



# RefugeUpdate

National Wildlife Refuge System

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*INSIDE: Forty years after enactment of the Marine Mammal Protection Act of 1972, Farallon National Wildlife Refuge off the California coast is playing a role in the recovery of northern fur seals, including this pup. Story on page 5. (Adam Brown/PRBO Conservation Science)*

## CLIR Tool Calculates Refuge Greenhouse Gas Emissions

By Bill O'Brian

**W**hen federal land managers assess greenhouse gas emissions on national wildlife refuges, national parks and other government-owned terrain, they generally don't factor in visitor transportation.

Managers routinely include facility energy emissions and employee vehicle emissions. But not visitor transportation emissions. Until now.

The National Wildlife Refuge System, with the Federal Highway Administration and the U.S. Fish and Wildlife Service's Division of Engineering, has initiated a greenhouse gas mitigation project called Climate Friendly Refuges. The project recognizes that visitor transportation is a major contributor of federal lands' greenhouse gas emissions.

A centerpiece of the project is the Climate Leadership in Refuges (CLIR) calculation tool, which can determine overall greenhouse gas emissions at individual refuges and fish hatcheries. It was piloted on four refuges last year and will be rolled out gradually in the eight Service regions, according to Service national transportation program coordinator Steve Suder.

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## Conserving the Future Teams Analyze Survey Results

**T**aking the pulse of the Refuge System, several *Conserving the Future* implementation teams distributed and analyzed survey results, while others met to move strategies and documents to the draft stage for the public to see this fall

The Community Partnerships implementation team, the first one to survey Refuge System employees, found that 99 percent of responding refuges used volunteers; 57 percent had at least one community partnership; and 89 percent thought a Friends organization was either critical or could be helpful in achieving refuge goals and objectives.

Among other findings from the Community Partnerships survey:

- 61 percent of respondents rated individual and group volunteers as

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## From the Director Dollars for Ducks

America's Duck Factory is in trouble.

Fortunately, the U.S. Fish and Wildlife Service and its partners are addressing the problem.



Dan Ashe

A combination of economics and technology is threatening the Prairie Pothole Region, the vast swath of the northern Plains that is home to dozens of national wildlife refuges and

is the nation's prime duck habitat.

The Prairie Pothole Region, which extends from central Iowa northwest through Minnesota, North Dakota, South Dakota and Montana into Canada, produces 50 percent of the continent's waterfowl in an average year and up to 70 percent when water and grass are particularly abundant.

However, with the price for food and other agricultural products rising and

technology making the conversion of land to agricultural use easier than ever, farmers there are rapidly plowing under grasslands to plant crops. The trend is expected to continue as human population grows and the use of ethanol as fuel increases. Because the price of corn is high, the Department of Agriculture estimates that farmers will plant more of it by acreage in 2012 than at any point since 1937.

This loss of land—combined with the effects of climate change in recent years—has devastated grassland birds. They are among the fastest-declining species. With only about two percent of the nation's once-vast tallgrass prairie remaining today, acquiring and protecting what's left is vitally important.

That is why I am so happy that the Migratory Bird Conservation Fund is moving conservation dollars to the Prairie Pothole Region.

This increased allocation means that the Service will be able to use about \$30

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## Chief's Corner

### We've Always Embraced "Surrogates"

Across the Refuge System and the U.S. Fish and Wildlife Service, people are talking about the Service Director's July 23 message concerning strategic habitat



Jim Kurth

conservation and the technical guidance that outlines a process for defining biological outcomes by using a "surrogate species" approach. I hope everyone will read the draft technical

guidance—available at [www.fws.gov/landscape-conservation](http://www.fws.gov/landscape-conservation).

First, let's define "surrogate species." It's those that are used to represent other species or aspects of the environment. Surrogate species are used for conservation planning that supports multiple species and habitats within a defined landscape or geographic area.

In fact, the Refuge System always has embraced the surrogate species concept. When Florida's Pelican Island was set aside as the first national wildlife refuge in 1903, the brown pelican served as a surrogate for the benefit of myriad waterbirds that nest there: egrets, herons, ibis and wood storks. The

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## Refuge Update

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## Inside

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### Festival of the Cranes Turns 25

*This fall, for the 25th year, Bosque del Apache Refuge is celebrating the splendor of the Rocky Mountain sandhill crane. Page 7*

### FOCUS: Strengthening Science

*Four of the 24 Conserving the Future recommendations specifically direct the development of science; many other recommendations assume a science underpinning. Pages 8-15*

### Correction

A caption accompanying a July/August article about the butterfly garden at Pelican Island National Wildlife Refuge, FL, identified a butterfly as a painted lady. It was an American painted lady.



# Uncovering History at Becharof Refuge

By Julia Pinnix

Most trails on Alaska's remote refuges are made by wildlife. The Kanatak Trail on Becharof National Wildlife Refuge is an exception. It has been used for centuries by people travelling between the Pacific Ocean and the Bering Sea, but it was fading away because of disuse.

Now, thanks to restoration work done last year with funding from the Alaska Division of Parks and Recreation Recreational Trails Program and support from the Student Conservation Association (SCA), part of the historic trail is available for visitors in search of a special experience.

The Becharof Refuge's designated wilderness area is visible from the Kanatak Trail. So is volcanic Mount Peulik. At Kanatak Pass, Summit Lake reflects the rugged peaks of the coastal range, and the sweeping ocean views are magnificent. Although the pass is just 1,013 feet, small elevation increases change conditions rapidly in this northerly land. Diverse wildflowers, blooming from lush beach meadows to wind-beaten alpine tundra, are the result.

Some of Alaska's largest brown bears live on the refuge. Their sign is clear along the trail, which recently received a National Recreation Trail designation. Fox, wolf, moose and caribou are often seen. Bird life is diverse. Two kinds of ptarmigan divide the high and low country; the songs of passerines echo from the rocky cliffs. In the lakes and rivers are grayling, Dolly Varden char and salmon. In the ocean, seabirds and marine mammals cruise the shoreline.

Beyond the vistas, flora and fauna lies history.

Archaeologists document trail inhabitants at least 1,900 years ago. Russian and American travelers in the 1700s reported trail settlements at Kanatak and elsewhere. The village of Kanatak, on the Pacific side of the Alaska Peninsula, became a boomtown when oil exploration arrived in the early 1900s.

Part of the trail became a road for wagons and tractors hauling supplies. But by the 1950s, Kanatak was a ghost town.

The refuge was lucky to have Paul Boskoffsky. Now in his 70s, he hiked part of the trail with archaeologist Tom Prang and refuge staff/volunteers to flag the restoration route.

Boskoffsky grew up hiking the trail, following the annual round of traditional subsistence life. In spring, residents took the trail from Kanatak to Becharof Lake to gather gull eggs and reconnect with relatives and friends. They often continued on to Egegik on Bristol Bay, a Bering Sea inlet, for work at the salmon cannery. In late summer, they returned to the lake to catch and preserve salmon for winter. Packing supplies on horses, dogs and their own backs, they went back to Kanatak, where firewood was plentiful



Archaeologist Tom Prang pauses on the Kanatak Trail next to Summit Lake on Becharof National Wildlife Refuge, Alaska. (Julia Pinnix/USFWS)

## National Recreation Trails

The Kanatak Trail is one of seven trails on national wildlife refuges to be designated this year as a National Recreation Trail. The others: Beaver Creek Water Trail at Yukon Flats National Wildlife Refuge in Alaska; Tallgrass Trail at Neal Smith National Wildlife Refuge in Iowa; and, at Upper Mississippi River Wildlife and Fish Refuge in Minnesota, Finger Lakes Canoe Trail, Halfmoon Lake Canoe Trail, Verchota Canoe Trail and Nelson-Trevino Canoe Trail (partially in Wisconsin). More about refuge trails is at <http://www.fws.gov/refuges/trails/index.cfm>.

for the cold months. Boskoffsky's family was the last to leave Kanatak in 1954.

The SCA assembled a crew of six high school students and two crew leaders to tackle the daunting task of clearing vigorously growing brush from the five miles between Kanatak and Becharof Lake. The SCA crew used hand tools to remove brush, taking care not to disturb any cultural features. With SCA and refuge assistance, Prang mapped the trail, recording road sections, spur trails, cultural sites and other components.

The refuge's remoteness complicated the work. Access was only by floatplane. Wet, windy weather made travel challenging. Most of the crew had never been so cut off from civilization before. Daily radio or satellite phone contact was the tether to the outside world. Field camp was a solar-powered electric fence enclosure on a tundra-covered field, with a WeatherPort shelter serving as kitchen and living area.

When asked what it was like being out of cell phone and Internet range, one student said it was a relief: "I don't have to constantly respond to someone." 🦋

*Julia Pinnix is a visitor services manager at Alaska Peninsula/Becharof National Wildlife Refuge.*

# At Crystal River Refuge, Manatee Protection Is Working

*On Oct. 21, 1972, Congress enacted the Marine Mammal Protection Act. It established a federal responsibility to conserve marine mammals, with the Department of the Interior responsible for sea otters, walruses, polar bears, dugongs and manatees and the Department of Commerce responsible for cetaceans and non-walrus pinnipeds. The U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration cooperate to recover species; the Service protects all marine mammals within refuge boundaries. The articles on this page and opposite look at the roles Crystal River and Farallon National Wildlife Refuges play in marine mammal conservation.*

By Heather Dewar

**I**magine a national wildlife refuge where several hundred endangered animals seek winter warmth in a two-acre space—and 150,000 people per year join them.

That's the situation at Crystal River National Wildlife Refuge, a haven for endangered manatees amid suburban development on Florida's Gulf Coast. The refuge, home to the world's largest natural winter concentration of manatees, is the only place in the United States where tourists literally immerse themselves in the habitat of wild, endangered marine mammals.

"That's unparalleled," says Dawn Jennings, deputy field supervisor for the Service's North Florida Ecological Services Office in Jacksonville. "People who go there and see manatees in their natural setting are conservation advocates for life."

When the Marine Mammal Protection Act (MMPA) took effect in 1972, the Florida manatee population was 800 to 1,200. In 1983, the Service established Crystal River Refuge to conserve some of the 70 warm springs in Kings Bay, a residential area where manatees gather in winter for protection from potentially lethal cold water. The Service also manages seven manatee sanctuaries,

mostly outside refuge boundaries, where humans are barred from waterborne activities Nov. 15 to March 31.

Federal and state protections are working. A 2010 winter survey counted 5,000 manatees in Florida waters, including 567 at Crystal River Refuge. The rising population is a sign that "we are headed in the right direction," says refuge manager Michael Lusk.

Kings Bay supports a thriving ecotourism industry, with 36 tour operators bringing swimmers to manatee areas. In 2010, outfitters reported 93,700 visitors, 90 percent of whom got into the water with manatees, says Ivan Vicente, the refuge's visitor services specialist. That's a boon for the economy, but a challenge for managers, who must protect the gentle mammals from harassment.

"It's a place where we manage people more than we manage wildlife," says deputy refuge manager Boyd Blihovde.

The terms of some refuge land purchases forbid excluding people, who aren't always respectful. After activists posted YouTube videos of swimmers poking, encircling and riding manatees, a federal advisory commission set up under the MMPA recommended strict limits for boating and swimming with manatees in Kings Bay. The North Florida Ecological Services Office, which is responsible for manatee recovery, followed up with a rule that took effect last March.



*Forty years after enactment of the Marine Mammal Protection Act, manatee recovery at and near Crystal River National Wildlife Refuge in Florida seems "headed in the right direction," says refuge manager Michael Lusk. (Carol Grant)*

The rule, which is less stringent than recommended by the commission, makes Kings Bay a slow boat speed zone, except for one area where speeds of 25 mph are allowed June 1 through Aug. 15. The rule enables the Service to create temporary no-entry areas for swimmers and boaters. It also defines—and forbids—manatee harassment.

Tour operators must show customers a "Manatee Manners" video. Refuge volunteers in kayaks watch swimmers, and boat captains are supervising their guests more closely, Vicente says.

Because of the MMPA, these measures will stand even if manatees are eventually de-listed as endangered species. The manatees' special legal status has symbolic importance, too, Lusk says. "It recognizes that these animals have intrinsic value whether or not they are endangered." 🦋

*Heather Dewar is a writer-editor in the Refuge System Branch of Communications.*



# At Farallon Refuge, Fur Seals Are a Success Story

By Heather Dewar

**I**t took commercial hunters less than 40 years to wipe out the valuable seal species on California's Farallon Islands. In 1807, a sea captain spotted huge colonies of fur seals and elephant seals on the granite outcrops 27 miles off San Francisco's Golden Gate. By 1840, the colonies were gone—the elephant seals hunted to extirpation for their blubber, the fur seals for their coats.

Forty years after the Marine Mammal Protection Act of 1972 (MMPA) and 38 years after most of the islands' wilderness designation, northern fur seals and elephant seals are breeding again on Farallon National Wildlife Refuge. The islands, in one of the world's richest marine upwelling zones, provide important breeding and haul-out habitat for five pinniped species. Twenty-three species of whales, dolphins, sea otters and other marine mammals also swim in the waters.

Globally, marine mammals still face grave threats, from polluted seas, ship strikes and ghost fishing nets to cascading changes in marine ecosystems. But there is good news from refuges, including Farallon.

In 1972, researchers observed the first elephant seal pup born on the Farallon Islands in about 100 years. In 1996, northern fur seals returned to give birth for the first time since the era of wanton commercial hunting. Their population has grown steadily to more than 500 animals. At least 180 northern fur seal pups were born on the islands in 2011.

The northern fur seals' rebound "is really a tremendous success story," says Russell Bradley, Farallon program manager for PRBO Conservation Science, an independent research organization that administers the refuge with the Service. "This national wildlife refuge has expanded the range of this species in the Lower 48 states ... That's pretty significant."

Northern fur seals were once "the most abundant pinnipeds on the islands," says Farallon Refuge manager Gerry



*For 150 years, northern fur seals were gone from Farallon National Wildlife Refuge and environs. "Now, they're back and they're continuing to expand," says refuge manager Gerry McChesney. (Jim Tietz/PRBO Conservation Science)*

McChesney. "For 150 years, they were gone. Now, they're back and they're continuing to expand."

McChesney and Bradley credit synergy between the MMPA, which outlawed killing, selling, capturing or harassing marine mammals in the United States, and land and sea protections put in place at about the same time.

They cite the 1965 closure of a U.S. Navy radio station; expansion of Farallon Refuge in 1969 and 1974, with two-thirds of the island chain designated as wilderness; and the 1981 creation of the Gulf of Farallones National Marine Sanctuary, managed by the National Oceanic and Atmospheric Administration (NOAA). Together, these changes gave managers tools to significantly reduce human disturbance of the islands' wildlife.

Today, the islands' only human inhabitants are a few biologists and refuge staff. Visitors can explore the islands by boat, at speeds of 5 mph and from a football-field distance most of the year. To prevent stampedes, overflights lower than 2,000 feet are forbidden.

Before the MMPA, rowdy boaters harassed and occasionally shot at the islands' pinnipeds, but public attitudes have changed and such incidents are rare.

The trends are not all positive. Since the 1980s, El Niño storms have eroded the sandy beaches where elephant seals breed and haul out. In 2011, only 96 elephant seal pups were born on the refuge, the fewest since 1976.

Threatened Steller sea lions are declining throughout the central California portion of their range, victims of contaminants, disease and changes in ocean currents. Very few pups are born on the Farallon Islands.

But observers occasionally see the rarest native pinniped, the Guadalupe fur seal. Hunted almost to extinction, that species now breeds only off Baja California, but its numbers are slowly growing and managers hope it may one day recolonize the Farallones. 🦋

*Heather Dewar is a writer-editor in the Refuge System Branch of Communications.*

# War and Peace at Midway Atoll Refuge

By Joan Jewett

Seventy years ago, when Ed Fox and John Miniclier were 20-year-old Marines on Midway Atoll, their eyes were trained on the sky. But they weren't looking for birds.

They were watching for enemy aircraft and they saw them, plenty of them, during the Battle of Midway in June 1942, when Japanese bombers and U.S. planes clashed in a conflict that turned the course of World War II in the Pacific in America's favor.

This past June, back on Midway Atoll's Sand Island for the first time in seven decades to commemorate the anniversary of the historic fight, the men were awed by flights of a different nature: those of seabirds as they searched for food to bring to their young. Most remarkable to the men were the Laysan albatross that make up the world's largest nesting colony of their kind. Nowhere else on the planet will you find as many Laysan albatross chicks—340,000 this year—as on Midway Atoll National Wildlife Refuge.

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*"I think what's happened here is pretty spectacular."*

Laysan albatross make up nearly one-third of the 3 million seabirds that breed on Midway Atoll's three islands. Another 18 seabird species also nest on the refuge, including red-tailed tropicbird, Bulwer's petrel and endangered short-tailed albatross, whose recent nesting success is the result of a recovery partnership between the Service and Japanese biologists.

In other words, Midway is a bird's—and a birder's—paradise. At times, the air is thick with birds and the cacophony of their calls.

While birds are now the focus of life at Midway Atoll Refuge, it wasn't always so. Fox and Miniclier recall the military had low tolerance for the birds, which were viewed more as a nuisance than a treasure. Consequently, there were far



*In 1942, when retired Sgt. Ed Fox, left, and retired Col. John Miniclier fought in the Battle of Midway, birds were mostly a nuisance. Now, Laysan albatross and other avian species are a focus of life at Midway Atoll National Wildlife Refuge. (Joan Jewett/USFWS)*

fewer birds when the two veterans were last there.

"I'm amazed by how they could reproduce so fast," said Fox, who lives in Springfield, MO. "Maybe it's a symbol of an era of peace."

Miniclier agreed. "I think what's happened here is pretty spectacular."

Fox and Miniclier returned to Midway, courtesy of the Pacific Islands National Wildlife Refuge Complex, to commemorate the 70th anniversary of the historic battle. Fox, who fought at Iwo Jima after the Midway conflict, joined the Army after the war and became a cinematographer, retiring as a sergeant. He later was a public information officer for the U.S. Forest Service. Miniclier spent 35 years in the Marines, retiring as a colonel. He lives in Mount Dora, FL.

Even though there were fewer birds in 1942, the men remember one that is no longer around: the Laysan rail. Small, flightless birds that, Fox says, "ran so fast you couldn't even see their legs," the last Laysan rails were seen on Midway in 1944. The species is considered extinct.

The transition of Midway Atoll from a military base to national wildlife refuge started in 1988, when the Service took over wildlife management. In 1996, the Navy turned the place over completely to the agency. Since then, wildlife has reigned supreme. Corroding cannons serve as perches, and former military buildings provide shade. Laysan albatross chicks the size of geese lounge wherever they please—the middle of roads, in front of building doors—and won't move for anything or anyone. They know who rules. The ground is strewn with resting birds.

Surrounded by all this life, Fox choked back tears and said, "I never thought I'd get to come back." He praised the Service for transforming a place of conflict and death to a place of peace and so much life.

"I really can't think of a better use of the place," he said. "The refuge is a great monument to the people who passed here." 🦅

*Joan Jewett is public affairs chief for the Pacific Region.*



# Bosque del Apache's Festival of the Cranes Is 25

By Bill O'Brian

Just before 6 a.m., in a crystal clear pre-dawn chill that numbed her fingers and toes, Allison Frost, a 27-year-old theater professional from Long Island, NY, was waiting in anticipation beside a Bosque del Apache National Wildlife Refuge wetland.

As thousands have done over the past quarter-century at the New Mexico refuge's Festival of the Cranes, Frost was waiting for the stars of the show—thousands of Rocky Mountain sandhill cranes and tens of thousands of snow geese—to fly out from their nighttime roosting spot for another day of foraging in the Rio Grande Valley.

"Just to see that many cranes flying overhead was awesome," Frost said afterward. "It's not something you can find in your backyard. It's something totally unique and cool."

"It's a magical moment," says Bosque del Apache Refuge deputy manager Aaron Mize. "It's like when people visit the Grand Canyon. You can photograph the Grand Canyon all you want, and they'll bring you back pictures, and they say, 'But it doesn't really do it justice. You have to see it.'"

The morning flyouts are just one part of the Festival of the Cranes, which turns 25 this year and will be held Nov. 13-18.

The festival began as a one-day affair in 1988—as a way for then-refuge manager Phil Norton to raise the refuge's profile in nearby Socorro. "When we first started, we had what is known as GP medium military tents that held maybe



*The Festival of Cranes will celebrate its 25th anniversary at Bosque del Apache National Wildlife Refuge from Nov. 13-18. Here one Rocky Mountain sandhill crane soars in full flight above the refuge. (Dwayne Longenbaugh)*

20 people," says refuge work leader Dennis Vicente, who has attended all 24 festivals. "You could smell the green oil they put on it. Now we have big art tents. We have electricity running to them." And the five-day festival is Socorro's biggest event of the year.

"Welcome, birders" signs adorn businesses all over town, a testament to the revenue the festival brings to city coffers. It attracts an estimated 6,000 visitors from around the world to celebrate the refuge, conservation and the cranes.

It celebrates 57,331-acre Bosque del Apache Refuge, a sliver of which is the 140 wetland units intensively managed along the Rio Grande for cranes, geese and other migratory birds.

"It's mimicking a natural process—what the river has done for thousands of years. And those birds have been programmed since the beginning of their time to seek out that habitat. People who worked here before me, who were far smarter than I am, figured out how to make a system function again and make it look as close to a natural process as

Mother Nature did," says Mize. "The birds are programmed to look for that habitat, and, when they see it, they just know this is where they're supposed to be for the winter."

The festival celebrates conservation at about 100 events—workshops, seminars, speeches, art sales, hikes and guided tours—sprinkled at venues in Socorro and at the refuge.

And, of course, it celebrates greater sandhill cranes, grayish-white birds that pair for life and can fly 365 miles nonstop, averaging 38 mph. For millennia, they have wintered in New Mexico and Chihuahua, Mexico, and nested in the northern Rockies.

"Today, this refuge represents one of the few wild havens along a much-altered Rio Grande," says a display near the festival's peaked white art tent. "As we face the challenge of meeting both human needs and wildlife needs in a finite world, we might look to our elders for guidance—the cranes. They have millions of years of experience in sustainable living."

*continued on pg 19*

## Conserving the Future

Last year, hundreds of U.S. Fish and Wildlife Service employees and partners forged the *Conserving the Future: Wildlife Refuges and the Next Generation* vision for the National Wildlife Refuge System. This year, we are implementing that vision.

In 2012, *Refuge Update* is presenting a series of Focus sections devoted to the implementation. This Focus section, titled Strengthening Science, centers on the objectives of the Scientific Excellence team as they pertain to recommendations 6, 7, 9 and 10 of the vision.


**Recommendation 6:** Provide each refuge with access to all the necessary resources to fully implement the principles of adaptive management for all aspects of the Refuge System.

**Recommendation 7:** Institutionalize a purpose-driven, nationally coordinated effort to inventory and monitor wildlife and habitats to obtain data that inform planning and management decisions; and develop a state-of-the-art data management system that can be integrated with the broader scientific community and key partners.

**Recommendation 9:** Develop and clearly articulate a research agenda for the Refuge System that is management-oriented and grounded in the testing of assumptions, with the explicit purpose of reducing uncertainty in our planning and management decisions.

**Recommendation 10:** Become a major contributor to the scientific community by sharing information and data; publishing scientific findings; participating in professional societies; and engaging



with local, regional and national organizations and communities to solve conservation problems. 

## Conserving the Future Teams Analyze Survey Results — continued from page 1

having a broad spectrum of activity in support of various refuge programs, as well as being very effective.

- About 20 percent of respondents reported that their Friends organization did not have a formal written agreement; a similar proportion reported that Friends organizations had a narrow focus and often required substantial assistance from the refuge staff.

When asked to identify the top challenges facing Friends organizations, respondents most often selected: too few active board members; board members facing burnout; lack of active and engaged members; trouble finding new board members; and a small total number of members.

The overwhelming challenge for refuges is the time it takes to manage Friends, volunteers and community partnerships. Refuge managers reported they lack enough staff to take advantage of the


opportunities offered by these groups and individuals. At the same time, lack of staff or time to train and supervise volunteers is the biggest challenge for those who have volunteer programs.

The Community Partnerships team used those findings as it assembled the outline for a handbook to guide Service staff in developing relationships with volunteers, Friends and community partners. The outline is available at <http://AmericasWildlife.org/>.

On another front, three *Conserving the Future* implementation teams met in August to complete documents and strategies in communications, strategic growth of the Refuge System and planning. The Strategic Growth team met as it finished an assessment of the Refuge System's land protection efforts over its 109-year history. That assessment will be presented to the Refuge System Leadership Team—which includes the eight regional refuge chiefs—in late October.

The Communications implementation team met to draft a strategic communications plan and messages. A liaison from the Urban Wildlife Refuge Initiative implementation team took part as the two teams found areas of collaboration.

The Planning implementation team is analyzing survey responses as it assembles lessons learned from the past 15 years of Refuge System experience in writing comprehensive conservation plans (CCPs) and associated step-down plans. The team met to discuss a draft report on the future of planning. The team is awaiting a report from 24 graduate students at the Indiana University School of Public and Environmental Affairs, who examined the 180 CCPs published from 2005 to 2011.

Follow the progress of *Conserving the Future* implementation teams at <http://AmericasWildlife.org>. 



# Best Science = Best Conservation Gain

By Deborah Rocque

A new vision for the National Wildlife Refuge System had to be three things: people-based, partner-based and science-driven. People-based because we work for the American people, and our work must be relevant to them. Partner-based because we can't—and shouldn't—manage the public trust alone. Science-driven because we are an agency that makes decisions based on sound science.

Four of the 24 *Conserving the Future* recommendations specifically direct the development of science; many others assume a science underpinning.

During the vision process many people acknowledged that the U.S. Fish and Wildlife Service needs more and better biological data to make science-driven decisions. Threats to fish, wildlife and habitat are at an all-time high. Options for conservation choices about a given acre of land or water are diminishing. Human population projected at 10 billion by mid-century presents an extraordinary challenge, as do climate change and unprecedented global resource consumption. Our decision space is shrinking rapidly. We need science to enable us to be deliberate and decisive about where to invest limited resources to get the biggest and best conservation gains.

The ideas in the four science recommendations are not new. They reiterate the science-driven initiative that the Service has long embraced and that guides us in managing fish, wildlife and habitat with our partners. Strategic habitat conservation (SHC), landscape conservation cooperatives (LCCs), surrogate species selection, and inventory and monitoring (I&M) are not new to be sure. But used in concert, they give us a powerful arsenal to achieve conservation beyond our boundaries, even with dwindling budgets.

Recommendation 6 directs us to provide all refuges with access to resources necessary to implement adaptive management principles. This is simply SHC—which requires us to set biological goals and manage toward those goals in design and delivery. Many biologists are uncomfortable setting goals in the absence of biological data, but SHC asks us to make our best professional judgment as biologists and monitor the outcome.

Recommendation 7 calls for a nationally coordinated effort to inventory and monitor wildlife and habitat to obtain data that inform planning and management decisions, and to develop a state-of-the-art data management system that can be integrated with the broader scientific community. In 2010, the Refuge System committed unprecedented resources to I&M to do just that. [See article on page 10.]

Recommendation 9 directs us to develop and articulate a research agenda, explicitly to reduce uncertainty in Refuge System planning and management decisions. Doing this will help us attract partners to conduct research we need to support decisions. It will allow us to be proactive in soliciting research partners by creating a forum to coordinate our prioritized needs.

Recommendation 10 directs the Refuge System to become a major contributor to the scientific community by sharing information and data, and engaging with local, regional and national organizations



Back Bay National Wildlife Refuge biologist Geralyn Mireles (at water) and Student Temporary Employment Program (STEP) intern LeAnn Barger measure tracks made by a Kemp's ridley sea turtle. This summer was the first time Kemp's ridley turtle nesting was documented on Virginia's Atlantic coast. (USFWS)

and communities to solve conservation problems. It is not enough to belong to a professional society; we must be full members by engaging others in that scientific community in our research by presenting and publishing our data. We must change our culture to stop storing information in drawers and databases. We must commit to communicating what we know and what we need. We must be full partners in LCCs and other partnerships to make a difference on a broader conservation landscape.

Although they are written as a vision for the Refuge System, the four science recommendations, and most of the 20 others, should be embraced by the entire Service. We are stronger when we work together, reaching across programs and using the best science across disciplines to make the best decisions we can for wildlife. 🦋

*Deborah Rocque, the Northeast Region deputy regional director, was a primary author of the Conserving the Future vision document.*

# Focus . . . Strengthening Science

## I&M Program to Employees in Field: “We Can Help”

By Bill O'Brian

**F**ew initiatives are more vital to the *Conserving the Future* goal of bolstering the scientific underpinning of National Wildlife Refuge System wildlife management than the Inventory and Monitoring program.

The I&M program was established in 2010 to gather, analyze and disseminate authoritative, scientifically rigorous biological data about the status, trends and responses to management of species and habitats within the Refuge System, the U.S. Fish and Wildlife Service and landscape conservation cooperatives (LCCs).

The I&M program is based at the Natural Resource Program Center (NRPC) in Fort Collins, CO, with about 70 regional coordinators and biologists located around the country. In its two-year existence, says national I&M manager Jana Newman, the program has made headway in many areas, including:

- Ensuring that field stations have access to a core set of geospatial abiotic base data layers for topography, aerial photography, hydrology, soils and infrastructure.

### One Center, Four Branches

Often, the Refuge System Inventory and Monitoring program and the Natural Resource Program Center are thought of as one entity based in Fort Collins, CO. But the NRPC is more than just I&M.

The NRPC also includes a human dimensions branch, which explores how people, natural resources and wildlife management decisions interrelate, and a water resources branch, which oversees the inventory and assessment of water quantity and quality on Refuge System lands. The air quality branch, 70 miles south in the Denver suburb of Lakewood, also reports to the NRPC.

“We have pulled those disciplines under one roof to ensure that credible scientific information about air, water, biology (I&M) and human dimensions is informing the conservation planning efforts consistent with the strategic habitat conservation (SHC) framework,” says NRPC director Mark Chase.

More information is at <http://www.fws.gov/refuges/NaturalResourcePC>.



*Monica Patel, a 2011 National Wildlife Refuge System Wilderness Fellow, does shoreline inventory and monitoring work at Edwin B. Forsythe Refuge in New Jersey. (Bill Crouch/USFWS)*

- Conducting water resources inventories and hydrogeomorphic analyses.
- Designing and implementing ServCat, a centralized repository for critical refuge management documents. [See article on page 11.]
- Developing a repository called Planning and Review of I&M on Refuges (PRIMR) that provides detailed information about more than 2,000 surveys.
- Supporting adaptive management efforts across the Refuge System.
- Implementing invasive-plants-mapping pilot inventories at four refuges (Alligator River, Quivira, Silvio O. Conte and San Diego).
- Encouraging refuges to partner with the USA-National Phenological Network.
- Collaborating with partners on wilderness character monitoring.
- Coordinating with the Service's Migratory Bird program.
- Coordinating with partners on predictive models of climate-induced change in oceanographic variables, including sea-level rise.
- Providing guidance on predictive models in Arctic and high-latitude environmental changes.

“In short,” Newman says, “we strive to ensure that there is credible,

*continued on pg 14*



# Adventures in I&M Data Mining

Last fall and winter, Sara (Sam) McLaughlin and Sarah Shultz—National Wildlife Refuge System Inventory and Monitoring (I&M) program contractors in Fort Collins, CO—visited nine refuges, at least one per U.S. Fish and Wildlife Service region, to create permanent electronic records of those refuges' critical documents. They were document miners for a pilot Refuge System application called ServCat (Service Catalog). ServCat, which is scheduled to go live soon, creates records, complete with metadata from documents such as reports, surveys, databases, geospatial data and images. Once ServCat is up and running, the information will be retrievable using text or geospatial search tools.

By Sara McLaughlin and Sarah Shultz

Just three weeks into our job, we were packing for our first refuge trip. We were proud to be part of this new and important project, and a little nervous to be away from home and family. We never imagined we would meet such wonderful people or see such incredible places. The refuges we visited



This 150-year-old journal from St. Vincent National Wildlife Refuge in Florida was documented by the authors in the centralized database. (Sarah Shultz)



The authors visited nine national wildlife refuges to create permanent electronic records of those refuges' critical documents. When they were at Kenai National Wildlife Refuge in Alaska mining documents for the pilot Refuge System application called ServCat (Service Catalog), they stayed in this historic cabin. (Sara McLaughlin)

illustrated the history, magnificence and diversity of the Refuge System.

Don Edwards San Francisco Bay National Wildlife Refuge was among our first stops. We were surprised to find such a beautiful refuge so close to one of America's largest urban areas. The skyscrapers, crowds and noise of the city were a striking contrast to the peaceful, restored wetlands of the refuge. It was amazing to see how much wildlife found harbor in this small

refuge, despite the seven million people surrounding it.

Alaska in mid-winter fell at the other end of the spectrum: remote; unpredictable weather; few people. We were scheduled to visit Tetlin Refuge, but like refuge personnel, we had to be tough and adaptable. After narrowly escaping a highway pileup in a blizzard, we changed plans. Kenai Refuge graciously made time for us, and our quaint log cabin blanketed in snow and tucked beneath trees eased the angst. Each morning we pulled on our snow gear and walked the trail to the refuge office in the still Alaska dark. The tranquility of Kenai Refuge was like nothing we had experienced.

St. Vincent Refuge in Florida was bursting with personality and scenery. Charlotte Chumney, the refuge's office assistant, was a walking history book.

continued on pg 14

# Focus . . . Strengthening Science —

## At Arctic Refuge, Now Is the Time to Study Shorebirds

By John Pancake

Every summer, clouds of shorebirds scatter across the coastal plain of Arctic National Wildlife Refuge like leaves fluttering across the tundra.

The chilly windswept plain, where northeastern Alaska meets the Arctic Ocean, nurtures these delicate birds as they raise their young. Many species use the refuge: turnstones and dowitchers, phalaropes and plovers, and scores of sandpipers.

But the arctic environment, resilient in so many ways, is shifting. Climate change, being seen all over the globe, is moving twice as fast in northern Alaska. With less sea ice and more open water, the coast is more vulnerable to storm surges and erosion. In the mountains south of the coastal plain, the glaciers are ebbing, which could change the character of the riverside and delta habitats many shorebird species favor. Oil and gas exploration near the refuge could have an impact, too.

For David Payer, supervisory ecologist at the 19.3-million-acre refuge, the potential for major environmental change in the future makes baseline research crucial now. Only by establishing a clear understanding of shorebird populations and ecology can the refuge staff know how habitats are changing and how to react.

Many shorebird species are declining, so biologists are working to learn the birds' distribution, required habitats, abundance, food, breeding success and seasonal movements. "It's vital for us to understand what habitats are important for these birds, what drives their use of habitat," Payer says.

Getting that information is challenging. The refuge is about the size of South Carolina, with no roads or marked trails. Everything researchers need—from tents to solar-powered computers—must be flown in (and out). Finding nests can mean walking miles through tussocks



*Pectoral sandpipers feed on a mudflat at Arctic National Wildlife Refuge. The 19.3-million-acre refuge and its partners are putting considerable research effort into understanding shorebird populations and ecology. (USFWS)*

and boot-sucking muskeg. The weather is often cold and damp. Snow can show up, even in summer. Bears—both polar bears and grizzlies—can show up, too.

Despite the obstacles, field studies over more than a decade have begun to get a statistical picture of many species. This summer, scientists conducted two major research efforts: a demographic survey of shorebirds' breeding success and nest distribution near the Canning River delta; and a survey of birds, their habitat and prey during the crucial feeding period just before the grueling migration south. An earlier study looked at whether human development might inadvertently help arctic nesting birds' predators.

The refuge's scientists say it's critical to work with other groups, that only a cooperative effort can succeed.

"As vast as the Arctic Refuge is, it's not an island unto itself," Payer says. "These species, whether they be shorebirds or grizzly bears or caribou or whatever, don't see the borders that we put on a map."

Over more than a decade, partners have included the U.S. Fish and Wildlife

Service field office in Fairbanks, the Service migratory bird management division, Manomet Center for Conservation Sciences, the Wildlife Conservation Society, U.S. Geological Survey, University of Alaska Fairbanks, University of Texas Marine Science Institute, Kansas State University, Bureau of Land Management, Bureau of Ocean Energy Management, BP Exploration (Alaska), ConocoPhillips Alaska, Kaktovik Inupiat Corporation, the North Slope Borough and the Canadian Wildlife Service.

Stephen Brown, director of shorebird science at the Manomet Center and a key collaborator, explains: "Many species of arctic nesting shorebirds are in significant decline, and we need to devise conservation strategies to reverse those declines if we want healthy populations of wildlife to persist. We don't know what is causing the declines for most of the species, so there is a lot we need to learn." 🦋

*John Pancake is a freelance writer who lives in Goshen Pass, VA.*



# Seeing the Forest for the Forest

By Ben Ikenson

“Ultimately, is there a difference between managing a forest solely for timber and managing it solely for a single wildlife species? Maybe not,” says Greg Corace, a forester at Seney National Wildlife Refuge in Michigan’s Upper Peninsula. “In either case, our contemporary understanding of forests suggests we tend to simplify complex systems when we focus on individual products.”

It’s a bold assertion coming from someone who helps oversee the refuge’s Kirtland’s Warbler Wildlife Management Area, 6,684 acres of jack pine stands scattered across 125 parcels in eight counties of Michigan’s Lower Peninsula that are collectively administered to help reverse the decline of its endangered namesake. To be clear, Corace isn’t dismissing the validity of recovery efforts. Rather, he’s suggesting species conservation objectives, among others, be synthesized into a more natural and holistic approach to forest management, a concept that has emerged in the scientific literature over the past two decades.

“Our plantations for the Kirtland’s warbler have been extremely successful,” he says. “But we have an opportunity to make them less artificial.”

If Corace’s suggestion seems like an affront to the mind-set of his conservationist predecessors, it is in keeping with the National Wildlife Refuge System’s emphasis on coordinated research across a number of academic disciplines to help address complex challenges of the 21st century.

Upon taking charge of Seney’s biological program in 2009, Corace renamed it the “applied sciences program,” which currently integrates research, land management for wildlife benefit, and academia. The final component is proving especially essential to the others. With leverage from his status at several

universities in the region, Corace has been partnering with academic colleagues, among others, to secure applied research grants involving graduate students and many refuges in the Upper Midwest.

“They’re getting valuable experience,” Seney Refuge manager Mark Vaniman says of the students. “We’re getting excellent research and information.”

The information is being incorporated into planning documents that assist managers in making decisions. For instance, recent graduate projects at Seney Refuge have quantified the efficacy of using earthen plugs in ditches to restore wetlands, and using logging treatments and prescribed fire to produce more natural landscape patterns.

Indeed, research findings underscore Corace’s assertion and suggest that management strategies, when practicable, should emulate natural phenomena to promote patterns of forest composition and structure that might not otherwise occur.

“Rather than focusing from the bird’s perspective, with the population doing so well we’re now trying to focus from the perspective of the powers that shaped the forest in the first place,” says Corace. “We’re backing up some to see what forests and wetlands here looked like before the white man arrived and get a better understanding of how natural forces have played defining roles in these ecosystems.”



“Our plantations for the Kirtland’s warbler have been extremely successful,” says Greg Corace. “But we have an opportunity to make them less artificial.” Corace is a forester at Michigan’s Seney National Wildlife Refuge, which oversees Kirtland’s Warbler Wildlife Management Area. The refuge’s applied science program is studying a holistic approach to forest management. (Joel Trick/USFWS)

Of course, after European settlement, many of those forces were stifled, and the consequences remain problematic. This summer’s spate of “megafires” in the West, for instance, is widely considered the result of longstanding fire suppression policies.

“When we simplify forests, we create the conditions for catastrophe—whether from fire, invasive species, insect infestation or disease,” says Corace.

The concept of managing public lands in a way that more approximates nature, with all its intricate nuances, is not new. The U.S. Forest Service has been studying it for decades. But if this holistic idea is novel to the Refuge System, as Corace suggests, it is also timely given the specter of climate change. Any global warming could exacerbate the dangers associated with landscapes that have been simplified, even those simplified for the well-intentioned purpose of species recovery. ↗

*Ben Ikenson is a New Mexico-based freelance writer.*

# Focus . . . Strengthening Science —

## I&M Program to Employees in Field: “We Can Help” — *continued from page 10*

interdisciplinary scientific information to inform biological planning at multiple scales.”

But what Newman, Mark Chase, the director of the NRPC who oversees the I&M program, and Keenan Adams, the newest addition to the I&M team, *really* want Service employees and others to know is: The I&M program exists to help the field.

If you’re a refuge manager putting together a comprehensive conservation

plan ... or a refuge biologist seeking landscape-level data on an endangered species that’s outside your area of expertise ... or a visitor services specialist looking for reliable information but having trouble navigating a cumbersome database, “we’re here,” says Newman. “Contact us. Be proactive. We try to reach out, but with 556 refuges we can’t reach everybody. Contact your regional I&M coordinator or your data manager. We can help out.”

Adams, in particular, sees himself as “a nexus between the field and the science center for the Refuge System.”

Most recently a deputy project leader at Pelican Island Refuge Complex in Florida, Adams came to Fort Collins in June as a managing biologist.

“I was one of those refuge managers who took every opportunity to remind people in the headquarters office and regional office that they should engage the field more with certain decisions,” he says. “This job was an opportunity to ‘practice what I preach.’ I knew that I&M would have many challenges if refuge managers and biologists were not ‘bought in.’”

He saw the job as a chance to “work in a science center and gain a national-scale perspective, but also provide the center with a field perspective.” He expects most of his time to be spent on managerial matters and working with


the NRPC’s new human dimensions branch, but he’ll spend a good deal of time as an I&M biologist asking, “Does this make sense to the field.”

Chase identifies three major challenges for the I&M program, which is funded at about \$20 million annually.

The first is “changing the cultural mind-set to truly look at conservation challenges and solutions beyond our artificial human constructs of political boundaries, regional and programmatic structures.”

The second is transitioning from “plugging holes” to “strategically gathering rigorous, credible information that informs our planning consistent with our strategic habitat conservation (SHC) framework.”

The third is data management, which Chase says is expensive and often an afterthought. “We must make the organizational commitment to invest in data management to support every refuge, both regionally and nationally.”

For now, Adams has an immediate message to Service employees on the ground: “Get engaged. Call your regional I&M coordinator. Stay open-minded. Use the tools that will be provided to you by the I&M program; they’re there to make your life easier.” 

### Regional I&M Coordinators

The Refuge System Inventory and Monitoring program—based at the Natural Resource Program Center—works with regional coordinators to bolster U.S. Fish and Wildlife Service science by establishing various baseline data regarding fish, wildlife, plants, water and other resources on national wildlife refuges, on other Service units and at landscape scales. The regional I&M coordinators are:

**Pacific Region**—Kevin Kilbride

**Southwest Region**—Kris Metzger

**Midwest Region**—Melinda Knutson

**Southeast Region**—Laurel Barnhill

**Northeast Region**—Bill Thompson

**Mountain-Prairie Region**—Socheata Lor

**Alaska Region**—Diane Granfors

**Pacific Southwest Region**—Karen Laing

## Adventures in I&M Data Mining — *continued from page 11*


Ms. Charlotte immediately pulled out two 150-year-old journals she’d been working to preserve, excited that the refuge’s history would be documented in a centralized database. We scanned everything the refuge had, even treasure maps.

One foggy morning we piled into a boat with biologist Bradley Smith to track the refuge’s two resident red wolves. It was energizing to see the tropical scenery and

diverse wildlife that we had worked so hard to document in the office.

We’ll never forget Malheur Refuge in southeastern Oregon. After spending a day scanning annual narratives, we thought nothing could make us appreciate the history of the Refuge System more than those brittle 1930s documents. But we were wrong.

At the day’s end, after we turned out the lights and left the refuge office, profound

darkness surrounded us. As we rummaged for our cell phone lights, we recognized just how far we were from other humans. There was no glow from a nearby town. The land around us, conserved since 1908, still belongs to nature. A deep respect for refuges and their history came with this realization. We were honored to contribute to the Refuge System’s preservation efforts by scanning 3,778 documents. 



# Reaching Out to Refuges in the Midwest Region

By Patricia Heglund

**R**estoring or reconstructing prairies is a slow process that requires substantial time, talent and resources. Sara Vacek, a wildlife biologist at Morris Wetland Management District, knows that in grassland restoration, patience is a virtue.

One day last fall, though, Vacek was running out of patience.

I was sitting with Vacek and her Morris WMD colleagues in the multi-purpose room at the district's headquarters in western Minnesota. Our conversation had been relaxed and convivial until I asked how their restorations were going. Suddenly, the group became animated.

As I tried frantically to capture her thoughts on my laptop, Vacek told me the Morris WMD prairie vegetation was looking good after extensive tree removal. There is the diversity of plants that she and her colleagues want. But they aren't seeing many grassland birds coming back. They expected a resurgence of western meadowlarks, bobolinks, grasshopper sparrows. But that's not happening yet.

As regional refuge biologist, I was at Morris WMD to learn firsthand from district staff members about their information needs, science needs and emerging management challenges. The previous day I had been at Big Stone National Wildlife Refuge doing the same thing; the next day I headed to Windom WMD.

All told, I visited 21 units. It was part of a six-month effort in which my staff and I in the U.S. Fish and Wildlife Service's Midwest Region Division of Biological Resources divided field offices among ourselves and set a goal to visit every refuge, wetland management district and private lands office in the region. From April to October last year, Pauline Drobney, Melinda Knutson, Josh Eash or I made it to 54 of those 55 field stations.



*A bald eagle perches at Big Muddy National Fish and Wildlife Refuge in Missouri, one of 21 Refuge System field stations the author visited as part of a survey to determine the Midwest Region's most pressing science and management needs. (Steve Hillebrand)*

When possible, our zone biologists and hydrology specialists joined us.

## Five-Year Work Plan

At each station we asked a series of questions, such as: "Do you see global climate change affecting your work? If so, how?" "What kind of inventories do you need, and how will you use that information?" "What other kind of information do you need to help you with your management decisions?"

Our goal was to synthesize the responses and use them to develop a five-year work plan to address our region's most pressing science and management needs.

We wanted to make the most of new regional inventory and monitoring funds and the National Wildlife Refuge System's recently established Natural Resource Program Center in Colorado. By coupling that new funding with

our existing biology budget and using resources at the center, we have been able to add science expertise at the field level and develop more standardized protocols. As a result, we are better able to coordinate activities across programs, assist with study design and review, provide more training and collect/disseminate information via national/regional databases.

After synthesizing the field station responses, we saw common themes. In the Midwest Region, stations are concerned about water resources, changes in species distributions (especially invasive species), how to respond to those changes and evaluating outcomes of management actions.

The five-year plan is a work in progress, but already we have learned that by carefully coordinating surveys with other Service programs and partners, we stand to benefit. We can augment the North American Breeding Bird Survey, which has helped evaluate bird populations at regional scales for years but is not useful for evaluating the relative success of specific management practices at a station.

Take Sara Vacek's concern about the lack of response by grassland birds to prairie restorations. Results from our site-visit surveys showed she wasn't alone in her concern.

Our staff is now collaborating with Vacek, other biologists and managers at Refuge System field stations, migratory bird management staff and the Midwest Coordinated Bird Monitoring Partnership to evaluate bird use of grassland restorations and reconstructions. 

*Patricia Heglund is chief of the Service Midwest Region Division of Biological Resources.*

# Around the Refuge System

## California

The U.S. Fish and Wildlife Service, the San Diego Association of Governments (SANDAG) and The Nature Conservancy together have purchased 1,905 acres for San Diego National Wildlife Refuge. SANDAG contributed \$10 million toward the \$18 million purchase price through its TransNet Environmental Mitigation Program. The Service used Department of Homeland Security U.S.-Mexico border-fence mitigation funding to pay the balance. The Nature Conservancy negotiated a reduced purchase price. The newly acquired property, called Hidden Valley, closes a conserved-habitat gap between the refuge and California Department of Fish and Game lands. The habitat is expected to be of particular benefit to the endangered Quino checkerspot butterfly and the threatened coastal California gnatcatcher.

## Puerto Rico

The Service and Island Conservation announced that efforts to restore Desecheo National Wildlife Refuge's native species and their habitat by removing non-native black rats have been completed. Removal of invasive rats will allow native forest to recover and promote recolonization by several seabird species that historically nested on the island. In March, the Service and Island Conservation applied rodent bait to remove rats while minimizing threats from the bait to other animals. Whereas the project has been completed, two more years of monitoring will occur before the island can be declared rat-free. Desecheo Refuge is a small, uninhabited island about 13 miles west of Puerto Rico. The refuge was established in 1976 to protect seabird colonies. Historically, Desecheo Island was a major seabird rookery. It may have had the largest brown booby colony in the world, with estimates of up to 15,000 breeding birds in the early 1900s. The refuge also provides habitat for six endemic species (three lizards, three arachnids) and the federally threatened Higo chumbo cactus.

## New York

Jeff Rice recently attained the highest rank in the Boy Scouts, and in the process Iroquois National Wildlife Refuge gained a new photo blind. Rice, a 17-year-old from nearby Albion, NY, built the blind as his Eagle Scout community service project. "The reason I chose to complete my project for the refuge was to give back to the wildlife and to the people who care about it so much," said Rice. Using about \$800 worth of material that he persuaded half-a-dozen local hardware stores to donate, Rice led a small group of volunteers on the project. "Everything was donated. We didn't pay for a thing," said Rice, who estimates he spent 60 hours working on the blind, which overlooks waterfowl-rich Ringneck Marsh. It is one of several projects Eagle Scouts have completed at Iroquois Refuge over the years, according to refuge manager Tom Roster. Others

have included invasive species and reforestation work as well as the construction of an observation platform, a floating dock and dozens of birdhouses. "It's been really good that we've had the Eagle Scouts wanting to do the work," Roster said. As for Rice, he is beginning college this fall and aspires to be a wildlife law enforcement officer.

## Get Your Goose On!

Last year, as Marla Trollan was settling in to her new job as Mountain-Prairie Region assistant regional director for external affairs, web coordinator Ryan Moehring came to her with an idea. To raise the profile of the Service and the Refuge System among young people and to encourage families to get outdoors, why not develop a publicity campaign modeled after the highly popular Pittsburgh Steelers/ESPN "Terrible Towel" phenomenon? Trollan liked the idea immediately and sold it to regional and national higher-ups.



Secretary of the Interior Ken Salazar displays his Get Your Goose On! towel at a Colorado event. The towel is part of an interactive education and outreach campaign created by the Mountain-Prairie Region to broaden awareness of the Service and the Refuge System. (Marla Trollan/USFWS)

Now, with the help and support of the regional refuge and visitor services offices, the Get Your Goose On! campaign is off and running. The region has purchased 1,000 blue towels adorned with a Blue Goose image and distributed them to refuges and other Service units in the Mountain-Prairie Region. It's a social media campaign, and the region spent the spring and summer gathering photos and videos of people waving the towels across its eight states.



“It’s really been a widely accepted campaign,” Trollan says. “We’d like it to go viral and not be confined to our region.” The region plans to produce a fast-paced promotional video and roll out the campaign on social media this fall. In the meantime, Trollan wants to make one thing clear: Even though Get Your Goose On! is based on a Steelers rally towel, she says, “we are all [Denver] Broncos fans here” in the Mountain-Prairie regional office.

## Nevada

Last spring, just 10 minutes after a magnitude 7.4 earthquake struck off the Pacific Coast of southern Mexico, the waters of the aquifer exposed at Devils Hole 1,700 miles north began to roil. Devils Hole is a detached unit of Death Valley National Park wholly within Ash Meadows National Wildlife Refuge. The depth of its water, which stays at a constant 93 degrees Fahrenheit, has been mapped to 500 feet, but the bottom never has been found. The cavern’s waters are home to the entire naturally occurring population of the endangered Devils Hole pupfish. They are also, according to the Death Valley National Park Web site, a window into the “vast aquifer and an unusual indicator of seismic activity around the world. Large earthquakes as far away as Japan, Indonesia and Chile have caused the water to ‘slosh’ in Devils Hole like water in a bathtub.” On March 20, after the Mexico quake hit, the waters

did just that. In a rarity, National Park Service employees not only witnessed the shaking, they also caught it on video: <http://www.nps.gov/deva/naturescience/devils-hole.htm>.

## North Carolina

Construction of the Pantego Wind Energy Project near Pocosin Lakes National Wildlife Refuge has been delayed indefinitely. The developer has decided to postpone the 49-turbine wind farm project until further research can be done on its potential risk to birds. In a 2011 letter to the state utilities commission, and in an article in the March/April 2012 issue of *Refuge Update*, refuge manager Howard Phillips recommended that the project be delayed until its likely impact on thousands of tundra swans that roost at the refuge could be studied.

## Alaska

Now that it is rat-free, 6,600-acre Rat Island in Alaska Maritime National Wildlife Refuge has reverted to its traditional Aleut name: Hawadax. The island was called Hawadax (pronounced How-ah-thaa) until the late 1700s, when a Japanese sailing ship ran aground and brought the first rats to Alaska. The rats ultimately destroyed virtually all of the island’s native seabirds. After years of planning, in 2008 refuge staff and partners eradicated rats from the island by dropping rat poison from helicopters. Hawadax is one of the largest islands in the world to be restored to a rat-free state. The U.S. Geological Survey’s Board on Geographic Names approved the island’s name change this spring.



## Virginia



*This cottonmouth strayed from its freshwater marsh habitat at Back Bay National Wildlife Refuge in August. Biologist John Gallegos said he was aware of only one other instance of a cottonmouth on the refuge beach, where saltwater, hot sun and predatory gulls could harm the snake. Gallegos figured the snake crawled through a low dune area between the marsh and the beach. (Robert Jeffers)*

## CLIR Tool Calculates Refuge Greenhouse Gas Emissions — *continued from page 1*

“There will be a more widespread rollout this fall,” says Suder, “to have field stations preview CLIR, followed by webinar sessions to answer questions.”

CLIR assembles information that might be in different sources into one Excel spreadsheet. “Perhaps you’ve intuitively thought about making changes to lower your carbon footprint, but now CLIR numerates that,” says Suder. “You’re able to see what your impacts are and how you might change them.”

CLIR is designed for all field station staff, not just project leaders, fleet managers or maintenance workers. Suder hopes CLIR will foster “recognition of improvements that everybody on a station might make, whether it’s reducing their own travel during their work hours or different activities they might do to help lower greenhouse gas emissions that CLIR can help pinpoint.”

Suder and the Division of Engineering’s Andrea McLaughlin believe CLIR could help the Service reach carbon neutrality by 2020, as mandated in the 2010 Climate Change Strategic Plan.

So, does Graham Taylor, refuge manager at Parker River National Wildlife Refuge, MA, which hosted a CLIR pilot—as did Horicon Refuge, WI; Kenai Refuge, AK; and St. Marks Refuge, FL.

“The tool helps provide a direct correlation,” Taylor says of the carbon-neutrality goal. “It gives us something



*At Santa Ana National Wildlife Refuge, a tram takes visitors out of their cars and into the lush south Texas habitat. (Steve Hillebrand)*

tangible to see we’re moving in the right direction.”

CLIR is based on a National Park Service tool called CLIP (Climate Leadership in Parks). Both CLIP and CLIR allow a user to calculate how changes in facilities energy consumption (electricity, fuel oil, natural gas, propane) and employee vehicle fleet consumption (miles per gallon; gasoline, diesel, biodiesel) would affect a site’s greenhouse gas emissions. But, importantly, CLIR adds visitor transportation—to, from and on a refuge.

“If you have an auto-tour route, with 100,000 or more people going out driving every year, depending on how long it is,

that type of emissions is much, much greater than what a facility puts off,” Suder says. CLIR could quantify how an electric shuttle would reduce emissions.

Parker River Refuge, which is developing its comprehensive conservation plan, already finds CLIR worthwhile. “The timing for us was good to be able to blend this into our CCP process,” says Taylor. “I’m sure the CLIR tool will be useful for a lot of refuges,” provided the data being input are sound.

McLaughlin says CLIR can augment the environmental management system (EMS) planning tool in place at 66 Service field stations, too.

Suder is excited about the cross-disciplinary aspect of CLIR. The pilot projects convened national-, regional- and field-level employees of divergent specialties: visitor services, natural resources and biology, facilities management, etc.

CLIR offers, Suder says, “a nice way of talking about real numbers, about real possibilities for change, bringing people together and then setting a direction for the future.”

*U.S. Fish and Wildlife Service employees can learn more about the CLIR tool at <http://sharepoint.fws.net/Programs/nwrw/R9VS/CLIR/default.aspx>.*

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## From the Director — *continued from page 2*

million this year to put conservation easements in place on tens of thousands of additional acres, helping to stem the loss of these important habitats.

Migratory Bird Conservation Fund money for these acquisitions—either through fee title acquisition or easement—comes largely from Duck Stamp revenue.

Since 1934, Duck Stamp sales have raised more than \$800 million for the fund to acquire wetlands for ducks, geese and

other wildlife, including hundreds of thousands of acres in the Prairie Potholes.

To enable the conservation of even more acres, we are working with Congress and our partners to increase the price of the Duck Stamp, which has not changed since 1991. The Obama administration’s fiscal year 2013 budget request proposes to raise the price to \$25 from \$15.

All of this effort is building on the success of the Service’s Small Wetlands Program. Created more than 50 years ago, that

program uses Duck Stamp revenue to permanently protect waterfowl production areas, nearly 3 million acres so far, most in the Prairie Potholes.

I am confident this renewed attention to wetland and grassland acquisition—in concert with the newly established Dakota Grassland Conservation Area—will protect breeding pairs and keep the waterfowl assembly lines humming on the floor of America’s Duck Factory.



## Bosque del Apache's Festival of the Cranes Is 25 — continued from page 7



"I love the cranes," says 2011 Festival of Cranes coordinator Robyn Harrison, "but I have to tell you, you can't beat [snow] geese for a flyout." (Dwayne Longenbaugh)

The festival is put on by Friends of the Bosque for three reasons, 2011 coordinator Robyn Harrison says: to educate people about the refuge and the birds; to get people outside ("We offer a large number of hikes, and I'm happy to say most of those fill"); and to have fun.

Still, it's mostly—but not entirely—about the cranes.

"They're so graceful. When you see them flying overhead and you hear them, they are the indicators of the change of the season to me, and I always forget how much I miss them until they start showing up in October," says Harrison. "I love the cranes, but I have to tell you, you can't beat [snow] geese for a flyout."

And what does Vicente, the man who has been to all 24 festivals, say about the cranes: "In my culture, being Native American, the sacred bird is the eagle." 🦅

## Chief's Corner — continued from page 2

Refuge System really started to grow during the Dust Bowl days of the 1930s when our first refuge chief, J. Clark Salyer, was tasked by Director Jay N. "Ding" Darling to develop an emergency program to restore waterfowl population. The wildlife refuges we established along the flyways provide enormous benefits to a wide variety of other species.

My first management assignment was at Mississippi Sandhill Crane National Wildlife Refuge in the late 1970s. In those days, we didn't realize how important coastal savannas were for Henslow's sparrow and a diversity of amphibians. The refuge is now recognized as an Important Bird Area for resident and neotropical migrants.

Over the past 15 years, the Refuge System has worked to prepare comprehensive conservation plans (CCPs) that include biological goals and objectives for each refuge. We have a handbook—"Writing Refuge Management Goals and Objectives"—

which I consulted as I thought about surrogate species. I found an interesting example that illustrates biological objectives: "Manage all palustrine wetlands in Unit C for dense (>75 percent of the water surface) perennial emergent vegetation, flooded seasonally

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***Employees and partners can contribute their ideas, creativity and innovation to help refine and improve the species selection process.***

(March-July) or semi-permanently to a depth of 10-45 cm for pairing, nesting, and foraging teal, foraging avocets and dowitchers, and breeding chorus frogs." I wondered how they chose teal, avocets, dowitchers and chorus frogs.

Fish and Wildlife Service employees throughout the Refuge System have

a decade of experience in identifying biological objectives. We know some species that will work better as surrogates than others. Through robust dialogues that will take place at regional workshops in coming months, employees and partners can contribute their ideas, creativity and innovation to help refine and improve the species selection process and technical guidance. The Refuge System will share its experience and expertise.

Our *Conserving the Future* vision for the Refuge System is one in which wildlife refuges are viewed and operate within the context of the greater surrounding landscape. Identifying surrogate species will help refuges better understand how to plan for management that has benefits beyond their boundaries. I'm counting on everyone who works for and supports the Refuge System to get engaged and make sure we get this right. 🦅



# RefugeUpdate

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## A Look Back ... John Scharff

**J**ohn Scharff was the first on-site manager at Malheur National Wildlife Refuge in Oregon, arriving in 1935 and staying until he retired 34 years later at age 70. In his early days, Scharff faced the daunting challenge of managing Civilian Conservation Corps enrollees at three camps while overseeing the refuge’s vast natural resources. In 1971, he received the Department of the Interior’s Distinguished Service Award. The John Scharff Migratory Bird Festival in Burns, OR, has carried his name for almost 30 years.


Scharff managed the construction of several reservoirs at Malheur Refuge to hold water for irrigation, reintroduced trumpeter swans from Red Rocks Lake in Montana, and battled the destructive invasion of non-native carp. He and his wife, Florence, lived in the building that is now the visitor center. Florence Scharff was responsible for the profusion of flowers at the refuge headquarters office. She also planted uncommon trees—horse chestnut, flowering crab and apricot—that now attract hundreds



*John Scharff (1901-1998), the first on-site manager at Malheur National Wildlife Refuge in Oregon, won the Department of the Interior’s Distinguished Service Award in 1971. (USFWS)*

of songbirds and birders, according to Carla Burnside, archaeologist at Malheur Refuge. Burnside says that John Scharff was also known to have raised a large herd of cattle and a variety of orphaned animals, including pronghorn and cranes, on refuge land surrounding his home.

Before Scharff began his long career with the U.S. Fish and Wildlife Service, he pioneered methods of fire control and game management with the U.S. Forest Service. He belonged to local, state and federal advisory boards for the Bureau of Land Management and the Harney County Stock Growers Association. He lectured frequently at Oregon State University and was the first to bring college students to the refuge for educational purposes.

In 1967, he co-authored *Steens Mountain: In Oregon’s High Desert Country* with Charles Conkling and E.R. Jackman. A reviewer wrote that the three men “were exposing a love affair they’ve had with the mountain for many years. The final chapter boasts that you can stand atop the 9,670-foot mountain and look into five states. But the meaning is clear that while you are up there and looking at the five states, you may also see all the way to the state of your soul.” Scharff owned land on Steens Mountain that he bequeathed to Oregon State University. 

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