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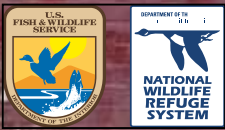


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Refuge Update

National Wildlife Refuge System

www.fws.gov/refuges

Fifteen wage grade employees learned the value of historic preservation during a Preservation Skills Workshop at Chincoteague National Wildlife Refuge, VA. (Nick Greif)

Bringing Life to Cultural Resources

It was beautiful when we were done: it was like art. My mark is on that building for 70 years.”

Weeks after completing the first-ever Preservation Skills Workshop for refuge maintenance staff, Bruce Booth's voice still pulsed with his new enthusiasm for history and his role in keeping it alive. Booth, a facilities manager at Wichita Mountains Wildlife Refuge, OK, had just learned to tuck point bricks on a historic oil shed next to the Assateague Lighthouse at Chincoteague National Wildlife Refuge, VA. “We had to use similar materials. We couldn't just go buy Portland cement. We also had to learn to tuck point, but it was fun.”

Booth joined 14 other maintenance workers representing 12 refuges and two national parks – including Cal Henry from Lee Metcalf National Wildlife Refuge, MT, who came with 50 years of government service under his belt. Participants were instructed in masonry and painting techniques used on historic buildings. Even more important, in Booth's opinion, was learning where to find appropriate materials and techniques for using them. He also learned about the National Park Service Historical Preservation Training Center where, for example, he can seek advice on determining the age of windows in a particular structure and then finding age-appropriate glass to replace it.

Quality Starts with the Person Repairing the Part

In the past, “if it was rotten or there was a bad section, you just replaced it. That's not the way historical preservation works. Now I know,” says Booth, adding that “wage

Outstanding Innovation

Two federal agencies honored national wildlife refuges and the U.S. Fish and Wildlife Service Oil and Gas Team for outstanding innovation.

Visitor centers at Minnesota Valley National Wildlife Refuge and Ohio River Islands National Wildlife Refuge, WV, received Department of Energy awards for outstanding and innovative efforts to improve energy efficiency. The Oil and Gas Team received a Department of the Interior Environmental Achievement Award for its leadership in managing oil and gas activities on national wildlife refuges.

Award-winning efforts at Minnesota Valley and Ohio River Islands Refuges represent models of energy efficiency and water conservation within the federal government, contributing to a national savings of more than \$26 million in fiscal year 2008.

The Ohio River Islands Refuge administration building and visitor contact station – located along a river

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From the Director

Fish, Wildlife, Climate Change and a New Conservation Legacy



Sam Hamilton

Climate change poses a new threat to our nation's land, fish, wildlife and water. And, once again, America's outdoor enthusiasts are among the first to witness its effects. Hunters are

seeing wildlife migration patterns shift because climate change has affected the location and abundance of food supplies; anglers are seeing fish populations dwindle as river and lake temperatures rise; and boaters are seeing rising sea levels overtake wetlands and marshes near coastal communities that are vulnerable to floods and hurricanes.

President Obama and his Administration are working to change our nation's energy policy, tackle the pollution that is

causing the planet to warm, and prepare for the effects that a changing climate will have on our world. Secretary of the Interior Ken Salazar recently announced that the Department has developed a first-ever coordinated and comprehensive framework for managing the impacts of climate change.

The U.S. Fish and Wildlife Service plays an important and integral role in the Department of the Interior's coordinated climate change response strategy. The Service has released a draft Climate Change Strategic Plan focusing on helping fish, wildlife and plants adapt. As part of this plan, we will expand efforts to capture and store carbon in the ecosystems we manage, such as in hardwood forests and other natural carbon sinks.

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Refuge Update

Ken Salazar
Secretary
Department of the
Interior

Sam Hamilton
Director, U.S. Fish
and Wildlife Service

Greg Siekaniec
Assistant Director –
National Wildlife
Refuge System

Martha Nudel
Editor in Chief

Karen Leggett
Managing Editor

Address editorial
inquiries to:
Refuge Update
USFWS-NWRS
4401 North Fairfax Dr.,
Room 634C
Arlington, VA
22203-1610
Phone: 703-358-1858
Fax: 703-358-2517
E-mail:
RefugeUpdate@fws.gov

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Inside

Chief's Corner

You Gotta Have Friends



Greg Siekaniec

The news seemed almost too good to believe: The Refuge System received a \$40 million increase, well above the requested budget for Fiscal Year 2010, bringing total

funding for operations and maintenance to \$503 million. That is the highest annual O&M budget the Refuge System has ever received. In fact, the Refuge System's budget has grown by \$105 million over the past three years.

Not so long ago, many people believed \$500 million was beyond reach. Hard work by those who truly believe in our mission delivers success.

The Interior appropriations bill for FY 2010 also doubled funding for refuge land acquisition through the Land and Water Conservation Fund. Important

acquisitions, whether fee or easement, will add lands and waters important to conservation and will likely bring in additional friends support and local interest.

So, whether it's O&M, land acquisition or Friends – we are a growing system. What made all the difference? You.

Such extraordinary increases simply would not have come about without the passion and dedication of employees, Refuge Friends and supporters across the country – people who work not only for the refuge right in their own community, but also for the National Wildlife Refuge System as a critical entity in the nation's quest to protect a natural resource legacy. You told your communities just how important national wildlife refuges are, and that information was priceless.

What is even more impressive is that you coupled your efforts with the work of the

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Tufted Puffin Released

A rehabilitated puffin gingerly tests freedom at Oregon Islands National Wildlife Refuge. Page 6

FOCUS: Stories of Hope

From cemeteries to woodpeckers, to newspaper columns and support at the ballot box, refuges represent stories of hope as they pursue their mission. Pages 8 to 16

Bats in the Barn

Scientists and volunteers wrap a barn in plastic and count the bats inside. Page 17

Sense of Wonder Award

Jim Burkhart shares the joy and mysteries of the natural world with visitors to Okefenokee National Wildlife Refuge, GA. Page 23

Stimulus Dollars at Work on Refuges

Audubon National Wildlife Refuge in North Dakota is one of 12 refuges planning to build a new visitor center with funds from the American Recovery and Reinvestment Act (ARRA). The \$6 million center is slated for completion in October 2010.

Because of a “fast-track design-build” contract, Audubon Refuge is the first refuge with shovels literally in the ground. This type of contract, more commonly used by the Department of Defense, requires negotiating initially only for a portion of the work; additional sections are negotiated and constructed later.

The new headquarters and visitor center will follow the standard facility design and will be LEEDs certified, using sustainable design and energy conservation technology. An exhibit hall will house dioramas, murals and hands-on features to focus on the importance of wetlands and grasslands for migratory birds and other wildlife. A trail system will connect the visitor center to the Outdoor Wildlife Learning Site at Audubon Refuge. The new center replaces a 52-year old building that had problems with everything from asbestos to rats and mold.

Forty-three projects valued at nearly \$8.4 million will make national wildlife refuges and fish hatcheries more energy efficient. Izembek, Selawik and Alaska Peninsula National Wildlife Refuges will each install specially designed vertical wind turbines to generate electricity for refuge facilities. At Ottawa National Wildlife Refuge in Ohio, a photovoltaic array will be installed to achieve 100 percent off-grid energy generation.

Dilapidated farm facilities are a safety and asbestos hazard at Edwin B. Forsythe National Wildlife Refuge, NJ. When the structures are demolished and removed with ARRA money, the site will be reforested to provide habitat for migratory birds. Bombay Hook National Wildlife Refuge, DE, will be building a boardwalk at the trailhead of one of its most popular foot trails.

ARRA will also fund 173 habitat restoration projects worth \$50 million




Audubon National Wildlife Refuge, ND, has already broken ground for one of twelve refuge visitor centers funded by the American Recovery and Reinvestment Act. (USFWS)

on public and private lands. National Elk Refuge, WY, will install an irrigation system and expand grasslands to provide more natural foraging area for elk. The refuge has historically relied on artificial feeding programs to sustain the elk through the winter.

Water Projects

New or improved water control structures are often receiving ARRA funds. At Tule Lake National Wildlife Refuge, CA, levees will be built as part of the Walking Wetlands Restoration Project. The project, which has already added more than 7,000 acres of wetlands to the Klamath Basin, will create a block of 1,300 acres to be flooded for two years and then returned to crops for three to five years. In addition to expanding habitat and food sources for migrating and wintering waterfowl, the Walking Wetlands project reduces the use of chemicals to fight pests and weeds. Reduced chemicals plus higher crop yields have improved the farmers' bottom line. “It is not often that we can demonstrate significant environmental benefits while at the same time improve rural agricultural economics,” says Ron Cole, project leader at Klamath Basin Refuge Complex.

ARRA funds will also contribute to improved water service at Chincoteague National Wildlife Refuge, VA. A larger water line will be built from the Town of Chincoteague to the refuge, providing more consistent fresh water for refuge operations and visitor services and an improved water supply to National Park Service facilities on Assateague Island. “In addition to creating local jobs,” says Chincoteague Refuge manager Lou Hinds, “this project supports the local tourism industry that is so important to the economic vitality of this community.”

In addition to construction projects, there is ARRA funding for seasonal and temporary jobs for young people on refuges. A new Youth Conservation Corps program employed four high school students in wildlife conservation work at Lee Metcalf National Wildlife Refuge, MT. Four more young people were hired at Charles M. Russell National Wildlife Refuge, MT, to work on maintenance and biological projects. Over the summer, a crew of six young people worked on seven refuges and private lands in Montana, controlling invasive weed species. At Rachel Carson National Wildlife Refuge, ME, cabins will be replaced to provide energy efficient seasonal housing for young people working on refuge projects. 

Many Ways to Win with Envirothon

By Lisa Polito

Can a single event engage high school students, develop community partnerships, recruit new volunteers, cultivate long-term relationships with local teens *and* create a long-lasting atmosphere of goodwill in the local community? Indeed it can, and building on the success of this year's inaugural Envirothon competition in April 2009, Kodiak National Wildlife Refuge is already coordinating the 2010 Kodiak Envirothon.

Just as training to run a marathon provides a physical fitness goal, so too the environmental science competition of Envirothon offers high school students an opportunity to perform and shine in subject areas related to natural resource management. Having originated as an "Environmental Olympics" in 1979, the competition has evolved into a national event – sponsored by Canon, USA – testing knowledge of environmental science and ecology at hands-on activity stations in standard subject areas of aquatics, soils, forestry, wildlife, and a current environmental issue.

Canon Envirothon encourages state and local competitions based on the national model, so after two years of competing at the state level, Kodiak High School hoped to improve team performance through added competition. And Kodiak Envirothon was born.

While state and national Envirothons are multi-day events, the Kodiak Envirothon competition occurs in a single day. As Envirothon host, Kodiak Refuge offers its visitor center for orientation and award ceremonies, planning meetings, event-day logistics, a real-time scoring station and two test stations. Perhaps more importantly, refuge staff has assembled a corps of partners representing federal, state and municipal agencies, as well as private natural resource consultants, who develop test activities and deliver closely related classroom presentations throughout the year.




Kodiak National Wildlife Refuge, AK, is planning to host its second Envirothon competition in 2010. (USFWS)

Showing Results

This year, three dozen students competed at six test stations with activities such as soil profiling, water quality testing, species identification, and – making use of saltwater tanks at the National Marine Fisheries Service Alaska Fisheries Science Center research laboratory in Kodiak – species abundance estimation. Envirothon partners run the testing stations while volunteers score tests and escort students to off-site stations. Top-scorers at each station receive awards, but only overall winners are eligible to represent Kodiak at the state competition. Bolstered by competition at home, Kodiak's five-student team took second place at the state Envirothon.

The connection to the refuge paid off when two top Kodiak Envirothon competitors joined Kodiak Refuge's Youth Conservation Corps (YCC) last summer. The YCC participants sampled available career paths with the Service, combining work in the visitor center with environmental education projects, public-use cabin maintenance, and biological research projects involving Kodiak bears and salmon.

While students are the focus of Kodiak Envirothon, the benefits are not reserved for them alone. Envirothon partners witnessed the competitive outcomes of their months of planning and classroom presentations, which outshine the standard lecture-and-leave model of educational outreach. The event generated a feeling of success among participants and tremendous goodwill toward the refuge, as well as improved community awareness of refuge programs. 

Learn more about Envirothon competitions at <http://www.envirothon.org/>.

Lisa Polito is volunteer coordinator at Kodiak National Wildlife Refuge, AK.

Ever Greener

From fuel to fields, vehicles to visitor centers, “sustainability” is the buzz word as society looks for alternative strategies with minimal long-term effect on the environment. For the Refuge System, that means hybrid vehicles, more solar, geothermal or wind power and more thoughtful attention to how refuges build and operate everything from visitor centers to irrigation systems.

The Refuge System – along with other bureaus within the U.S. Fish and Wildlife Service – is charged with measuring and reducing its carbon footprint. Even the emissions generated by employee commutes and visitor transportation will be measured, according to Martin Brockman, chief of the Refuge System Branch of Equipment and Facility Management. Brockman says the Service is working hard to use existing data to measure its carbon footprint. The Refuge System is working with the Federal Highway Administration on a pilot program to determine the carbon footprint of visitor transportation.

The Refuge System is proceeding on many fronts simultaneously to reduce its carbon footprint. For example, there will be 287 new sedans, vans and small SUVs as part of an American Reinvestment and Recovery Act (ARRA) vehicle replacement program. The

new vehicles average 16 MPG better fuel efficiency than the ones they are replacing. The Service as a whole will receive 510 energy-efficient vehicles, saving more than 100,000 gallons of fuel per year. Proceeds from the sale of the old vehicles go to the General Services Administration, which is administering the program.

In some cases, renewable energy projects might seem to defy logic – like the solar power system at Kanuti National Wildlife Refuge in Alaska. Temperatures in Bettles, a small village in the Alaska interior, may be at 40 degrees below zero for extended periods during the winter. Yet an office-visitor center in Bettles, operated jointly by the National Park Service and the Service, produces enough solar power to run the office on most sunny days from March through September, sometimes even running the meter backward and providing a utility credit. Refuge manager Mike Spindler notes that this is particularly significant, since energy costs in Bettles are among the highest in the nation, with heating oil at about \$7 per gallon and electricity at 70 cents per kilowatt hour.

Kanuti Refuge is planning to use ARRA funding to install solar domestic hot water on two other building, including a new bunkhouse and an employee

residence. The systems are planned to provide most of the electricity and hot water for both buildings from March through September.

A Sustainability Checklist

All buildings in the Refuge System larger than 5,000 square feet that use energy will eventually be covered by a Sustainable Building Implementation Plan, now in draft form. The Office of Management and Budget will have to approve the plan, required by an Executive Order establishing an “integrated strategy towards sustainability in the federal government and making reduction of greenhouse gas emissions a priority for federal agencies.”

The order requires that 95 percent of new contracts be “energy- and water-efficient, biobased, environmentally preferable, non-ozone depleting and contain recycled or non-toxic content.” A sustainable buildings checklist must be completed for all buildings larger than 5,000 square feet; the checklist must be completed for 25 percent of these buildings each year for the next four years.

The checklist provides recommendations on making progress toward each requirement. For example, to reduce energy use/potable water use by 20 percent as compared to 2003, the checklist recommends that building managers establish a monthly review of energy utility bills to identify any energy consumption problems or conduct a water management audit to identify water conservation measures. The plan and checklist expect field stations to optimize energy performance, protect and conserve water, enhance indoor environmental quality and reduce environmental impact of materials.

“The information from the checklist will enable us to prioritize the work,” explains Brockman. He encourages refuges to complete the checklist as soon as it is available and put recommendations into SAMMS (Service Asset Management and Maintenance System) as deferred maintenance or capital improvement projects “so we know what you need and can start addressing it.”



Three 2.5-kilowatt photovoltaic arrays provide enough solar power to run this joint U.S. Fish and Wildlife Service/National Park Service office in Bettles, AK, on most sunny days between March through September. (USFWS)

Tufted Puffin Released on Cannon Beach Following Eight Weeks in Rehab

From a blog by Gary Hayes, photographer/publisher of Coast Explorer

At 6:30 am on the morning of August 19, a small group of volunteers entered the protected Marine Garden at the base of Haystack Rock and climbed into the lower area of the Oregon Islands National Wildlife Refuge with a pet carrier and special permission from the U.S. Fish and Wildlife Service. The mission: to release a tufted puffin that had spent the last eight weeks at the Wildlife Center of the North Coast near Astoria.

A young girl had found the injured bird on Indian Beach in Ecola State Park. The puffin healed slowly and about four weeks ago, the bird started to put its weight back on the injured limb. The puffin was then moved from the hospital area to a pool, where it could swim and gain strength.

Finally deemed healthy enough to release back to the wild, the intention was to release the puffin before the colony of tufted puffins returned to the sea after their spring and summer nesting season. Cannon Beach's iconic sea stack offers nesting habitat for the birds between April and August, where the colorful seabirds burrow deep tunnels into the grassy slopes. Typically in August, the birds return to the open waters of the Pacific where they will spend the next eight months, not returning to land until the next April when it's time to breed again.

Volunteers and interested visitors got the opportunity to see the puffin up close in the pet carrier but just a small release team entered the protected area of the National Wildlife Refuge. Kristin Albrecht, a volunteer with the Wildlife Center, unlatched the door, stepped back ... and ... nothing happened. The puffin only peered out of the open carrier. Finally, Kristin tipped the carrier



Finally, climbing to the highest part of the rock, the puffin launched itself and disappeared into the foggy landscape over the ocean.

forward and the bird slid to the opening and stepped out, onto the rock.

The puffin appeared to just stand and survey the situation, carefully considering its next move. Then came some wing stretching and flapping. Climbing to the tallest point nearby, the bird sat for several seconds in plain view of the gathered crowd. Knowing that puffins are not great aviators under the best of circumstances, I was apprehensive about the bird's first flight. Like a leap of faith, the puffin dove from the rock, dropped toward the beach with the furious flapping wings. Pulling out of its downward descent, the puffin took flight toward the sea and disappeared into the fog to the delight of all watching.

Returning to the beach, the volunteers and onlookers reveled in their apparent success. Suddenly the focus shifted attention to a nearby tidepool. A recently fledged cormorant was swimming around the pool with nowhere to go. The rescue team jumped into action, caught the young bird and placed it in the recently

evacuated pet carrier for transportation to the Wildlife Center. Another day in the life of volunteers committed to protecting wildlife on this stretch of Pacific coast.



Gary Hayes' blog is available at <http://blog.coastexplorermagazine.com/>.

Roy Lowe, project leader at Oregon Islands Refuge, added his comments on the tufted puffin release: "Some people question the cost benefits to wildlife populations of rehabilitating individual animals rather than focusing on large scale population or habitat issues. In this case however, every animal counts as the tufted puffin breeding population in Oregon plunged from more than 5,000 birds in 1988 to fewer than 150 in 2008."

The Newell's Shearwaters of Kīlauea Point

By Mike Hawkes

Kīlauea Point National Wildlife Refuge, located on the northern tip of the island of Kaua'i, is the only unit of the entire National Wildlife Refuge System that can boast the presence of nesting Newell's shearwaters.

To date, only four nests of this burrow-nesting bird have been found, but former refuge biologist Brenda Zaun remains optimistic. "Conducting population studies of this species is extremely difficult," she says. "Looking for their hidden burrows is like looking for a needle in a haystack, and you have to be careful not to destroy the haystack during the search. I suspect there are more here; I just haven't found them yet."

Listed as threatened in 1975, the Newell's shearwater comes to land only to breed and nest, raising a single chick each year. Burrows excavated by the birds serve as nest cavities. Most of the world's populations of Newell's shearwaters nest in colonies along steep mountain ridges and valleys in the interior of Kaua'i. These areas are largely inaccessible to humans and, presumably, to non-native predators, such as feral cats. The birds feed at sea during the day, fly to their inland burrows after dark, and return to sea well before dawn.

Seabird experts believe that perhaps 90 percent of Newell's shearwaters nest on Kaua'i. Some of the other main Hawaiian Islands may have very small populations, but they have not been confirmed. Based on recent surveys, the population on Kaua'i appears to be declining.

So why would a species that nests in remote mountain habitats nest at a coastal refuge? "The individuals nesting at the refuge are very likely descendents of Newell's shearwaters that were brought here 30 years ago as eggs and cross-fostered by the much more common wedge-tailed shearwater (*Puffinus pacificus*)," Zaun explains.

A Successful Experiment

In the late 1970s, a bold experiment was conducted over a three-year period. The highly successful experiment took 90 Newell's shearwater eggs from their mountain burrows and carefully transported them to the refuge at Kīlauea Point, where they were placed under incubating wedge-tailed shearwaters. Of these, 67 chicks fledged. Zaun and others believe that at least some of those birds returned and nested at the refuge, and the nesting individuals known today are most likely progeny from those original birds.

Until a few years ago, very little was known about the nesting habits and behavior of Newell's shearwaters. With an active infrared camera system at the burrow entrances and passive integrated transponders (PIT) tags on the adults, Zaun was able to learn when the birds arrive on land as well as the length of courtship, nest preparation, incubation and chick rearing. Species photographed at the burrow entrance include feral cats, rats, Hawaiian geese, small passerines, geckos and spiders.

Although these seabirds fly to and from land during darkness and nest in remote areas, the Kaua'i community is well aware of Newell's shearwaters. For decades,

people have been finding them on the island's roadways, yards, and ball parks. The fledglings have a strong attraction to lights and will exhaust themselves flying around them before coming to ground, often colliding with buildings, trees and utility lines along the way.

Three decades ago, Hawai'i's Department of Land and Natural Resources began the "Save our Shearwaters" Program. The program uses community support to help save injured or stranded birds. More than 31,000 Newell's shearwaters and other seabirds have found their way back to the sea thanks to this unique program.

Currently, the U.S. Fish and Wildlife Service, the state of Hawai'i, and private organizations are working on a plan to minimize the negative impacts that lighting and other attractants have on the shearwaters, with the hope of providing safer routes for the birds to travel from the mountains to the sea and back again.



Mike Hawkes was the manager for the Kaua'i National Wildlife Refuge Complex before becoming refuge manager at Buenos Aires National Wildlife Refuge in Arizona. This article originally appeared in the Endangered Species Bulletin.



Kīlauea Point National Wildlife Refuge, HI, is the only unit of the entire National Wildlife Refuge System that can boast the presence of nesting Newell's shearwaters. (Brenda Zaun/USFWS)

Focus... Stories of Hope

The Kenai Notebooks



"The Harding Ice Field is shrinking and the increased silt and melt-water in Skilak Lake has reduced the plankton available for sockeye salmon fry to eat." – July 24, 2009 (USFWS)

Readers of the *Peninsula Clarion* newspaper on the Kenai Peninsula in Alaska have been learning about Kenai National Wildlife Refuge for the past decade through a weekly column called "The Refuge Notebook." More than 450 articles have been written by biologists, managers, law enforcement officers, maintenance workers, firefighters, environmental education specialists and administrative staff. A sampling of these columns shows a passion to preserve the wildness of Alaska even as it is studied, protected and shared.

Learning About Past Helps with Predicting the Future

By Ed Berg, refuge ecologist

March 12, 1999

This is day one, page one of a new weekly column devoted to life and happenings on the Kenai National Wildlife Refuge. We staff members and friends of the refuge have signed up for this project because we think we have some interesting stories to tell. We hope that the more our readers

learn about the refuge, the more they will appreciate it and help take care of it.

As the refuge ecologist, I deal with the Big Picture. The "eco" in "ecology" comes from the Greek work "oikos" for house. So I study the "house" or the habitat wherein the animals (that's us, too) and plants live out their daily lives.

Share the Refuge with a Child; it will Open Up a Brand New World

By Richard Johnston, ranger/pilot

October 22, 1999

When friends and refuge visitors ask me about my favorite refuge experiences, I smile and reply, "Anywhere on the Refuge and sharing just about any activity with a child."

I recollect leading a school field trip many years ago where I was distressed that we hadn't seen any of the normal wildlife that day. One of the kids started asking questions about this small fungus growth on a downed log. It was then that I wished I'd paid more attention to the

small stuff; I realized that I didn't need an obliging moose to make these kids' day. A small amount of "interpretive knowledge" on my part could really enhance their modest adventure.

Caribou herd reduction accomplished naturally

By Rick Ernst, pilot/biologist

September 22, 2002

After a hiatus of 53 years, caribou returned to the Kenai Peninsula...Fifteen caribou were released at an airstrip near Chickaloon River in 1965 to form the Kenai Mountain herd. (The herds grew) until hunting of the Killey River herd was first allowed in 1995 and continues today, with the goal of limiting population growth. By 2001, the Killey River herd had a population of just over 700 animals – the largest on the Peninsula.

In late October and early December of 2001...I noticed a snow slide that came down the mountain all the way to Alpine Lake. A total of 143 caribou was killed by this natural event, and that number is a minimum. Any way you cut it, this was an incredible event and will have a big impact on future management of the Killey River herd.

The 2005 Kenai Peninsula Fire Season is Another for the Record Books

By Doug Newbould

September 9, 2005

So far in 2005, 600 wildland fires have burned more than 4,395,000 acres in Alaska, the third-highest total acreage since records have been kept. Even more unusual is the number and percentage of natural ignitions (lightning). The lightning detection system in Alaska barely reaches the Peninsula, and not all ground-strikes are recorded, but close to a thousand lightning strikes were recorded this year and that is unprecedented, at least as far as we know.

So what is causing this 'sudden' increase in thunderstorm activity on

Islands in the Upper Miss Bring Hope to Species

By Jennifer Anderson

Midway through a multi-year island construction and restoration project that began in 2006, and already tens of thousands of migrating tundra swans and diving ducks are again flocking to a 3,000-acre area within the Upper Mississippi River.

“A lot of creativity is being exercised in the design and construction of these islands, and from what we’ve seen so far, we’re pleased with the result,” said Jiam Nissen, La Crosse District manager for the Upper Mississippi River Wildlife and Fish Refuge.

A lock-and-dam system constructed in 1937 to aid in navigation created wave and wind action that led to the erosion of islands along the Upper Mississippi. Many of the fish and bird species that relied on the islands for food and shelter either perished or sought refuge elsewhere.

While some island restoration work has been completed in other sections of the Upper Mississippi, the current project, estimated to cost \$15 million, involves Pool 8, a 23-mile-long stretch of river where erosion over decades has reduced island land mass by 80 percent, from 625 acres to fewer than 150. Construction began in 2006 and is scheduled for completion in 2012. Partners on the project include the U.S. Army Corps of Engineers, U.S. Geological Survey, Minnesota and Wisconsin departments of natural resources, and the Minnesota Pollution Control Agency.

Robust Heyday

Restoring all of the lost acreage in Pool 8 would be expensive and unnecessary, Nissen said, explaining that the goal instead is to return the area to its “robust heyday” of the late 1940s and early 1950s, when only about half of the acreage had been lost. Records from that era show large numbers of migrating birds, as well as songbirds, marsh and wading birds, and deer, mink, muskrat and other

mammals reveling in the vegetation and abundance of food.

Plans call for building 15 “earthen” islands in Pool 8, made of natural materials such as sand and mud, clay or silt, and seven “seed” islands, which are rock covered with minimal sand, and with the intention that additional sand will accumulate from the river and vegetation will start naturally. Additional construction will include three breakwaters and repairs to one existing island, together totaling 125 acres.

Most new islands are being built on the “footprints” of the eroded islands and with sand from channels along the river that filled in as the islands disappeared, much to the detriment of numerous fish species. Once the sand is in place, fine material, such as mud, clay or silt, brought in from a Minnesota delta, are being used to cap the island before the planting of seeds, shrubbery and other vegetation.

Work to date has included the near-completion of six islands and completion

of three breakwater islands, one earthen island and four seed islands. Work also has begun on two horseshoe-shaped islands in the central area, and work is to begin next year on three additional islands and three seed islands. Design work is already underway on the final three islands, one of which – at 13 acres – will be among the largest.

Protective Measures

With the lock-and-dam system still in place, some rock, known as riprap, is being placed along shorelines to deflect wave action and hopefully prevent the erosion from happening all over again.

The rock, however, “is expensive, and it doesn’t look natural, so we are using it sparingly,” Nissen explained. Additional protective measures include plantings of sandbar willows and other shrubs to stabilize the shorelines as well as grasses, wildflowers and trees to provide habitat and protect the islands during floods.

Since the construction work is visible from Highway 26, the refuge has been offering tours to accommodate public interest. Visitors are invited to view the project from boats piloted by refuge staff and volunteers or on a cruise boat with agency personnel on board. More than 500 people have participated on these tours, both to view the construction and the migrating wildlife.

As one visitor put it: “The tour was great. We saw an immense peregrine go streaking past and Forster’s terns, and all kinds of shorebirds. The work being done is so heartening and positive... thanks for letting us all see it.”

Jennifer Anderson is a freelance writer who has often written for Refuge Update.



Midway through a multi-year island restoration project, tundra swans are again flocking to a 3,000 acre area in the Upper Mississippi River. (Cindy Samples/USFWS)

Focus... Stories of Hope

Partnership for Wildlife across Borders

By Pat Anastasi

An increase in nesting yellow-billed cuckoos at the San Bernardino National Wildlife Refuge is another example of how partnerships – including a Mexican connection – can exponentially increase ecosystem restoration.

The refuge, just 2,300 acres in southeast Arizona along the border with Mexico and New Mexico, was established in 1982 to protect four native fish: Yaqui chub, Yaqui topminnow, Yaqui catfish and the beautiful shiner. But refuge manager Bill Radke says the refuge is really the tale of neighbors working together on restoring more than a million acres.

Early on, refuge managers began installing rock and wire gabions and pole planting willows and cottonwoods in an effort to raise the water table. Restoring native grasslands also helped reduce mesquite and other shrubs. Eventually, Radke says, an estimated 100 refuge acres were restored to “a broad, vegetated, riparian corridor with some perennial stream flow supporting native fish.”

By the late 1990s, neighboring ranchers had taken notice, asking, “What is going on? Now we have water all year round and we didn’t use to.”

Being a Good Neighbor

The refuge agreed to partner with the landowners, helping them create their own gabions and pole trees, offering expert advice, working to obtain restoration funds through the Challenge Cost Share and Partners for Wildlife programs and generally being a good neighbor.

The refuge’s biggest partnership is the Malpai Borderlands Group – U.S. cattle ranchers who’ve banded together to maintain and restore natural processes on the nearly one million acres they own in southeastern Arizona and southwestern New Mexico.

Wendy Glenn and her husband, Warner, own the Malpai Ranch. Wendy



Volunteer Humberto Rodriguez (left) and heavy equipment operator Larry Brasher install wire gabions as part of an effort to restore native grasslands at San Bernardino National Wildlife Refuge, NM. (Chris Lohrengel/USFWS)

manages the group’s efforts and says the borderlands group and the refuge benefit equally from a symbiotic relationship. “The refuge is at the bottom of the valley,” Glenn says, “The water runs through it when it rains and so everything that the ranchers do above it affects the refuge.”

Josiah Austin and his wife, Valer, own ranches in both the U.S and Mexico, including the 10,000-acre Rancho San Bernardino in Mexico, which borders the refuge. Austin says, “The San Bernardino Wildlife Refuge is just a wonderful, wonderful neighbor. It’s a real healthy partnership.”

Corridor of Riparian Forest

Working with Radke and the refuge staff, Austin says riparian areas on his ranch have increased 300 to 400 percent. Couple that with almost three miles of restoration on the refuge and you have nearly 15 miles of continuous riparian forest running from the refuge into Mexico.

And, as the riparian areas grow, the native species return.

Biologists’ observations since 1982 had shown that cuckoos no longer nested on the refuge. But in 2006, refuge assistant

manager Chris Lohrengel decided to do a new survey.

“We knew we had cuckoos,” Lohrengel says, “but no one had ever gone out to see how many nesting pairs.” The 2006 survey found three or four nesting pairs. This year’s study found four or five.

The refuge’s five-year restoration goal is a 25 percent increase in riparian restoration. Goals on adjacent downstream private land are to increase the riparian restoration by at least 300 acres.

Still, Radke says, “Our goals here are dominated by fish,” so the objective is to raise the level of the stream channels by two to four feet. Because of the track record shared by the refuge and its partners, he’s optimistic.

“This is the only place I’ve ever worked,” Radke says, “where virtually every landowner on each side of the border shares common goals with the refuge. We even share strategies to achieve those goals. It’s really pretty remarkable.”



Pat Anastasi is a veteran broadcast journalist in Washington, DC, who works as a freelance writer.

Lending a Sticky Hand to Help a Woodpecker

You can't be in a hurry if you are trying to bring back a species.

Okefenokee National Wildlife Refuge in Georgia began efforts to increase its population of red-cockaded woodpeckers in the 1970s. In 1998, the refuge began the process of translocating juvenile woodpeckers from larger populations. At that time, there were 30 active clusters of birds. Now there are 40. The goal is 87 active family groups or clusters, each cluster referring to a group of cavity trees used by a single woodpecker, a breeding pair or a pair with juveniles.

Most effort is concentrated on the perimeter of the refuge, where biologists like Dean Easton create artificial nest cavities and relocate male and female juvenile birds from areas where they are more plentiful. The cavities are made by cutting a section out of the tree and inserting an artificial cavity box. A plywood top and PVC entrance tunnel are installed and the box is sealed to prevent resin from leaking in. White paint may be sprayed around the front of the cavity to simulate pine resin. "That way they see that it's a tree worth checking," explains Easton. Once

established in a particular tree or cavity, red-cockaded woodpeckers will return year after year.

The birds peck holes around the cavity to provide a coat of real resin as defense against snakes. The real resin is as much a nuisance for Easton as it is a safety device for the birds when it comes time for banding.

Easton raises a camera mounted on a pole to peer inside a cavity and check for hatchlings. With a confirmed sighting, Easton climbs to the cavity, powdering his sticky, resin-covered hands with corn starch before gently removing the chicks. The birds are banded when they are five to 10 days old and then returned to the cavity, much to the relief of the agitated parents. These woodpeckers will leave the nest in about a month.

There are 182 artificial cavities at Okefenokee Refuge though not all are active; woodpeckers have also created 271 natural cavities. The artificial cavities are considered an effective management strategy in a hurricane-prone area because the cavities can be easily replaced if a severe storm snaps off the tops of big trees.




Okefenokee National Wildlife Refuge, GA, is trying to boost the odds in favor of the endangered red-cockaded woodpecker. (USFWS)

Growing Old Trees Fast

Big trees are another challenge. Red-cockaded woodpeckers need trees that are 40 years old or older for foraging and at least 60 to 70 years old for building cavities. "We don't have a lot of contiguous blocks of mature pine upland," explains Easton. "We have pockets of a thousand acres or less with five miles separating them." Several landowners with property bordering the refuge manage their forest stands on short-term rotation (typically 17 to 20 years); trees of this size/age are of minimal use to red-cockaded woodpeckers.

The refuge is working with the Georgia Forestry Commission and other state agencies to grow some trees longer and acquire more acreage. The refuge is scheduling more prescribed burns to remove fuels for forest fires and actively working with partners to create a buffer zone that is more resilient to fire and reduces the potential spread of fire.

Red-cockaded woodpeckers were afforded federal protection in 1973 with the passage of the Endangered Species Act. They are the only woodpeckers to make cavities in living trees and their first preference is longleaf pines 80 to 120 years old. Okefenokee Refuge is trying to boost the odds in favor of this small woodpecker on both counts. 



Artificial nest cavities are installed in mature trees to attract red-cockaded woodpeckers. (J/K Hollingsworth)

Focus... Stories of Hope

Getting Nature into Our Kids

A bus load of children boisterously wades into a wetland to collect invertebrates at Kern National Wildlife Refuge in California. A family in Omaha, Nebraska, stops by a wooden post at DeSoto National Wildlife Refuge to create a rubbing of the raised-metal eagle on top. A 14-year old birder is the Master of Ceremonies for the third annual conference of the Ohio Young Birders at Ottawa National Wildlife Refuge. There are indeed signs of hope that young people still find the great outdoors fascinating and captivating.

Wading in the Water

Lost Hills, CA, is a rural community about 18 miles west of Kern Refuge. The county has a large Hispanic population and many families work in the local agricultural or oil industries. For the past two years, the refuge has hosted all the fifth graders for a half-day of bird watching, collecting invertebrates from the wetlands, learning to distinguish native versus introduced animals and identifying common plants.

After lunch, children had unstructured time to wade in the water, explained private lands biologist Scott Frazer:

“The first time we tried the ‘wade in’ experiment, I was in the water with the children. The principal was on shore, encouraging them, and no one was scolded for getting too wet. I was proud of Veronica Sanchez-Gregory, the school principal, and teachers for letting their students explore refuge wetlands on their own for an hour.

“I am convinced by the kids’ smiles and exclamations that we made memories that will last a lifetime,” concluded Frazer, who says the refuge is already making plans to continue the field trips during the current school year.

H.I.P. Kids in Omaha

Half way across the country in Nebraska, the Junior League of Omaha published a *Go! Play Adventure Guidebook* of 35 family-friendly outdoor destinations around the metropolitan area. Both DeSoto and Boyer Chute National

Wildlife Refuges are featured in the playbook, which has been available in public libraries since October.

Families are asked to register online and then collect a Go! Play Adventure rubbing from each location. When rubbings are collected from all 35 sites, the playbook may be entered in a prize raffle. The Junior League’s H.I.P Kids Project (Healthy, Inspired, Proactive) estimates that 5,000 families will be involved this year. Families are also encouraged to post their pictures and experiences on a Go! Play Adventure Facebook page.

DeSoto Refuge’s rubbing post is located in the historic Lewis and Clark area. The rubbing post at Boyer Chute Refuge is located at the head of the Oriole Trail and features a bird. Children use crayons or pencils to gently rub a page of their playbook over the raised metal to reveal an image. *More information at www.hipkidsomaha.org.*

A steering committee of adults and six teens founded the club in 2006 under the sponsorship of the Black Swamp Bird Observatory, adjacent to Ottawa Refuge. Four of the six young people are now pursuing avian-related careers. Kim Kaufman, executive director of the observatory, says young people continue to be the driving force behind the club.

Adults suggested four birding field trips a year; the kids wanted one a month. Adults suggested calling the club “Junior Birders.” The teens wanted nothing to do with being “junior” and they felt members should be 12 to 18 years old – no younger.

Rebecca Hinkle, visitor services manager at Ottawa Refuge and a member of the observatory’s education committee, says some of the teens led field trips during family events on the refuge. Both Hinkle and Kaufman note that birding looks “cool” as soon as another young person is doing it. “It is so energizing to be with




The Ohio Young Birders Club selected the golden-winged warbler for its logo specifically because it’s a challenge to see. (Kristin Mylecraine)

Scoping Out Teens

Generating enthusiasm for birdwatching among teenagers might seem counterintuitive: it’s a quiet activity, best pursued early in the morning and has nothing to do with the more typical “tweets” of this online generation. Nonetheless, the Ohio Young Birders Club has more than 100 members, and at its third annual conference next month at Ottawa National Wildlife Refuge, all the presenters are teens.

these kids,” says Hinkle. “The five boys on my field trip were seeing everything!” In fact, the teens selected the golden-winged warbler for their logo specifically because it is especially difficult to see.

Kaufman and Hinkle recommend starting a group by putting a few passionate young people in charge and then, says Kaufman, “prepare to be more rewarded than you would ever imagine.” 

Taxes for Wildlife: Minnesota Votes “Yes”



Minnesota voters approved an increase in the state sales tax to protect and restore wildlife habitat. (USFWS)

The conservation mission of the National Wildlife Refuge System requires dedication not only by professionals, but also by the public. Minnesota voters clearly agreed, and last year approved an increase in the state sales tax “to protect, enhance, and restore our wetlands, prairies, forests, and fish, game, and wildlife habitat.”

After years of debate and discussion, including vigorous lobbying and information campaigns on both sides of the issue, more than 1.6 million Minnesotans, or 56 percent, voted in November 2008 to dedicate an additional 3/8 of one percent sales tax from 2009 until 2034 for clean water projects, wildlife habitat, natural areas, parks and cultural heritage projects. Leaving the ballot question blank was counted as a “no” vote. Estimates are that around \$300 million a year will be raised.

A newly established Lessard-Sams Outdoor Heritage Council will oversee

funds for restoring, protecting, and enhancing wetlands, prairies, forests, and habitat for game, fish, and wildlife. The Council will receive 33 percent of the funds raised from the tax, an estimated \$80 million each year.

The new sales tax was first collected in August. Already the funds are being used by state agencies and nonprofit organizations to develop strategic, collaborative and visionary conservation proposals. The U.S. Fish and Wildlife Service is a strong partner in these efforts.

Organizations such as Pheasants Forever and Ducks Unlimited can receive funds from the Lessard-Sams Council to acquire habitat. The Service will provide technical assistance to ensure the lands are of high wildlife value. After the land is acquired by a partner organization, the Service and many other agencies can assist in restoring wetland and grasslands. Ultimately, the organization

will donate the restored land to the Service as a waterfowl production area, thereby ensuring it will be protected as public property in perpetuity.

The conservation mission of the National Wildlife Refuge System requires dedication not only by professionals, but also by the public.

Scott Kahan, project leader of the Detroit Lakes Wetland Management District, waxed poetic as he walked across a piece of land with a partner from Pheasants Forever. “We were excited to think that a tract of more than 250 acres would soon be purchased by Pheasants Forever, using Lessard-Sams Outdoor Heritage Council funds. After the land, is converted from cropland back into wildlife habitat, it can be donated to the Service as a waterfowl production area.

“So I can just envision that a few short years from now, the restored prairie grasses will turn crimson on the frost-kissed landscape, the birds will congregate on their march southward, and Minnesota will continue its strong tradition of environmental stewardship.”



Focus... Stories of Hope

Forebears and the Land

By Len Deibert

“Our natural and cultural landscapes are intertwined and we can’t deal with one without involving the other.” Southeast Region archaeologist Richard Kanaski is not philosophizing about the place of national wildlife refuges in American life. He’s talking about U.S. Fish and Wildlife Service efforts “to protect a different kind of resource under our trust” – cemeteries and burial grounds on land that became refuges.

Efforts to preserve and restore the cemeteries, which date back to Revolutionary times, are underway at refuges ranging from the 35,000-acre Piedmont National Wildlife Refuge in central Georgia to Chincoteague National Wildlife Refuge on the Virginia coast, 14,000 acres of beaches, maritime forest, and salt and freshwater marsh habitat.

At Chincoteague, refuge manager Lou Hinds recognized that local residents – whom he calls “Teaguers” – are proud of their family ties to the islands. And they have strong cultural ties to the natural resources of the water. So, he invited “Teaguers” and “Teaguers in spirit” to help care for two cemeteries on Assateague Island and another on Wallops Island. Both date back to the 1800s.

Bringing Back History

Hinds viewed the invitation as a precursor to other partnerships. He was right. In January 2008, approximately 15 local volunteers joined with the Service to clear cemetery grounds, remove trees and debris, and delineate cemetery boundaries at the two Assateague Village cemeteries.

In September, 15 staffers from the Service and National Park Service attended a Preservation Skills Workshop, organized by the Refuge System. The participants helped restore the Assateague Lighthouse oil shed and drove to Wallops Island, where they cleaned the cemetery site, restored a small, dilapidated family burial plot, and



National wildlife refuges protect not only natural resources, but cultural resource as well – including some cemeteries. Refuges open those cemeteries so people may visit family graves. (USFWS)

repaired a broken headstone that dated back to the 1800s. (The Preservation Skills Workshop included instruction on headstone repair.)

Hinds says, “The work accomplished probably saved the refuge \$20,000 and furthered goodwill in the community.”

Gary Turnquist is a retired archaeologist who lives in Chincoteague. He serves on the Chincoteague Cemetery Committee, and is a volunteer consultant to the refuge on cemetery and historic issues. He praises Hinds for recognizing the importance of the cultural heritage to those who live near the refuge. “The impact of the human animal on the environment of the past, within areas now designated as wildlife refuges needs to be included in management planning for the future,” says Turnquist.

To Hinds, the benefits of preserving and protecting cultural resources on refuges – while managing the habitat – are clear: “I believe Teaguers feel their cultural heritage is now recognized as a part

of the refuge history...It creates more than goodwill. It brings a new sense of trust.” And it’s evident in everyday contacts. Hinds recalls that when pine bark beetles began to attack trees, local residents understood why the refuge was cutting down pine trees to halt the beetle infestation.

34 Documented Cemeteries

At Piedmont Refuge, habitat restoration has turned erosion-ravaged farmland into pine forests, hardwoods and wildlife habitat. In the process, the refuge has become an important link to families whose ancestors lived on the land in the 1700s and are buried there.

The Service has documented 34 cemeteries on the refuge. Each documented grave has a data sheet, complete with GPS coordinates and the inscription, as well as landmarks to help locate a grave.

Periodically, refuge staff or a hunter discovers a new burial ground or individual gravestone. After recent

A Delicate Question: How Many

controlled burns at Piedmont, two new cemeteries were found – one with 60 fieldstones. The cemeteries only became visible after the ground vegetation and leaf litter were burned off. Once burial grounds are identified, burns and mowing are controlled to avert damage to headstones. As new burial grounds or cemeteries are discovered, Piedmont Refuge updates its database.

Karen McMichael has ancestors buried in the Beeland Cemetery near Pippin Lake on Piedmont Refuge. She remembers visiting the area as a girl – “a fascinating and beautiful place.” She says the cemetery “is nicely preserved,” and thinks of the refuge as “a good neighbor...a very important part of the community.”

Interest in cemeteries on Piedmont Refuge extends far beyond the nearby communities of Juliette, Round Oak and Jones County. One visitor came from California. It’s not unusual for family members to drive three to four hours to visit a relative’s grave.

Protecting History, Habitat

Deputy refuge manager Carolyn Johnson says, “It’s satisfying when someone who has spent years searching his genealogy walks in the door, and you pull out a notebook and tell them, ‘Here is the grave site.’” That carefully researched notebook is the work of college interns and refuge employees dating back to 2000. Johnson believes it is good community relations to open refuge cemeteries so people may visit family graves.

At Piedmont, it’s more than just good community relations. On its Web site, Piedmont Refuge states: “The gravestones are cultural artifacts that can teach us much about our American forebears.”

Len Deibert is a Washington, DC, journalist with a special interest in conservation.

The U.S. Fish and Wildlife Service has used space-age technology to help solve a decades-old (perhaps century-old) mystery about graves dating back to the late 19th century. For years, families living in Chincoteague wondered how many bodies were buried in graves in two cemeteries on neighboring Assateague Island, home of Chincoteague National Wildlife Refuge in Virginia.

Until recently, no concerted effort had been made to unearth an answer. That changed when Chincoteague Refuge manager Lou Hinds expressed an interest in the area’s cultural background and resources. After a 2008 cultural workshop with local residents, Hinds and Chincoteague resident Gary Turnquist hit upon the idea of using ground-penetrating radar (GPR) to examine the island’s sandy cemetery soil. Turnquist is a retired archaeologist who serves on the Chincoteague Cemetery Committee. The two men turned to the NASA facility at nearby Wallops Island, VA, and arranged to have ground-penetrating radar scan the cemetery grounds that were most likely to contain bodies.

The GPR equipment looks more like a hand-propelled lawn mower than a product of the space age. But in cemetery areas marked with only three headstones, the GPR bounced back density of mass for 10 graves – four in one cemetery, six in another.

The GPR not only proved highly effective and far less expensive than random digging, but it also helped bring closure for some Chincoteague residents who believe family members may have been buried on the refuge. (Historians note that at one time, residents lived in Assateague Village before moving to Chincoteague. In addition, the people who died during the smallpox epidemic of 1903 or the influenza epidemic of 1918-1919 were buried in a separate area north of the Assateague Village).

There are no written records to locate where the dead were buried. Only three headstones had the names of those buried there, and positive identification of the others may never be known. But Hinds says, “A piece of island cultural history – once thought lost to common knowledge – has been found again.”



Ground-penetrating radar is being used to scan cemetery grounds at Chincoteague National Wildlife Refuge, VA and identify burial sites. (USFWS)

Using Technology to Keep Up with the Wolves

As an apex predator, wolves are an important component of natural communities and may regulate or limit populations of their primary prey species such as deer, caribou, elk and moose. Because some people use these prey species for subsistence, recreation and commercial uses, competition often creates tension. New technology is now helping wildlife biologists overcome the challenges of monitoring and ultimately managing wolves.

Attitudes towards wolves vary considerably, from indifference and ambivalence to outright hostility. On the Alaska Peninsula, the majority of residents strongly supports the harvest and control of wolves. Dramatic declines in caribou abundance during the past 20 years and typically low densities of moose have resulted in unmet demands for subsistence, recreational and commercial harvests. Diminished range conditions, diseases, parasites and predation by brown bears and wolves have been suggested as possible factors limiting caribou and moose on the peninsula.

National wildlife refuges on the Alaska Peninsula encompass more than four million acres, covering roughly half of the peninsula. The remaining land is owned by state and federal agencies, Native corporations and private land owners. The region is a vast expanse of glaciated mountains, active volcanoes, rugged coastlines, rolling tundra and broad river valleys.

As a consequence of inclement weather and the sheer size of the area, no formal surveys of wolves had been accomplished before 2006. Traditional wolf survey methods such as track counts rely on adequate snow cover conditions, which typically are inconsistent and unreliable. The inaccessibility and harsh weather conditions make it extremely difficult to conduct wildlife studies, particularly for large mammals such as wolves that roam large areas.

Notoriously Difficult to Study

The only practical option to monitor wolves is to radio-collar and track them using aircraft. However, even with


radio-collars and aircraft, wolves are notoriously difficult to study. Wolves occur at naturally low population densities and regularly move great distances in search of prey. Wolf territories are dynamic, with territorial boundaries and spatial use patterns in a constant state of flux. In addition, transient wolves disperse from their home territories and may move 100 miles or more in just a matter of days as they search for new territories or breeding opportunities.

The use of satellites has not only decreased costs and reduced our carbon footprint, but it has also allowed wildlife biologists to collect more complete information more quickly regarding wolf spatial use, movements and behaviors on the Alaska Peninsula. In addition, biologists have been able to record new phenomena and unique events such as long-distance movements by transient wolves and wolves foraging on offshore sea-ice, information previously unattainable. Wolf management issues are complicated and these data will be an



Wildlife biologists in Alaska use state-of-the-art tracking collars to learn about wolf locations and activity patterns. (USFWS)

Continually improving wildlife tracking technologies have made it possible for wildlife biologists to address some of these complications. Wildlife biologists on the Alaska Peninsula and Becharof National Wildlife Refuges now use state-of-the-art tracking collars that incorporate GPS and satellite technologies. Information such as wolf locations and activity patterns can be downloaded from collars using satellites.

integral part of making management decisions. Better understanding of wolf ecology will be useful to state and federal agencies as they determine the best way to manage wolves and their prey. 

Dominique Watts, a wildlife biologist at Alaska Peninsula/Becharof National Wildlife Refuges, contributed to this article.

Bats in the Barn

Imagine putting a barn in a baggie. The old barn at Supawna Meadows National Wildlife Refuge in New Jersey supports a large colony of bats that refuge staff, Friends and a host of biologists are working hard to protect. Over the summer, that meant wrapping the barn in plastic to funnel the bats into two traps where they could be captured, counted, banded and released.

The barn had been listed for demolition until the Friends of Supawna Meadows National Wildlife Refuge began raising money to stabilize and repair it. Initial repairs were completed in time for an estimated 1,200 bats to return this past spring. These bats were mainly mature female little brown bats using the barn as a maternity ward. The refuge made plans to gather baseline data and begin extensive research on these bats during the summer count.

Volunteers sewed 200 cotton denim bat collection bags. Volunteer employees from Cogentrix Energy Inc. – which had also donated \$10,000 to help stabilize the barn – arrived one July morning to help wrap the barn in plastic. Large sheets of plastic were stapled in place to cover the many small holes from which the bats could escape. The plastic sheets also served to funnel the bats into two traps. Equipment was organized on data collection tables – digital scales, calipers,

bat bands, gloves, disinfectant to clean equipment after handling each bat and to clean shoes that may have been at sites where White Nose Syndrome (WNS) had been found.

Early in the evening, volunteers arrived to help put each captured bat in a bag and document it. Volunteers came from the refuge Friends, New Jersey Division of Fish and Wildlife, Conserve Wildlife Foundation, U.S. Department of Agriculture, local consulting firms and William Patterson University. When a mourning dove became caught between the plastic and the wood of the roof and bats began piling up in the same location, refuge biologist Heidi Hanlon and refuge manager Howard Schlegel climbed a ladder to staple the plastic more securely, release the dove and capture the bats.

Bats: A Vital Part of Nature

Handlers measured each bat's forearm and weight, determined its species, gender, age and reproductive condition, and checked for signs of WNS. More than 400 bats were trapped – almost twice as many as in previous years. About 170 bats were studied and banded with a silver wing tag, each with a unique number. An emergence count after the survey determined that the colony had grown to about 3,000 healthy bats, including juveniles born in the spring.

“Bats are incredible animals and are worth saving,” said Judy Oshipp, president of Friends of Supawna Meadows. “They are vital to farms, pest control and a vital part of nature. We will keep doing this count as long as funding permits.”

Most barn repairs should be completed over the winter. Anti-sway cables are to be installed inside the barn to offset strong winds and the stress of winter weather. The tin roof is to be repaired in the spring and new side boards will cover the large holes. Funding will determine how quickly the work can proceed. Once the repairs are complete, there should be no need to wrap the barn in plastic for each year's count. Ultimately, baffles will be built in the barn for the bats to use as roosts.

So far, bats at Supawna Meadows Refuge have not shown any signs of WNS (malformed pups, dead pups, little to no reproduction), which has proved deadly to bat colonies in much of the northeast. Studies to learn more about the health of this bat maternity colony will continue at the refuge. Information is needed about bats, including measurements from bats at healthy maternity sites. Hanlon is hopeful that the banded bats will be seen this winter where they hibernate, since their hibernation site is still unknown.



Volunteers wrapped an old barn in plastic at Supawna Meadows National Wildlife Refuge, NJ, to funnel bats into traps for banding and study. (Judy Oshipp)

Around the Refuge System

New Mexico

Congress approved wilderness status for a parcel of land at Bosque del Apache National Wildlife Refuge that includes the peak of Chupadera Mountain. The mountain is part of a 140-acre donation of land made to the refuge in 2007 by the Friends of the Bosque del Apache National Wildlife Refuge – an action that opened the top of the mountain to visitors. This is the first time that the U.S. Fish and Wildlife Service accepted a land donation for inclusion into a designated wilderness. The peak can be seen from anywhere on the refuge. Chupadera peak is the destination of the 9-1/2-mile round trip Chupadera Wilderness Hiking Trail. Before the land purchase, the trail ended 200 yards short of the peak.

The Friends began raising money to purchase the land at the request of former deputy manager Debra Davies, who died unexpectedly in 2006. Nearly \$10,000 was contributed to the Deb Davies Memorial Fund, and the Friends raised another \$63,000 to complete the purchase. Eighty-five donors each contributed the price of one acre – \$450.

Florida

"I'm in this room, but I feel a world away," one visitor told the *South*

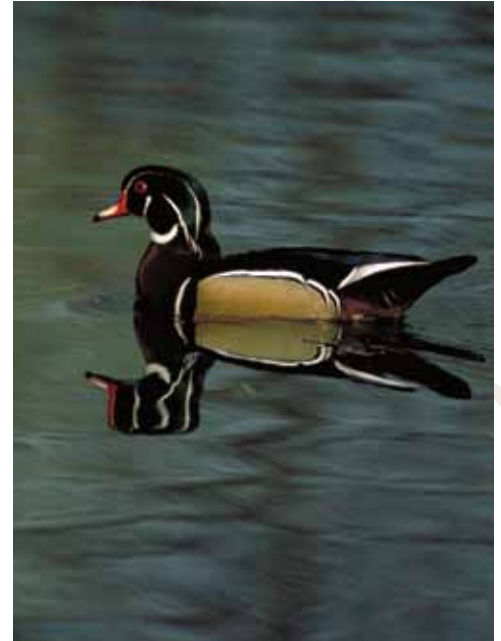
Florida Sun-Sentinel during opening day festivities in October at the new visitor center at the Arthur R. Marshall Loxahatchee National Wildlife Refuge. The \$750,000 center features state-of-the-art exhibits like "Nature's Symphony after Dark." Visitors stand in a round, dark room and listen to the voice of a grandfather telling his grandson about the sounds of the Everglades at night.

The high-tech, interactive exhibits are particularly intended to appeal to young visitors. A virtual airboat ride jiggles visitors in front of an original mural painted by Barry Nehr. Other exhibits feature a refuge management game, an American alligator "gator hole" diorama, a tribute to Arthur R. Marshall and an opportunity to hear the variety of public opinions about the Everglades.

Tennessee

Nothing can awaken a wonder for nature like holding something completely wild in your own hands – to feel its beating heart and make a connection with a creature that is wild and free. Tennessee National Wildlife Refuge is using its large wood duck banding program to provide such experiences to children and their families.

During the summer of 2009, several hundred children and parents were invited for special evening banding programs. Young and old were encouraged to reach into small catch pens to hand a duck to a refuge staff member for banding or recording. Refuge manager John Taylor initiated the hugely popular project with Ducks Unlimited and its Greenwings (youth) chapters.



Families help band wood ducks at Tennessee National Wildlife Refuge. (Thomas G. Barnes)



The new visitor center at Arthur R. Marshall Loxahatchee National Wildlife Refuge, FL, features state-of-the-art exhibits about the Everglades. (Lance Warley)

Typically 200-300 ducks are captured for each event, but during one evening, 648 ducks were captured. "For connecting children and their families with Tennessee Refuge, a bird banding program can be a valuable tool," says Taylor. "However we can awaken awe and wonder, it can be priceless."

Wisconsin

Necedah National Wildlife Refuge has broken ground for a \$5 million visitor center that will include classrooms, interactive displays, a wildlife observation room, Friends of Necedah bookstore, office space for the entire staff, trails, boardwalk and observation platforms. Nearly 150 people attended the groundbreaking, including Congressman Ron Kind, a member of the Congressional Wildlife Refuge Caucus.

Necedah Refuge is a haven for wildlife ranging from Karner blue butterflies to gray wolves. The number of visitors at Necedah Refuge has been gradually increasing, especially with the addition of the whooping crane project in 2001. The birds arrive at the refuge in April and leave in October, with fledglings following an ultralight plane to learn the migration route to Florida. This year, 20 ultralight-trained cranes left Necedah Refuge, the largest group ever.

The town takes full advantage of the cranes' presence: the Annual Necedah Lions' Whooping Crane Festival, crane images on Main Street banners, a Refuge Room at the Cranberry Country Lodge in Tomah, and a Little Crane Café down the street.

Texas

The Caddo Lake National Wildlife Refuge in East Texas officially opened to the public on September 26. Caddo Lake Refuge was established to protect bottomland hardwood forests in the southeastern United States. It is formerly the site of the U.S. Army's Longhorn Ammunition Plant.

Project leader Mark Williams says the refuge will offer observation trails, an auto tour route, a white-tailed deer hunt in November and an equestrian trail, in addition to a visitor contact station. Portions of the refuge are a Ramsar Wetland of International Importance.

Pennsylvania

Children around Erie National Wildlife Refuge may become official Nature Explorers with a patch and certificate. The program is modeled after the National Park Service Junior Ranger programs. The "Nature Explorer Program" turns children into nature detectives who must complete tasks or answer questions about the refuge. As they explore the trails and other areas of the refuge children learn about the plants and animals found there. To help in their discoveries, the refuge headquarters has books, videos, binoculars and fishing poles that can be borrowed for the day. Youngsters can visit a beaver dam, fish in the fishing pool and learn to use

binoculars. When they complete 10 tasks, they receive an embroidered Nature Explorer patch.

Missouri

Mingo National Wildlife Refuge will receive nearly 4,000 trees thanks to a carbon neutralizing partnership between Carfax and Michigan International Speedway. Carfax and the Speedway are working with the GoZero® program created by The Conservation Fund to "zero out" the carbon dioxide emissions from a race weekend, including the carbon from both the racers and spectators. This is the third year Carfax has participated in the program. NASCAR partnered with the Michigan International Speedway earlier in the summer to plant 10 trees for each green flag that drops during NASCAR Sprint Cup Series events at the track.

Overall, Mingo Refuge will be reforesting about 350 acres with more than 108,000 trees from the GoZero® program. "There will be benefits from the first day of the planting," says assistant refuge manager Jason Lewis, "as the plantings move from seedlings to shrubs to mature stands of bottomland hardwoods."



Carfax and the Michigan International Speedway neutralized the carbon dioxide emissions during a big race weekend by planting 4,000 trees at Mingo National Wildlife Refuge, MO. (Michigan International Speedway)



Chesapeake Bay Foundation educator Bill Portlock led Smithsonian Resident Associate visitors on a canoe trip through Rappahannock River Valley National Wildlife Refuge, VA. (USFWS)

Virginia

The day was cloudy but the eagles were brilliant – fishing, soaring and swooping as Rappahannock River Valley National Wildlife Refuge hosted more than 30 visitors on a Smithsonian Resident Associate tour during National Wildlife Refuge Week in October. The eagles were an unplanned delight for people who boarded a pontoon and listened to refuge manager Joe McCauley. Half the group chose to paddle canoes through the refuge marsh led by Bill Portlock, senior educator for the Chesapeake Bay Foundation.

In addition to the canoe or pontoon rides, the day-long tour included a short hike, picnic lunch and visit to historic Menokin, the former home of revolutionary war patriot Francis Lightfoot Lee. More than half the Menokin property is on the refuge. The home, now mostly in ruins, is being used to teach visitors, architects, conservators and environmentalists about the process of historical preservation.

Outstanding Innovation — continued from page 1

where slow barges continue to move coal – uses a geothermal heating and cooling system. Low-flow fixtures save an estimated 4,000 gallons of water annually compared to a building with standard plumbing features. Native plant species were selected for landscaping to help ensure that no potable water would be used for irrigation. Regionally manufactured materials were used extensively and rapidly renewable resources such as glue-laminated columns and beams reduced the need to harvest old growth trees. Energy cost savings were nearly \$2,000 in the first year compared to similar buildings.

The \$5.4 million Rapids Lake Education and Visitor Center at the Minnesota Valley Refuge was the result of a legal settlement to mitigate the environmental impact of expanding the Minneapolis-St. Paul Airport. Key energy-saving features include a geothermal system, radiant heating at the windows, tankless domestic water heaters and high efficiency lighting. Total energy cost savings of \$10,398 were realized during the first full year of operation. The building qualifies for Leadership in Energy and Environmental Design (LEED™) Silver certification.

Environmental Stewardship


The Oil and Gas Team, which includes representatives from the Refuge



The Rapids Lake Education and Visitor Center at Minnesota Valley National Wildlife Refuge, MN, qualifies for Leadership in Energy and Environmental Design (LEED™) Silver Certification. (Architecture by MS&R, photo by Pete Sieger)

System, Ecological Services, National Park Service and the DOI Office of the Solicitor, designed mobile national training programs to educate refuge managers on monitoring oil and gas operations on refuge lands. (See *Refuge Update July-August 2009*) About one-quarter of all refuges have current or past oil and gas activity, ranging from exploration and drilling to production and pipelines.

The training programs are held on refuges with existing oil and gas activity to provide students with real-world examples and practice opportunities. More than 100 students from six regions have already gained hands-on experience in working with mineral owners and assessing oil and gas sites for environmental damage, safety, permit and environmental compliance, restoration and remediation.

The team has also drafted an oil and gas handbook for field personnel (currently under review) and is developing a system to collect and store oil and gas data. The efforts of the Oil and Gas Team have helped to increase compliance by oil and gas operators, prompted cleanup on some refuges and improved habitat on others. 

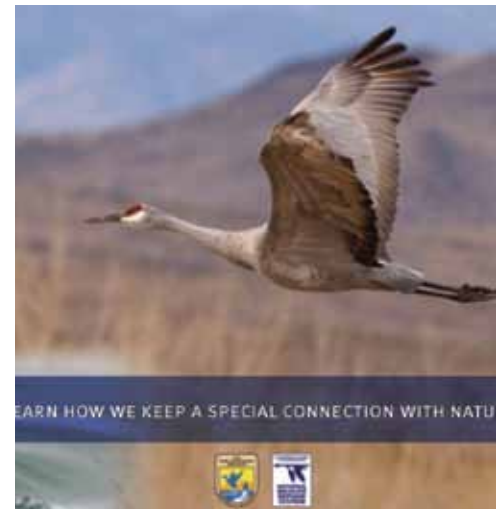
Refuges on the Radio

The National Wildlife Refuge System has launched a public service radio campaign urging Americans to connect with nature and visit a national wildlife refuge. The campaign consists of eight professionally recorded 60-second public service announcements (PSAs) extolling the sights and sounds of refuges. More than 3,500 radio stations received the first four radio spots in November; the second set of four will be distributed in April.

“This is another National Wildlife Refuge minute,” begins each segment as visitors are encouraged to visit a national wildlife refuge near their home or while they are traveling. They conclude by

noting that “every wildlife refuge is full of incredible experiences. With over 500 refuges across the country, you don’t have to go far to make a special connection with nature.” They also give the Refuge System Web address for more information.

The four spots to be distributed in the spring focus on four senses – sight, hearing, touch and smell – that are ignited when visiting refuges, “where nature still exists as it was meant to be experienced.” Copies of the PSA will be distributed to refuges in early January so they can be used in the local community, including local radio stations, schools and



colleges. For more information about the project, contact Martha_Nudel@fws.gov.

Magic Field Teaches the Benefits of Fire

By Jesselyn Hamilton

In 1985, something magical happened for Herb Troester, 34-year veteran of the U.S. Fish and Wildlife Service. He was inspired to write a story about his first prescribed fire in 1967.

As refuge manager at Tewaukon National Wildlife Refuge in North Dakota in 1967, Troester noticed a lack of waterfowl. Countering the common beliefs of the day, he set fire to a three-acre swath of the prairie. The “magical” results are the basis of *The Magic Field*, a 36-page illustrated children’s book.

The story includes the author as a character along with his two daughters and two sons. In the story, the field he burns is his children’s natural playground. Although initially dismayed by the fire, the children become fascinated as they discover what is revealed – Native American cultural icons like stone teepee rings and turtle effigies that had been hidden under the tall grasses. Their curiosity turns to astonishment as they watch the land regenerate itself.

Native grasses and forbs quickly take root and wildlife return to the area in numbers larger than before. Troester helps the children identify and learn about native prairie plants and wildlife. The book concludes with the awestruck children watching new Monarch butterflies and learning that they migrate all the way from the children’s prairie playground to Central America.

Troester’s sons are both now research associates for the University of Toronto.

They helped band butterflies for a migration study.

Selling like...Wildfire

Troester wrote the story when he was the regional fire management coordinator for the Service in Portland, OR. He was nostalgic for the time his family spent in the wide-open spaces of national wildlife refuges when he was a refuge manager. Although Troester wrote the story for himself, a friend asked permission to post it on a Web site for educational purposes. Word started to spread and the story was eventually discovered by members of the Service’s Fire Management Branch. Troester readily donated all rights of publication and distribution to the Service.

The paperback has been purchased by fisheries, ecological services offices and at least 18 refuges for distribution at schools and community events. When an initial print run of 5,100 ran out, another 10,000 copies were printed – nearly all already distributed, sold or donated.

Refuges have used the book for visitor centers, teacher packets, education trunks, special events and reading programs. Requests for *The Magic Field* have come from multiple agencies, including the Bureau of Indian Affairs (BIA) and the National Park Service. Troester, retired and living in Utah, handed out 100 copies on a road trip last summer.

“The book gets people interested in fire and spreads the message that fire is good for the environment,” said BIA fire management officer Guy Acuna, at the Tohono O’odham Nation in Arizona. Acuna plans to have the story recited to children by a traditional storyteller on the reservation.

For information on purchasing *The Magic Field*, contact blm_noc_pmds@blm.gov or call 303-236-7630. ↗

Jesselyn Hamilton was on a detail at the National Interagency Fire Center.



The Magic Field is a children’s story written by Service retiree Herb Troester about the ecological benefits of prescribed burns. (USFWS)

From Online to Outside



Neighborhood Explorers is an online game created by the U.S. Fish and Wildlife Service. By exploring a tree house with their cursor, kids learn about endangered species, conservation heroes and threats to the natural world. They receive a gold, silver or bronze patch according to the points they score in a

Jeopardy-like trivia game. Players also receive patches for documenting their own projects to help the environment. The first 450 kids who earn five patches receive a free tree from the Arbor Day Foundation. The game is available online at www.fws.gov/neighborhoodexplorers/.

Security Checks for Volunteers

Metal detectors, photo IDs, limits or bans on everything from cake knives to shampoo – it's all part of the effort to give top priority to safety and security. In 2004, President George W. Bush signed Homeland Security Presidential Directive 12 (HSPD 12), requiring standard and reliable forms of identification for federal employees, contractors and other individuals. Many who volunteer on national wildlife refuges are considered "other" individuals.

Volunteers will not be issued special badges, but volunteers with access to federally-controlled space, secure files or computers not open to the public will be required to go through a background check to meet the same security standards as federal employees with access to secure buildings, files and records or the Department of the Interior computer network. The requirement applies equally to new and long-time volunteers as well as members of Friends organizations who volunteer on a refuge.

Volunteer coordinators will determine which volunteers have access to government-owned computers, secure files or non-public space and how long a volunteer stays. Those volunteers who work fewer than 180 days each year and have access to non-public space, secure files or government computers must have a fingerprint check. Those who volunteer more time must have both a fingerprint and a full FBI background check.

Complications are in the details. If a volunteer spends a summer on a refuge, then only a fingerprint check is required. If the volunteer returns the following summer, then a full investigation is required. A fingerprint check takes about 10 days; a full background check can take up to six months. Once the fingerprint check has been completed, a volunteer may work while the full investigation is underway.

Where Do Your Volunteers Work?


Refuges can minimize the time and expense of background checks:

- Assign volunteers to public spaces with no government-owned computers

or secure files. If you have 60 turtle monitors, for example, have them gather at a maintenance shed rather than in the visitor center.

- Use a stand-alone computer in the visitor center gift shop or bookstore so volunteers in those spaces do not have access to the government electronic network.
- Lock the doors to offices with secure files or government-owned computers.

Volunteers who must undergo a background investigation must also take the same annual training as federal employee: Privacy Act, computer security, whistleblower protection and records management, all available on the DOI Learn Web site.

Volunteers who work with children must complete the same forms as other volunteers, but they also must go through a childcare national agency check. A full background investigation is good for life unless a volunteer has a "break in service" of more than two years. 

Eight New Moth Species

Researchers from the University of Hawaii discovered eight new moth species on three islands within Papahānaumokuākea Marine National Monument, species found nowhere else in the world. Researchers Patrick Schmitz and Daniel Rubinoff, who published their discovery in the journal *Zootaxa*, believe these moths may be descendants of species that colonized the Hawaiian archipelago more than five million years ago.

All of the new species are in the genus *Hyposmocoma*, a group found only in the Hawaiian islands. "I am certain more species are waiting to be discovered in the Monument," says Rubinoff, "since we've found hard evidence of their caterpillars and know them to be unique."



Eight new moth species have been discovered on three islands - including Laysan Island - within Papahānaumokuākea Marine National Monument. (Cindy Rehkemper/USFWS)

Sense of Wonder Award: Jim Burkhart

If a child is to keep alive his inborn sense of wonder," wrote Rachel Carson in 1956, "he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in." Jim Burkhart has been that adult for thousands of children during his 31 years of working at Okefenokee National Wildlife Refuge, GA.

Burkhart was hired as an outdoor recreation planner at Okefenokee Refuge in 1978. In 2006, the American Recreation Coalition honored the "near legendary status" of his efforts to promote public use at Okefenokee Refuge. Now he is being honored with the 2009 Sense of Wonder Award.

Burkhart facilitates a dynamic environmental education program, combining science, writing, natural and cultural history, art and digital photography for more than 3,000 students each year. More than 400 teachers receive environmental education training so that they can carry their skills back to the classroom. "The refuge is a

true outdoors classroom," says Burkhart, "not just another field trip, but a hands-on learning experience."

Burkhart works closely on radio and television broadcasts. He is credited with building local and national recognition for the refuge through such events as the Okefenokee Festival, held each autumn with the town of Folkston. During the festival, as many as 2,000 visitors travel to Chesser Island Homestead to learn about 19th century homemaking. By early November, locally grown sugar cane is pulverized and boiled into cane syrup as part of another interpretive program at the homestead; several hundred more visitors come to the Chesser Island Christmas program.

The "Sense of Wonder" recognition celebrates a legacy started by Carson, who once worked for the U.S. Fish and Wildlife Service. Her book *A Sense of Wonder* illustrates the essence of emotional training necessary for natural resource appreciation, yet is written by a staunch scientist and champion of the health of our environment. 🦋



Jim Burkhart, supervisory visitor services specialist at Okefenokee National Wildlife Refuge, GA, won the 2009 Sense of Wonder Award. (USFWS)

From The Director — continued from page 2

The Service has already made great progress. For example, in partnership with The Conservation Fund, American Electric Power Company and Entergy Inc., we have developed an innovative carbon sequestration program in the Lower Mississippi Valley. Together we have added more than 40,000 acres of habitat to the Refuge System and reforested more than 80,000 acres, sequestering 30 million metric tons of carbon over the project's 99-year lifetime.

The Service will also help create a network of locally-driven, solution-oriented Landscape Conservation Cooperatives that will allow federal, state and local partners to develop shared science capacity to inform conservation actions that help priority

species and habitats withstand the impacts of climate change. At Alligator River National Wildlife Refuge in North Carolina, for example, efforts are underway to combat saltwater intrusion from rising sea levels. We are also prepared to reduce heat-trapping pollution by playing a key role in the Department's Carbon Footprint Project.

These steps represent an ambitious Department-wide approach that acknowledges climate change is bigger than any agency or organization. It also needs your support and input. That's why we hope you will visit a national wildlife refuge soon and talk to our wildlife professionals about how climate change is affecting our world and what you can do to help.

To learn more about the Service's strategic plan for climate change and give us your feedback, go to www.fws.gov/home/climatechange/. Let's tackle the impacts of climate change with determination. Let's build a clean energy economy that creates new jobs. And let's build a conservation legacy for future generations. 🦋

People

New Regional Refuge Chief

Rick Schultz, a former refuge manager at Minnesota Valley National Wildlife Refuge and most recently national borderland coordinator for the Department of the Interior, is the new Chief of Refuges in the Great Lakes – Big Rivers Region. Former chief Nita Fuller retired in early September. Over his career, Schultz has worked at five different refuges and wetland management districts in two regions. He also served as the chief of the Refuge System Division of Natural Resources and Conservation Planning and led the national development of the Service's Partners for Fish and Wildlife Program.

Meritorious Service Award for Greg Mensik

Ask **Greg Mensik** about his 32-year career with the U.S. Fish and Wildlife Service and odds are every anecdote includes a passionate reference to waterfowl and national wildlife refuges. Mensik, deputy manager of the Sacramento National Wildlife Refuge Complex, CA, has received the Department of the Interior Meritorious Service Award.

"I knew I wanted to go to Humboldt State University and major in wildlife when I was in the seventh grade," he said. In 1983, Mensik came to Colusa National Wildlife Refuge, part of the Sacramento Refuge Complex. He's been a fixture at the complex since, working as



Greg Mensik, deputy manager of the Sacramento National Wildlife Refuge Complex, CA, has received the Department of the Interior Meritorious Service Award. (USFWS)

a refuge biologist, supervisory biologist and deputy refuge manager.

Mensik's leadership improved community relationships and developed strong ties with landowners, duck club managers, farmers, educators, professional scientists and government agencies. He is credited with playing a key role in developing an exemplary inventory and monitoring system at Sacramento Refuge Complex. Mensik is planning to retire in the spring, but hopes to "volunteer and keep doing the fun stuff."

New Birding Team Members

Two new members have joined the Refuge System birding team:

Roy Rodriguez is a lifelong Texan, hunter and angler who works as a natural resource interpreter and birdwatching guide across the U.S. and Mexico. His passion for bird ecology has taken him from the Arctic Circle to the shores of South Korea. Rodriguez is a Texas Master Naturalist, canoe guide on the Rio Grande, lead instructor for the National Hispanic Environmental Council Scholarship Institutes and tour operator for MexBirds, a small company dedicated to "Economic Sustainability through Birding" in Mexico.

Julie Kates is a federal lands associate for the nonprofit organization Defenders of Wildlife, where she works on Refuge System issues. With a master's degree from the University of Maryland in sustainable development and conservation biology, Kates' studies focused on climate change adaptation on Refuge System lands in the Prairie Pothole Region. She has also worked as a wildlife biologist, including a year of community conservation work in East Africa.

The Birding Team is part of an initiative launched in 2006 by the National Wildlife Refuge System to strengthen the relationship between the birding community and refuges. The Birding Team seeks ways to involve more Americans in the conservation of America's native bird species. More information is available at www.fws.gov/refuges/birding. 🦋

Chief's Corner — continued from page 2

Cooperative Alliance for Refuge Enhancement (CARE), the 22-member group of non-government organizations (NGOs). Individually, the NGOs may have little in common on a host of issues, but their support of the Refuge System is seamless. The leadership of the National Wildlife Refuge Association, which chairs CARE this year, has been consistently superb. In its 15th year, CARE is a knowledgeable and respected voice for the Refuge System.

Last year, CARE members visited a number of refuges in Montana, including Charles M. Russell Refuge, asking probing questions. They saw firsthand the impact and success of partnerships through the Blackfoot Challenge. Such fact-finding missions are essential in helping CARE understand how we achieve land stewardship goals on the ground. We hope that CARE members will consider future fact-finding missions.

Each of you has a story to tell about your national wildlife refuge. Telling those stories in your community makes a huge difference for natural resource conservation. Telling those stories has certainly made a difference in the last three years. Thank you for your continued leadership. 🦋

Bringing Life to Cultural Resources — continued from page 1

grade employees like old things to begin with. When you can put it back in its original state – that gives you a high.”

The week-long Preservation Skills Workshop at Chincoteague Refuge was the brainchild of Refuge System archaeologist Eugene Marino, who praised support from the Washington Office Facilities Branch and Chincoteague Refuge manager Lou Hinds. “Wage grade employees are often the first ones to see a cultural resource or be aware of a potential impact,” said Marino. “By offering some training, I hoped to better educate this group to be more sensitive toward the resource.” Marino was extremely pleased not only with the interest in the hands-on portion of the course, but also with preservation in general. “They were all able to see why the Fish and Wildlife Service should be engaged in this kind of effort....two students with a combined 80 years of service told me this course was the best they had ever taken.”

During the week following the workshop, participants visited two Park Service sites in Harper’s Ferry, WV, where they saw more tuck pointing as well as window and door replacement projects. Booth is hoping to work on joint projects or send his staff to on-the-job training opportunities with the National Park Service. “Here at Wichita Mountains Refuge,” says Booth, “we’d like to make a ranger station out of a Civilian Conservation Corps house. It needs attention in the next five years. Now I know what we can and can’t do and who to contact for help.”

Marino is hoping to offer additional hands-on historical preservation courses in other parts of the country. Booth’s advice to fellow maintenance staff? “Look and listen. Be open to historical preservation. Don’t be a mushroom about it... When you stop learning, you’re going to get run over or left behind.” 🦋



Employees in a Preservation Skills Workshop practiced tuck pointing bricks on the oil shed next to the historic Assateague Lighthouse at Chincoteague National Wildlife Refuge, VA. (Robert Wilson)

The Kenai Notebooks — continued from page 8

the Peninsula? Well, I have a suspicion it’s the result of warmer ocean surface temperatures in the northern Pacific and Cook Inlet and more potential energy in the atmosphere....The most rewarding aspect of this fire season for me was the lack of human-caused ignitions on the Refuge. My hope is that it’s due to our wildland fire prevention activities and to the diligence of our citizens to practice fire safety.

Aerial Swan Survey Evokes Memories and Visions of Change on the Kenai By Ted Bailey, retired wildlife biologist

September 30, 2005

....An aerial perspective, unlike our daily ground-based perspective, provides vivid evidence of the rapid expansion of human activity on the Kenai Peninsula. Where perhaps less than fifty cabins existed in the Caribou Hills on lands adjacent to the refuge in the 1970s, there are now literally hundreds resembling a spread-

out suburb connected by numerous ATV trails rather than roads. Roads and houses now exist where there was once unbroken forest adjacent to the refuge in Sterling Corridor and North Kenai areas. And in contrast to the 1970s there are relatively few areas along the banks of the Lower Kenai River that are free of houses or cabins. Fortunately this development stops at refuge boundary. From the air, the distinction between the “undeveloped” and still mostly pristine refuge lands and adjacent “developed” lands is increasingly and vividly apparent.

Mapping the Future

By Dawn Robin Magness, GIS manager/
biologist

July 24, 2009

On the Kenai Peninsula, documented climate change impacts have already begun. Tree-line has risen, so less alpine habitat is available. The Harding Ice

Field is shrinking and the increased silt and melt-water in Skilak Lake has reduced the plankton available for sockeye salmon fry to eat. In the 1990s, the largest spruce-beetle outbreak in the world occurred in south-central Alaska and is linked to higher summer temperatures and drought.


What can we do as mitigation efforts begin in Washington D.C.? In a word, we can adapt. Thinking about the possibilities will allow us to experiment with and develop new opportunities. For example, some new crops may be possible with a longer growing season. On the Kenai National Wildlife Refuge, we are using forecasts to think about how ecosystems and species distributions might change in the future. 🦋

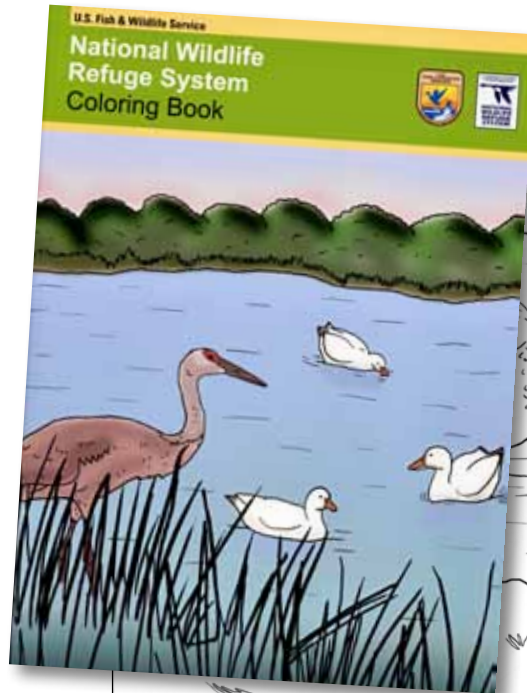
All the Kenai Notebooks are available online at <http://kenai.fws.gov/current.htm>.

Color Me Conservationist

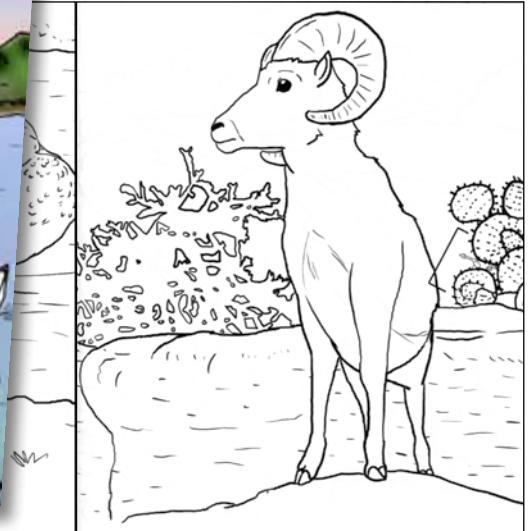
What is wildlife habitat? What animals need what kind of habitat? How can people help?

Primary grade students can learn the answers to those questions and more in the new National Wildlife Refuge System coloring book, designed for youngsters in grades 2-3. Illustrated by Katie Schipp, a student at the Art Institute of Washington, DC, the coloring book contains simple pictures of crocodiles, bears, eagles and other wildlife, as well as habitat. Children may want to hunt for blue goose signs, the Refuge System's emblem, hidden on many pages.

The book seeks to introduce children to the natural world and foster a new generation of conservationists, as well as introduce them to the National Wildlife Refuge System. The coloring book is available online at www.fws.gov/refuges/kids/. Those who want to buy quantities of the book can do so by calling 1-800-344-WILD. 



Upper Mississippi River National Wildlife and Fish Refuge on the Mississippi River gives these ducks a place to rest when they fly north for the summer or south for the winter.



The huge Desert National Wildlife Refuge in Nevada has six mountain ranges where desert big horn sheep live.

Connecting Birds and People



Hawaiian i'iwi
(Art by Robert Petty)

IMBD

At least 80 national wildlife refuges so far have registered events or activities to celebrate International Migratory Bird Day (IMBD) in 2010. The celebration coincides with the 20th anniversary of Partners in Flight, a cooperative bird conservation effort among government agencies and conservation groups. IMBD, now coordinated by the nonprofit organization Environment for the Americas, will focus on the "Power of Partnerships" in bird conservation.

Twenty bird species that have specifically benefitted from partnerships will be highlighted in IMBD materials:

golden-winged and cerulean warblers, American redstart, Swainson's hawk, peregrine falcon, burrowing owl, long-billed curlew, American oystercatcher, northern bobwhite, whooping crane, wood thrush, wood duck, i'iwi, tufted jay, white-crowned pigeon, chestnut-collared longspur, rufous hummingbird, yellow-bellied sapsucker, Atlantic puffin and bobolink.

IMBD is officially the second Saturday in May, although events are scheduled almost year round depending on the best time to see migratory birds in different parts of the country. Most American and Canadian events take place in April and May, while fall events are the norm in the Caribbean and Latin America.

Six national wildlife refuges have held IMBD events for at least 10 years. Resources and ideas for IMBD events are available at www.birdday.org.

Big Sit! Big Success

National wildlife refuges accounted for nearly a quarter of all the Big Sits

registered in the United States in 2009. More refuges are registering for the event each year – 44 in 2009 compared to 25 in 2007, a 76 percent increase in two years.

Now in its 15th year, The Big Sit! was started by the New Haven Bird Club in Connecticut. The idea is to count all bird species seen or heard within a small circle on a single day in October. It typically occurs on the first Sunday of National Wildlife Refuge Week.

A record number of species was recorded at Big Sits in Eastern Neck Refuge, MD, and Tishomingo Refuge, OK. Birders at Muscatatuck Refuge, IN, braved near freezing temperatures to hear a persistent yellow-billed cuckoo. One visually impaired participant was birding by ear. Ten new species were observed at the Pondicherry Unit of Silvio O. Conte Refuge, NH. One lucky birder looked through a spotting scope to see a cow moose, common loon and a bald eagle in the same view!

Leaving Alaska after 30 Years

By Robin West

The Last Frontier. The Great Land. The Far North. These were all labels for what was my home and place of employment for more than 30 years.

Thirty years ago, I had recently graduated from Oregon State University and was finishing a National Science Foundation project in the Warner Valley of Oregon in the summer of 1978 when I received an offer to go to Alaska and become a writer/photographer for the U.S. Fish and Wildlife Service. I packed two suitcases, a backpack, and a rifle case – most of my worldly possessions – and purchased a one-way ticket to Anchorage.

Oil had just started flowing down the pipeline from Prudhoe Bay. State income taxes only had one remaining year before being extinguished. The Service had a small area office in Anchorage, and there was a flurry of planning for new parks and refuges as part of the Alaska Native Claims Settlement Act. It was a great time to be alive and in Alaska!

I was the first ecological services contaminants biologist in Alaska, helping to reduce impacts on riparian habitats from placer mining and replace the practice of pumping oil well drill muds and fluids onto the tundra by re-injecting them into the formation. Later, as regional migratory bird coordinator, I worked on treaty amendments to create a legal and managed spring subsistence hunt for rural Alaska residents, who had been relying for thousands of years on taking ducks and geese for food in the spring and summer.

Working in Alaska for three decades, with stints as assistant refuge manager at Yukon Flats National Wildlife Refuge and manager at Izembek and Kenai National Wildlife Refuges, has allowed me to experience incredible challenges and rewards as well as significant change.



Former President Jimmy Carter met Robin West in 2005 when West was manager at Kenai National Wildlife Refuge, AK. (USFWS)

Oil Drives Alaska

Earlier in my career, it was not uncommon to spend months at a time in remote field camps, or travel over a hundred miles on distant rivers without seeing another human being. I have seen Alaska become more accessible - from a small boom-and-bust economy driven by timber, fisheries, mining and tourism to one wholly dominated by oil. This has had both positive and negative effects.

Without oil dollars, much of rural Alaska would not have the modern schools and clean drinking water it does. Events like the 1989 *Exxon Valdez* oil spill remind us, though, that oil development has costs and risks. More than any other single issue, oil has dominated the discussions and politics that have driven Alaska state policies during my tenure.

This year marks the 50th anniversary of statehood for Alaska. There have been many growing pains. I have witnessed significant change in natural resource management. The Service, for example, is now responsible for managing marine mammals as well as subsistence hunting and fishing on all federal public lands; Alaska is “ground

zero” for many of the impacts of climate change and there is growing controversy over managing predators. Without the care and determination of President Jimmy Carter, and then Secretary of the Interior Cecil Andrus, much of wild Alaska may have been left unprotected.

I now look south to Oregon, where my wife and I have deep family roots. I look forward to returning there to some of the remarkable places that etched lasting memories in my mind years ago: William Finley, Oregon Coast, Hart Mountain, Malheur and many other refuges and protected areas. Neither do I regret going to Alaska years ago, nor leaving it now. It is in good hands. Besides, I am leaving three grown children there, and an assortment of fishing poles – two great reasons to go back for an occasional visit.



Robin West transferred from Alaska to a refuge supervisor position in the Pacific Region effective September 13. These reflections are adapted from a Refuge Notebook West wrote for the Peninsula Clarion – see page 8.



RefugeUpdate

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A Look Back ... Calvin Lensink

A Conservation Hero Has Passed On

By Geoff Haskett

Calvin Lensink, who died August 20, played a pivotal role in the history of the National Wildlife Refuge System. His knowledge and guidance helped the U.S. Fish and Wildlife Service select 76 million acres for national wildlife refuges in Alaska.

He began his 30-year career with the Service as a temporary biological technician in Juneau, Alaska, where he worked in field studies of marine mammals, waterfowl and big game animals. His interest in wildlife was kindled as a youngster, growing up in the Dakotas and southwestern Minnesota.

Lensink, who earned a master's degree in wildlife management at the University of Alaska in 1954 and a doctorate in the same subject at Purdue University, devoted his life to understanding the habits and population ecology of migratory birds, marine mammals and big game, and became

a leading proponent of conservation of these Alaskan resources. He received a Superior Performance Award and a Letter of Commendation from the Secretary of the Interior for his extraordinary work. In 1990, Lensink received the Distinguished Service Award from the Department of the Interior. After retiring in 1988, he became a member of the board of directors of the National Wildlife Refuge Association.

The cause of wildlife conservation has been enlarged – both physically and philosophically – thanks to Cal Lensink's vision and his drive.

Geoff Haskett is the U.S. Fish and Wildlife Service Regional Director for Alaska.



After his retirement, Cal Lensink volunteered at Yukon Delta National Wildlife Refuge, AK, where he had previously worked with muskox on Nunavik Island and helped pave the way for the reintroduction of the species in Siberia. (Craig Ely)

Send Us Your Comments

Letters to the Editor or suggestions about *Refuge Update* can be e-mailed to RefugeUpdate@fws.gov or mailed to *Refuge Update*, USFWS-NWRS, 4401 North Fairfax Dr., Room 634C, Arlington, VA 22203-1610.