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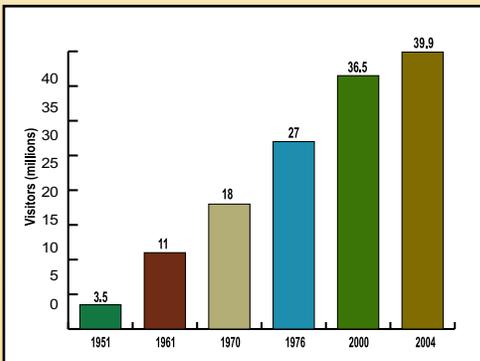
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*Local hotel promotes refuge*

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## Visitation Skyrocketed



*The Refuge System will work in coming years to develop more opportunities for people to hunt, fish, photograph and observe wildlife on the nation's 545 wildlife refuges, where visitation has dramatically increased over the past few decades. Bird watching is particularly popular at J.N. Ding Darling NWR, FL. (George Gentry/USFWS)*

# RefugeUpdate

January/February 2005 Vol 2, No 1

## Looking into the Refuge System's Future

### Most Powerful Habitat Management Tool

**Carrying forward** the priorities enunciated at the "Conservation in Action Summit" and in the guiding document *Fulfilling the Promise*, the National Wildlife Refuge System intends to strengthen its wildlife and habitat management and offer yet more wildlife-dependent recreation in coming years. At the same time, the Refuge System's achievements in 2004 have been far reaching.

"The National Wildlife Refuge System gives Americans an unparalleled chance to experience the nation's outdoor heritage in all its vibrancy," said Refuge System Chief Bill Hartwig. "But we do far more in carrying out the Fish and Wildlife Service mission to conserve, protect and enhance fish and wildlife and their habitats. We play a key role in that mission, and will do even more in coming years."

The Refuge System is the Service's most visible network of public lands, attracting about 40 million visits each year. People

flock to wildlife refuges for an array of quality recreation: nearly 6 million fishing visits; more than 2 million hunting visits; about 16 million using the Refuge System's foot, boat and auto trails; and about 8 million visits to observe or photograph wildlife.

Moreover, the Refuge System works closely with the Ecological Services, Law Enforcement, Migratory Birds and Fisheries programs to advance the Service mission.

Equally important, the Refuge System manages its approximately 96 million acres for less than \$4 per acre – about the cost of a sandwich, French fries and soda at most fast food chains. With about 3,100 people working in operations and maintenance, the Refuge System averages about one employee for each 31,000 acres of public lands – a ratio few land management agencies can match.

*continued pg 18*





# From the Director

## First and Foremost, Scientific Integrity

We've come a long way from 1905 when we had a population of 76 million

people, life expectancy of less than 50 years and worked a 60-hour week. Our Service science needs to deal with the America we are becoming and how that will affect our natural resources.

The questions are tough. Demographers expect our population to reach 325 million by 2025. The population is not just growing, but it's also changing radically. The baby boomer generation, now at least 40, won't just affect Social Security, but the recreation picture as well. They are unlike any aging population we've ever known. They have a greater appetite for adventure than any previous group their age, and they don't plan to slow down. The outdoors is important to their lifestyles. How can our science help us deal with their impact on our lands?

The suburbs are becoming buffers between our urban lands and our dwindling rural lands. If the 1800s was the "frontier era," when we sought to subdue nature, then we are rapidly approaching what some call the "ecology era," when we rely on nature for the basics of clean air and clean water. How will our science ensure that both will be plentiful?

Those complex issues – and a host of others – motivated me to launch the *Science Excellence Initiative* in late 2003. We must demand scientific information that is rigorous, timely and relevant, and we have to disseminate the information widely. We've already put a virtual science library at people's fingertips at <http://library.fws.gov/litsearch>. But that's just the start.

As the Service wrestles with conflicting interests, we have to ensure that science drives our wildlife management decisions. Although my science initiative will unfold

over several years, we are working on many fronts to invest in our most precious scientific resource – our people – to apply the very best science to manage our fish and wildlife resources.

We have joined forces with the U.S. Geological Survey in the *Future Challenges Project* so together we can identify how to get the scientific knowledge and capabilities to predict and address landscape-level changes that will affect fish and wildlife species.

We are building "Communities of Practice" to strengthen working relationships among the whole range of biological specialties that care for our lands, our waters and our wildlife.

One progressive step will propel the next as we advance the *Science Excellence Initiative*. All are grounded in the knowledge that the Fish and Wildlife Service is, first and foremost, a scientific organization.

— Steve Williams



## Chief's Corner

### "You've Got to Cut the Butter"

*The Refuge System Is Not "Butter"*

Looking forward to the next four years, one Senator told *The Wall Street Journal* quite bluntly, "This cannot afford to be a guns-and-butter term. You've got to cut the butter."

Most of us understand how stressed our federal budget is. For the first time, we are seeing funding for our National Wildlife Refuge System level off or decline slightly. We believe we are more than "butter," but, clearly, we are working in a new era with new rules and expectations.

For the first time in my 30-year public service career, I see programs being asked to justify their base funding – not increases, but their base funding. Decision-makers intend to reward programs that plan well and spend according to their plan.

I am confident the Refuge System is ready to work in the new business-like environment.

As a science-based organization, the Refuge System has every reason – and every ability – to study where our dollars should go and spend them accordingly.

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## RefugeUpdate

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This newsletter is published on recycled paper using soy-based ink



# Top Honors Awarded at "Friends in Action Conference"

The Friends of Black Bayou, LA, won the top honor as Friends Group of the Year from the National Wildlife Refuge Association at the climax of the "Friends in Action Conference" Feb. 4-7. Additionally, Ervin Davis, who has worked as a volunteer at the National Bison Range, MT, since 1983, was recognized as Volunteer of the Year.

Interior Secretary Gale Norton warmly welcomed almost 300 leaders of the Refuge Friends movement and Fish and Wildlife Service personnel when she keynoted the gathering in Washington, DC. The conference, sponsored by the Service and the Association, was built on the themes and priorities enunciated at the "Conservation in Action Summit."

More than 13 workshop topics as well as a resource village served to expand the Friends groups' knowledge and organizational know-how.

Secretary Norton cited the extraordinary work of the approximately 39,000 volunteers who last year donated about 1.5 million hours to the Fish and Wildlife Service, the overwhelming majority on national wildlife refuges. She specifically pointed to the tremendous assistance that volunteers gave to several refuges, including Ding Darling in Florida and Bon Secour in Alabama, in the wake of back-to-back hurricanes that devastated lands.

Service Director Steven A. Williams offered his personal congratulations for a decade of growth in the Friends movement. Just 10 years ago, only 74 refuges formed partnerships with nonprofit friends groups. Today, 246 Friends groups work hand-in-hand with national wildlife refuges on essential services to the community and in welcoming and orienting a growing number of visitors.

## Ervin Davis

Volunteer of the Year Ervin Davis has set a new standard of excellence for recipients

of this prestigious award. Four days each week from February through October, Davis, a retired school superintendent, meticulously monitors more than 400 bluebird boxes on the National Bison Range, MT, as part of a "welfare check" to ensure babies and parents are doing well. Four years ago, he recruited another volunteer, who helps with the monitoring and banding birds that do not carry identification. Thanks to Davis' work, western bluebirds are being bred for the first time on the National Bison Range.

Davis has traveled hundreds of miles to maintain and preserve bluebirds, assembling more than 1,500 nesting boxes each year. High school shop classes in Ronan, Charlo, St. Ignatius and Whitefish cut the box pieces from cedar trim ends that Davis supplies. Additionally, he participates in duck banding, the annual Big Game Census and the Annual Bison Roundup. He also shares his vast knowledge of National Bison Range wildlife with visitors.

## Friends of Black Bayou

The Friends of Black Bayou was honored for a multitude of achievements, amassing support for the Black Bayou Lake NWR, LA, and promoting exceptional public involvement. The Friends group, for example, raised \$450,000 to build a 3,600-square-foot Wetlands Learning Center that will house a fully equipped biology lab/classroom and an exhibit area with floor-to-ceiling aquaria and terraria. The group wrote an application that elicited a



*Volunteer of the Year Ervin Davis donates 30-70 hours weekly to the National Bison Range, MT. He has volunteered at the wildlife refuge for more than 35 years. (USFWS)*

\$200,000 grant from the Monroe-West Monroe Convention and Visitors Bureau, matched by a \$150,000 grant from the Fish and Wildlife Service. Ground was broken for the center in October 2004.

Additionally, the Friends group has worked in partnership with a professor of environmental architecture at Louisiana Tech University on an extraordinary bird blind, complete with interpretive panels, which will feature natural landscaping. The project, to be completed this spring, is funded with a \$19,400 grant from the Louisiana Division of the Arts.

Among other projects, the Friends of Black Bayou hosted the first annual Southern Regional Friends Conference last year, bringing together more than 150 people for workshops and training. The FWS and the NWRA sponsored the three-day event. ♦



# Refuge System Grew Modestly in 2004



Seven tracts totaling 1,040 acres were acquired for the 9-million-acre Yukon Flats NWR, AK. The National Wildlife Refuge System added 177,469 acres in 2004, where visitors can observe wildlife. (USFWS)

**The National Wildlife Refuge System** in 2004 gave the American people sound resource protection, quality wildlife-dependent recreation and the gift of 177,469 acres of new wildlife refuge lands. The Refuge System now encompasses more than 96 million acres, with a wildlife refuge within an hour's drive of every major metropolitan area.

Among the new acres are 5,000 acres, formerly part of the Rocky Mountain Arsenal, which became part of the Rocky Mountain Arsenal National Wildlife Refuge, CO. Used for four decades as a chemical weapons complex, the land now offers people the chance to walk trails across acres nestled at the foot of the Rocky Mountains. Other lands that joined the Refuge System are:

## **In Alaska:**

Seven tracts totaling 1,040 acres were acquired as part of the Yukon Flats NWR, including wetlands that support nesting and breeding migratory waterfowl. The 9-million-acre refuge, the third largest conservation area within the Fish and Wildlife Service, is one of the best waterfowl breeding areas in North

America. Even more striking is the diversity of life on the refuge: Waterfowl and songbirds call and sing 24 hours a day during the spring and early summer. Moose can be found throughout the refuge. Beaver, lynx, marten, mink, muskrat and river otter thrive there.

## **In California:**

The Service acquired a conservation easement of 1,093 acres as part of the Grasslands Wildlife Management Area. The land will act as a buffer to protect wetlands from urban development. Thousands of ducks and geese use the wetlands for wintering habitat. In addition, the property contains vernal pools and potential habitat for the endangered kit fox.

## **In New Jersey:**

The 16-acre parcel abutting Great Swamp NWR in Harding Township includes a farmhouse that the refuge hopes will become a visitor facility just 26 miles from New York City's Times Square. The newly acquired land, which includes wetlands and forested river habitat, is critical to the Great Swamp watershed because it provides a buffer from surrounding development.

## **In Minnesota:**

The donation of 2,000 acres by The Nature Conservancy officially created the nation's 545th national wildlife refuge – Glacial Ridge NWR in northwest Minnesota. Eventually, the refuge will grow to 35,000 acres, advancing the largest tallgrass prairie and wetland restoration project in U.S. history.

## **In Washington/Oregon:**

The Columbia Land Trust donated 451 acres to expand the 5,600-acre Julia Butler Hansen Refuge for the Columbian White-tail Deer. Located in southwestern Washington and northwestern Oregon, the refuge was established in 1972 to protect the endangered Columbian white-tailed deer, a unique subspecies that numbers just 700 animals nationwide. About 300 Columbian White-tail deer live on the refuge. The 451 acres are key to a multi-agency estuary restoration program that will protect and enhance thousands of tidal wetlands, which will rebuild productivity for threatened and endangered salmon in the lower Columbia River. ♦



The Refuge System encompasses about 96 million acres. (USFWS)

# Around the Refuge System



🦅 **John D. Schroer**, refuge manager of Chincoteague NWR, VA, retired Dec. 31, 2004, after 36 years with the Fish and Wildlife Service. Schroer's long and distinguished

career began as a trainee at Mattamuskeet NWR, NC. Over his tenure, he served at Eufala NWR, AL; Cape Romain NWR, SC; Santee NWR, SC; and Mississippi Sandhill Crane NWR. In 1979, he took his first refuge manager position at Blackwater NWR, MD. He later served as a refuge manager at Okefenokee Refuge, GA, before taking the same position in 1988 at Chincoteague Refuge, where he was a pioneer in establishing and maintaining public-private partnerships to encourage Americans to take a greater role in conserving the natural resource heritage.

He was honored as Refuge Manager of the Year by the National Wildlife Refuge Association. Indeed, Schroer was on the cutting edge of wildlife management programs that provided hundreds of species the habitat they need. His leadership resulted in the construction of the award-winning Herbert H. Bateman Educational and Administrative Center, planned for more than four decades.

🦅 **A well-preserved** rare eastern elk skull and antlers excavated October 2004 from a wetland impoundment on Iroquois NWR, NY, could provide fresh

information about an extinct variety of North American elk. The eastern elk once inhabited most of the eastern United States, but was extirpated from western New York State around 1820. By the late nineteenth century, the subspecies was totally extinct, felled by loss of habitat and over-hunting. A piece of the elk bone has been sent to a laboratory for dating. The refuge will preserve the specimen and display it in the visitor center to give visitors a look back in time at the wildlife history of the western New York area.



🦅 **Battling gale-force winds** and driving rain from Dec. 3, 2004 to Jan. 3, 19 volunteers counted 408,133 Laysan albatross nests and 21,829 black-footed albatross nests at Midway Atoll NWR, in the Northwestern Hawaiian Islands. The numbers have remained fairly stable for both species as compared to the first atoll-wide count in 1991. About 73 percent of the global population of Laysan albatross are found at Midway Atoll, where about 35 percent of the world's black-footed albatross live.

Simultaneous counts at Laysan Island found 140,861 Laysan albatross and 21,006 black-footed albatross nests. At French Frigate Shoals, 3,226 Laysan and 4,259 black-footed albatross nests were found. Of the 21 species of albatrosses in the world, 17 have been identified as being at risk by the International Union for the Conservation of Nature.

The volunteers, who walked, climbed and sometimes crawled through vegetation, ranged in age from 31 to 79. Two scientists from Japan were among the volunteers.

🦅 **Biology teachers** with 30 years of experience found wild hydra for the first time ever in November 2004, when Brazoria NWR, TX, celebrated the opening of its Discovery Center. The Discovery Center, which serves as an environmental education laboratory as well as the visitor contact station, is located at Big Slough Recreation Area. Powered by solar electricity, the Discovery Center is the headquarters for the Discovery Environmental Education Program, where skilled and enthusiastic volunteers lead children through activities across the Texas Mid-Coast NWR Complex.

🦅 **Hamden Slough NWR, MN**, was given Important Bird Area status by the Audubon Society Minnesota in late September. The refuge has bird species from the three different vegetative communities, including bitterns, northern harriers, marbled godwits, Wilson's phalarope, grasshopper and LeConte's sparrows, prairie chickens and bobolinks. Since upland and wetland restoration in 1991, the national wildlife refuge has become a "hot spot" for regional bird watchers, Refuge Manager Mike Murphy said.



# Dozen Students Receive Centennial Scholarships

**Twelve students** who are concentrating their studies in fish and wildlife conservation received \$90,000 in scholarships from The Walt Disney Company, the National Wildlife Refuge System and the National Fish and Wildlife Foundation.

Initiated by a \$100,000 donation from The Walt Disney Company and expanded by a \$230,000 contribution from the Fish and Wildlife Service, the Refuge Centennial Scholarship for Conservation honors the Refuge System's 100 years of accomplishments. The scholarship program is expected to run through 2006.

The scholarships are based on merit, academic achievements and efforts to improve conservation on national wildlife refuges. The selection committee also considered the applicant's diversity, career goals, and desire to be a leader in conservation.

The students' interests and study concentrations are varied including examination of warbler migration at multiple riparian corridors in the West by looking at stable isotope ratios found in the feathers of the birds; a doctoral student who will work with staff at Arthur R. Marshall Loxahatchee NWR in south Florida to develop a protocol of rapid assessment methods that determine the health of fragile tree island habitat; and research on the endangered piping plover along the barrier islands of New York to derive models that explain the distribution, abundance, and productivity of plovers.

Scholarships can be used for tuition, scholastic fees, room and board, and research. The 2004 Scholars are:

## **\$5,000 Undergraduate Scholarship**

- Ebony Sweet, Pennsylvania State University



*Dawn Reding received a \$5,000 graduate scholarship to pursue studies at University of Hawaii. She was one of a dozen students to receive a Refuge Centennial Scholarship for Conservation.*



*Angela Daenzer, pursuing her master's degree in wildlife biology at the University of Montana, was a wildlife biologist trainee in the Student Career Experience Program. As part of her studies, Angela will look at data to help land managers make better-informed decision to benefit the western larch.*

## **\$5,000 Graduate Scholarships**

- Aleczandre Cole-Corde, Florida Gulf Coast University
- Angela Daenzer, University of Montana
- Kristina Ecton, Northern Arizona University
- Dawn Reding, University of Hawaii
- Leandra de Sousa, University of Alaska-Fairbanks
- Nick Scribner, University of Wisconsin-Stevens Point
- Katy Simmons, University of Nebraska Omaha
- Jessie Thomas, Delaware State University

## **\$15,000 Doctorate Scholarships:**

- Nathaniel Jue, Florida State University
- Pamela Panno, University of Florida
- Jennifer Seavey, University of Massachusetts

Applications for the next Refuge Centennial Scholarship for Conservation awards must be submitted by April 15. Those interested may check [www.nfwf.org/centennial scholarship/](http://www.nfwf.org/centennial scholarship/) for more information. ♦

# Alaska Biologists Battle Oil Spill To Save Wildlife

## *Severe Weather Complicates Salvage*

Fish and Wildlife Service biologists, working with a Coast Guard-coordinated Unified Response team, spent hundreds of hours fighting to save wildlife imperiled by heavy Bunker C oil that spilled when the Malaysian cargo vessel M/V Selendang Ayu ran aground and broke in two off Unalaska Island in the Aleutian Islands Dec. 8. Most of the lands in the spill area are managed as part of Alaska Maritime NWR.

The 730-foot vessel carried approximately 424,000 gallons of heavy bunker fuel oil, 21,000 gallons of diesel fuel and 66,000 tons of soybeans. It ran aground after the crew had stopped the engines to make repairs. As of December 20, most of the oil remained inside the ship's tanks; however Aleutian winter conditions were contributing to growing concern about wildlife impacts.

The area near the spill was accessible only by water or air. Although the Unified Command, composed of federal and state agencies and representatives of the



*As heavy winds continued to hammer the area on Dec. 12, two vessels in Makushin Bay tried to position equipment on Humpback Bay, a significant salmon spawning area that had suffered from the oil spill. (USFWS)*

responsible party, developed a salvage plan, the fate of the marine mammals and sea birds remained largely in the hands of nature due to severe weather in late December.

The number and varieties of wildlife lost to the oil spill were still being tallied in late December.

Various waterfowl, sea ducks and seabirds winter in the sheltered bays and waters of Unalaska Island, including emperor geese, loons, scoters, goldeneyes, eiders, harlequin duck, scaup, pigeon guillemot, auklets, murrelets, cormorants and kittiwakes.

Shoreline habitats in Skan Bay and Makushin Bay include brackish water marshes, eelgrass beds and tidal flats that are important spring and summer feeding areas for shorebirds and waterfowl. Various seabird nesting colonies are on cliff faces and offshore rocks, which are occupied during the summer by horned puffin, tufted puffin, common murre, glaucous-winged gull, black oystercatcher, double-crested cormorant, pelagic cormorant and pigeon guillemot.

Logistics, terrain and weather all hampered response to the spill. With storm warnings about hurricane force winds reaching 75 knots on Dec. 19-20, boats were recalled to Dutch Harbor, from which the Service's regional spill response coordinator was directing operations.

The fight to save wildlife was a daily struggle. Limited daylight, with sunrise at 10:21 a.m. and sunset at 2:44 p.m., added to the challenges.



*The 730-foot Malaysian cargo vessel M/V Selendang Ayu ran aground and broke in two off Unalaska Island in the Aleutian Islands Dec. 8, carrying 424,000 gallons of heavy bunker fuel oil, 21,000 gallons of diesel fuel and 66,000 tons of soybeans. As of December 22, most of the oil remained inside the ship's tanks; however Aleutian winter conditions were contributing to growing concern about wildlife impacts. (Alaska Department of Fish and Game)*

**Dec. 11:** Just days after the spill, the chartered response vessel M/V Cape Flattery was designated to undertake bird rescue and stabilization, among its other missions. Service biologists and wildlife rehabilitation experts were onboard. Due to bad weather, biologists based in Dutch Harbor were unable to fly at the low altitude needed for truly accurate wildlife counts.

**Dec. 12:** As heavy winds continued to hammer the area, two vessels, the Redeemer and landing craft Joshua, were in Makushin Bay, trying to position equipment on Humpback Bay, a significant salmon spawning area. Foul weather made it difficult to estimate how much oil was in the water and how much wildlife was harmed. Balls of oil the size of ping pong and tennis balls were observed in a sheen about half a mile long.

**Dec. 13:** During shoreline surveys in Skan Bay, biologists recorded 232 birds, at least 36 of them oiled. Booms were deployed in Portage and Cannery bays and Naginak Cove. The vessel Exito was readied to undertake wildlife surveys and recovery. Calmer, colder conditions and the presence of ice at the heads of the smaller bays

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## Science in the Refuge System

By Dan Ashe

**Planning a journey** using today's information technology, like my family's recent excursion to watch our daughter play in the Maryland High School All-Star soccer game, is amazingly simple, requiring only a quick electronic jaunt to a site like MapQuest. Technology, however, cannot replace two prerequisites for successfully planning any journey: a beginning and an end.

Without knowing the departure point and destination, and understanding the time, effort and resources a journey demands, one is simply wandering. A leisurely stroll on a crisp fall Saturday can be pleasurable, but dangerous if the goal is getting your daughter to a soccer game in the midst of the daily, NASCAR-to-gridlock ritual that metro-Washington, DC, calls "commuting." And it would be irresponsible when trying to accomplish a mission as important as that of the National Wildlife Refuge System.

In reading about refuge science in this issue, join me in celebrating notable successes, but also in asking some probing questions: What is the nature of our

scientific journey; have we identified the beginning and the end points; have we built the map; and do we have a firm and shared understanding of the time, effort and resources the journey demands? Are we committed to science as the foundation for our work, or is our use of science just a mindless genuflection; a part of our ritual of management, but for which the true meaning and direction have been muddled, or worse, lost?

It would be easy to pen the typically self-congratulatory accolades: We're the best; we do the best; and we do it with the least. We easily find examples of scientific excellence within the ranks of refuges and refuge biologists, but that is not the point. Does that excellence reflect individual but isolated persistence or complete organizational commitment? Is it illustrative of a refuge-by-refuge approach or the kind of systemic unity and vision that is outlined in *Fulfilling the Promise* (Wildlife and Habitat, pgs. 11-37)? Are we on a purposeful journey or are we wandering? I am not asking these questions to be critical, but rather, to be challenging.

The Guiding Principles for the Refuge System proudly and rightly proclaim fealty to Aldo Leopold's land ethic. Here



Work on a nest box for endangered red-cockaded woodpeckers is just one of the research projects undertaken by the Fish and Wildlife Service. (John and Karen Hollingsworth/USFWS)

Scientists on the research cruise to Navassa Island NWR, PR, collected valuable data on hard and soft corals, sponges, turtles, and fish. Data collected will be evaluated against previous cruise data sets. (Beverly Yoshioka)



## Coral Reef Research Cruise Yields Important Data

More than 300 dives brought to the surface invaluable data about coral reefs and other marine habitat when 10 scientists from the Fish and Wildlife

Service, the National Oceanic and Atmospheric Administration (NOAA), the University of Miami, Florida State University and the John G. Shedd Aquarium traveled in Fall 2004 on their second research cruise to Navassa Island NWR, PR, an uninhabited 1,147-acre island about 35 miles west of Haiti.

# Wildlife Refuge System

is one of my favorite passages on that subject:

*“A land ethic, then reflects the existence of an ecological conscience, and this in turn reflects a conviction of individual responsibility for the health of the land. Health is the capacity of the land for self-renewal. Conservation is our effort to understand and preserve this capacity.”*

The final sentence identifies what I consider to be the endpoint of our journey – preserving the self-renewing capacity (i.e., the health) of the land, recognizing that the concept of “land” is an integrative concept, encompassing soil, air, water and all their biological components. This is challenging, and we must recognize and overcome our tendencies to rely too intensively on the kind of control that we often lump under the term “management.” Rachel Carson described such efforts as “proof of insufficient knowledge and of an incapacity so to guide the processes of nature that brute force becomes unnecessary.”

Our science should lead us toward an increasing competence and ability to understand and preserve the natural processes that are essential to the self-renewing capacity of the land, and whenever possible, to avoid or minimize applications of brute force. We will always be resource managers, and sometimes

Equally important was what they learned from their first-ever, formal interviews with Haitian fishermen, who provided information on their fishing activities in Navassan waters, which are part of their livelihoods and their lifestyles.

This research cruise, on the Shedd Aquarium’s 80-foot Coral Reef II is a follow-up to three previous cruises, the last launched in 2002. Scientists conducted numerous surveys collecting valuable data on hard and soft corals, sponges, turtles, and fish. Data collected will be evaluated against the previous

brute force is the proper or the only recourse. Science, however, should enable us to be more skillful conservationists, better able to determine when a thing is right because we can show that it preserves the integrity, stability and beauty of the biotic community.

I see encouraging indications that we are on a purposeful journey: Identification of areas for Land Management Research and Demonstration; the Region 3/5 joint initiative with USGS for adaptive management research and monitoring; integration of bird conservation science among refuges and across regions; and recent establishment of the National Ecological Assessment Team, integrating the accumulated work and expertise that the Refuge System has amassed in implementing *Fulfilling the Promise* recommendations WH-1, 2, and 3. But are these separately noble actions moving us toward a commonly defined endpoint? Is the Refuge System on a purposeful journey to build a science program that will enhance our ability to

cruise data sets. Scientists in 2004 and earlier collected various data about marine resources, including acoustic mapping of reef habitats, visual fish census, benthic community assessments, and survey of permanent monitoring plots established in 2002 to quantify coral growth and recruitment.

The island wall and patch reefs on the southwest and north sides were extensively visited during the Oct. 28-Nov. 14, 2004, cruise. Acoustic mapping was also performed around the entire island and its shallow reef shelf. The



*Fish and Wildlife Service research teams have worked with the endangered Florida Panther. (John and Karen Hollingsworth/USFWS)*

implement Leopold’s concept of conservation? Or is the Refuge System wandering, employing science as a part of ritual management, with pockets of excellence grounded in individual persistence?

As Science Advisor and the person asked to author this introductory, I get to ask the questions. As Refuge System employees, you have the collective responsibility and ability to answer them. ♦

*Dan Ashe is the Science Advisor to the Director of the U.S. Fish and Wildlife Service.*

island has not been scientifically studied until recently, although its history is thoroughly documented.

In 1857, the phosphorite on Navassa was mistaken for guano by a U.S. sea captain, who laid claim to the island under the Guano Island Act of 1855. Between 1865 and 1898, almost a million tons of the phosphorite was strip-mined from the island and shipped to Baltimore by the Navassa Phosphate Co.

The island was abandoned during the Spanish American War of 1898, but by

*continued pg 10*

## Back from the Brink of Extinction



*Removed from the Endangered Species List in 2001, the Aleutian cackling goose benefited from a stunning 35-year campaign to eradicate non-native foxes from Alaska Maritime Refuge. (USFWS)*

*By Poppy Benson*

**Storm-swept islands** of the Alaska Maritime NWR are again alive with several hundred thousand nesting waterfowl and seabirds after a sustained 35-year campaign proved that humankind can reverse misbegotten ventures that may drive a species to the brink of extinction.

The Aleutian cackling goose – called the Aleutian Canada goose until it was renamed in August 2004 – is a clear winner in a classic battle fought by Alaska Maritime Refuge biologists and staff against the foxes introduced since the mid-1700s by the fur industry.

The goose has nested for generations on most of the islands of the Aleutian island chain, which is part of the 3.5-million-acre refuge

Placed on the Endangered Species List in 1973, the goose, identifiable by its small size and a distinctive white neckband, was removed from the list in 2001. By then, its numbers had grown to about 32,000, up from just 790 birds found in 1975.

Although the birds live in the hard-to-reach Aleutian Islands that stretch more than 1,000 miles from mainland Alaska, they were not spared the worst impacts of human activities.

Waves of species introductions – most deliberate, some accidental – began as early as the mid-1700s, when Russia, which owned the islands until 1867, began stocking them with blue phase Arctic fox to augment the fur trade. Although fox introductions reached their zenith in the 1920s, they continued until World War II and affected nearly all islands in the Aleutian chain and south of the Alaska

### **Coral Reef** – *from pg 9*

that time it was firmly established as a U.S. territory. The opening of the Panama Canal in 1914 put Navassa in the middle of the traffic lanes between the Caribbean and Pacific. The Coast Guard built a lighthouse on the island in 1917, but Global Positioning Systems eliminated its function by 1996. The Coast Guard turned Navassa over to the Department of the Interior on January 16, 1997.

The USFWS acquired the island in December 1999 from the Office of Insular Affairs. Navassa Island Refuge, closed to the public, was then established to preserve the coral reef ecosystems and marine environment, enhance native wildlife and plants, including endemic reptiles and thousands of nesting seabirds,

and provide opportunities for wildlife research.

Some have called Navassa “the Galapagos of the Caribbean” because it has the healthiest and least altered marine system known in the Caribbean.

Dr. Margaret Miller, a coral reef ecosystem expert with NOAA Fisheries, was the chief scientist on the 2004 cruise. Coral reef expert Beverly Yoshioka of the Boquerón, PR, Ecological Services Office, represented the USFWS.

The scientific team expertise covered hard and soft corals, sponges, fish and shellfish, bottom mapping and ground-truthing. While scientists have written relatively little about reef resources on Navassa Refuge, the impacts of fishing and human incursions, primarily by native Haitian

# Wildlife Refuge System

Peninsula. Initially, refuge management encouraged fox ranching, issuing leases to fox ranchers.

But, during the Great Depression, when the fur industry collapsed and fox trapping ended, the foxes remained on many islands, multiplying and feeding on the abundant native birds.

Because most of the Aleutian Islands had no native land mammals, native birds – particularly ground nesting birds – had developed no natural defenses against the foxes, nor the ground squirrels and rats that had been released as fox food. As a result, all ground and burrow nesting birds suffered substantial declines. The Aleutian cackling goose, a smaller subspecies of cackling goose, was hardest hit. Indeed, they were once thought to be extinct because none were seen from 1938 until 1962.

The birds were discovered because a legendary refuge manager, Bob “Sea Otter” Jones, followed his hunch that they had survived on remote Buldir Island. In 1962, he discovered more than 300 birds nesting on Buldir, which is so inaccessible that fox farmers had bypassed it. With

that momentous discovery began the slow work of bringing the goose back from the brink.

Jones realized the first step was to make more islands safe for goose nesting by removing the foxes, a process he had begun on Amchitka Island in 1949. Needing geese to stock the fox-free islands, Jones first tried to raise birds from the chicks and eggs taken from Buldir Island. However, geese raised in the continental U.S. fared poorly, while even birds raised in pens on Amchitka Island were not savvy enough to avoid eagle predation.

Finally, staff at Alaska Maritime Refuge settled on a winning strategy, using border collies to collect geese on Buldir Island and then moving families of geese during their flightless, moulting period to fox-free islands. Geese were transplanted to Alaid, Nizki, Aggatu, Little Kiska, Skagul, Yunaska and Amchitka islands.

While Alaska Maritime Refuge made progress on its goose nesting grounds, others were identifying wintering grounds in Oregon and California. Once identified, hunting closures were created and habitat

was protected through easements, agreements and creation of four new refuges – Castle Rock, Butte Sinks and San Joaquin in California and Nestucca Bay in Oregon.

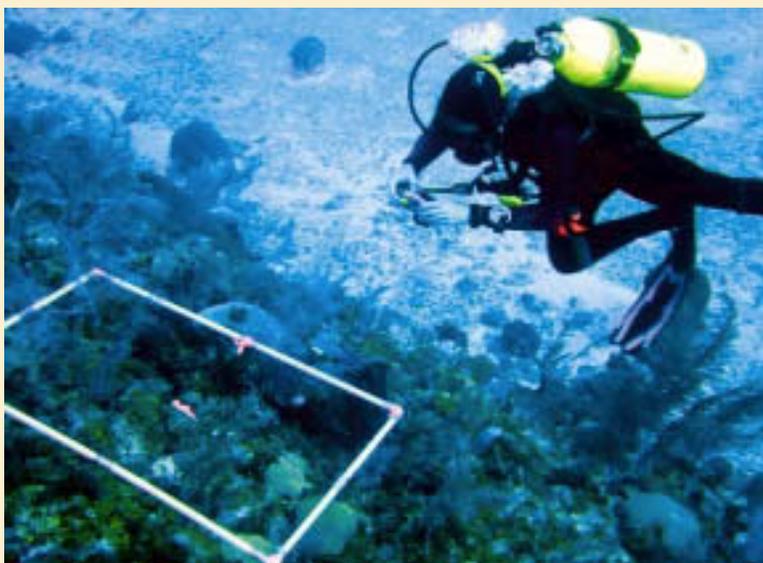
While the goose’s recovery is dramatic, it is hardly the only benefit of Alaska Maritime Refuge’s fox eradication program. Populations of all ground nesting birds have soared on the more than 40 islands where introduced foxes were eliminated. Populations of as many as 20 species of burrow nesting seabirds, waterfowl, shore birds, ptarmigan and possibly passerines have increased by at least 200,000 birds.

“Prevention of exotic species introduction is one of the most important things the Refuge System can do for the conservation of habitats and wildlife,” Alaska Maritime Refuge Manager Greg Siekaniec said. The Aleutian cackling goose is living proof. ♦

*Poppy Benson is the public program supervisor at Alaska Maritime NWR.*

fishermen, have been clearly identified as the primary mode of human impact.

The cordial interviews with Haitian fishermen, conducted by Jean Wiener, with the Foundation pour la Protection de la Biodiversite Marine-Haiti, generated information that will be expanded this year, when NOAA will undertake a socio-cultural assessment of Haitian fishing communities. Follow-up interviews are expected as the team completes analysis of fishing in the waters surrounding Navassa Refuge. ♦



*Chief Scientist Margaret Miller photographing quadrats (Beverly Yoshioka)*

## Intense Predator Control Lifts Piping Plover Numbers

*By Amanda Avery*



*After several years of intensified monitoring and predator control, Chincoteague NWR, VA, fledged 101 piping plover chicks in 2004 – the highest number ever recorded. (Sidney Maddock)*

**Chincoteague NWR, VA**, began its all-out push to increase piping plover populations in 1988 by banning off-road vehicles annually from March 15-September 1, seeking to make sure that potential nesting grounds were not damaged.

Once the ORVs were barred, refuge staff intensely surveyed beaches for arriving plovers. They used plover behavior to locate nests. Once plovers displayed such defensive behavior as piping and false incubation, staff used binoculars or spotting scopes to see if they returned to their nests.

Nests were checked every few days to document egg loss. Newly-hatched broods were diligently checked for the first six to eight hours of life. The number of chicks was recorded every two to three days until they fledged.

Yet, despite a decade of work from 1987-

## Understanding Sage-Grouse Habitat Needs

*Chicks go “on the air” to reveal what influences survival*

*By Susan Saul*

**Blip. . blip. .blip.** The radio signal that wildlife biologist Mike Gregg listens to might have low entertainment value, but it rates high in news and information.

From 1999 to 2003, Gregg surgically implanted miniature one-gram radio transmitters beneath the skin on the backs of downy sage-grouse hatchlings. The transmitters emit a signal that allowed him to monitor mothers and chicks for the first four weeks after birth.

Currently working to complete his PhD from Oregon State University, Gregg,

who joined the staff at Hart Mountain NWR, OR, in 1988, studied sage-grouse habitat use during the reproductive period on both Hart Mountain and Sheldon, NV, refuges.

Adult sage-grouse survival is high, but is offset by low juvenile survival. Gregg wanted to find out how habitat conditions affected both hen and chick survival.

For four years, he collected data on the patterns and causes of death in radio-marked chicks and daily habitat use and movements. He also assessed habitat conditions at the daily brood locations to identify the key factors that influence

# Wildlife Refuge System

1998, fledgling success continued to fluctuate and still fell short of the hoped-for fledge rate of 1.5 chicks per piping plover pair. Even the use of enclosures on most plover nests and trapping of predators in nesting areas, both instituted in 1988, didn't enhance the results.

Chincoteague Refuge staff acknowledged that predators such as red foxes, raccoons, gulls and crows needed to be controlled if the threatened piping plover was to recover. So, starting in 1999, refuge staff began trapping foxes and raccoons on traditional plover nesting sites each January through July.

Rope and "area closed" signs continued to be placed around plover nesting areas, preventing off-road vehicles and pedestrians from entering plover nesting grounds from mid-March until the last chick fledges.

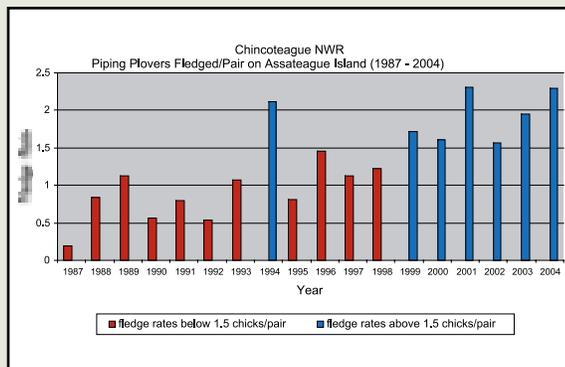
During the brood season, a staff member conducted avian predator control seven days a week because gulls were suspect in many cases of lost chicks. The staffer walked near nesting areas at sunrise and shot any nuisance gulls or fish crows. The

birds were then displayed – laid on their back with wings outstretched – to discourage other gulls and crows from using the nesting area.

Monitoring also increased as interns located broods daily until fledging and chased gulls and crows out of the nesting areas.

Success followed intensified monitoring and predator control. Nearly two decades after the piping plover was listed as a threatened species, Chincoteague Refuge fledged 101 piping plover chicks in 2004 – the highest number ever recorded.

For the past six seasons – 1999-2004 – the refuge met the 1996 Piping Plover Revised Recovery Plan's goal of 1.5 fledglings per nesting pair, mostly the



result of increased avian predator control.

The program enabled staff to better identify the causes and times of nest and chick loss. If pedestrians and ORVs moved into

plover areas, interns and law enforcement officer quickly resolved the situation. Because interns stayed around plover nesting areas, they could discuss with visitors why sections of the beach were closed and help them understand the piping plover.

Today, refuge staff continues to intensely monitor piping plovers and use the information they collect to develop future management strategies. ♦

*Amanda Avery is the wildlife biologist at Chincoteague NWR, VA.*

*Adult sage-grouse (USFWS)*

chick survival. He determined the physiological condition of the hens before nesting from blood samples collected when they were captured.

Gregg's research has revealed that the bunchgrasses and wildflowers growing under sagebrush are essential for sage-grouse reproductive success. Old bunchgrass left from previous years enabled nesting hens and their broods to be concealed. The protein in wildflowers is critical nutrition for both breeding hens and chicks. The rapidly growing chicks thrive on insects plucked from the bunchgrasses and wildflowers.

When Lewis and Clark encountered the sage-grouse on their journey west in 1805, the species seemed as abundant as Pacific salmon – and as indestructible. Scientists estimate that the range-wide sage-grouse population then was about 1.1 million birds spread over 16 states and three Canadian provinces.

Today, the range-wide population is estimated to be between 100,000-500,000 birds.

*continued pg 14*



## Ptarmigan: Finding Home Again



*Evermann's rock ptarmigan, a rare subspecies of ptarmigan, have not crossed the 30-mile-wide ocean pass between Attus and Agattus islands in the 30 years since Agattu Island has been fox free.*

**Crawling through** long grass with a set of wire cutters clenched in his teeth, Clait Braun extended a long fiberglass pole toward a ptarmigan. Adjusting for gusts of wind, Braun eased a small wire noose over the bird's lower neck, then tugged. A few seconds later, he cradled a flapping ptarmigan in his hands.

"He's a big, strong, chunky bird," Braun said as he tucked the ptarmigan inside a white cotton bag. "Really good body mass. I love it."

Braun, 64, is a wildlife biologist from Tucson, AZ, and one of North America's leading experts on grouse and ptarmigan. He traveled to Attu – this westernmost point in Alaska at the tail end of the Aleutian island chain and part of Alaska Maritime NWR – to catch Evermann's rock ptarmigan, a rare subspecies of ptarmigan.

Braun and a small team of biologists and volunteers participated in a program, launched in 2003, to restore this rare ptarmigan to Agattu Island to increase its chances for long-term survival.

Evermann's rock ptarmigan have not crossed the 30-mile-wide ocean pass between Attus and Agattus in the 30 years since Agattu Island has been fox free.

Now, the ptarmigan are back.

### **Sage-Grouse** – from pg 13

Sage-grouse populations declined an average of 3.5 percent per year from 1965 to 1985. Since 1986, however, populations in several states have increased or generally stabilized and the rate of decline from 1986 to 2003 slowed to 0.37 percent annually for the species across its entire range.

Most experts agree that the main threat for sage-grouse is the fragmentation, degradation and loss of sagebrush shrublands, an ecosystem that covers 150 million acres.

Refuge managers at Hart Mountain and Sheldon refuges have restored habitat over the past decade, eliminating livestock grazing, removing feral horses and reintroducing prescribed fires to increase grasses and wildflowers that help conceal and protect hens and chicks from the sun, wind and predators, and improve food supplies and nutrition for breeding hens.

While Gregg can't show a direct cause-and-effect relationship, he notes the phenomenal growth of sage-grouse populations on these refuges over the past two years. The population increase stands

# Wildlife Refuge System

In 2004, team members captured 27 ptarmigan in one week, sailing them across the swells of the northern Pacific in the research ship Tiglax. That followed the 26 ptarmigan transplanted in 2003 to the 55,535-acre rugged and roadless Agattu island. Slices of fresh melons were placed in the boxes with the birds to provide food and moisture. They were transported in special fiberglass backpacks.

This year, more ptarmigan — these equipped with transmitters — will be captured on Attu and released on Agattu. A crew on Agattu will track the newly released birds and search for survivors and their progeny to gauge the success of previous transplants.

“Finding the birds will be a challenge,” Alaska Maritime Refuge Wildlife Biologist Steve Ebbert noted. “We hope to tip the odds by searching the type of favored habitat in Agattu that we know ptarmigan preferred on Attu, based on our experience hunting and capturing them. Finding banded birds that we transplanted or unbanded birds – their offspring – will be very rewarding.” Ebbert will bring the male challenge calls recorded on the home island to encourage the Agattu pioneers to show themselves.

Ebbert spent a week on Attu last year, snaring ptarmigan with Braun, Alaska



*Alaska Maritime Refuge Wildlife Biologist Steve Ebbert spent a week on Attu Island last year with the team that captured 27 rare Evermann's rock ptarmigan as part of a program to restore the species on Agattu Island to increase its chances for long-term survival. (USFWS)*

wildlife veterinarian Bill Taylor and volunteer Pat Pourchot.

Evermann's rock ptarmigan formerly lived on all of the Near Islands in the Aleutians, which include Attu, Agattu, Shemya, Alaid and Nizki. The birds disappeared on every island except Attu after Russian and American fur trappers introduced arctic foxes to the islands in the 1800s. The non-migratory ptarmigan

may have survived on Attu because the mountainous terrain provided a refuge from foxes, which prefer to hunt near shoreline, Ebbert said.

The Evermann's variety of ptarmigan is unique to Attu, differing from other varieties of Alaska's state bird by its color and genetic makeup. Males have heads as black as Oreo cookies and brilliant red combs over their eyes; females are also darker than other Alaska ptarmigan. The Fish and Wildlife Service has removed non-native foxes from the Aleutian Islands since 1949 (see related story on page 10).

The Aleutians, unpopulated and now protected as part of the Alaska Maritime Refuge, offer a singular chance to restore an ecosystem to what it was before people lived there, Ebbert said. Plants on the islands are all native. With the removal of arctic foxes, Ebbert hopes the Evermann's rock ptarmigan will once again fill Agattu with its raspy, belching calls.

“What we're about is restoring these islands to their natural biodiversity,” Ebbert said. “The ptarmigan project is a natural progression from the fox eradication project.” ♦

*Ned Rozell, a science writer with the Geophysical Institute, University of Alaska Fairbanks, contributed to this article.*

out even when measured against normal fluctuations from year to year. The sage-grouse counted on Hart Mountain in 2003 represented a 43 percent increase over those seen in 2002, and a 193 percent increase since 2000.

Gregg's research is applicable across the west as land managers attempt to reverse the grouse's decline and restore healthy sagebrush habitat. His results have been incorporated into state sage-grouse management plans and conservation guidelines.

Gregg now works at the Hanford Reach National Monument, WA, as the Pacific Region's Land Management Research and Demonstration Program biologist. He guides sagebrush ecosystem management and restoration on refuges in the Columbia, Klamath and Great Basins and Southeast Idaho, models of environmentally sound land stewardship. ♦

*Susan Saul works in External Affairs in the Pacific Regional Office as an outreach specialist for Refuges.*



*Wildlife Biologist Mike Gregg holds a one-day-old greater sage-grouse chick after surgically implanting a miniature radio transmitter. (USFWS)*

## Land Management Research and Demonstration Refuges

By Janith Taylor

**The Refuge System's** guiding manifesto, *Fulfilling the Promise*, set the goal of creating Land Management Research and Demonstration Areas to facilitate the

development, testing and teaching of state-of-the-art habitat management techniques.

Consider it more than a third accomplished.

With five of the 14 proposed LMRD areas now staffed, what began as a grassroots effort to enhance land management has produced solid results. The second Land Management and Research

Demonstration Area conference, held in April 2004, reported a range of accomplishments, including publication in scientific journals, development of a soon-to-be-released Web site and a Graduate Student Scholarship fund, created in partnership with the National Fish and Wildlife Foundation.

Indeed, the cadre of LMRD biologists is building on the Refuge System's reputation for expert habitat management and making their knowledge available to an ever-larger audience.

Progress has been steady:

**Hanford Reach National Monument/Saddle Mountain Refuge (WA)** LMRD focuses on restoration and

management of shrub-steppe ecosystems. LMRD Biologist Mike Gregg is working with Oregon State University, U.S. Bureau of Land Management, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, U.S. Geological Survey National Wildlife Health Center, U.S. Army and such non-governmental organizations as Nevada Bighorns Unlimited and Nevada Chukar Foundation to assist with West Nile virus research and sage-grouse population and habitat management.

Projects have investigated the relationship between the condition of hens and reproductive success, nesting habitat, and factors influencing chick survival. This year, a sage-grouse winter ecology study will be initiated at Sheldon NWR, NV, in cooperation with the Fish and Wildlife Service and Nevada Bighorns Unlimited.

**The Bosque del Apache Refuge (AZ)** LMRD is studying arid wetlands and riparian areas, especially the control of such invasive species as saltcedar and perennial pepperweed. Tragically, John P. Taylor, the Refuge System's first LMRD biologist, unexpectedly passed away in September 2004. But the foundation he built is moving the program forward.

In 2004, the refuge controlled saltcedar across 1,000 acres in its southern areas and worked with non-government organizations and state, federal and local governments on a strategy for the management of exotic trees in riparian areas in New Mexico's Five River Systems. Additionally, the program has looked at the research needed regarding saltcedar and Russian olive in New Mexico. Scientists considered how to inventory and control invasive woody plants in the west as well as the impact on water use and socio-economic aspects. In coming years, the program will work with the Departments of Agriculture and



*The Hanford Reach National Monument/Saddle Mountain Refuge (WA) LMRD project focuses on restoration and management of shrub-steppe ecosystem (USFWS)*

Interior to assess the economic impact of saltcedar control.

**The National Elk Refuge/National Bison Range (MT) LMRD** program, led by Tom Roffe, is demonstrating how to manage interactions among habitat, large ungulates and diseases, especially Chronic Wasting Disease (CWD). The team has written the Service's Chronic Wasting Disease Planning Guidelines, signed in 2004, and secured the Service's first CWD-specific funding.

Having developed a risk-needs assessment, the Mountain-Prairie Region (Region 6) allocated funding to 28 refuges, wetland management districts, fish hatcheries and management offices that carried the highest risk from CWD. In addition to developing site-specific surveillance and response plans, the region helped other offices in developing their own CWD plans.

**The Rachel Carson/Parker River Refuges (MA) LMRD** is focusing on restoration and management of estuarine ecosystems, particularly salt marshes. LMRD Biologist Susan C. Adamowicz is working to ameliorate unintended consequences of restoration, including the impact of flooding on sharp-tailed sparrow nests (see related story, page 22). In coming years, the area will look at peat stability following ditch restoration techniques in high marsh systems, potential restoration of impounded freshwater marshes back to naturally functioning saltmarsh habitat, and open marsh water management.

**The Neal Smith/Northern Tallgrass Prairie (IA) Refuges** hired Pauline Drobney in November 2004 as the LMRD biologist. With more than 27 years of experience in tallgrass prairie and savanna restoration, she will lead the refuges' focus on restoration and preservation of Midwestern grassland ecosystem, including the globally endangered tallgrass prairie and oak savanna.

Projects now being undertaken include: an intensive 10-year hydrologic study; oak savanna ecological functioning and fire; the relationship of bison grazing to native floral diversity; floristic and hydrologic changes in conversion of a reed canary grass inundated area to a diverse sedge meadow; a multi-refuge study of Canada thistle establishment relative to different planting treatments; carbon sequestration in a chronosequence of prairie plantings; and amphibian, avian and mycorrhizal studies.

Two interdisciplinary studies will include development of a model for prairie reconstruction relating soil, water, vegetation, invertebrate, and mycorrhizal characteristics on a sub-watershed and agroecological research. Among many other projects, past work has included introduction of the rare prairie endemic regal fritillary butterfly and identification of two moths that could be new to science. ♦

*Janith Taylor is regional refuge biologist for the Northeast Region.*

## 14 Land Management Research Demonstration Refuges:

Rachel Carson/Parker River NWRs, MA (Staffed)  
Featured Habitat: Coastal Salt Marsh  
Contact Susan Adamowicz, 207-646-9226

Hanford Reach NWR, WA (Staffed)  
Featured Habitat: Shrub Steppe Habitats  
Contact Mike Gregg, 509-371-1801

Bosque del Apache NWR, AZ (Staffed)  
Featured Habitat: Managed Wetlands  
Contact Jim Savery, 505-835-1828

St. Marks, FL, and Carolina Sandhills, SC  
Featured Habitat: Longleaf Pine

White River, Cache River, and Bald Knob NWRs, AR  
Featured Habitat: Bottomland Hardwoods

Northern Great Plains Refuges  
Featured Habitat: Tallgrass Prairie, Mixed Grass Prairie, DNC, Wetlands

Tetlin NWR, AK  
Featured Habitat: Boreal Forests

Neal Smith NWR, IA (Staffed)  
Featured Habitat: Tallgrass Prairie and Savanna  
Contact Pauline Drobney, 515-994-3400

Lake Umbagog/Nulhegan/Moosehorn/Sunkhaze Meadows NWRs (Northeast Region)  
Featured Habitat: Northern Hardwood Forest

Balcones Canyonlands NWR, TX  
Featured Habitat: Juniper-Oak Woodlands, Live Oak Motts, and remnants of Tallgrass Prairie

Kauai NWR, AK  
Featured Habitat: Tropical Wetlands

Fergus Falls WMD, MN  
Featured Habitat: Prairie Wetland Complex

Alaska Maritime NWR  
Featured Habitat: Island Ecosystems

National Elk/ National Bison Range NWRs (MT) (Staffed)  
Featured Habitat: Use of sound science to manage the interactions among habitat, large ungulates and diseases at the landscape level.  
Contact Tom Roffe, 406-994-5789

## Looking Into the Future

from pg 1

### Wildlife and Habitat Management Programs

Today, the Refuge System is one of the Service's most powerful wildlife and habitat management tools. In 2004, it made great progress in habitat management by:

- Initiating the latest technologies for managing and restoring important habitats at Land Management Research Demonstration Areas across the country (see related story, page 16)
- Banding tens of thousands of waterfowl and other migratory birds at wildlife refuges across the country. The work not only identified population trends and provided life history information, but it also played a key role in setting harvest regulations.
- Performing vegetation surveys to evaluate air pollution at Cape Romain NWR, SC, Mingo NWR, MO, Moosehorn NWR, ME, Seney, MI, and Edwin B. Forsythe NWR, NJ, to evaluate injury from air pollution.

### Endangered Species

The Refuge System supports at least 700 species of birds, 220 mammals, 250 reptiles and amphibians, more than 200 kinds of fish, and countless species of insects and plants. About 260 endangered or threatened species – or about 21 percent of all species listed under the Endangered Species Act – find a home on national wildlife refuges. This diversity of life is the very foundation of the Refuge System. In 2004, progress was tangible:

- Relocated and evaluated red-cockaded woodpeckers at St. Marks NWR, FL.
- Provided staff and resources to support the rearing, conditioning and



The Refuge System hopes to launch an early detection and rapid response program to fight invasive species on national wildlife refuges. Kudzu, spreading out of control over about 7 million acres in the South, grows up to a foot a day while forming a massive carpet of vines that can smother virtually anything that stands still, including forests, fields and power lines. (USFWS)

release of endangered black-footed ferrets at Bowdoin NWR, MT.

- Released 133 captive-bred endangered Attwater's Prairie Chickens on Attwater Prairie Chicken NWR, TX, and other lands as part of a long-term partnership with several organizations to reestablish the prairie chicken on its native range.
- Initiated a multi-year Black Scoter breeding ecology study with the U.S. Geological Survey Alaska Science Center to identify nesting habitat and timing on Yukon Delta NWR. Black Scoters are the least known waterfowl in North America.
- Hosts one of the largest concentrations of bald eagles each December through February at wildlife refuges in the Klamath Basin, which lies across the Oregon and California border. Some years, more than 1,000 of these majestic birds fly from their night roost on Bear Valley NWR to feed during the day on Lower Klamath and Tule Lake wildlife refuges.

*The Refuge System has moved forward forcefully, launching its National Invasive Species Management Strategy.*

- Provided the base of operations for California condor reintroduction to southern California from Hopper Mountain Refuge Complex. In 1995, the refuge complex released the father of the first wild-born condor chick to fly in California in 22 years. The refuge complex's rearing facility has six simulated nest caves and a flight pen.

## Invasive Species

In the U.S. alone, scientists estimate that about 7,000 invasive species of plants, mammals, birds, amphibians, reptiles, fish, arthropods and mollusks are established. The Refuge System has moved forward forcefully, launching its National Invasive Species Management Strategy in May 2004 and providing the tools, processes and strategies to combat the problem.

Meanwhile, individual refuges have been winning some fights:

- Extensive removal of cheat grass, knapweed and star thistle enabled restoration of more than 10,000 acres on the Hanford Reach National Monument, WA. Biologists are sharing their knowledge from the project with local and state agencies and with the national Society of Ecological Restoration.
- In partnership with the National Wildlife Refuge Association, The Nature Conservancy and the U.S. Geological Survey's National Institute of Invasive Species Science, the Refuge System launched a pilot program on six refuges that uses volunteers to map invasive species. Early detection is the most effective tool against invasive species.
- About two years after nutria eradication began in earnest, Blackwater NWR, MD, became free of the aquatic rodents in December 2004.

## Involving Communities and Partners

Partnerships have always been the hallmark of the Refuge System. Over the last two years, the Refuge System has invested greater effort in international partnerships. Cross-border collaboration



## New Battle Against Canada Thistle

*By Scott Flaherty*

The U.S. Fish and Wildlife Service's Midwest Region has joined with the U.S. Geological Survey's Northern Prairie Wildlife Research Center to battle Canada thistle by studying planting techniques that could start to eliminate the weed in tallgrass prairie restoration projects on Refuge System lands.

The study will test various prairie seed mixtures in 2005 to determine which can reduce or eliminate Canada thistle. The study will be conducted at Neal Smith NWR, IA, and Fergus Falls, Litchfield and Morris wetland management districts, all in Minnesota.

The Refuge System annually seeds thousands of acres to native plant species. Last year, for example, the Midwest Region restored about 27,000 wetland acres and 7,400 upland acres, primarily on refuges and wetland management districts in Minnesota, Iowa and Wisconsin.

"We want to compare how well different seed mixes and application techniques can suppress Canada thistle in new restorations," said Tim Yager, ecosystem biologist for the Midwest Region. "We hypothesize that by increasing competition and decreasing the disturbance inherent in seeding, we can produce more weed-resistant restorations." Up to now, the Service has tried to control Canada thistle, which plagues prairie restorations, by applying pesticides or mowing, control measures that are expensive and detrimental to restoration.

Canada thistle is native to southeastern Eurasia. Introduced to Canada in crop seeds as early as the late 18th century, it has spread across the United States. A rooted perennial, it grows to three to four feet tall. The weed's flower ranges from rose-purple to pink to white. ♦

*Scott Flaherty is in the External Affairs Office in Midwest Region (Region 3).*

makes sense since the Refuge System shares nearly 390 miles of borderlands with Canada and Mexico. Uniting efforts for migratory species, for example, produces more resource benefit for far less cost and provides vital habitat for species along major flyways and migratory routes.

Results of the Refuge System's partnerships are evident in community after community:

- About 246 nonprofit Friends organizations – up from just a few dozen when the first organizations

were created more than a decade ago – today supplement staff work in a myriad of ways. Members welcome and orient visitors, educate families and youngsters, and even physically care for refuge lands and buildings. In Indiana, for example, the Muscatatuck Conservation Learning Center was dedicated in May 2004, after the Friends group – the Muscatatuck Wildlife Society – established a nonprofit foundation to raise \$500,000 for construction.

*continued pg 20*

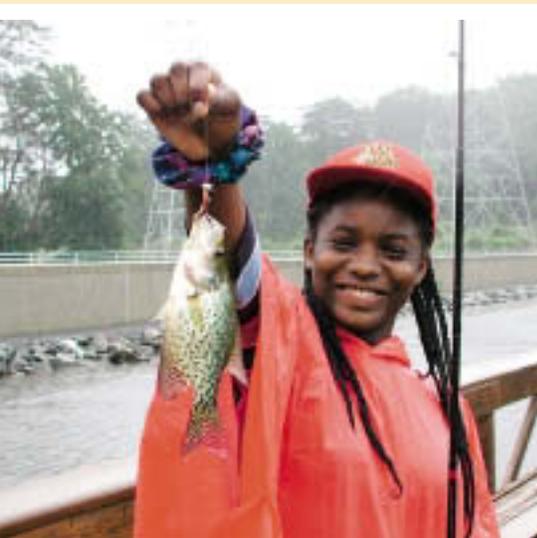
# Wildlife Refuge Is a Tourism Hot Spot

*What a deal!*

**Stay a night** at the Hyatt Regency Chesapeake Bay in Cambridge, MD, and get a copy of James Michener's novel "Chesapeake" and a family pass to Blackwater NWR for 10 percent less than a regularly priced night's lodging. "Follow the directions to Blackwater National Wildlife Refuge and enjoy the pure natural beauty of the Eastern Shore," the Hyatt Regency encourages visitors.

The bargain has been a real deal for the refuge, too.

Blackwater Refuge has not only earned more than \$1,400 in entries fees, paid by the hotel, but also has been introduced to scores of families who might otherwise not have seen the refuge and its 6.5-mile loop auto tour. Families who take the auto tour can use the photo blind along the drive, take two short hiking trails and see a huge amount of wildlife, including lots of eagles, ducks, geese, great blue herons in the right season, egrets and more.



## Looking Into the Future

*from pg 19*

Since 1984, Ducks Unlimited has helped acquire, restore or enhance 292,000 acres of wetlands and associated uplands on national wildlife refuges and waterfowl production areas. They have contributed \$23 million, matched by the Fish and Wildlife Service and other public and private partners, for conservation projects on refuges. Together, the Refuge System and Ducks Unlimited have gathered remote sensing and satellite inventory data for refuges in the Pacific Northwest and Alaska and mapped grasslands and other upland areas in the Northern Great Plains, among other projects.

Because of the Refuge System's partnership with ESPN cable network, more than 1 million people each weekend get a glimpse of wildlife refuges from two-minute stories. The programs have been aired since 2003. This year, viewers will also see five 30-minute programs.

### Wildlife-Dependent Recreation

Whether bird watching, hunting, fishing, photographing, observing wildlife or participating in an interpretative program, visitors to national wildlife

refuges often feel they have embarked on a journey of discovery they can share with their families.

For many years, the Refuge System has gained high marks for visitor satisfaction. More than 90 percent of visitors have rated their experiences on refuges as "satisfactory" or "very satisfactory." Another statistic highlights seldom-considered assets of the Refuge System:

More than 12,000 archaeological and historical sites have been identified in the Refuge System, where communities left their footprints on the landscape and given future generations a record of people's relationship with natural resources.

### Impact on the Community

The Refuge System is a major economic engine for communities, adding millions of dollars in jobs and retail sales. *Banking on Nature 2002: The Economic Benefits to Local Communities of National Wildlife Refuge Visitation* showed that the Refuge System fueled more than \$816 million annually in economic output associated with sales of recreation equipment, food, lodging, transportation, and other expenditures.

*The Refuge System has consistently gained high marks for visitor satisfaction. As urbanization grows, refuges like the Patuxent Research Refuge in a Maryland suburb of Washington, DC, offer visitors a chance to embark on a journey of discovery. (USFWS)*



Visitors who take the Hyatt Regency Chesapeake Bay special promotion to see Blackwater NWR, MD, can see great blue herons in season. (John Cossick/USFWS)

is no accident. Blackwater Outdoor Recreation Planner Maggie Briggs has been part of the Dorchester County tourism effort for the past decade.

Moreover, Blackwater Refuge is within the county's target investment zone and has received a matching grant from the Maryland Historic Trust for an outdoor environmental education classroom that will be partially devoted to programs about Harriet Tubman and the Underground Railroad. Tubman, who

lived on a plantation next door to the refuge, may well have hidden slaves on what is now refuge land.

"The hotel came to us about the promotion because we're the biggest tourism attraction in the county," Briggs said. "But certainly a refuge could go to a nearby hotel to propose a promotional offer just like this." ♦

The hotel's promotion, available since November 2003 and still being advertised in the *Washington Post* and other places,

Consider just one refuge: Charles M. Russell NWR, MT, the 1.1-million-acre landscape that straddles the Missouri River and is one of the nation's premiere hunting destinations. Big game hunting on the refuge generated more than \$7.6 million for surrounding communities.

In coming years, the Refuge System will work to both fulfill the shared priorities identified at the Conservation in Action Summit and outlined in *Fulfilling the Promise*.

### Wildlife and Habitat

The Refuge System hopes to have funding to:

- ❖ Launch an early detection and rapid response program to fight invasive species on national wildlife refuges. Additionally, the Refuge System seeks to implement invasive species control in priority areas, where control will prevent the listing or extirpation of species.
- ❖ Assess water rights and supplies and identify critical water deficiencies as well as threats to water supplies.
- ❖ Develop standards and monitoring protocols to create a wildlife and habitat database that will enhance scientific research on refuges and

make scientific information readily available to an array of decision makers.

- ❖ Inventory species and habitats within marine and estuarine areas and identify key threats to Refuge System marine resources – along with actions to address those threats. Additionally, the Refuge System will identify and codify jurisdictional boundaries of all marine refuges.

- ❖ Expand use of prescribed fire to improve refuge habitat.

### Serving People

In 2005 and beyond, the Refuge System will work to develop more opportunities for people to hunt, fish, photograph and observe wildlife on the nation's 545 wildlife refuges, where visitation has dramatically increased over the past few decades.

Moreover, the Refuge System seeks to begin developing curriculum-based programs on selected refuges as it enhances its environmental

education program. While only a limited number of refuges will have these larger educational programs, each refuge will work to have facilities and materials that allow teachers to readily use the wildlife refuge as a place for students to explore nature.

The Refuge System hopes to add more volunteer coordinators and new support for the volunteer programs that already brings about 39,000 volunteers to the

*continued pg 27*



The Refuge System hopes to add more volunteer coordinators and new support for the volunteer program, which already brings about 39,000 volunteers to the Fish and Wildlife Service. (Ryan Hagerty/USFWS)

# Sights and Sounds of Refuge System

By David Klinger

The video production staff at the National Conservation Training Center, in partnership with the Refuge System, has just released a collection of the sights and sounds of America's national wildlife refuges in high-tech DVD format that promises to reach new audiences for the Refuge System in its second century.

Consolidating eight of the USFWS refuge videos into a nearly two-hour collection of the agency's finest wildlife footage, NCTC has issued "America's Wildest Places" as an online sales item, available to the public on two Web sites, [www.fws.gov](http://www.fws.gov) and on [www.refuges.fws.gov](http://www.refuges.fws.gov).

"By any other name, this is simply recycling of a series of good, but nationally underutilized video programs into the first of what we hope may be additional DVD sets," says Steve Hillebrand, chief of NCTC's production division. "The unique thing, though, is that we're launching into the DVD arena for the first time, and aggressively marketing them online at rock-bottom prices. Their cost covers only duplication and shipping.

"We think there's expanded audiences for refuge center videos – that you shouldn't have to go to the visitor center in Kenai to get a high-quality 'window' on what's going on there. We're billing these as

'armchair tours' of America's refuges. We're also viewing this as NCTC's way of saying 'thank you' for the Conservation in Action Summit here in Shepherdstown, WV, and our first 'down payment' on a successful launch for the bicentennial of the National Wildlife Refuge System, 99 years from now," said Hillebrand.

Volume One of "America's Wildest Places" takes viewers to eight national wildlife refuges – Aransas/Matagorda Island, Pocosin Lakes, Kenai, Caribbean Islands, Eufaula, Horicon, Muscatatuck, and John Heinz/Tinicum. A second volume, in preparation, is expected to treat visitors to at least five more stations – Noxubee,



Rachel Carson NWR, ME, Biologist Kate O'Brien, left, and Nancy Williams inspect Drakes Island as part of a feasibility and impact study to evaluate the effects of keeping the highest restored tides off the marsh until late in the sparrow nesting season, giving the birds a few years to increase their numbers. (Susan Adamowicz/USFWS)

## Seeking to Save the Sparrows

What if a habitat restoration technique employed throughout a region imperils the reproductive success of a species ranked on the same level of ecological concern as the California condor?

Fish and Wildlife Service Land Management Research Demonstration Biologist Susan Adamowicz is tackling that question head-on by designing and evaluating several adaptive management techniques for culvert replacement projects in the Northeast (Region 5). Culvert replacement is a cost-effective method to return tidal flooding to upstream sites to restore salt marsh habitat. But it may carry risks for some sparrow species, whose nests lie only inches off the ground in high marsh vegetation.

Sparrows use vegetation cues when they decide where to nest. But they are often misled about safe nesting locations because vegetation may take several years to grow at proper elevations based on new tidal regimes created by culvert replacement projects. Until the vegetation adjusts, the sparrows are

simply given incorrect cues about safe nesting locations.

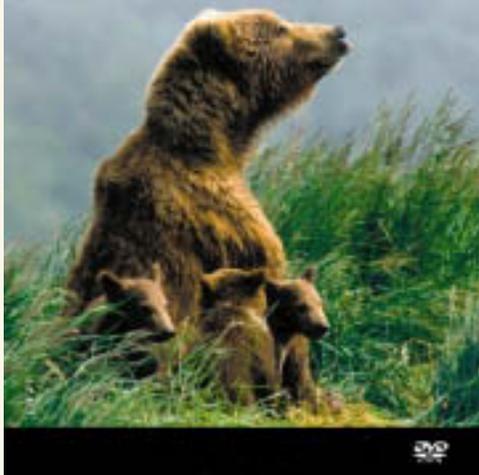
Indeed, several species ranked on the Partners in Flight Watch List are threatened by the increased tidal flow, including the salt marsh sharp-tailed sparrows, which is ranked "of highest concern," the same category as the condor. The Nelson's sharp-tailed sparrow and the seaside sparrow are "of concern" to the Partners in Flight.

Therefore, Adamowicz is helping to launch a multi-year project to test whether self-regulating tide gates that are used to increase tidal flow will give several species of nesting sparrows a chance to adjust to restored tidal flooding. The project, which began last year, started with a \$30,000 USFWS Challenge Cost Share grant.

Self-regulating tide gates are not the only management option being evaluated. A team working with the University of New Hampshire and the Wells National Estuarine Research Reserve has been assessing a salt marsh at Drakes Island,

# America's Wildest Places - Volume 1

*A Video Tour of Eight National Wildlife Refuges*



Volume One of "America's Wildest Places" takes viewers to eight national wildlife refuges. It is available for purchase on two Web sites, [www.fws.gov](http://www.fws.gov) and [www.refuges.fws.gov](http://www.refuges.fws.gov).

Blackwater, Crab Orchard, Bosque del Apache, and Yukon Flats.

"Credit for these new products really should go to the individual refuge managers who committed to the idea of new and expanded, professionally-shot videos for their refuges over the past eight years," said David Cooper, chief of NCTC's video branch. "They were the ones who made the decisions and committed the funds for their original refuge videos. We're just cutting and rearranging their products into new forms and new products, and marketing them to wider audiences. We're all for products performing 'double-duty' for the Service!"

Volume One of "America's Wildest Places" sells for \$6, plus \$2.50 shipping. With each order, a copy of the National Wildlife Refuge System Visitor Guide will be enclosed, providing a map and visitor services information.

Preview copies of "America's Wildest Places" are available to refuge managers who are contemplating new or revised video productions for their stations. Call the NCTC image library at 304-876-7675. ♦

*David Klinger is senior writer-editor at the National Conservation Training Center in Shepherdstown, WV.*

ME, part of the Rachel Carson NWR. There, preliminary analysis has documented that the experimental area is a brackish marsh with less salt hay and saltwort and more slough grass — also known as prairie cordgrass — and open water than the control area. The experimental area also has lower groundwater salinities and fish, crab and shrimp densities. This area also had nearly 60 percent more singing sharp-tailed sparrows per acre than the rest of the marsh complex. It will take at least another year to obtain some preliminary findings.

The Land Management Research Demonstration (LMRD) project initiated two complementary studies in Connecticut and Rhode Island in 2004. The LMRD and the University of Connecticut are looking at the long-term impact of tidal flow restoration on sparrows at the Great Meadows Unit of the Stewart B. McKinney NWR, CT. In this case, tidal flow will not be regulated by a tide gate but will flow freely.

In Rhode Island, the University of Rhode Island, using funding obtained by the LMRD, resurveyed the Galilee salt marsh

in the Wildlife Management Area in 2004, having studied the area nearly six years earlier. Preliminary analysis indicates that sharp-tailed sparrows have not been able to nest at the site again, although the vegetation reportedly is headed on the proper trajectory.

In all, the three locations – Drakes Island, Great Meadows and Galilee – will enable scientists to comprehensively evaluate the effects of tidal restoration on nesting sparrows. The study will look at the feasibility and impact of keeping the highest restored tides off the marsh until late in the sparrow nesting season, giving the birds a few years to increase their numbers. The study also will evaluate how significantly vegetation restoration may be delayed in the process. Other

studies from Connecticut suggest it may take 15 to 20 years for marshes to support successful nesting.

The team hopes to document a balance between salt marsh restoration and sparrow nesting over the next three years.

The Drakes Island culvert replacement project is a collaborative effort among USFWS, Wells National Estuary Research Reserve, the Town of Wells, Ducks Unlimited, Drakes Island Homeowners Association, Coastal America Corporate, University of New Hampshire, NOAA Restoration Center, and the Environmental Protection Agency. ♦

*The salt marsh sharp-tailed sparrow, ranked "of highest concern" on the Partners in Flight Watch List, is just one of the sparrow species that uses vegetation cues when it decides where to nest. (Susan Adamowicz/USFWS)*



## Friends Groups Grow by 6 Percent

### 246 Groups Now Support Refuges

“We noticed that refuges with strong Friends groups have better infrastructures,” Theodore Roosevelt Society President James Cummins observed. “Nearly all the wildlife refuges with Friends groups are better off financially and are more able to meet local needs.”

The Theodore Roosevelt Society, the Friends group for the Theodore Roosevelt NWR Complex in Mississippi, is just one of 13 new Friends groups founded in 2004, reflecting a 6 percent increase in the total

number of nonprofit groups working with national wildlife refuges. There are now 246 such groups that work with refuges in support of the 1997 National Wildlife Refuge Improvement Act and to fulfill the mission of the Refuge System.

Friends Groups often welcome and orient visitors to national wildlife refuges, one of the priority goals identified at the “Conservation in Action Summit,” held in May 2004 and attended by a significant



## Parker River Refuge Garners National Energy Award



*The new Visitor Center and Administrative Headquarters of Parker River NWR, MA, won the energy saver showcase award from the Federal Energy Management Program for its “green building” design and energy conservation innovations. In mid-2005, the refuge will remove the non-native purple loosestrife and restore a three-acre wetland around the building. (USFWS)*

The 21,000-square-foot Visitor Center and Administrative Headquarters of Parker River National Wildlife Refuge in Newburyport, MA, was named on Oct. 28, 2004, an energy saver showcase facility by

the Federal Energy Management Program for its exemplary “green building” design and energy conservation innovations.

The building, which took nearly two years to complete, incorporates recycled building materials and low VOC (Volatile Organic Compounds) building materials, including engineered wood, plastic lumber, linoleum flooring, fiberboard and sheetrock, exterior decking, tile, deck piers. All use a high percent of recycled material.

Additionally, a non-hazardous preservative was applied to exterior wood surfaces. Water conservation technology is evident throughout the building. For example, roof runoff is redirected to recharge the groundwater. Low-flush toilets were installed. In all, water savings will add up to 500,000 gallons per year.

A geothermal heat exchange system for heating and cooling – supplemented by other systems, such as high efficiency lighting with self-adjusting dimmers, among others – will reduce energy use by 41 percent as compared to a traditional office building.

Special care was taken to restore disturbed land to natural habitats of wetland, field, woods, and coastal areas.

*The Theodore Roosevelt NWR Complex in Mississippi is just one of 14 wildlife refuges that gained a Friends group in 2004. The number of Friends groups grew by 6 percent last year. (USFWS)*

contingent of Friends representatives. But Friends groups do much more.

Among the many vital services provided by the community-based Friends group are community outreach, environmental education and interpretive programming as well as habitat restoration, volunteer staffing, special events support and fundraising.

“They are pivotal to the Refuge System success,” Refuge System Volunteer Coordinator Trevor Needham stressed.

Mississippi had special success in 2004 with the establishment of new Friends groups. In addition to the group serving the Theodore Roosevelt Refuge, a group was also formed to assist Dahomey NWR in north Mississippi. The first organization in Kentucky – Friends of the Clarks River NWR – got off the ground in 2004.

Theodore Roosevelt Society was chartered about a month after the Southeast Region Friends Conference in April 2004, when the groups’ leaders saw

firsthand what Friends groups can accomplish.

“This is a chance to garner greater community support and showcase the refuge complex, not just to people on Capitol Hill, but also as a place for ecotourism,” Cummins said. “By putting everything under one umbrella organization, we can help the community appreciate what they have in the refuge.” ◆

Native species of trees, shrubs, forbs and grasses were planted.

The first phase of a three-acre wetland restoration project surrounding one side of the building will start in mid-2005. A bridge spanning the wetland area will be built in the spring.

“So many people have been part of this project,” said Parker River Refuge Manager Janet Kennedy. “We have gotten tremendous support from our elected officials, our Friends group and our community. Our green-ness shows that we put on the ground the natural resource conservation concepts that are so well associated with the Fish and Wildlife Service.”

Only the administrative offices are now open. The Visitor Center will open this summer, eventually providing classrooms for environmental education, a viewing deck for visitors, as well as an array of exhibits to help people connect with the habitats they experience on the refuge.

“We hope the exhibits will teach people that the wonders they see on the refuge are dependent on healthy and protected

habitat,” said Kennedy. We want to show them how they can help protect the wildlife they so love.”

Kennedy has special praise for Fish and Wildlife Service Engineer David Guthrie, who brought the project to the attention of the Federal Energy Management Program.

Established in 1942, the 4,662-acre wildlife refuge is about 35 miles south of Boston and covers a great deal of southern Plum Island, an 8-mile-long barrier island. Located along the Atlantic Flyway, the refuge is renowned for the waterfowl, shorebirds and songbirds that wing through the refuge during migratory periods. Photographers often visit the refuge.

The Hellcat Interpretive Trail offers an easy walk through the refuge’s natural history. Observation towers and platforms afford commanding views, while several miles of foot trails meander through dune, marsh and other refuge habitats. Some facilities – including the new Visitor Center and Administrative Headquarters – are wheelchair accessible. ◆



*Parker River NWR, MA, Refuge Manager Janet Kennedy traveled to Washington, DC, to accept the energy saver showcase award from the Federal Energy Management Program. (USFWS)*

# A Good Year for Whoopers

**Whooping cranes**, magnificent endangered birds that stand nearly five feet tall and are North America's tallest birds, fared particularly well in 2004.

A record number of cranes migrated for the winter to Aransas NWR and the surrounding area along the mid-coast region in Texas from their summer homes in Canada, where the Canadian Wildlife Service reported last summer that 54 nesting pairs had fledged 40 chicks.

A census on Dec. 1, 2004, tallied 216 whooping cranes that completed their first migration, the largest number in 100 years and 22 more than last year's record.

In a different part of the country, 13 whooping cranes, which had been raised in captivity at the USGS Patuxent Wildlife Research Center, MD, landed safely Dec. 12, 2004 at Chassahowitzka NWR, FL, after a 64-day, 1,228-mile journey behind three manned ultralight planes that took them on their first trip from their wintering grounds at Necedah NWR, WI.

The migration was the fourth led by Operation Migration Inc., working with the Fish and Wildlife Service and the Whooping Crane Eastern Partnership, an international coalition of public and private groups, to reintroduce the highly imperiled species in eastern North America, which was a part of its historic range.

Whooping cranes are among the world's most rare birds, with 468 birds, either in the wild or in captivity. The crane was near extinction in 1941, when only about 21 existed.

Today, the picture is more hopeful. Service Whooping Crane Coordinator Tom Stehn credited outstanding nest production in summer 2004 for the record number of cranes that migrated to the Texas coast. Whooping cranes migrate to the southern portions of the United States for the winter.

People can view a family group of whooping cranes – two adults and a juvenile – from an observation tower at Aransas Refuge. Tragically, two male cranes were shot in November 2004 while migrating through Kansas. Both died. Because whooping cranes are similar to sandhill cranes, inexperienced hunters can confuse the species.

Although whooping cranes remain endangered, their comeback sets a standard for conservation in North America. The Texas population reached a low of only 15 birds in 1941, before efforts were taken to protect the species and its habitat. The population has been growing at 4 percent annually and reached 100 in 1986.



*Last year was a good one for the endangered whooping crane. A December 2004 census tallied 216 birds, the largest number in 100 years. (Steve Hillebrand/USFWS)*

“We were hoping for 200 whooping cranes in the year 2000, but the population went into a decline for a couple years before rebounding back to 194 cranes last winter,” said Stehn. “Getting a record high count the day shortly after Thanksgiving is certainly something to be thankful for.”

The only wild population nests in the Northwest Territories of Canada in summer and migrate 2,400 miles to winter at the Aransas and Matagorda Island refuges and surrounding areas. Their winter range stretches over 35 miles of the Texas coast, about 45 miles north of Corpus Christi. Wintering whooping cranes use salt marsh habitat, foraging primarily for blue crabs. Unlike most other bird species, whooping cranes are territorial in both summer and winter and will defend and chase all other whooping cranes out of their estimated 350-acre territories.

## Alaska Biologists – from pg 7

caused some of the waterfowl to move, although scientists could not pinpoint where they had gone.

**Dec. 14:** 140 birds were observed in Skan Bay; at least 124 were oiled.

**Dec. 15:** Weather continued to interfere with wildlife operations, although biologists captured four oiled live birds, flown for treatment to Dutch Harbor. Biologists recorded 294 birds in Skan Bay; at least 196 were oiled

**Dec. 16:** 183 birds were counted in Skan Bay; 104 or more were oiled. Two oiled birds, recovered on Dec. 15, were flown to Anchorage for further care. One live, oiled crested auklet arrived at Dutch Harbor for treatment. The 124-foot *Exito* replaced the vessel *Cape Flattery* as the base for wildlife operations.

**Dec. 17:** Five oiled birds were brought into Dutch Harbor for treatment, bringing to 11 the number of live oiled birds treated. Six carcasses were retrieved. Two oiled crested auklets arrived in Dutch Harbor; three more left Dutch Harbor for

further treatment in Anchorage. Field reports from Skan Bay refer to a significant number of oiled bird carcasses on the shoreline, many of which have been scavenged by gulls or bald eagles.

**Dec. 20:** Boats remain in Dutch Harbor during storm. Ship halves remain grounded, with bow section mostly under water. Concern is growing about impacts to wildlife and potential for a catastrophic spill if remaining tanks are breached. ♦

# National Honor Goes To TNC

The Nature Conservancy of Washington won the Refuge System's 2004 National Land Protection Award in recognition of its significant contribution to land protection.

The Conservancy played a lead role in highlighting the need for the Black River Unit of the Nisqually NWR, WA, and, for several years, purchased several hundred acres within the unit, which were transferred to the Fish and Wildlife Service. One parcel – the 185-acre Weiks dairy farm – has been owned by a Seattle development company that planned to build at least 40 homes on the site.

“The Conservancy's strong and continuing commitment to protect this system has been instrumental in the growth of the Black River Unit,” Chief of Realty A. Eric Alvarez wrote in a letter to the chapter.

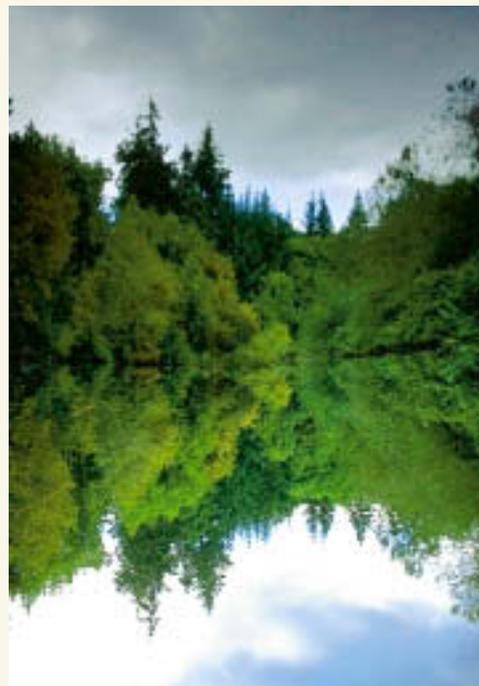
The Black River, which originates at Black Lake in Thurston County, is one of the healthiest freshwater wetland systems in the Puget Sound and a place especially loved by those who enjoy canoeing or kayaking. Because of the river's ecological and recreational significance, Congress approved creation of the 3,610-acre Black River Unit in 1996.

“The Nature Conservancy's role has been truly remarkable,” said Jean Takekawa,

Nisqually Refuge manager. “The Conservancy took considerable financial risks, has been creative and tenacious and has helped to build community support for this incredible place. As a result, nearly one-third of this new unit is now protected.”

The Conservancy has also played a significant role at other national wildlife refuges in Washington.

David Weekes, director of the Conservancy's Washington chapter, said he greatly appreciated recognition of the organization's work in support of the nation's wildlife refuges. “These refuges are treasures, harboring plants and animals that represent the nation's natural heritage. We're honored that we can work to strengthen them.” ♦



*The Nature Conservancy of Washington won the 2004 National Land Protection Award for conveying several hundred acres of the Black River unit of Nisqually NWR to the Refuge System. (The Nature Conservancy)*

## Looking Into the Future – from pg 21

Fish and Wildlife Service. Volunteers in 2004 donated about 1.5 million hours, most of it on national wildlife refuges.

Additionally, national wildlife refuges will strive to assure visitor safety by working with the International Association of Chiefs of Police to determine the number of officers needed to provide both resource protection and visitor safety.

## Cooperative Conservation

The Refuge System will continue to expand its cooperative partnerships at all

levels of government. For example, the Refuge System will continue to work with state fish and wildlife agencies to provide a meaningful forum for community and partner involvement in the Comprehensive Conservation Plan (CCP) process. Indeed, the CCP process will be streamlined to ensure that a long-term vision for each national wildlife refuge is completed by 2012.

“The Refuge System is proud to accomplish on the ground what the Fish and Wildlife Service stands for in this nation,” stressed Refuge System Chief

Hartwig. “When people talk about species protection, places for migratory birds and endangered species, spots to hunt, fish, learn about the environment, and reconnect with family and nature, they are talking about national wildlife refuges.

“We embody all that the Fish and Wildlife Service represents,” concluded Hartwig, “and we protect for all time the lands that Americans cherish.” ♦

## Chief's Corner—*from pg 2*

We will be able, for example, to tell decision-makers that we intend to flood a certain number of acres and, for that, we will produce a certain number of waterfowl for the public to enjoy. We will let decision-makers know just how many thousands of people will enjoy wildlife-dependent recreation because we grade 100 miles of roadways.

As never before, we will work as a single organization rather than individual refuges to produce a budget and then produce results. And we will innovate to make our organizational structure more efficient by restructuring how we think about our work. In the process, we could well create new career pathways.

Perhaps, for example, we will create administrative teams that can more efficiently complete reports that are now written individually on each wildlife refuge. Perhaps we can build a team of six to 10 wildlife biologists to work on issues common on dozens of refuges, analyzing data on invasive and endangered species, migratory birds and more, and then providing input to planners to write Comprehensive Conservation Plans for a group of 20 refuges rather than one at a time.

We will continue to seek more funding to protect the nation's natural resources, but we'll do it in a new way: By showing we can do more for every dollar we get.

## "See and Enjoy" Is Message to Travelers

The Travel Industry of America has a new partner in the National Wildlife Refuge System, which will bring hundreds of tourism opportunities to the attention of the nation's tour operators, travel reporters and others.

The National Wildlife Refuge System is making its first major entry into the travel industry by forging a partnership with the Travel Industry of America and attending its huge convention, called International Pow Wow. The convention, which attracts more than 12,000 people, brings together about 1,000 U. S. travel organizations that represent all segments of the industry. Nearly 400 travel journalists from more than 40 countries participated in the conference last year.

Not only will Refuge System staffers meet face-to-face with more than three dozen representatives at International Pow Wow in May, but the Refuge System's Branch of Communications is embarking on a year-long communications



*Visitors to Bayou Cocodrie NWR, LA, can hunt, fish, observe and photograph wildlife and birdwatch. The Refuge System is making a concerted effort to reach the travel industry with information about wildlife-dependent recreation on refuges. (USFWS)*

push with travel reporters by producing stories and story ideas for major publications.

Additionally, the Branch of Communications will produce public service announcements this year that invite people to enjoy wildlife-dependent recreation on the nation's wildlife refuges.

"Over the past few decades, the number of visitors to our wildlife refuges has soared," said Visitor Services and Communications Division Chief Allyson Rowell. "The support of people is essential if we are going to protect fish and wildlife resources for the future." ♦

## Send Us Your Comments

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



# RefugeUpdate

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