



RefugeUpdate

National Wildlife Refuge System

www.fws.gov/refuges



Jimmy Fox, then-acting manager at Alaska Peninsula National Wildlife Refuge, adjusts an Alaska SeaLife Center remote camera that is monitoring Pacific walrus summer haulouts on Cape Seniavin near the refuge. The project is just one example of how refuges are working beyond the boundaries with conservation partners. See the Focus section, which begins on page 8. (Jim Wittkop/USFWS)

Refuge System Chief Kurth Named Service Deputy Director

Jim Kurth, a major presence in National Wildlife Refuge System leadership for the past decade and a half, has been promoted to U.S. Fish and Wildlife Service deputy director for operations.

Kurth was chief of the Refuge System from October 2011 until January 2015, when he was named to the deputy director position vacated by Rowan Gould. Gould retired in December 2014 after a distinguished 38-year career with the Service.

Before becoming chief, Kurth was deputy chief for 12 years. His 15-year tenure in refuge leadership marked unprecedented growth in which the Refuge System added more than 60 new units encompassing more than 50 million acres. Beginning in 2011, Kurth led development and implementation of *Conserving the Future: Wildlife Refuges and the Next Generation* – a blueprint for the future growth and management of the Refuge System.

“Jim Kurth is a natural leader with proven ability to effectively manage far-flung operations and meet complex conservation challenges. He understands how to multiply resources, and inspire and engage people. Most importantly, Jim loves the

Refuges, YouTube Help Researchers Discover Frog Species in NYC

By Bill O'Brian

With help from YouTube and two national wildlife refuges, researchers have discovered a new species of frog in, of all places, New York City.

The Atlantic Coast leopard frog's existence was ratified in the October 2014 *PLOS One* article “Cryptic Diversity in Metropolis: Confirmation of a New Leopard Frog Species (Anura: Ranidae) from New York City and Surrounding Atlantic Coast Regions.”

The discovery was a 10-year journey. Here, briefly, is how it unfolded for the study's lead author, Jeremy Feinberg.

In the mid-2000s, after three years as a U.S. Fish and Wildlife Service term biologist with Long Island National

continued on pg 19

continued on pg 18

From the Director

Conservation by Multiplication



The Partners for Fish and Wildlife Program helped private landowners restore parts of the Big Hole River in Montana for the benefit of Arctic grayling, a freshwater fish. "If we're going to conserve biological diversity, we must keep our public land foundations strong and build on them by engaging private landowners," says U.S. Fish and Wildlife Service Director Dan Ashe. (Joe Milmoie/USFWS)

In the 20th century, led by icons including John Muir, Gifford Pinchot, Aldo Leopold and Ding Darling, America created the National Park Service, the Forest Service, the National Wildlife Refuge System and other federal and state public land protections. As a result, nearly 30 percent of the nation's

land is protected, in some form, and stands as a foundation for the future.

In the 21st century, we will strengthen that foundation. But if we want to meet this century's

conservation

challenges, we must link the public estate to the more than 70 percent of the land that is privately owned. Many species entrusted to our care rely on private land to survive and thrive. If we're going to conserve biological diversity, we must keep our public land foundations strong and build on them by engaging private landowners, most of whom are proud land stewards.

That's why we've focused on a vision for the Refuge System that sees refuges as

hubs of networks of public and private lands. It's why our field offices are engaging landowners across the country and developing voluntary conservation easements on hundreds of thousands of acres. These easements and other tools allow us to do conservation work through landowners, helping them achieve sustainable economic use of their lands while protecting and enhancing essential habitat for wildlife.

By linking habitat on these private lands to our public estate, we are doing conservation by multiplication rather than simple addition. And to deal with 21st-century challenges like changing climate, the U.S. Fish and Wildlife Service's next generation will need to graduate to algebra, trigonometry and calculus, creating more complex connections and giving wildlife the means to move across the landscape in step with the seasons, increasing human presence and shifting sources of food and shelter. That's why we are building next-generation capacities like Landscape Conservation Cooperatives (LCCs) and Refuge System Inventory and Monitoring.

I recently read a *Fish & Wildlife News* article about Jude Smith, the manager of Buffalo Lake, Muleshoe and Grulla

continued on pg 14

Refuge Update

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Inside

Native Heirloom Corn

After a tough start, New Mexico's Bosque del Apache Refuge has made progress in its effort to grow resilient corn dating to the Aztec era. Page 4

Boardwalk for Salamanders

West Virginia's Canaan Valley Refuge plans to build a boardwalk that will accommodate the Cheat Mountain salamander and skiers alike. Page 5

MAT Work in Texas

A Service Maintenance Action Team (MAT) completed two road rehabilitations that improve access to Balcones Canyonlands Refuge. Page 6

Focus: Beyond the Boundaries

The Partners for Fish and Wildlife Program and the Coastal Program work with private landowners to conserve and restore habitat beyond refuge boundaries. Pages 8-15

Festivals Spark Action on Monarch Butterflies

By Susan Morse

When is a butterfly not just a butterfly?

When it inspires people, as few insects can, to help it – and maybe other migrating species, too.

The monarch butterfly fits the bill. Every fall, St. Marks National Wildlife Refuge in Florida and Quivira National Wildlife Refuge in Kansas harness the monarch's power to captivate – and teach – at their popular butterfly festivals.

The events may grab even more attention this year as the U.S. Fish and Wildlife Service emphasizes monarch butterfly conservation after President Obama's call last year for a national pollinator health strategy.

The educational takeaway for the festival “is huge,” says Robin Will, supervisory ranger at St. Marks Refuge, which will hold its 27th Butterfly Festival on Oct. 24. “It's our largest event all year. We get between 3,000 and 4,000 people a day.”

Festival goers don't just see butterflies up close and watch volunteers tag them to track their thousand-mile flights. They also learn how monarch numbers are falling, why monarch habitat is shrinking, and what they can do to help.

“We talk about leaving nectaring bushes alone on the shoreline,” says Will, referring to salt bush, goldenrod, asters and others. “Many beach communities mow everything down to sand because they like an unobstructed view of the water. That's one of the worst things you can do, because monarchs need to feed before they head out over the Gulf of Mexico. They need fuel for their migration.”

Some 1,200 miles away, Monarch Mania at Quivira Refuge attracts over 100 visitors – a good draw for rural Kansas, says visitor services manager Barry Jones. This year's festival, the refuge's 19th, is set for Sept. 19.

Quivira festival-goers race around the 22,000-acre refuge, nets in hand, to



Each fall, participants in the Monarch Mania festival at Quivira National Wildlife Refuge race around collecting monarch butterflies. To learn what individuals can do to help monarchs thrive, go to <http://go.usa.gov/SVuC>. (Barry Jones/USFWS)

collect monarchs for tagging. “It's fun to see people running around, trying their hardest to catch a butterfly,” says Jones.

Then the pros do the tagging.

“People ask, ‘How do you put a tag on a butterfly?’” says refuge manager Mike Oldham. You place a numbered 9mm polypropylene tag from Monarch Watch on the underside of the wing, after recording the tag number. Will it hurt them? No, if done correctly.

In 2014 the refuge tagged about 135 monarchs, four times as many as in 2013. “It's all a matter of timing,” Jones says. “We have to get lucky.”

Once tagged, a butterfly is set on a visitor's open palm before it flies off. Visitors' faces light up with wonder.

“Being able to touch [a butterfly] is a big thing,” says Oldham. “For some of the kids who come, it gets them thinking about conservation and what they can do.”

In Florida, Will knows the reaction. “You know, it's so hard to give people a

primary experience with wildlife,” she says. “It's hard to get close to a banded bird or mammal. Here, you can stand next to a bush and see a monarch feeding on nectar. People don't get tired of it.”

Today in Florida, tagging may be more photo op than scientific need. “Tag recoveries are pretty dang small for butterflies [here],” says St. Marks Refuge biologist Joe Reinman. Tagging, he says, is largely “a feel-good thing people like to do.”

But in terms of public outreach, tagging is a winner.

“Could someone say, ‘You tag 3,000 butterflies and only a few make it. Do we really learn anything new from [this]?’ The answer may be no. But I think the festival is just a huge outreach tool. So I am happy to use the monarch butterfly to get the message out about migration,” says Will. “It also gets people to learn about the refuge, about coastal ecosystems. It's just phenomenal.”

Susan Morse is a writer-editor in the Refuge System Branch of Communications.

Corn Experiment Advances at Bosque del Apache Refuge

By Ben Ikenson

Each November, the Festival of the Cranes at Bosque del Apache National Wildlife Refuge in central New Mexico coincides with the arrival of tens of thousands of wintering waterfowl – especially Rocky Mountain sandhill cranes – and thousands of visitors keen on observing the magnificent spectacle.

But not everyone appreciates the cranes, which routinely disturb local chile and alfalfa crops to the consternation of Middle Rio Grande Valley farmers.

“The cranes are omnivorous, eating everything from small rodents to chufa seeds,” says refuge bio technician Brian Greeves. “They choose crops such as corn, alfalfa and chile because they are readily available ... and they’re rich in complex carbohydrates and easily digested, making them a quick source of energy for surviving cold winter nights.”

That’s part of the reason the refuge recently began a small experiment. A cooperative agreement with local farmers long has been in place to grow 1.5 million pounds of conventional corn for migratory waterfowl. In 2011, however, staff decided to plant a 12-acre plot of *Mayo Tosabatchi*, an heirloom variety dating to Aztec civilization.

Unfortunately, just before that first harvest and the anticipated arrival of the cranes, hungry elk devoured the entire crop. Since then, the refuge has made considerable progress with the effort, which is a tribute to the region’s indigenous agrarian heritage.

Straddling the Rio Grande in a wide valley rimmed by jagged peaks and tabletop mesas, the 57,000-acre refuge is an oasis of cottonwood and willow trees, meandering oxbows, wetlands, cattail-studded marshes and cultivated fields. The place was part of the ancestral home to the Piro Indians. The Piro had been farming the land long before the Spanish Conquistadors arrived in the 1500s.

“Native people have been farming this valley for a long time, and waterfowl that migrate here have developed this ‘site tenacity,’ meaning the tendency to return to this site each season,” says Greeves. “The major advantage to having that site tenacity is the birds are more familiar with the site, resulting in less susceptibility to predation. Our goal in this experiment is to provide that corn resource that has been available in this valley for hundreds of years, for the benefit of these birds.”

In partnership with Tucson-based nonprofit seed bank Native Seeds, the refuge is now replicating traditional native farming practices by experimenting with seven strains of heirloom native corn seed. Since that first lost harvest, fencing has helped protect the crop from other hungry wildlife, and the refuge has learned a lot about heirloom corn.

“Many varieties of heirloom seeds propagated in the Southwest are naturally hardier and, because of a tighter husk, naturally more resistant to damage from worms and other pests” says Greeves.

The heirloom corn also requires considerably less water than conventional corn, which will not only help reduce the refuge’s operational costs but conserve an increasingly precious resource in a drought-stricken region.



After initial disappointment, Bosque del Apache National Wildlife Refuge is making substantial progress in its effort to replicate traditional native farming practices in New Mexico by experimenting with seven strains of heirloom native corn seed. (USFWS)

In contrast, Greeves notes that conventional corn couldn’t have endured the soil-nutrient and low-water-availability stresses that the native corn did last summer. “When the other corn was wilting,” he says, “this was growing nice and green.”

Greeves hopes the Bosque del Apache Refuge experiment inspires other refuges that grow crops for wildlife. While his refuge abandoned the use of genetically modified organisms years ago, the project could set a bold precedent for others in meeting the Refuge System’s commitment to ban all GMOs by 2016.

In the meantime, with seeds harvested from strong genetic strains of the two most successful varieties grown last year, the refuge plans on tripling production of native corn from 10 acres to 30 in 2015. 

Ben Ikenson is a New Mexico-based freelance writer.



The Cheat Mountain salamander, a federally threatened species endemic to West Virginia and found at Canaan Valley National Wildlife Refuge, traverses only about one meter square in its lifetime. (Brett Billings/USFWS)



Canaan Valley Refuge is working to balance public use and wildlife where ski and snowshoe trails have fragmented the habitat of the Cheat Mountain salamander. (USFWS)

Bridging Salamander Survival and Public Use

By Karen Leggett

How do salamanders cross the road? They don't. Unless they respond to an innovative plan to build a boardwalk over an old logging road at Canaan Valley National Wildlife Refuge in West Virginia.

The Cheat Mountain salamander, a federally listed threatened amphibian, is a signature species at the refuge. It is endemic to West Virginia and exists in only five counties. Its habitat is high-elevation red spruce forest. The salamanders lay their eggs on the moist, cool ground below the trees. They forage on the trees at night but are usually found under nearby rocks and boulders. The area traversed by a single salamander in its lifetime is only about one meter square – and that does not involve walking across a trail or road. They are sensitive to habitat fragmentation, moisture, heat and light.

The refuge's comprehensive conservation plan (CCP) says "research related to the salamander has shown that logging roads and heavily traveled hiking trails can serve as barriers to Cheat Mountain salamander movement and therefore can reduce genetic dispersal." Although cross-country skiers are one of the largest recreational groups at the Canaan Valley Refuge, some trails have been closed to protect the salamander.

Now refuge biologist Dawn Washington plans to replace one particular trail segment with a 50-foot boardwalk bridge for the skiers and create salamander-friendly habitat underneath. The surface under the boardwalk will be covered with rocks and fallen spruce logs to create a habitat hospitable to Cheat Mountain salamanders.

"The boardwalk bridge will provide shade, and the rocks will create the surface the salamanders are used to," says Washington. "If we build it, will they come? We don't know. This particular recovery strategy has not been tried before with this salamander."

Thomas Pauley, an amphibian expert at Marshall University, believes the boardwalk bridge is a novel idea worth exploring, and he is expected to be an adviser on the project. The Friends of the 500th – so named because Canaan Valley was the 500th national wildlife refuge established – also is on board. The refuge Friends organization already has approved \$3,000 for the project, and it has a \$5,000 grant request before the National Fish and Wildlife Foundation. Volunteers and Youth Conservation Corps members are expected to build the boardwalk this summer.

Friends president Casey Rucker, who has characterized Cheat Mountain salamanders as "notorious homebodies generally staying within a few feet of their residence for their entire lives," says monitoring the flagstones under the bridge for salamanders will be an ongoing – and exciting – part of the project.

"The bridge might be a way to keep skiing and the salamander and find the balance between public use and wildlife," Washington says.

Rucker expects the project to strengthen ties between the Friends and the White Grass Ski Touring Center and its patrons. "The more people in our community that we involve with our activities, the more strongly they support Canaan Valley National Wildlife Refuge," Rucker says.

Most important, he says, "if we discover Cheat Mountain salamanders under our boardwalk, it would be the first demonstration of the effectiveness of this conservation tool, and its use could be expanded to protect this species further. The project would also serve to raise awareness of the Cheat Mountain salamander as one of the jewels of Canaan Valley National Wildlife Refuge." 🦎

Karen Leggett is a writer-editor in the Refuge System Branch of Communications.

Joining Forces in Texas to Benefit Birds and Visitors

By David Maple

A dozen U.S. Fish and Wildlife Service wage-grade professionals converged on Balcones Canyonlands National Wildlife Refuge last fall with two primary goals: to improve access to the central Texas refuge's challenging terrain and to provide refresher training for equipment operators.

As a Maintenance Action Team (MAT), the group completed two deferred maintenance projects last September and October – a \$161,000 road rehabilitation on the refuge's Gainer Tract and a \$305,200 project on the Rodgers Tract.

The projects will enable staff, researchers, participants on refuge tours and hunters to access portions of the refuge that used to be impassable during and after severe weather. For example, hunters have gotten stuck on parts of the refuge where cell phone service is spotty. That often resulted in soggy hikes out to the nearest roads – some as far as four miles away.

The projects have “made the roads safer,” says longtime Balcones Canyonlands Refuge manager Deborah Holle, who recently retired. “By placing water bars, improving ditches, crowning the roads and installing culverts, the amount of erosion is reduced during heavy rain.”

A MAT is composed of Service personnel who are skilled in varying fields of expertise and are willing to travel to perform a duty beneficial to the Service mission – at significantly less cost than if a private contractor did it.

“The concept is excellent as long as flexibility is maintained,” says Holle, who values “being able to customize the size of the MAT team to the individual project or refuge need.”

The Balcones Canyonlands Refuge team's work was scheduled in the fall to avoid impact on golden-cheeked warblers and black-capped vireos, two endangered species that nest on the refuge. The projects' design took water drainage into



Two Maintenance Action Team (MAT) road projects done last fall at Balcones Canyonlands National Wildlife Refuge improved access for visitors and staff members. The access will enable easier monitoring of black-capped vireos (inset) and golden-cheeked warblers, endangered birds that nest on the central Texas refuge. (Photos: roadwork, USFWS; inset, Greg Lasley)

account in all aspects, and should reduce long-term maintenance costs as well as erosion.

In addition, the projects served as refresher training for some equipment operators and gave them experience with different machines in a concentrated dose over a few weeks.

The projects brought together machinery and individuals from several Southwest Region refuges, including David Crain from McFaddin Refuge, TX; Mike McKenzie, Tim Fischer and Joe D'Arrigo from Wichita Mountains Refuge, OK; Rusty Daniel from Hagerman Refuge, TX; Roy Moreno from Muleshoe Refuge, TX; Darrell Peterson from Attwater Prairie Chicken Refuge, TX; Rick Carroll from Trinity River Refuge, TX; Bobby Kildow from Salt Plains Refuge, OK; David Brennan from Aransas Refuge, TX; and Cixto Saucedo and Chad Ediger from Balcones Canyonlands Refuge.

Six miles of roadways received a complete makeover during the three-week projects, in which two graders, three water trucks, four dump trucks, two tractors, two front-end loaders, a bulldozer, a backhoe, a rock crusher and a mini-excavator were used.

More than 4,000 tons of road-base rock was hauled upslope to a plateau top to form an all-weather driving surface. An additional 1,000 tons of limestone rock were harvested locally, jackhammered into manageable size, hauled to the plateau, crushed into road base, graded, watered and compacted.

Almost two-thirds of a mile of separation fabric was laid over areas that turn muddy in wet weather. The backbreaking work involved grading and leveling the roadway, rolling out the 15-foot-by-300-foot pieces of woven fabric, staking them in place with long staples, covering the fabric with crushed rock, wetting it down, grading and compacting. The result is an all-weather road that is no longer impassable during storms.

The improvements will aid wildlife management activities such as prescribed burns, invasive plant control, feral hog control and trapping of parasitic brown-headed cowbirds, Holle says. “Access will also make it more efficient for staff to inventory or monitor our golden-cheeked warblers and black-capped vireos.”

David Maple is deputy refuge manager at Balcones Canyonlands National Wildlife Refuge.

Known Globally, Santa Ana Refuge Acts Locally

By Christina Meister

Deep in southernmost Texas, tens of thousands of visitors flock to the majestic wonders of Santa Ana National Wildlife Refuge. Situated on the Rio Grande, where the Central and Mississippi migratory flyways converge, Santa Ana is one of the nation's most biologically diverse refuges and one of the top birding destinations in the world.

The neighboring city of Alamo prides itself on being the “Refuge to the Valley” and estimates that refuge ecotourism injects up to \$34 million annually into the local economy. But while birders and tourists visit in droves, local residents seldom do.

That is something refuge manager Gisela Chapa intends to change.

She and her staff, including park ranger Laura de la Garza and outdoor recreation planner Christine Donald, are connecting with nearby residents by providing interpretive materials in English and Spanish, using social media to share refuge information and hosting special events at the refuge. They are also exploring new partnerships to attract local visitors.

The refuge recently secured a partnership with the city of Alamo. The

city, whose population is 85 percent Hispanic, is providing roughly \$15,000 of its hotel and motel tax toward the hire of Raul Garza, a temporary refuge employee who will support ecotourism and conservation efforts in Alamo.

Garza was born in nearby Weslaco, TX, and was raised by a naturalist father who took him on outdoors trips. But Garza also knew relatives who feared nature and believed certain animals represented bad omens and touching natural objects could make them sick – something Garza says is common in his community.

“Hispanic communities in particular have a lot of stigma about wildlife,” says Garza. He was hired as part of the U.S. Fish and Wildlife Service’s Pharr, San Juan and Alamo Urban Wildlife Refuge Partnership, he says, “to break down those barriers and help people identify and appreciate wildlife in their own backyards.”

One of Garza’s missions is to help Alamo residents ignite their love for nature by bringing the refuge to them – something he’s doing in libraries, parks and schools. One project involves helping teachers and students plant a native schoolyard habitat at John McKeever Elementary School, one of three pilot schools partnering with the refuge to collectively restore 24 acres of native habitat.

Garza is also designing a native plant rain garden for the Alamo sports complex and creating interactive nature games for the local library.

At Santa Ana Refuge, Garza leads bird walks, nature walks and classroom visits. He believes it’s critical for students to be greeted by a familiar face when they enter refuge grounds. “Having someone they can associate with, who came from their community, is so important,” says Garza. Several children from Alamo have told him they want to be park rangers when they grow up. “Giving the kids aspirations for their future is a huge success for me.”

Garza knows reaching Alamo residents is important because more than 95 percent of the native habitats of the Lower Rio Grande Valley have been lost to or altered by agriculture and urban development. “During migration season we’re starting to see peregrine falcons in the city and greater white-fronted geese and snow geese on the edge of town. It’s important to partner with cities so urban residents can be informed of what they’re seeing and learn about the conservation challenges they face.”

Christina Meister is a U.S. Fish and Wildlife Service public affairs specialist in Falls Church, VA.



Santa Ana National Wildlife Refuge, known worldwide as a birding destination, is making a concerted effort to engage local residents from the Lower Rio Grande Valley of Texas. (Bill O'Brian/USFWS)



As part of the Pharr, San Juan and Alamo Urban Wildlife Refuge Partnership, local student Raul Garza has been hired, temporarily, to attract residents of nearby Alamo to the refuge. (USFWS)



The Coastal Program in Arcata, CA, is working with nearby Humboldt Bay National Wildlife Refuge on numerous projects. One effort will restore the Salmon Creek Delta on the northern California refuge. (Dave Kenworthy)

Two Service Programs Epitomize the Concept

By Bill O'Brian

Some organizations, such as the National Wildlife Refuge Association, capitalize the phrase Beyond the Boundaries. Other organizations use the term with lowercase letters. However it is rendered, the phrase embodies the concept of conserving and restoring ecosystems on a landscape scale with the help of partners on land and water beyond national wildlife refuge boundaries.

Two U.S. Fish and Wildlife Service programs, in particular, exemplify the idea.

Both the Partners for Fish and Wildlife Program and the Coastal Program work with private landowners to conserve and restore habitat in a landscape context.

Working with more than 45,000 private landowners and 3,000 conservation partners since its founding in 1987, the Partners for Fish and Wildlife Program (<http://go.usa.gov/tUAe>) has restored

more than a million acres of wetland habitat; 3 million acres of upland habitat and 11,000 miles of streams on private lands, a lot of it near and in conjunction with refuges.

“We have 225 Partners staff biologists in the field all over the country, and they’re in their trucks with shovels and leaning across fences with farmers and ranchers every day” helping to repair wetlands



With assistance from the Partners for Fish and Wildlife Program, the Southeast Alaska Guidance Association employed young people to restore native plants on private land near Kenai National Wildlife Refuge. (USFWS)



Snow geese and blue geese overwinter on private land restored via the Partners for Fish and Wildlife Program near Prime Hook National Wildlife Refuge in Delaware. (Joe Milmo/USFWS)

and streams, remove fish barriers, aid fish passage and even set up grazing systems, says John Schmerfeld, chief of the Refuge System Branch of Habitat Restoration. “It’s just this really amazing program that has done incredible things and had incredible conservation success over the past 28 years.”

Coastal Program staff members in 24 priority coastal areas develop long-term partnerships on both private and public property to deliver landscape-scale conservation. Through the Coastal Program (<http://go.usa.gov/tUsx>), the Service has restored approximately 517,670 acres of wetland and upland habitat, more than 2,220 miles of stream

habitat, and helped permanently protect 2,079,655 acres since 1985. In 2014, the Service leveraged \$22 for every Coastal Program project dollar spent. The Coastal Program also co-manages the National Coastal Wetland Conservation Grant Program with the Wildlife and Sport Fish Restoration Program.

“The Refuge System is heavily invested in coastal areas,” says Schmerfeld. “They are super-important both for the human element and for the wildlife.” He cites two facts: More than 170 refuges are coastal; and while coastal counties make up only 10 percent of the lower 48 states’ land mass, they are home to more than half of the lower 48 states’ population.

This issue’s Focus section features four of the two programs’ projects: salt marsh restoration with Humboldt Bay National Wildlife Refuge in California; Delmarva fox squirrel recovery work with Blackwater National Wildlife Refuge in Maryland; wetland restoration with Fergus Falls Wetland Management District in Minnesota; and Florida grasshopper sparrow recovery work with Everglades Headwaters Refuge. 

Coastal Program

The Coastal Program is one of the U.S. Fish and Wildlife Service’s most effective tools for delivering fish and wildlife habitat restoration and protection on public and privately owned lands. Coastal Program staff members are located in 24 priority coastal areas, including the Atlantic, Pacific, Gulf of Mexico, Great Lakes and Caribbean.

These locally based staff members possess an intimate knowledge of the community, its natural resources, environmental challenges, potential partners, and political and economic issues. This knowledge enables the Service to develop long-term, diverse partnerships that leverage technical and financial resources to deliver strategic habitat conservation at a landscape scale.

Coastal Program staff members use science-based conservation design to address the habitat conservation priorities of the Service and our partners, and to provide effective stewardship of the nation’s coastal and estuarine natural resources.

More information: <http://go.usa.gov/tUsx> 

Fergus Falls WMD: Birthplace of the Partners Program

By Shawn Papon

Minnesota John Olson is passionate about his family farm and the wildlife that inhabits the property's land and water.

"I call it a hunting farm," he says. "It's really a duck-hunting place." The farm in Douglas County in west-central Minnesota has been in the Olson family since 1883.

"My sister and I are lucky we have that history," Olson says. "It really is a farm that is suitable to what U.S. Fish and Wildlife has helped us with."

Over the past 27 years, Olson has signed five different U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program agreements to restore 13 wetland basins on land that had been drained for agriculture decades earlier. There are thousands of landowners like Olson across the country.

The Partners for Fish and Wildlife Program has been working alongside the Service's Small Wetlands Acquisition Program (SWAP) since the inception of the Partners for Fish and Wildlife Program in 1987. SWAP authorized the Service to use Duck Stamp funds to acquire waterfowl production areas, wetland easements and grassland easements to be managed by wetland management districts, which are part of the National Wildlife Refuge System.

The Partners for Fish and Wildlife Program was started at Fergus Falls Wetland Management District in western Minnesota to help SWAP stem the rapid loss of prairie pothole wetlands by working with private landowners to restore drained wetland basins. In fact, the first Partners for Fish and Wildlife Program agreement was signed at Fergus Falls WMD to restore nine drained wetland basins on private land in Douglas County. Almost 30 years later, the Partners for Fish and Wildlife Program at Fergus Falls WMD has

continued on pg 14



The pothole wetland above is one of five wetlands restored in fall 2013 on the western Minnesota farm of John Olson and his family. Below is what the drained basin looked like before restoration. The Partners for Fish and Wildlife Program worked with Olson and the USDA Conservation Reserve Program on the project, which is documented in a YouTube video: <http://bit.ly/1yLNIOa>. (Shawn Papon/USFWS)



Ranchers Partner With Service, Endangered Bird Wins



By Joe Milmo

A glimpse into the Everglades Headwaters area reveals vast tracts of uninterrupted land, rich with living legacies of American pioneer ranching families, many of whom have been living off the land since before the Civil War.

Florida cowboys have long shared their space with irreplaceable wetlands, black bears, Florida panthers and other endangered species such as the Florida grasshopper sparrow.

These private landowners have taken it upon themselves to preserve five centuries of rich culture and tradition on the landscape, many of them by voluntarily applying for fee-title acquisition or conservation easements in the Everglades Headwaters area.

One such landowner is David “Lefty” Durando. Erin Myers, a U.S. Fish and Wildlife Service biologist with the Partners for Fish and Wildlife Program in south Florida, has been working with Durando and his family to restore native dry-prairie habitat for the Florida grasshopper sparrow on their Okeechobee Ranch.

Each year, more than 200,000 acres of habitat in the Everglades are lost to development. Native dry-prairie habitat, necessary for the Florida grasshopper sparrow, has been reduced to less than 15 percent within its historical range –

Left: Native dry-prairie habitat has been reduced to less than 15 percent within the Florida grasshopper sparrow’s historical range. Individual trees dispersed on the prairie – which were not present historically – provide cover for predators. (Erin Myers/USFWS)

Right: The Partners for Fish and Wildlife Program has been working with ranchers to restore habitat for the endangered Florida grasshopper sparrow, which is critically imperiled. (Mary Peterson/USFWS)

and 75 percent of the remaining habitat is on private land. The bird is critically imperiled, with only two small viable populations known to exist. Restoring the quality of dry-prairie habitat on public lands and adjacent private lands occupied by the Florida grasshopper sparrow is considered the best strategy to increase the endangered bird’s viability.

Protecting and connecting this important landscape requires new thinking. In 2012, the Service established the Everglades Headwaters National Wildlife Refuge and Conservation Area, which today encompasses about 450 acres but whose acquisition boundary is 150,000 acres.

“Purchasing conservation easements on ranching and agricultural lands is the main focus of the Everglades Headwaters National Wildlife Refuge and Conservation Area initiative,” says deputy refuge manager Christine Trammell. “Easements will protect species such as the Florida grasshopper sparrow and will keep those lands in the hands of the owners into perpetuity, under specified conditions preventing future development and destruction of habitat.”

Sen. Bill Nelson of Florida is on board, too.

“Here’s a unique situation where we can have it both ways,” Nelson says. “You don’t have to spend all the taxpayer money in order to acquire the title to the land, but you can sure acquire a portion of the land – its development rights – and still let the ranching families continue in their way of life that they have enjoyed for generations.”

Through a Service project funded by the 2014 Cooperative Recovery Initiative, Myers is working with rancher Durando to restore and enhance Florida grasshopper sparrow habitat on his 12,000-acre ranch’s pastureland.

Vegetation management techniques – such as roller chopping and tree cutting – are reducing the height and density of invasive Brazilian pepper trees, native saw palmetto and native cabbage palm trees, which provide habitat for Florida grasshopper sparrow predators. Landowners might not normally remove trees from pastureland because it is expensive and trees provide shade in Florida’s hot and humid summers.

However, Myers educates landowners about Florida grasshopper sparrow habitat needs. She shows landowners the

continued on pg 19

Coastal Collaboration Helps Humboldt Bay

By Chris Darnell

Humboldt Bay is the second largest estuary in California and one of the most biologically diverse ecosystems on the Pacific Coast. Like virtually all coastal areas, however, the natural resources of the bay have been heavily impacted by human activities.

For more than a decade, the U.S. Fish and Wildlife Service Coastal Program in Arcata, CA, and nearby Humboldt Bay National Wildlife Refuge have helped local residents and partners conserve and restore those natural resources.

Humboldt Bay Refuge totals almost 4,000 acres, including a mosaic of mudflats, estuarine eelgrass meadows, salt marsh, brackish marsh, seasonally flooded freshwater wetlands, riparian wetlands, streams, coastal dunes and forest. These habitats support more than 316 species of birds and 40 species of mammals. The refuge also provides habitat for approximately 100 species of fish and marine invertebrates.

As is the case with many estuaries, many acres of former salt marsh around Humboldt Bay have been diked and drained. While much of this land is privately owned, some is publicly owned, primarily by the refuge, the California Department of Fish and Wildlife and the City of Arcata. The Coastal Program's ability to work across public and privately owned lands has resulted in landscape-scale conservation benefits at Humboldt Bay.

For example, the Service is working on several projects with partners to reconnect wetland acres to the bay to jump-start ecological productivity of the estuary and increase resilience to climate change and sea-level rise. The work will benefit federally listed Coho, steelhead and chinook salmon, tidewater goby, sea lamprey and numerous species of shorebirds and waterbirds.

"We were able to design the project so that it will benefit the community as well as the ecosystem."

The Salmon Creek Delta restoration project on the refuge included excavating approximately 60,000 cubic yards of sediment from a creek channel, installing large wood structures and fish-friendly tide gates, and placing the sediment into the intertidal area to increase elevation and allow salt marsh restoration.

"The resources, perspective and expertise provided by Coastal Program staff were vital to the project's success," says Humboldt Bay Refuge manager Eric Nelson, citing the program's role in funding, project design, permitting and general project coordination.

The Coastal Program also is providing design assistance to an estuarine restoration project in the refuge's White Slough area. That project will restore a 50-acre salt marsh to provide habitat

for fish and wildlife and help buffer U.S. Highway 101 from the effects of storms and sea-level rise.

"We were able to design the project so that it will benefit the community as well as the ecosystem," Nelson says.

Coastal Program biologists are helping refuge staff collect and analyze dune topography and vegetation data to gauge the impact of management actions and see the effects of wave action caused by larger and more frequent storms related to climate change.

Coastal Program and refuge staff also contribute significantly to the Humboldt Bay Initiative, a group of state and local planners, academics and citizens working to address natural resource challenges around Humboldt Bay through science, communication and outreach.

"We've learned that engaging the community in conservation planning builds trust and fosters good resource stewardship," says Coastal Program manager Paula Golightly. 

Chris Darnell is a biologist in the Refuge System Branch of Habitat Restoration.



The U.S. Fish and Wildlife Service Coastal Program in Arcata, CA, and nearby Humboldt Bay National Wildlife Refuge are working together for the benefit of the bittern and other species. (David F. Thomson)

Programs Cooperate, Delmarva Fox Squirrels Procreate

By Christopher Eng

The Delmarva fox squirrel's recovery is an excellent example of strategic conservation and partnerships that include the U.S. Fish and Wildlife Service Coastal Program and at least three national wildlife refuges.

In 1967, the Delmarva fox squirrel was one of the first animals to be federally listed as endangered under the Endangered Species Preservation Act – the precursor to the Endangered Species Act of 1973. Almost 50 years later, the Service is proposing to delist the fox squirrel.

Twice the size of common gray squirrels, Delmarva fox squirrels can grow to two feet long and weigh as much as three pounds. They prefer mature hardwood or pine forests with an open understory. They spend much of their time on the ground foraging for nuts and seeds.

They once were found across the Delmarva Peninsula of Delaware, Maryland and Virginia, and in southern New Jersey and southeastern Pennsylvania. However, habitat loss from timber harvests and agricultural production reduced their numbers and expanse to 10 percent of their historical range. Before it was banned, fox squirrel hunting also may have contributed to the species' decline.

At the time of their listing, fox squirrels were found only in four Maryland counties. Although the first recovery plan was completed in 1979, fox squirrel conservation efforts began as early as 1945 and focused on habitat protection and squirrel reintroductions. Blackwater National Wildlife Refuge, in the heart of the squirrel's range on Maryland's Eastern Shore, protects that core habitat. Chincoteague Refuge in Virginia and Prime Hook Refuge in Delaware were among the first places where Delmarva fox squirrels were reintroduced, and those refuges continue to support thriving populations.



The U.S. Fish and Wildlife Service is proposing to delist the Delmarva fox squirrel as an endangered species, thanks to the efforts of the Coastal Program, national wildlife refuges and other partners. (Guy Wiley)

With more than 85 percent of the fox squirrel's historical range on private lands, landowners were – and are – vital to the species' recovery. The Coastal Program is filling an important role by helping landowners establish conservation easements that protect habitat. For example, the Coastal Program partnered with Blackwater Refuge, the Maryland Department of Natural Resources and private landowners to acquire conservation easements along the Chicamacomico River. Those easements protect more than 442 acres of salt marsh, forested wetlands, forests and farmland.

“The Coastal Program's ability to deliver habitat conservation on public and private lands near refuges allows the Service to implement landscape-scale habitat conservation,” says Blackwater Refuge manager Suzanne Baird. The Coastal Program worked with the state and landowners to identify fox squirrel habitat and to prepare grant applications and easement documents. “By supporting these activities, the Service can better leverage its technical and financial resources to achieve significant habitat conservation,” says Chesapeake Bay Field Office Coastal Program leader Dan Murphy.

The efforts have restored fox squirrels to 28 percent of their historical range and increased their population to an estimated 20,000 animals – a level that wildlife biologists believe can sustain the species. Monitoring has shown new fox squirrel populations in the Delmarva Peninsula, indicating that the squirrels are continuing to reclaim more of their range.

In September 2014, Secretary of the Interior Sally Jewell announced the proposed delisting of the Delmarva fox squirrel in a ceremony at Blackwater Refuge.

“The Delmarva fox squirrel joins the bald eagle, the peregrine falcon and the American alligator as symbols of Endangered Species Act recovery success,” Service Director Dan Ashe said then. “We thank our conservation partners, particularly the private landowners and state wildlife agencies, whose continued commitment to the species will ensure it continues to thrive.”



Christopher Eng is a biologist in the Refuge System Branch of Habitat Restoration.

Fergus Falls WMD

— continued from page 10

restored 2,300 wetland basins totaling 7,100 acres on private lands.

One such project was done on the Olson farm in fall 2013. The Partners for Fish and Wildlife Program worked with Olson and the USDA Conservation Reserve Program to restore five drained pothole wetlands and 140 acres of grassland. Partners for Fish and Wildlife Program staff completed detailed elevation surveys, soil cores, wetland design, permitting and construction supervision. The wetlands' natural hydrology and topography were restored by plugging drainage ditches, removing 250 feet of concrete drain tile from each basin and removing 18 inches of washed-in sediment from one of the basins.

“We broke the tile and created some wetlands that probably had been there 130 years ago,” Olson says.

The Olson wetland restorations are documented in a 10-minute YouTube video (<http://bit.ly/1yLNIOa>) and in a series of time-lapse photographic images collected as part of a statewide effort by the Minnesota Department of Natural Resources.

The result of the Olson wetland restorations is excellent breeding habitat for blue-winged teal, mallard and wood

Partners for Fish and Wildlife Program

The Partners for Fish and Wildlife Program, established in 1987, is a diversified habitat restoration program that provides technical and financial assistance to private landowners and tribes who are willing to work voluntarily with the U.S. Fish and Wildlife Service and other partners to help meet the habitat needs of federal trust fish, wildlife and plant species.

The Partners Program can assist with projects in all habitat types that conserve or restore native vegetation, hydrology and soils associated with imperiled ecosystems such as longleaf pine, bottomland hardwoods, tropical forests, native prairies, marshes, rivers and streams, or otherwise provide an important habitat requisite for rare, declining or protected species.

Locally based field biologists work one-on-one with private landowners and other partners to plan, implement and monitor projects. Partners for Fish and Wildlife Program field staff help landowners find other sources of funding and assist them through the permitting process, as necessary. This level of personal attention and follow-through is a significant strength of the program.

More information: <http://go.usa.gov/tUAe> 

duck; excellent habitat for migratory waterfowl and non-game birds; enhanced water quality; and flood-control benefits.

Co-locating Partners for Fish and Wildlife Program biologists at Fergus Falls and other wetland management districts enables strategic and focused habitat conservation.

“The Partners Program is the life blood of our wetland and grassland easement acquisition program,” says Fergus Falls WMD project leader Larry Martin. “Once the Partners biologist completes the restorations, many of the landowners decide they want to permanently protect

the restored habitat with a wetland or grassland easement. The majority of our easement acquisitions stem from the outreach of the Partners Program.”

Fergus Falls WMD is planning to restore 60 wetland basins totaling 150 acres on private lands this fiscal year using funding from the Partners for Fish and Wildlife Program as well as from state grants, nongovernmental organizations and local sporting clubs. 

Shawn Papon is a Partners for Fish and Wildlife Program biologist based at Fergus Falls Wetland Management District in Minnesota.

From the Director — continued from page 2

National Wildlife Refuges in Texas and New Mexico. He's at least in Algebra II already.

“Whatever we are doing on the refuge complex,” he says, “I'm considering how we can take the benefits and knowledge we have gained to surrounding landowners on the larger landscape. This complex is too small to make the big difference for wildlife that we are after.”

Smith knows the formula for success. If you multiply your refuge lands by partnership with private landowners, the

product is a landscape that makes the difference.

This is happening as we work to conserve the greater sage-grouse. We have a strong public lands foundation, with 64 percent of the habitat under Bureau of Land Management (BLM) and Forest Service management. We are strengthening that foundation but also working with and throughout the 11 range states to build strong state conservation programs and enlist private landowners in voluntary conservation. In the end, we are multiplying efforts

and conserving a “sagebrush sea” that supports sage-grouse and hundreds of other species.

In Harney County, OR, our folks have signed up nearly 300,000 acres of private ranch lands in conservation agreements. Rancher Tod Strong put it best when he said, “What's good for the bird is good for the herd.” Amen, Tod.

We can conserve the nature of America if we think big, like Jude Smith, and reach out to good private land stewards like Tod Strong. Practice multiplication! Prepare for calculus! Think big! 

Alaskans Team Up to Prevent Walrus Stampedes

By *Andrea Medeiros*

Last fall, much of the world was riveted by the image of 30,000-plus Pacific walrus hauled out on the Arctic coast near the Alaskan village of Point Lay. Such scenes have become increasingly familiar as climate conditions shift and the walrus, one of the world's largest pinnipeds, find that the summer sea ice on which they depend is disappearing. It's a shift with potentially dire consequences, especially for young walrus.

With the loss of summer sea ice, walrus that would normally rest on floating patches of ice in small groups are hauling out on land in large congregations. When these large groups are startled, they rush back into the water in what is called a stampede. In the process, small young walrus can be crushed.

The U.S. Fish and Wildlife Service, Alaska Peninsula National Wildlife Refuge, the nonprofit Alaska SeaLife Center, the Federal Aviation Administration, residents and others across the state are doing their part to gain a better understanding of walrus response to climate change and disturbance and to prevent stampedes and minimize mortality.

In Point Lay, residents long have taken pride as stewards of the Pacific walrus, partnering with the Service to ensure that locals and visitors avoid disturbing the marine mammal. The Service has developed flight guidelines for local air carriers and pilots and issues advisories when a haulout forms. The Service also works with the FAA to establish temporary flight restrictions; and the Point Lay community works directly with air carriers to establish new flight paths. These efforts have kept walrus deaths remarkably low.

Some 800 miles south of Point Lay, Alaska Peninsula Refuge is working with the Alaska SeaLife Center, whose scientists and veterinarians began a

study in 2011 about walrus responses to disturbance. They placed weather-proof cameras at several walrus haulout spots to record images of the haulouts from May through September. One monitoring site is on Cape Seniavin near the refuge. It is a favored resting area for male walrus feeding in nearby shallow waters.

"You smell the walrus long before you see them," says refuge pilot/biologist Dan Pepin. "As I laid on my stomach and peered over the bank to the northwest, I saw the walrus both on the beach and negotiating the surf. It was truly an amazing experience."

Cape Seniavin is a popular destination for wildlife viewers and ivory collectors, setting the stage for stampede events. Even though the haulout site is not on the refuge, the refuge plays a key role in keeping the monitoring cameras operational. Every 60 days, a refuge pilot visits the site to maintain camera platforms and replace batteries and SD memory cards.

"I am happy that we are in a position to help with the walrus cameras," says refuge manager Susan Alexander. "Our logistical capability operating on the peninsula allows us to contribute to the conservation of this fantastic local resource."

The refuge helps the SeaLife Center stretch funds and increase monitoring efforts, and Service law enforcement officers and scientists at the center educate visitors about why walrus should not be disturbed, how to avoid doing so, and the consequences of failing to abide by the Marine Mammal Protection Act.

From understanding walrus response to changing climate conditions to minimizing the untimely deaths of young animals, partners on and off refuges are helping to increase the odds that these amazing creatures will be around to thrill future generations. 

Andrea Medeiros is a public affairs specialist in the Alaska Region office in Anchorage.



When large groups of Pacific walrus, such as these near Alaska Peninsula National Wildlife Refuge, are startled, they rush back into the water in a stampede. In the process, small young walrus can be crushed. Climate change may be exacerbating the problem. The refuge is helping the Alaska SeaLife Center monitor walrus behavior. (Julia Pinnix/USFWS)

Around the Refuge System

California

Tidal waters returned to the Cullinan Ranch unit of San Pablo Bay National Wildlife Refuge in January for the first time in more than 100 years. Onlookers from organizations like Audubon, Save the Bay and others involved in the restoration gathered to see a tidal levee removed. Once the levee was broken, salty water rushed in to recreate marsh habitat that is one-and-a-half times larger than San Francisco's Golden Gate Park. This "is a momentous occasion. We have breached the levee and returned over 1,200 acres of wildlife habitat to the refuge," said Anne Morkill, San Francisco Bay National Wildlife Refuge Complex manager. Cullinan Ranch, originally a saltwater marsh connected to San Pablo Bay, was converted to farmland in the 1800s. The new habitat will benefit waterfowl and shore birds, many of which use the refuge during seasonal migrations. The restored area also offers trails, a kayak launch and fishing piers for the public. The ranch's soil may take years to rebuild after becoming dry when it was cut off from the bay, but the levee breach is a step toward a fully functioning wetland.

Wisconsin

The headquarters/visitor center at Upper Mississippi River National Wildlife and Fish Refuge's Lacrosse District received a 2014 Federal Energy and Water Management award. The annual awards, presented by the Department of Energy, recognize individuals, groups and agencies for their outstanding contributions in energy efficiency, water conservation and the use of advanced and renewable energy technologies at federal facilities. The Leadership in Energy and Environmental Design (LEED) silver-rated, 11,759-square-foot center was recognized for numerous energy efficiencies, including a 74.86-ton ground source heat pump, three solar hot water collectors and a 35.88-kilowatt grid-tied solar photo-voltaic array that generate renewable energy estimated to save at least \$4,700 annually. Located in scenic Brice Prairie at a gateway to the refuge,



Seawater gushes onto former farmland after a tidal levee was removed to create new marsh habitat at California's San Pablo Bay National Wildlife Refuge. (Steve Martarano/USFWS)

the facility teaches more than 30,000 visitors annually about the benefits of sustainability. The award specifically recognized Midwest Region asset coordinator Debbie Beck; contracting officer Tiffany Breske; supervisory general engineer/landscape architect Andrew McDermott; district manager James Nissen; and regional engineer Craig Swedenborg.

Minnesota

PlaceBase Productions is scheduled to perform "Cross Pollination," an original musical it describes as walking theater, at Minnesota Valley National Wildlife Refuge June 5-7, during the Twin Cities Urban Bird Festival. Based on history and folklore collected from former employees among others, actors will recall scenes from the past. As the action moves from place to place at the refuge, actors will lead the audience to move with it. Established in 1976, the refuge stretches nearly 70 miles along the Minnesota River, from Bloomington to Henderson. "We really wanted to draw people back to the natural beauty that drew many people there to begin with," says PlaceBase producer Ashley Hanson.

Refuge visitor services specialist Mara Koenig says that when refuge staff first learned of the project, "we thought, 'What a great way for us to tie deeper into the community and highlight the Urban Wildlife Conservation Program.'"

Johnston Atoll

A Jet Ski that washed up on Johnston Atoll National Wildlife Refuge in the central Pacific Ocean from the March 2011 tsunami has been returned to its owner in Japan. Last May, while performing bird surveys on a seaward beach, refuge intern Danielle Lampe found the Jet Ski. Its registration number and markings indicated that it could be from the tsunami. With help from *M/V Kahana* crew members, the National Oceanic and Atmospheric Administration, the State Department, the Japanese Consulate, the University of Hawaii, the Hawaii Department of Land and Natural Resources, Hawaii international coastal cleanup coordinator Chirs Woolaway and the Japan Environmental Action Network, the owner was identified. Last November, the Jet Ski was returned to him in Iwaki, Japan, more than 3,300 miles away.

New York

A \$7.2 million U.S. Fish and Wildlife Service effort to restore more than 567 acres of salt marsh damaged by Hurricane Sandy in 2012 is scheduled to get under way this fall at three units of Long Island National Wildlife Refuge Complex. In addition to improving habitat for fish and wildlife, repairing an interpretive boardwalk trail system, controlling invasive species and reducing mosquito production, the project is designed to buffer nearby communities from future storms and sea-level rise. The project will restore natural hydrology at Seatuck and Wertheim National Wildlife Refuges, and Lido Beach Wildlife Management Area. The investment is part of \$102 million in federal emergency funding for projects to restore and strengthen coastal marshes, wetlands and shoreline, create open connections to rivers and streams for fish passage and reduce the risk of flooding from storms.

Minnesota

Nearly 200 fourth- and fifth-graders in Fergus Falls wrote old-fashioned handwritten letters to refuges from the Prairie Wetlands Learning Center, part of Fergus Falls Wetland Management District. After learning about the Refuge System during National Wildlife Refuge Week last October, each student wrote to a different refuge. So far, more than two-thirds of refuges have responded. The students “love reading the letters and pore over every enclosed brochure, poster, photo, calendar, map, bookmark ... arranging items this way and that on their table,” says Learning Center instructional systems specialist Molly Stoddard. She says Refuge System staff members who answer the letters are “creating ownership in these youngsters for our wild places and wild things, simply by writing a letter.” One teacher said families have planned trips to nearby refuges because of letters received by the students. Stoddard says it has been “very moving to see the flood of effort collectively put into representing refuges and districts.”

Texas

Two new juvenile ocelots have been discovered at Laguna Atascosa National Wildlife Refuge. Both are estimated to be about one year old and were photographed with their mothers, according to ocelot biologist Hilary Swarts. “Because each ocelot’s fur is uniquely patterned, like a human fingerprint, we are able to use photos from remote cameras to track individuals, and we know when there is a photo of an individual we have never seen before,” says Swarts. “The detection of these offspring is very promising for the Laguna ocelot population, bringing the total of known individuals from 11 to 13.” The juveniles’ sex was not immediately determined. Ocelots are endangered. There are estimated to be fewer than 80 individuals remaining in the wild in the

United States. Nearly all are in south Texas, including a breeding population at Laguna Atascosa Refuge.

Wisconsin

While some kids veg and stare at their screens, twins Ethan and Allie Oines have been helping to replant the prairie. Ethan and Allie, fourth-graders in the village of Holmen, joined classmates in harvesting seeds of native bluestem and Indian grass at Upper Mississippi River National Wildlife and Fish Refuge. Then they spread the seeds a few months later in another section of the refuge, where native plants had been lost. In spring, they saw their plants sprout. *Ranger Rick*, the children’s magazine of the National Wildlife Federation, hailed their efforts in its November 2014 issue. 🐦



Olivia Hammer is one of almost 200 students who wrote letters to refuges nationwide from the Prairie Wetlands Learning Center at Fergus Falls Wetland Management District in Minnesota. More than two-thirds of refuges answered their letters, “creating ownership in these youngsters for our wild places and wild things.” (Molly Stoddard/USFWS)

Refuges, YouTube Help Researchers Discover Frog Species — *continued from page 1*

Wildlife Refuge Complex, Feinberg decided to pursue a PhD from Rutgers University and focus on why southern leopard frogs had vanished from his native Long Island. For two years, Feinberg spent countless hours 150 miles away in southern New Jersey, where southern leopard frogs thrive. He knew their mating call by heart.

One day he learned there might be a surviving leopard frog population on New York City's Staten Island, which is near Long Island. Those frogs would be more genetically and geographically relevant, so one evening in 2008 he visited the Staten Island site.

"Within five or 10 seconds of getting out of my car on this rainy cold March night, I heard a vast chorus of leopard frogs from this big, wet meadow," he says. "The problem was: The call I was hearing was not the southern leopard frog call. Nor was it a northern leopard frog call. It was a call that I had never heard in my life."

But, because he was a field herpetologist inexperienced in genetics and taxonomy, he feared no one would believe that he might have found something unusual. He needed help. A series of fortuitous events brought it to him.

In 2009, Feinberg stumbled on an anonymously posted YouTube video that had been shot two years earlier at Great Swamp National Wildlife Refuge, 25 miles west of Manhattan (<http://bit.ly/1wBMHHy>). He contacted the poster, who turned out to be Brian Zarate, an amphibian-reptile zoologist with the New Jersey Division of Fish and Wildlife. "Pretty quickly, I said to Brian, I don't think it's either a northern or a southern leopard frog; I think it's a new species," Feinberg recalls.

In 2010, Catherine Newman, then a University of Alabama graduate student, agreed to run the genetics as a side project. "She started to see things in the tissues and DNA sequences that made her interested further," says Feinberg.



With the help of several collaborators, two national wildlife refuges and a series of fortuitous events, Rutgers University PhD candidate Jeremy Feinberg discovered this new frog species – the Atlantic Coast leopard frog – in New York City. (Jeremy Feinberg)

A year later, Newman told Feinberg that her molecular evidence strongly supported his hunch – and the project took off.

Feinberg's PhD advisor Joanna Burger provided untold guidance, and geneticist H. Bradley Shaffer brought species-description and taxonomic experience. In all, nine researchers contributed to the project. In 2012, Newman, Feinberg and others authored an initial article in *Molecular Phylogenetics and Evolution* suggesting a new species had been discovered. But it needed to be formally described.

Describing the new species involved three lines of evidence.

One line was molecular – showing it was a genetically distinct species. Many tissue samples for that work, which was largely covered in the 2012 paper, were gathered at Great Swamp Refuge and "went into formally letting the scientific community know that we did have something unique," Zarate says.

The second line of evidence was bio-acoustical – comparing mating calls of the new species to other known species. Feinberg used the call to identify the new frog at, among other places, Wallkill River Refuge on the New Jersey/New York border in 2012. "It was crystal clear that they were everywhere, a massive population," he says. "I think, to date,

Wallkill has the most impressive chorus I've ever heard."

The third line of evidence was morphology – physical characteristics and shape. The new species is a cryptic species (basically, a look-alike). Still, there are differences. The Atlantic Coast leopard frog has a smaller, fainter white spot on its eardrum than the southern leopard frog does, and a wider body and stouter head, too.

Feinberg and Zarate credit refuge biologist Colin Osborn, Great Swamp Refuge deputy manager Steve Henry and Wallkill River Refuge manager Mike Horne with wonderful cooperation. "They were very willing and open to have us come" to the refuges, says Zarate, "and allow us to go behind the scenes a little bit."

For Feinberg, the discovery's locale makes it extra-special:

"As a guy who grew up in New York reading about the new Florida this species or the California that species, I always said, 'Boy, how come there's nothing ever from New York?' And I felt like I was in this sort of biological wasteland. So to be able to find a frog not only in the U.S. but to formally describe it from New York, and not just from New York, but in the five boroughs of New York City, was a real treat, something I dreamt of as a kid but never thought would happen." 🦵

Refuge System Chief Kurth Named Service Deputy Director—*continued from page 1*

Service, its employees and its partners,” Service Director Dan Ashe said in announcing Kurth’s promotion. “I’m excited to work with Jim to continue improving the agency and strengthening our landscape-level collaborations with state wildlife agencies and other key partners.”

As deputy director for operations, Kurth will promote and implement the Service’s mission and priorities throughout the United States and abroad by developing and strengthening partnerships with other federal agencies and foreign governments, states, tribes, nongovernmental organizations and the private sector. He will also assist Director Ashe in ensuring agency performance and accountability, customer service and consistent application of all Service resource management policies.

Kurth will be responsible for managing the day-to-day implementation of the Service’s field-based mission. This includes overseeing an appropriated budget of \$2.5 billion, and nearly 9,000 employees working across the nation and in many foreign countries. These employees spearhead efforts to conserve the nation’s native fish, wildlife and plants on 562 national wildlife refuges and 38 wetland management districts encompassing more than 560 million acres in all 50 states and U.S. territories; operate 69 national fish hatcheries; and administer fish and wildlife programs, including endangered species recovery, from 64 fishery resources offices and 81 ecological services field offices nationwide.

Kurth is a 35-year Service veteran and a career federal employee. He began his Refuge System career in 1979 at Mississippi Sandhill Crane National Wildlife Refuge. He then moved on to a series of positions with progressively greater responsibilities at Arthur R. Marshall Loxahatchee Refuge in Florida, Bogue Chitto Refuge in Louisiana, Seney Refuge in Michigan’s Upper Peninsula and Ninigret Refuge in Rhode Island.



Then-Refuge System Chief Jim Kurth at California’s Humboldt Bay National Wildlife Refuge with refuge ecologist Andrea Pickart (Eric T. Nelson/USFWS)

Beginning in 1994 until he became deputy chief, Kurth managed the 20-million-acre Arctic National Wildlife Refuge in northern Alaska – the largest refuge in the United States. Arctic Refuge also contains the 8-million-acre Mollie Beattie Wilderness Area, the largest wilderness within the Refuge System. During his time there, Kurth proved adept at bringing competing interests together and navigating complex environmental challenges affecting one of the nation’s most prominent refuges.

“As I reflect on all the things that have been accomplished during my years in Refuge System Headquarters, I really can’t think of anything I did myself,” Kurth wrote in a January message to employees. “I am so grateful for all of the wonderful people I have served with, especially deputy chief Cynthia Martinez. It is a really good feeling to be part of something important, to be part of a team that genuinely likes and cares about one another; a team that has fun and gets stuff done.”

Martinez will serve as acting chief until Kurth’s replacement is named. 🦋

Ranchers Partner With Service, Endangered Bird Wins—*continued from page 11*

difference between intact tree hammocks on pasture edges – vital for shading cattle – and individual trees dispersed on the native prairie, which were not present historically and have little grazing value but whose removal helps the Florida grasshopper sparrow.

“By working with these landowners who have shown an interest in the refuge and conservation area initiative, when funding for conservation easements becomes available, we’ve already started the restoration,” says Myers. 🦋

Joe Milmoie is a wildlife biologist in the Refuge System Branch of Habitat Restoration.



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A Look Back ... Helen Fenske

A 1959 newspaper article reported on Port Authority of New York and New Jersey plans to build an airport in a New Jersey swamp. Angry neighbors immediately created the Great Swamp Committee with Helen Fenske as its head. She led a tireless campaign to save the swamp, helping to raise more than \$1 million – including spare change collected by Girl Scouts – to purchase and donate nearly 3,000 acres of land to the Department of the Interior.

Great Swamp National Wildlife Refuge was established in 1960, but the Port Authority didn't give up. Eventually, Fenske concluded that only designation under the Wilderness Act of 1964 would truly protect this wild land. With her persistent and effective lobbying, the Great Swamp Wilderness Area became the Department of the Interior's first designated wilderness in 1968.

Fellow activist David Moore of the New Jersey Conservation Foundation said, "No one had taken on the Port Authority, and certainly no one had taken them on and won."



The work of Helen Fenske (1922-2007) is acknowledged at the 1960 dedication of Great Swamp National Wildlife Refuge. (USFWS)

Fenske also promoted the establishment of Wallkill River and Cape May National Wildlife Refuges in New Jersey. "She was a warrior," said former New Jersey governor Thomas Kean, who appointed Fenske as assistant commissioner for the New Jersey Department of Environmental Protection. "It's hard to think of an environmental fight that



Fenske reflects on the swamp that could have become tarmac but instead became a refuge 25 miles west of Times Square. (Fenske family)

Helen didn't take on." Fenske used to deliver tape recordings of her positions on environmental issues for Kean to listen to while he was being driven around the campaign trail.

Fenske received the Department of the Interior's Conservation Service Award. The visitor center at Great Swamp Refuge is named in her honor.

Follow the National Wildlife Refuge System on Facebook at www.facebook.com/usfwsrefuges and [Twitter@USFWSRefuges](https://twitter.com/USFWSRefuges).

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Letters to the Editor or suggestions about *Refuge Update* can be e-mailed to RefugeUpdate@fws or mailed to *Refuge Update*, U.S. Fish and Wildlife Service, Mail stop: NWRS, 5275 Leesburg Pike, Falls Church, VA 22041-3803