



# RefugeUpdate

National Wildlife Refuge System

[www.fws.gov/refuges](http://www.fws.gov/refuges)



A male sage-grouse presents a mating display at Clear Lake National Wildlife Refuge in northeastern California, one of 11 western states in the species' shrinking range. (Dave Menke/USFWS)

## Montana Refuge Saves Sage-Grouse As Part of Broader Initiative

By Bill O'Brian

Last winter, Charles M. Russell National Wildlife Refuge played a vital role in a tale of survival involving two countries, hundreds of sage-grouse and a larger lesson about the importance of partnerships and habitat connectivity in the West.

The refuge—by its mere existence—saved an imperiled Canadian population of sage-grouse from starvation after a once-in-a-century snowpack blanketed southern Saskatchewan and northeastern Montana, according to David Naugle, a University of Montana wildlife biology professor and science advisor to the Department of Agriculture-led Sage-grouse Initiative.

Those 300 birds make up the only viable population of sage-grouse in Canada, where the species is endangered. They are also unusual. Most sage-grouse in the American West stay within 10 miles of their lek. The Canadian sage-grouse migrate. After feeding on short silver sagebrush during spring and summer at their lek in Grasslands National Park along the U.S. border in Saskatchewan, the Canadian birds travel 70 miles south each fall.

They head to sagebrush flats near Montana's Milk River. Much of that habitat, owned by the Bureau of Land Management and private ranchers, has *never* been tilled, and it is home to plentiful sagebrush tall enough to protrude through snow.

## National Conference: Enthusiasm in Madison And Beyond

Four nationally acclaimed figures from divergent backgrounds will be among the major speakers at the *Conserving the Future: Wildlife Refuges and the Next Generation* conference in mid-July in Madison, WI. There, 1,200 participants are expected to gather at the Monona Terrace Community and Convention Center—and thousands more will participate electronically—to ratify a new vision to guide the growth and management of the National Wildlife Refuge System for the next decade.

Retired Coast Guard Adm. Thad Allen, hailed for his leadership as the national incident commander for the Deepwater Horizon oil spill, will speak, as will Rice University history professor and author Douglas Brinkley, who recently wrote *The Quiet World: Saving Alaska's*

# Chief's Corner

## For a Legacy to Endure



Greg Siekaniec

By managing more than 671 million acres—roughly one-third of the lands in the United States—the federal government is the nation's biggest land caretaker. How well the National Wildlife

Apparent in both the Refuge System vision and the AGO Initiative action plan is the concept that the federal government must be a better partner and supporter of local conservation. We have to maximize the conservation benefits of every taxpayer dollar, bring private landowners and a broad range of conservation partners into the picture and, ultimately, engage a new generation of Americans.

Refuge System manages the 150 million acres we steward—including natural, cultural and historic resources—is critical to the physical and social well-being of the nation.

That's why the Refuge System has worked so hard for the better part of a year to solicit Americans' opinions about our future direction and management.

That's also why the America's Great Outdoors (AGO) Initiative spent months last year conducting 51 public listening

sessions across the country. More than 10,000 people participated live; more than 105,000 comments were submitted. The national conversation that President Obama started through AGO will reinvigorate America's enjoyment, conservation and stewardship of the nation's outdoors.

The Refuge System's *Conserving the Future* conversation is doing much the same thing for lands and waters that are visited annually by more than 44 million people and create tens of thousands of private sector jobs.

The land we steward belongs to the American people. That principle is at the heart of the Refuge System's *Conserving the Future* vision and the AGO Initiative action plan, which is available at <http://americasgreatoutdoors.gov>.

Americans are seeking a 21st-century approach to conservation. The Refuge System stands ready to deliver. In today's economic climate, the Refuge



*That the land we steward belongs to the American people is the principle at the heart of both the Refuge System's Conserving the Future vision and the America's Great Outdoors Initiative. (Steve Hillebrand)*

System and other government agencies must be wise in how we spend taxpayer dollars. But the nation must also be wise enough to understand that investment in natural resources protection is an investment in the future.

Those who have commented via the *Conserving the Future* Web site, <http://americaswildlife.org/>, clearly understand that. Government working in partnership with state agencies, private landowners, sportsmen and interested citizens can ensure that future generations will have the benefits of the conservation legacy we inherited. That is the most important message we heard from both the *Conserving the Future* process and the America's Great Outdoors Initiative. 

# Refuge Update

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*Then-acting refuge manager John Klavitter tells what it was like on the night of March 10-11 and in the days that followed. Pages 4-5*

### A Refuge Officer's Best Friend

*Since the mid-1990s, law enforcement dogs have been used in an increasingly official capacity on refuges. There are now six such K-9s. Page 7*

### Whooping Crane Recovery

*At Aransas Refuge in Texas, this was a record season for whooping cranes. At Necedah Refuge in Wisconsin, the focus is on raising cranes egg by egg. Pages 8-9*

### FOCUS: Conserving the Future, People to Land

*Now more than ever, the National Wildlife Refuge System's ability to connect people to natural habitat is vital to the future of conservation in America. Pages 10-19*

# eBird Trail Tracker Puts Millions of Eyes on the Sky

By Bill O'Brian

Just inside the visitor center entrance at Great Swamp National Wildlife Refuge in northern New Jersey is a sleek computer kiosk that is hard to miss. That's the point, says refuge friend Laurel Gould. "It's a magnet."

"People respond to it," she says. "Once they start to use it, they are just blown away. Everything is there. The picture is there, the sounds are there, the information is there, the sightings are there, the map is there. It's just everything in one."

"It" is the eBird Trail Tracker that the refuge installed last fall with the support of its Friends group.

Great Swamp Refuge is one of 16 refuges using the tracker that is connected to the eBird.org database managed by the Cornell Lab of Ornithology and the National Audubon Society. The eBird is a real-time, online checklist program that collects an average of 1.6 million bird observations a month from around the nation and the world. The tracker displays local observations at a given site.

An eBird Trail Tracker kiosk is useful to refuge visitors before they go out into the field because it enables them to learn what birds others have seen on the refuge in recent hours and days. It is useful to visitors after they return from the field, because it enables them to use photos or audio clips to identify which birds they saw or heard and then enter into the database how many they saw, when and where. It is useful to birders and casual visitors alike because it contains a browsable photo- and fact-filled list of information about avian species on a refuge.

**"A Modern, Cool-Looking Thing"**  
Great Swamp Refuge has enthusiastically embraced the eBird Trail Tracker.

It allows visitors "to feel part of a larger community, to give something back by recording their sightings, to have a personal sense of ownership in contributing to the birding community



*The northern harrier is one of more than 200 bird species that have been documented at Great Swamp National Wildlife Refuge 26 miles west of Times Square. (Steve Byland)*

and being citizen scientists helping wildlife conservation in the greater sense," says deputy refuge manager Steve Henry.

"It's interactive," says Randy Little, a retired electrical engineer who is a tech-savvy, bird-savvy volunteer at Great Swamp Refuge. "It engages you to take part, and you realize all of a sudden, 'I'm a citizen scientist' ... Heaven knows that, in ornithology at least, the reports of large numbers of lay people make up for an impossible task for a few professionals. They make for a very substantial, usable database."

"This is a modern, cool-looking thing that kids can relate to," says the refuge's visitor services manager, Jonathan Rosenberg. "It's real time ... There's no lag time."

Great Swamp Refuge, a 7,768-acre oasis in the exurbs 26 miles west of Times Square, is well-positioned to use the tracker. It is a birdwatching hotspot that attracts about 155,000 visitors a year. It has more than 180 volunteers who, according to Gould, contributed more than 15,000 hours last year. And it has a robust Friends group that championed



*"People respond to it," refuge friend Laurel Gould says of the eBird Trail Tracker in the visitor center. (Susan O'Brian)*

and paid for a customized version of the eBird Trail Tracker kiosk that cost \$6,804 to install and incurs a yearly \$650 maintenance fee that covers upgrades,

*continued on pg 27*

# What the Tsunami Was Like at Midway Atoll Refuge

On March 10, at 11:36 p.m., a tsunami generated by the magnitude 9.0 earthquake off Japan struck Midway Atoll National Wildlife Refuge. The refuge, part of Papahānaumokuākea Marine National Monument, consists of three low-lying islands 1,200 miles northwest of Honolulu. The tsunami overwashed Spit Island completely, and it covered about 60 percent of Eastern Island and 20 percent of Sand Island.

Here are excerpts from a recent *Refuge Update* interview with then-acting refuge manager John Klavitter about what he and his colleagues experienced that night and in the following days.

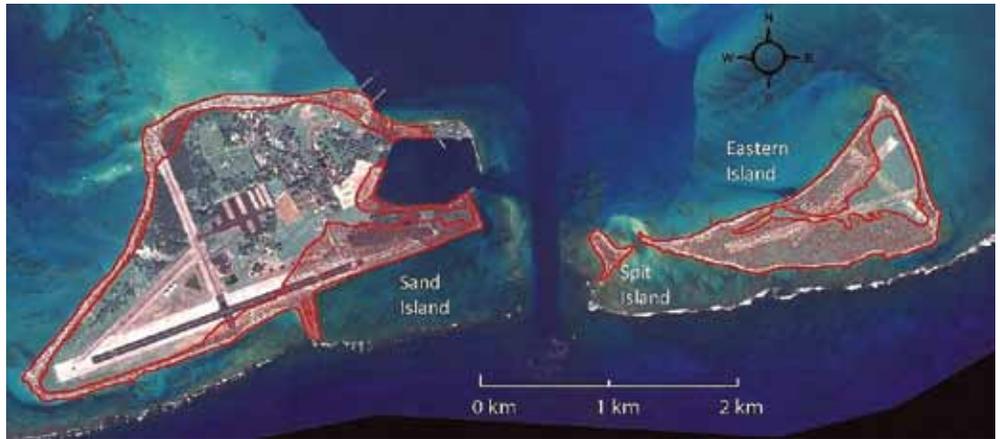
*Q. How many people were on Midway Atoll as the tsunami approached?*

A. 81 people, all on Sand Island. Six refuge staff, four volunteers, 53 refuge contractors, one researcher, 17 visitors.

*Q. What preparations were you and other refuge staff able to make in the four hours' notice that you had before the tsunami arrived? For instance, what kind of infrastructure and equipment were secured?*

A. We switched to a backup generator on higher ground and moved the following vehicles to the center of Sand Island near the 40-foot highpoint at Midway: a 31-foot boat; 5,000- and 6,000-gallon jet fuel trucks; a trailer holding 2,000 gallons of drinking water; airfield fire and rescue truck; a front-end loader; a backhoe loader; an excavator; a bulldozer; an airport sweeper truck; a vacuum truck; and several smaller vehicles. All of the equipment moved to high ground was deemed critical to clear the runway of debris after the tsunami, provide fuel for aircraft and generators, provide drinking water to residents and provide a boat for water rescue operations, if needed.

*Q. I understand everyone was evacuated to the third floor of the Charlie Barracks living quarters. Where on the third floor were staff, contractors and visitors during the tsunami? In their own rooms, in hallways?*



*The shaded portions of Midway Atoll National Wildlife Refuge's three islands were overwashed by the March 10-11 tsunami. (USFWS)*

A. Most of the third floor of Charlie Hotel is occupied by permanent Midway contractors. All of them opened their doors for other residents and visitors to rest, watch news, and receive information via e-mail and the Internet. So, it was a mix of people resting and waiting in rooms and the hallway. The airport manager lives on the third floor, and his room became the command and communication center. I spent most of my time there with a project manager and airport manager.

*Q. How long after the tsunami passed did people stay on the third floor of the hotel?*

A. We observed four main waves during the tsunami event. The first was at 11:36 p.m.; the largest, at 4.93 feet, was at 11:48 p.m.; and the last large one was at 12:48 a.m. There were many smaller waves and extreme low tides between and after the main waves. We stayed on the third floor of Charlie for two hours after the last major wave. So, we went back to our individual living areas about 2:45 a.m. with the understanding that no one was to leave the center of the Sand Island housing area as a precaution. The exceptions were the airport manager and two firefighters to inspect the airfield.

*Q. Did water envelop the first floor of the hotel?*

A. No, the closest tsunami water was about 100 meters away.

*Q. What was it like in Charlie Hotel?*

A. To be honest, we were very isolated from the event; most of the windows were closed. It was a clear night without any wind and very quiet outside. When the waves started to roll in, you could hear a faint rumbling of the ocean 200 to 400 meters away. The main way we observed the tsunami was from the Internet. In cooperation with NOAA, we have a tide gauge in the harbor at Midway that provides data in real time via satellite link. We watched the tide gauge change, and that's how we knew we had some significant waves reaching Midway and when it was safe to return to our own quarters. This is in addition to advisories from the NOAA Pacific Tsunami Warning Center.

*Q. Did you ever feel as if your life was in danger?*

A. No, I and everyone else felt calm. We were prepared with communications, water, food, etc. well before the first wave. Also, the Tsunami Warning Center had predicted waves of a magnitude less than or equal to those that struck Midway in 1952 (4.3 feet), which flooded the island but caused no loss of life. Everyone was calm. People slept, played games, watched the news from Japan.

*Q. What damage did the tsunami inflict on the refuge?*

A. Two boat piers were moderately damaged. The airfield had debris (coral

rubble, sand, trash, vegetation) on about 20 percent of it, which caused its closure for about a day. All the debris was cleared with heavy equipment within about 12 hours. There was some damage to the seawalls. This will be the most costly item to deal with. A small storage shed and outhouse on Eastern Island were damaged, along with short-tailed albatross decoys and the cable for our remote camera. We are currently working on a dollar figure for the damage.

*Q. What is the refuge doing to recover from the damage?*

A. The first item was to remove the debris from the runway. Next, we assessed all three islands for infrastructure damage and wildlife impacts. Many albatross chicks, subadults and adults were trapped in vegetation and debris fields that had washed onto parts of Sand Island, but mostly Eastern. We spent much time rescuing albatross from land. Bonin petrels were also buried alive in their burrows part of Sand Island. We dug birds out. We used boats to rescue water-logged albatross from the lagoon. The birds were unable to fly because their feathers lost their waterproofing ability after being tumbled in the waves. Five live green sea turtles were rescued from land or the wetlands in the middle of Eastern Island. All three freshwater wetlands on Eastern Island were inundated with saltwater. One of them



*Five live green sea turtles were rescued from land or the wetlands in the middle of Eastern Island. (USFWS)*

had more than 600 dead albatross chicks, 60 dead adult/subadults and 1,000 pounds of plastic and vegetation that needed to be removed by hand. It was important to clean the wetlands immediately so the bacteria that produce botulism, which affects endangered Laysan ducks, would be controlled. Staff, volunteers, contractors and even visitors helped with the clean-up.

*Q. What is the latest information (as of early April) on the damage to wildlife and habitat?*

A. More than 110,000 Laysan and black-footed albatross chicks—about 22 percent of this year's albatross production—and at least 2,000 adults/subadults were lost. Wisdom, the 60-year-old albatross that recently hatched a chick and whose fate was uncertain for days, survived the tsunami. The first confirmed short-tailed albatross chick in modern history to hatch outside of Japan also survived. Thousands of dead reef fish washed up on Eastern. Hundreds or potentially several thousand adult/



*This Laysan albatross chick survived the tsunami. More photographs of the refuge in the tsunami's aftermath are available at the Pacific Region's Flickr Web site: <http://www.flickr.com/photos/usfwspacific>. (USFWS)*

subadult bonin petrels were buried alive and died. We are unsure of the effects on Laysan ducks at this time. NOAA will be conducting an assessment on Hawaiian monk seals in the near future.

*Q. When you and your colleagues compare what you went through to what parts of Japan are going through, what thoughts do you have?*

A. We have followed the events in Japan very closely. We are all devastated by what happened in Japan. What happened at Midway was sad, unfortunate and tragic, but it does not even begin to compare to the losses experienced in Japan. We all think daily of those suffering in Japan and send as much positive energy their way as possible.

*Q. Can you put into context what you went through compared to what they are enduring?*

A. No, their experience is beyond comprehension. 🐦

# Restoring Marsh, Accommodating Shorebirds

By Doug Cordell

“Birds are expanding their range across the bay... growing in population.”

That was the good news trumpeted in a recent front-page story in the *San Jose Mercury-News*, on the heels of scientific reports about the progress of the five-year-old South Bay Salt Pond Restoration Project. If the historic effort to turn 15,000 acres of former industrial salt ponds back into wetlands is a success, thousands of marsh-dependent birds will be returning to the lands of Don Edwards San Francisco Bay National Wildlife Refuge.

But what about the shorebirds and waterfowl that have come to inhabit the levees and open waters of the man-made salt ponds? What's to become of the western snowy plovers, marbled godwits, ruddy ducks, scaups and gadwalls now that ponds are being restored to tidal marsh?

The restoration project is designed to provide habitat for them, too—but on a smaller footprint, made possible by cutting-edge design, high-end technology, and intensive monitoring and management by refuge staff.

Industrial salt ponds around San Francisco Bay date to the 1850s; some remain in operation. The production process is fairly passive: Water is let in from the bay and allowed to course through a series of evaporation ponds, progressively increasing in salinity until it reaches a final, crystallizer pond, where the salt is harvested. The result has been the creation of an extensive network of ponds and levees where marsh once was. Over the decades, shorebirds and waterfowl came to migrate and live on the open pond waters and dry levees. Many of them arrived from California's Central Valley after land there was drained for agriculture.

When the plan was developed to acquire the salt ponds as refuge land and restore them to marsh, a portion of the land was set aside to accommodate



*A landscape of open water, man-made islands and dry pan—bordered by levees with weirs and gated culverts to regulate water levels—is designed to accommodate shorebirds and waterfowl that otherwise would be displaced by marsh restoration at Don Edwards San Francisco Bay National Wildlife Refuge in California. (Cris Benton)*

shorebirds and waterfowl. That meant designing a mix of open water and dry habitat on smaller acreage and intensively managing the new ponds with sophisticated equipment.

The first managed pond, known as SF2, near Palo Alto, was unveiled in September 2010, in a ceremony keynoted by Sen. Dianne Feinstein, a champion of the restoration project. What Feinstein and others saw that day was a designed landscape of open water, man-made islands and dry pan, bordered by levees with large weirs and gated culverts to

regulate water levels. They also saw features along the main levee designed for public access, including a walking trail, viewing platforms and interpretive displays.

Now, biologists are monitoring Pond SF2 for bird population counts, nesting success and water quality.

“We’re already seeing great use of the pond by willets, least sandpipers, dunlins and other shorebirds,” says Cheryl Strong, wildlife biologist for Don Edwards San Francisco Bay Refuge. “And we’re also seeing lots of waterfowl, like northern shovelers and northern pintails.”

This fall, construction is scheduled to begin on similarly designed ponds outside the

refuge’s Environmental Education Center in Alviso.

“Managed ponds like these require a lot of work: adjusting weirs and culverts for water levels and doing regular levee maintenance,” says refuge manager Eric Mruz. “But it’s worth the effort if we can provide habitat for birds that don’t have many other places to go.”

*Doug Cordell is a public affairs officer at San Francisco Bay National Wildlife Refuge Complex.*

# A Dog Can Be a Refuge Officer's Best Friend

By Mary Tillotson

**R**ex started work at Alaska's Kenai National Wildlife Refuge in April—the newest member of the refuge's law enforcement team and also, at 18 months, undoubtedly the youngest employee of the entire U.S. Fish and Wildlife Service.

Rex is a highly trained yellow Labrador retriever. His primary job is to help protect other animals at Kenai Refuge.

Since the mid-1990s, law enforcement dogs have been used in an increasingly official capacity on refuges. There are now six such dogs. In addition to Rex in Alaska, there are K-9 teams at Wheeler Refuge in Alabama, Chincoteague Refuge in Virginia, Upper Mississippi National Wildlife and Fish Refuge's Savannah District, San Luis Refuge Complex in California and at multiple refuges in north/central Florida. Each team patrols throughout its region as need arises.

Richard Johnston of the Refuge System's Division of Law Enforcement says this professional K-9 corps represents a transition from an era when game wardens took their personal dogs on patrol to help find poached game and illegal firearms. Johnston hopes the dogs' relatively new official status will bring them the recognition they deserve.

"Because of their life span," Johnston says, "they have a short window of effectiveness—like athletes. But what we think of as 'work,' they think of as 'play,' and they do it with such heart—no complaints, no parts breaking down."

The Kenai law enforcement officer working with Rex is Rob Barto, who has been interested in dog handling since he trained his first hunting dog. "To watch a dog work, find evidence that helps you prosecute a lawbreaker, is a thing of beauty," he says.

Rex lives in a kennel at Barto's home, spends most working days with him and gets some play time after hours, including with Barto's seven-year-old

daughter, Emily. But Barto is emphatic that Rex is *not* a pet. "He's a tool for law enforcement, to be used when needed." Given the vastness of the nearly two-million-acre Kenai Refuge, Rex (with his extraordinary senses of smell, hearing and sight) will be quite a tool.

Barto spent two weeks working intensively with Rex at a North Carolina training facility before taking him home to Alaska, both of them learning to work as a team: Rex learning his commands from Barto, Barto learning the dog's "subtle body language" when on a tracking mission.

## Keen Sense of Smell

That tracking can bear investigatory fruit, as Barto has often seen with the two dogs that preceded Rex in Alaska. In one such case, a hunter killed a cow moose—an illegal harvest in the state. Barto's co-worker Sampson the Lab went along to help execute a search warrant at the suspect's property. Barto says Sampson sniffed out a saw, which bore "minute amounts of tissue" and a dime-size spot of blood, hidden under a mattress. The tissue and blood samples were genetically matched to the moose that had been shot illegally. Evidence!

A dog's acute sense of smell is incomprehensible to humans. Dogs can smell cancer, illegal drugs, blood, guns. They can track those smells to the source: a missing person, a missing felon, a missing car, a crime scene. Johnston says U.S. Customs and Border Protection officials have even started using dogs to find cash being smuggled out of the United States. They can smell the *ink*.



Kenai National Wildlife Refuge law enforcement officer Rob Barto and his partner, Rex, are one of six U.S. Fish and Wildlife Service conservation K-9 teams across the country. (USFWS)

Labs have that keen a nose. But, Barto says, Labs also have what dog trainers call "ball drive." They'll work themselves to death to "get the ball," the reward, which may be another way of saying the approval of "their" human.

Johnston is so adamant about gaining recognition for the canines that the training branch now issues each dog a Service law enforcement credential. He is also working with such groups as the National Wildlife Refuge Officers Association to obtain protective vests for the animals. Happily, no refuge dog has yet been killed in the line of duty. But several police dogs in other agencies have, and Johnston wants to prevent that from happening to any Service animal.

Rex might welcome a bulletproof vest. But Rob Barto has given him a more immediate gift. He has roofed Rex's kennel and run electricity to it for heating. Plush digs for an Alaska dog.

*Mary Tillotson is a frequent contributor to Refuge Update.*

# In Wisconsin, Raising Whooping Cranes Egg by Egg

By Karen Leggett

For the first time in a decade, there will be no ultralight-led class of whooping cranes heading south from Necedah National Wildlife Refuge in Wisconsin this year. But the refuge will remain an integral player in the effort to restore a migratory whooping crane population to eastern North America.

The whooping crane is a critically imperiled species, with just a single wild population of 281 birds that winter at Aransas National Wildlife Refuge in Texas. The goal of the multi-agency Whooping Crane Eastern Partnership (WCEP), of which the U.S. Fish and Wildlife Service is a member, is to create a second self-sustaining flock of at least 120 birds and 30 breeding pairs—a population that can be maintained without the current need to add birds from captive flocks.

For the past 10 years, whooping crane chicks have followed an ultralight aircraft from Necedah Refuge to Chassahowitzka National Wildlife Refuge in Florida. More recently, some cranes have been led to St. Marks National Wildlife Refuge in Florida. After learning the migration route south in the fall, the young birds migrate north on their own in the spring. This 10-year effort, coupled with other captive breeding-and-release programs, has generated a population of about 100 cranes.

Although the introduction of migrating birds has been a success, there have been problems with reproduction and nest abandonment. In the past three years, there have been 33 unsuccessful nests at Necedah Refuge, with successful nests producing only two chicks that fledged. The problem is acute if the cranes nest early in April rather than later in that month. Since 2005, all early nests have failed at Necedah Refuge.

Because male whooping cranes return to their natal areas to breed, they must be released directly into, or very near, desirable nesting locations. So, WCEP



More whooping cranes will be able to raise their own chicks this year as part of the continuing effort to expand a migratory population of cranes in eastern North America. (Richard Urbanek/USFWS)

decided that no more cranes would be released for the ultralight project at Necedah until the nest abandonment issue has been resolved.

## Help From Many Directions

Biologists and researchers are trying several projects to help the cranes, including research to determine if too many black flies early in the season are causing the cranes to abandon their nests. Although high water prevented a full application of larvicide, a partial black fly treatment was completed this spring, and its success is being evaluated. At Necedah Refuge, wildlife biologist Rich King will continue to watch the nests like, well, a hawk to see if and when they are abandoned.

WCEP is also planning to lead an ultralight class of crane chicks to the Florida refuges this year from a non-refuge site in eastern Wisconsin. Chicks may be released at Horicon National Wildlife Refuge, WI, soon, too.

Necedah Refuge will continue to receive crane chicks from Patuxent Research Refuge, MD, but for the first time these will be raised by their crane parents rather than by humans

in crane costumes. “The challenge is to raise a healthy parent-reared chick by monitoring it from a distance,” says U.S. Geological Survey wildlife biologist Glenn Olsen, rather than having humans dressed as cranes working closely with the chick.

The Whooping Crane Eastern Partnership has embarked on a new, five-year strategic plan. Many questions remain, but “we’re going in the right direction,” says Billy Brooks, a member of the Service’s WCEP Guidance Team. “We’ve established a migratory flock of whooping cranes, and we hope through continued releases of whooping cranes into Wisconsin that we will establish a self-sustaining viable population of cranes.”

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

# In Texas, Safeguarding Habitat and Crabs for Cranes

By Bill O'Brian

On a winter morning in Texas, as a pair of whooping cranes and their half-year-old juvenile are wading in a tidal marsh on Aransas National Wildlife Refuge, a scene unfolds that is hard not to anthropomorphize. One adult plucks a blue crab from the water, holds it in its bill, walks over to the juvenile, cracks the crab and appears to feed the crustacean to the juvenile.

Blue crabs are a mainstay of the whooping crane diet. This winter was a banner one for cranes at Aransas Refuge, but refuge manager Dan Alonso is concerned about their future—in part because, he believes, blue crabs are being overharvested and in part because Gulf of Mexico coastal habitat is disappearing rapidly. So, the refuge is taking new steps to help North America's tallest flying bird.

The Aransas Refuge population, the only natural flock of endangered whooping cranes, nests at Wood Buffalo National Park in Canada in spring and summer. From early fall to late December, the cranes migrate in small groups to the Texas refuge. In early spring, they rush 2,500 miles back to Canada in 15-16 days. "They're usually all gone by April 15," says Alonso. "They don't want to be taxed."

## Record-Breaking Season

A record-breaking 281 cranes wintered at Aransas Refuge this season. That's half of this continent's whooping cranes. Approximately 100 others occur in the human-induced Wisconsin-Florida migration route, and about 167 are in captivity (many at Patuxent Research Refuge, MD).

The Aransas Refuge crane numbers are up from 15 in 1941, but the genetically homogeneous population remains prone to catastrophic disease, and human development is devouring the cranes' habitat. "That is what has imperiled the species to the degree it is today," says Alonso. "We're constantly losing shoreline, either through outright development or bulkheading—putting up a barrier that prevents the water from flowing into the marsh or the estuary.



*A whooping crane pursues a blue crab at Aransas National Wildlife Refuge in Texas. Despite a record 281 cranes on the refuge this past season, the refuge is taking new steps to protect North America's tallest bird. (Klaus Nigge)*

That basically kills the estuary, rendering the habitat unusable" for cranes.

Whooping cranes—which are five feet tall, have a seven-foot wingspan and can fly up to 45 mph—thrive on open tidal marsh. They dislike thick cover (or densely wooded areas), Alonso says, "because it doesn't afford them the opportunity to elude predators"—primarily coyotes and bobcats.

A team led by longtime U.S. Fish and Wildlife Service whooping crane coordinator Tom Stehn is working with various partners to estimate the amount of additional suitable habitat that is needed in Texas to foster species recovery.

Cranes are "voracious eaters" that forage in marsh for razor clams, minnows, lizards, snakes and, especially, blue crabs, Alonso says, but the commercial fishing industry is overharvesting crabs.

Alonso, who came to Aransas Refuge about two years ago, has placed renewed emphasis on enforcing and publicizing regulations that prohibit commercial fishing for blue crabs in refuge waters at all times. "We let the commercial fishermen know that this was a

longstanding regulation in place, but that it was going to be enforced more strictly than it had been in the past," he says.

A consortium of government and nongovernmental entities that includes the refuge is advocating blue crab conservation. The refuge also participates—with nonprofits, sportfishermen and volunteers—in an annual abandoned crab trap pickup. For a nine-day period in February, any trap found in the water is considered abandoned and removed. This is important because abandoned traps continue to catch crabs—which then die, unharvested. In nine years, 27,052 "ghost fishing traps" have been removed. Alonso wants to hold industry accountable for such traps—for the cranes' sake.

"They're just so majestic," he says of the birds that help attract an estimated 45,000 visitors to Aransas Refuge each winter. "They're large, they're awe-inspiring—bright white with black wingtips. Being as large as they are, they're still very graceful ... highly charismatic, enjoyed by many. And given their state of low numbers, it makes them that much more appealing and sought after." 🦢

# Focus...Conserving the Future, People

## Wildlife Refuges and the Next Generation

Scores of U.S. Fish and Wildlife Service employees have been working for months with the National Wildlife Refuge Association, Friends and partners on a vision to guide the National Wildlife Refuge System for the next decade. This renewed vision, titled *Conserving the Future: Wildlife Refuges and the Next Generation*, will be the successor to the *Fulfilling the Promise* vision crafted in the late 1990s.

The process of developing the vision has been transparent, with wide-ranging discussions online at [www.AmericasWildlife.org](http://www.AmericasWildlife.org). The

*Conserving the Future: Wildlife Refuges and the Next Generation* vision document will be presented for ratification at a conference July 11-15 in Madison, WI.

This is the third, and final, in a series of *Refuge Update* Focus sections leading up to that conference.

The section's title—"Conserving the Future, People to Land"—derives from Wisconsin conservationist Aldo Leopold's quotation, "There are two things that interest me: the relation of people to each other, and the relation of people to land." 🐦



(Steve Hillebrand)

## National Conference: Enthusiasm in Madison and Beyond — continued from page 1

*Wilderness Kingdom*. They will be joined by Sylvia Earle, a former chief scientist at the National Oceanic and Atmospheric Administration, now a *National Geographic* explorer-in-residence and author; and *National Geographic* photographer Dewitt Jones.

Jane Goodall, the world's foremost expert on chimpanzees, will send a video message. Others are also expected to send messages electronically.

Cutting-edge technology will engage participants thousands of miles away from Madison, giving them ideas on how to implement the vision in their communities and on national wildlife refuges. "Ratification of the vision, which was open to public comment for about 60 days, is a major goal of the conference," said Refuge System Chief Greg Siekaniec. "But it is not the only objective.

"We expect people up at the conference and joining us from every corner of the nation will be fired up to make the vision happen on the ground, to take the conversations we started online into

their own neighborhoods for face-to-face talks that will energize people who never before thought of themselves as conservationists."

The day-by-day conference schedule will be posted at the *Conserving the Future* Web site, [www.AmericasWildlife.org](http://www.AmericasWildlife.org), well before the event starts. During the conference, live streaming video will be aired on the site. During the plenary sessions, U.S. Fish and Wildlife Service personnel, refuge Friends and individuals across the nation will be able to submit questions remotely as speakers also take questions from the floor.

Online daily news feeds will be produced by teams of Service employees who will act as roaming journalists, writing stories from breakout sessions July 12-14. These teams also will interview participants and create on-the-spot videos. Social media writers will bring news from the conference to Facebook and Twitter sites via the *Conserving the Future* Web site. Blogs will be updated from the conference by Service writers

and participants. Photos will be posted regularly on Flickr.

About 20 students—brought to the conference through two programs that provide employment to young people—will report on what they see and hear on site. Youth engagement will be a hallmark of the conference.

The July-August issue of *Refuge Update* will be devoted entirely to the conference and will be available in early July at <http://www.fws.gov/refuges/> to bring as much advance news as possible.

"We've designed both the conference and the vision process to be inclusive, whether people are in Madison or in their homes and offices," said Siekaniec. "Planning will continue up to the last minute to make sure we bring as much information to people in a way that will minimize our carbon footprint and maximize their participation and understanding." 🐦

## A Spring Break With Purpose at Desert Refuge

By Toby Marble

Some might say that carrying cumbersome loads of fencing materials on foot across the rugged terrain of Desert National Wildlife Refuge in southern Nevada two or three times a day for most of a week is not the ideal spring break.

After doing just that this spring as a senior at the University of Nevada, Reno, I would disagree.

Between the breathtakingly beautiful landscape and the kinship developed among the 13 volunteers who joined me, the week-long alternative spring break trip sponsored by the Friends of Nevada Wilderness was truly rewarding.

When I first learned about the trip from an academic advisor, I was apprehensive. I worried about not knowing anyone else and not having enough work to keep me busy. In the end, I decided to go anyway. The payoff was enormous. I can easily rate this spring break as the best of my college years.

The volunteers included undergraduate, graduate and even doctoral students whose fields of study ranged from psychology, English and engineering to geology and biology. Most were from Nevada, and two-thirds were male. The group also included two retired gentlemen. Almost immediately, we all became close friends with a shared work ethic and a common goal.

Our job was to take apart and remove a fence that had been installed on the refuge years ago for a long-concluded study about the effects of nearby Edwards Air Force Base, CA, on bighorn sheep. The remaining fence segment, made of standard mesh and barbed wire, was about eight feet high. It stood between the bedding grounds and water source for the sheep. Once we dismantled the fencing and rolled it into bales, removal was no easy task.



*The author, flanked by fellow volunteers Anna Breen and Ian Smith, removes fencing material as part of his alternative spring break at Desert National Wildlife Refuge in southern Nevada. (Kurt Kuznicki/Friends of Nevada Wilderness)*

Because motor vehicles are not allowed on Desert Refuge and the nearest road was a 2.3-mile hike away, all dismantled materials had to be hiked out. I was one of three volunteers who worked as pack mules while the rest of the team deconstructed the fence. Our team made two or three trips a day, carrying the heavy loads in the hot sun. The work was rigorous, yet we each found a niche, worked as hard as we wanted, laughed and joked along the way, and had time to enjoy the outdoors. It was a fantastic mix.

### Passion for Nature

In arranging the outing, the Friends of Nevada Wilderness had two goals. Of course, they wanted to get the fence removed—and we pulled out more than 2,900 feet, all the way up a valley until we reached more treacherous rocky terrain. They also wanted to open our eyes to the value of desert lands. While many people associate the desert with desolation and nothingness, that couldn't be further from the truth. Desert Refuge is a stark landscape, but it is full of life and beauty. As we trekked across the terrain, each of us shared knowledge

of what we know best. The geologists talked about how the mountains were formed by tectonic activity, pointing out layers of sediment in the ridgelines. The biologists discussed the traits of local wildlife, including road runners, horny toads, desert tortoise and, of course, bighorn sheep, and how each has adapted to life in the desert. The botanists pointed out the intricate web of vegetation such as the Indian paintbrush and bear paw cactus. We were even treated to lectures back at camp by local experts.

The Friends certainly accomplished their goal of sharing passion for nature with us.

And I'm glad they did. While other students partied or worked on their breaks, I got to get into the great outdoors, meet amazing new friends, do work that makes a difference, and still came back feeling rejuvenated. What more can you ask of a spring break? 🦋

*Toby Marble is a May 2011 graduate of the University of Nevada, Reno.*

# Focus...Conserving the Future, People

## What's the Most Important Thing You've Done to Connect People to Land?

Refuge Update recently asked National Wildlife Refuge System employees to share the most important thing they have done on a refuge so far in their careers to connect everyday people to the land. Staff members were hesitant to reply. In characteristically humble U.S. Fish and Wildlife Service employee fashion, they did not want to be seen as promoting themselves above the conservation mission. Nonetheless, we were able to arm-twist a handful of colleagues to cooperate. What follows are condensed versions of their responses.

### Steve Kallin, project leader, National Elk Refuge, WY:

In 2002, when I was district manager at Windom Wetland Management District, MN, we started Wings on the Prairie, a spring bird festival that continues today. The concept was to bring attention to efforts to reestablish trumpeter swans, which were extirpated from southwestern Minnesota early in the 20th century. The festival expanded to include prairie ecology and other migratory bird identification and research techniques, all with an emphasis on youth environmental education and hands-on activities.

Wings on the Prairie helps youth and adults visualize the tallgrass prairie and wetlands of the pre-settlement landscape, which enables them to better appreciate the importance of wetlands and the rich wildlife heritage of the area. This occurs not just through educational programs but also through simple hands-on projects where folks can make a small contribution to helping birds.



Ecological Services fish and wildlife biologist Ernesto Reyes, second from left, with pre-med students at Santa Ana Refuge in south Texas. (USFWS)

### Karl Stromayer, assistant refuge manager, San Luis National Wildlife Refuge, CA:

Working with others to conduct volunteer days on which families plant native grasses and shrubs. Specifically, planting saltgrass plugs (a native perennial grass) one day in January 2010—to restore an upland that had been converted to agriculture and had been lying fallow since acquisition by the refuge. People got their feet wet and their hands dirty in the soil. They were connected to nature in a primal way.

The foggy cold day slowly warmed up, and many migratory birds flew over the planting site that day, including lesser sandhill cranes, Ross's geese and white-faced ibis. Even though the site was next to agricultural land, the fog and birds flying over and calling created for a short time an illusion of wilderness. Children and adults alike stopped their work and looked up to see the birds above.

### Anne Morkill, refuge manager, Florida Keys National Wildlife Refuges Complex:

National Key Deer Refuge is a matrix of public and private lands. One of our biggest challenges and threats to our threatened and endangered species are feral and free-roaming cats. I initiated discussions in 2007 with local animal advocacy groups to begin addressing this issue publicly and to implement a trap-and-remove program on refuge lands as part of our recovery strategy for the endangered Lower Keys marsh rabbit.

What started as a polarized debate transformed into a proactive alliance called One Animal Family. It is a partnership that promotes the humane treatment of all animals, wild and domestic, while seeking to reduce human-induced pressures on endangered species through a variety of strategies including education, law enforcement, reducing wildlife's access to human food and trash, and actively trapping and removing cats from refuge lands.

We have not started the trapping program yet. It will start soon, and it's still rather controversial, as might be expected. I see this as a means of connecting people to the land by educating them about the impacts of their cats on native wildlife and showing that responsible pet owners and conservationists alike can play a supporting role in accomplishing the compatible goals of conserving endangered species and reducing homeless cats on refuges.

### Ernesto Reyes, Ecological Services fish and wildlife biologist based at Santa Ana Refuge, TX:

Since last year, I have been involved with the South Texas Environmental Education and Research group from the

Regional Academic Health Center in Harlingen, TX. I have given presentations to pre-med students from across the country about the refuge and environmental issues that impact wildlife and people. I take the students to see the border fence/wall, so they can get a perspective firsthand on the loss of land connectivity for terrestrial wildlife on nearby Lower Rio Grande Valley Refuge.

I also talk about how water quality relates to human health issues such as cancer, deformities and disease. I discuss the importance of protecting the habitat in our watershed by minimizing chemical-filled storm-water runoff from urban areas and farmlands. I explain how sensitive species, such as amphibians and fish, are indicators of water quality and contamination. The students like that we connect the importance of protecting the environment with human health issues that they will deal with in the medical field.

### **Jared Brandwein, refuge manager, Back Bay Refuge, VA:**

In the mid-1990s, when I was an Ecological Services project leader in Pennsylvania, I was a sideline person who shepherded through the beginnings of Cherry Valley National Wildlife Refuge, which was established last fall. I helped keep the process moving despite a lot of odds. That refuge was started in a conference room. There were four of us: Bud Cook, Tony Tur, me and, on the phone, now-retired realty specialist Walt Quist. The idea was spawned by The Nature Conservancy.

Five different refuges had been roughed out on an area map. We eventually decided to aim for one refuge. Cherry Valley was the best location because it had the mother lode of bog turtles within its proposed boundary, it was near the Appalachian Trail and the Delaware River National Recreation Area, and it had connectivity to state game lands. It was like the missing link in the conservation puzzle of northeastern Pennsylvania. It was rewarding to see the project come to fruition after I left, to see how an original concept goes through when the public wants it and we communicate effectively.

### **Deborah Holle, refuge manager, Balcones Canyonlands Refuge, TX:**

The most important things I have done in my career to connect people to the land are to hire great people and to agree to the great ideas people come up with. For instance, when I was manager at the Florida Keys refuges in the 1980s, we were experiencing high numbers of Key deer deaths on roads. We had a large volunteer group, and Bill Grimes, a retired New York City fireman, suggested that we erect a sign on Big Pine Key reporting how many deer were killed compared to the previous year.

The group liked the idea of raising awareness, but I cringed. What kind of sign? Would it comply with Service, Florida DOT and Monroe County regulations? Where would we get permission, what safety issues were involved, who would maintain and update it? How would it get built? The suggestion



*A girl relishes her role in a native grass planting project at San Luis National Wildlife Refuge in central California. (Karl Stromayer/USFWS)*

was simple, but, because of the lack of money and people, these were very real concerns.

Luckily, I kept my concerns to myself, smiled and said: “That’s a great idea; who will take charge of this project?” Bill stepped up along with other volunteers. The sign created more public awareness than we were prepared for. I visited the Keys two years ago, and the sign was still there, albeit a newer one. Often since then I have wondered what would have happened

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# Focus...Conserving the Future, People

## Private Hunting Clubs Help Enhance Federal Lands

By Kendall Slee

Private landowners within Butte Sink Wildlife Management Area in northern California are not only managing their own properties for the benefit of wildlife, a number of them also are contributing labor and equipment to help restore and enhance habitat on the federal land.

Butte Sink WMA consists of 733 acres of government-owned lands (the Butte Sink Unit) and 10,311 acres of private land protected by conservation easements.

The U.S. Fish and Wildlife Service purchased the easements to protect wetlands from agricultural, commercial and residential development, says Craig Isola, conservation easement program manager for the Sacramento National Wildlife Refuge Complex. “The primary goal of the conservation easement program is to protect the Butte Sink wetlands in perpetuity.”

In the extensively farmed and developed Sacramento Valley, Butte Sink’s wetlands are crucial to hundreds of thousands of waterfowl for overwintering and migration. Some years, biologists have estimated more than 750,000 birds on the 650 acres of wetlands within the Butte Sink Unit and upwards of two million birds using the entire Butte Sink WMA.

“It’s one of the highest densities of wintering waterfowl in North America,” Isola says of the Butte Sink WMA, which is also an important stopover for neotropical migrant songbirds that use its abundant riparian forest vegetation.

Many of the private lands within the WMA are hunting clubs that have an obvious interest in enhancing habitat for waterfowl. As with many wetlands in the area, there is a constant battle to control invasive plants. Bermuda grass is particularly problematic.

Bermuda grass control requires extensive herbicide treatment followed by disking using large tractors and stubble



Butte Sink Wildlife Management Area in northern California provides habitat for hundreds of thousands of waterfowl in the Pacific Flyway, especially in winter. (Mike Peters/USFWS)

disks—equipment too heavy to cross a bridge on the unit’s access road. As a result, Bermuda grass had taken over much of the area. Neighboring hunt club members recognized this and approached Butte Sink Unit staff to offer assistance.

Over the past six years, the West Butte Club, Butte Lodge Outing Club and other clubs have donated work time and machinery to help control Bermuda grass and other invasive species. In 2009, the unit received a Department of the Interior grant to match the hunt clubs’ donation of \$13,000 of in-kind services for vegetation control. The treatments have reduced Bermuda grass, and increased desirable wetland plants such as annual smartweeds, watergrass, river bulrush and swamp timothy.

The battle against invasive species rarely ends with one effort, so the nearby clubs continue to assist. “We want to improve our hunting, but we also want to improve the whole habitat structure,” says Wally Emery, part owner of the Butte Lodge Outing Club.

Private landowners and other hunting clubs also formed the Butte Sink Waterfowl Association, which addresses

issues such as water rights and wetland management. The association, the Service and other partners established the Butte Sink Cooperative Management Plan to formalize how water is managed. Most water control structures have been replaced or retrofitted to enhance flow through the wetlands and improve fish migration.

The water control improvements benefit waterfowl habitat as well as threatened Chinook salmon and Central Valley steelhead that pass through the Butte Sink on their downstream and upstream migrations of Butte Creek.

Butte Sink WMA’s public-private partnership is a success because it also runs two ways.

“While the Service has worked closely with private landowners to protect, restore and enhance private and public wetlands, private landowners have invested a tremendous amount of time, sweat and money in improving habitat on their lands as well as contributing to improvements at the Butte Sink Unit,” says refuge manager Mike Peters. 🦋

*Kendall Slee is a Colorado-based freelance writer.*

## At Bear River Refuge, Education to Enhance Conservation

*This is the second of two articles about Bear River Migratory Bird Refuge's watershed conservation plan. The first article appeared in the March/April issue of Refuge Update.*

By Karen Leggett

**E**nvironmental education is a critical management tool at Bear River Migratory Bird Refuge in Utah. “We can’t move forward with our landscape-level conservation plans if the public doesn’t understand why working on the watershed is important,” says refuge manager Bob Barrett, who is as enthusiastic about a student essay contest on the marbled godwit as he is about critical resources for waterfowl in the Great Salt Lake ecosystem.

The Friends of the Bear River Refuge has created an Enduring Legacy Education Endowment to guarantee annual funding for educational programs. The goal is to generate \$1.5 million by December 2012 that would be held “outside the Service and invested privately, generating enough funds to support education outside of the refuge budget,” says Anne Truslow, a facilitator with the National Wildlife Refuge Association.

**Catch ‘em While They Are Young**  
Watershed and water quality protection are part of the state-approved curriculum for Box Elder County fourth-graders. Every child participates in two field trips a year, first to the upper watershed and later to the refuge, where the children test water and learn about wetlands and watersheds.

“All the research shows that if you don’t communicate the fundamentals about the watershed by the time kids are 12, it’s difficult to get those ideas understood and hard to get the ideas supported,” says Barrett.

One year, the winner of a student essay contest went on an airboat ride to help tag a marbled godwit and assist in

collecting data about the species. The young woman is now in high school with a strong interest in pursuing a career in science, nurtured at least in part by that early experience on the refuge.

There are internships for high school students to help promote the Youth Conservation Corps, and Utah State University students earn credits toward a recreation management degree by volunteering on the refuge.

### Linking Internationally

The Linking Communities, Wetlands and Migratory Birds Initiative has generated a very productive relationship between the refuge and Weber State University in Ogden, UT, says refuge visitor services manager Kathi Stopher. The initiative focuses on education, ecotourism and avian conservation in the Canadian province of Saskatchewan, the Great Salt Lake in Utah and the Marismas Nacionales complex in Nayarit, Mexico—all stops on a migratory pathway for many of the same species of shorebirds.

For instance, under the direction of Weber State ornithologist John Cavitt, University of Nayarit student Paulina Martinez documented habitat preferred by snowy plovers during breeding season on the refuge. Later this spring, she will submit a report to the refuge concluding that snowy plovers are less likely to nest on dikes with large rock sides. “That could become a management tool to discourage nesting on dikes,” says Cavitt.



*“All the research shows that if you don’t communicate the fundamentals about the watershed by the time kids are 12, it’s difficult to get those ideas understood and hard to get the ideas supported,” says Bear River Migratory Bird Refuge manager Bob Barrett. (Brian Ferguson)*

“We consider these our birds,” he says, “but in fact it’s better to see that they are birds from Mexico that spend a little time here at the refuge. By participating in these projects, we can have an impact on the entire range of our species.”

Cavitt is developing an online ornithology class in Spanish for students at the University of Nayarit, and this spring he is taking a class of Weber State students to Mexico for a six-week hands-on experience in the Marismas complex.

Back at Bear River Refuge, “my goal is to wear out the visitor center,” says Barrett, utilizing every square inch of the expansive James V. Hansen Wildlife Education Center just off Interstate 15 near Salt Lake City. On a more philosophical level, the Linking Initiative measures success when “we each, in our own place and time, see a migratory bird and know our responsibility for its well-being.”

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

# Focus...Conserving the Future, People Meandering Into History at “Ding” Darling Refuge

By Jeff Lysiak

When taking a couple of steps along the Calusa Shell Mound Trail at J.N. “Ding” Darling National Wildlife Refuge, some folks may not feel like they are stepping back in time.

But they are.

After more than six months and nearly \$40,000 worth of renovations and improvements, the Calusa Shell Mound Trail reopened in February with a new, state-of-the-art interpretative exhibit and tri-panel kiosk featuring renderings of the Calusa Indians by local artist David Meo.

“This site was never really excavated or studied before, but it had been protected,” says Toni Westland, supervisory ranger at “Ding” Darling Refuge on Florida’s southwestern Gulf Coast. “If we were to dig deep down into this site, you could tell a lot about the people who lived here.”

Improvements to the Calusa Shell Mound Trail were made possible by contributions to the “Ding” Darling Wildlife Society, a nonprofit organization that supports the refuge’s mission through charitable donations and refuge nature shop proceeds. A \$38,000 partnership with the City of Sanibel, FL, funded the removal of exotic plants from the one-third-mile, boardwalk-covered trail and other sites at the refuge.

According to Westland, renovations at the site started in August 2010. In addition to site clearing and installation of nine information panels — including a mini-biography of Jay Norwood “Ding” Darling — along the trail, robotic scans of the heavily canopied parcel revealed three individual shell mounds. The site varies in height from sea level to nearly nine feet.

“Here in Florida, even a gradual rise in elevation can result in huge changes in the types of vegetation that is grown,”



*The Calusa Shell Mound Trail at J.N. “Ding” Darling National Wildlife Refuge, FL, has been reopened after extensive renovations and improvements. The interpretive trail includes a six-panel kiosk at the start and nine panels along the way. (Chelle Walton)*

Westland says. “If you look through some of the transects, you can see the topography of the mounds themselves.”

The project prepared the area for the erection of new interpretative signage about the Calusa people, a highly evolved tribe who inhabited southwest Florida for more than 2,000 years before being displaced by European settlers in the late 1700s. For sustenance, the Calusa Indians relied mostly on seafood from Gulf Coast estuaries, rather than farming, and they discarded shells into large mounds. They used the shells for tools, utensils, jewelry and hunting spears. The new signs along the trail are intended to teach visitors about the hammock environment as well as about the tribe.

“The artwork that David [Meo] produced for these panels is a rendering of what the site actually looked like, not just what it might have looked like,” says Westland. “It shows three different perspectives ... It’s an homage to the people who used to live here.”

The trail is a universally accessible, interpretive boardwalk that meanders through a hardwood hammock that has grown on top of ancient Calusa shell mounds. It is an excellent place to see migratory songbirds in spring and fall.

“This is a great spot for birders,” says Westland. “You can see warblers, Carolina wrens, indigo bunting and lots of other species ... even rare ones.”

Case-in-point: While driving out to the site prior to a ribbon-cutting ceremony for the revamped site, Westland—and more than two dozen excited visitors—spotted a mangrove cuckoo in the tree canopy.

“That is one of the top three species birders who come here hope to find,” says Westland, who noted the other rare birds at the refuge are the grey kingbird and the black-whiskered vireo. 🐦

*Jeff Lysiak is executive editor of Breeze Newspapers/Sanibel, which originally published this article at [www.captivasanibel.com](http://www.captivasanibel.com) on Feb. 21, 2011.*

## Diane Buell, Volunteer Extraordinaire

By Susan Morse

**D**iane Buell didn't set out to break records. When she began volunteering at what is now Rocky Mountain Arsenal National Wildlife Refuge, she simply wanted to stay active in retirement.

That was in 1989. Since then, the Denver resident has racked up almost 19,000 volunteer hours—the equivalent of nine years as a full-time employee—at the refuge and the National Eagle and Wildlife Property Repository, a U.S. Fish and Wildlife Service facility on site. The sum surprises even her.

“You don't really notice. [The count] just gets there,” says the former computer programmer and Air Force master sergeant.

Buell, 74, has become an indispensable resource.

“She does *everything*,” says Rocky Mountain Arsenal Refuge volunteer coordinator Cassandra Bland. “She roves trails and roads on the days we do tours to let tour guides know what wildlife is out there. She helps staff the visitor center ... She helps with biology research projects ... She drives a 14-passenger van for photo tours.” At the repository, she inventories contraband wildlife property seized by law enforcement officers.

She is also an eyewitness to a remarkable transformation. During her 21-year tenure, Rocky Mountain Arsenal Refuge has gone from toxic waste site to renascent prairie 10 miles from downtown Denver. Before the refuge was established in 1992, the U.S. Army made chemical weapons there for use in World War II. Later, Shell Oil made pesticides until 1982. Last fall, after a \$2 billion cleanup, the Environmental Protection Agency removed the refuge property from its Superfund list.

“I feel good about it,” says Buell, a member of the Friends of the Front

Range Wildlife Refuges. “All the manufacturing plants are gone. Refuge staff is restoring it back to prairie. You wouldn't even know there once was a manufacturing complex out there.”

In describing Buell, supervisors use words like “dedicated,” “reliable,” “detail-oriented” and “energetic.”

“I see her work circles around younger people,” says wildlife repository specialist Doni Sprague. “I think of her as part of the staff.”

### “I Can't Keep Up With Her”

Buell does pose one problem for Bland. “It's been a challenge for me to figure out what kind of award to give her. I can't keep up with her,” the refuge volunteer coordinator says. “Our files tell us: This is what a volunteer gets at 50 hours. This is what a volunteer gets at 75 hours. Not that many volunteers are at 20,000 hours.”

Back in 1989, Buell discovered the refuge land through a photography course, which offered an escape from her desk job. “It was out in open air, and wildlife was what I enjoyed,” she says. “I always had a passion for the out-of-doors. I grew up in a small town in Iowa, so we were always outside as kids.”

You can still hear her delight in nature when she talks about counting eagles in spring—a task she alternates with the refuge biologist. “You sit out in the dark and cold and see all those bald eagles



*Diane Buell has worked 19,000 volunteer hours at Rocky Mountain Arsenal National Wildlife Refuge, the equivalent of nine years as a full-time employee. (Cassandra Bland/USFWS)*

coming into that roost tree for the night. That is fantastic to see,” she says.

Of all her refuge activities, does she have a favorite?

“Not really,” she says. “I like them all. It's just like the wildlife through the year: It changes. Now we've got bald eagles migrating back from the North. In the fall, you see bucks in the rut. In the summer, you see burrowing owls. There's always something to see year-round. That's what makes it interesting.” 

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

# Focus...Conserving the Future, People

## Drawing Kids In at Sacramento Refuge

By Todd R. Hansen

**M**ore than 150 second-graders at Mill Street School in Orland, CA, turned a recent field trip to Sacramento National Wildlife Refuge and follow-up classroom activities into works of art.

The trip was part of a program that teaches wide-eyed students about waterfowl, wetlands and migration, with the end result being the children submitting drawings to the Junior Duck Stamp Conservation and Design contest.

“They got to see a bald eagle out there,” said Diane Forrester, one of six teachers involved in the hands-on field trip that was funded through a local nonprofit organization, the Barceloux-Tibessart Foundation. “I think it is the most wonderful experience.”

The excursion included an activity in the refuge discovery room, a nature walk, a bus trip on the refuge—and a chance for the children to track the migration of birds from as far away as Russia.

Garrett Spaan, a visitor services assistant at the refuge, said one of the tools he and colleague Natalie Garver use is a migration game in which the students “travel” from place to place around the world just as the birds do. Spaan and Garver work for California Waterfowl and provide environmental education for children at the refuge.

“When they came to the refuge, we did a program called Chompers and Stompers. It talks about beaks and feet, and we have our discovery room activities, and they all have worksheets, and they go around and discover the answers,” said Spaan, noting that room is home to a number of stuffed birds.

“And we have a program called Migration Madness, which is a game all about snow geese,” Spaan said. “And [the students] run from place to place where they go from Wrangel Island



*Geese, ducks, drawing and schoolchildren get along well at Sacramento National Wildlife Refuge. (Steve Emmons/USFWS)*

[off the coast of Russia] to the Klamath Basin, and follow the migration of the snow geese.”

Students were given binoculars for use during the refuge tour.

This year’s trip was a little different, however, because the refuge also came to the school. Spaan and Garver spent an hour in each classroom over two days, refreshing the students on some of the lessons they learned, and showing them how to draw a duck.

“The kids are very, very excited. We go in there and show them a lot of stuffed ducks and stuffed geese, and we get a lot of feedback from the kids,” Spaan said.

“Personally, I really enjoy it. I love going into the classroom and educating these kids,” he said. “And I’ve been very surprised. There are a lot of kids who go through the program ... and they know a lot about habitat and waterfowl.”

The students use a whiteboard to begin their drawing lessons, and then are given paper for the final drawing. Students who wish to can then submit the drawings for the contest.

In turn, for each drawing submitted, the U.S. Fish and Wildlife Service gives the program \$1 for educational activities through the California Junior Duck Stamp program.

“The main goal is to promote the Junior Duck Stamp program, and to educate these kids on waterfowl, wetlands and migration,” Spaan said. “And we educate them on conservation.” 

*Todd Hansen is managing editor of Tri-County Newspapers in northern California. This article originally appeared in the Orland Press-Register on March 4, 2011.*

## “Generation E Is in the House!”

By Jennifer Anderson

So moved by the juxtaposition—images of the immense, naturally wild Arctic National Wildlife Refuge and the possibility of oil exploration there—high school students in Connecticut took action.

From a continent away, 13 students spearheaded a project at Bruce Museum in Greenwich, CT, that achieved an impressive level of awareness for the Alaska refuge.

The whole experience “was better than I could have imagined,” says Mary Ann Lendenmann, the museum’s volunteer program manager and coordinator of a youth group called youth@bruce.

The crux of the project involved bringing a traveling exhibit—*Arctic Sanctuary: Images of the Arctic National Wildlife Refuge* by photographer Jeff Jones—to the museum. The 25-photograph display, one of a handful of exhibits on the museum’s calendar that the students could have chosen to fund, coincides with the refuge’s 50th anniversary and runs through May 29.

Rather than simply fund the exhibit, the students also applied to TED.com and obtained a license to host a TEDx event. TEDx events are planned and coordinated by independent groups and feature live presenters engaged in discussions on a range of issues.

The speakers at the March 26 TEDxYouth@Bruce event included Jones; former Arctic Refuge biologist Fran Mauer; author and environmentalist Bill McKibben; Alaska native Sarah James, a spokeswoman for the Neets’aii Gwich’in Indian tribe; and climate-change journalist and writer Andrew Revkin.

Revkin featured the event on his *New York Times* Dot Earth blog: “The best part?” he wrote. “The event has been largely organized by high school students from Greenwich and neighboring

Connecticut towns. In other words, Generation E is in the house!” (Revkin defines Generation E as young people who are working on “the climate-energy challenge.”)

Why did the students work so hard on the project? “We felt it was important to fund an exhibit relevant to what was going on in the world,” says Dane Burge, a junior at Greenwich High School. Describing the photos as “breathtaking,” he says, “the exhibit was perfect for illustrating the debate on oil drilling in Alaska.”

“Even though the refuge is far away, preserving the environment is a big theme, global,” says Lisley DaSilva, a classmate. “We should be funding alternative energy sources.”

### “Persistence Paid Off”

Using the fundraising Web site kickstarter.com, the students wrote a 700-word statement explaining the project and their passion about the Arctic Refuge. They established prizes for various funding levels. Anyone who pledged \$25 or more, for example, received two museum guest passes and an invitation to the opening reception.

The students also produced a video on kickstarter.com that included images of Jones’ photography and footage from *America’s Wildest Refuge*, a movie about the Arctic Refuge.

They then set about encouraging friends and acquaintances to visit the Web site.



*The immense natural beauty of the Arctic National Wildlife Refuge in Alaska inspired 13 high school students in Connecticut to take action. (USFWS)*

“Due diligence and persistence paid off,” Lendenmann says. The vastness of the refuge impressed the students, she says, and they were energized by the fact that it was an election issue.

Their efforts resulted in \$4,200 in contributions—enough to fund the exhibit and put some money away for future projects, says Robin Garr, the museum’s director of education.

“These students are inspiring,” Garr says. “They picked the exhibit. The TEDx event became a reality, the whole thing just snowballed, we couldn’t be more proud of them.”

In addition to landing each student a President’s Volunteer Service Award, the work on the exhibit has longer-term implications. Thinking about the future and the pristine natural environment of the Arctic Refuge, Gillis Baxter, a junior at Greenwich High School, says: “I want my kids to get to see this, not just me.”



*Jennifer Anderson is a frequent contributor to Refuge Update.*

# Around the Refuge System

## New Mexico

Bitter Lake National Wildlife Refuge and nearby Bottomless Lakes State Park have been recognized as International Wetlands of Importance under the Ramsar Convention. Together, the two distinct entities are recognized as the Roswell Artesian Wetlands Site. It is the first Ramsar site in New Mexico and the 29th in the United States. The Ramsar Convention is an international treaty signed in Ramsar, Iran, in 1971 to encourage voluntary protection of wetlands. Countries that sign the treaty demonstrate their commitment to conserve wetlands as a contribution toward sustainable development throughout the world. Bitter Lake Refuge lies within an ecological meeting place where the Chihuahuan Desert, shortgrass prairie, Pecos River and the Roswell artesian basin come together and create unusual biological situations. Numerous lakes, seeps, springs, oxbows, marshes, shallow waters and water-filled sinkholes provide habitat for a wide array of species. At least 357 species of birds have been observed on the refuge, and more than 60 dragonfly species and several invertebrates found nowhere else on Earth call the wetlands home.

This spring, as part of an unpaved road training workshop Las Vegas National Wildlife Refuge partnered with San Miguel County and the New Mexico Department of Game and Fish to rehabilitate a 1.3-mile stretch of county road and three wildlife viewing parking lots. The stretch of road is part of the eight-mile, self-guided auto tour route of the refuge. Each year, more than 15,000 visitors view and photograph wildlife along the auto tour route. Federal, state and county employees who participated in the workshop received specialized hands-on training while correcting drainage problems and surfacing the road with gravel.



*The desert whitetail dragonfly is one of more than 60 dragonfly species documented at Bitter Lake National Wildlife Refuge. The refuge in southeastern New Mexico was named an International Wetlands of Importance under the Ramsar Convention. (Jerry K. Hatfield)*

## Kansas

Quivira National Wildlife Refuge recently received a \$25,000 Playa Lakes Joint Venture/ConocoPhillips grant to help enhance wetland habitat. The grant, combined with about \$65,000 from a local Ducks Unlimited chapter fund-raising effort and \$25,000 from the George Stumps Wildlife Trust, will provide a substantial portion of the money needed to transform narrow, deep, open water sites near dikes/outlet structures and cattail-choked sites into moist-soil habitat. Such habitat can be more efficiently drained and flooded to encourage annual plant and invertebrate production, and so increase forage resources for shorebirds and waterfowl. “We’re restoring wetlands areas that were created in the 1960s,” says refuge manager Dan Severson. “We’re recontouring and filling in the borrow area.” Nine Quivira Refuge seasonally flooded freshwater wetland units, totaling 760 acres, are to be improved as part of the two-year project. “We get so much better wildlife value when the wetlands are managed as moist-soil habitat not choked by cattails,” Severson says. “It’s crucial that we manage our habitat to its

fullest potential.” The habitat benefits shorebirds, waterbirds and waterfowl at the refuge in the south-central part of the state—including northern pintails, mallards, greater white-fronted geese, snowy plovers, American avocets, long-billed dowitchers, whooping cranes, sandhill cranes and American white pelicans.

## Montana

Sonja Jahrsdoerfer and the Charles M. Russell Refuge staff sure know how to throw an impromptu party. Jahrsdoerfer, the Alaska Region endangered species coordinator who was on an Advanced Leadership Development Program (ALDP) detail as project leader at the refuge, responded to an early March news release about the Refuge System’s 108th birthday by, in less than a week, arranging an open house at the refuge for the big day, March 14. “We were able to have this event on short notice because refuge staff jumped in to help,” says Jahrsdoerfer. “People were available to answer questions, and we helped kids explore the collections of skulls, skins and fossils. We ran a photo show of refuge wildlife and set up a spotting scope on the deck, so people could check out the waterfowl on the nearby wetland and the bison in the field below the office.” The birthday gathering—which included a cake, complete with a Blue Goose, and drew about 30 people—attracted the attention of the *Lewiston News-Argus* newspaper and a local radio station.

## Louisiana

Thousands of recycled Christmas trees collected after the holiday from homes in the New Orleans area were airlifted onto Bayou Sauvage National Wildlife Refuge in late February to help establish a breakwater in open ponds on the refuge. The recycled tree project, which is the result of partnership among the refuge, the city of New Orleans and the Louisiana Air National Guard, is designed to help trap silt and encourage growth of marsh grasses. Many of the ponds have enlarged in recent years as wave action has eaten away at the shoreline. "Every bit of marsh we can reclaim is very important," refuge manager Jack Bohannon told a local TV station. "We're losing much more marsh than we can ever regain right now." Bayou Sauvage Refuge is 25,000 acres of fresh and brackish marshes, all within the New Orleans city limits. The brackish marshes serve as estuarine nurseries for various fish species, crabs and shrimp. Freshwater lagoons, bayous and ponds serve as production areas for largemouth bass, crappie, bluegill and catfish.

## Washington

Solo, the trumpeter swan that lived at Turnbull National Wildlife Refuge for decades, is believed to have died along with one of his 2010 cygnets. Biologists believe Solo may have been one of the original cygnets reintroduced to the



On the spur of the moment, Charles M. Russell National Wildlife Refuge hosted a party to celebrate the Refuge System's 108th birthday. (USFWS)

refuge in the 1960s. His longtime mate was killed by a coyote in 1988, but Solo kept returning to the refuge each spring. In 2009, he appeared with a new mate, and four cygnets were born; there was another brood last year. This January, refuge biologist Mike Rule says, 10 swans were seen together on Cheever Lake at the refuge—most

likely Solo, his mate, five cygnets from 2010 and three from the 2009 brood. Four days later, refuge staff recorded the first observation of only one adult with four cygnets. Examination of photos leaves biologists almost certain that the remaining adult is Solo's mate. "I am sure that we lost Solo and one of his 2010 cygnets this winter," Rule says. He hopes all seven of Solo's offspring "make it to breeding age, find mates and stay to nest at Turnbull Refuge. The earliest this will happen is next winter. Trumpeter swan pairs are usually formed where they winter."

## Nevada

Ruby Lake National Wildlife Refuge, with the support of Ducks Unlimited and other partners, is in the final stages of a \$1.2 million wetland enhancement project. The effort improves 1,755 acres of habitat in the refuge's East Marsh by rebuilding a levee; replaces water control structures vital to another 4,245 acres of marsh habitat; and improves 7,300 acres of waterfowl and waterbird nesting habitat in the South Marsh by increasing water management capabilities and controlling overgrown vegetation. The remote 39,928-acre refuge is a vital waterfowl nesting area that supports the largest population of nesting canvasback ducks west of the Mississippi River outside



Ruby Lake National Wildlife Refuge in northeastern Nevada is completing a \$1.2 million wetland enhancement project with help from Ducks Unlimited and other partners. (Mark Pelz/USFWS)

Alaska. More than 220 species of birds migrate through the refuge, 15 species of waterfowl nest on it, and it is an important sanctuary for the greater sage-grouse, northern leopard frog, pygmy rabbit and pronghorn antelope. Non-native trout and largemouth bass were introduced to the marsh more than 30 years ago, and the refuge has become a popular fishing location. In February, a 39-year-old state record for the largest rainbow trout caught in Nevada fell at Ruby Lake Refuge when Elko resident Mike Mott caught a 16-pound, 8-ounce fish. The trout, which broke the previous record by four ounces, was 30.5 inches long.

## New Jersey

Great Swamp National Wildlife Refuge and the Friends of Great Swamp are partnering with local libraries to spread the message about the Refuge System. The Friends have developed an exhibit about the refuge and the System as a whole. The exhibit moves from library to library. Since the fall of 2008, displays have been placed in 15 local libraries. The exhibit includes a map of Great Swamp Refuge, background information and books about its history. There are also informational folders and pictures of the wildlife that inhabit the refuge. The display also includes pamphlets from all five refuges in New Jersey. 

# America's WILD READ, an Online Book Club

Looking for a great read? The National Conservation Training Center has just the title: *Anthill*, a novel by renowned biologist and conservationist E.O. Wilson.

The training center is heading a virtual book club—called America's WILD READ—at [www.AmericasWildlife.org/WildRead](http://www.AmericasWildlife.org/WildRead) as a lead-up to the *Conserving the Future* conference. Moderators began facilitating online discussions in May.

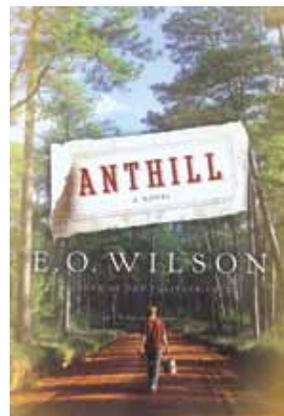
*Anthill* is a magical tale about a boy who grows up determined to save the world from its most savage ecological predator: man. Aldo Leopold's essay "Thinking Like a Mountain" and a contemporary essay by Leopold

biographer Curt Meine, "The Once and Future Land Ethic," will help inform the online discussions.

Scholars, retired National Wildlife Refuge System leaders, poets, environmental authors and educators will be the moderators. They will respond to readers' insights and help explore deeper themes in the book and essays.

"By reading epic stories about a sense of place in nature, Americans can discover deeper insights about themselves and the world around them," says Karene Motivans, a course leader at the training center who conceptualized the online book club. Anne Post, the training center's chief librarian, and Sarah Gannon-Nagle,

the training center's communications manager, also are on the team. 



*E.O. Wilson's novel is among the books to be discussed by the virtual book club.*

## See "Flat Blue" Fly Nationwide

Do you love "Flat Stanley"—that fanciful, storybook, cut-out character who has traveled the nation and the world? Then take a look at Flat Blue—the traveling Blue Goose that will send you skyward and will be part of the *Conserving the Future* conference in mid-July in Madison, WI.

You can find Flat Blue online at <http://AmericasWildlife.org/flatblue/>. There, you will see an easy-to-print version of the Blue Goose, the National

Wildlife Refuge System's decades-old symbol of conservation.

Print Flat Blue and take him on an adventure, including at hot spots on any wildlife refuge. Introduce Flat Blue to your local schools, which can include Flat Blue in their curricula and perhaps take their classes to wildlife refuges to see nature up close, maybe even meet staff.

Make sure to take a photo and tell the story of your adventure with Flat Blue.



Go to <http://AmericasWildlife.org/flatblue/> to find out how to take Flat Blue on an adventure you can share with the world.

Upload photos to Flickr or your Facebook page. Share stories online at <http://AmericasWildlife.org/flatblue/>.



## What's the Most Important Thing You've Done to Connect People to Land? — continued from page 13

had I dismissed Bill's great idea and said no because it probably wasn't worth the effort. Sometimes it not what we say or do, but what we don't say.

**Susan Adamowicz, Land Management Research and Demonstration biologist, Rachel Carson Refuge, ME, and Parker River Refuge, MA:**

I work on salt marshes—places I consider very beautiful—but places that historically have been on the fringes of human communities. Salt marshes are downstream of most human concerns, literally and figuratively. What I do is

salt marsh restoration. Most often that involves undoing what people have done in the distant or recent past. My work is full of mud, mosquitoes and data points. The results of my work are (hopefully) expanses of healthy salt marsh with a mixture of lush grasses and forbs (flowering plants).

When I connect to everyday people, it's usually on my private time. Talking to people at the gym, in the supermarket, family, friends, strangers. I talk to them about the awesome beauty of these ecosystems, about the connections between the pulses of tide and time,

plants, fish and birds. Most people don't see the almost spider-thread-thin connections between themselves, their actions and the planet around them. But even though spider threads are small and thin, they are incredibly strong.

So when I listen to people describe some bird they've seen on the marsh, I understand their wonder at it, but the wonder is only increased as we discuss the life of that bird, how the salt marsh supports it, how the watershed supports the salt marsh and how our actions and choices affect all of these. 

# “A More Holistic View of Wildlife Conservation”

By Bill O'Brian

“It’s hard to say we’re the leaders in wildlife and habitat conservation if we don’t keep pace with the latest understanding of how the natural world works” says Noah Kahn, performance manager for the National Wildlife Refuge System.

That is one reason a change was made to include conservation biology in the education requirements for U.S. Fish and Wildlife Service employees entering the 0485 wildlife refuge management job series, according to Kahn.

The change—made by the Office of Personnel Management (OPM) in consultation with the Service—was announced in a late-January Director’s memo to all employees.

“The previous requirement for nine semester hours of botany is now reduced to three semester hours of botany, and a new requirement for three semester hours of conservation biology has been added,” the memo stated. “This change has no effect on current 0485 employees and does not require existing refuge managers to receive additional training.”

Approximately 600 employees are in the 0485 series, Kahn says—most of them refuge managers or wildlife refuge specialists.

“Conservation biology as a discipline really became mainstream and widely accepted 15-20 years ago, but our education requirements haven’t changed in over 20 years,” Kahn says. “I think that this progressive change recognizes that if national wildlife refuges are going to live up to their potential to conserve species across large landscapes, then it’s important to have people trained in that sort of thinking.”

The field of conservation biology integrates numerous individual academic disciplines: wildlife biology, population genetics and ecology, natural resource management and even economics. It combines those subjects and brings their synthesis to bear when protecting species, habitats, ecosystems and global

biodiversity. Conservation biology takes “a more holistic view of wildlife conservation,” Kahn says.

Michael Soule, a University of California, Santa Cruz, professor emeritus who is considered the father of conservation biology, recently compared his field to cancer biology. In an interview with Izilwane, a nonprofit organization that focuses on how humans affect biodiversity loss, Soule said:

“A physician or public health professional will say that cancer biology is all of the fields that might be relevant for curing cancer. It involves epidemiology, pharmacology, surgery, anesthesia, molecular biology, biochemistry and counseling. There are social sciences involved as well as biological and medical sciences ... The same thing applies to conservation biology—it comprises research and theories from many fields.”

The Service’s 0485 series education requirement change “will probably help give an extra jolt to a movement that is already underway in many areas, which is a steady shift in refuge management toward considerations of broader suites of critters, landscape-level conservation and restoration of natural processes, where possible,” Kahn says.

“Rather than thinking at the patch size,” Kahn says, conservation biology considers landscape-level habitat connectivity “essential, not just as a nice thing to do but as essential, if we want to keep our refuges healthy for the future.”

Larry Williams, chief of the Refuge System Division of Budget, Performance



A recent change adds conservation biology to the education requirements for Service employees entering the 0485 wildlife refuge management occupational series. The change does not apply to current refuge managers, such as Tom Jasikoff at Montezuma National Wildlife Refuge, NY. (Karen Leggett/USFWS).

and Workforce, acknowledges there has been debate and confusion over the change. “A small minority of people saw this as lowering the bar on education requirements for refuge managers” he says, but that initial concern has been worked through.

“We simply wanted to update the requirements to include this modern branch of biology that focuses on conserving species and populations in a fragmented landscape. Knowing how to best deliver conservation in a fragmented landscape is increasingly important to refuge managers.”

There also has been confusion about what specific college courses fulfill the conservation biology requirement. The division is working with the regions to agree on which courses meet the new requirement.

The intent over the long term, says Kahn, “is to shape our workforce in a more progressive direction.”

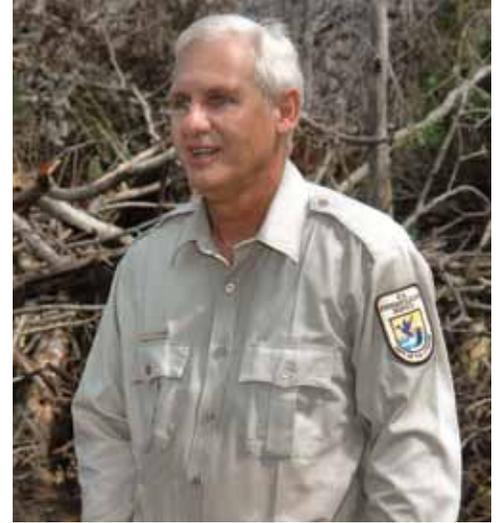
For answers to frequently asked questions about the education requirement change, go to: <http://www.fws.gov/refuges/about/careers.html>. For information about Michael Soule and conservation biology in general, go to <http://www.michaelsoule.com/>. 



*Dave Mauser, a wildlife biologist at Klamath Basin Refuge Complex in Oregon and California, is Employee of the Year. (John Beckstrand/USFWS)*



*Volunteer of the Year Denis Mudderman has contributed almost 10,000 hours since 2005 to refuges in Minnesota and Texas. (Marty Cornell)*



*Ken Litzenberger of the Southeast Louisiana National Wildlife Refuge Complex received the Paul Kroegel Refuge Manager of the Year Award presented by the National Wildlife Refuge Association and the National Fish and Wildlife Foundation. (Pon Dixon/USFWS)*

## Litzenberger Named Refuge Manager of the Year

The National Wildlife Refuge Association and the National Fish and Wildlife Foundation have honored three individuals and a Friends group with 2011 National Wildlife Refuge System Awards.

The annual awards recognize refuge conservation professionals, volunteers and Friends groups who exemplify outstanding dedication and passion for wildlife conservation in advancement of the mission and purposes of the Refuge System.

**Kenneth Litzenberger** received the Paul Kroegel Refuge Manager of the Year Award.

Litzenberger, project leader at the Southeast Louisiana National Wildlife Refuge Complex, was cited for his leadership and his creative approach to solving problems; for managing diverse and urgently threatened habitats to produce outstanding conservation results; and for deploying limited staff and critical resources at the most strategic places and times to accomplish mission critical work in response to the 2010 Deepwater Horizon oil spill and thus sparing refuge lands many impacts suffered elsewhere.

**Dave Mauser** received the Employee of the Year Award. A wildlife biologist at Klamath Basin Refuge Complex in southern Oregon and northern California, Mauser spearheaded innovative approaches to wetlands conservation that created more than 10,000 acres of new wetlands.

“His strategies helped convert 15,000 acres of conventional farmland to organic farmland and provide a model for successfully managing land for wildlife conservation while also benefiting rural agricultural economies,” the groups said in announcing the award.



*The Friends of Chassahowitzka National Wildlife Refuge Complex on Florida's Gulf Coast were honored for collaborating with partners on a multi-year effort to protect important West Indian manatee habitat at Crystal River National Wildlife Refuge. (Courtesy of Friends of Chassahowitzka National Wildlife Refuge Complex)*

**Denis Mudderman** received the Volunteer of the Year Award for contributing almost 10,000 volunteer hours since 2005 at Tamarac Refuge in Minnesota and at Brazoria and San Bernard Refuges in Texas.

Mudderman has played an important role in designing, launching and maintaining the Friends of Tamarac's Web site and has brought a wide range of talents to all three refuges. At Texas Mid-Coast Refuge Complex, among other contributions, he facilitated the “Discovery Environmental Education Program” for elementary schoolchildren.

**The Friends of Chassahowitzka National Wildlife Refuge Complex** on Florida's Gulf Coast were recognized with the Friends Group of the Year Award. The group was honored for collaborating with local, state and national partners during a multi-year effort to protect the important West Indian manatee habitat at Three Sisters Springs as part of Crystal River National Wildlife Refuge.

The awards were presented at the U.S. Fish and Wildlife Service's director's reception at the North American Wildlife and Natural Resources Conference in Kansas City on March 17. 

# Six Refuge System Employees Are Recovery Champions

**B**ill Radke was an individual recipient and five National Wildlife Refuge System staff members were honored in a group when the U.S. Fish and Wildlife Service announced its 2010 Recovery Champions Awards this spring.

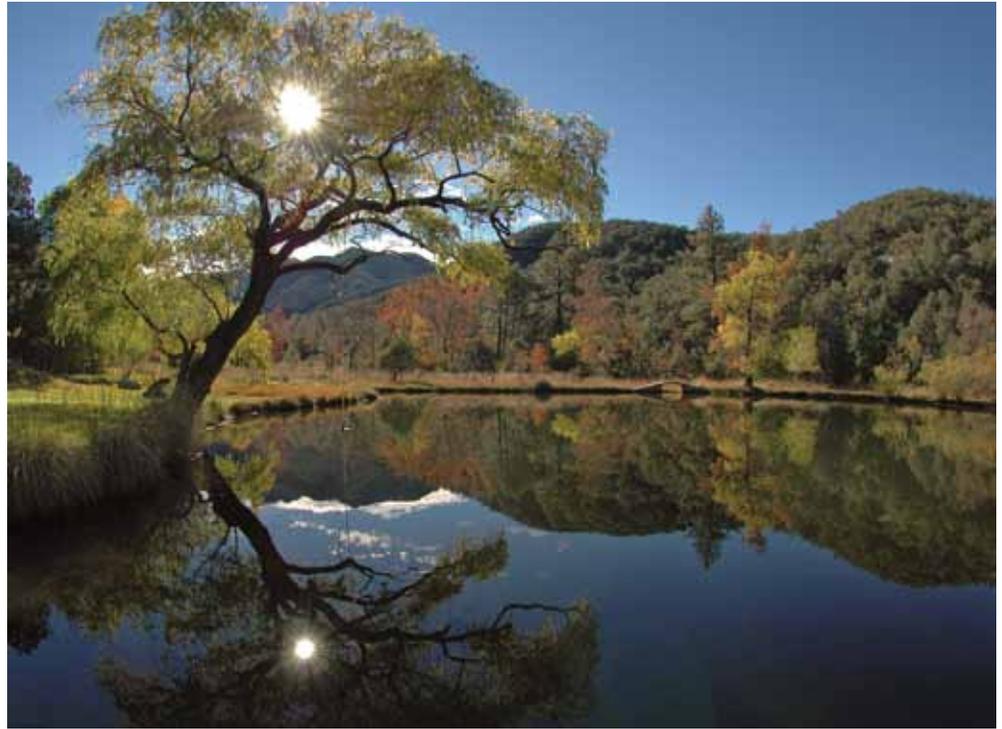
Radke, refuge manager at San Bernardino National Wildlife Refuge in southeastern Arizona, was recognized for his work conserving the Yaqui chub on that refuge and nearby Leslie Canyon National Wildlife Refuge. Additionally, Radke was cited for creating a climate that encourages partnerships such as the Leslie Canyon Watershed Safe Harbor Agreement, the Malpai Borderlands Group Safe Harbor Agreement and the El Coronado Ranch Habitat Conservation Plan.

“Stewardship of the 200 Yaqui chub saved from the drought of 1969 established a population that became the recovery stock and met the downlisting criteria,” the Service said in announcing the award. “Bill Radke has engaged private landowners in linking the health of their ranches to the overall health of the ecosystem, increasing the security of aquatic habitats on the refuges for native fish species and expanding their range.”

## Piping Plover Team Recognized

As a group, Connie Mueller and Kirsten Brennan of Lostwood Refuge, Michael Rabenberg of Long Lake Refuge, Craig Hultberg of Audubon Refuge—all in North Dakota—Brent Jamison of Medicine Lake Refuge in Montana and Eric Rosenquist of The Nature Conservancy Center in North Dakota were cited as Recovery Champions for their work on behalf of the federally threatened piping plover.

“In Montana and North Dakota, the Alkali Lakes Piping Plover Team has nearly doubled the population of the endangered species,” the Service said. “Thanks to partnerships with 150 landowners, piping plover team members build cages to protect nests from predators ... In the off-season, the team fences beaches, provides water sources for cattle so that plover nests and chicks



will not be crushed, removes rock piles that house predators, uproots trees to remove raptor perches and replants prairies to reduce runoff and sedimentation in the lakes.”

While some piping plovers nest on refuge lands near or on the Missouri River, most breed on the shorelines of alkali lakes on private and non-profit lands such as The Nature Conservancy’s Williams Preserve—a 2,100-acre property purchased primarily to protect piping plovers.

“I am proud to be a small part of this continual 28-year effort to nearly double this population. For this team, and the people who have been a part of the team over the years, this isn’t just a job; it’s a labor of love for the piping plover,” said Mueller, a wildlife biologist at Lostwood

*Wetlands on private property along West Turkey Creek, above, near Leslie Canyon National Wildlife Refuge are ideal for Yaqui chub, below. Refuge manager Bill Radke was honored as a 2010 Recovery Champion for his work in southeastern Arizona on behalf of the endangered species. (William R. Radke/USFWS)*



Refuge. “I hope this recognition will help a few more people understand the diversity of America’s wildlife wonders.”

In all, the 2010 Recovery Champions Awards recognized 29 Service staff members or partners-in-mission for conserving endangered and threatened species. For more information on the 2010 honorees, go to <http://www.fws.gov/endangered/what-we-do/recovery-champions/index.html>. 

## Montana Refuge Saves Sage-Grouse as Part of Broader Initiative — *continued from page 1*

“Sagebrush is the only thing sage-grouse eat in winter,” Naugle says.) This winter, even that big sagebrush was buried, so the Canadian sage-grouse made an emergency migration 40 miles farther south to Charles M. Russell Refuge.

“CMR was an anchor in this huge landscape for that 80-year winter,” says Naugle. “It was that refugia, the last resort, that saved the population of Canadian sage-grouse.”

That northeastern Montana habitat corridor received a major boost in February when the Department of Agriculture’s Natural Resources Conservation Service (NRCS), its partners and a cooperative ranch owner agreed to \$3 million worth of perpetual easements to ensure that grazing—not development or tillage agriculture—will remain the priority land use on a 32,500-acre parcel. That funding, to be matched by The Nature Conservancy, came via the Sage-grouse Initiative (SGI).

The Montana corridor is a sliver of the 11-state range of the sage-grouse, which is a candidate for endangered species listing in the United States. The SGI’s objective is to keep the bird off the list. It is doing so by using targeted efforts to help private landowners voluntarily enhance ranch land sustainability while conserving sage-grouse populations on working lands.

Sage-grouse are rounded-winged, ground-dwelling birds that weigh up to seven pounds. Males are known for an elaborate courtship display during which they strut and inflate yellow air sacks on their breasts. There “used to be millions” of sage-grouse across the West, says Naugle. “Now, we’re down to a



*There once were millions of sage-grouse across the West. Now there are a couple hundred thousand. (Brett Billings/NCTC)*

couple hundred thousand” in Washington, Oregon, Idaho, Montana, North Dakota, California, Nevada, Utah, Colorado, South Dakota, Wyoming and Canada.

For differing reasons, almost nobody wants to see the sage-grouse on the endangered species list. So, last year, as the SGI was being launched, the NRCS (which administers Farm Bill funds affecting millions of acres) approached the Service (which determines if sage-grouse will be listed) and said, in Naugle’s words, “before we do all of this great stuff, here’s our playbook; tell us what you like and what you don’t like, and we’ll tweak it” to comply with the Endangered Species Act.

As a result, landowners and ranchers across the West who enter into SGI perpetual conservation easements now know that the initiative and its land management practices are Service-approved—even if the sage-grouse is listed someday.

### “Conservation Triage”

The SGI is multi-layered and complex, but, essentially, through the initiative the NRCS helps landowners design and implement grazing systems that improve ranch sustainability. “Our number one goal with this program is to maintain the viability and productivity of some of the best ag land in the country,” says

SGI coordinator Tim Griffiths. “As a side benefit, we do tremendous things for sage-grouse.”

The biggest thing the SGI does is target conservation, rather than attempt to blanket the sage-grouse’s entire 186 million-acre range. In cooperation with state fish and game departments and using state-of-the-art tracking technology, SGI conservationists have found that 25 percent of all grouse live on four percent of the land in the range and 75 percent of grouse live on 27 percent of the range. So, the SGI focuses on those core areas. It emphasizes saving the best of the best habitat and, out of practical necessity, deemphasizes saving outlying pockets. It does what benefits the greatest number of birds. “We call it conservation triage,” says Naugle.

The SGI addresses different threats in different ways in different parts of the range. In Montana, primary concerns are habitat fragmentation and “soil busting” of previously untilled grazing lands. In Wyoming, energy development and subdivision are major concerns. In southern Idaho and northern Nevada, wildfires are worrisome. In Oregon, the issue is encroachment of conifer trees (in which grouse predators perch).

Two conservation practices the SGI encourages on the targeted lands are the removal of conifers—which opens up habitat for sage-grouse and increases forage available for livestock—and marking or removing fences near leks, thus dramatically reducing fatal fence strikes.

The beauty of the SGI, Naugle and Griffiths say, is that what is good for rangeland is also good for grouse.

“If you have sage-grouse on your property, be it a refuge or a private working ranch, you are doing something right,” says Naugle. “They’re an umbrella species. If you’re doing good things for sage-grouse, you’re doing good things for all other species that the Fish and Wildlife Service is mandated to care about.”

“Ranchers are excited about this whole Sage-grouse Initiative because it achieves



Attaching white plastic markers the size of playing cards to fences near sage-grouse leks (breeding grounds) can reduce fence-strike fatalities by up to 1,000 birds per year. (Bryan Stevens)

all this by improving the sustainability of their ranch,” says Griffiths.

As for Charles M. Russell Refuge’s role last winter as savior of the Canadian sage-grouse, Naugle says:

“This is the beautiful story of our Refuge System playing a major role in landscape conservation. An 80-year winter comes by, and the Fish and Wildlife Service steps in and says, ‘It’s okay; we’ve got it.’”

## eBird Trail Tracker Puts Millions of Eyes on the Sky

— continued from page 3

repairs and Web links. The refuge’s primary expense, says Henry, has been to provide infrastructure for “a fast, stable Internet connection.”

The result is that visitors at Great Swamp and other refuges are contributing to a huge dataset that can help scientists monitor a range of conservation issues.

“Birds are, because they fly, able to make choices about where they want to be a lot more freely than most amphibians, reptiles and many mammals,” says Little. “So, in many ways, they are a more active and direct indicator of habitat. If something changes in the habitat, birds are able to move to take advantage of things or to avoid detriments. So, observations on a repetitive basis over time become very valuable.”

## Refuge Association Asks Congress to Address 10 Priorities

The National Wildlife Refuge Association in March pointed to 10 actions that Congress should take to protect America’s wildlife heritage.

“We have a moral obligation to future generations to protect our nation’s diverse natural world,” said Refuge Association president Evan Hirsche. “And when we protect our natural world, we improve the lives of people through clean water, clean air, wide-open spaces and stronger local economies that benefit from higher property values and a better quality of life.”

The report, titled *Top 10 for 2011: Priorities for Protecting America’s Wildlife*, urged Congress to:

- Fund the National Wildlife Refuge System operations and maintenance accounts at \$511 million in fiscal year 2012. That is about \$8 million more than President Obama’s budget request.
- Restore the Gulf of Mexico by passing legislation to implement the Presidential Oil Spill Commission’s recommendations to restore fish and wildlife habitat and repair Gulf economies.
- Promote conservation partnerships among federal agencies, state governments, local governments, private landowners and nonprofits as called for in the America’s Great Outdoors action plan.
- Conserve iconic landscapes, such as the Connecticut River, Everglades, Flint Hills, Crown of the Continent, Dakota Grasslands and Bear River, by fully funding the Land and Water Conservation Fund at \$900 million.
- Promote farm, ranchland and forestland conservation through estate tax provisions.
- Protect national wildlife refuges from mining permanently through legislation.
- Expand wetlands conservation by passing legislation to increase the price of the Migratory Bird Hunting and Conservation Stamp (Duck Stamp) and authorize funding for a partner-driven marketing and promotion strategy.
- Designate the Arctic National Wildlife Refuge’s coastal plain as wilderness.
- Protect wild cats and antelope by releasing the remaining \$43.2 million of the \$50 million promised to the Department of the Interior by the Department of Homeland Security for border wall mitigation on the Mexico-U.S. boundary.
- Conserve America’s songbirds by reauthorizing the Neotropical Migratory Bird Conservation Act and funding it at \$6.5 million for fiscal year 2012.

The 12-page report is available at <http://www.refugeassociation.org/new-pdf-files/2011Priorities.pdf>



# RefugeUpdate

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## A Look Back ... The Blue Goose

The Blue Goose has been the symbol of the National Wildlife Refuge System since it first was drawn by Pulitzer Prize-winning cartoonist J.N. “Ding” Darling, one of the greatest proponents of wildlife conservation in the 20th century. Darling was the first chief of the U.S. Biological Survey, the forerunner of the U.S. Fish and Wildlife Service.

There is a real blue goose, once thought to be a separate species but now recognized as a dark form, or “morph,” of the snow goose.

The first recorded use of Darling’s goose on an official sign is at Upper Souris National Wildlife Refuge, ND, in about 1934. But “there is surprisingly little documentation about exactly how the Blue Goose became the icon of the Refuge System,” says Service historian Mark Madison. “All we can say for sure is some of the earliest Blue Goose depictions are in fact black, making it look more like a Canada goose.”

By the 1980s, entrance signs were being tailored to specific refuges. The Service

shield was used more widely, and the Blue Goose did not fly consistently across refuge lands until 1999, when *Fulfilling the Promise* recommended that it be a permanent element on refuge boundary and entrance signs. Under Service policy, such signs now include the Blue Goose.

Examples of official signs can be found at [www.fws.gov/policy/do120.pdf](http://www.fws.gov/policy/do120.pdf).

The familiar image—which since has been fashioned into stuffed animals, lapel pins, full-size costumes and computer flash drives—prompted Rachel Carson to urge the public to watch for “the sign of the flying goose—the emblem of the National Wildlife Refuge System ...



A living and breathing blue goose—a morphed snow goose, actually—at Montezuma National Wildlife Refuge, NY. (Gary Tyson)

Wherever you meet this sign, respect it. It means that the land behind the sign has been dedicated by the American people to preserving, for themselves and their children, as much of our native wildlife as can be retained along with our modern civilization.” 

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

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