U.S. Fish & Wildlife Service
National Wildlife Refuge System

Refuge Update

September/October 2006 Vol 3, No 5

Inside

"Nature is often overlooked as a healing balm for the emotional hardships in a child's life. You'll likely never see a slick commercial for nature therapy . . ."

—Last Child in the Woods
by Richard Louv

New Policies Fulfill Refuge System Mission

Wildlife-dependent recreation is one of the three new policies announced by Interior Secretary Dirk Kempthorne. More than 270 national wildlife refuges offer fishing programs, while more than 300 hunting programs are offered. Environmental education and interpretive program are offered even more widely. (USFWS)

Interior Secretary Dirk Kempthorne announced three new policies that define the unique wildlife conservation mission of the National Wildlife Refuge System and will help refuge managers enhance opportunities for people to participate in wildlife-dependent recreation. The new polices are: mission and goals and purposes; wildlife-dependent recreation; and appropriate uses.

"In an age when the rapid spread of technology and changing land uses make the connection to nature seem out of reach to many Americans," said Secretary Kempthorne, "these policies will help ensure our national wildlife refuges continue to be places where wildlife thrives and where recreational and educational activities that depend upon wildlife get the top priority."
He announced the three policies in a televised broadcast during the annual June meeting of the Outdoor Writers Association of America.

Effective as of July 26, the policies were developed in close coordination with state fish and wildlife agencies. They were first published in draft form in 2001.

continued pg 17

Dale Hall

From the Director

Farm Bill Is a Priority for Good Reason

This issue is focused on the Farm Bill, which provides more than $3 billion annually for on-the-ground conservation. It should come as no surprise, therefore, that its reauthorization is a top Service priority.

With more than 70 percent of the land in the United States privately owned, it follows that most of the wildlife in the countryside depends on private landowners. The voluntary, incentive-based programs of the Farm Bill have broad-reaching effects on fish and wildlife populations and habitats and are primary tools for assisting the stewards of private lands—the nation's farmers, ranchers and forest landowners—with their efforts to conserve these resources.

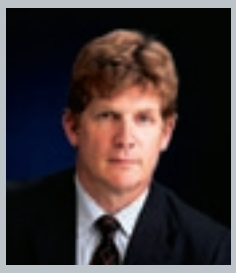
Farmers are installing grass, trees, shrubs, ponds, riparian buffer strips and other wildlife habitat at record rates. Some farmers provide bird and bat houses, while others plant or leave food plots of corn, millet, or other grains specifically for wildlife. Pheasants, grouse, quail, prairie chickens, mourning doves, and songbirds, as well as leopard frogs, diamond-back terrapin, red bats, and other wildlife, benefit from habitat that farmers and ranchers establish on their land. Farmers and ranchers appreciate and enjoy wildlife supported by good habitat and also benefit from pollination and pest control by beneficial insects.

Although we are still compiling comprehensive data, we already know that the Farm Bill's implications for conservation on national wildlife refuges are considerable. In the last fiscal year, for example, more than 1,000 habitat projects associated with Farm Bill programs took place adjacent to or near national wildlife refuges.

The Farm Bill's largest conservation program, the Conservation Reserve Program (CRP), has enrolled more than 36 million acres that provide important waterfowl habitat, as well as habitat for grassland birds and riparian species. Many of those acres are often located near or next to refuge lands, making those lands more productive for wildlife as well.

And after two decades of success, CRP isn't resting on its laurels. Last August, the Farm Service Agency announced a new CRP Duck Nesting Habitat Initiative, which aims to restore 100,000 acres of wetlands and high quality nesting cover in the Prairie Pothole Region of the northern Great Plains—a critical pit stop for North American waterfowl.

But continued conservation on CRP lands is not assured. Nationwide, 16 million acres now in the program will expire in 2007; another 12 million will expire between 2008 and 2010. Our job is to help ranchers and farmers understand the importance of their contributions to nation's conservation goals and to educate the public about CRP's value to wildlife and people. In community after community, Refuge System staff is doing just that, providing an essential link to private landowners committed to long-term conservation and stewardship of wildlife habitat.



Geoff Haskett

Chief's Corner

Antidote to a Virtual Existence

A pair of New York architects is promoting a "dream digital house" that has walls made of LCD screens. One bank, touting round-the-clock electronic banking, features a woman in front of her computer, gushing, "I expect to pay bills at 3 a.m." Undeniably, we live in "the digital age."

For another measure of what Americans do with their time, consider that, on average, we spend about 170 minutes -- nearly three hours each day -- watching television and movies. It has been estimated that we only spend 19 minutes a day on physical, leisure-time activities.

What is the antidote to a world where you can buy brass pinecones cast from the real thing – rather than taking a hike and happening upon the real thing? National wildlife refuges are the antidotes, and National Wildlife Refuge Week is the perfect celebration of what we do.

Last fall, a dragonfly never before recorded in Arizona – the thornbush dasher, or *Micrathyria hagenii* – was found at Buenos Aires National Wildlife Refuge.

I read that Betty Mulcahy and her husband Chuck spent almost five months volunteering at Imperial National Wildlife Refuge last year, creating interpretive

— continued on pg 28

RefugeUpdate

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What's Happening to the Frogs?

Amphibian abnormalities have been addressed in scientific literature for some time, but it was only when middle school students in Minnesota discovered large numbers of abnormal frogs that the general public and the Congress began to notice. That was in 1995 and researchers have been investigating the problem at many levels ever since – including research on national wildlife refuges.

Environmental stressors may cause such abnormalities as missing, extra or unusual body parts. In fact, scientists believe frog abnormalities could be caused by multiple factors that may differ from one site to another. These factors may include changes in climate, predators, parasites, bacteria, fungi and viruses or pollution and contaminants such as pesticides, metals and fertilizer, among others.

Roxanna Hinzman, who until recently was the national amphibian coordinator for the U.S. Fish and Wildlife Service, says that since 2000, the Service has had an annual $500,000 Congressional appropriation to research abnormal frogs. With the help of refuge staff, volunteers, Friends organizations and at least one student group, simple first-tier assessments of frog abnormalities have been conducted in ponds, wetlands, puddles, and other water bodies on 131 refuges in 47 states. This effort represents the first nationwide survey of abnormal amphibians that uses standardized collection and evaluation methods.

During the initial assessment, researchers try to collect 50-100 newly metamorphosed frogs of one species from a single pond and document visible abnormalities. Abnormal frogs are sent to a parasitologist who looks for parasites that cause abnormal limb development. Then the frogs are sent for radiography so that any bone abnormalities can be examined and documented. A report released in May 2006 presents the results of radiographic analyses for more than 650 abnormal frogs from refuges across the country.

Frog abnormalities have been observed and recorded in ponds, wetlands, puddles, and other waterbodies on 131 refuges in 47 states. The Service has undertaken the first nationwide survey of abnormal amphibians using standardized collection and evaluation. (Dan Sutherland)

The report concluded that abnormalities were "remarkably similar across all regions," and more research is needed to identify cause and effect relationships.

Analyzing the Data

Researchers are beginning to mine five years worth of data. With the help of Kevin Nguyen, a Service computer technician fascinated by frogs, an online database was created to store the information.

Researchers hope to find trends that will help focus additional studies. "With the tremendous amount of data that has been collected so far, I hope we can get a better understanding about what is happening and what we can do to help," said Kelly Geer, the new national amphibian coordinator.

As currently planned, a second phase of research will identify stressors in ponds; a third stage will work to identify the actual causes of the abnormalities. "There doesn't seem to be one 'smoking gun' or one stressor," says Hinzman. "There may be multiple stressors, or the effects of two or more stressors may be cumulative."

Second stage research is underway at Great Bay (New Hampshire) and Kenai National Wildlife Refuges (Alaska). The discovery of significant numbers of abnormal frogs at Kenai was a surprise. Now a study is underway to identify specific abnormalities and stressors.

Hinzman believes that frogs are good indicators of habitat health because they can be exposed to so many different contaminants throughout their lives and they are found in so many places, from ponds to tire ruts to agricultural ditches. Eventually, she said "we hope to reach site-specific conclusions about the cause or causes of frog abnormalities." She is eager for additional refuges to gather data.

"We've come a long way with the quantity and quality of data collected. We still have a long way to go, and soon we'll be coming to a pond near you," notes Hinzman. ◆

Better Use of Heavy Equipment Time and Money

The National Wildlife Refuge System's new method for managing heavy equipment is already saving hundreds of thousands of dollars on both acquisition of new equipment and completion of major reconstruction projects. The system was established in 2004 with the appointment of Steve Flanders as the national coordinator and seven regional heavy equipment coordinators.

Early this year, the heavy equipment coordinators established a 30-day window for ordering from John Deere and Caterpillar, Inc., enabling the Service to receive the maximum discount for quantity purchases in addition to the contract price. These discounts combined with trade-in credits have saved more than $500,000 in fiscal year 2006 as the Refuge System replaced 30 pieces of heavy equipment.

In another effort to improve efficiency and cut costs on major construction projects, Maintenance Action Teams (MATs) are being created in some regions. The name was coined by Dale Pittman, heavy equipment coordinator in the Great Lakes-Big Rivers Region.

MATs assign existing maintenance staff to major reconstruction projects throughout the region – and sometimes across regional lines.

They have rebuilt a road at Mountain Longleaf National Wildlife Refuge in Alabama, improved water flow at Horicon Marsh National Wildlife Refuge in Wisconsin and built a levee at Muscatatuck National Wildlife Refuge in Indiana. All three projects came in on time and under budget.

In the Southwest Region, Heavy Equipment Coordinator Ed Bass says he is especially pleased that MATs have enabled fisheries and refuges to work together more closely. Alchesay-Williams Creek National Fish Hatchery Complex in Arizona has only one maintenance worker but in spring 2006, workers from nine refuges gathered at Alchesay to turn two residences into offices – at one-third the cost of hiring an outside contractor.

"We've done these projects informally for years," says Rob Miller, chief of the Service's Division of Facilities Management. "Now MATs formalize the process of coordinating the transfer of equipment and personnel."

Teams Save Money

At Horicon Marsh Refuge, spoil piles had been placed on either side of a ditch many years ago during an attempt to drain the marsh. A MAT removed the spoil piles to improve the water flow across the marsh at a cost of just under $100,000; the estimate for a contractor was $300,000.

Why the big difference in cost? "We do it more efficiently," says Miller, "because we know the refuges and we aren't adding overhead or profit to the cost."

Because personnel from the Southeast Region had been assigned to hurricane repair projects, Mountain Longleaf Refuge was a recipient of the MAT program. Due largely to the engineering costs of developing a scope of work for a commercial contractor, the decision was made to bring in equipment and operators from Great Lakes-Big Rivers Region to complete repairs caused by 2004 hurricanes. By the end of the three-month project, 16 equipment operators from 13 Great Lakes-Big Rivers Region refuges and the regional office had rotated in to help complete the work.

The team built six miles of road, including culverts, gates and signs. Despite difficult terrain and periods of inclement weather, the team unloaded 17,500 tons of stone on refuge roads, poured 32 cubic yards of concrete and laid 400 feet of concrete pipe.

A Great Lakes-Big Rivers Region Maintenance Action Team spent three months rebuilding roads damaged by 2004 hurricanes on Mountain Longleaf National Wildlife Refuge in Alabama. (USFWS)

Assigning the Team

Bass says MATs work best when they have the full support of upper management on individual refuges. He won that support in part by having the receiving refuge cover the cost of base pay, benefits, overtime and travel for all the workers on a particular project.

Earlier this year, a MAT – composed of 26 workers from 20 refuges, wetland management districts and the regional office – was assigned to Ottawa National Wildlife Refuge in Ohio to build a half-mile entrance road and two parking areas for a new visitor center. The team also built a wetland behind the center and excavated two storm ponds to collect storm water from the new parking areas.

"It's a tremendous training tool," adds Miller. "Team members get more seat time on heavy equipment and go back to their stations with more experience and a renewed sense of vigor."

"Both MATS and our new system for managing heavy equipment are part of the heavy equipment management action plan for the Fish and Wildlife Service," said Flanders. "We plan on continuing to build on our early successes. This is just the right way to do business." ◆

Birds, Birds, On Every Refuge—Birds

Since almost 50 million Americans identify themselves as casual or avid birding enthusiasts, the U.S. Fish and Wildlife Service has launched a National Wildlife Refuge System Birding Initiative and Birders Team to help birders fully appreciate the importance of national wildlife refuges in the lives of their favorite wildlife species. The project also aims at strengthening quality wildlife-dependent recreation on refuges.

The initiative was launched with the appointment to the Birders Team of 14 well-known people who represent different sectors of the birding world, including authors, editors, educators, conservationists and members of the business community. Southeast Regional Refuge Chief Jon Andrews will serve as chair of the team, which also includes Wheeler National Wildlife Refuge Manager Dwight Cooley. Geoff Haskett, Acting Assistant Director, National Wildlife Refuge System, and Paul Schmidt, Assistant Director, Migratory Birds, are ex-officio members.

The team will explore ways to strengthen the relationship between the birding community and the Refuge System. The group will also provide ideas about how refuges can involve more Americans in the work of conserving America's native bird species.

"Refuges are ideally positioned to be the premier birdwatching location of preference," said veteran birder Paul Baicich, who is assisting the team on behalf of the Refuge System. "Many birders already identify closely with the Refuge System. We want birders to reinforce and expand that relationship."

Long-Time Focus on Birds

The Service is the principal federal agency charged with protecting and enhancing populations and habitats of more than 800 species of migratory birds. According to the Service's *Birding in the United States: A Demographic and Economic Analysis,* published in 2001, there are about 40 million at-home birders and 18 million who travel to watch birds. The same report said birders spent an estimated $32 billion in 2001 on all their wildlife-watching experiences, including money for binoculars, field guides, bird food, bird houses, camping gear and such big-ticket items as boats.

The Refuge Birding Initiative will not only give the Refuge System a more visible role in promoting birding, it will also shine a national spotlight on the central role of national wildlife refuges in bird conservation. Already, more than half of all federal lands designated by the American Bird Conservancy as globally significant Important Bird Areas are on national wildlife refuges.

The Birders Team will discuss specific ways that national wildlife refuges can improve programs for those who are interested in winged wildlife. Boardwalks and observation towers are some of the visitor enhancements that can attract bird enthusiasts to refuges. "We hope the Birding Initiative will lead to more quality family-oriented birding on refuges and a broader public recognition of the Refuge System's vital role in protecting the country's native birds," said Allyson Rowell, chief of the Refuge System's Division of Visitor Services and Communications.

National wildlife refuges are already doing a great deal to welcome America's birders. Seney National Wildlife Refuge in Michigan, for example, gives visitors a map, binoculars and a touch table display where they can make sand tracks of local animals and birds. Visitors can then go on a self-guided, seven-mile auto tour along Marshland Wildlife Drive. Seney Refuge, concluded a recent television news report, "makes things easy for those wishing to view wildlife in their natural habitat." ◆

The Service's new Refuge Birding Initiative will build on the expanding popularity of birding in the United States. Almost 50 million Americans consider themselves casual or avid birders. (USFWS)

"Go/No Go" for the Birds

Signs, cards and bumper stickers encourage NASA employees to contact the duty office with the location of dead animals around the Kennedy Space Center in Florida so they won't become an easy food source for vultures. Because of the danger that could be caused by birds hitting the shuttle, NASA has added a new "go/no-go" launch criteria if there are too many birds in the area on launch day. (NASA)

NASA has added a new "go/no-go" launch criteria related to flying birds at the space shuttle launch pad. A national wildlife refuge is playing a key role.

It all started July 26, 2005, when the space shuttle Discovery hit a vulture during launch. There was no damage to the space shuttle but lots of concern. NASA officials decided a launch could be scrubbed if birds were flying in the vicinity of the launch pad, and so a Bird Abatement Team. Because Kennedy Space Center is located on the 140,000-acre Merritt Island National Wildlife Refuge, the refuge was asked to join the team.

The first recommendation made by Refuge Biologist Marc Epstein was to reduce the huge number of animals killed on the roads to the Space Center. "It is suspected that an excessive vulture population has been created and sustained by our excessive road kill food supply," wrote Roland Schlierf, a NASA Leadership Development Program engineer on temporary assignment at Merritt Island Refuge. By April, he was leading an educational campaign to reduce road kill.

In May alone, 103 dead animals were collected from Space Center roads. Even bald eagles have been killed on the roads. With 14,000 people working at Kennedy Space Center, large numbers drive in and out of the center around the clock. Kennedy Space Center is surrounded by habitat filled with animals.

Epstein says the Kennedy Space Center and NASA are working in a variety of ways to address the problem. A full time contractor has been designated a one-man "road kill posse." Employees are encouraged to phone or e-mail the location of a dead animal. Epstein says the contractor is picking up 300-400 pounds of dead animals every week.

Newsletters, Bumper Stickers

Schlierf is leading a major public education campaign among Kennedy Space Center employees, with newsletters, bumper stickers and cards to place on bulletin boards and in cubicles with a phone number for rapid collection. Schlierf also urges his fellow employees to drive extra cautiously. "Every animal we miss hitting out here is one more animal we can enjoy."

For the first time, vultures were trapped and released just before the most recent launch of the space shuttle Discovery. "Wildlife Crossing" signs are being placed around the Space Center roads.

Schlierf says awareness is high and increasing. As Kennedy Space Center prepared for the early September launch of the space shuttle Atlantis, Schlierf said, "The folks who clean the launch pads told me that it usually takes two days to clean up the mess left by birds. This time it only took half a day."

On a more sophisticated level, Epstein says NASA is using radar to detect and count birds and track their speed and trajectory. There are non-lethal sonic devices that scare away the birds. Epstein says the Bird Abatement Team is also looking at ways to reduce the roosting possibilities for vultures in all the nooks and crannies around the launch pad.

Epstein says the refuge and NASA have a great working relationship. "This has been a great opportunity to enlighten lots of people at once," says Epstein about the efforts of the Bird Abatement Program. Eventually, Epstein wants the mandatory training for NASA employees to include a short video about all the wildlife the refuge is protecting – right in the middle of all that technology. ◆

America Gains a New—and Huge—National Monument

"It's a *big* deal," said President George W. Bush, as he established the nation's first marine national monument on June 15. And he's right: it covers 140,000 square miles, is larger than 46 states, and includes two national wildlife refuges.

Originally under consideration for designation as a national marine sanctuary, the new Northwestern Hawaiian Islands Marine National Monument was a surprise to many, including the U.S. Fish and Wildlife Service. The President chose to invoke his authority under the Antiquities Act of 1906 to immediately and permanently protect the area's pristine coral reefs and unparalleled wildlife and heritage resources.

The National Oceanic and Atmospheric Administration (NOAA) and the Service will jointly manage the monument. In consultation with NOAA, the Service has sole responsibility for managing areas of the monument that overlay the Hawaiian Islands National Wildlife Refuge and Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial. NOAA has primary responsibility for managing marine areas beyond the refuges, in consultation with the Service. The federal agencies will also coordinate with the state of Hawaii, which administers a wildlife sanctuary at Kure Atoll and a marine refuge around all the islands and atolls, except Midway.

In his remarks before signing the proclamation, President Bush spoke of America's commitment to be a good steward of our natural resources. "Our duty is to use the land and seas wisely, or sometimes not use them at all. Good stewardship of the environment is not just a personal responsibility, it is a public value," he said. "This belief has affirmed our laws, and today we reaffirm that commitment once again."

The President's proclamation includes several requirements for managing the new monument, many of which were based on NOAA's proposed regulations for a national marine sanctuary. The Service and NOAA are now working together to develop joint regulations and coordinate with the state to write a permanent management plan for the monument.

Key provisions in the proclamation include prohibitions on oil, gas, and mineral exploration and development; the phasing out of all commercial fishing within five years; prevention of alien species introductions; and the regulation of almost all other activities within the monument.

The Hawaiian Islands National Wildlife Refuge, which traces its history back to 1909 when President Theodore Roosevelt established the Hawaiian Islands Reservation, stretches from Nihoa Island to Pearl and Hermes Atoll. Except for field stations on Tern and Laysan Islands, these remote islands are not inhabited by humans and are protected by the Service. Even scientific research is limited and closely scrutinized to minimize unnecessary disturbance.

Midway Atoll National Wildlife Refuge was established in 1988 as an overlay refuge, with jurisdiction and control coming to the Service from the U.S. Navy in 1996. The atoll hosts the largest nesting colonies of Laysan and black-footed albatrosses in the world, as well as nesting colonies of 15 other seabird species. In 2000, it was also designated as the Battle of Midway National Memorial, honoring the courage of the men who fought in what is recognized as the turning point of World War II in the Pacific. The refuge also serves as an emergency landing site for twin-engine aircraft crossing the Pacific Ocean and as a landing field for U.S. Coast Guard law enforcement and search and rescue efforts in the mid-Pacific.

"We think of our refuges as the heart of the monument," said Barry Stieglitz, project leader for the Hawaiian and Pacific Islands National Wildlife Refuge Complex. "This new monument is an exciting opportunity to greatly expand the protections offered the Northwestern Hawaiian Islands, and we're truly excited about working with our partners to bring the President's proclamation to life." ◆

President George W. Bush invoked his authority under the 1906 Antiquities Act to immediately and permanently protect the pristine coral reefs of Hawaii by creating the Northwestern Hawaiian Islands Marine National Monument. It will be jointly administered by the National Oceanographic and Atmospheric Administration and the Service. (James Watt/NOAA)

Communicating in the Native Tongue

"We have to remember our history and teach others about our traditional ways," says Paul Williams, Sr., a resident of Beaver, Alaska, and an information technician for the Yukon Flats National Wildlife Refuge. Beaver is one of several Athabascan villages within the refuge, and Williams is eager to build more connections between the U.S. Fish and Wildlife Service and his fellow Athabascans.

"We know a lot about living on this land," muses Williams, now in his late 60s, "more than the information you would find in any book." Ironically, a book of sorts is one of the products of the growing collaboration between the Service and the Council of Athabascan Tribal Governments (CATG). Shannon Nelson, an education specialist at Yukon Flats Refuge, worked with CATG's environmental coordinator Bryan Neubert to produce a bilingual Gwich'in Athabascan/English "Guide to Waterfowl of the Yukon Flats."

Noting that Yukon Flats Refuge is recognized as one of the most productive waterfowl breeding grounds in North America, the guide includes pictures as well as English and Gwich'in names for 16 ducks, a trumpeter swan (daazhraii*)* and a snow goose (gwigeh*)*. Nelson says staff from the refuge and CATG had to agree on which species to include because not every species has a Gwich'in name for the English or scientific name. Native speakers from the Yukon Flats villages provided the Gwich'in language translation. The 18 species included in the guide are considered culturally significant, biologically significant, or both.

The widely distributed brochure has generated enough interest that CATG approached the refuge about developing a second bilingual brochure featuring common birds. The second guide is currently under development and was funded through a Challenge Cost Share grant.

The official partnership between Yukon Flats Refuge and CATG began with an agreement signed in 2004 between the Service and CATG. It has just been renewed for a third term. Each agreement outlines goals as well as specific tasks or projects. The waterfowl guide was one of the projects facilitated by the agreement.

The formal working relationship between the Yukon Flats Refuge and CATG has led to informal projects and other collaborations as well. Recently, as part of an increased effort to incorporate the Gwich'in language into more refuge education and outreach products, Williams recorded a public service announcement about avian flu in Gwich'in. A Fairbanks radio station donated studio and staff time to produce the announcement and CATG helped air the announcement on the Fort Yukon community radio station. The announcement has since been broadcast in Gwich'in and English to most villages within the Yukon Flats. ◆

A bilingual guide to waterfowl has been produced by the Yukon Flats National Wildlife Refuge and the Council of Athabascan Tribal Governments in Alaska. The guide includes English and Gwich'in names for 18 species of waterfowl that are culturally and/or biologically significant to the region. (USFWS)

Congressional Caucus for Refuges Launched

U.S. Representatives Ron Kind (D-WI) and Jim Saxton (R-NJ) are enlisting other House of Representatives members to join the new bipartisan Congressional Wildlife Refuge Caucus to champion the National Wildlife Refuge System. The first piece of legislation introduced by the Caucus chairs and others dealt with the fight against invasive species.

By mid-September, 100 House members had joined the Congressional Wildlife Refuge Caucus. In a letter to their Congressional colleagues, Congressmen Kind and Saxton pointed out that America's Refuge System, "the premier wildlife land system in the world," is beset by problems of invasive species, encroaching urbanization and the continuing and hugely expensive cleanup of Gulf Coast refuges damaged by hurricanes a year ago.

Introduced July 27 by Reps. Kind and Saxton, along with Caucus vice chairs, Reps. Michael Castle (R-DE) and Mike Thompson (D-CA), the legislation emphasizes partnerships with non-governmental organizations including Refuge Friends and volunteers to counter the rampant growth of invasives on national wildlife refuges. H.R. 5900, the Refuge Ecology Protection, Assistance, and Immediate Response (REPAIR) Act, proposes grants to states, Friends organizations and others for invasive species monitoring and removal. In addition, the bill would make permanent the Cooperative Voluntary Invasive Species Monitoring and Control Program, which, for the past three years, has trained volunteers to fight the spread of invasives on wildlife refuges.

"Hurricanes Katrina and Rita wiped out critical habitat and destroyed more than $100 million worth of refuge infrastructure," reads the caucus invitation letter, "compounding the Refuge System's $3.1 billion operational and maintenance backlog." The caucus is seeking to raise awareness of the Refuge System in Congress, among its other objectives.

"With the devastating impacts to the Gulf Coast refuges," says Rep. Kind, "it became clear to us that our National Wildlife Refuge System needed an organized voice in Congress. I grew up with a refuge in my back yard and I, along with many of my colleagues in Congress, have long understood the great economic and environmental value of refuges. We are an enthusiastic bipartisan group who are already developing legislation to focus attention on our refuge system."

In addition to working toward legislative solutions for the pressures on refuges from invasive species, urban sprawl and under-funding, caucus members also seek to support the six priority recreational and educational activities of refuges – hunting, fishing, wildlife photography and observation, environmental education and interpretation. ◆

Refuge System Grows Slightly

The Migratory Bird Conservation Commission has approved the addition of about 300 acres of wetland and upland habitat to the National Wildlife Refuge System. The $1.3 million in acquisitions have been funded primarily from the purchase of federal Duck Stamps, as well as import duties collected on arms and ammunition and rights-of-way payments.

The commission also approved more than $19.5 million from the North American Wetlands Conservation Fund for 54 conservation projects. American and Canadian partners will match this amount, enabling the U.S. Fish and Wildlife Service to restore 87,000 aces of wetlands. The following refuges were able to acquire new acreage:

- Cedar Island National Wildlife Refuge, North Carolina: 14 acres for wintering waterfowl;
- Edwin B. Forsythe National Wildlife Refuge, New Jersey: 35 acres for black ducks and other waterfowl;
- William L. Finley National Wildlife Refuge, Oregon: 36 acres for a diversity of flood plain habitat;
- Eastern Shore of Virginia National Wildlife Refuge: 146.7 acres to protect waterfowl habitats;
- North Central Valley Wildlife Management Area, California: 59 acres to maintain wetlands for waterfowl; and
- Grassland Wildlife Management Area, Merced, California: 78 acres. ◆

Several refuges received funding from the Migratory Bird Conservation Commission, enabling the Refuge System to expand slightly. (USFWS)

FOCUS . . .*On Farm Bill*

Farm Bill to be Topic of Congressional Debate in 2007

Voices have been raised in support of programs that address conservation needs on lands in production.

With about 73 percent of the land outside of Alaska in private ownership, America's landowners – and especially its farmers and ranchers, whose production accounts for half the nation's land use in the lower 48 states – play a critical role in sustaining healthy fish and wildlife populations. Little wonder then that the conservation provisions of the multiyear Farm Bill have attracted the attention of the U.S. Fish and Wildlife Service, as well as other federal agencies and state agencies responsible for managing fish and wildlife populations.

With the establishment of the Conservation Reserve Program (CRP) in 1985, each succeeding Farm Bill has expanded the number of conservation programs and approaches, always through voluntary, incentive-based programs. The 1990 Farm Bill added the Wetlands Reserve Program (WRP) and the Forest Legacy Program. The 1996 Farm Bill introduced the Environmental Quality Incentives Program, the Wildlife Habitat Incentives Program and the Farm and Ranch Lands Protection Program.

The current Farm Bill, called the Farm Security and Rural Investment Act of 2002, increased authorized funding for conservation programs by 80 percent and enacted the Conservation Security Program, the Grassland Reserve Program, and the Forest Land Enhancement Program. Annual appropriations for Farm Bill conservation programs have increased each year since 2002, exceeding $4 billion in fiscal year 2006. Many of the Farm Bill's conservation programs will expire in September 2007.

Reauthorization of the Farm Bill will include debate on how to safeguard and continue achieving the many environmental, social and economic benefits accruing from the investment in conservation on private lands. Budget

Learning Your Way Around the Farm Bill

The Farm Security and Rural Investment Act was originally passed in 1985. It was reauthorized in 2002 and will again be considered for reauthorization in 2007. The Farm Bill includes many conservation provisions and programs to help farmers and ranchers meet environmental challenges on their land and enhance the conservation of the nation's natural resources. The Department of Agriculture administers the various programs of the Farm Bill. The Farm Bill 2007 Conservation And Environment Theme Papers are available at http://www.usda.gov/documents/FarmBill07consenv.pdf

Conservation Reserve Program (CRP)

Private landowners receive annual rental payments and cost-share assistance to plant long-term, resource-conserving covers on eligible farmland to improve the quality of water, control soil erosion, and enhance wildlife habitat and enhance forest and wetland resources. CRP covers are a major contributor to increased wildlife populations in many parts of the country. CRP contracts last 10 to 15 years.

Conservation Security Program (CSP)

CSP is considered a stewardship program that provides benefits to landowners who are already promoting conservation on their lands. The CSP provides technical and financial assistance to tribal or individual owners of working land, which includes cropland, grassland, prairie land, improved pasture, and rangeland, as well as forested land that is an incidental part of an agriculture operation.

Environmental Quality Incentives Program (EQIP)

This voluntary conservation program provides financial and technical help

constraints, program performance, international trade negotiations, energy production, program consolidation, and an increasing emphasis on conservation efforts on farmlands in agricultural production are among the issues affecting reauthorization.

Quantifying the Benefits

An effort is underway to quantify the fish and wildlife benefits of the Farm Bill's conservation programs as part of the U.S. Department of Agriculture's Conservation Effects Assessment Project (see page 16). The Service is actively participating in CEAP, including for example, a paper by Ron Reynolds entitled, "The Conservation Reserve Program and Duck Production in the U.S. Prairie Pothole Region," which estimated that from 1998 to 2003, an additional 13.3 million puddle ducks have been produced as a result of the CRP. All Service programs are encouraged to contribute studies or data of the Farm Bill's benefit to wildlife and habitat.

Beyond such studies, the ability to monitor and evaluate program results will be an important part of the next Farm Bill and future conservation program administration. In addition to quantifying the benefits of these conservation programs, several other competing factors may influence the Farm Bill debate.

Conservation programs that do not impact international trade may well be considered a more dependable means of providing financial assistance to agricultural producers. At the same time, the degree to which agricultural lands dedicated to conservation purposes impact the production of bio-fuels such as ethanol will also be a topic of discussion. Finally, Congress is expected to debate the level of funding for programs that take land out of agricultural production.

Voices have been raised in support of greater funding for programs that address conservation needs on lands in production. Congress has also asked whether it would be cost efficient to consolidate conservation programs.

continued pg 16

Landowners receive financial incentives to restore, enhance and protect wetlands. (Gary Kramer/NRCS)

to farmers and ranchers who install or implement structural and management practices on eligible agricultural land according to specific national priorities. Those priorities include reducing nonpoint source pollution; conserving ground water; reducing chemical emissions; reducing soil erosion; and promoting habitat conservation for at-risk species.

Farm and Ranch Lands Protection Program

This program helps farmers and ranchers who want to keep their land in agricultural production. The program provides matching funds to state, tribal and local governments or non-government organizations to purchase conservation easements.

Grassland Reserve Program (GRP)

GRP helps landowners restore and protect grassland, including rangeland, pastureland and shrubland. The program emphasizes support for working grazing operations and protection of grassland that would otherwise be farmed or zoned for urban development.

Wetlands Reserve Program (WRP)

WRP assists landowners willing to address wetland, habitat, soil, water and other natural resource issues on their land in an environmentally beneficial way. Landowners receive financial incentives to restore, protect and enhance wetlands in exchange for retiring the land from agriculture. Landowners may also receive incentives to develop wildlife recreational opportunities on their land, such as hunting. Participants voluntarily limit future use of their land but retain private ownership.

Wildlife Habitat Incentives Program (WHIP)

WHIP provides technical and financial assistance to private landowners who are willing to create high quality wildlife habitats on their land. WHIP enrollees receive assistance to develop upland, wetland, riparian and aquatic habitat areas on their property. Refuge staff may work with NRCS to develop a wildlife habitat development plan that becomes part of the agreement with the landowner.

Farm Service Agency (FSA)

The Farm Service Agency implements agricultural policy, administers credit and loan programs, and manages conservation programs like the CRP through a national network of offices.

Natural Resources Conservation Service (NRCS)

The NRCS administers the USDA conservation programs authorized by the Farm Bill, as part of a partnership effort to help people conserve, maintain and improve natural resources and the environment. All NCRS conservation programs are described in detail at www.nrcs.usda.gov. ◆

USDA has implemented several initiatives that target Farm Bill program resources for fish and wildlife. Specific initiatives to conserve habitat for the greater sage grouse are funded through both the Environmental Quality Incentives Program and the Grassland Reserve Program. (Gary Kramer/USFWS)

Making the Most of Farm Bill Conservation Programs

By Dave Walker

The demand to participate in Farm Bill conservation programs consistently exceeds available funding. In fiscal year 2005, nearly 50,000 applications failed to be funded, representing $2.4 billion in unmet demand from farmers, ranchers and others willing to implement conservation practices.

The tremendous popularity of the Farm Bill's conservation programs, combined with the need to address program purposes efficiently and effectively, has led the Department of Agriculture to develop a variety of ranking systems to target conservation priorities at the national, state and local levels.

The Conservation Reserve Program, for example, uses an Environmental Benefits Index. The Environmental Quality Incentives Program (EQIP) adapts national priorities to address state and local resource concerns.

USDA has implemented several initiatives that target Farm Bill program resources specifically for fish and wildlife. EQIP supports sage grouse, pallid sturgeon, fluvial arctic grayling, and prairie chickens; Wildlife Habitat Incentives Program funds salmon habitat restoration; the Grassland Reserve Program conserves habitat for the sage grouse.

Both the U.S. Fish and Wildlife Service and state fish and wildlife agencies have important roles to play in helping to identify priorities. Fortunately, that task

Seeing the Big Picture: Improving Wildlife Habitat Across the Landscape

A pair of ruddy ducks may need only one prairie pothole and a bit of nesting cover to make a nest and raise their young, but what about hundreds of ruddy ducks and thousands of mallards and gadwall and blue-winged teal: how many acres of wetland and nesting cover do they need and where should the acreage be? Those are the kinds of questions landscape planners address.

The answers often involve such major Farm Bill programs as the Wetland Reserve Program and the Conservation Reserve Program.

Landscape-level planning "connects the dots" when refuges are developing management approaches or outlining their long-term goals. Within a particular geographical area, planners must identify the important resources, what it will take to protect those resources, and what partnerships can be created to get the work done.

The Habitat and Population Evaluation Team (HAPET), with offices in Fergus Falls, Minnesota, and Bismarck, North Dakota, has developed prescriptions for improving waterfowl habitat across Minnesota, the Dakotas, and Montana on public and private lands. Using aerial photography and satellite imagery, HAPET maps show areas on the landscape that have high waterfowl production potential and are a priority for habitat protection or restoration.

HAPET biologists conduct surveys and analyze data to determine how wildlife populations respond to various landscape characteristics and recommend areas where specific types of conservation treatments – such as restoration – should be applied. The biologists may determine that a particular area could produce even more ducks or other migratory birds if a certain amount of wetlands is available along with a corresponding amount of upland nesting cover. The Refuge System then uses such data to set priorities for land that should be restored, acquired or conserved through partnerships.

Some of the land is purchased as Waterfowl Production Areas with Duck Stamp funds but, HAPET biologist Ron Reynolds says, "We can't ever afford to buy enough land to conserve the wildlife populations adequately, so we work with private landowners and purchase easements to protect wetlands and other habitat from being lost. That way we can have a larger impact on wildlife."

Conservation Reserve Program

Enter the Farm Bill programs. The Conservation Reserve Program is one of

has been facilitated through a variety of conservation plans that identify expected benefits.

For example, conservation strategies have been designed to keep at-risk species off the endangered species list. The North American Waterfowl Management Plan identifies wetland conservation targets that are expected to increase waterfowl populations. Refuges' comprehensive conservation plans identify actions that are expected to contribute to refuge goals.

The priorities identified in fish and wildlife plans and initiatives can help refine USDA conservation priorities to increase both program efficiency and the environmental benefits per dollar spent.

The **National Fish Habitat Action Plan** focuses the collective resources of state and federal agencies, non-governmental organizations, academia and others to benefit populations of regionally- and nationally-significant aquatic species. The plan supports on-the-ground projects to address key habitat threats at the landscape-scale. Projects are developed by willing partners through Fish Habitat Partnerships and are based on the best available fisheries and habitat management expertise and data. The plan works at the federal, state, and local levels to target new and existing funding and technical resources for fish habitat projects with the goal of fisheries protection, restoration and enhancement in key watersheds.

The **U.S. North American Bird Conservation Initiative** is a coalition of government agencies, private organizations and bird initiatives working to advance bird conservation. NABCI fosters greater cooperation based on sound science and cost-effective management. NABCI plans to provide a scientific assessment of geographic and species priorities and identify the habitat conservation strategies necessary to achieve range-wide bird population goals. Farm Bill conservation programs have been shown to have great potential for benefiting a wide variety of game and non-game bird species.

Development of **Wildlife Action Plans** in each of the states and territories was a requirement of the State Wildlife Grants Program, which provides federal money to every state and territory for cost-effective conservation aimed at preventing wildlife from becoming endangered. The action plans, completed in fall 2005, assess the condition of each state's wildlife and habitats, identify problems, and outline actions needed for long-term conservation. This information, along with species and habitat conservation priorities found in other regional and national fish and wildlife management plans, will help focus USDA conservation efforts where they will provide the greatest benefit. ◆

Dave Walker is the Farm Conservation Programs Coordinator for the Service.

the oldest and largest of the conservation programs. Since it was created in 1985, the CRP has resulted in almost 5 million acres of cropland converted to undisturbed grass cover in the prairie pothole region of the Dakotas, Minnesota, Iowa and northeast Montana.

Through a complex dance of bureaucratic regulation and technical assistance, refuge staff help influence which lands are enrolled in the CRP program and what landowners do with that land so that it will have the greatest benefit for wildlife. If the boundary of a refuge is mostly wetlands, for example, it may be desirable to enroll contiguous land that can become upland nesting cover. Studies by Reynolds and others have concluded that wetlands that occur in grassland areas attract more pairs of breeding ducks than those that occur in cropland.

Private landowners who enroll their land in the CRP receive annual rental payments in return for planting certain ground cover, restoring wetlands or establishing buffers. There is a CRP ranking system to determine which lands will be enrolled.

Kevin Willis is a state coordinator for the U.S. Fish and Wildlife Service's private lands program in North Dakota. He meets regularly with the Farm Service Agency (FSA), which administers the Farm Bill's conservation programs, to offer advice on scoring properties higher if they benefit more ducks. Then, refuge staff might consult with individual landowners on ways they can score higher in the CRP ranking system by planting a certain wildlife-friendly mix of grasses on their land – even before it is enrolled in the program.

"We have a good, professional relationship with USDA," says Reynolds. "The Farm Bill programs are the biggest player in duck breeding success in the Dakotas." ◆

The U.S. Fish and Wildlife Service works with landowners to protect wetlands and other habitats. (Tim McCabe/NRCS)

Partners for Fish and Wildlife: Linking Refuges and Private Lands

The Partners for Fish and Wildlife Program, celebrating its 20th anniversary next year, is the primary connection linking refuges, private landowners and the conservation programs of the U.S. Department of Agriculture (USDA). The program provides technical assistance and cost-sharing opportunities for private landowners to participate in such programs as the Conservation Reserve Program, Wetlands Reserve Program and many others.

In some regions, Partners employees are members of the refuge staff. In others, the staff is with the divisions of Migratory Bird or Ecological Services. In any case, their mission is always the same: to efficiently achieve voluntary habitat restoration on private lands for the benefit of federal trust species. Local field biologists work one-on-one with private landowners to restore native vegetation, hydrology and soil, or restore a habitat for a rare, declining or protected species.

Technical assistance from a Partners Program employee could include habitat assessment, project design and coordination, identification of additional partnership or grant opportunities and assistance with obtaining permits or writing grants. Using funds from the U.S. Fish and Wildlife Service, the USDA conservation programs and other agencies or organizations, the Partners Program ranks potential projects according to how much they improve habitat for federal trust species, complement activities on nearby refuge land, address species or habitat priorities identified by the Service, reduce habitat fragmentation or increase buffers between private land and federal or state land.

If other considerations are generally equal among several projects in an area, then priority is given to projects that link private lands to such federal lands as national wildlife refuges. In fiscal year 2005, more than 1,000 habitat projects associated with Farm Bill programs took place adjacent to or near national wildlife refuges. These projects restored or enhanced 63,000 acres of wetland and uplands and 150 miles of riparian habitat.

Doubling the Habitat for Waterfowl at Tallahatchie National Wildlife Refuge

Restoration activities under the Wetlands Reserve Program (WRP) have nearly doubled the amount of habitat available for waterfowl and other migratory birds within the acquisition boundary of the Tallahatchie National Wildlife Refuge in Mississippi. Also, within six miles of the acquisition boundary; an additional 2,700 acres of restored WRP lands are available. (USFWS)

By Chuck Hayes

Mention "Tallahatchie" and to many folks it conjures up images of Billy Joe McAlister and the river into which he jumped. For others it means ducks and lots of them. The Tallahatchie National Wildlife Refuge in the North Mississippi Refuges Complex sits within the one of the most important regions for migratory waterfowl in North America, the Lower Mississippi Alluvial Valley or the "Delta."

Located in Tallahatchie County, in the northern portion of the Delta, Tallahatchie Refuge provides over 4,100 acres of critical wetland habitat in one of the most intensively farmed regions in the country. More than 17 million acres of forested wetlands were lost to agriculture, hydrologic modifications,

Making a Difference on the Ground

Not far from Cabo Rojo National Wildlife Refuge in Puerto Rico, 19 dry lowland acres are being reforested in a Partners project, part of a recovery plan for the yellow-shouldered blackbird. It identifies existing habitat on privately owned land that could then be protected. Native trees are being planted, including the endangered cobana negra evergreen. The property is on the boundary of critical habitat in the Commonwealth Boquerón Bird Refuge.

In 2002, a long-term agreement was signed with a private landowner who spent $2,800 to help restore a 200-acre tract of marginal agricultural land adjacent to Tensas River National Wildlife Refuge. The Partners Program spent $14,000 for the project, which provides increased forested habitat right next to the refuge. The property is within a migratory bird conservation area and will also benefit the endangered Louisiana black bear.

Some changes are afoot. A strategic plan is being developed for the Partners Program to improve efficiency and accountability and identify the best projects. Informational meetings are being held in all regions to gather the views of partners and stakeholders. So far, the Partners Program is being praised for its technical expertise and its responsiveness to the needs and interests of private property owners and local communities. ◆

The endangered Louisiana black bear was one of the beneficiaries of a Partners for Fish and Wildlife project adjacent to Tensas River National Wildlife Refuge in Louisiana. An agreement was signed with a private landowner to reforest a 200-acre tract of marginal agricultural land with bottomland hardwoods. (USFWS)

and other artificial human disturbances. For many years, trying to find a patch of timber to feed and rest among the cotton, rice, and soybean fields posed quite a problem for a duck.

In 1991, Tallahatchie Refuge was established as "an inviolate sanctuary for migratory birds." Since then, restoration activities under the Wetlands Reserve Program (WRP) have nearly doubled the amount of habitat available for waterfowl and other migratory birds within the acquisition boundary of the Tallahatchie Refuge. Also, within six miles of the acquisition boundary, an additional 2,700 acres of restored WRP lands are available. In fact, since the inception of WRP, Mississippi has been one of the most active states in the country in WRP sign-ups and restoration, with most of the activity in the Delta.

Why is WRP important to the Tallahatchie Refuge or other refuges? The beauty of WRP, according to Gil Ray, former WRP coordinator for Mississippi and currently state coordinator for the Mississippi Partners for Fish and Wildlife, is the "importance of locating WRP easements next to national wildlife refuges because similar goals and objectives exist between the two entities."

Gil continues, "Usually, the goal is to reestablish at least 30 percent of the easement to either managed or semi-permanent water. Most wildlife refuges in bottomland hardwood areas attempt to create the same type waterfowl habitat." Instead of only 14 percent of the available habitat restored within the acquisition boundary, 26 percent is restored with the inclusion of WRP lands. The North Mississippi Refuges Complex has been instrumental in providing on-the-ground assistance in restoring lands near the refuge through technical assistance, building levees, and installing water control structures.

The complex continues to work with the Department of Agriculture and WRP through the Partners for Fish and Wildlife Program throughout the northern Delta by providing technical assistance in ranking projects as well as management and restoration activities. It is not about who does the work or gets the credit, it's about restoring the habitat for the benefit of those species in need. The one-two punch provided by the Tallahatchie Refuge and the WRP lands is making a difference. ◆

Chuck Hayes is a private lands biologist at the North Mississippi Refuges Complex.

Farm Bill to be Topic of Congressional Debate in 2007 — *continued from pg 10*

Activity to Date

Last year, the USDA held numerous forums to gather comments on how the current Farm Bill is working and recommendations for changes. USDA is producing several papers that assess the viewpoints presented at the forums and discuss policy alternatives. Both the House of Representatives and the U.S. Senate held hearings in the field and in Washington, DC, to gather input and information in preparation for the Farm Bill's reauthorization. Farm Bill legislation may well be introduced in spring 2007.

Since the inception of the CRP in 1985, the Service has provided expertise in program development and implementation to those USDA agencies that administer conservation programs. The Service's involvement with USDA's Natural Resources Conservation Service and Farm Service Agency has varied widely over the past 20 years.

Today, Service Director Dale Hall has identified the Farm Bill and the 2007 reauthorization process as a priority. The Service is committed to working closely with USDA and other federal, state and private partners to realize the full potential of the 2007 Farm Bill to benefit fish and wildlife resources. ◆

Documenting Farm Bill Benefits: the Conservation Effects Assessment Project

The U.S. Department of Agriculture has established the Conservation Effects Assessment Project (CEAP) to quantify the environmental benefits of its agricultural conservation practices. Some of the wildlife-related CEAP information is being gathered on national wildlife refuges and adjacent lands enrolled in such Farm Bill conservation programs as the Conservation Reserve Program (CRP) and Wetlands Reserve Program (WRP).

The CEAP Wetlands Component is in the process of quantifying the effects of conservation practices on ecosystem services provided by wetlands on agricultural lands. Since the U.S. Fish and Wildlife Service is also interested in improving the effectiveness of its wetland management actions, Service biologists are providing technical input to CEAP wetlands regional assessments in the prairie pothole, Mississippi Alluvial Valley and High Plains regions.

The CEAP Wildlife Component focuses on approaches for estimating the effects of conservation practices on fish and wildlife associated with upland, wetland and aquatic habitats and agricultural landscapes. These effects include:

- Documented habitat use by target species or groups
- Changes in habitat quality for target species or groups
- Target species population response

Service biologist Ron Reynolds, for example, has published the results of a study that found CRP cover was preferred by nesting ducks over all other major upland cover types in the prairie pothole region of the Dakotas and northeastern Montana. Several surveys were also completed in the Rainwater Basin wetland complex of Nebraska to show the benefit of the WRP in conjunction with Waterfowl Production Areas.

Information is needed on wildlife use of habitats associated with Farm Bill programs (CRP, WRP, Wildlife Habitat Incentives Program, Environmental Quality Incentives Program, and others) during winter, migration and breeding seasons. CEAP is also interested in the effects of certain management practices such as haying CRP fields on reproductive success of nesting birds and other wildlife.

There are more than 160 conservation practices listed in the Natural Resources Conservation Service Field Office Technical Guide. While it is impractical to document the effects of all these practices across the spectrum of species, ecological communities and landscape settings in which they are applied, CEAP is taking the first steps to measure some of the more prominent effects that can be quantified. The findings of CEAP will be used in part to help land managers choose the most effective practices to meet their particular conservation goals.

For more information, contact the following people with the Natural Resources Conservation Service: Charlie Rewa (wildlife component), Charles.rewa@wdc.usda.gov, 301-504-2326, or Diane Eckles (wetlands component), Diane.eckles@wdc.usda.gov, 301-504-2312. ◆

New Policies Fulfill Refuge System Mission — *continued from pg 1*

Mission and Goals and Purposes

The first policy defines the official mission and goals and purposes of the National Wildlife Refuge System. It formally declares that the Refuge System is the nation's only network of lands created and managed solely for wildlife conservation. Together, all 545 national wildlife refuges function as a complex network of diverse and distinct habitats. This policy also spells out the goals of the Refuge System:

- Conserve a diversity of fish, wildlife, plants and their habitats, including species that are endangered or threatened;
- Provide and enhance opportunities to participate in wildlife-dependent recreation; and
- Help foster the public's understanding and appreciation of fish, wildlife, plants and their habitats.

Appropriate Refuge Uses

The policy on appropriate uses creates consistent guidelines for refuges to administer and structure activities. It outlines consistent procedures for refuge managers to follow in deciding what recreational uses are appropriate for a particular refuge. The policy also provides a framework to determine if activities that are not wildlife-dependent may be appropriate for a particular refuge.

The National Wildlife Refuge System Improvement Act of 1997 identifies six recreational activities that should be given priority over other general public uses on national wildlife refuges: hunting, fishing, wildlife observation, photography, environmental education and interpretation. The new policy calls for careful planning, uniform application of regulations and policies, and diligent monitoring of the impact of recreational activities on natural resources so that inappropriate activities can be prevented or eliminated. Refuge managers must also review all existing uses within one year and modify or phase out uses that are not appropriate.

During the comment period for the policies, questions were raised about boating on refuges. Watercraft are not specifically mentioned in the policy but individual refuges have some latitude in making decisions in this regard. For example, the use of canoes may be allowed on a refuge to facilitate fishing. On the other hand, conducting boat races on refuge water would most likely not be deemed either appropriate or compatible.

The policy states that individual refuge managers must determine the appropriateness of snowmobiling or other off-road vehicles on a case-by-case basis. Refuge managers are also required to consult with the refuge supervisor on all findings and coordinate with state fish and wildlife agencies if the activity could have an impact on any species of concern.

Wildlife-Dependent Recreation

Congress clearly understood that when people participate in wildlife-dependent recreation on national wildlife refuges, they gain a sense of ownership and appreciation for fish, wildlife and habitat.

The third new policy provides refuge managers with guidance on how to plan visitor services that will allow for enhanced opportunities for quality wildlife-dependent recreation. It encourages refuge managers to work with states and other partners to create and promote compatible wildlife-dependent recreational opportunities. It also provides tools and standards for managing programs.

Currently, about 270 refuges are open to fishing while more than 300 hunting programs are offered. Environmental education takes place on at least 315 units, while about 365 units offer interpretive programs. Visitors engage in birding, photography and other wildlife observation on more than 80 percent of the refuges in the National Wildlife Refuge System.

Many public comments were received on the proposed tournament fishing regulations. The policy encourages refuge managers to monitor the effects of a tournament on fish populations as well as on both participating and non-participating anglers. Whenever possible, refuge managers should try to regulate and monitor tournaments rather than denying tournament permits altogether.

Copies of all the policies are available at www.fws.gov/refuges. ◆

The three new policies announced by Secretary Dirk Kempthorne define the unique wildlife conservation mission of the National Wildlife Refuge System. The new policies were effective as of July 26. (USFWS)

Bombs to Bison

Ammunition was stored everywhere. Bombs were sunk in the backwater for safekeeping. Cannons and artillery were tested during World War I; later, land mines, grenades and mortars were included. When the first hand grenades didn't function, they were just buried. There were 400 buildings, more than 12 miles of rail lines and seven miles of utility lines.

This, a national wildlife refuge? Indeed, it is the Lost Mound Unit of the Upper Mississippi River National Wildlife and Fish Refuge, featuring a stunning variety of flora and fauna, especially considering its history. It has an equally stunning number of partners involved in restoring and conserving it.

Upper Mississippi River Refuge extends 261 miles along the Mississippi River from the Chippewa River in Wisconsin to Princeton, Illinois. The Lost Mound Unit includes 9,857 acres with 13 miles of river shoreline of the former Savanna Army Depot, added to the refuge in 2003.

In addition to the environmental contamination, Lost Mound also includes 4,000-plus acres of sand prairie, the largest native prairie left in the state of Illinois. The military actually preserved the prairie by bringing in cattle to graze on the land and reduce the fire hazard in areas where explosives would be tested.

Four native plant species have disappeared in all the rest of Illinois, but are still present on the former Army Depot site. "We have native prairie," says Ed Britton, project leader. "We don't have to rebuild. We just have to get rid of invasives and infrastructure."

Partnering Starts with Recycling

That process began by partnering with local recyclers at no cost to the refuge. A local short line rail company removed 144 tons of rail lines and used the materials to build a new rail storage yard. A retired utility worker was paid $1 to remove 200 utility poles, which he is selling for $2 a foot. The wires and hardware were recycled. He also removed eight tons of scrap steel. Another company has removed 419 tons of perforated steel planking.

Already designated an Important Bird Area by the National Audubon Society and the American Bird Conservancy, the Lost Mound Unit is home to 47 state-listed threatened or endangered species, including 21 birds, 14 plants, a mammal, two reptiles, three fish and six mussels.

The Lost Mound Unit of the Upper Mississippi River National Wildlife and Fish Refuge in Illinois includes hundreds of buildings, rail and utility lines and buried ammunition from the former Savanna Army Depot. A local short line rail company removed 144 tons of rail lines and used the materials to build a new rail storage yard. Another company has removed 419 tons of perforated steel planking. (USFWS)

Several research projects are already underway to collect information on these listed species.

The Illinois Natural History Survey is banding nesting pairs of grasshopper sparrows to document site fidelity; the Survey is also sampling two endangered fish. Researchers from Western Illinois University will be mapping the listed species; other universities are surveying turtles and mussels, studying the winter diet of long-eared owls, and investigating the ecology of fragile prickly pear cactus.

In all areas where infrastructure is being removed, native prairie species are being planted. The big challenge is managing the habitat to control invasive plants like spotted knapweed. Native seed is being harvested and planted elsewhere on the refuge. The first prescribed burn was conducted at Lost Mound in 2006 to encourage James' clammy weed, an endangered plant that grows only on this site, and to improve habitat for the threatened Henslow's sparrow. The amount of vegetation is being monitored this fall to measure the success of the first burn. The goal is to burn up to 1,000 acres per year, but the refuge can only burn areas that have already been cleaned by the Army.

Refuge Operations Specialist Alan Anderson says prairie plants began to reappear in the former grazing areas as soon as the cattle were removed. With the prairie plants came mice. With the mice came owls. And soon, adds Britton, "We want to bring back bison, which historically grazed on the property. Bison will attract visitors to the refuge, which will provide us the opportunity for public outreach and education about this unique environmental restoration effort."

In the meantime, hundreds of structures will eventually have to come down. "When someone says, 'hey, I could use that building,'" laughs Britton, "we say, OK – go get it." ◆

Taking Pride in Public Lands

Land Manager of the Year

Roy Lowe, project leader at Oregon Coastal National Wildlife Refuge Complex, has been named a Land Manager of the Year by the U.S. Department of Interior's Take Pride in America program. Lowe is credited for a proactive and visionary land protection program that has helped build the Oregon Coastal Refuge Complex from four to six refuges.

Lowe has worked with multiple non-governmental organizations to help acquire exceptional parcels of land with essential habitat for endangered species, migratory birds, anadromous fish and rare plants. Lowe was able to overcome the concerns of local interest groups, which were encouraged by his sincerity, vision and talented staff.

"One of the keys to building partnerships is to be honest, have patience, and be prepared to listen more than talk," said Lowe. "Don't expect results overnight. It may take years to mature a relationship."

Landowners adjacent to the Complex's refuges have bequeathed tracks of land, one of which was critical to a large tidal marsh restoration project. At Bandon Marsh Refuge, the collaboration of Lowe and his staff with the Coquille Tribe and university archaeologists resulted in preserving irreplaceable cultural resources. Coordination with the Siletz Tribe produced significant fisheries data collection and research at Bandon Marsh, Siletz Bay and Nestucca Bay Refuges.

"We have absolutely exceptional volunteers, Friends groups and partners," Lowe concluded. "They all make my job much easier and more productive."

Oregon Coast Refuge Complex Deputy Project Leader Rebecca Chuck, left, Project Leader Roy Lowe, center, and Cultural Resources Program Manager Don Ivy conducted cultural/geologic resource investigations on Island Rock with the Coquille Indian Tribe. Lowe was named Land Manager of the Year by the Department of the Interior's Take Pride in America program. (Dave Pitkin/USFWS)

Outstanding Federal Volunteer Program

The Southern Nevada Interagency Volunteer Program won its second Take Pride in America Award in as many years. The program includes Desert National Wildlife Refuge Complex, National Park Service, Bureau of Land Management and Forest Service.

The program provides a single point of contact to recruit from among the names in the database. During the past year, the program published a training manual and is completing a guide that will advise managers on recruiting volunteers, safety and agency policies. Refuge staff contributed to training classes for 180 volunteers, covering everything from botany, hydrology and Native American culture to invasive weeds and GPS.

In the Desert Refuge Complex, volunteers cleared invasive cattails to restore habitat for the endangered Ash Meadows Amargosa pupfish and cleaned up the boundary between Desert Refuge and the cities of Las Vegas and North Las Vegas. Desert Refuge Complex Volunteer Coordinator Callie Le'au Courtright says so much waste was removed from the refuges that if each cubic yard were piled on top of one another, the pile would be as tall as an 18-story building.

"Volunteers are vital to what we do," says Courtright. "The program is engendering comradery among the volunteers, resulting in greater awareness of the natural, cultural and historical resources of southern Nevada.

Outstanding Individual Volunteer

Lauren Gibler is being honored as an outstanding individual volunteer for her service to Deer Flat National Wildlife Refuge in Idaho. She has contributed 3,160 volunteer hours to the refuge since she arrived as an AmeriCorps volunteer in 2004, creating an Educators Guide to environmental resources on the refuge, assisting with the development of a week-long Desert Detectives Critter Camp, and initiating an electronic newsletter and a family program called Action Saturdays.

Her on- and off-site environmental education programs have reached more than 6,500 students since she began volunteering. Gibler was actively involved with the establishment of Deer Flat Refuge's Friends group and the coordination of Idaho's first BioBlitz on the refuge in June 2006. Susan Kain, the outdoor recreation planner at Deer Flat Refuge, says Gibler's "passion for and enthusiasm about the refuge and other natural resources are infectious" and her contacts with thousands of children and adults "are likely to encourage better stewardship of natural resources." ◆

Build a Wren House – Count a Butterfly: It's National Wildlife Refuge Week

Fall festivals are a perfect time to see birds and other wildlife on the country's 545 national wildlife refuges. Scores of refuges plan special activities during National Wildlife Refuge Week, this year being celebrated October 8-14.

At Lake Ilo National Wildlife Refuge in North Dakota, children will have a chance to build nesting boxes for house wrens. Youngsters will learn about the type of habitat that is best for such a nesting box and how both the habitat and the nesting box can be maintained from one season to the next.

At Reelfoot National Wildlife Refuge in Tennessee, families will learn how to provide the four key elements required by wildlife (water, space, food, shelter) to create a backyard habitat. The refuge will provide free materials and a guided tour of its Backyard Habitat Showcase, which demonstrates ideas that can be incorporated into private backyards. Those include a sunny upland garden, pond with aquatic plants, a brush pile that serves as a natural home for many species, and even a native plant plot that provides the perfect home for quail and rabbits.

Boy Scouts will be able to fulfill some of the requirements for an Insect Merit Badge during guided weekend walks at Balcones Canyonlands National Wildlife Refuge in Texas. Visitors will learn about nature photography, native prairie grasses and useful native plants as well as birds, butterflies, dragonflies, damselflies and other creatures.

Trinity River National Wildlife Refuge, also in Texas, schedules its butterfly count during National Refuge Week. This year's 8th Annual Count is hosted jointly by the refuge and the Butterfly Enthusiasts of Southeast Texas, the local chapter of the North American Butterfly Association (BEST-NABA). The counters document what they see and report their findings to NABA, which prepares an annual report. Refuge Manager Stuart Marcus says, "Some years the Trinity Refuge counters see 40 species totaling 500 butterflies while other years, we may only see 30 species but count 2,000 butterflies. Weather and time of year can be critical."

"It is not really scientific," admits Marcus. "Some of the fun can come from social experiences or just seeing a new area." NABA President David Henderson hastens to add, however, that the sheer amount of data provides valuable information over time. Henderson says the national NABA report on butterflies is quite thorough and provides a wonderful snapshot of insect species ranges and population dynamics. ◆

Trinity River National Wildlife Refuge in Texas scheduled an annual butterfly count during National Refuge Week. Swallowtails are often included in the count, which is sent to the North American Butterfly Association. The refuge count contributes to a national snapshot of insect species ranges and population dynamics. (Ron Singer/USFWS)

Where Has All the Cordgrass Gone…and Why is it Going?

"We don't know what's causing it and we don't know what to do about it," says Susan Adamowicz, salt marsh researcher at Rachel Carson National Wildlife Refuge in Maine. But it already has its own Web site, media attention, an interested independent filmmaker and of course, an acronym: SWD or SSMD.

Sudden wetland dieback (SWD) or sudden salt marsh dieback (SSMD) is the rapid loss of vegetation in salt marshes that cannot yet be attributed to any known cause. It is occurring primarily in New England coastal areas, including Rachel Carson Refuge.

The dieback creates dark bands of exposed peat as plants in a narrow swath nearest the water turn brown, wilt and finally wash away. A *New York Times* report described it as "male pattern baldness in reverse." The dieback may begin during a period of drought, but it does not follow known drought patterns.

It affects primarily one species – smooth cordgrass (*Spartina alterniflora)* – and it has been observed in areas like creek channels that are covered with salt water twice a day. The problem is similar to a dieback called brown marsh along coasts in Louisiana and Georgia, but there are differences. The snails that exacerbated the problem in the south are not present in such extreme densities in northern salt marshes.

In 2005, the Service's Land Management Research and Demonstration (LMRD) program invited 30 scientists and resource managers to the first dieback workshop at Parker River National Wildlife Refuge in Massachusetts. A second workshop was held in the spring on Cape Cod.

Information was gathered and discussed during the workshops, small summer experiments are being conducted and a Web site has been created where resource managers are encouraged to learn as much as possible and report specific information about any dieback phenomena they observe (http://wetland.neers.org/about.html). Adamowicz is also recommending that people disinfect boots and equipment whenever they move from one salt marsh area to another so they don't inadvertently carry a potential pathogen with them.

Looking for Signs

Although Adamowicz and others are seeking larger grants for more advanced research, kayakers and birders have been volunteering to look for signs of dieback on marshes they normally visit. The focus of current surveying is Parker River National Wildlife Refuge in Massachusetts. Potential causes that need to be investigated include fungus, increased acidity, metals in the soil, and herbivores.

Several small experiments are underway in Maine and at Cape Cod National Seashore. So far, initial results indicate that once the dieback passes through an area, healthy plants will grow without any problem. Initial results also show that sick plants can be removed from a dieback area and placed in healthy soil where they will survive.

The chances of recovery in dieback areas vary. In some areas, such as Rachel Carson Refuge, areas of sudden dieback have not recovered even though there has been no significant erosion. In other areas, says Adamowicz, "whatever this agent is seems to resolve itself over a certain period of time, but we are concerned about the threat of wave erosion when there is no vegetation."

Once living vegetation is gone, tides remove plant litter and begin to erode the marsh peat itself. If enough elevation is lost, new plants are unable to grow because the area remains under water too long. This results in the conversion of salt marsh to mud flat.

"Such a conversion is not healthy. It suggests something pathological in the ecosystem," says Adamowicz, and that's what she and other scientists are trying to identify. ◆

Sudden wetland dieback or sudden salt marsh dieback is the rapid loss of vegetation in salt marshes that cannot be attributed yet to any known cause. It is occurring primarily in New England coastal areas, such as Cape Cod and Drakes Island in Maine, where plants die and leave patches of dark peat. (Susan C. Adamowicz/USFWS)

Smile! You're on the Salmon Camera!

Imagine turning on your local cable television channel to watch…fish. Many people in Dillingham, Alaska, have been doing just that.

The Dillingham Fish Monitoring Partnership has been using underwater video technology as part of a continuing effort to improve the aquatic habitat and monitor the restoration of a watershed damaged by human activity. Although the videotaping is only in its second season, the habitat restoration project has a long history.

The partnership includes Togiak National Wildlife Refuge, the King Salmon Fish and Wildlife Field Office, and the U.S. Fish and Wildlife Service Office of Subsistence Management as well as the Bristol Bay Economic Development Corporation, the Alaska Department of Fish & Game, the Dillingham Chamber of Commerce, Nushagak Cooperative (the local utility company) and the Bristol Bay Native Association (BBNA).

In the 1990s, Togiak Refuge and state biologists established an integrated fisheries curriculum in the Dillingham School District. Students gathering data in Squaw Creek helped biologists determine that culverts under several roads in town had become barriers to juvenile and adult salmon.

The culverts had been added when new roads were built across the creek, but they had changed the stream's hydrology and become clogged by eroded soil. The number of fish spawning in the creek was dramatically reduced. Adult salmon could not swim up the creek; juveniles could not swim downstream.

Between 1999 and 2001, the Service helped the city of Dillingham and the state of Alaska replace three of the deteriorating culverts, restoring 15 miles of fish habitat in the local area. Fisheries Biologist Mark Lisac at Togiak Refuge says that within two years, the fish began to recolonize the area. Substantial numbers of sockeye, chum, pink and coho salmon were seen spawning in the creek in 2004.

Lights! Camera! Salmon!

Lisac wanted to build on the local excitement generated by the return of the salmon. So, in the summer of 2005, a lighted video camera was installed in a protective box in the creek. A Challenge Cost Share grant, local funds and in-kind contributions from members of the partnership paid for the camera and a digital recorder. The recorder has the same kind of motion sensor used in security cameras, so when a small weir funnels the fish past the camera, the recorder begins filming.

During the first season, the video monitoring system verified the return of more than 660 pink, chum, sockeye and coho salmon. All but the coho were new species added to the Alaska Anadromous Waters Catalog for the creek. The camera also picked up Dolly Varden char, sticklebacks, starry flounder, rainbow smelt, sculpin, beaver, otter and a muskrat.

The local cable channel runs a live feed and also a 13-minute loop of highlights from the creek. But Lisac wanted more.

With the help of local high school student Jim Walsh, a short documentary of the project was created, including "before" and "after" slides, pictures of the culvert restoration and of course, the fish – some of which are seen as a meal in the mouths of the otters. The documentary is playing on the local cable channel and being distributed to schools and community groups.

The refuge and the Bristol Bay Native Association now jointly manage the fish monitoring and recording project. Developing an assessment plan to determine the true extent of the habitat restoration is the next focus.

In addition to restoring valuable habitat for salmon, the public relations value of the project has been immense, according to Lisac. The little stream runs throughout the "suburbs" of Dillingham, but no one had appreciated its value as wildlife habitat except a few older residents who remembered fishing the creek as children.

"Now," says Lisac, "people are realizing that Squaw Creek is a valuable salmon stream, not a place to throw your old car tires." ◆

To Burn or Not to Burn: Still a Question

Research on mixed pine forests at Seney National Wildlife Refuge may well alter the way prescribed fires are used on the refuge to bring back natural red and white pine forests to of Michigan's Upper Peninsula. Over some years, prescribed fire on the refuge succeeded in decreasing the number of jack pines, but did not enhance the emergence of the red and white pines. Why?

That question led Seney's Forester Greg Corace to theorize that fire may be consuming just what red and white pines need in the soil to thrive. Now, working with Ohio State University scientists Charles Goebel and David Hix, Corace is in the midst of a multiyear research project that has brought a post-doctoral scientist to study forests unlike any he had seen in his native Russia.

The research, expected to be complete in winter 2008, will have direct management applicability. Joint Fire Sciences, a consortium of federal agencies interested in fire research, provided $300,000 for the research.

Over the past several decades, extensive logging, catastrophic wildfires and fire suppression changed the refuge's forest composition. Today, forests of large-diameter red and white pine are not as prevalent as they once were, although they are essential for some species that are in decline, such as the red crossbill.

Re-establishing the natural red and white pine forests will help fulfill the U.S. Fish and Wildlife Service policy of restoring "lost or severely degraded elements of integrity, diversity and environmental health at the refuge scale." Seney Refuge was established in 1935 to protect migratory birds and other wildlife. Of the 230 bird species at Seney Refuge, approximately half breed, stopover or winter in forest habitat.

When Fire Isn't the Answer

It would seem simple just to remove the existing jack pines and allow natural re-seeding of red and white pine. Yet, when Seney used prescribed fires in the past to eliminate the jack pines, the red and white pines did not appear to benefit. They did when other timber management techniques – cutting the jack pines and scarifying the duff layer – were employed.

"We are finding some areas where fires, especially very hot slash fires, burned off the organic layer of soil," explains Corace. "Seedlings have failed in part because the soil can't hold water." Yet, prescribed fire appeared to work as a maintenance technique once the red and white pines emerged and have grown to a size sufficient to deal with fire. The research will test this and many more hypotheses.

Fieldwork will primarily be the responsibility of Igor Drobyshev, a post-doctoral fellow at Ohio State University.

Drobyshev has been working with two students in master's programs and two interns paid by the Seney Natural History Association, Seney's Friends organization, who are collecting data before the Upper Peninsula's snow season hits. The data include tree age and an examination of growth patterns, as well as detailed inventories of samples of soil, woody debris and vegetation.

The data will be evaluated before more collection begins again next spring. In total, 80 sites on Seney Refuge will be combed for information.

For now, some fascinating questions are being examined right in the field. Over the summer, for example, scientists began burning through some pine stands to measure the intensity of fire and its effect on different tree species by size.

Drobyshev has been fascinated by both the forests themselves as well as the American management of forested land. He has been especially interested in the layers of land ownership, the concept of federally protected wilderness, and limitations on what can be done on such land.

Eventually, the collected data – including information assembled from inventories on lands owned by The Nature Conservancy – will be fed into a decision-aiding model for fire risk management. That model is being developed by Joe Arvai of Michigan State University, and is expected to be ready by winter 2008.

"The research is trying to identify what is good forest management. In some ways, it is trying to prove – or disprove – what my eyes tell me," said Corace. ◆

Extensive logging, catastrophic wildfires and fire suppression have changed the forest composition over the years at Seney National Wildlife Refuge in the Upper Peninsula of Michigan. Research is underway to restore red and white pine habitat on the refuge. (Greg Corace/USFWS)

Around the Refuge System

Participants at the 2006 Pacific Region Fire Fighter Operations and Safety Workshop get a historical perspective on the 1939 Rock Creek Fire, which killed five Civilian Conservation Corps enrollees. (Brian Gales/ USFWS)

Pacific Region

Taking a lesson from the military training model, the wildland fire community in recent years has begun to take staff rides that recall historic fires as part of their training in safe and effective operations. So, during the 2006 Pacific Region Fire Fighter Operations and Safety Workshop in Lakeview, Oregon, Winnemucca District BLM fire management staff led a tour of the 1939 Rock Creek Fire near Orovada, Nevada. The site is not far from Sheldon National Wildlife Refuge, where five enrollees from a nearby Civilian Conservation Corps camp died more than 60 years ago. The workshop not only taught effective and efficient operations, but also focused on radio communications, personal protective equipment and medical standards. The group also undertook sand table exercises, a tactical decision game, which employs a three-dimensional terrain model to enable participants to see how individual pieces of a problem fit into the whole.

Georgia

More than 200 nest sites for loggerhead sea turtles were counted this summer on Blackbeard Island National Wildlife Refuge in Georgia, a 22 percent increase in nesting activity over the past 30 years. This year, fire crews and biologists worked hand in hand to protect the nests. Service Biological Technician Jake Tuttle monitors sea turtle nests but he is also a wildland firefighter who has been battling fire on at least 117 acres of a wilderness area on the refuge. Lightning started the fire and winds moved some of the flames not far from one cluster of nests. Incident Commander Terri Jenkins says specific firefighting methods plus some natural barriers kept the fire from getting any closer, so the "nest sites were protected by a combination of Mother Nature and old fashioned sweat equity." The Service has been monitoring loggerhead nests at Blackbeard Island Refuge for 10 years. "Fire is just as much a natural process as the nesting activity of the loggerhead," says Refuge Biologist Deb Barnard. "Both have positive effects. Our job is to make sure that one doesn't negatively impact the other."

California

It's been a long time coming, but with the help of several key partners and a $3,180,000 grant from the California Bay-Delta Authority to The Nature Conservancy, Sacramento River National Wildlife Refuge is taking a big step this year toward restoring 836 acres of riparian habitat. The land was a high priority acquisition in 1998. The Nature Conservancy submitted an initial proposal in 2001 and the money was awarded late last year.

Over the summer, the orchards were removed, with the trees ground up and burned for electricity in the local co-generation plants, thus providing an alternative fuel source and reducing materials that have to go into the local landfills. "Nothing is wasted," said Assistant Refuge Manager Kelly Moroney. The last row crops were harvested and a temporary irrigation system is being installed. Native trees, shrubs and other plants will be planted in the spring. Local farmers and farm workers have been contracted to do much of the actual restoration work, says Moroney, to keep money in the community. The current project is slated for completion in 2009, adding to the 4,000 acres that Sacramento River Refuge previously restored.

New colonies of endangered elderberry beetles have been found on the existing restoration sites. Moroney says the beetle is a good indicator of ecosystem health and he hopes the work on Sacramento River Refuge will lead to delisting the beetle.

For Your Viewing Pleasure

The newest addition to the National Wildlife Refuge System DVD collection is now available. Volume 3 has a watery theme and opens at ***Parker River Refuge,*** which occupies most of Plum Island, an eight-mile-long barrier island near Newburyport, Massachusetts. Further north in Vermont is ***Missisquoi Refuge,*** a haven for herons on the shores of Lake Champlain near the Canadian border. Missisquoi Refuge is one link in a chain of refuges for migratory birds that extends along the Atlantic Flyway between northern breeding grounds and southern wintering areas. Shorebirds are the stars at ***Chincoteague Refuge*** in Virginia, which offers more than more than 14,000 acres of beach, dunes, marsh and maritime forest. Across the country at ***Cabeza Prieta Refuge*** in Arizona, tenacious desert mammals and plants struggle to survive in the parched landscape along the Mexican border. Then it's north to Alaska to see colonial nesting birds in the north Pacific. The DVD ends with a six-minute overview of the entire Refuge System produced for the 2003 centennial. All the DVDs in the series may be purchased online at http://www.fws.gov; click on the image of the DVD.

Iowa

More than 500 people came out for the third all night-fishing event at DeSoto National Wildlife Refuge, mostly to snare catfish from DeSoto Lake. Day fishing on the lake is normally pretty slow, says Assistant Refuge Manager Steve Van Riper, and the regular closing time at the refuge is 30 minutes after sunset. The biggest crowds had their lanterns and tiki lights twinkling from boats or the shoreline between 9 p.m. and 1 a.m. Many visitors also camped out at adjoining Wilson Island State Park. To fight a growing litter problem, publicity urged anglers to bring a garbage bag and take out litter from the area they were fishing. Van Riper sent publicity to some 200 media outlets, many of which sent reporters for a pre-event boat ride around the lake.

Texas/Kansas

Lower Rio Grande Valley National Wildlife Refuge in Texas has partnered with the private, nonprofit American Forests since the late 1990s as the national conservation group seeks great tree-planting projects for its Global ReLeaf Program. This year, 60,000 trees of 13 different species are being planted on 500 acres of refuge land with Global ReLeaf contributions. The planting will increase habitat for ocelot, jaguarundi, aplomado falcon, red-headed parrot and indigo snake.

Flint Hills National Wildlife Refuge in Kansas is a brand new partner in the Global ReLeaf program. There, 36,000 bur oak and pecan seedlings will be planted to restore lands along the Neosho River. The Global ReLeaf money is being used to match an additional grant from the National Wild Turkey Federation, which will pay for planting more than 2,000 larger trees.

Since 1990, 24 million trees have been planted through American Forests, thanks to contributions from individuals and corporate sponsors. American Forests is eager to increase partnerships with refuges where trees can be part of endangered species, wildfire or riparian restoration. Applications for 2007 grants are due January 15. Information is available at http://www.americanforests.org/global%5Freleaf/grants/ ◆

Volunteers plant trees at Lower Rio Grande Valley National Wildlife Refuge in Texas during two weekends in the fall. The refuge received grants from the American Forests' Global ReLeaf program to plant 30,000 trees a year since the late 1990s. This year, 60,000 trees will be planted. (American Forests)

Less Than "Purr-Fect" in the Wild

Cats are second only to loss of habitat in causing the decline of bird populations worldwide, according to a new report from the American Bird Conservancy.

The report cites several national wildlife refuges in New Jersey, California and Hawaii where birds are especially threatened by feral cats.

Birds like the piping plover, California clapper rail, Florida scrub-jay and Hawaiian petrel evolved in the absence of cats and did not develop effective defenses against these predators. Indeed, Cape May National Wildlife Refuge and Cape May Migratory Bird Refuge in New Jersey have a high population of both abandoned and feral cats that prey on plovers.

Cats are now so common in the United States that it is easy to forget they are actually an invasive species. They descended from European and African wild cats and were domesticated in Egypt 4,000 years ago. But the wild – or feral – variety is having a real impact on national wildlife refuges.

In Hawaii, Refuge Manager Michael Hawkes at Kauai National Wildlife Refuge Complex says feral cats are a big problem. They prey on shearwater chicks and several endangered species of waterbirds that the complex's three refuges were established to protect. A woven wire fence has been erected around the entire border of the Kilauea Point National Wildlife Refuge to help keep cats out. Cats are also trapped and euthanized; the complex plans to hire someone to help with trapping on all three refuges.

Cat advocacy groups prefer Trap/Neuter/Release (TNR) programs to manage stray and feral cats. In some cases, volunteers manage groups of stray cats and provide a reliable food source, but the American Bird Conservancy points out that cats prey on birds whether or not they are hungry.

Endangered species such as the clappper rail are threatened by feral and free-ranging cats. A new report from the American Bird Conservancy calls for more state and federal resources to control these predators and achieve the goals of the Endangered Species Recovery Plans. (USFWS)

What's Happening in California

Several refuges in California have major problems with feral cats, including San Francisco Bay Refuge Complex and Tijuana Slough National Wildlife Refuge.

Joelle Buffa, supervisory wildlife biologist for San Francisco Bay Wildlife Refuge Complex, notes the refuge has had an active predator management program since 1990. Wildlife specialists from the U.S. Department of Agriculture trap and euthanize both cats and red foxes. Three full time trappers divide their time according to the nesting and breeding habits of the most vulnerable birds and other wildlife.

In the spring and early summer, trappers help protect snowy plovers nesting at Salinas River National Wildlife Refuge. Trappers work year-round to protect native wildlife at the Don Edwards San Francisco Bay Refuge, including areas where ground-nesting clapper rails and snowy plovers breed.

What Can Help

Buffa notes that people are not reluctant to abandon their cats – perhaps especially near a refuge which they think is a safe haven. San Francisco Bay Refuge Complex has a cooperative agreement with the American Birding Conservancy to trap cats on nearby landfills.

Periodically, public information campaigns by local bird conservation organizations urge people to keep their cats indoors and to notify residents when stray or feral cats will be trapped.

Buffa believes that a Friends group or other outside organization can be more effective than refuge staff when dealing with the public about cats. The group Wildlife Stewards, for example, has a booth at the annual bird festival to explain the dangers cats can pose for wildlife.

Does anything make a difference? Buffa has seen some success. One marsh had more than 100 clapper rails in the late 1980s, and the numbers declined without explanation ten years later. "We started surveying the marsh at night and found foxes, raccoons and cats, sending the number of clapper rails down to eight." After predator management was initiated, the number of clapper rails in that single marsh grew to nearly 100.

The American Bird Conservancy believes state and federal resources for controlling feral cats must be significantly increased. The Cats Indoors Section of the conservancy's Web site (http://www.abcbirds.org/cats/) includes fact sheets, posters, a teacher's guide and other tools for public education. ◆

New Centers for Visitors Open the World of Nature

From the Ohio River to the Mississippi and on to Guam, national wildlife refuges are celebrating the opening of new administration and visitor facilities this fall. A $1.9 million administration and visitor facility at Ohio River Islands National Wildlife Refuge is scheduled for completion in November. This project in West Virginia will include administrative offices, interpretive displays and an aquarium.

Refuge Manager Dean Rhine says a mainland trail will be developed along the river and a new overlook is being considered. The Ohio River is a flyway for more than 200 species of birds but it is also home to two endangered mussels – the pink mucket and the fanshell.

A new administrative office already opened this year at Middle Mississippi River National Wildlife Refuge in Illinois, compliments of the American Land Conservancy. The building has vaulted ceilings and a large foyer that Refuge Manager Robert Cail says "beckons for interpretive displays."

Middle Mississippi Refuge was created in 2000 when the Mark Twain National Wildlife Refuge Complex was reorganized into four separate refuges that are more easily recognizable to the general public. The refuge stretches 195 miles from St. Louis, Missouri, to Cairo, Illinois. A recently completed Comprehensive Conservation Plan has authorized the refuge to acquire up to 14,000 acres. About a third of that has been acquired.

Cail says his major job right now is working with partners and willing landowners to acquire and/or restore vital floodplain habitat. Prior to acquisition, several tracts of private-owned land had been enrolled in the Wetland Reserve Program.

He is working with the U.S. Army Corps of Engineers to restore connectivity between the big river and its floodplain as well as create aquatic habitat for wading birds, migratory songbirds and waterfowl.

Cail wants to expand public use of the refuge and promote a "brand-name" awareness of the Service in the local community. He enjoys meeting local people "who are excited we're here," says Cail.

Fifteen state and federal agencies and nonprofit groups have created the Middle Mississippi River Partnership to develop a network of diverse and sustainable natural resources that support wildlife habitat on public and private lands. The partnership goal is to restore and enhance the natural resources of one of the country's greatest rivers.

An Island First

On the coconut palm beaches of Guam National Wildlife Refuge, a nature center is opening – the island's first. The next closest nature center is more than a thousand miles away, according to Matt Brown, deputy project leader at Guam Refuge. The nature center is in an old naval facility but it will be filled with brand new exhibits.

"We want to give people a sense of what Guam's ecosystem was like 500 years ago," says a very enthusiastic Brown, "the day before Magellan arrived on the island." Guam is now a highly developed and commercialized island. "It is hard to find traces of the distant past," observes Brown.

When the nature center opens this fall, families and children will be greeted first by bird calls, a new sound for many. "We have silent forests," says Brown, insisting he is not exaggerating. Brown tree snakes were accidentally introduced to the island after World War II and they have decimated the bird population.

Brown expects the new nature center to be an outreach tool for people who flock to the pristine beaches on the refuge. Aimed primarily at the local population, the exhibits will all be in English and Chamorro, and Brown says they will tell the cultural as well as the ecological story of Guam. ◆

On the coconut palm beaches of Guam National Wildlife Refuge, the island's first nature center, opening in the fall, is in a retired naval facility that will be filled with brand new exhibits. Designed primarily for local resident, the exhibits will be in English and Chamorro and detail the cultural as well as the ecological story of Guam. (USFWS)

Chief's Corner — *continued from pg 2*

programs and leading winter hikes through the Sonoran Desert. What did they do even before they got back home? They signed up to volunteer next year.

Under the watchful eyes of local reporters as well as staff and volunteers, 99 green sea turtle hatchlings emerged last August from a nest relocated onto Back Bay Refuge in Virginia Beach. Every day for about two weeks, volunteers sat by the nest from 7:30 in the evening until 3:30 the next morning to ensure the nest's safety.

Last summer, the 11th year of Salmon Camp at Kodiak National Wildlife Refuge taught about 150 area students – from widely divergent socioeconomic and ethnic backgrounds – about the natural and cultural systems that define the region.

Blackwater National Wildlife Refuge in Maryland is in the midst of an 8,000-acre wetland restoration project, working to make the area once again live up to its nickname as the "Everglades of the North."

These are just some of the experiences that national wildlife refuges offer the public. Once people know about the great things we do, they flock to national wildlife refuges, whether as volunteers or as visitors. We welcome them, during National Wildlife Refuge Week and throughout the year.

Ding Darling Exhibit On the Road

Jay Norwood "Ding" Darling was a pioneering conservationist and a nationally recognized political cartoonist. Today, Ding Darling is an inspiration to budding conservationists, whose ranks might well be expanded by a traveling exhibit now available to national wildlife refuges and others.

Appointed by President Franklin Roosevelt in 1933 to be chief of the U.S. Biological Survey, predecessor of the U.S. Fish and Wildlife Service, Darling introduced many innovative wildlife management programs. Throughout his long career, Darling also drew some 15,000 editorial cartoons that appeared in about 150 major newspapers throughout the United States and earned two Pulitzer Prizes.

Darling's grandson Christopher Koss has organized selected cartoons into an exhibit now available to national wildlife refuges, schools, universities and libraries. First shown at Merritt National Wildlife Refuge in Florida in September and at Ding Darling National Wildlife Refuge in October, the exhibit includes 22 or 34 separate panels of cartoons. To schedule the exhibit, contact Tom Edgar at 239-247-0112 or ashate5@prodigy.net.

"Ding" Darling drew this cartoon in 1923. The "Ding" Darling Wildlife Society along with Darling's grandson Christopher Koss have created a traveling exhibit available to refuges. (J.N. "Ding" Darling Foundation)

Send Us Your Comments

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

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