



RefugeUpdate

National Wildlife Refuge System

www.fws.gov/refuges



INSIDE: The U.S. Fish and Wildlife Service's Cooperative Recovery Initiative has provided more than \$16 million to fund 41 projects designed to restore and recover species listed as threatened or endangered on national wildlife refuges and surrounding lands. One project is dedicated to enriching breeding and staging habitat in New England and on Long Island, NY, for endangered roseate terns. See the Focus section, which begins on page 6. (Sarah Nystrom/USFWS)

Delmarva Fox Squirrel Is No Longer Endangered

Because of concerted conservation efforts by states, landowners and others working with the U.S. Fish and Wildlife Service, the Delmarva fox squirrel is no longer at risk of extinction and has been removed from the endangered species list.

The squirrel was one of the animals included on the first endangered species list nearly a half century ago. The Department of the Interior heralded the squirrel's recovery in a November 2015 announcement at Prime Hook National Wildlife Refuge in Delaware.

"The fox squirrel's return to this area, rich with farmland and forest, marks not only a major win for conservationists and landowners, but also represents the latest in a string of success stories that demonstrate the Endangered Species Act's effectiveness," said Michael Bean, Interior's principal deputy assistant secretary for fish and wildlife and parks. "The act provides flexibility and incentives to build partnerships with states and private landowners to help recover species while supporting local economic activity. I applaud the states of Maryland, Delaware and Virginia, and the many partners who came together over the years to make this day possible."

Larger than other squirrel species and generally not found in suburban or urban areas, the Delmarva fox squirrel was found throughout the Delmarva Peninsula

Two Refuges Act To Reduce Bird Collisions

By Karen Leggett

In a 2014 Cooper Ornithological Society article, researchers estimated that up to 1 billion birds collide with residential and commercial buildings – particularly windows – and die each year in the United States. During the day, birds collide with windows because they see reflections of the landscape. At night, or in inclement weather during migrations, birds can be attracted to lighted buildings, resulting in collisions, entrapment, energy expenditure and exhaustion.

At least two national wildlife refuges and one U.S. Fish and Wildlife Service facility have taken specific steps to reduce bird collisions, in some cases with funding from Friends groups.

John Heinz National Wildlife Refuge at Tinicum in Pennsylvania installed

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Chief's Corner

Stories of Success

Some 380 of the nation's 1,591 endangered and threatened species find a home on national wildlife refuges. The reason is straightforward: Home is where the habitat is.



Cynthia Martinez

So it makes sense that restoring habitat and implementing the best science and management techniques are the roads to recovery for species. Sounds simple. It's not.

National wildlife refuges and other parts of the U.S. Fish and Wildlife Service have long faced competing demands that can change and tug and pull in different directions. Multi-year projects can be tough to fund from one year to the next. That's why the Cooperative Recovery Initiative (CRI) is making a difference, as you can read in this *Refuge Update*.

The Service Director some years ago recognized that we needed a focused program that puts combined resources and partnership muscle on refuges and in areas with a close nexus to them if we are to maintain and expand high quality habitat for trust resources. So was born the CRI, a competitive program with specific criteria that gives funding to collaborative projects.

CRI absolutely stresses collaboration – both among Service programs that sometimes operate in silos and with private landowners, who can make all the difference for the health of fish, wildlife and plant species.

The competition for funding has been intense – and beneficial. First there's the regional selection process. Then the top regional projects are submitted to a national review team that represents all Service programs. A second round of reviews at the Service's Headquarters has ensured that funding goes to the projects most likely to succeed.

In fact, the need to show results quickly has set CRI apart from other initiatives. CRI not only requires that each project has a monitoring protocol, but it also decides on funding for up to three additional years by considering data that demonstrate a project is making discernible progress.

At the same time, the CRI process incorporates all elements of Strategic Habitat Conservation. Service staff members employ biological planning and design to develop project proposals. Selected proposals are then implemented – the “conservation delivery” step – and results are monitored. The outcomes then feed back into biological planning and adaptive management.

A prime example of CRI success is the Oregon chub, the first fish ever removed from the federal endangered species

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Moving Away From Print

The printed *Refuge Update* newsletter has served us well since January/February 2004. It's been a great way to tell our stories and share our news. Now we are turning to online storytelling, which will allow us to more fully take advantage of great images – and we'll save some trees.

The final issue of the printed newsletter will be May/June 2016. After that, we will be posting

regular stories on the Refuge System website: <http://www.fws.gov/refuges/>. We also plan to create an online newsletter that will be delivered only by e-mail.

We want to make sure you keep up to date on Refuge System news. So we are collecting e-mail addresses for our online newsletter. Please send your e-mail addresses to RefugeUpdate@fws.gov.

Refuge Update

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The R/V Tiglax plays a critical role in meeting Alaska Maritime National Wildlife Refuge's research purpose by supporting a wide range of scientists. Page 4

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A Florida realty specialist, a Montana wetland management district manager and a Montana non-governmental organization are honored. Page 5

Focus: Cooperative Recovery Initiative

Over the past three years, the Cooperative Recovery Initiative has funded 41 projects across the U.S. Fish and Wildlife Service for the benefit of threatened and endangered species. Pages 6-15

Correction

Because of an editing error, an article and a caption in the November/December issue stated that higo chumbo cactus is found only at Desecheo National Wildlife Refuge off Puerto Rico. Wild populations of the threatened cactus exist on two nearby islands, too. The error was corrected in online editions.



This kiosk and comfort station along the Great River Road in Iowa serves travelers' basic needs and introduces them to Port Louisa National Wildlife Refuge. (Cathy Henry/USFWS)



Port Louisa Refuge conserves 18,375 acres along the Mississippi and Iowa Rivers in southeast Iowa for migrating birds, ducks, geese and other waterfowl. (Jessica Bolser/USFWS)

Refuges as Rest Stops

By Cathy Henry

We in the U.S. Fish and Wildlife Service often describe the three dozen national wildlife refuges along the Mississippi River as rest stops for migrating birds, but they are also rest stops for people.

The Great River Road and Mississippi River Trail follow the river from Minnesota to Louisiana. Port Louisa National Wildlife Refuge sits along the route on Louisa County Road X61 in southeast Iowa and is a prime spot for river visitors to stop. Natural resources are the biggest attraction, with plenty of county, state and federal lands for recreation. But there happen to be no towns along the river in Louisa County and no reliable bathroom breaks or water stops for cyclists and motorists. Meeting people's most basic needs can be the first step in getting them to stop and visit.

Local leaders often discuss how to improve tourism. The number one obstacle that seems to surface is a lack of rest stops and bathrooms.

Port Louisa Refuge was fortunate to complete a new headquarters building in 2014 that set the stage for a welcoming and visible place for visitors to stop. The refuge subsequently received a National Scenic Byways grant from the U.S. Department of Transportation to

pay for facilities to complement the new headquarters. Construction of a comfort station was recently completed with those funds. It is open 24 hours, seven days a week, and has a drinking fountain and bottle filler outside. The grant also paid for an information kiosk, trail improvements and displays inside the headquarters.

Although the refuge now has a great visitor facility, we do not have the staff to be open on weekends, when most travelers are on the Great River Road. While we cannot be there to greet people, we can provide information and basic needs for people to enjoy the refuge.

Now, cyclists and motorists can stop to fill their water bottles, take in the refuge overlook, and get information about the Mississippi River and our conservation message. The facilities will likely become a common rest stop for organized bicycle rides. An active trails council in Louisa County is helping to organize bike rides and trail walks that include the refuge. All of this should benefit refuge programs.

This project would not have been possible, or turned out as nicely, without the support from Midwest Region engineering staff and regional Refuge System transportation coordinator Brandon Jutz.

“The Mississippi draws millions of tourists to travel the Great River Road, and it is important for those visitors to easily stop and enjoy places like Port Louisa Refuge. This is a perfect rest and recreation stop where they can also learn and experience the amazing wild side of life along the mighty river,” says Mary Stahlhut, National Scenic Byways program manager with Iowa Department of Transportation.

Todd Criswell of the Midwest Region Division of Engineering agrees that the comfort station adds a great deal of value to the overall headquarters project.

While it might be a bit against our grain to refer to refuges as “rest areas,” the inference is well worth the potential gains in refuge awareness that come from happy, comfortable people who might not have known about us before. Now we are a visible entity along the road. Instead of zooming by to get to the next town, travelers may stop for a rest, take a walk and maybe even do some bird watching.



Cathy Henry is the manager at Port Louisa National Wildlife Refuge in Iowa. This article originally appeared on the U.S. Fish and Wildlife Service's Inside Region 3 web page.

R/V *Tiglax*: Alaska Maritime Refuge's Vehicle for Research

By Andrea Medeiros

Imagine working on a ship that takes you 15,000 miles through remote islands, from the Gulf of Alaska to the Bering Sea, in support of conservation. Six U.S. Fish and Wildlife Service jobs provide this opportunity, all operating out of Alaska Maritime National Wildlife Refuge aboard the R/V *Tiglax*.

“Sometimes you don’t see another ship for days at a time,” says Captain Billy Pepper, who has worked on the *Tiglax* for more than 20 years and is responsible for the ship as well as hiring and managing the crew. Combined, the captain, first mate, two deckhands, a cook and an engineer have 60-plus years’ experience sailing the refuge.

Constantly on the move during the six-month field season that starts in April, the crew works 12 hours a day, seven days a week, and is always on call. The *Tiglax* (pronounced TEK-la) is at sea for extended periods of time without Internet or cell service. Beyond the hours and the isolation, weather, mechanical problems, medical issues and even natural disasters can challenge the crew.

Last year, while the *Tiglax* was anchored near Attu Island, an 8.0 earthquake hit. “You could feel the chain of the anchor rolling across the bottom,” says Pepper. Alaska Maritime Refuge headquarters called to say a tsunami could hit within 30 minutes. The crew evacuated researchers on Attu. The ship barely made it to safer waters. “It was quite the fire drill,” Pepper says. “Everyone was very anxious, especially with thoughts of Fukushima in mind.”

The challenges of working on the *Tiglax* are counterbalanced by being among rocky islands with spectacular scenery, abundant wildlife and distinctive cultural histories. “Each island has a different personality,” says Pepper. Every summer more than 40 million seabirds nest on Alaska Maritime Refuge. One of the islands, Buldir, boasts more nesting seabirds than anywhere else in the Northern Hemisphere. The *Tiglax* also

encounters whales, porpoises, seals, sea lions and other marine mammals.

Built in 1987, the 120-foot-long *Tiglax* plays a critical role in meeting Alaska Maritime Refuge’s research purpose by supporting scientists from the Service, universities, the U.S. Geological Survey, the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture and elsewhere.

Umnak and Samalga islands in the eastern Aleutians have been part of the refuge since 1913. Last summer, thanks to the *Tiglax*, refuge biologists were able to survey the islands’ coastlines for the first time. They discovered tens of thousands of shorebirds in the intertidal zone of Samalga Island, potentially a globally significant resting area for shorebirds on their summer migration.

In 2015, the *Tiglax* also supported a regular survey of sea otters in the western Aleutians and a second, rare survey on the hard-to-access Pacific Ocean side of Amchitka Island. Both will help biologists better understand sea otters.

Since 2008, when the volcanic island of Kasatochi erupted, the *Tiglax* and the North Pacific Research Board have been helping scientists from the refuge, the USGS and the University of Alaska-Fairbanks to annually monitor the island over the long term as it comes back to life. Before the eruption covered Kasatochi with ash and changed its landscape, the island had thick vegetation and supported a colony of approximately 250,000 least and crested auklets. To understand the effects of the eruption on the near-shore marine environment, depth surveys and dive surveys were done. “We found it to be completely clear of all life,” says Pepper. “It was like being on the moon – only it was underwater.”

What other new discoveries are out there on Alaska Maritime Refuge? The possibility of being part of making a new one keeps the crew of the *Tiglax* coming back. 🦋

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



The R/V Tiglax cruising off Bogoslof Island. Built in 1987, the Tiglax, which means eagle in Aleut, is 120 feet long and has a range of 14,500 miles before refueling is needed. The U.S. Fish and Wildlife Service vessel supports scientific research at Alaska Maritime National Wildlife Refuge.

More photos: <http://bit.ly/1MGt2KZ> (Paul Wade)



Benton Lake Wetland Management District manager Jim Lange and The Nature Conservancy's Montana chapter received the Land Legacy Award and the National Land Protection Award, respectively, for their land-acquisition work in the Crown of the Continent ecosystem in central Montana. (Dave Hanna/The Nature Conservancy)

Trokey, Lange and TNC-Montana Earn 2015 Realty Awards

A hands-on Southeast Region realty specialist based in Florida, a wetland management district manager in Montana and a non-governmental organization chapter in Montana are recipients of the 2015 National Realty Awards.

Dieffenbach Award

Southeast Region realty specialist Susan Trokey received the Rudolph Dieffenbach Award. The award is given to a Division of Realty employee for significant contributions to the U.S. Fish and Wildlife Service's land acquisition systems, operation or mission.

Trokey, a 12-year veteran of the Service, was recognized for overseeing the addition of more than 19,500 acres to the National Wildlife Refuge System at 19 refuges since 2003 and for her personal approach to her work.

“One example of Susan’s dedication to producing tangible results in the most efficient manner is her history of traveling throughout her project area on a regular basis,” Southeast Region colleague Ken Clough said in nominating Trokey for the award. “Susan completes her own Environmental Assessments, personally inspecting the properties she acquires. She prefers to meet in person with refuge staff, landowners and partners, adhering to the concept that meeting in person can be much more productive than phone calls or e-mails.”

Trokey, who is based at J.N. “Ding” Darling National Wildlife Refuge in southwest Florida, is the lead senior realty specialist for the Everglades Headwaters National Wildlife Refuge and Conservation Area, which was established in 2012 and has a 150,000-acre acquisition boundary in central Florida. The conservation area will restore and conserve a mosaic of habitats – seasonally wet grasslands, longleaf pine savannas and cattle ranches – that sustain one of the most important assemblages of imperiled vertebrate wildlife in the Southeast.

Land Legacy Award

Jim Lange, manager of Benton Lake Wetland Management District in Montana, received the Land Legacy Award. The award is given to Service employees or volunteers who do not work in the realty function.


In the past 10 years, Lange has helped conserve more than 71,000 acres along the Rocky Mountain Front and 31,000 acres in the Blackfoot Valley Conservation Area, both part of Montana’s Crown of the Continent ecosystem.

“Land acquisition by the federal government in the western part of the United States is often viewed negatively by landowners and local communities,”

Mountain-Prairie Region supervisory realty specialist Gary L. Sullivan said in nominating Lange. “Jim has worked hard to establish trust and credibility with key community leaders and ranchers” throughout the 11-county Benton Lake WMD in central Montana.

National Land Protection Award

The Nature Conservancy (TNC) of Montana received the National Land Protection Award for providing private funding, grassroots advocacy and political support for the Service’s conservation easement initiative in the Crown of the Continent ecosystem. The award is given to private citizens, groups, organizations, corporations, public agencies and their employees or volunteers outside the Service for contributions to land protection for fish and wildlife resources in partnership with the Service.

TNC has helped conserve more than 1 million acres across Montana since 1976. TNC’s Montana chapter has “helped develop the concept of community-based conservation, empowering local citizens to protect rural lifestyles and working landscapes,” Sullivan said in nominating TNC. “This approach has generated positive political support for land protection using conservation easement throughout the state.” 

Collaborative Projects Benefit Endangered Species

By Bill O'Brian

In the U.S. Fish and Wildlife Service, CRI stands for Cooperative Recovery Initiative. It almost as easily could stand for “cultivate results immediately.”

Over the past three fiscal years – 2013, 2014 and 2015 – the CRI provided more than \$16 million to fund 41 projects designed to restore and recover species listed as threatened or endangered on national wildlife refuges and surrounding lands. Fiscal 2016 proposals are under consideration now.

“The Cooperative Recovery Initiative provides opportunities for focused, large-scale collaborative conservation efforts that typically have few venues for funding,” says CRI National Review Team coordinator Linh Phu. “Projects



The Cooperative Recovery Initiative supported habitat restoration, animal translocation and monitoring related to the recovery of the Columbian white-tailed deer in Washington and Oregon. In October 2015, the Service proposed to downlist the deer from endangered to threatened. (Blu Chaney/USFWS)

National Review Team

The 10-person Cooperative Recovery Initiative National Review Team annually evaluates proposals, makes recommendations about funding, follows up on approved projects and tracks their success. Here are its members:

Lead:

Linh Phu / Partners for Fish and Wildlife

Members:

Linda Andreasen / Fish and Aquatic Conservation

Kate Freund / Science Applications

Ken Kriese / Migratory Birds

Rachel Merkel / Office of Budget

Carl Millegan / Refuge System Branch of Wildlife Conservation

Jana Newman / Natural Resource Program Center Inventory and Monitoring

Kelly Niland / Ecological Services

John Klavitter / National Invasive Species Coordinator

Anna-Marie York / Science Applications

are focused on implementing recovery actions for species near delisting or reclassification from endangered to threatened or that will significantly improve the status of one or more listed species.”

CRI projects, which typically involve two years of on-the-ground work and three years of follow-up monitoring, generally have four common components, according to Kate Freund, an Office of Science Applications policy specialist on the 10-member review team:

- They start with lands and habitats managed by the Service, often refuges.
- They are capable of showing demonstrable success to delisting or downlisting of species, or preventing extinction.
- They involve a strong monitoring component.
- And they are cross-programmatic within the Service.

The CRI “relies upon programs that are working together for projects to be funded successfully,” says Freund. “We talk all the time about the need to work across programs and break out of our programmatic silos, and I think CRI creates a real opportunity for staff from refuges to take advantage of the expertise of other programs such as Ecological Services, Partners for Fish and Wildlife, Fish and Aquatic Conservation, Migratory Birds and Science Applications.”

“With limited capacity and resources to adequately conserve the thousands of federal trust species, it is critical that the Service work cross-programmatically to identify species of greatest conservation priority and focus recovery efforts by leveraging financial and technical resources,” says Phu.

While refuges and other Service lands are often the heart of projects, the CRI also supports efforts on private lands, “especially private lands that help connect habitat between refuges or otherwise help achieve the refuge management goals,” says Freund.

The CRI played an important role in two conservation success stories in the Pacific Northwest in 2015.


The Willamette Valley Multi-Species Recovery Project, funded in fiscal 2013, conserved a vital population of Oregon chub and helped lead to the Service's February 2015 announcement of the removal of the small minnow from the list of endangered and threatened species. The Oregon chub became the first fish ever to be delisted.

"The largest single population of Oregon chub is in a wetland unit on Ankeny National Wildlife Refuge," says Willamette Valley National Wildlife Refuge Complex project leader Damien Miller. "During flood water events, this population was at risk of invasion by non-native fish coming in from adjacent waterways. CRI funding was used to conduct dike repairs and enhancements to successfully alleviate this risk and further secure this important population of Oregon chub."

The Recovery of the Columbian White-tailed Deer Project, funded in 2014, helped provide additional acreage of grass/forb meadow, wooded plots and corridors of mixed deciduous trees and shrubs for the endangered deer. It also paid for some deer translocations from Julia Butler Hansen Refuge for the Columbian White-tailed Deer to Ridgefield Refuge in Washington state and ongoing monitoring efforts. In October 2015, the Service proposed to downlist the deer from endangered to threatened.

"We're looking for those places where a relatively small amount of additional investment can lead to big gains," says Freund. "Those are often on wildlife refuges or associated with other lands or facilities that we manage. The core idea of the CRI is to support projects that are both collaborative and result-focused."

More information:

<http://1.usa.gov/1RA9GNc> 



The Cooperative Recovery Initiative helped the Service to remove the Oregon chub from the list of endangered and threatened species. The small minnow became the first fish ever to be delisted. (Rick Swart/Oregon Department of Fish and Wildlife)

"With limited capacity and resources to adequately conserve the thousands of federal trust species, it is critical that the Service work cross-programmatically to identify species of greatest conservation priority and focus recovery efforts by leveraging financial and technical resources."



The Cooperative Recovery Initiative is enhancing habitat and partnerships for benefit of the lesser prairie chicken near Quivira and Kirwin National Wildlife Refuges in Kansas. (Greg Kramos/USFWS)

41 Projects

The Cooperative Recovery Initiative has funded 41 projects across the U.S. Fish and Wildlife Service through 2015.

Pacific Region

Preventing Extinction of Oregon Silverspot Butterfly – Restore habitat at Nestucca Bay and Willapa National Wildlife Refuges and introduce this threatened species at Nestucca Bay. **Recovery of Golden Paintbrush** – Establish additional protected populations and restore prairie at or near Willamette Valley Refuge Complex, OR, for this threatened plant species. **Preventing Extinction of *Serianthes nelsonii*** – Seed collection, propagation and planting of this critically endangered large tree endemic to Guam Refuge and Roti Island. **Recovery of the Columbian White-tailed Deer** – Add grass/forb meadow, wooded plots, corridors of mixed deciduous trees and shrubs for the deer; establish additional populations at Willapa Refuge Complex, WA/OR. **Willamette Valley Multi-Species Recovery Project** – Baskett Slough, William L. Finley and Ankeny Refuges and partners worked together to recover the Oregon chub. Work continues to recover the Fender’s blue

butterfly and Bradshaw’s lomatium, an herb. **Preventing Extinction of 27 Hawaiian Plants** – Double the number of these plants on Hakalau Forest and Pacific Islands Refuges and reestablish many.

Southwest Region

Riparian Restoration on the Middle Rio Grande to Benefit Rio Grande Silvery Minnow, Southwestern Willow Flycatcher and Western Yellow-billed Cuckoo – Create additional nursery habitat for the silvery minnow and nesting habitat for migratory birds, remove invasive species and restore floodplain connections at and near Sevilleta Refuge, NM. **Strategic Habitat Conservation in the South Texas Coastal Corridor for the Ocelot and Northern Aplomado Falcon** – Connect isolated parcels of existing, optimal habitat and restore habitat at or near Lower Rio Grande Valley and Laguna Atascosa Refuges. **Conservation of Multiple Endangered Fishes and Other Species** – Restore wetland and upland habitat and wildlife corridors in southeastern Arizona and southwestern New Mexico for the benefit of five fish, one amphibian and one invertebrate. **Red Imported Fire Ant Control** – Target the

invasive red fire ant in Texas to enable more Attwater’s prairie chickens to survive. **Rio Hondo Restoration Project/Bitter Lake Invertebrates and Fishes** – Expand habitat for Noel’s amphipod by re-routing the Rio Hondo river channel and creating a new habitat channel at Bitter Lake Refuge, NM. **Sonoran Pronghorn** – Establish and conserve populations of endangered

Sonoran pronghorn at Kofa and Cabeza Prieta Refuges and elsewhere in Arizona.

Midwest Region

Captive Rearing the Emerald Dragonfly – Produce captive-reared adults to augment the wild population and preserve high genetic diversity. The dragonfly’s Illinois population is near extirpation. **Topeka Shiner Recovery in Southwest Minnesota** – Create or restore off-channel oxbow pods, improve water quality and stabilize the endangered fish’s population in or near Windom Wetland Management District. **Whooping Crane Forced Re-nesting to Prevent Extinction** – To increase whooping crane hatchling and fledgling rates at Necedah Refuge, WI, encourage re-nesting before black flies emerge. **Recovery of the Federally Endangered Iowa Pleistocene Snail** – Conduct surveys to determine the status of existing snail colonies, and to protect colonies at and near Driftless Area Refuge. **Return of Big River Endangered Freshwater Mussels** – Introduce four species of endangered mussels at or near Ohio River Islands Refuge, WV.

Southeast Region

Mountain Sweet Pitcher Plant Recovery Initiative – Increase the size of partially protected sites by acquiring easements of critical habitat at or near Mountain Bogs Refuge, NC/TN. **Preventing Extinction of Bartram’s Scrub-Hairstreak and Florida Leafwing** – Enhance habitat to aid potential reintroduction of the small gray butterfly and create new “stepping stone” habitat patches that include its host plant, Florida leafwing, which grows only in south Florida (Florida Keys Refuge Complex) and some Caribbean islands. **Preventing Extinction of Florida Grasshopper Sparrow** – Increase quality and capacity of habitat within Everglades Headwaters Refuge to support the sparrow. Includes prescribed grazing and burning, and tree removal. **Southwest Puerto Rico**



The Spectacled Eider Assessment is a Cooperative Recovery Initiative project to survey the threatened sea duck’s habitat at and near Yukon Delta National Wildlife Refuge in Alaska. (Laura Whitehouse/USFWS)

Endangered Plant Species – Six federally listed plant species at or near Cabo Rojo and Laguna Cartagena Refuges should benefit from recovery actions such as habitat enhancement with native species, excluding cattle, creating fire breaks and habitat restoration on private lands. **Dusky Gopher Frog Breeding Pond Restoration** – Establish a new population of the endangered frog at Mississippi Sandhill Crane Refuge.

Northeast Region

Puritan Tiger Beetle Habitat in the Connecticut River Watershed – Restore habitat and establish two populations of the threatened beetle, which is found on the banks of the Connecticut River at Silvio O. Conte Refuge, CT/MA/NH/VT, and near Stewart B. McKinney Refuge, CT. **Red-cockaded Woodpecker Reintroduction** – Establish a second viable breeding population in Virginia, at Great Dismal Swamp Refuge and adjacent lands. **Recovery of the Karner Blue Butterfly** – Rear and release captive butterflies in New Hampshire. Includes seeding of nectar plants, herbicide application, prescribed burning and removal of vegetation. New England cottontail and other species should benefit, too. **Endangered Roseate Tern Breeding and Staging Habitat Management and Enhancement** – Improve habitat and control predators at refuges and other sites across New England. **Seabeach Amaranth Restoration on Atlantic Coast National Wildlife Refuges** – In partnership with the Southeast Region, work to prevent extinction of, and then reestablish, this threatened annual plant throughout its natural range from Massachusetts to South Carolina.

Mountain-Prairie Region

Black-footed Ferret Recovery (2014) – Reintroduce ferrets to Rocky Mountain Arsenal Refuge, CO, to create a self-sustaining population. **Black-footed Ferret Recovery (2015)** – UL Bend Refuge, MT, and Arapaho Refuge, CO, will be important to recovering this

species, which is affected by sylvatic plague and the lack of prairie dogs, its main food source. **Lesser Prairie Chicken Conservation and Recovery in Kansas** – Restore and enhance habitat, establish/enhance partnerships with landowners and increase the bird's population at or near Quivira and Kirwin Refuges. **Wetlands, Watershed and Whooping Cranes** – Focus on wetlands with bisected ownership, protect and restore reliable stopover habitat for cranes during spring and fall migrations. **Wyoming Toad Recovery** – Address a fungus in wild toads, improve tadpole survival and expand Saratoga National Fish Hatchery. **Razorback Sucker Recovery** – Improve and expand wetland habitat at Ouray Refuge, UT, to provide nursery habitat. **Wetlands, Watersheds and Whooping Cranes: A Comprehensive Approach to Wetland Habitat Restoration in the Rainwater Basin of Nebraska** – Work with private landowners to fill unused irrigation pits near waterfowl production areas, allowing water to flow naturally into wetlands.

Alaska Region

Spectacled Eider Assessment – Expand annual land-based nest surveys in the Yukon Delta to provide valid, ground-based samples of all spectacled eider habitat within the survey area. **Reintroducing Steller's Eiders to the Yukon Delta** – Release captive-bred juvenile Steller's eiders onto Yukon-Kuskokwim Delta sites to establish a self-sustaining breeding population.

Pacific Southwest Region

Endangered Light-Footed Ridgway's Rail on the Pacific Coast – Implement a sea-level-rise adaptation strategy and improve cordgrass nesting habitat at or near Seal Beach Refuge, CA. **Pahranagat Valley Fishes Cooperative Recovery Proposal** – Increase numbers of native chub in the wild by securing more refugia populations and by improving habitat management of cattle in Nevada. **Improving Population**



Two Cooperative Recovery Initiative projects involving at least three national wildlife refuges in Montana and Colorado are dedicated to the recovery of the endangered black-footed ferret. (Mike Lockhart/USFWS)

Stability for Listed Klamath Suckers – Create locations for backup and augmentation of natural populations of endangered Lost River sucker and shortnose sucker fish at and near Klamath Basin National Wildlife Refuges, OR/CA. **Muddy River Cooperative Recovery Initiative** – At and near Moapa Valley Refuge, NV, restore migration corridors and habitat quality for endangered Moapa dace fish while preventing reinvasion of its habitat by aquatic invasive species. **Establishment and Monitoring of Devils Hole Pupfish and the Devils Hole Algae and Invertebrate Community at the Ash Meadows Fish Conservation Facility** – To reduce the Devils Hole pupfish's extinction risk, establish and manage two refuge populations of the endangered fish at the facility within Ash Meadows Refuge, NV. 🦋

Big Strides for Little Fish

By Ben Ikenson

Champepadan Creek meanders through the rolling grasslands of southwestern Minnesota. Like many other area streams that eventually feed the Missouri River, the creek's once-clean waters have been compromised by corn and soybean agriculture – as evidenced by dramatic population declines of Topeka shiner.

Listed as endangered in 1998, the minnow with brilliant red fins once ranged throughout much of the Upper Midwest. From 2010 to 2013, the fish declined markedly in state surveys, dropping from a presence at 76 percent of sites to 30 percent. Today, its habitat continues to be degraded by stream bank erosion, excessive sedimentation and agriculture-related pollutants.

“Especially in recent years, these fish have really declined,” says Scott Ralston. “They like oxbows that protect them from predators and provide good breeding areas. But most of these oxbows have become filled in with sediment and disconnected from the main channel, so they either don't hold water anymore or the fish can't get in or out of them.”

Ralston is a U.S. Fish and Wildlife Service private lands biologist at Windom Wetland Management District, which manages 75 federal waterfowl production areas, oversees 1,000 refuge acres and conserves 4,000 acres of privately owned wetland and grassland habitat via easements in 12 counties.

Ralston has been working with landowners through the Cooperative Recovery Initiative (CRI) on habitat restoration projects designed first to stabilize the Topeka shiner population from further decline and then rebuild it to pre-listing numbers. The CRI awarded more than \$1 million to Topeka shiner recovery under the auspices of the Partners for Fish and Wildlife Program.

“Unlike many [other CRI projects], which were targeting specific work

on refuge land, we are targeting a landscape[-scale] approach spanning public and private land covering an area of over 900 river miles,” Ralston says.

Restoration on one 160-acre farm exemplifies the work. There, biologists selected three oxbows for renovation. “They'll be dug out down to the same depth as the adjacent stream channel, clearing out nearly five feet of sediment and keeping them full year-round through groundwater connections. Water will be cooler in the summer and warmer in the winter so the ponds don't freeze solid and fish have stable habitat,” Ralston explains.

The Service has developed partnerships with state, county and private landowners, leveraging their time, expertise and funding to share the workload and allow more Topeka shiner-related projects than one entity could do alone. There are 18 major Topeka shiner habitat enhancement projects within the wetland management district. They include more than two dozen oxbow restoration efforts, three dam removals that would reconnect nearly 50 miles of stream habitat, numerous stream bank stabilization efforts, a 150-acre easement

acquisition, and a monitoring program. All are planned within two years and involve numerous partners, including the Service's Twin Cities Ecological Services Office.

“These types of projects are what our Partners Program is all about,” says Windom Wetland Management District manager Todd Luke. “In this part of the country especially, most of the land is privately owned for agricultural production, so it is imperative to work with landowners through partnerships. While many farmers are not motivated by endangered species recovery, they do care about things like stream bank restoration because it preserves their farm land. Other landowners like the idea of improving sport fisheries and attracting waterfowl.

“The fact is,” he continues, “this cooperative effort yields so many benefits, including enhanced habitat for rare state species such as Blanding's turtle, Plains topminnow and Blanchard's cricket frog, as well as flood reduction and water quality improvement.”

Ben Ikenson is a New Mexico-based freelance writer.



Windom Wetland Management District and the Partners for Fish and Wildlife Program are leading Cooperative Recovery Initiative-funded efforts to restore habitat in southwestern Minnesota for the endangered Topeka shiner. (USFWS)

A Dramatic About-Face for Sonoran Pronghorn

By Susan Morse

Endangered species work can be hard on optimists. The best prognosis for many imperiled species is life support – dependence on humans to make it in the wild.

In southwest Arizona, biologists are aiming higher. “I’m encouraged,” says Jim Atkinson, the U.S. Fish and Wildlife Service’s Sonoran pronghorn recovery coordinator based at Cabeza Prieta National Wildlife Refuge. “If we enjoy the success going forward that we have been seeing, I think we might have a chance to consider downlisting.” A chance, in other words, that the fastest land animal in North America, clocked at 60 mph, would be removed from the endangered species list where it’s been since 1967.

That optimism reflects a dramatic about-face for a species almost wiped out in 2002. That year, a severe drought reduced the entire U.S. population of Sonoran pronghorn to 19 adults. Since then, captive breeding and other emergency steps have raised the count of the skittish, goat-size desert animals to about 400. More than 250 of these are in the wild.

The Service can’t claim sole credit. It’s just one player in an effort involving five federal agencies, the Arizona Game and Fish Department and two zoos. But \$253,000 in grants from the Cooperative Recovery Initiative gave the project a “critical shot in the arm,” Atkinson says, helping it establish a second pronghorn population at Kofa National Wildlife Refuge, to the north.

Over the past three years, 61 pronghorn have been moved from Cabeza Prieta Refuge to Kofa Refuge, first by helicopter and later by custom-game trailer. At both refuges, biologists feed and rear pronghorn in pens, fit them with radio collars and release them. Bi-monthly aerial surveys monitor



Individuals from several wildlife agencies release a Sonoran pronghorn at Cabeza Prieta National Wildlife Refuge in Arizona. (John Kulberg)

The Cooperative Recovery Initiative gave the project a “critical shot in the arm.”

pronghorn survival in the desert.

For a high-strung and fragile-looking animal, pronghorn are tough, able to withstand harsh desert conditions. But habitat shrinkage – Sonoran pronghorn occupy less than one-tenth of their historic range – has thrown them a curve.

“They’re a classic range animal,” capable of roaming 1 million acres for food and water, if unhampered, says Atkinson. “But the construction of highways and railroads and fences has taken away their ability to do that.”

To help compensate, project leaders have built more than a dozen wildlife water catchments. For pronghorn, these are lifesavers, since highways block their access to traditional water sources such as the Gila River in Arizona and the Rio Sonoyta in Mexico. The catchments “seem to be getting pronghorn through the rough patch between the end of winter rains in March and the onset of summer rains in July,” says Atkinson.

The “giant cat-and-mouse game,” as he calls it, between smugglers and law officers along the U.S./Mexico border is another stressor. Human traffic and vehicle traffic – trucks, ATVs and helicopters – are constants.

Acknowledging those disturbances, the Department of Homeland Security

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Refuges Vital to Red-Cockaded Woodpecker Recovery

By Justin Jacques

The endangered red-cockaded woodpecker is getting a lot help these days.

The bird is thriving at Carolina Sandhills National Wildlife Refuge in South Carolina – and that refuge, several others and numerous partners are collaborating on a U.S. Fish and Wildlife Service Cooperative Recovery Initiative (CRI) effort at Virginia’s Great Dismal Swamp Refuge.

Carolina Sandhills Refuge, home to the largest concentration of red-cockaded woodpeckers in the Refuge System, has documented steady population growth in the past seven years.

At the time of the European settlement of North America, more than 1.5 million red-cockaded woodpeckers could be found in mature pine tree cavities across the Southeast. Today, wildlife experts estimate that about 1 percent of that number remain in the wild, and only in a shadow of the bird’s former range, which extended from New Jersey to Florida to east Texas.

Wildlife biologists say the key to red-cockaded woodpecker recovery is preserving rare longleaf pine habitat, which has been reduced to less than 3 percent of the estimated 90 million acres at the time of European settlement. Unlike other woodpeckers, this species excavates its nests and roost cavities exclusively in mature *living* pine tree cavities, so habitat management to provide mature trees and open, park-like habitat is essential.

Carolina Sandhills Refuge regularly conducts prescribed burns to restore and maintain the health of its longleaf forests. Effective habitat management provides homes not only for red-cockaded woodpeckers but also for other plants and animals, including 30 federally threatened or endangered species.

Over five weeks last spring, the refuge banded more than 272 young woodpeckers found in 120 nests. After finding two new breeding groups in 2015, the refuge now hosts 147 groups of the endangered bird, each containing two to

six individuals. The birds live in family groups, usually a breeding pair and a “helper,” typically a male offspring of the breeding pair.

“We’ve been monitoring woodpecker numbers every year since 1970, when the species was first considered endangered,” says Carolina Sandhills Refuge manager Allyne Askins. “Because our population is so large, we don’t have to band the woodpeckers, according to the Service’s 2003 red-cockaded woodpecker recovery plan. We do it so we help the species as a whole.”

In recent years, the refuge has provided other conservation agencies with juvenile woodpeckers in hopes of increasing the species’ population beyond the refuge’s 46,000 acres. In 2001, the refuge began a five-year collaboration with The Nature Conservancy’s Piney Grove Preserve to reintroduce the species to Virginia. Last January, biologists at the reserve counted 67 individual woodpeckers in 14 groups, numbers that indicate the population is

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Carolina Sandhills National Wildlife Refuge in South Carolina is home to the largest concentration of red-cockaded woodpeckers in the Refuge System. Carolina Sandhills Refuge, Great Dismal Swamp Refuge in Virginia, several other refuges and partners in the Southeast are collaborating on a Cooperative Recovery Initiative project to benefit the endangered bird. (USFWS)

Enriching Habitat for Roseate Terns in the Northeast

By Bill O'Brian

Roseate terns have a lot going against them, but they have one major effort going for them.

On the downside, habitat for the endangered roseate tern Northeast population has been lost through decades of development and, recently, sea-level rise. And roseate terns are picky about habitat. Furthermore, they depend on common terns to help defend their nests from predators. If that's not enough, roseate terns, which are skittish and prefer not to be disturbed, assemble for pre-migration staging on Massachusetts' Cape Cod precisely when hundreds of thousands of vacationers are there, too.

On the upside, there is the Endangered Roseate Tern Breeding and Staging Habitat Management and Enhancement project funded by the U.S. Fish and Wildlife Service's Cooperative Recovery Initiative (CRI).

The project is dedicated to enriching roseate tern breeding and staging habitat. It is doing so on a landscape scale involving national wildlife refuges, three major non-Service-owned sites, the Service's New England Field Office and state and nonprofit partners.

The roseate tern Northeast population "uses a network of islands scattered across the landscape" from Nova Scotia and Quebec through New England to Long Island, NY, says Stephanie Koch, supervisory wildlife biologist at Eastern Massachusetts National Wildlife Refuge Complex. "Work done in isolation at a site here and there would not be effective at all. The CRI has helped the partners and land managers come together with a common objective and increased our effectiveness through shared learning and shared resources."

Roseate terns, whose chests turn rosy-pink during breeding season, are 15 inches long. From May to July, they nest on small barrier islands from Canada to Long Island. Mid-July and



From May to July, endangered roseate terns nest on barrier islands from Canada to Long Island. The goal of a landscape-scale project funded by the Cooperative Recovery Initiative is to help the species recover. A video about the project is at <http://bcove.me/r1lucs9x> (Amanda Boyd/USFWS)

“The CRI has helped the partners and land managers come together with a common objective and increased our effectiveness.”

all of August is their staging period. In mid-September, they migrate to the Caribbean and northern South America before returning to the Northeast the following spring.

Roseate terns nest in common tern colonies and rely on common terns for defense. “But they are much more selective in their habitat choices within the nesting colonies,” says Koch. “Ideal roseate tern habitat can vary quite a bit, though, depending on the site. In general, roseate terns prefer to nest

in habitat with a good amount of cover, more cover than common terns. They’ll nest in beach grass, goldenrod and other coastal vegetation. They’ll also nest in artificial nesting structures.” Three primary nesting sites are Great Gull Island, NY, and Ram and Bird Islands in Buzzards Bay, MA. At least five refuges host nesting or staging terns: Rachel Carson, ME; Monomoy and Nantucket, MA; Trustum Pond, RI; and Stewart B. McKinney, CT. The project helps land managers to improve habitat via invasive species control, prescribed burns, predator control, terrace building and other techniques and to protect staging birds via public outreach.

August staging is “a really fascinating phenomenon because the entire endangered Northeastern population of roseate terns comes south or north, depending on where they nested, and converge on beaches on Cape Cod and the islands,” says Koch. The period is

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About-Face for Sonoran Pronghorn — *continued from page 11*



Sonoran pronghorn, which have been clocked at 60 mph, are considered the fastest land animal in North America. Cooperative Recovery Initiative funding has been vital to efforts at Cabeza Prieta and Kofa National Wildlife Refuges to help the endangered species survive. (Renee Cloutier)

contributed \$2 million in mitigation funds for Sonoran pronghorn recovery. The funds go through this fiscal year. “Our hope,” says Atkinson, “is to get remaining infrastructure put in before the funding runs out. And I think we will be there.”

Success won’t be declared until biologists can keep pronghorn counts at or above target levels (225 at Cabeza Prieta, 150 at Kofa) for five out of seven years at three out of four pronghorn recovery sites. The other two sites are in Mexico.

Hopes are high, despite initial setbacks. At Kofa Refuge, most first-year releases perished. But second-year releases did better, including at least eight fawns born in the wild. “I can’t believe how well things have been going,” says Kofa Refuge biologist Christa Weise. “We have over 50 animals out there now,” she says, though rain was scarce in 2014-15. “We held our ground even in a year with sub-par conditions.”

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

Red-Cockaded Woodpecker Recovery — *continued from page 12*

self-sustaining. But that is Virginia’s only breeding population.

The CRI has funded a project to establish a second viable red-cockaded woodpecker breeding population in Virginia, at Great Dismal Swamp Refuge. The refuge and adjacent lands in Virginia and North Carolina are part of the Northern Essential Support Zone for this species. The project team installed artificial cavities in established cluster sites. Three pairs of juvenile red-cockaded woodpeckers from Carolina Sandhills Refuge and one from another site were transported to Great Dismal Swamp Refuge. In late October 2015, the four pairs were released from their new cavity trees at sunrise and are living in pond pine pocosin habitat. Red-cockaded woodpeckers had not been seen in at Great Dismal Swamp since the 1970s. Their nests are being monitored to gauge success.

“What we do is very rewarding work,” says Askins. “The birds respond to our habitat management efforts by forming new groups, and that shows the population is moving in the right direction. Every new group is a success on the long path to recovery.”

Justin Jacques is a senior at George Washington University in Washington, DC.

Roseate Terns in the Northeast — *continued from page 13*

critical. Fledgling chicks are able to fly on their own but still are being fed by adults. Human disturbance can separate chicks from adults, stress terns and sap their energy before the long migration.

The project seeks to understand staging and encourage public and private

landowners and conservation partners to reduce disturbance by limiting human access to sites and educating the public.

In the 1930s, the roseate tern Northeast population was about 8,500 pairs; now it’s about 3,000 pairs. “We can do better

than that for this species, and it has to be done here – this is where the birds nest,” says Koch. “On a personal level, I want my children to have the same privilege I have of hearing the roseate terns’ beautiful call and observing their acrobatic flights.”

Breathing Life Into Wyoming Toad Recovery Efforts

By Ryan Moehring

Scott Talbott, director of the Wyoming Game and Fish Department, grew up in the Laramie Plains in the southeastern part of the state. When he was a child in the 1960s his mother would make him take his boots off before coming in the house at night. When he left for school the next morning, he remembers having to dump Wyoming toads out of his boots before putting them on.

“They were everywhere,” he says.

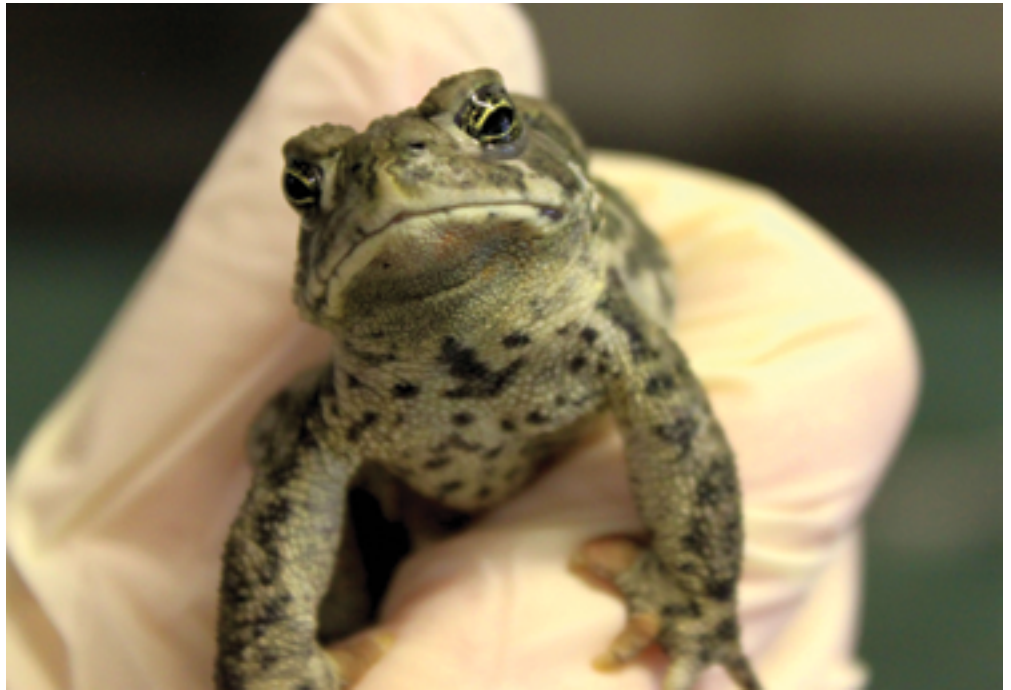
Being glacial relicts, Wyoming toads and their ancestors had been everywhere in the Laramie River Basin for millennia.

That changed suddenly in the 1970s. The Wyoming toad population crashed. Only 10 individuals were known to exist in the wild. Insecticides, disease, climatic changes, increased predation and habitat degradation all have been theorized as the culprit, but no single cause has been identified. In 1984, the toad was listed as an endangered species. In 2011, more than 20 years after Mortenson Lake National Wildlife Refuge was established to support the toad and despite two decades of reintroducing captive-bred toads and tadpoles into the wild, a refuge survey found only one wild toad.

Since then, there has been a remarkable turnaround. Surveys in 2015 counted a whopping 1,286 Wyoming toads in the wild at or near the 1,776-acre Mortenson Lake Refuge.

“We have eliminated the immediate risk of extinction. Now we have a vibrant captive population, and we’re trying to turn that into a vibrant wild population,” Doug Keinath, a senior zoologist with the Wyoming Natural Diversity Database, says in a recent *National Geographic* video.

“The Wyoming toad is found only in the Laramie Plains of Wyoming. It’s found nowhere else in the world,” Mortenson Lake Refuge acting manager Michael



Mortenson Lake National Wildlife Refuge was established to support the endangered Wyoming toad. The Cooperative Recovery Initiative has helped Saratoga National Fish Hatchery, also in Wyoming, increase the number of toads it breeds in captivity for eventual release into the wild. (Ryan Moehring/USFWS)

Dixon says in the same video. “It has the maybe unfortunate distinction of being one of the most endangered amphibians in North America.”


Recent years have breathed new life into the Wyoming toad recovery program.

The U.S. Fish and Wildlife Service Wyoming Ecological Services office, eight zoos, the University of Wyoming, the Partners for Fish and Wildlife Program and private landowners are working on the complex task of captive-breeding toads and reintroducing them into the wild.

An \$800,000 Cooperative Recovery Initiative grant helped refocus efforts on the primary obstacles to recovery. The grant supported invasive vegetation management techniques, treatment of the lethal fungal disease chytridiomycosis and new radio telemetry monitoring protocols. Construction of outdoor enclosures that allow for “soft releases” also took place, letting tadpoles and toads safely mature in natural environments

before full release. Finally, a significant expansion of Saratoga National Fish Hatchery is enabling that Wyoming facility to increase the number of toads it breeds.

“There is a lot of effort we’re putting into keeping this toad on the landscape because it declined so far so fast right before our eyes,” Dixon says in the video.

Now, for the first time in decades, the idea of recovery seems possible. A revised recovery plan, released last summer, calls for a minimum of five self-sustaining populations that persist for at least seven years before the species can be delisted. Given the refuge habitat, safe harbor agreements with private landowners and the possibility of a Wyoming toad conservation area on the horizon, the program might have the reintroduction sites needed to establish those populations. 

Ryan Moehring is a public affairs specialist at the Mountain-Prairie Region office in Lakewood, CO.

Around the Refuge System

Texas

The 2014-2015 winter survey estimated that 308 whooping cranes wintered at and near Aransas National Wildlife Refuge. A continued upward trend in whooping crane numbers in recent years has been observed, and that portends well for cranes at the refuge this winter, 2015-16. "We have a growing population and excellent habitat conditions this year on the wintering grounds," says national whooping crane recovery coordinator Wade Harrell. "Thus, we're hoping for a larger population." This population is the only remaining wild flock of endangered whooping cranes. The birds nest at Wood Buffalo National Park in northern Canada and migrate 2,500 miles to winter on the Texas coast at and near Aransas Refuge. All whooping cranes alive today, both wild and captive, are descendants of the last 15 remaining cranes found wintering at Aransas Refuge in 1941.

Colorado

U.S. Fish and Wildlife Service Director Dan Ashe helped release 30 black-footed ferrets at Rocky Mountain Arsenal National Wildlife Refuge near Denver last fall. Several private landowners in Colorado already have black-footed ferrets on their land. The black-footed ferret is considered one of the nation's most endangered mammals. Its historic range spans much of western North America's intermountain and prairie grasslands, extending from Canada to Mexico. Once thought to be extinct, black-footed ferrets were rediscovered in 1981 in northwest Wyoming. These last remaining 18 ferrets became the genesis of the captive breeding program that has given hope the species could be saved from extinction and recovered in the wild. Video: <http://bit.ly/1PXyLAR>

Louisiana

A new Nature Discovery Outdoor Play Area, designed for children 4 to 10, opened last fall at Red River National Wildlife Refuge near Shreveport. The area allows children to scamper like squirrels over a natural, crooked balance beam and hop along a circle of tree stumps. On a small stage, children can



Whooping cranes touch down at Aransas National Wildlife Refuge. A survey estimated that 308 whooping cranes spent last winter at and near the refuge along the Gulf Coast of Texas. (Diane Nunley)

dance while shaking rain sticks. They can put on fabric wings to fly around as a monarch butterfly or a bald eagle. They can use natural tree blocks to build homes for tiny toy animals. The refuge uses the play area for summer camps and programs with preschool, homeschool and elementary school students. When the area is not being used by a scheduled group, it is open to the public during the day. "With our nature play area, we are providing a safe place for children to discover nature while encouraging them to use their imagination and creativity in unstructured, free play," says refuge ranger Terri Jacobson.

Puerto Rico

Results from a site visit to Desecheo National Wildlife Refuge confirm that the Desecheo population of the endemic and endangered cactus known as higo chumbo is recovering after the removal of invasive vertebrates. Biologists reported that there are several mature cacti with

abundant fruit and no signs of predation. The Service, Caribbean Islands National Wildlife Refuge Complex and nonprofit Island Conservation have been partnering since 2008 to remove invasive species from Desecheo Island. In 2003, only nine individual higo chumbo plants were known to exist on the island. Today, after conservation actions including invasive species removal and monitoring efforts, surveys have located 72 individual plants. Desecheo is a small, uninhabited island approximately 13 miles west of Puerto Rico. Higo chumbo is a slender, upright, columnar cactus. When it was listed as endangered in 1990, the species was known to occur only on Desecheo and two nearby islands.

Hawaii

Ten endangered Hawaiian petrel chicks were moved from their off-refuge nesting area last fall to a new colony behind a predator-proof fence at Kilauea Point National Wildlife Refuge. Hawaiian

petrels, or 'ua'u in Hawaiian, are endemic to Hawaii and are found only there. They have declined dramatically because of many threats, including predation by introduced mammals (cats, rats, pigs) and collisions with man-made structures during the petrels' nocturnal flights from breeding colonies in the mountains to the ocean, where they feed. Hawaiian petrel chicks imprint on their birth colony the first time they emerge from their burrows and see the night sky, and they return to breed at the same colony as adults. Because these chicks were removed from their natural burrows before this imprinting stage, they will imprint on the Kilauea Point Refuge site and return there as adults.

Washington

Ridgefield National Wildlife Refuge became considerably more accessible to visitors last fall. A 30-year-old, wood-framed, structurally deficient footbridge over high-speed passenger and freight railroad tracks that separated part of the refuge from its parking lot and the town of Ridgefield was replaced with a new concrete bridge. The new pedestrian bridge – which cost about \$2.1 million – provides visitors with easy access to the refuge's Cary Unit. That unit includes the two-mile Oaks to Wetlands Trail and the Cathlapotle Plankhouse, a full-scale Chinookan-style cedar structure similar to Native American dwellings Lewis and Clark described when they visited the area more than 200 years ago. The new bridge, which was funded mostly by the Federal Lands Transportation Program with help from the Paul Sarbanes Transit in Parks Program, complies with Outdoor Developed Area Accessibility Guidelines of the Architectural Barriers Act, which the previous bridge did not. Ridgefield Refuge is part of the Portland-Vancouver Urban Wildlife Conservation Program.

Texas

Conservation and animal health research both have benefited from a feral hog study at Laguna Atascosa National Wildlife Refuge. Non-native, invasive feral hogs harm the south Texas coastal refuge because they compete with




This Hawaiian petrel chick and nine others were moved from an off-refuge colony to a new colony behind a predator-proof fence at Kilauea Point National Wildlife Refuge. (Andre Raine/Kauai Endangered Seabird Recovery Project)

native wildlife for resources and destroy wetlands, roads and levees. In addition, the refuge, which is home to white-tailed deer and exotic nilgai antelope, is under a cattle tick fever eradication program quarantine. So when University of Georgia veterinary researcher Joseph Corn proposed surveying feral hogs for ticks, the refuge readily agreed. Corn and Department of Agriculture Animal and Plant Health Inspection Service (APHIS) staff removed 173 feral hogs from the refuge last September. APHIS also tested the hogs for other diseases, including avian influenza. Final results have not been announced, but, preliminarily, the refuge learned that none of 81 sampled hogs tested positive for cattle fever ticks. “This study was important to the refuge because we got a large number of hogs managed at little to no cost, we could find out if feral hogs at the refuge are carrying cattle fever ticks and because we understand that our

feral hog management actions through public hunting are not enough to manage or reduce the feral hog population,” said Laguna Atascosa Refuge wildlife biologist Jonathan Moczygamba.

Illinois

Seventy-six hunters with disabilities from 14 states participated in a special deer hunt in November 2015 at Lost Mound Unit of Upper Mississippi River National Wildlife & Fish Refuge. Quadriplegics, paraplegics, amputees and other physically challenged hunters harvested 13 does and 11 bucks. The largest buck, an 11-pointer with a field-dressed weight of 174 pounds, was taken by Tim Anderson of Savanna, IL. Hunters were required to use non-lead ammunition for the hunt. The non-lead regulation went into effect in 2014 after research showed that bald eagles were being exposed to lead at Lost Mound. 

Two Refuges Act to Reduce Bird Collisions — *continued from page 1*

three window treatments in its visitor center to reduce bird strikes and provide an educational opportunity. It started in 2008 when Audubon Pennsylvania, the Philadelphia Zoo and the Academy of Natural Sciences of Drexel University surveyed center city Philadelphia and estimated 1,000 collisions each year in one city block. The Urban Bird Treaty (<http://1.usa.gov/1LRB1r1>) provided some funding for the work.

Heinz Refuge then worked with Audubon Pennsylvania to select a range of window treatments. “We wanted easy things that folks could do at home but also higher-cost items for people building new homes,” says deputy refuge manager Mariana Bergerson.

The deluxe window treatment – used on one panel at the refuge’s visitor center – is OrniliX Mikado glass with a pattern inspired by the orb web weaver spider, whose web reflects ultraviolet light so birds won’t destroy the web. That glass was donated by Roeder Windows & Doors and Arnold Glas. The Friends of Heinz Refuge paid for installation.

A second panel has a thin film donated by CollidEscape. From inside, visitors see out normally, but from outside, birds see a wall of white.

The third panel offers a homemade solution: nylon parachute cord hung from the top of the window at 4½-inch intervals. The cords’ movements break up the reflection for the birds.

Inside the visitor center, interpretive panels purchased by the Friends group will explain the bird-collision problem



John Heinz National Wildlife Refuge at Tinicum in Philadelphia has taken measures to reduce the number of birds that collide with the glass at its visitor center. More about how to minimize collisions is at <http://1.usa.gov/1SLRf1M> (Mariana Bergerson/USFWS)

and various solutions. The information is shared with school groups and architecture students.

J.N. “Ding” Darling Refuge in Florida also is using the film produced by CollidEscape, after testing it for a year in a small area. Supervisory park ranger Toni Westland says the film reduces the aggressiveness of birds that see their reflection in windows. The film covers all the office windows, the visitor center door and the entrance to the “Ding” Darling Wildlife Society (Friends) office – all decorated with specially designed graphics.

The Service’s National Conservation Training Center in West Virginia also reports that CollidEscape film has greatly reduced bird hits on office windows.

“Refuges and Friends groups have a great opportunity to help educate visitors about bird-glass collisions,” says Alicia King, formerly with the Service’s Migratory Bird Program. “Simple solutions can help save bird lives. These

solutions can be used at schools, at offices and at individual homes.”

Among solutions are:

- Check regularly for dead birds to identify windows that are causing problems.
- Place feeders within five feet of screened windows.
- Move indoor plants away from clear glass windows.
- Break up window glass with patterns applied on the outside of the glass.
- Turn off lights in windowed offices at night.
- Avoid exterior vanity and spot lighting, especially during bird breeding and migration periods.
- Use white or light-colored blinds, kept partially open during the day and completely closed at night. 🦋

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

Chief’s Corner — *continued from page 2*

list. The Oregon chub is found only in the Willamette River Basin. Just eight populations and fewer than 1,000 fish were known to exist when it was listed as endangered in 1993. While the minnow’s recovery was thanks to the work of many dedicated Service partners, the CRI

invigorated the recovery program and led to the chub’s delisting years earlier than might otherwise have happened.

Collaboration is the key to so much conservation success. It is the centerpiece of the Cooperative Recovery

Initiative. Working across program lines and with partners, the Service can recover species listed as threatened and endangered and create a conservation legacy for the next generation. 🦋



We're Going Online ... Please Come Along With Us!

In a move to save money and trees, the U.S. Fish and Wildlife Service will discontinue *Refuge Update* as a printed newsletter. The May/June 2016 issue will be the final printed edition.

Beginning in July, comprehensive stories or multimedia presentations will be posted on the National Wildlife Refuge System homepage (<http://www.fws.gov/refuges>). Each story will be heavily promoted on social media.

In addition, we plan to compile selected presentations into an electronic newsletter that will be distributed via e-mail.

Here's How to Sign Up

To receive the electronic newsletter, *please send your e-mail address to RefugeUpdate@fws.gov as soon as possible.* Thank you!

Delmarva Fox Squirrel Is No Longer Endangered — *continued from page 1*


of Maryland, Delaware and Virginia before experiencing a sharp decline in the mid-20th century because of forest clearing for agriculture and development, short-rotation timber harvest and over-hunting. With its range reduced more than 90 percent, the squirrel was one of 78 species listed under the Endangered Species Preservation Act in 1967, predecessor of the Endangered Species Act enacted six years later.

Prime Hook Refuge in Delaware, Blackwater Refuge in Maryland and Chincoteague Refuge in Virginia played roles in the squirrel's recovery, as did state departments of natural resources and private landowners.

"We are proud to be a major partner in the recovery of the Delmarva fox squirrel after 40 years of conservation efforts," Maryland Department of Natural Resources Secretary Mark Belton said. "This success story would not have happened without the cooperation of federal and state agencies and conservation groups, as well as the private property owners of Maryland and Delaware who provided habitat for the endangered species on their own land."

With more than 80 percent of the squirrel's home on private land, the squirrel has thrived on the rural, working landscapes of the peninsula where

mature forests mix with agricultural fields. Since listing, the squirrel's range has increased from four counties to 10. A population of up to 20,000 squirrels now covers 28 percent of the Delmarva Peninsula, primarily in Maryland.

Efforts contributing to recovery include translocation of animals to establish new populations, closing of the targeted hunting season, growth and dispersal of the population, and protection of large forested areas for habitat. 



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A Look Back ... Historic Sod House Ranch



Malheur National Wildlife Refuge is known for its wetlands in the high desert of southeast Oregon. The Long Barn at the refuge's 1880s-era Sod House Ranch celebrates the state's ranching heritage. The U.S. Fish and Wildlife Service and its partners have restored nine buildings on the 140,000-acre cattle ranch, which was managed by cattle baron Peter French and is open to visitors from Aug. 15 to Oct. 15. (USFWS photos)

Follow the National Wildlife Refuge System on Facebook at www.facebook.com/usfwsrefuges and Twitter @USFWSRefuges.

Send Us Your Comments

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