oiled shorelines.

But in Texas, which has more than 350 miles of shoreline fronting the Gulf of Mexico, the impact was not as easy to gauge. The state’s coastal plains and forests appeared to have escaped the worst of the incident. Even so, as part of the spill settlement, Texas is receiving significant funding for restoration.

Federal and state officials, working with the National Fish and Wildlife Foundation, Ducks Unlimited, The Nature Conservancy and other partners, have used the settlement funds to acquire land here.

It’s money well-spent. The 110,000-acre refuge is home to an elusive, highly endangered creature, the Texas ocelot. A wide-eyed, spotted animal not much larger than a house cat, it hunts at night and prowls the refuge’s brushy tangles. Laguna Atascosa also hosts the northern Aplomado falcon, a fast-flying, medium-sized raptor that thrives in grasslands ranging from south Texas into Central and South America.

The refuge is a stop for migrating waterfowl, too.

Since the oil spill, the refuge has grown by about 15,000 acres through a succession of acquisitions large and small. In each transaction, the Service worked with people interested in wildlife conservation; some sold land that had been in their families for decades. One group of donors gave the Service 1.5 acres for a public drive.

Each purchase brings the refuge closer to completing its goal of creating a coastal corridor, a stretch of conserved land stretching about five miles between Laguna Atascosa and Bahia Grande. It is nearly complete.

As the Rio Grande Valley adds ever more people, says Blihovde, the corridor becomes ever more important. This is an animals-only highway—a corridor where species can travel from one protected site to the next.

“We’re hoping to get the parcels purchased before it’s all gone and developed,” Blihovde says. >>



TEXAS PARKS AND WILDLIFE DEPARTMENT



MARK DAVIS, USWS



USWS



TEXAS PARKS AND WILDLIFE DEPARTMENT

Nicole Ekstrom thinks that's a fine plan. When she gets the chance, Ekstrom packs her son, 4-year-old Dean, into the family cruiser to make the half-hour trip to the refuge. She knows the way: When she was Dean's age, her parents took her to the refuge, too.

"I want him to come out here, like I did and smell the sage," Ekstrom says.

Ekstrom is such a fan of the refuge that for the past three years she's headed the Friends of Laguna Atascosa National Wildlife Refuge, a nonprofit organization dedicated to enhancing the refuge. Its board of directors in March voted to make an offer for 40 more acres for Laguna Atascosa, using money from several sources within the organization.

"This [land] will be part of the puzzle," says Ekstrom, who lives in nearby Port Isabell.

The acquisition is timely, she thinks. For different reasons, conservationists and farmers desire the same Rio Grande Valley land.

"It's good to save this," she says.

The refuge, says Ekstrom, is a great place for a kid to blow off steam. She and her husband, Chris Romero, never walk far at Laguna Atascosa before their son is bounding off into the bushes, playing with sticks and rolling in the dirt.

"Sticks and dirt," says his mom. "His two favorite things."

(Previous page, clockwise from upper left) The northern Aplomado falcon is an endangered species. Refuge staff hope to manage the habitat at Laguna Atascosa in ways that will benefit the falcon. // Boyd Blihovde, Laguna Atascosa National Wildlife Manager, speaks about the collaborative restoration efforts funded by *Deepwater Horizon* oil spill settlement monies. // The remaining population of ocelots in Texas is very small. Laguna Atascosa National Wildlife Refuge provides habitat for a portion of the population. // A curlew feeds in shallow waters at South Padre Island.

He comes by that honestly. Years ago, a little girl named Nicole rolled in that same dirt.

Laguna Atascosa was founded in 1946, when the federal government deactivated a World War II range where soldiers had learned lethal lessons in the use of guns that bristled from heavy bombers. The war over, the flyboys made way for a flyway.

Ducks Unlimited estimates that as many as 250,000 migratory waterfowl stop here annually. Their ranks include pintails, teals, a scattering of snow geese, redheads and more.

"This is an important place for them [waterfowl]," says Kevin Hartke, a biologist who works from the organization's Texas Gulf Coast office. On a recent March afternoon, he and a colleague, engineer Carter Coleman, visited a tract on the refuge.

In the distance, a group of wild hogs, an invasive species, stopped in their foraging and eyed the men's truck. A litter circled one of the sows. Closer by, an osprey beat skyward, a fish in its talons.

Ducks Unlimited has been a steady partner, says Blihovde, who's worked closely with both men for the past few years. With their help, he's kept an eye on water levels and monitored the sites where waterfowl alight in their migrations north and south. They have also provided invaluable advice on acquiring extra tracts, he says.

"They've been great," he says.

Partnerships work best, agrees Jeff Francell, director of land protection for The Nature Conservancy. A nonprofit, the conservancy has been actively involved in acquiring more land for the refuge and others.

"We'd had our eyes on these properties for a long time but just didn't have the funding," he says. "It's been a really good experience in terms of doing the work of mitigating from the *Deepwater Horizon* event.

The organization, says Francell, has had to work closely with state and federal agencies in the sometimes-ticklish practice of buying land. As anyone buying real estate knows, a deal is not a deal until the papers are signed and the money transferred.

"The participants are really strong," he says. "They work really well together."

That work gets results, says Blihovde. On a recent afternoon, with the wind rising as the sun sank, Blihovde sat in his office. It's a tiny spot cluttered with the sort of stuff one expects at a wildlife refuge office: antlers, photos of wildlife, brochures. Set against a window is a battered old Service sign, white, rusted through in places. Blihovde discovered it buried in the sand.

Outside, in mesquite and lime trees, red-winged blackbirds and grackles sounded in the afternoon air. It was a pleasant sound, as if the birds were sharing a laugh.

The happy noise was enough to make Blihovde smile—or perhaps it was what he saw when he powered up his computer. He reviewed the tracts on his screen that the refuge had acquired. Laguna Atascosa has become larger, a better habitat for creatures that live here, or merely stop for a visit.

The refuge manager's smile, like the refuge itself, got even larger. □

MARK DAVIS, External Affairs, South Atlantic-Gulf and Mississippi Basin Regions

HAPPY TRAIL

Bon Secour Refuge visitors, others across the Gulf benefit from Deepwater Horizon oil spill settlement. | BY DAN CHAPMAN

A visitor to Gulf Islands National Seashore enters the historic Fort Pickens.

Gulf Shores, Alabama—For most visitors, the Jeff Friend Trail is a pleasant stroll through maritime forest and coastal marsh at Bon Secour National Wildlife Refuge.

For SuzAnne Pendley, it's a near-mystical experience. It's an avian paradise flush with ospreys, owls, summer tanagers and prothonotary warblers. It's an outdoors apothecary plump with berries, roots, barks and flowers offering medicinal benefits to man and beast alike. It's a cultural time machine harkening to Native American life and lore. It's a recreational paradise for hikers, birders, kayakers and anglers.

"This is like a different world. It's so tropical," says Pendley who leads nature walks along the mile-long trail. "I loved it, and became enchanted with it, immediately."

Construction of the still-new boardwalk was funded by the \$8.8 billion Natural Resource Damage Assessment (NRDA) portion of the *Deepwater Horizon* settlement.

The money is helping restore the Gulf of Mexico—the wetlands, coastal habitats and wildlife harmed by the spill. A significant chunk, nearly \$500 million, is earmarked for projects to boost recreation with work on trails, roads, piers, campgrounds, lavatories and artificial reefs. The spill not only hammered ecosystems and critters; it also ruined the "services" those natural resources provided. Beaches, for example, were closed for cleanup, which led to the cancellation of vacations and lost revenue. The recreation projects are intended to make up for the lost hunting, fishing, swimming, hiking and other recreation.

'How Were We Ever Going to Clean This Up?'

More than \$4 million bought two ferries to carry sightseers, beachgoers and history buffs from nearby Pensacola to Pensacola Beach and Fort Pickens.

"We needed to address what our visitors missed, and wanted, during the spill and the cleanup," says Dan Brown, superintendent of Gulf Islands National Seashore, which includes the 1834 fort on Santa Rosa Island. "The community absolutely loves the ferry. It's such a wonderful amenity."

Brown started his latest National Park Service gig at an inauspicious moment.

"The oil had already started washing ashore on the Mississippi islands, so a week after I got here it washed ashore in Florida," he says in an interview at his Gulf Breeze, Florida, office. "All you could see, from east to west, was black goo all along the beaches. You had to wonder: How were we ever, ever going to clean this up?"

Visitation at the national seashore dipped to maybe 4.4 million in 2011. Local and state officials, upset at the befouling of their beaches and the loss of tourism dollars, sought ways to boost the region's recreational offerings. Now ferries drop visitors at the new Fort Pickens pier four or five times a day during the busy summer season. In all, the Turtle Runner and Pelican Perch ferries, piers and other infrastructure cost \$17 million with \$4 million coming from the \$8.8 billion settlement fund. Pensacola's downtown pier cost \$3.5 million and was paid for by the city. Federal agencies, including the Federal Highway Administration, kicked in millions more.

It's a lot of money. Brown, though, insists it's well-spent.

"Our national seashore was hit hard by the *Deepwater Horizon* spill," the superintendent says. "The public couldn't use their beaches and waters for months. And there was settlement money from BP intended specifically to help restore that lost visitation." »

The Turtle Runner passenger ferry sails from Pensacola to Fort Pickens at Gulf Island National Seashore in the Florida Panhandle.



NPS



He adds, “Whenever I ride it people tell me how thrilled they are to have an amenity like that in the community.”

Visitation at Gulf Islands hit 5.7 million in 2019.

‘Hunting Is a Lot Better’

NRDA and other oil spill settlement dollars have been distributed across all five Gulf states to boost recreation. At the Okaloosa Unit of the Gulf Islands Seashore, a bayside beach near Fort Walton, Florida is building a \$3.2 million boat ramp, boardwalk, floating pier, restroom, pavilion and more. At Grand Bay National Wildlife Refuge, and adjoining public lands along the Mississippi-Alabama border, \$16 million has been approved to acquire 8,000 acres (and manage another 9,500 acres) of rare coastal maritime and wetland habitats. Much of the land is open to hunting and fishing, recreational activities important to the Service and local communities.

“We do have quite a few people come out here now to deer hunt,” says Dave Helon, Service ecologist at Grand Bay Refuge who spends a lot of time carefully burning and chemically treating the thick underbrush including invasive plants. “The state guys, who’ve been here a lot longer than me, say they’ve really noticed a difference this year. They tell me the hunting is a lot better because we’ve opened up the forest.”

‘I Love This Trail’

And nearly \$900,000 was spent fixing the Jeff Friend Trail outside Gulf Shores, Alabama, a popular birding spot readily accessible to all. The Bon Secour (“safe harbor”) Refuge covers 7,700 acres of beach, dune, scrub and pineland habitat. Established by Congress in 1980, the refuge is a critical link in the neotropical migratory bird route each spring and fall. The boardwalk was shuttered in >>



(Top) The Jeff Friend Trail boardwalk in Bon Secour National Wildlife Refuge features beautiful views of the shores of Little Lagoon. (Right) A popular resting spot on the Jeff Friend trail overlooks Little Lagoon. (Above) SuzAnne Pendley leads nature walks along the mile-long Jeff Friend Trail at Bon Secour National Wildlife Refuge.





New signage and boardwalk at the Jeff Friend Trail at Bon Secour National Wildlife Refuge purchased with restoration dollars from the Deepwater Horizon oil spill. (Right) The free tram at Fort Pickens, courtesy of Deepwater Horizon restoration dollars.



September 2017 for renovations and reopened four months later. It's a smooth, durable composite walkway that passes alongside maritime forests, freshwater marshes and the not-so-Little Lagoon with a new kayak launch site and observation deck.

The deck affords a lovely spot to search for buffleheads, common loons and horned grebes (winter); osprey, sandwich terns and northern rough-winged swallows (spring); yellow-billed cuckoos, summer tanagers and northern parulas (summer); and brown pelicans, snowy egrets and double-crested cormorants (fall). In all, 379 bird species have been sighted at Bon Secour.

"I'm going to be a bird nerd today and hope to see some owls," Pendley says before expertly guiding a visitor along the trail.

Her family quit the upper Midwest eight years ago for a life along Alabama's Gulf Coast, where they live in a 32-foot RV. She's a wildflower aficionado who volunteers to lead nature-lovers around the boardwalk loop while pointing out the botanical



richness tucked beneath moss-covered oaks, southern magnolias and wax myrtles. Godfrey's goldenaster. Vanillaleaf. Elliott's blueberry. Jointweed. St. Andrew's cross. Climbing fetterbush. Witch hazel. Sparkleberry bush. Devil's walking stick.

"Plants have always been my thing," says Pendley, though she's also quite proficient in the refuge's bird, fish and butterfly offerings. "They're great for the animals that stop here, but also for the snowbirds from up north. There's such a huge variety and so many different habitats. That's why I love this trail." □

DAN CHAPMAN, External Affairs, South Atlantic-Gulf and Mississippi Basin Regions

Black Terns Benefit in Dakotas



Black tern.

Black terns use the Gulf of Mexico during migration but breed elsewhere, so it makes sense to replace terns killed by the *Deepwater Horizon* oil spill with habitat restoration on tern breeding grounds. The Prairie Pothole Region was a logical choice for these efforts, as it harbors up to half of the North American breeding population of black terns.

Jeff Gleason, a Service biologist working for the Gulf Restoration Office, had previously worked at Kulm Wetland Management District in North Dakota. There he observed first-hand the benefits provided to black terns and other non-game bird species by wetland and grassland easements acquired primarily for waterfowl conservation. He knew that black terns could benefit even more by specifically targeting tern habitat.

Collaborating with Kurt Forman of the South Dakota Partners for Wildlife Program, Gleason reached out to the Service's Habitat and Population Evaluation Team, which develops habitat models to guide conservation, for a model of black tern habitat in the Prairie Pothole Region of North Dakota and South Dakota. The group submitted a proposal, which was funded for \$6.2 million, to protect 2,000 acres of wetlands and 1,000 acres of associated uplands in perpetuity for the benefit of black terns as part of *Deepwater Horizon* restoration efforts.

Farmers and ranchers in North Dakota and South Dakota will be the primary beneficiaries of the funding. The Service will pay cooperating landowners for voluntary conservation of wetlands and grasslands easements that prohibit wetlands from being drained, filled, leveled or burned, and grasslands from being plowed. In addition to providing habitat for black terns and other wildlife, conserving these lands will reduce soil erosion and mitigate flooding in the region, as well as provide pasture and water sources for livestock. □

R A C I N G THE TIDE

Service heavy equipment operators tackle challenging nighttime project on Oregon Coast.

by BRENT LAWRENCE

Heavy equipment operators set a tide gate as part of the project at Nestucca Bay National Wildlife Refuge.

The tide was slowly draining out of Nestucca Bay, and it was still hours before the sun would peek above the horizon. The only light was from the headlights of the machinery already moving dirt at a furious pace.

A crew of Service heavy equipment operators was racing the tide.

The objective was to install a fish screen for a pump, and remove and replace tide gates that help manage water levels on the Upton Slough section of Nestucca Bay National Wildlife Refuge on the Oregon Coast, part of Oregon Coast National Wildlife Refuge Complex.

The entire project took weeks, but this critical element had to be done in a narrow window of time at the lowest tides last fall.

This work on the soft ground on the bank of the Little Nestucca River was left to a crew of five heavy machinery operators from national wildlife refuges across the Columbia-Pacific Northwest Region.

In bureaucratic terms, the heavy equipment operators are known as wage-grade professionals. That's the official term. But project leaders, facility managers and biologists simply call them the backbone of the Service. They're the people who turn habitat conservation dreams into reality.

The project will help federal- and state-listed Oregon coastal coho salmon through improved fish passage and habitat requirements. Surveys are already showing encouraging numbers of coho salmon.



Gary Rodriguez (left), a retired 32-year Service employee, served as lead for the project, and Oregon Coast National Wildlife Refuge Complex Project Leader Kelly Moroney.

They're creators of conservation.

"They are so important to the U.S. Fish and Wildlife Service's mission. Without our wage-grade professionals, we couldn't accomplish the important habitat and conservation work we do on refuges. They're unsung heroes of conservation," says Kevin Foerster, Refuge Chief for the Columbia-Pacific Northwest Region.

Due to the location and environmental factors for the Upton Slough work, the team had to consider daily tidal changes, a variety of infrastructure upgrades/installations, ever-changing weather conditions and the need for specialty heavy equipment to implement the habitat restoration.

"This was a technically challenging project and all the construction work was completed by our heavy equipment professionals. What really floored me was the morning of the first tide-gate replacement," recalls Oregon Coast Refuge Complex project leader Kelly Moroney. "We were following the tidal cycles, which required operations to begin at 3 a.m. I have been involved in many projects over my 25-year career, but >>



USFWS

(Top) The crew during the nighttime installation was (from left): Kenny Berry from Malheur National Wildlife Refuge, Shaun Matthews from Willapa National Wildlife Refuge, Gary Rodriguez from Oregon Coast National Wildlife Refuge Complex, Kelly Connall from Little Pend Oreille National Wildlife Refuge and Tyrone Asencio from Willamette Valley National Wildlife Refuge Complex. (Bottom) Dusky Canada geese and other migratory waterbirds will benefit from the lowland pasture improvements.



nothing came close to what I saw when I pulled up that morning. It almost looked choreographed. I was impressed. They are true professionals.”

Gary Rodriguez, a 32-year Service employee and now-retired facilities operations specialist/engineering equipment operator at Oregon Coast Refuge Complex, served as lead for the project.

“Our job was to execute the project. We had plans, elevations and equipment, and then it was up to us to be able to put that all together. Some folks were skeptical if we could do it. From our standpoint, it was not a problem. It was going to happen, and that’s what we did,” Rodriguez says.

The crew during the nighttime installation was composed of Kenny Berry from Malheur National Wildlife Refuge, Shaun Matthews from Willapa National Wildlife Refuge, Gary Rodriguez from Oregon Coast Refuge Complex, Kelly Connall from Little Pend Oreille National Wildlife Refuge and Tyrone Asencio from Willamette Valley National Wildlife Refuge Complex. Dave Harlow from Willamette Valley Refuge Complex primarily worked on the channel restoration at Upton Slough.

Spencer Berg, heavy equipment manager for the Service’s Columbia-Pacific Northwest Region, also worked heavy equipment on the project. He says that wage-grade staff play an essential role in conservation.

“I consider our wage-grade staff the backbone of the refuge system,” says Berg. “They’re doing the work on the ground, mowing the habitat, maintaining the boiler systems and parking lots, and creating wetland habitat. They are doing phenomenal things. On the Upton Slough

project, a project like that takes a lot of planning and work to get going. You have to order the culverts and supplies, you have to get the permits, and watch the tide charts and weather. Getting all those factors lined up is a huge lift.”

“We could not have accomplished this project without help from internal and external partners.”

All the construction work on the Upton Slough project was handled by the Service’s heavy equipment professionals, saving taxpayers close to \$200,000 for the project.

Internally, multiple Service programs and departments helped with the development and execution of the project. Those include the Service’s Water Resources Division, Inventory & Monitoring’s Biological Program, Ecological Services’ Oregon Fish and Wildlife Office, Fisheries and Aquatic Conservation’s Vancouver Office, and Connor Shea from the Partners for Fish and Wildlife in California.

Partners on the project included the Confederated Tribes of Siletz Indians, Oregon Department of Fish and Wildlife, Nestucca, Neskowin & Sand Lake Watersheds Council and the Little Nestucca Drainage District.

“Like most projects these days, partnerships were huge,” Moroney says. “We could not have accomplished this project without help from internal and external partners.”

The Service also reconstructed the historic slough channel as a part of the project. It was returned to its original path, winding across the lowlands. This will reduce flooding, which will benefit landowners in the Upton Slough watershed basin and the Little Nestucca Drainage District.

It will also improve habitat for fish and wildlife. Dusky and Semidi Island Aleutian Canada geese, which are both identified as species of concern in the Pacific Flyway Council Management Plans, and other migratory waterbirds will benefit from the lowland pasture improvements. It’ll also improve fish passage and fish habitat requirements for federal and state listed Oregon coastal coho salmon.

“The bottom line is that the operators left their homes for two weeks, worked long hours as a team to deliver on a common goal,” Moroney says. “Their work and accomplishments on the Upton Slough project should be a model for refuges doing business. These professionals care about the resource, care about refuges, and take a lot of pride in their work—and it shows.”

Our wage-grade professionals—the people who turn conservation ideas into conservation successes. □

BRENT LAWRENCE, External Affairs, Columbia-Pacific Northwest Region



MORE INFORMATION

Watch the full Story Map at <<https://bit.ly/348fJWz>>

BEYOND

DEEPWATER HORIZON

Service works to restore damaged environments across the country.

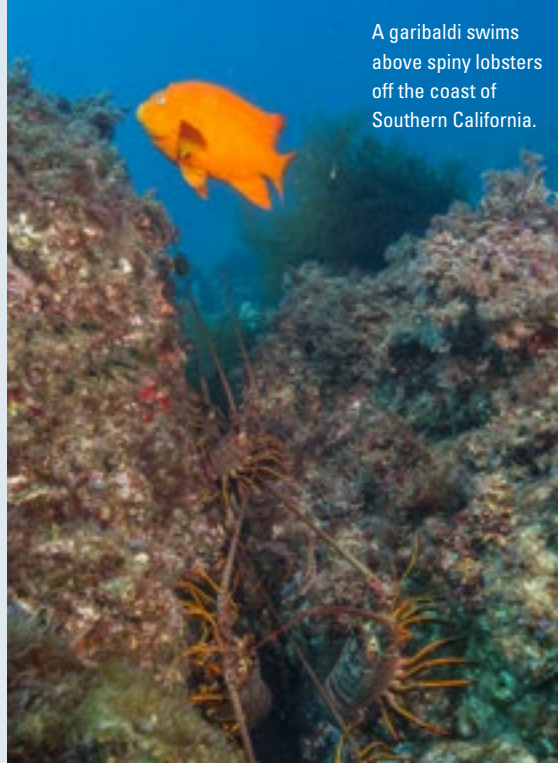
Releases of hazardous materials aren't limited to massive events that capture the nation's attention, such as the *Deepwater Horizon* disaster. But like that spill, damage to the natural and human environment can linger after cleaning up an oil spill or other hazardous material release. A Natural Resource Damage Assessment helps us to understand the scope of damage, types of restoration needed and costs to undertake remediation, and to recover damages from those responsible. Take a look at some examples of how settlement funds have been used to restore natural and human environments. »



CALIFORNIA

Montrose

For several decades, byproducts of the production of DDT flowed into the marine environment off the coast of Los Angeles County, California. These harmful pollutants contaminated fish and resulted in the loss of nesting bald eagles on the Channel Islands. A settlement agreement in 2000 provided \$140.2 million to restore natural resources. Among the projects implemented to heal the environment and benefit local communities were the restoration of bald eagles to the Channel Islands, and funding of educational programs to introduce youth to recreational fishing opportunities in Southern California.



A garibaldi swims above spiny lobsters off the coast of Southern California.

BRETT SEYMOUR/NPS



USFWS

MASSACHUSETTS & RHODE ISLAND

Bouchard Barge-120

In April 2003, the Bouchard Barge-120 (B-120) struck a rocky shoal and spilled 98,000 gallons of fuel oil into Buzzards Bay. More than 100 miles of coastal waters and shore in Massachusetts and Rhode Island were oiled, impacting natural resources and their uses. The Service, National Oceanic and Atmospheric Administration, Massachusetts and Rhode Island are using settlement funds to implement nearly 20 restoration projects around the bay. Projects include trail construction and interpretive signage at parks and nature sanctuaries, installation of mobile mats and trails at state parks to provide wheelchair access for swimming, and installation and improvement of three ramps that provide access to saltwater fishing and boating in Buzzards Bay. Funds have helped protect more than 700 acres of land to benefit wildlife and recreation such as hiking and bird watching in Massachusetts, with additional land protection planned in Rhode Island. Restoration of impacted shellfish populations will support coastal ecosystems, and enhance recreational harvest opportunities. Other projects focus on restoring the loss of birds, including the piping plover, common loon (see page 5), and common and roseate tern.

CALIFORNIA

Refugio

In May 2015, a pipeline leak spilled 3,400 barrels of oil into the marine environment off the coast of Santa Barbara County, California. The Service, along with state and other federal agencies, announced release of a draft Damage Assessment and Restoration Plan on April 22, 2020, for natural resources impacted by the spill. The draft plan identifies projects that will help restore wildlife and habitats and compensate the public for lost recreation resulting from the spill.



Dolphins in the Santa Barbara Channel.

NOAA

MICHIGAN

Enbridge Energy

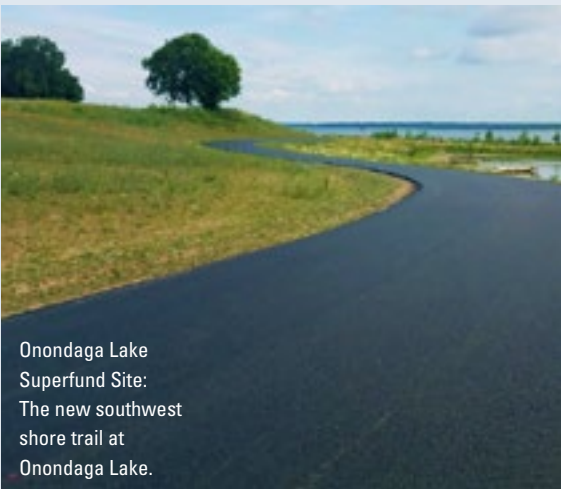
In 2010, Enbridge Energy's Lakehead pipeline ruptured in southern Michigan, resulting in the nation's largest inland oil spill. More than 840,000 gallons of crude oil flowed through 38 miles of the Kalamazoo River, affecting more than 1,560 acres river, floodplain and upland habitat, and injuring birds, mammals, reptiles and other wildlife. Sections of the river remained closed for several years, reducing recreational and tribal uses of the river. A \$62 million settlement in 2015 funded habitat restoration and improved recreational access, including kayak and canoe launch facilities for visitors with disabilities.

Saylor's Landing provides access to the Kalamazoo River for outdoor recreation.



USA WILDLIFEUSFWS

HOBEYWELL



Onondaga Lake Superfund Site: The new southwest shore trail at Onondaga Lake.

NEW YORK

Onondaga Lake Superfund Site

Onondaga Lake, along the northern border of Syracuse, New York, covers an area of 4.6 square miles. For decades, natural resources were exposed to mercury and other hazardous wastes released into the lake,

its tributaries and associated uplands. The Service and the New York State Department of Environmental Conservation are overseeing the implementation of a series of projects to restore and protect wildlife habitat and water quality, and increase recreational opportunities at Onondaga Lake. Restoration projects include connecting existing trails, creating trails, and improving access with a public parking area, safety features and bench seating. Those visiting the western side of the lake can now enjoy a picnic area, potable water connection and cold-water rinse station at the Onondaga Lake Visitor Center. Projects benefiting recreational anglers include a floating fishing pier, new fishing and parking areas, and a boat launch. Improvements to existing outlet jetties on Onondaga Lake will enhance recreational opportunities for both anglers and pedestrians. Additional projects include creating 100 acres of native grassland habitat, preserving wetlands, restoring habitat and conserving more than 1,400 acres within the watershed.



USFWS

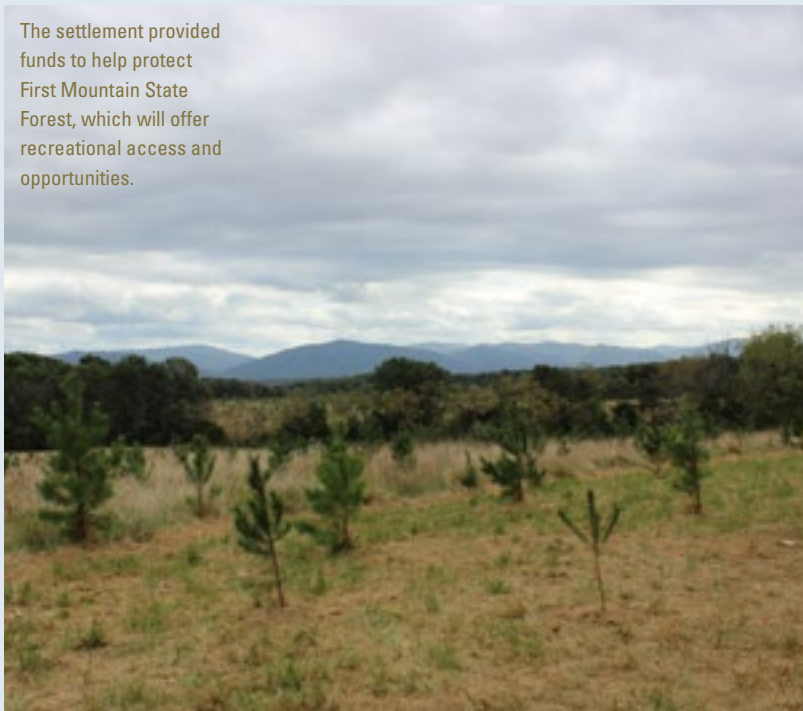
OREGON

New Carissa

In February 1999, the 640-foot freighter New Carissa ran aground north of Coos Bay during a major winter storm, releasing an estimated 140,000 gallons of fuel into the marine environment. Several thousand birds, including the threatened western snowy plover and marbled murrelet were impacted. Using a portion of the \$28 million in settlement damages, the Service developed a unique series of 66 educational interpretive panels at 24 sites to educate and engage the public about the variety of marine and terrestrial wildlife along 320 miles of Oregon coastline.

One of 66 interpretive panels along the Oregon coast.

The settlement provided funds to help protect First Mountain State Forest, which will offer recreational access and opportunities.



VIRGINIA

DuPont Waynesboro

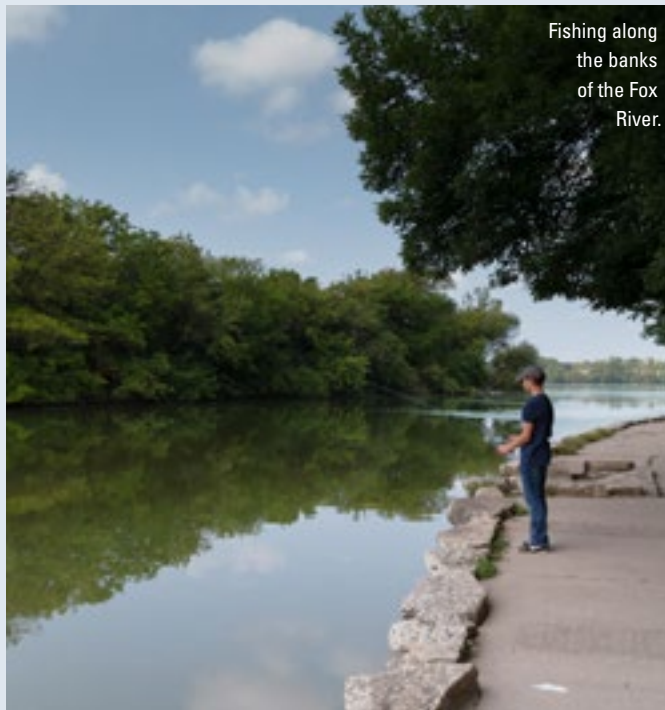
A variety of natural resources and uses within the South Fork Shenandoah River watershed have been impacted by the release of mercury used in manufacturing processes in Waynesboro, Virginia. Virginia, through the Virginia Department of Game and Inland Fisheries (now the Virginia Department of Wildlife Resources), initiated a process to identify projects that would improve or create public access within and near the affected watershed. Six projects are in various stages of planning along the South River; South Fork Shenandoah River; North Fork Shenandoah River and mainstem Shenandoah River. Projects include developing increased parking, including ADA-compliant parking options, and river access, improved signage and improved boat ramps. Two new river access points will offer additional options. Other restoration projects will renovate a Virginia fish hatchery, address water quality, restore fish and wildlife habitat, propagate and restore freshwater mussels, and protect land for neotropical migratory songbirds.

USFWS

WISCONSIN

Lower Fox River

Beginning in the 1950s, paper mills and other industries released polychlorinated biphenyls (PCBs) into Wisconsin's Lower Fox River system, which flows into Green Bay and Lake Michigan. PCBs injured fish, bald eagles, other fish-eating birds, surface water, sediment and cultural resources. Using some of the \$106 million settlement, trustees funded more than 160 restoration projects, resulting in more than 21,000 acres of landscape and fisheries conservation, along with public outdoor recreational benefits including environmental education centers and nature trails.



Fishing along the banks of the Fox River.

COURTESY OF TOM ROMANOWSKI

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JOHN HEILUS/USFWS

dream JOB

Kayak surveys provide important data for fish habitat on California's Clear Creek.

by JOHN HEIL

(Top) Gabriella Moreno (right), Service fish biologist for the Red Bluff office, measures redds (fish nests) along Clear Creek. Melody Scarborough, biological science technician inputs the data on a GPS tablet. (Right) Juvenile fall-run Chinook salmon in the shallow waters of Clear Creek on a warm day in February.



JOHN HEILUS/USFWS

Imagine taking a kayak out on the water all day as a full-time job. Well, that's exactly what Service employees from the Red Bluff Fish and Wildlife Office do for a portion of the year.

The work is critical for surveying Clear Creek for the presence of steelhead, rainbow trout and late-fall Chinook salmon nests known as redds.

"We primarily use this information to try and evaluate the effectiveness of our ongoing restoration projects on the creek," says Ryan Schaefer, fish biologist for the Red Bluff office. "These surveys give us a good idea where the fish are spawning and if they are using the gravel that we're putting in the creek to increase the available spawning area and hopefully help bolster salmonid populations."

Gabriella Moreno, a fish biologist who recently graduated from Colorado State University, adds: "This is my dream job. I've wanted to be a marine biologist since I was a little girl, and being out here kayaking and snorkeling every day is just so rewarding."

Fish biologist Charles Stanley says he feels like the team is all extremely committed to the goals of the Service to preserve the resources for people.

"I work with a great group of guys and ladies who are all highly trained and dedicated," Stanley says. "I think that the work that we do is critically important and sometimes overlooked. No one knows we're out here and doing this, but the ultimate results of people catching fish and enjoying the outdoors are the benefit. I really enjoy the time out in the field, connecting with nature and being hands-on with the science that we do. I'm really proud and lucky to be a part of this office."

Why kayaks?

"Well, the kayaks are an advantage because they can let us go through deeper water obviously and access more of the creek," says Charlie Chamberlain, a fish biologist in the Red Bluff office. "They

give you a little bit of a raised position if you're sitting on your knees, which helps you see in the water a little better and cover more of the creek."

Using GPS tablets to record information biweekly when weather conditions allow, the team can mark new redds, revisit redds, characterize their age and get an idea how long they are visible, and avoid double-mapping them. In the long run, it helps with accuracy about the run timing for the fish and to be more quantitative in their effort.

"If we see anything that looks [like a redd], maybe it's just sunlight, maybe it is fish activity, we'll call out 'redd,'" says Moreno explaining the process. "At that point, we will all hop out of the kayak, all look at it, come to a group consensus and talk it through. If we all agree, we will mark it—we have a statistical-like random sampler on our tablet that will tell us if we need to take a sample or not. That way we are not biased, and 20 percent of the redds will get sampled.

"Once we have sampled it and recorded the GPS point, we are good to go. Or, if it has already been marked, we will just age it and put that into our tablet as well. It's almost like we are lifeguards, like looking left and right, trying to survey as much as we can."

From the survey results showing where the redds are and how the fish are doing, Service personnel can then focus on how to alter the creek for better connectivity to the flood plain to improve the habitat using gravel supplementation and other management practices.

However, when all is said and done, "the best habitat out here is the stuff that the creek has actually built," Chamberlain says. "We're trying to set the table for the creek to build those habitats. The



JOHN HEIL/USFWS

"This is my dream job. I've wanted to be a marine biologist since I was a little girl, and being out here kayaking and snorkeling every day is just so rewarding," says Gabriella Moreno, Service fish biologist for the Red Bluff office.

redd survey gives us an index of how the populations are doing. It lets us know the distribution of fish through the creek. We compare that to the distribution of habitats. It helps us be better informed about the flow and gravel actions we ought to take."

For more than 20 years, the Service, California Department of Fish and Wildlife, Bureau of Reclamation, Bureau of Land Management, National Marine Fisheries Service and Western Shasta Resource Conservation District have been working to restore Clear Creek to improve habitat and recover populations of Central Valley spring run, fall run and late-fall run Chinook salmon, and Central Valley steelhead.

Says Schaefer; "We're trying to get an idea about the abundance of steelhead and late-fall Chinook salmon in Clear Creek. We're using the redd data we collect as an index to get that information. We'd like to know specifically how many redds there are and where the fish are spawning. Restoration actions are occurring continually and we want to ensure we are using them to conduct sound management. The redd survey is an important component of the whole restoration process on Clear Creek." □

JOHN HEIL, External Affairs, California-Great Basin Region

MUSEUM
OBJECTS
COME TO
LIFE

This is a series of curiosities of the Service's history from both the U.S. Fish and Wildlife Service Museum and Archives as well as the Service's National Fish and Aquatic Conservation Archives. As the first and only curator of the museum, Jeanne M. Harold says the history surrounding the archives give them life. Jeanne retired in November but provided articles to keep Curator's Corner going. We are also featuring submissions from April Gregory, curator of the National Fish and Aquatic Conservation Archives.



Automatic for the Fish

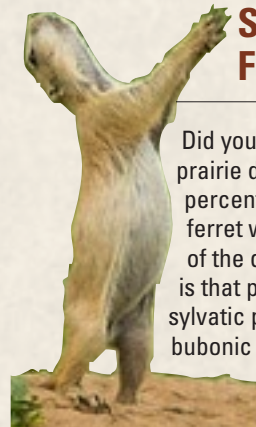
The Neilsen Automatic Feeder was a common tool used at fish hatcheries for several decades. Many national fish hatcheries still have a few of them around, although it's doubtful any are still used. Neilsen Metal Industries began in 1957 in Salem, Oregon, and produced custom equipment for food processors and fish hatcheries. The Neilsen feeders went out of use as the company quit making them. The feeder could hold 12 pounds of dry pellet feed and an adapter increased the capacity to 50 pounds. A fan at the bottom of the feeder spread the feed over a large area of the water surface. A clock on the feeder allowed hatchery staff to schedule feedings throughout the day to acquire the desired growth rate of the fish being reared. Now, many types of automatic feeders are available to help national fish hatcheries achieve optimal growth rates and labor efficiency. With all the available options, one could say a frenzy of feeders dole out feeding frenzies to hungry fish!

(APRIL GREGORY)



Fish or Debate?

Spencer Baird, the first commissioner of the U.S. Commission of Fish and Fisheries (the predecessor of today's Service), kept the attention and support of Congress by staying—literally—in its line of sight. Starting in 1879, fish ponds were built between where the Washington Monument was going up and the Potomac River. In this 1880s photo, a driver brings containers in a horse-drawn wagon to the National Carp Ponds on the grounds of the Washington Monument. Buildings belonging to the U.S. Commission of Fish and Fisheries can be seen in the background, as well as the partially built Washington Monument. The Monument Ponds were used to raise shad, bass, crappie and even carp, which were in vogue at that time. Baird was responsible for reporting to Congress each year and securing a budget for the young conservation agency—the first of its kind. Members of Congress took notice, one writing, "In these early spring days one would rather sit on the grass in the sunshine than to breathe the breath of the galleries and listen to Congressional debate... now and then there is the flash of a fin, and a shy carp swims away from you." Carp, a popular fish to eat in Europe and imported from Germany, never appealed to the tastebuds of Americans, and years later would be found to cause problems. The Monument Ponds didn't last. Silt from the Potomac was put in the ponds, and by 1912 they were filled up. (APRIL GREGORY)



Saving the Black Footed Ferret

Did you know that black-footed ferrets eat prairie dogs more or less exclusively? Ninety percent of their diet is prairie dog, and a single ferret will eat about 130 of them per year. One of the downsides to this almost exclusive diet is that prairie dogs can have a disease called sylvatic plague (it is the same as a disease called bubonic plague in humans). So how does the

Service strive to keep the plague away from the endangered ferrets? Our Black-footed Ferret Recovery Program is working with partners who are developing drones that will deliver plague vaccine to prairie dog colonies. The vaccine is delivered in peanut butter pellets because prairie dogs, like humans, love peanut butter! (JEANNE M. HAROLD)

Magnifying the World Around Us

One of our most iconic and valuable objects is a magnifying glass used by Rachel Carson during her tenure at the Service. It is a plain, industrial instrument that she probably used in typesetting and scientific endeavors. After she left the Service, an employee who moved into her office and her desk found the glass, and held onto it, knowing that it was used by such an important figure. Years later, that employee became a Regional Director, and he eventually passed it on to us. More than any other object, our visitors are in awe of such a plain little instrument because it was wielded by such an auspicious former employee who accomplished so very much in improving the world around us! (JEANNE M. HAROLD)





Heart in the Ozarks

The area's aquatic life still energizes fish biologist.

by JEFF FINLEY



Finley with a pallid sturgeon during his early years working for the Service.

My father took a new job the summer I turned 11. We packed up everything we owned and moved from the arid southwestern deserts of New Mexico to northwest Arkansas. Arriving late in the night, I did not see my new home until I awoke the next morning. To this day, I can recall with vivid detail how amazed I was by the new and different place. It was like we had landed on a completely different planet.

Stepping from the front door, still in my pajamas, the air was so moist every breath

felt heavy in my lungs. There were oak, maple and sycamore trees, dew-covered grass, bushes and shrubbery everywhere. Fog hung in the valleys like cotton pulled from an old blanket, discarded and left to lie in the low spots. I had never seen fog before and it puzzled me. Little springs of water trickled from the rocky hillsides, bounding downhill to meet with bigger streams and eventually settle into a creek in the valley below. Where were all the familiar things I knew? The yuccas, cholla cactus, mesquite bushes, bare soil and horned toads?

I bounded out the door, anxious to explore my new surroundings. Like a moth to a flame, I pattered barefoot to a trickling stream and followed it to where it met with a babbling brook that eventually joined a small creek behind our house. I inquisitively peered into the watery depths and observed the water teeming with life, the likes of which I had never seen. Crayfish peaked out from under stones. Frogs leaped, with a chirp, into the water from their hideouts on the banks. Turtles paddled about the pools, surfacing periodically for a breath of air. Water striders effortlessly skipped across the water's surface. Silvery schools of minnows moved in perfect formation, and lightning fast fish darted from the cover of one rock to another. Over the next couple of years, I discovered rivers and fishing, exploring all this new world had to offer. I spent any free time fishing on the banks of the War Eagle River, catching all nature of critters for bait and pets, or flipping stones in tributary streams. Little did I know then that these experiences would shape the rest of my life.

We left the Ozarks a few years later for my father's next assignment in Oregon. I recall him stating, "That boy will find his way back here one day." He was right. I took a few detours first, including military service to obtain money for college and my education in fisheries from the University of Missouri. In 1998, I began working as a student for the Service's Columbia Fish and Wildlife Conservation Office in Missouri. Although my primary duties had me working on the Missouri River, far from an Ozark stream, I eventually found my way back to the clear cool streams of the Ozarks when we began a partnership with the U.S. Forest Service's Mark Twain National Forest in 2011.

Following the retirement of their fish biologist and no plans to re-hire the position, the Mark Twain National Forest sought the expertise of the Columbia office to meet their needs for aquatic organism inventory and assessment. I eagerly accepted the opportunity. >>



Our first of many reconnaissance expeditions into the Ozark wilderness took us to remote areas deep in the hills of Carter County, Missouri. Our convoy crawled through overgrown logging roads, procuring well-deserved “Ozark pinstripes” from the brambles etching into the paint of our truck, and I found myself energized with the same exuberance and anticipation I did as a boy in Arkansas. Exiting the air-conditioned cab, the heavy humid air once again filled my lungs, and magnetically I ambled to the nearby stream to peer into its depths to gaze at the myriad of critters scurrying about.

Subsequent annual trips into the remote wilderness of the Ozarks did not disappoint me. Each venture yielded a new discovery of pristine areas few people ever visit. It was a chance to reminisce about my youth splashing around in a creek and collecting crayfish, darters, minnows, frogs, turtles and mussels. An additional bonus to the biological survey was learning about the historical significance of these areas. With named areas such as Devil’s Horn, Baptism Pool, Cowards Hollow, Indian Creek, Fortune Branch, Hog Hollow Creek and Gooseneck Crossing, one is right to assume that the region has a rich history. These awe-inspiring adventures allowed me to be a kid again and bring several fisheries technicians along for the experience. Second only to collecting creek critters was watching the excitement and marvel of my crew as they too were absorbed by the beauty of pristine Ozark streams.

Now, nearly a decade later and nearing the end of my career, I look back on these projects as some of my greatest experiences. The Columbia Fish and Wildlife Conservation Office has provided dozens of surveys within the boundaries of the Mark Twain National Forest to assist Forest staff in managing the precious streams, and the native plants and wildlife life those streams support. While this collaborative effort has leveraged resources to reach a shared conservation goal, I see it more simply. This part of my job has fulfilled my destiny. Like bookends to my life, my love for the natural world

started when I splashed around in Ozark streams as a boy, well before I ever started working. Now an experienced fish biologist eyeing retirement, I still feel the same thrill when I see the sunshine sparkle off the ripples in a stream, hear the babbling of a small brook and smell the heavy humid air on the banks of a creek. It is commonly said, “Find a job that you love and you’ll never work a day in your life.” This holds true for the hours and days I spent, where my heart lies, in the Ozarks. □

JEFF FINLEY, Columbia Fish and Wildlife Conservation Office, Great Lakes Region



(Left) Jeff Finley, pictured here at age 11, fell in love with the Ozarks when his family moved to Arkansas. (Below) A waterfall flows into a clear Ozark stream located in Mark Twain National Forest in central Missouri.



transitions

Great Lakes Region



Raena Parsons, formerly the environmental education specialist at Genoa National Fish Hatchery in Wisconsin, is now supervising the environmental education and outreach programs at National Elk Refuge in Jackson Hole, Wyoming. Elk Refuge is internationally known and highly visited for many reasons, one of which is its wild elk herd. Raena directs a staff of three, at a refuge that hosts hundreds of thousands of visitors each year. The staff at Genoa and its many Friends, volunteers and conservation partners will certainly miss her. Raena received the Great Lakes Region Rachael Carson Sense of Wonder Award for Excellence in Environmental Education in 2019. She developed a virtual tour of the hatchery and a dedicated pollinator display in the visitor center. She also grew hatchery volunteer programs by leaps and bounds in her two years with Genoa, by coordinating staffing for the bookstore and resource conservation activities. □

honors

South Atlantic-Gulf and Mississippi Basin Regions



Tom Chisdock, a special agent who retired last year, has received the 2020 Guy Bradley Award.

Named for the first wildlife officer killed in the line of duty, Guy Bradley, this prestigious award, from the National Fish and Wildlife Foundation (NFWF), is annually presented to one state and one federal recipient “to recognize extraordinary individuals who have made an outstanding lifetime contribution to wildlife law enforcement, wildlife forensics or investigative techniques.”

Tom began his conservation law enforcement career as a National Park Service park ranger in 1987. In 1995, he became a U.S. Fish and Wildlife Service Office of Law Enforcement (OLE) special agent where he conducted numerous complex overt and covert investigations into the domestic and international commercial trafficking of U.S. native wildlife.

Throughout his 33-year career, Tom’s investigations resulted in more than 50 arrests and the majority yielded felony prosecutions. Defendants were sentenced to almost 200 years in prison or probation and ordered to pay nearly \$856,000 in fines, forfeitures and restitution.

“Tom’s career achievements set a gold standard when it comes to disrupting large criminal organizations and individuals who choose to prey on wildlife and plants for financial gain,” says OLE Assistant Director Edward Grace. “Like Guy Bradley, he epitomizes the ultimate conservation law enforcement officer, and we join the National Fish and Wildlife Foundation in recognizing his life’s work. We are very proud of Tom’s investigative record, dedication to duty, and expertise in the fight to preserve our nation’s, and the world’s, natural resources.”

His ginseng investigations in the Southern Appalachians dismantled multiple networks of illegal ginseng diggers, dealers and international exporters, and caught individuals who were involved in the unlawful commercialization of American bear gall bladders. In a single investigation, 45 defendants from seven states and two foreign countries were successfully prosecuted. They were sentenced to a combined 18 years of incarceration; 36 years of suspended sentences, probation or community service; and more than \$209,000 paid in state and federal fines.

“Tom’s career exemplifies the dedication and tireless work of those law enforcement professionals who work each day to protect the wildlife and natural resources of the United States,” says Jeff Trandahl, executive director and CEO of NFWF. “His accomplishments in disrupting the illegal trafficking of species, both nationally and internationally, are a model for future wildlife law enforcement officers and are a testament to

the dedication and sacrifices required to do this critical and dangerous job.”

Tom has also been named the Southeastern Association of Fish and Wildlife Agency’s Officer of the Year and received a commendation from the U.S. Department of Justice’s Environment and Natural Resources Division for his outstanding investigative work.

“It’s such an honor to be chosen and to have been blessed with such a wonderful career,” says Chisdock. “I could not have been successful without the support of so many individuals along the way, including numerous teachers, mentors and peers who inspired and encouraged me. Most of all, my family and wife gave me the opportunity to succeed professionally and in life. I thank you for the honor of accepting the Guy Bradley Award.”

The award includes a \$2,500 check, which Tom will donate to the Pascagoula River Audubon Center in honor of his late mother-in-law, who was a lifetime birder and Mississippi resident. The funds will provide tuition for 10 students to attend the center’s summer camp and will be named the “Guy Bradley Summer Camp Scholarship in memory of Carol Barrett.” □

Service-wide

In August, **Jerome Ford**, Assistant Director of the Migratory Bird Program, announced the winners of the program awards as a way to acknowledge and celebrate accomplishments as individuals as well.

Annelee Motta is this year's winner of the Distinguished Administrative Support Award. Annelee works in the North Atlantic-Appalachian Region supporting that office in every way conceivable. Annelee displays creativity, resourcefulness and compassion for her colleagues in a way that goes above and beyond the expected. This quote from the nomination says it all, "Good employees are assets, but great employees are treasures." Annelee is a treasure, and we hope she receives this very deserved award in the spirit in which it is given—with admiration and respect for a job well-done every day.

The Distinguished Management or Biological Support Award goes to **Kathy Kuletz**. If you work in the realm of seabird conservation and management, then you likely know Kathy or her work. Kathy has worked on seabirds principally in the Alaska Region for more than two decades. With more than 30 peer-reviewed publications, presentations at countless scientific meetings and partners groups, international conservation collaboration, and millions of dollars in grants applied to research and conservation, Kathy has established an impressive legacy for bird

conservation. She has distinguished herself among many very talented colleagues and we are grateful for her dedication to her work and the spirit she brings to conservation. She is a leader in our program, and it is with great pleasure that we give her this award.

Both winners receive a cash award of \$2,000 and a framed Duck Stamp print! □

Great Lakes Region

Impact, dedication and commitment—the 10th annual Employee Excellence Award winners and nominees embody the best of the Great Lakes Region! The caliber of nominations show that excellence is a quality embedded in our regional workforce. Each year certain attributes of winners are mentioned over and over again: can-do attitude, innovative thinking, supporting others, and commitment to our mission and our Service family.

Service employees excel in many ways, but the people we work with may not know how much we appreciate their contributions to the mission and our workplace culture. Each year, a peer nomination and review process brings this excellence into the spotlight. Awards may be called the Regional Director's Employee Excellence Awards, but winners receive this recognition because of their peers. □



External Customer Service Award recipients excel in providing assistance and support to Service

stakeholders that reflects well upon and furthers the mission of our agency. Fish and Wildlife Biologist **Trisha Crabill** from the Missouri Ecological Services Field Office was selected as this year's winner for her work conserving Ozark and Eastern hellbenders, as well as other aquatic species. Trisha has assisted a variety of external stakeholders on many topics including grant funding, understanding the impacts of electrofishing and Endangered Species Act (ESA) consultation. Her communication efforts about Species Status Assessments and ESA listing decisions has only strengthened these relationships. □

Administrative Support Assistant **Danielle Sidles** from Union Slough National Wildlife Refuge and Iowa Wetland Management District is one of four winners in the John Stokes Internal Customer Service Award. John Stokes was a stalwart in the regional contracting office and this award honors his memory by recognizing individuals who are cut from the same cloth—those who provide consistent and excellent service to all employees. Danielle is recognized for her essential support of the Union Slough fire program. Not only did she develop notification products, but she also took the fire training and annual certification test. Danielle volunteered to coordinate travel for the National Wildlife Refuge Law Enforcement Program national

hire initiative and gave much needed assistance to travelers outside of business hours. □



Another John Stokes Internal Customer Service Award winner is Regional Office Budget

Analyst **Kim Muirhead** from Refuges Fire and Law Enforcement. She is recognized for her involvement with the branch working group, Eastern Area Coordinating Group, and a professional network that benefits everyone in the fire community. Kim also rewrote the Fire Business Guide. Her co-workers admire Kim's her ability to transition effortlessly and efficiently between responsibilities with Law Enforcement and Fire, even when both incident types are ongoing at the same time. □

Conservation Planner **Kristin Rasmussen** from Refuges Division of Natural Resources and **Brandon Jones** from Upper Mississippi National Wildlife Refuge, the Conservation Planning and Hunt and Fish Chief, are the final winners for this category. They are recognized for their work preparing hunt/fish packages for headquarters, including hosting writing workshops to make it easier for field staff to complete required packages. Kristin's ideas streamlined processes, which helped the region meet tight deadlines and provided timely assistance on hunt/fish packages including compatibility determinations and required environmental compliance. In Brandon's role as Hunt and Fish Chief, he has ensured the field

is kept up-to-date about the hunting/fishing initiative and ensured package deadlines are met. □

District Manager **Tim Miller** from Upper Mississippi National Wildlife and Fish Refuge - La Crosse was selected as this year's Fostering Partnerships Award winner for his work establishing boating access through travel corridors on Lake Onalaska. Tim's work supports access, while achieving wildlife and habitat goals in voluntary waterfowl avoidance areas. In an area with more than 70 municipalities that border the refuge, he partnered with local government, residents and business owners to find a solution. Staff and partners recognize Tim for his ability to see and understand other's perspectives and work to achieve mutually beneficial solutions. □



Outreach Excellence Award recipients excel in creating a greater understanding, appreciation and stewardship of our natural and cultural resources. They provide leadership to meet our conservation mission through outreach and education programs, products or events. Wildlife Inspector **Kelly Ishmael** (above) from our Rosemont, Illinois, Wildlife Inspection Office is recognized for her outreach work with the public and partners. Her public outreach efforts include events hosted by the Cactus and Succulent Society

of Greater Chicago, Customs and Border Patrol Trade Day at Port of Chicago, and Green Drinks. She's also been asked to provide outreach to partners with presentations to Customs and Border Patrol in the Port of Kansas City. □



Maintenance Worker **Tyler Paulson** from Sherburne National Wildlife Refuge won this year's Safety

Improvement Award for his work as Sherburne Refuge's collateral duty safety officer and assistance at Crane Meadows and Rice Lake National Wildlife Refuges. Tyler assisted teaching the spring 2019 Collateral Duty Safety Office and Safety for Supervisor Course at the Regional Office. His first-hand knowledge and examples benefited all participants. He also developed a Lock-Out/Tag-Out training board, increasing understanding how to conduct the important safety procedure. Safety Improvement Award honorees excel in showing commitment to reducing injuries or other environmental hazards. They implement innovative programs or training to increase employee safety, health or environmental awareness and provide leadership to identify and correct hazards in the workplace. □

Freshwater mussel biologist **Megan Bradley** from Genoa National Fish Hatchery is one winner in the Science Excellence category. These winners excel in articulating science needs of our agency and working with others to meet those needs. They also

develop new techniques and technology to address a science question in furtherance of agency responsibilities. They ensure that the best possible science is brought to tough management or policy questions. Megan is recognized for her work on the mussel propagation, including contributions to the Higgins Eye Reintroduction Plan, as well as reintroducing new populations. Her expertise in figuring out the economic value of mussel resources is used to determine damages in NRDA settlements. Megan has also developed a methodology to determine ploidy in wild and cultured lake sturgeon, ensuring cultured lake sturgeon do not negatively impact wild populations. □

Fish and Wildlife Biologist **Amber Schorg** from the Illinois-Iowa Ecological Services Field Office is another Science Excellence Award winner. Amber facilitated the collection and construction of what may be the most comprehensive bat fatality, migration and occupancy dataset to date. The data has been used to inform Habitat Conservation Plans, and these studies work to build an understanding of otherwise unknown migration routes in Iowa. She also assisted in designing statewide effort to collect acoustic bat calls across 65 counties in Iowa at more than 180 locations. □

The **Southeast Missouri Natural Resource Damage Assessment Team** won a Team Excellence Award for recovering damages from historic lead mining at 11 facilities in southeast Missouri. This multiagency team effort resulted in Department of Justice lodging a Proposed Consent Decree for companies to restore 2,080 acres and 10 miles of

streams as well as donate 1,100 acres of ecologically significant property. It also included a payment of \$1.2 million. The Southeast Missouri Natural Resource Damage Assessment Team is made up of Service representatives **Dave Mobsy, Leslie Lueckenhoff, John Weber, Annette Trowbridge** and partner agency team members Eric Gramlich, John Nichols, Hillary Wakefield, John Lacoste, Becky Bryant, Steve Hirsch, Amy Horner Hanley, Sarah Shattuck, Kimberly Gilmore, Eric Albert and Sean Carman. □



The **Topeka Shiner Oxbow Restoration Team** also earned a Team Excellence Award for meeting its goal of increasing the abundance and presence of Topeka shiners in southwest Minnesota by more than 70 percent. In pursuing this work, the team was awarded \$2 million in funds through a Cooperative Recovery Initiative grant. The team has restored more than 100 oxbows and today 90 percent of those have Topeka shiners. Additionally, more than 100 miles of streams were opened to fish passage and Topeka shiners were found in 70 percent of streams. The Topeka Shiner Oxbow Restoration Team is made up of **Scott Ralston, Nick Utrup, Kim Emerson, Louise Mauldin, Aleshia Kenney** and **Sheldon Myerchin**. □

Hatchery Manager **Carey Edwards** from Iron River National Fish Hatchery won the Workplace Improvement Award, whose recipients excel in leading efforts to improve our workplace, both in terms of the physical work space and workplace culture. Carey was nominated for her work improving the hatchery facilities and grounds for both employees and visitors. This includes building updates like a new phone system, windows, siding and floors as well as hatchery residences. Aquatic residents will benefit too with broodstock raceways updates and shelters with new rearing areas under development. Visitors can enjoy the playground and pavilion as well as a 3D archery range. □

in memoriam

Headquarters

James Leigh Ruos, who led a life deeply connected to nature and was an avid falconer, died December 29, 2019, at his home in Paris, Virginia, at the age of 85. Born in Doylestown, Pennsylvania, in 1934, he graduated from Gettysburg College with a bachelor's degree in biology in 1956. Jim did graduate work in wildlife biology at the University of Wyoming and at Humboldt State College in California.

Jim joined the Service in 1966, serving for 21 years, after spending his early career studying sharp-tailed grouse and their Midwestern grassland habitat for the Minnesota Department of Natural Resources. He was a dedicated

field biologist with a taciturn demeanor, a wry sense of humor and an ever-present pipe.

Much of Jim's early federal career was spent at the Patuxent National Wildlife Research Center in Maryland, and in the late 1960s, Jim helped pioneer efforts to captive-breed peregrine falcons. These early efforts involved using birds live-trapped on fall migration at Chincoteague National Wildlife Refuge, an ultimately unsuccessful experiment that nevertheless contributed to scientists' growing understanding of the DDT-imperiled raptor and paved the way for subsequent successful propagation of peregrines.

As a migratory game bird specialist, his professional focus was management of mourning doves, and he coordinated a nationwide survey of mourning doves, developing methods of data analysis for the survey. His work also included raptors and neotropical migratory bird species that summer in the United States and winter in the Caribbean and Latin America, such as warblers. Jim was the first to propose the novel concept of a "debt-for-nature" swap, by which forgiveness for foreign debt might be offered to other countries in the hemisphere in return for habitat protection for migratory birds.

An avid practitioner of the "royal sport" of falconry from the age of 12 and for the next 60 years, Jim worked with falconers worldwide to support their sport, to restore imperiled populations of birds of prey, and to mentor young people in the sport. When raptors were included under the Migratory Bird Treaty Act in the early 1970s with



Where's Waldo, Mountain Lion Edition

Rio Mora National Wildlife Refuge in New Mexico posted this great trail cam image on its Facebook page. Can you see the stalking mountain lion? [Click here for a hint.](#)

an amendment of the treaty with Mexico, Jim played a major role in crafting the first set of federal falconry regulations. Those early falconry regulations were controversial in that they were among the first in the world to formally recognize the legitimate practice of the sport and drew strong criticism from organizations opposed to holding raptors in captivity. Jim worked tirelessly and effectively to address the issues as they arose. The falconry regulations Jim wrote withstood much public concern initially and widespread controversy later when they were enforced by the Service during "Operation Falcon," which resulted in the arrest of several falconers. Jim defended the fair interpretation of the regulations, and due in no small part to his role in their implementation and application, the regulations he spearheaded remain largely intact today and

continue to serve as a model for other countries that recognize the sport. Falconers around the world owe Jim a huge debt of gratitude for his vision in developing a legal framework for the practice of falconry that is carefully balanced with the need for conservation of birds of prey. Shortly after "Operation Falcon" issues were resolved, Jim retired from the Service.

In addition to his wife, Mary, Jim is survived by three children, seven grandchildren, one brother, and several nieces and nephews. His family regards his commitment to them and to the appreciation of nature and wild places as Jim's greatest legacy. □

DAVID DOLTON, JIM DUBOVSKY and BRIAN MILLSAP

parting shot



Stamp of Approval

Alabama artist Eddie LeRoy's painting of a black-bellied whistling-duck pair graces the 2020–2021 Federal Migratory Bird Hunting and Conservation Stamp, or "Duck Stamp," which went on sale this summer. The Service produces the Federal Duck Stamp, which sells for \$25 and raises approximately \$40 million in sales each year. These funds support critical conservation to protect wetland habitats in the National Wildlife Refuge System for the benefit of wildlife and the enjoyment of people.

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