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Refuge biologists in California successfully swap a fertile for an infertile egg and the condor parents are none the wiser.

### Invasive Plant Mapping, page 9

Volunteers using state-of-the-art technology are helping to map and control invasive plants.

## What's in a Name?

Seedskafee NWR, WY, is named for the Shoshone phrase "river of the prairie chicken." The Green River that runs through the refuge is an oasis that bisects the vast high desert sagebrush plains of southwest Wyoming.

Marais des Cygnes NWR, KS, bears a French name that means "marsh of the swans," and is also the name of the river that runs through the refuge. It is believed that trumpeter swans once used the wetlands adjacent to the river during spring and fall migration.

# RefugeUpdate

September/October 2005 Vol 2, No 5

## National Wildlife Refuges Are Significant Economic Engines



National wildlife refuges generated almost \$1.4 billion for the national economy in 2004. (USFWS)

The National Wildlife Refuge System is a significant economic engine even while it conserves and enhances wildlife habitat and wildlife and offers some of the nation's most alluring recreation opportunities. The nearly 37 million people who visited national wildlife refuges in fiscal year 2004 generated almost \$1.4 billion in total economic activity related to refuge recreational use, according to *Banking on Nature 2004: The Economic Benefits to Local Communities of National Wildlife Refuge Visitation*, released October 6 by Secretary of the Interior Gale Norton.

The report finds that the Refuge System created nearly 24,000 private sector jobs as the \$1.4 billion flowed through the economy, generating about \$454 million in employment income. Additionally, recreational spending on national wildlife

refuges generated nearly \$151 million in tax revenue at the local, county, state and federal level.

The report details findings from 93 national wildlife refuges, which are representative of the nation's recreational interests and spending habits. The National Wildlife Refuge System encompasses nearly 100 million acres and 545 national wildlife refuges.

Secretary Norton pointed out that the \$1.4 billion in total economic activity is nearly four times the \$391 million that the Refuge System received in fiscal year 2004 for operations and maintenance. "For every taxpayer dollar we spent on the Refuge System, communities got nearly four dollars in total economic

## Secretary Norton Applauds Confirmation of Dale Hall as Director



nation's fish and wildlife and their habitat."

A 27-year career employee of the USFWS, Hall has served in Albuquerque, N.M., as the Southwest Regional Director since 2001. During his tenure as regional director, Hall helped bring consensus to the Multi-Species Conservation Plan for the Lower Colorado River. That plan is a 50-year conservation initiative that provides more than \$620 million in federal and local funding to protect fish and wildlife along 400 miles of the lower Colorado River, while meeting the needs of farmers, tribes, industries and urban residents who rely on the river for water and power supplies.

Hall's experience includes a term as Deputy Regional Director in Atlanta, and one as Assistant Regional Director for Ecological Services in Portland, Ore. He started his career with the Service in 1978 when he did field work in wetlands ecology in Vicksburg, Miss. He continued

in ecological services in Galveston and Houston where he worked as Outer Continental Shelf Coordinator with responsibility to work with Minerals Management Service to protect sensitive areas in the Western Gulf of Mexico. He was also the office supervisor in Texas for four years. Along the career path he worked as Deputy Assistant Director for Fisheries in Washington, D.C.

A native of Harlan, Ky., Hall served in the Philippines and Italy with the U.S. Air Force. Hall also has private sector experience, having managed catfish farms in the Mississippi Delta after returning to civilian life. He holds a bachelor's degree in biology and chemistry from Cumberland College in Kentucky and a master's degree in fisheries science from Louisiana State University. Hall has been honored with the Department of the Interior's Meritorious Service Award. ♦

Interior Secretary Gale Norton applauded the Senate's confirmation of H. Dale Hall to be director of the U.S. Fish and Wildlife Service.

"Dale Hall is an exceptional biologist with vast experience managing our nation's fish and wildlife resources, from the Everglades to the old growth forests of the Pacific Northwest to the high desert of the Southwest," Norton said. "He will be an outstanding director for the U.S. Fish and Wildlife Service as we seek more effective ways to conserve and restore our



## Chief's Corner The Assurance We Will Be Around Forever

*The Banking on Nature 2004 report*

recently released is about more than the number of visitors we welcome or their financial impact on the community – although both are important. The report is a look at how the Refuge System has evolved to meet the needs of a nation fascinated by wildlife but also swallowed up by subdivisions.

In 1951 we had about 3.5 million visitors. More than a half-century later, we welcome about 40 million visitors a year. Just think how the nation has changed. Forested land that once surrounded communities is covered by houses and

apartment buildings. The neighborhood fishing hole is a 40-minute drive through bumper-to-bumper traffic. Wildlife watching too often means seeing a deer on the side of the road, victim to another collision. That's why the Refuge System is so important: it gives refuge to millions of people who are otherwise cut off from the natural world.

Of course, our primary concern is the conservation of wildlife habitat and wildlife species. People appreciate that the Refuge System represents a national pledge to protect our important lands and waters for future generations. They honor that pledge as much as we do. The challenge is to make sure we

## Refuge Update

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# Hurricanes Leave Trail of Destruction on Wildlife Refuges

**Hurricanes Katrina and Rita** left a trail of destruction on national wildlife refuges just as they did along across thousands of acres and homes in the Gulf Coast. By far, Hurricane Katrina hit the hardest, forcing 16 national wildlife refuges to close initially. By the first of October, Breton, Delta, and Bayou Sauvage Refuges and the Southeast Louisiana Refuge Complex in Louisiana as well as Bon Secour NWR in Alabama were all still closed.

Estimated damage from the two hurricanes on facilities and lands owned by the U.S. Fish and Wildlife Service, notably national wildlife refuges, had topped \$225 million by early October, and assessments were still being undertaken. The loss of wildlife may never be fully tallied.

Combined with flooding in May and Hurricane Dennis in July, storm damage to the Refuge System in 2005 has topped \$300 million. All employees in the areas affected by Hurricanes Katrina and Rita survived although more than 60 FWS employees suffered significant personal loss. Seven national wildlife refuges in Louisiana were in the path of Katrina as were two law enforcement offices, an ecological services field office and a fish resource coordination office. At one point, Bon Secour and Choctaw Refuges in Alabama; Breton Refuge, the Central and Southeast Louisiana Refuge Complexes, Mandalay and Tensas River Refuges in Louisiana; and Grand Bay, Mississippi Sandhill Crane, Noxubee and St. Catherine Creek Refuges in Mississippi were closed.

Even in the face of personal loss, Service employees brought their expertise to aid communities devastated by the unprecedented storms. More than 600 Service employees were assigned to the damaged areas over the course of a month. Initial reports made clear the dramatic nature of the disaster: cell and satellite phones were not reliable, the need for ice was a major concern, all personnel had to be self-sufficient. One FWS Special Agent helped clean up a school in Lake Charles, Louisiana; another



*Hurricane Katrina initially closed 16 national wildlife refuges. Five refuges were still closed in early October. Damage estimates to U.S. Fish and Wildlife Service lands and facilities topped \$225 million from Hurricanes Katrina and Rita, although assessment was continuing in early October. (USFWS)*

helped distribute food. The office at Cameron Prairie NWR was turned over to military personnel, who provided tetanus shots to fellow military personnel, emergency workers and residents.

The Service provided food, water, fuel and a safe place to local police and fire departments, as well as 100 American Red Cross and International Red Cross volunteers, National G officers engaged in search and rescue in New Orleans and elsewhere. Its crews opened access to the Louisiana Heart Hospital, and provided 200 meals daily to hospital staff and patients. On September 10 alone, the Service provided 1,357 meals, including 200 sent to a local hospital.

## **“Good Neighbors in the Community”**

Roger Boykin, stationed in Atlanta as Chief of the Fire Branch, commented, “Ever since I have been in the Service, I have always felt that our refuges were supposed to be good neighbors in the community. That doesn’t mean we always agree, but when a neighbor is in trouble, good neighbors help. That’s what we did and why we did it, not because someone asked us to!”

St Marks NWR, Florida, still rebuilding after Hurricane Dennis, sent a team of

heavy equipment operators, dump trucks and front end loaders, and chain saw operators to Louisiana. The Service’s Southeast regional office deployed incident management and law enforcement teams as well as people to help with helicopter and boat evacuations and equipment ranging from trucks and bedroom trailers (“sleeps 6 packed in”) to generators, safety equipment, water pumps, chain saws, dozers and backhoes. Personnel traveled with as much fuel, outboard oil and AA batteries as possible along with tents, first aid supplies, bug spray and cell phones. A contaminants biologist was on call as was a supervisory organizational skills person and an employee assistance counselor experienced in stress counseling.

A relief support facility was established at the Big Branch NWR in Lacombe, Louisiana, to provide support services for displaced Service employees, local law enforcement and hurricane relief workers. Lacombe also became the base camp for the Service’s Type 3 Incident Management Team. In a statement to all DOI employees, Secretary Gale Norton promised that, “Working together, we can help the Gulf Coast recover and rebuild.”

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# A Beautiful Building, and Green



*Red cedar shingles and local stone add texture to tradition in the new, energy efficient Rhode Island NWR Headquarters. (Janis Nepshinsky/USFWS)*

**“It’s a beautiful building!** What can I say?” Project Manager Pam Rooney is justifiably proud of the new Rhode Island NWR Headquarters and Kettle Pond Visitor Center, named a Federal Energy Saver Showcase for 2005 by the Department of Energy (DOE) and the Federal Energy Management Program. The DOE campaign, called *You Have the Power*, seeks to spread the word about saving energy costs and resources.

The two-story building officially opened in late October, with space for both administrative offices and the Kettle Pond Visitor Center. Rooney said the Rhode Island facility received the most points under the LEED rating system (Leadership in Energy and Environmental Design) for sensitive site selection, durability and longevity of materials, and energy conservation. The building sits atop a moraine from the ice age that now defines the southern Rhode Island coastline. Tucked into the trees, the

building is surrounded by boulders and sinkholes that were retained as present-day reminders of that same ancient era.

Despite the use of 21st century energy conservation techniques, the building has a very traditional look – rather like several New England barns tacked together, suggests Rooney. Materials were chosen for their durability, with local timber used as much as possible. Red cedar shingles cover the sides under an asphalt shingle roof. The “connections” between the “barns” use a translucent material that brings soft natural light into galleries and offices. Made of a fiberglass material, this passive solar architecture provides energy efficient lighting and insulation.

Flooring is linoleum or bamboo, and the carpeting is made of recycled materials. Linoleum, made of compressed materials and linseed oil, may be old-fashioned but it is an entirely renewable resource. Low-

flush toilets and flow restrictors throughout the building minimize water use.

## **Geothermal Heating and Cooling**

Rooney believes the most cutting-edge technology is the geothermal heating and cooling system. Heat pumps use water from deep wells. The water has already been heated or cooled in the ground, greatly reducing the heating and cooling that must be done by the pumps.

All of the energy conservation measures are expected to save 40 percent on utility costs as compared to a traditional office building. The building itself cost about \$3.3 million, including access roads and wells. On a square foot basis, Rooney notes that this is a very good value, even with the energy efficient elements.

Although the geothermal heat pump system is more expensive to build, operating costs are less. Construction costs are held down by using locally available materials and standardized parts. Congressional funding, obtained with the strong support of the late Rhode Island Senator John Chafee and continued support by his son, Senator Lincoln Chafee, has paid for the center.

Rooney fully expects the visitor center and headquarters to be a model for other new construction by the Fish and Wildlife Service. For example, not only did the Rhode Island Refuge hire local contractors to build the facility, but it was also designed by a local architect, William Warner Architects and Planners.

The Kettle Pond Visitor Center will be on Ninigret NWR, named for one of the original chiefs of the Narragansett Indians and the site of a former naval auxiliary landing field. Kettle ponds formed when blocks of ice from the last glacier became imbedded with outwash materials, leaving depressions that filled with fresh water. The new visitor center expects to host 100,000 visitors annually, introducing them to New England’s wildlife and coastal environments. ♦





*A deadly oil spill in June killed 656 baby pelicans at Breton NWR in Louisiana. Each of the surviving pelicans had to be individually washed with dishwashing soap, rinsed and dried before being taken to a pen with drying lamps. (Diane Barth/USFWS)*

## Rescuing Baby Pelicans: the Feathers that used to be White

A **small but deadly** oil spill in June killed 656 baby pelicans at Breton NWR in Louisiana, the nation's second oldest refuge and closed after Hurricane Katrina. Three hundred pelicans died at the rookery on West Breton Island. Another 598 living but very oily babies, three to 10 weeks old, were taken to a rehabilitation center that was quickly established in Venice, LA, which managed to save 243 of the babies.

Only about 15 barrels of oil spilled – 560 gallons – but it spilled at the worst time in the worst place: in the middle of nesting season and the rookery at Breton Refuge, which is key to rebuilding the population of Louisiana's state bird. State officials estimate there were about 2,000 breeding pairs of pelicans in the West Breton colony. Brown pelicans had been decimated once before by the use of pesticides like DDT. None of the adults was killed and the terns on the island were not affected to any significant degree.

The three largest bird rescue operators in the United States converged to lead the fight to save the baby pelicans - the International Bird Research and Rescue Center (CA), Tri-State Bird Rescue & Research, Inc. (DE) and Wildlife Rehabilitation and Education (TX).

### **"Very Labor Intensive"**

Diane Barth, Breton Refuge's environmental education and outreach coordinator, received a crash course in feeding and washing baby pelicans. "It's very labor intensive work," she said. The birds first had to be re-hydrated with

Pedialyte and Ensure. They were also given calcium and vitamins B1 and E.

Barth learned to hold a pelican with the bird tucked between her legs, one hand around the pelican's bill and the other hand holding a feeding syringe. "You have to stroke the neck to make sure everything goes down and nothing gets stuck," said Barth.

The pelicans were washed with soft brushes and tiny sponges. Each wing and feather was carefully washed and rinsed before the bird was towel-dried and taken to a pen with drying lamps. By this time, the birds were either eating small fish on their own or a slurry made with fish and Centrum.

Within two weeks, the first group of 124 babies was taken back to a recovery island at Breton Refuge. Barth said when the birds came out of their carriers, they stayed in a tight cluster for a long time. "It took a little peer pressure to get them moving," she noted, adding that "some adults flew over and seemed to look, but none landed." By the middle of July, almost all of the baby pelicans were back at the refuge.

Barth expects to incorporate her

experiences into her education programs. She especially wants to teach young people about the impact humans have on the environment, and also how people can help.

The oil spilled at an Amerada Hess platform about 60 miles southeast of New Orleans. The spill was reported when personnel returned to the platform after evacuating for tropical storm Arlene. The Coast Guard, the Louisiana Oil Spill Coordinator and the Louisiana Department of Wildlife and Fisheries responded in addition to U.S. Fish and Wildlife Service. ♦

*The baby pelicans were burned by the oil itself and also by the sun after they lost feathers. These young pelicans have been washed and are ready to eat fish on their own again. For more photos, go to the IBRRC Web site, [www.ibrrc.org](http://www.ibrrc.org). (Jay Holcomb/IBRRC)*



# Around the Refuge System

## Hawaii

Laysan ducks brought to Midway Atoll NWR are not only thriving but reproducing in their first year at their new home. The ducks are one of only two endemic duck species still found in Hawaii; the other is the Hawaiian duck, or koloa. Fearing that a single event like a typhoon could wipe out the species, biologists in October 2004 transferred 20 ducks from Laysan Island in the Hawaiian Islands NWR to Midway Atoll, about 1,250 miles northwest of Honolulu. Since then, only one duck died, and that because of an aggressive albatross that attacked one of the new arrivals. A second translocation of 32 birds to Midway's Eastern Island is planned for October. Five of the six original females nested; by the time *Refuge Update* went to press, nine or 10 ducklings had survived for at least a month. At least two of the females are re-nesting. "If survivorship and reproduction continue at current levels," said Refuge Biologist John Kalvitter, "we someday hope to have a population at Midway that compares to Laysan Island."



*Female Laysan ducks transferred to Midway Atoll NWR have produced nests with five to 10 eggs, almost double the average clutch size – possibly due to abundant food sources in the newly restored habitat. (John Kalvitter/USFWS)*

## Texas

Deeprooted sedge looks like harmless grass. Although it is a South American plant, the invasive was indeed pretty harmless until a few years ago when it started spreading rapidly through the coastal plain of the southern United States, threatening native plant diversity and wildlife habitat. In the past, the sedge would have been plowed under to plant a new crop of rice, but global market forces have reduced rice farming in these areas and the sedge is taking over. It is now considered one of the most serious invasive species in the region. The deeprooted sedge research consortium is pushing ahead with a new series of projects to identify the best ways to get rid of this weed. Sampling plots have been established at Anahuac NWR, Attwater Prairie Chicken NWR and the Texas City Prairie Preserve. Researchers from the U. S. Fish and Wildlife Service, The Nature Conservancy of Texas and Stephen F. Austin State University are collecting data on the response of the sedge to prescribed fire, herbicide and season of treatment as well as the response of native vegetation to removal of the sedge.

## Louisiana

Step Outside Day last May looked like a virtual "wheels on the pontoon" day when, for the second year in a row, the Sherburne Refuge Complex in the Atchafalaya Basin offered a day of activities open to everyone but tailored to children and adults with disabilities. Initiated by the Paralyzed Veterans Association and held in conjunction with the U.S. Army Corps of Engineers and the Louisiana Department of Wildlife and Fisheries, Sherburne hosted more than 600 visitors who enjoyed air and pontoon boat rides, decoy painting, bird box

painting, target and bow shooting, water safety displays and live animals. Local businesses supplied volunteers, Lowes hosted a wood kit assembly tent, and Bluebonnet Swamp Nature Center brought animals for kids to touch. About a third of the participants were mentally or physically challenged. Plans are already underway for a 3rd Annual Step Outside Day next summer.



*Boat rides were among the most popular activities at Step Outside Day at the Sherburne Refuge Complex in Louisiana. Activities were tailored for people with physical or mental disabilities. (U.S. Army Corps of Engineers)*

## Florida

Lower Suwannee Refuge Ranger Pat Darty becomes giddy with excitement when she talks about residents of the bat house at the University of Florida. Hundreds of bat pups are surviving because of the concerted action of Darty, Lower Suwannee NWR Biologist Steve Barlow and local veterinarian Deborah Cottrell. The University of Florida had built a sizable bat house in 1991 to lure



bats out of dorms and stadiums. The wood had become so slippery and the bat population so crowded that hundreds of babies each day were falling to the ground. Barlow literally dreamed up a plan to attach a new wooden platform to one section of the bat house, scoring it so the bats could hang on while still allowing guano to fall to the ground and mature bats to enter and exit. At last report, fewer than 200 bats a day were falling – and very few from the section with Barlow’s extension. Cottrell even added an elevator so that live pups can be gathered off the ground and hoisted back up into the house. Darty says proudly, “Our refuge had the biologist with the know-how to help the university.”

### New Jersey

The Edwin J. Forsythe NWR has been recognized as the 2005 eco-tourism award winner by the Greater Atlantic City Regional Tourism Council. The refuge is an active member of the council as well as the Galloway Business Association. It is included in lists of area tourist attractions in printed literature and on the Tourism Council Web site ([www.actourism.org](http://www.actourism.org)), where there is also contact information for the Forsythe Friends organization. The refuge has received awards from the Atlantic County Executive and the New Jersey Office of Travel and Tourism. Forsythe Refuge, a world class birding destination, is also prominently featured in a brand new Atlantic County “Guide to Birdwatching.” The Refuge is one of 38 units in the Western Hemisphere Shorebird Reserve network.

### North Carolina

Pea Island NWR celebrated Deaf Awareness Week in September with canoe trips on the Alligator River and hands-on exploration of crabs and shells in Pimlico Sound – all accessible to deaf children and adults through sign language interpreters. It all started with a visit to the refuge by Stephanie Scott, the deaf services specialist at North Carolina’s Wilson Regional Resource Center, who is deaf and partially blind herself.

The Wilson Center provides technical assistance on deaf awareness and accessibility. “It was a very enlightening visit,” said wildlife interpretive specialist Bonnie Strawser. She learned, for example, that the refuge’s brightly colored, nicely laminated transcription of an audio message would be more easily read in black and white, without the glare caused by the glossy lamination. “We don’t think of asking for help,” said Strawser, “even when we are trying to be sensitive.” After Strawser wrote an article for the local paper about the activities planned for Deaf Awareness Week, a civic group offered to help and will now be purchasing a wireless speaker system for the Refuge so that people who are hard of hearing can be included in all regular programs and tours.



*Sign language and wireless speaker systems make refuge activities more accessible to deaf and hearing impaired individuals. (USFWS)*

### Tips for Deaf and Hearing Impaired Accessibility

- 🍃 Transcribe all audio messages.
- 🍃 Print black on white in large font.
- 🍃 Do not laminate (creates glare).
- 🍃 Note the availability of the transcript in the audio exhibit.
- 🍃 Purchase wireless speaker transmitter with multiple receivers for use in programs/guided tours; publicize their availability for each event.
- 🍃 Keep a list of area American Sign Language (ASL) interpreters who can be contacted for special events.
- 🍃 Collaborate with a school or resource center to make your refuge more accessible to deaf and hearing impaired individuals.

# “Age of Restoration” Will be Hallmark of This Century

By Mendel Stewart

In the late 1990s, I worked in the headquarters office of the National Wildlife Refuge System in what was then the Branch of Planning and Policy. “Biological Integrity, Diversity, and Environmental Health” was one of the policies I worked on.

At that time, we were “Ecological Integrity,” shorthand for the mandate in the National Wildlife Refuge System Improvement Act requiring the Secretary – later defined in policy as refuge managers – to “(B) ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americas.” This policy basically provides refuge managers with an additional directive while achieving refuge purpose(s) and the

Refuge System mission. The policy was completed after my departure and turned out to be a very important factor in the implementation of the National Wildlife Refuge System Improvement Act.

In addition to other things, the policy provides refuge managers with a process to analyze the needs of individual refuges and then recommend the best management direction to prevent further degradation of environmental conditions. Where appropriate and in concert with refuge purposes and Refuge System mission, refuge managers can restore lost or severely degraded components.



*Through land acquisition, species management programs, captive propagation of listed species, control of invasive species and particularly habitat enhancement and restoration, the ability of San Diego Refuges to sustain life is being greatly enhanced. Habitat restoration plays the most critical role. (USFWS)*

I recall one concept, then termed “natural” conditions, as being particularly difficult to address during the policy’s early development. Much debate took place about what constituted “natural” in terms of trying to restore lost or severely degraded components. The final version of the policy changed “natural” to “historic” and defined it simply as the landscape condition prior to significant, human-caused change.

In an early version, we described a spectrum across the Refuge System from less impacted landscapes to severely impacted ones. The analogy used at the

## Fighting the Weeds with Technology

“Kudzu has been on my mind ever since I came here,” says Eric Johnson, forester at Cache River NWR in Arkansas, “I’ll pursue anything to control it.” The newest tool Johnson has is a nationwide program that trains volunteers to use a hand-held computer to map invasive plant infestations with Global Positioning System (GPS) and Geographic Information System (GIS) technology.

Armed with a \$250,000 special appropriation, the National Wildlife Refuge System this year is training staff and volunteers at seven refuges to use the mapping technology. The project has been a cooperative effort with the National Wildlife Refuge Association, The Nature Conservancy, and the U.S. Geological Survey’s National Institute of Invasive Species Science. Six refuges received

training last year; another set of refuges will be trained next year.

Jenny Ericson, with the Refuge System’s National Invasive Species Program, says the selected refuges have strong Friends organizations or other source of volunteers as well as staff dedicated to working with volunteers. Eric Johnson was trained this summer along with staff and volunteers from Cache River Refuge; White River Refuge joined the training.

Other refuges on the 2005 training schedule include Kenai in Alaska, Sherburne in Minnesota, Eastern Neck in Maryland, Rocky Mountain Arsenal in Colorado, Aransas in Texas and refuges in Hawaii. To date, approximately 60 volunteers have been trained in addition to a handful of staff people from each refuge.

Two Fish and Wildlife Service wildlife biologists – Giselle Downard from San Pablo Bay NWR and Kathy Huffman from Ottawa NWR – served as trainers this year. When Downard provided training at Cache River Refuge, she was joined by one of her volunteers, former TWA pilot Jim O’Neill. Volunteers learned to use the software that tracks the location of weeds as well as management actions to control the plants.

O’Neill, frustrated with the environmental degradation that is destroying wetlands, was eager to participate in a project that could help protect those wetlands. O’Neill spends about one day a week at the refuge, armed with a user-friendly, hand-held computer. As he walks, the computer maps his steps and lets him know if he is moving into an area that has already been



time was that Arctic National Wildlife Refuge was at one end of the spectrum and, mostly in jest as I recall, that refuges in San Diego, CA, were at the other. Little did I know that I would later become project leader of the San Diego Refuge Complex.

Five years have passed and I have come to know the San Diego refuges well; I now deeply appreciate the lands and the species that inhabit them. San Diego County, known as a biodiversity hotspot, harbors a number of species that represent a fascinating variety of forms. Unfortunately, the joke about being on the opposite end of the spectrum is to some degree true. The problems associated with urban sprawl and an ever-growing population impact these lands and species, and they often make managing the lands difficult.

### Changes Began with Small Steps

San Diego Bay Refuge provides a good example. Prior to 1859, the condition of the south end of the bay was relatively unaltered. In the 1870s, habitat losses began with the construction of a small-

scale solar salt evaporation facility. Between 1900 and 1916, the area was expanded to include most of the south end of the bay. The salt marsh and intertidal mudflat habitats that had historically occupied this area were eliminated by the formation of the diked evaporation ponds.

In 1999, the area of the salt works joined the National Wildlife Refuge System because even in the current altered condition, migrating waterfowl and shorebirds and nesting seabirds utilize it extensively. Acreage converted from natural conditions for human uses are not unusual and make up a significant percentage of the acreage of the Refuge System. But refuge lands in San Diego have, and continue to receive, more than their fair share of abuse.

However, there is cause for optimism. Through land acquisition, species management programs, captive propagation of listed species, control of invasive species and particularly habitat enhancement and restoration, the ability of San Diego Refuges to sustain life is being greatly enhanced. Habitat

restoration plays the most critical role because without it, places like San Diego that have been so impacted by human activity may never recover – or at least not in time to help the many species that solely depend upon them.

I have heard the past century referred to as the age of degradation but I am betting that this century will be the age of restoration. The transformation in San Diego is due to dedicated refuge staff, federal and state agency partners, private conservation organizations and involved stakeholders. While the policy at one time was called ecological integrity, it is the integrity of individuals who care so deeply about wildlife conservation that will restore our wild places to more natural conditions and move all of our refuges – both in San Diego and across the Refuge System – toward the other end of the spectrum. ♦

*Mendel Stewart became project leader at Don Edwards San Francisco Bay National Wildlife Refuge in June.*



*Cache River NWR Forester Eric Johnson shares a GPS mapping device with volunteer Jim O' Neill. This summer, volunteers and staff at Cache River and more than six other refuges learned to use these hand-held computers to map invasive plant species on their refuges. (Jim Besley/USFWS)*

mapped. Every time he sees a particular weed, he clicks on its name in a drop-down list (there are pictures and question-prompts all along the way) and its location is recorded. At the end of the day, all of his data can be downloaded directly into a database in seconds. That's when Downard takes over.

### 20 Reports with One Click

The database, embedded in Access software, allows data to be imported, exported and organized into any of 20 different reports with the click of a button: How many acres are infested with a particular plant? How many gallons of pesticide were used during a certain period of time? What impact did various control techniques have on weed infestation? Is the weed growing more

quickly next to levees or mosquito ditches? The data also enable refuge specialists to analyze the pattern of invasive spread, determine its relation to endangered plant or animal species, and create a plan of attack.

Downard is convinced that the structured monitoring provided by the new data system was a significant factor in a National Fish and Wildlife Foundation grant that will allow the San Pablo Refuge to begin controlling pepperweed. Other groups in the San Francisco Bay area are working to control spartina, which invades tidal marshes. The new mapping technology will let refuge staff know exactly when spartina begins to encroach on the refuge so it can be controlled *before* it becomes truly invasive.

*continued pg 18*

# FOCUS ... On Comprehensive

## Refuge Managers Hold the Keys to Success

By Rick Schultz

**With the enactment** of the National Wildlife Refuge System Improvement Act in 1997, the U.S. Fish and Wildlife Service began one of its most extensive planning endeavors. In essence, Congress mandated the Refuge System to develop comprehensive conservation plans for over 500 units by 2012.

For some refuge managers, the development of these 15-year plans has been viewed as a great opportunity to make some course adjustments and

influence the direction of their refuge. The process has been welcomed for it served to strengthen existing partnerships and to build new alliances. Still others view the planning process as an excellent chance to promote their refuges, both internally and externally. Finally, many will use these plans for budget justifications, for project development, and for setting work priorities.

For another group, planning or the development of a CCP is not their highest priority. Some view the process as more paperwork and a general waste of time.

*The Comprehensive Conservation Plan for the 240,000-acre Upper Mississippi River National Wildlife and Fish Refuge, which runs 261 miles from Wabasha, MN, to Rock Island, IL, has been the subject of intense public discussion. A record-setting 2,900 people turned out for a variety of public sessions on the topic. (Robert J. Hurt)*



## “Steady in the Storm”

**The 240,000-acre** Upper Mississippi River National Wildlife and Fish Refuge, which welcomes more than 3.7 million people annually, runs 261 miles from Wabasha, MN, to Rock Island, IL. It is home to more than 306 species of birds, thousands of heron, egret and bald eagle nests, and spectacular concentrations of canvasback ducks, tundra swans and white pelicans. Little wonder, then, that interest in the refuge’s Comprehensive Conservation Plan has been running high.

After release of the draft CCP in May, the refuge held 11 public information meetings and 10 public workshops in four states attended by a record-setting 2,900 people. Refuge Manager Don Hultman has played a major role in defusing the tension. He was profiled recently in the *La Crosse (WI) Tribune* as “steady in the storm...a refuge manager who stays calm in the face of public pressure.” The profile by reporter Dan Simmons is reprinted here, with permission from the *La Crosse Tribune*.



# Conservation Planning

At best, the development of a CCP is a necessary evil that they hope to avoid or perhaps even pawn off to “regional office planners.” They have yet to see the utility of any long-range plan beyond collecting dust. In some cases, the most useful plans to them are those detailed on the back of a dinner napkin.

Regardless of one’s beliefs, comprehensive conservation plans are here to stay and individual refuge managers hold the key to their success or their failure. It is the refuge manager who sets the tone for the development of the refuge’s CCP. It is the refuge manager who demonstrates the plan’s importance to his or her staff. It is the refuge manager who invites staff to participate in the development of the CCP.

It is the refuge manager who determines the extent and the value of public input. Frankly, the value of a CCP is a direct reflection of the views and attitude of that refuge manager.

Bringing a CCP across the finish line these days is not an easy task. As demands upon all of our public lands continue to increase, national wildlife refuges are not immune to conflicting views and opinions. Consequently, it takes a skilled and dedicated refuge staff, with the assistance of experienced refuge planners, to address complex issues, effectively communicate with the public, and select an alternative in the best interest of their refuge.

Without question, we strongly encourage all refuge managers and their staff to fully engage in the development of their CCP. Seize on this opportunity to determine the future of your refuge. Seize on this opportunity to demonstrate to Congress and others that our National Wildlife Refuge System is in the hands of some of this nation’s most highly skilled, forward thinking and creative professional natural resource managers. The legacy you leave at your refuge will be largely determined by the success of your CCP. ♦

*Rick Schultz is the chief of the Refuge System’s Division of Conservation Planning & Policy. Previously, he was manager at Minnesota Valley NRS for a decade. During his tenure, the refuge’s CCP was completed.*

*By Dan Simmons, La Crosse Tribune*

Stoddard, Wis. — A man approached the microphone at the American Legion Hall, obviously agitated.

“You say you’re here to listen,” he said to Don Hultman and his U.S. Fish and Wildlife Service colleagues at a public meeting last month, “but I don’t see any of you taking notes. This is all for nothing, huh?”

Hultman allowed the man to finish, then pointed at the video camera he uses to record every meeting.

“Smile, sir, you’re on camera,” he said, and the overflow crowd erupted in laughter. It marked a rare moment of levity in a long, intense spring.

Hultman, 53, manager of the Upper Mississippi River National Wildlife and Fish Refuge, has hosted 11 public meetings and four public workshops along the river, from Wabasha, Minn., to Savanna, Ill. Seven more workshops are planned (see schedule below).

More than 2,000 people have attended, all concerned about the sweeping changes

proposed by the Fish and Wildlife Service to the 240,000-acre refuge.

While Hultman has worked in various roles for the Fish and Wildlife Service for a quarter-century and is no stranger to controversy, he admitted that his current tour represents the most sustained public role yet.

“In sheer size, scope and volume,” he said, “this is the most unique experience I’ve been through.”

The quiet, thoughtful Hultman has earned the respect of an anxious public, even among many who don’t support the proposed changes, according to meeting attendees.

Gerold Becker, 48, an avid duck hunter and habitat committee chairman of the Chaseburg Rod and Gun Club, spoke out against proposed new hunting fees and questioned what he described as lax enforcement. While he strongly objects to aspects of the proposed plan, he appreciates the public forums.

“I give those guys a lot of credit for coming out into the community and letting us express our opinions,” he said. “I feel

like Don and the staff sincerely want to hear our take on these issues.”

## Balancing Act

When Hultman became refuge manager in October 2002, he knew what he was getting into, he said. The plan was already being discussed, and he was aware it would stir up heated emotions.

“This river is such a big part of people’s lives and their personal expression of how they live,” he said. “When we tinker with how people use it, it’s a big thing around here.”

That strong personal connection, combined with what Hultman described as “inherent mistrust of government,” helps to explain the strong public involvement, he said. And he’d have it no other way.

“If we’re going to propose things we know are controversial,” he said, “we should be willing to stand up there and let people confront us.”

Jim Stutzman, a longtime friend who now works with the Fish and Wild Service in Montana, said Hultman is uniquely qualified for the task.

*continued pg 14*

## Awarded for Excellence

The first set of awards to recognize conservation planning, presented by the Refuge System, recognizes outstanding individuals and teams for their contributions to the Refuge Planning program. Created in 2004, the Refuge Planning Awards program gives well-deserved recognition to recipients nominated by other U.S. Fish and Wildlife Service employees.

Winners of the 2004 Refuge Planning Awards represent exceptional contributions in three categories: Best Support of Refuge Planning, Outstanding Plan Award, and Outstanding Planning Staff Award. The 2004 Refuge Planning Awards will be formally presented in each regional office. The winners are:

### Best Support of Refuge Planning

Richard Schroeder of the U.S. Geological Service won this award, which recognizes exceptional contributions made by an individual or group, from either within or outside the Service. Nominees were for the quality and creativity of their work as well as a sense of teamwork, and the outreach component.

Schroeder is the primary author of the biological portions of *Writing Refuge Management Goals and Objectives: A Handbook*. He critiqued the CCP Course and helped modify its content to more fully incorporate sound biological science. Schroeder has actively participated in a number of CCP planning teams, has provided technical reviews of more than 30 CCPs, and has been an active contributor to CCPs in all Service Regions.

He has provided training in writing goals and objectives in the Pacific, Great Lakes, Southeast and Mountain-Prairie regions, and has added a section on this topic to the national Habitat Management Planning course.

Schroeder has demonstrated inventive ways to bring sound science to planning at the refuge level. Notably, he has guided refuge biologists in the latest electronic search techniques for research literature and shown them how to prioritize and summarize the literature that is most relevant to the habitats and species of concern.

## What Did Refuge Managers Think?

By John Schomaker

Since 1997, the Fish and Wildlife Service has put considerable effort into preparing Comprehensive Conservation Plans. Are the completed plans any good? Are they being used? Can we learn anything that will improve plans that yet need to be done? With these questions in mind, the Division of Conservation Planning and Policy in April surveyed 62 refuge managers at stations with completed plans. All of them returned their evaluations.

A preliminary tabulation reveals some common reactions:

Most managers are positive about their CCPs, with 80 percent rating them as “very useful” or “useful, although one manager noted, “Developing a CCP was a painful process. I hope I never do it again.”

Refuge managers commonly use the CCPs for management direction and as a reference document. Other uses included “justifying management actions,” as an orientation document, an opportunity for public involvement, to resolve controversial issues, to prioritize budget requests and work activities, to help in land acquisition, and as an aid to more detailed planning



# Conservation Planning

## Outstanding Plan Award

This award recognizes a planning team for its development of a high quality CCP, LPP, or landscape-level plan. All members of a core planning team, including Service and non-Service employees, are eligible. The criteria for judging are quality, problem solving, presentation, public participation and teamwork.

The 2004 winner is the planning team that developed the CCP for Nisqually NWR, WA. Mike Marxen, Jean Takekawa, Doug Roster, Nanette Seto, Sheila McCartan and Danielle D'Auria, all Service personnel, were the team members.

The team was recognized for the development of a high quality CCP with bold vision. The plan will expand the refuge boundary by 3,479 acres, restore 700 acres of estuarine marsh, improve and restore freshwater and riparian habitats, nearly triple the number of students served in the environmental education program, and open a portion of the refuge's tidelands to waterfowl hunting while improving wildlife sanctuary in other areas.

Public involvement was key in the planning process. Through extensive

communication and outreach, the CCP addressed several complex and divisive issues. It was agreed, for example, to expand a 5-mph speed restriction on all watercraft – including jet skis – to encompass 200 feet along the shoreline to all refuge waters. Additionally, a portion of a historic dike and its national recreation trail will be removed in order to restore the estuary.

## Outstanding Planning Staff Award

This award recognizes the accomplishments of an individual refuge planner or Service planning support employee whose contributions have promoted excellence in refuge planning.

John Schomaker, a refuge planner in the Division of Conservation Planning in the Great Lakes Region, received the award. As Regional CCP Coordinator, Schomaker had played a lead role in the completion of three CCPs by the time he was nominated. Two more CCPs are now nearing completion under his guidance. He has also contributed to the national CCP effort through his active involvement in developing *Writing Refuge Management Goals and Objectives: A Handbook* as well as the course on "Goals and Objectives." Schomaker is an

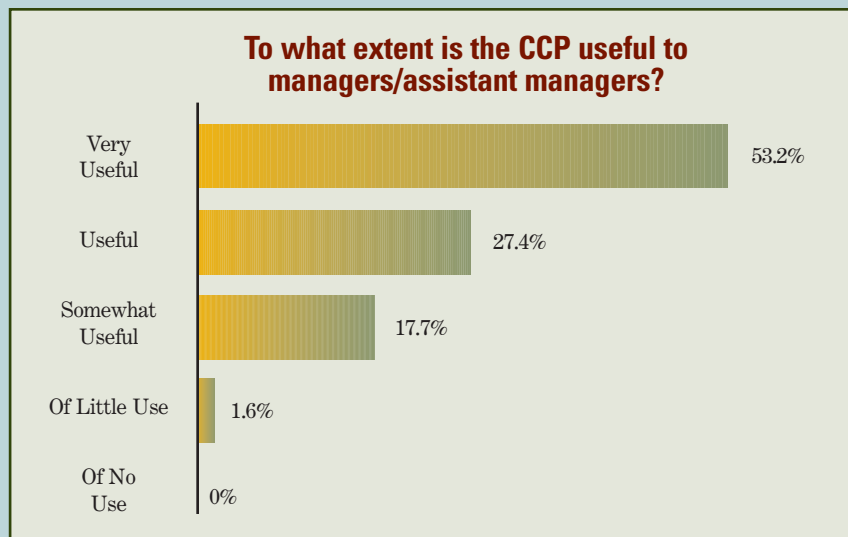
instructor for the CCP Course, where he has been active in the revising the course materials.

He developed a database to track and plan CCPs in the Great Lakes Region and wrote sections of the *Preplanning Guidance for Comprehensive Conservation Plans: A Handbook*. Schomaker utilized GIS as a planning tool during the Crab Orchard Refuge (IL) CCP and was the first in his region to use focus groups in CCP development. He led development of a contract with the University of Minnesota to survey visitors, and conducted his own national survey of refuge managers to determine the effectiveness of their CCPs. ♦

and updating compatibility determinations.

Managers generally agreed that their CCP provides a clear statement of direction for future management, gives the public an understanding of management action, ensures management is consistent with mandates of the Refuge System, and establishes continuity in station management.

Consensus was not as strong about whether the CCP provides clear, measurable objectives and provides a basis for the development of budget requests. When asked about shortfalls, refuge managers most often mentioned



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# FOCUS

## Refuge Managers – from pg 13

that funding or staffing shortages identified in the CCP had not been addressed. They also noted that, at time, important issues were not dealt with. Finally, two-thirds of the managers thought that the planning took too long.

### What Changed?

More than 25 percent of the respondents indicated that the CCP changed the management direction at least to a moderate degree. About 40 percent reported that the CCP confirmed the station's management direction.

A quarter of respondents said their CCPs were being implemented “a great deal,” while a third indicated implementation to a lesser degree, and another third was neutral. Only about 10 percent were not implementing the

actions of the CCP. About 25 percent of the managers were evaluating a CCP that was completed before they came to their current position.

The evaluations are based on a lot of experience. On average, the respondents had worked for the Service for more than 20 years, as a manager for over 13 years, and had been in their current position for more than six years.

The Refuge System is learning from both its CCP successes and those that have been considered less successful.

Ultimately, the goal is to have every refuge manager report, “We use the CCP all the time.” ♦

*John Schomaker is a refuge planner in the Great Lakes Region.*



*Upper Mississippi River National Wildlife and Fish Refuge held 11 public information meetings and 10 public workshops in four states on its Comprehensive Conservation Plan. In all, the public hearings were attended by a record-setting 2,900 people. (USFWS)*

## Steady in the Storm – from pg 11

“His great skill is communicating,” he said, “whether in a public meeting with 400 people or one-on-one over coffee.”

Stutzman speculated that it was Hultman's communication skills that earned him his current job. Hultman had a hand in opening three other refuges during his career, and gained a reputation as a consensus-builder between competing interest groups.

The Upper Mississippi Refuge, with 3.7 million annual users, more than any other wildlife refuge, presents unique challenges even for a seasoned pro such

as Hultman. He's charged with protecting the area's unique wildlife population while at the same time keeping the area open to recreational users, who crowd the refuge more each year.

Hultman said he doesn't regret taking the job at such a contentious time, and has no plans to leave once it's complete, which will probably occur next January.

“I enjoy the challenge,” he said before reconsidering. “I mean, most days I enjoy the challenge.” ♦





*Much like other such events in different parts of the country, Minnesota Valley Refuge's 2nd Annual BioBlitz was part rapid biology survey and part nature festival. BioBlitz provided a terrific chance for biologists from several natural resource agencies and local colleges and universities to work together and was also accessible to the public. (Vicki Sherry/USFWS)*

## Scientists and Volunteers Descend on Minnesota Valley NWR for 24-Hour "BioBlitz"

*By Scott Flaherty*

With microscopes, nets and reference books in hand, a determined group of more than 100 scientists and volunteers of every age and educational background descended on Minnesota Valley NWR June 10 to locate and identify as many living plants and animals as possible in a 24-hour period.

The event, part rapid biology survey and part nature festival, is called BioBlitz. Minnesota Valley Refuge was the site for the 2nd Annual Minnesota BioBlitz, co-sponsored by the refuge, Friends of the Minnesota Valley, Bell Museum of Natural History at the University of Minnesota and the Minnesota Department of Natural Resources Non-game Wildlife Program.

State organizers chose Minnesota Valley Refuge because "they liked the combination of the refuge's natural areas and close proximity to the metro area, which made it accessible to the general public," said Refuge Biologist Vicki Sherry, who helped organize the event with Kevin Bigalke of the Friends of the Minnesota Valley.

BioBlitz provided a unique opportunity for biologists from several natural resource agencies and local colleges and universities to work together to document the flora and fauna of the refuge. "Experts ranging from spider identification to fungi specialists worked in cooperation with refuge volunteers and

the public to showcase what lives in their own backyard," Sherry said.

"With over 14,000 refuge acres and various research projects, I don't have time to concentrate on specialized groups of organisms like spiders, fungi, or beetles," Sherry said. "It was great to have the local experts ask questions and to learn survey techniques and species identification from them. At one point, more than 30 scientists were working in visitor center classrooms to identify insects, fungi and plants and entering all the data into databases."

Publicity in local newspapers and television helped create a public "buzz" about the refuge event. "Friday evening people were coming into the visitor center saying 'we saw this on the news this afternoon and we know this is a big job. How can we help,'" Sherry explained. One of the most popular events was a bird banding demonstration, where visitors got a close up view of many bird species and learned how to determine the age and sex of a bird.

### **Diversity in Urban Area**

The BioBlitz confirmed what refuge staff and regular visitors have known for years: In spite of its urban location, the refuge has wild places that are home to everything from prickly pear cactus to bald eagles and river otters. Although some groups are still verifying specimens, 913 species were identified in 24 hours, including 314 insects, 329 plants, six

mollusks, three land snails and slugs, 105 fungi, seven fish (incomplete sample due to dangerous water levels), 15 mammals, 92 birds, 5 reptiles, seven amphibians, five invertebrates and 25 species of spiders. The survey also yielded a few surprises.

"The plant group found a clustered broomrape, a parasitic non-green plant that is a species of special concern in Minnesota. Birding volunteers also documented a Henslow's sparrow, listed as an endangered species in Minnesota and a conservation priority for the U.S. Fish and Wildlife Service in the Great Lakes region.

The event paid big dividends for the refuge. "We now have current records of more than 913 organisms that live on the refuge," Sherry noted. "We had outside experts both confirm things from our previous species list and find new species to add to the lists. The experience may lead us in new research and monitoring directions."

Refuges can benefit in other ways from a BioBlitz. Rocky Mountain Arsenal NWR Complex supported a BioBlitz near Boulder, CO, last summer. Refuge Manager Dean Rundle appreciated the opportunity for cooperation and networking with outside organizations. Land managers and biologists from a variety of agencies "develop information that can be used across the lines of property ownership and bureaucracy," said Rundle.

*continued pg 23*

# Endangered Species Are Beating a Path to our Door



*Least Bell's vireos have been extirpated from California's Central Valley for perhaps a half century. (USFWS)*

*By Kim Forrest*

**The printing presses** that cranked out the issue of *Refuge Update* with its story about the riparian restoration work (the largest in California's Central Valley) at the San Joaquin River NWR have barely cooled down. The last shot of irrigation water was being applied to the young vegetation, before the restorationists called the job done and walked away. This massive CalFed-funded project was winding down and coming to a close.

We knew this restoration project would expedite the "invasion" of the highly-endangered riparian brush rabbit simply by facilitating their access across the old levees from their "soft-release pen" in the reintroduction area. We hoped for natural

expansion of threatened valley elderberry longhorn beetles into the some 28,000 valley elderberry plants planted just for them, as well as increasing the number of endangered San Joaquin Valley woodrats, as the trees matured.

We hoped that, in 20 years or so, we might hear the call of the extirpated State-listed endangered western yellow-billed cuckoo. Three years ago we celebrated the de-listing of the formerly-endangered Aleutian Canada [cackling] goose, having protected and enhanced their wintering habitat on this refuge.

However, with the neatly-planted rows of trees and shrubs, and the intensive irrigation and weed control necessary to produce high-quality riparian habitat in

## **Hurricane** – from pg 3

Some of the outreach has been unusual. Louisiana and Mississippi hurricane refugees will be allowed to participate in the State of Arkansas 2005 hunting season as residents. It's expected this will significantly increase the number of hunters on public lands in the region, especially refuges.

Two additional priorities, one immediate and one long-term, were also being addressed: the impact of spraying to control mosquitoes on endangered species and the impact of recurring disasters on refuge missions and operations. Refuges in the southeast were still cleaning up from Hurricane Dennis in July and Hurricane Ivan the year before when Katrina and Rita barreled over them.

Significant issues exist for wildlife and endangered species in the Louisiana and Mississippi areas. As a consequence of reduced habitat area, animals were forced onto high ground such as levees and berms. Roadway accidents are increasingly a problem. At least one endangered black bear, an adult female, was killed by an automobile.

## **Hurricane Dennis in July**

Hurricane Dennis seems like barely a memory after Katrina, yet it caused \$10.4 million worth of damage and temporarily closed five refuges in western Florida and Alabama in July. Almost a quarter of the total cost is devoted to debris cleanup. This includes downed trees as well as heavy and often toxic debris from residential areas that abut the refuges. St. Marks Refuge Manager James Burnett said potentially hazardous debris such as discarded propane tanks as well as old refrigerators and residential building materials were found along six miles of refuge coastline.

Just last year the same region dealt with Hurricane Ivan but David Lucas, regional budget officer, said the hurricane plans were more effectively implemented this year. "People were more hyped because of the experience with Ivan," said Lucas. There were more law enforcement personnel to enforce closures. When plans called for moving vehicles to higher ground, vehicles were actually moved."

## **Substantial Wildlife Losses from Dennis**

When the levees at St. Marks NWR were breached during Hurricane Dennis, salt

water and organic elements were introduced into impoundments containing both fresh water fish and plants, causing major losses for both projects. Several water control structures were also damaged at St. Vincent Refuge. All the sea turtle nests on St. Vincent Refuge were destroyed. Refuge Manager Terry Peacock said turtles were returning to the beach but showed little interest because the soft dunes had been replaced with hard-packed sand.

Shorebird nesting habitats were also affected as were several endangered species of beach mice. The red-cockaded woodpecker normally nests in older pine trees, which were frequently knocked down by the storm. Lucas said refuge staff created temporary nesting cavities in these trees to help the woodpeckers. The Gulf sturgeon requires high water quality so refuge workers were busy making sure there were clear passages available for these fish. After the storm, Lucas said it would also be important to make sure invasive weeds don't take advantage of the chaos to re-establish themselves. ♦



the Central Valley of California, the place still has some farm-like aspects — for a refuge. And we certainly did not expect this little endangered species to come falling out of the sky.

### Seldom Heard Singing

On June 10, biologist Linette Lina of Point Reyes Bird Observatory/Conservation Science heard a singing male least Bell's vireo — and dropped her equipment. According to the Recovery Plan, least Bell's vireos have been extirpated from the Central Valley, and have not been known to nest here for perhaps half a century. Viable populations are largely restricted to eight southern California counties, mostly in the San Diego area — some 400 miles distant, as the vireo flies.

But wait, the story gets even better. The PRBO/Conservation Science biologists soon saw two fledgling least Bell's vireos

with the adult pair. We scrambled to amend their recovery permit to allow ascertainment of successful nesting within the newly-restored habitat. That done, the biologists closely monitored the vireo family — and found a second nest with four hatched young in the immediate vicinity of the first nest!

We are carefully monitoring this astounding success story, reading up on this unfamiliar little riparian resident — particularly about things like "...site fidelity by vireos after their first breeding season is generally high..." And hoping they bring some of their buddies from San Diego back with them. ♦

*Kim Forrest is project leader of San Luis Refuge Complex, CA.*

### Saving a Modern-Day Noah

While clearing a municipal drainage ditch in a storm-ravaged neighborhood of Bay St. Louis, Mississippi, on September 19, Carl Schwope, a member of the Service's Hurricane Katrina Recovery Team, discovered a 71-year-old man on his debris-strewn lawn. "First, I thought I had discovered a body," said Schwope, fire management officer at Balcones Canyon Lands NWR, Texas. "Then, the man sat upright, smiled and asked me the time!" Though disheveled, the man was otherwise in good health. Following standing procedures, Schwope informed the local authorities about the man's location and physical condition.

Ask about his supply of food and fresh water; the old man chuckled and said that he had enough for himself and the rest of his family. Not seeing anybody else, Schwope asked about the family. "That's when he smiled again,

motioned toward the wreckage around him, and began calling, 'Here chick, chick, chick.'" Suddenly the yard filled with 14 chickens, crawling out from under all the storm debris. The rest of the family consisted of seven dogs and four rabbits.

The man and his menagerie rode out the storm on the roof of his home as the rising 10-foot floodwaters inundated both his yard and house. Afterwards, he decided to stay put until help arrived. Sadly, six of his dogs succumbed, but he and the rest of his "family" survived. "The man was in good spirits and happy to see us working in the neighborhood," said Schwope.

Many have characterized Hurricane Katrina as being a storm of Biblical proportions. One tiny house in storm-ravaged Bay St. Louis became a Noah's ark.



*Even in the face of personal loss, Service employees brought their expertise to aid communities devastated by the unprecedented storms. More than 200 Service employees were assigned to the damaged areas, clearing debris and opening the road to the Louisiana Heart Hospital. (USFWS)*

# Assabet River NWR: Excitement Mounts as Friends Move Forward

**Assabet River NWR** may not have training facilities or restrooms, but its Friends organization is so active that 40-120 people consistently showed up for monthly meetings even before the refuge's official dedication October 23. The Comprehensive Conservation Plan calls for opening the Refuge in six stages over the next several years. An initial five-mile section of trails opened in March. The Visitor Center for the Eastern Massachusetts Complex will be located at Assabet River NWR, but decisions are still being made on the timing of opening each new section of the refuge.

Barbara Volkle is keeping none of her excitement secret. She is president of the Friends of Assabet River NWR, which was formed in 2000, nearly a full year before the U.S. Army transferred Fort Devens Sudbury Training Annex to the U.S. Fish and Wildlife Service. With more than 2,200 acres in a rural-suburban area west of Boston, Volkle notes that Assabet River Refuge is a "great opportunity to save open space in a rapidly developing area." The refuge is located in the Massachusetts towns of Hudson, Maynard, Stow and Sudbury, and Volkle says it enjoys strong support in these communities. Even lingering resentments in Maynard about the closing of the military base are fading, she observed.

Volkle acknowledges that the Friends group had to be creative in determining an agenda since it was organized so long

before the refuge even existed. The biggest challenge was the lack of even the most basic facilities to train, serve, or organize volunteers and visitors. When the Eastern Massachusetts NWR Complex Headquarters lost staff to attrition, the Friends took on additional support tasks.

Assabet River Refuge was a Superfund clean-up site; much of it is still closed to the public because of physical safety hazards. The Friends provided significant assistance in cleaning up other parts of the site, including removing an old Army obstacle course and other heavy debris. They have developed a walking guide to the five miles of trails opened in March. The Friends have also organized bus tours along roads that had been maintained by the Army and brought speakers to those well-attended meetings on everything from nature photography and history to bats and snakes.

"You name it," said Visitor Services Manager Michael Dixon, "the Friends have been right there." The Friends will plan more activities, including guided walks and special events for kids, on the day of the official dedication.



*Volunteers removed parts of a former military obstacle course from the interior of Assabet River NWR for its official dedication in October. Assabet Refuge was a Superfund clean-up site before becoming part of the Refuge System, and much of the refuge is still closed to the public because of physical safety hazards. (Marijke Holtrop/USFWS)*

In addition, the Friends are looking to the future. With grants from the Sudbury Foundation and the National Fish and Wildlife Foundation, the Friends have started using GIS technology to identify and map the top 25 invasive plant species on the refuge. Volkle is also looking forward to the possibility that a large pond, untouched since the early 1940, may one day be used for fishing or limited canoeing.

"Fantastic wildlife" flourishes on the property, but Dixon believes the refuge faces a communications challenge in convincing communities that lie along the boundaries that Assabet River Refuge is indeed part of the National Wildlife Refuge System, not a backyard park. Rules limiting biking, jogging and dog walking will be enforced, and people are asked to keep on the trails. "Nature is inviting," says Dixon, "but we are just guests." ♦

## Fighting Weeds – from pg 9

Although Downard notes the investment of staff time at the outset, she is gradually spending less and less time because the program is designed to be run by volunteers. The San Pablo Refuge volunteers even have an e-mail group called Weedbeaters. It only takes one or two committed volunteers to make the mapping program work.

At Cache River Refuge, two volunteers mapped 60 acres of kudzu within a few weeks of the training. "It is living up to expectations and then some," says Johnson. Once he knows the full extent of the kudzu invasion, Johnson will research treatment options, discuss the alternatives with farmers facing the same problem on land adjoining the refuge, and apply for federal grants to begin controlling the weed.

Downard is also eagerly building local partnerships with the California Department of Fish and Game as well as the Sonoma Land Trust, which owns land around the refuge. She hopes to begin getting rid of the weeds newly mapped by volunteers by next spring. In the fall of 2006, the Bay Institute's Students and Teachers Restoring a Watershed (STRAW) are scheduled to bring 50



# Florida Panther Refuge Opens to the Public

**Florida Panther NWR**, closed to the public since its establishment in 1989, opened a new trail system on June 6, putting visitors into the realm of the endangered and highly elusive Florida panther. If they can't catch a glimpse of the panther, visitors for the first time can see the refuge's bears, deer and turkey, which have already left tracks on the new trails.

"Surveys conducted as we developed the Comprehensive Conservation Plan indicated that the public thought access to the refuge was important," said Refuge Manager Layne Hamilton. "My hope is that everyone will walk away understanding what we need to preserve for future generations."

The trail system is located near the juncture of Interstate 75 and State Road 29. It provides access to the refuge's southeast corner, introducing hikers to such major south Florida habitat as pine flatwoods, prairies, hardwood hammocks and cypress swamps. The trail system consists of two concentric loop trails, including a one-third-mile trail that may be closed seasonally because of flooding and another that is wheelchair accessible.

"Although possible, it is highly unlikely that anyone will see a Florida panther on these trails," said Hamilton. "Panthers are secretive. They usually shy away from people and are most active at night when the trails are closed."

The refuge, part of the Everglades Trail program, allows people to explore

the unique Big Cypress Basin. The new trail results from a government-private partnership and the work of many people. Richard Traverse, for example, donated his engineering expertise to design and plan the parking lot and trails. Others involved with the project are the Federal Highway Administration, the nonprofit Friends of the Florida Panther Refuge and private contributors and volunteers.

The 26,400-acre Florida Panther Refuge is in the heart of southwest Florida's Big Cypress Basin. It encompasses the northern origin of the Fakahatchee Strand, the largest cypress strand in the Big Cypress Swamp. About 125 bird species, including wood storks and swallow-tailed kites, are found on the refuge. ♦



*Florida Panther NWR has been closed to the public since it was established in 1989. As many as five to 11 panthers each month use a portion of the refuge for hunting, traveling to other areas, loafing or denning. Because Florida panthers are such elusive animals, visitors have little chance of encountering one on the trail system, although Jane's Scenic Drive traverses panther habitat and is open to the public. (George Gentry/USFWS)*

teachers and 1,000 elementary school students to San Pablo Refuge to plant native species where the invasive plants have been removed.

Partnership-building to control invasive species can begin even before high-tech mapping comes into play. The staff of the Silvio O. Conte NWR in Rhode Island recently completed five workshops for landowners on setting priorities for

controlling invasive plants. The 99 participants are responsible for nearly 700,000 acres across six states. There were also attendees from conservation commissions, nonprofit land trusts, nature centers, water suppliers, school and colleges as well as federal and state agencies. Many agency representatives wanted information to pass along to landowners, so the workshops are expected to have a ripple effect.

As far as volunteer O'Neill is concerned, the mapping technology is an "absolutely necessary tool to combat invasive weeds that affect refuges, agriculture and forests nationwide." Indeed, of the approximately 100 million acres in the National Wildlife Refuge System, 2 million have been taken over by invasive plants. ♦



*Columbia Fisheries Resource Office biologists Nick Frohnauer and Corey Lee stock fish in a scour lake on the Big Muddy National Fish and Wildlife Refuge. (USFWS)*

*By Tim Haller*

**Largemouth bass** and sunfish are biting once again at Big Muddy National Fish and Wildlife Refuge, MO, thanks to the work of a private landowner, the Missouri Master Naturalists and the Columbia Fishery Resources Office.

Although the refuge has numerous scour lakes in the Missouri River floodplain, created by the floods of 1993 and 1995, they had not been stocked with fish. Periodically, floods recharge them and provide an exchange of fish species from the river, but droughts over the past four years have prevented such an exchange.

“The habitat conditions of these scour lakes was such that we had limited reproduction success,” commented Refuge Manager Tom Bell. To enhance the recreational fishing value of the lakes, fishery biologists Wyatt Doyle and Tracy Hill, both with the Columbia Fishery Resources Office, proposed a shocking-stocking plan.

Doyle knew of a large private lake that was overstocked and was experiencing

## The Fish are Biting Anew at Big Muddy

stunting of largemouth bass due to high reproductive rates and an imbalance in age classes. “This private lake needed to have over 4,000 largemouth bass in the 8-12 inch range removed to help reduce recruitment rates,” stated Doyle.

With permission from the landowner and help from refuge staff, Doyle and Hill set up two electro-shocking projects in early May. “We knew we would be more effective if we caught the bass before they spawned,” said Hill. The first night of shocking, where an electrical current is sent through the water that temporarily stuns the fish so they can be easily netted, revealed the lake also contained an overstocking of large sunfish. The landowner allowed staff to take several hundred sunfish to help balance lake conditions and provide an additional species for the refuge fisheries.

Captured fish were measured. Those outside of the desired size range were released back into the private lake. Largemouth bass and sunfish within the desired range were placed in holding nets and then transferred to tanks on vehicles and delivered to the refuge scour lakes the next day. Stockings occurred on May 11th and 18th. More than 1,000 largemouth bass and over 300 sunfish made the transfer.

Without adequate cover in the scour lakes, the new fish were vulnerable to such predators as gar and flathead catfish, and could expect limited reproductive success. That’s where the Missouri Master Naturalists lent a hand. A group of seven cut invasive cedar trees and sunk them into the

scour lakes to create appropriate habitat.

In addition, they cut and hauled large logs from the Missouri River shore and placed them in the scour lakes, not only to provide habitat for the fish, but also to create basking platforms for the lakes’ many turtles. Before the day’s end, the turtles were already basking on several of the placed logs.

“It was a win-win situation,” said Refuge Manager Tom Bell “A private landowner improved his own lake’s stock. The Missouri Master Naturalist interns moved one step closer to reaching their Master Naturalist status. And our anglers have new fishing challenges, just as the season gets underway.” ♦

*Tim Haller is a park ranger at Big Muddy National Fish and Wildlife Refuge, MO.*



*Master Naturalist and Columbia Independent school teacher John Hager prepares a tree as the boat returns to haul another tree out to create much needed fish habitat. (USFWS)*



# Baby Switch in High Places

By Denise Stockton

**The swap was made** so secretly and expertly the parents didn't even realize the offspring was not really theirs. The undercover job included a five-hour race to the airport and a harrowing climb up a mountain cliff.

In the end, the pair of wild California condors, who had been faithfully sitting on an infertile or otherwise bad egg for the full 57-day incubation, welcomed their chick with no change in behavior. Biologists with Hopper Mountain National Wildlife Refuge Complex, CA, credited swift action and partner cooperation with this successful egg switch, only the second time such a procedure was undertaken. The first such swap was made in 2001 with the first eggs laid in the wild since condors were reintroduced. Although the chick only lived a few days, scientists realized the technique worked.

This year, refuge biologists worked with the San Diego Wild Animal Park, a partner in the California Condor Recovery Program, to switch out the bad egg for a fertile zoo-laid one, which the park had expected to hatch April 22, a few weeks after the wild birds' egg would have. The new "parents" are an original wild male – known as AC-9 – and a captive bred female released in Big Sur.

The biologists knew that speed was essential. The nesting pair could abandon the nest at any time. Two members of the rescue team, composed of experts from the San Diego Wild Animal Park, the Los Angeles Zoo and the Fish and Wildlife Service, hiked into the remote area on April 20 to observe the incubating male, who was still sitting tight. San Diego zookeepers then made the five-hour race to Oxnard Airport with the fertile egg. Met by the Service biologists, they flew by helicopter into the remote backcountry of the Sespe Condor Sanctuary.

After a rigorous eight-mile hike and a 150-foot climb up to a site just above the nest, one biologist repelled down to the nest

and the egg cradled in a portable incubator was raised from below. Almost immediately after the fertile egg was substituted for the failed egg – leaking and rotten – the male returned and resumed incubation. But would the female also return?

The female condor fed that morning at the refuge and then departed about 11:30 a.m. with a full crop, heading up Hopper Canyon toward the nest. The female appeared at the site about 90 minutes later and landed near the nest. The male emerged from the nest and both birds took to the air. They landed some distance from the nest site on a rocky cliff face. The male then returned to the nest. Seeing this, the female also entered the nest. Moments later, the male left the nest and the area. The female settled on the egg and remained there for the next day and a half. On the morning April 24, the female stood up briefly, and biologists caught a quick glimpse of the chick as the female gently moved it toward her.

"This success shows the power of partnerships in the Condor Recovery Program," said Marc Weitzel, Hopper Mountain Refuge project leader. "The partners united quickly to take action in a critical situation."

Last year, California saw its first condor chick to fledge in the wild in 22 years.



*A five-hour race to the airport and a harrowing climb up a mountain cliff enabled a pair of wild California condors, who had been faithfully sitting on an infertile or otherwise bad egg for the full 57-day incubation, to welcome a wild-born chick that resulted from a successful egg switch, only the second time such a procedure has been undertaken. (Mike Clark/LA Zoo)*

There are 274 condors in existence; 116 of those are flying in the wild in California, Arizona and Baja California, Mexico. These numbers change rapidly this time of year as chicks are hatched in the zoo. ♦

*Denise Stockton is an outdoor recreation planner at Hopper Mountain NWR Complex, CA.*

## Wildlife Refugees – from pg 1

activity,” noted Secretary Norton. “That is an economic return many businesses would envy, yet the National Wildlife Refuge System has as its primary mission to conserve, enhance and maintain our wildlife resources – a mission they are accomplishing admirably.”

The *Banking on Nature 2004* study included money spent for food and refreshments, lodging at motels, cabins, lodges or campgrounds, and transportation when it calculated the total economic activity related to refuge recreational use.

The report reinforces that eco-tourism is no longer a relatively rare phenomenon, but has become big business, according to Roger Dow, president of the Travel Industry Association of America, who unveiled the report with the Secretary of the Interior.

The report looked at six activities: freshwater fishing, saltwater fishing, migratory bird hunting, small game hunting, big game hunting and non-consumptive activities, including wildlife observation. The National Wildlife Refuge System offers visitors six priority public uses: hunting, fishing, photography, wildlife observation, environmental education, and interpretation.

Other findings from the *Banking on Nature 2004* report are:

- Visitors to national wildlife refuges enjoyed a “consumer surplus” of more than \$1 billion in 2004. Consumer surplus measures how much more people are willing to pay for recreation than it actually costs them.
- Local residents accounted for just 17 percent of total retail sales from refuge recreational visitors. More than 80 percent of retail sales came from people who traveled some distance to get to national wildlife refuges and the recreation offered there.
- The Southeast led the Refuge System in economic impact. With nearly 11 million visitors last year, national



## A New Wolf Birth at St. Vincent Refuge

### *First Wolf Litter Since 1998*

**Biologists on St. Vincent** National Wildlife Refuge, FL, the only island propagation site active in red wolf recovery, found evidence on June 8 of the first wild-born litter of pups since 1998, when four pups were born. Radio-tracking telemetry data collected by staff and volunteers suggested the pups had been born sometime between April 26 and May 11.

Wildlife Biologist Thom Lewis was tracking female red wolf 982 when he found a rendezvous site in the middle of a sandy road. A large area in sand with both adult size and smaller tracks verified that female 982 and male 1124 had successfully bred.

*Carla Mitchell holds red wolf pups born on St. Vincent NWR, FL, the only active island propagation site. (USFWS)*

Prior to this year, fifteen pups have been born in four litters on the refuge since it was named a propagation site. All but two were born in the wild. St. Vincent Refuge gives red wolves the “wild” experience in a somewhat controlled setting before they are released at mainland reintroduction sites.

The St. Vincent program is not intended to establish a permanent population of free-ranging red wolves. In the future, some of the St. Vincent pups may be released into the wild in eastern North Carolina.

The parents of the newly discovered pups, the only wolves on the island, have an interesting history. Female 982, born May 1998 on St. Vincent Island, was transferred to Alligator River National Wildlife Refuge, NC, in January 2000. She returned to St. Vincent’s on



wildlife refuges in the Southeast created more than \$451 million in economic activity and more than 8,500 jobs.

- Last year, national wildlife refuges received nearly twice the number of visitors as the Grand Canyon, Yosemite, Yellowstone, Acadia, Grand Teton and the Statue of Liberty national parks combined.

### Methodology Used

Banking on Nature 2004 examined in detail 93 national wildlife refuges. Although refuges in Hawaii and Alaska were examined, they were not included in the final calculation of total economic activity because travel to those locals is so expensive. Instead, the calculations are based on national wildlife refuges in the

Lower 48 states and those refuges that received more than 1,500 visitors in 2004.

In making its calculations, *Banking on Nature 2004* used the Fish and Wildlife Service's "2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation" and the Refuge Management Information System, which tracks visitation.

*Last year, wildlife refuges received more visitors than the Grand Canyon, Yosemite, Yellowstone, Acadia, Grand Teton and the Statue of Liberty National parks combined. (USFWS)*



### Minnesota Valley – from pg 15

Refuge Manager Andy Loranger at Anhuac NWR in Texas says a BioBlitz is a good starting point for meeting the mandate of biodiversity. Anhuac was the site of a BioBlitz in 2004. "It forced us to look at more than traditional migratory birds," said Loranger. "As a tool to focus our thinking, it provides base line information that will be an historical benchmark for future generations."

Loranger also noted that BioBlitzes are often organized by outside organizations that then help spread the word about the importance of refuges. Sherry was also pleasantly surprised by the public's interest in learning about flora and fauna. "There seemed to be a passion for the refuge. People wanted to learn, but they really wanted to help us," said Sherry. "You could see that the people truly appreciated the refuge and understood what an important place this was for wildlife and plants." ♦

*Scott Flaherty is a public affairs specialist in the Great Lakes Region External Affairs Office.*

### Conducting a BioBlitz: Some Lessons Learned

After her first BioBlitz, Minnesota Valley NWR Biologist Vicki Sherry offered some tips for hosting such events:

- Attend a similar event before you undertake one, or at least talk to someone who has conducted one at a refuge. Contact Vicki at 952-858-0723 or e-mail her at [vicki\\_sherry@fws.gov](mailto:vicki_sherry@fws.gov). You can also check a Web site created by the U.S. Geological Survey, <http://www.pwrc.usgs.gov/blitz/blitzlink.html>, which provides links to BioBlitz sites around the country
- Team leaders should be identified early for each group of organisms, plants, mammals, insects and others. Leaders can come from the refuge, other U.S. Fish and Wildlife Service offices, natural resource agencies, nature centers,

universities, and groups such as Audubon chapters and native plant societies. They should work closely with a refuge representative before the event to learn as much about the refuge as they can. Because team leaders will be responsible for coordinating volunteers, the training helps match volunteers with scientists before their arrival at the event.

- BioBlitz events attract people who are really interested in helping collect data. So change the nature of the day's hikes to incorporate data collection. Everyone should be considered a biologist for the weekend.
- Make sure your volunteer biologists-for-a-weekend feel useful and valued.

## Chief's Corner – from pg 2

welcome new visitors without endangering the lands that bring them to us. We have already proven we can do just that.

Our outstanding educational and interpretive programs teach people how to respect the fragility of our natural resources, how to interact with nature without trampling it. Our small facilities enhancement program builds observation towers, photo blinds, boardwalks and more – bringing visitors to us, but keeping them at an appropriate distance. Our festivals, wildlife talks, guided tours and family programs translate scientific concepts into understandable language, and make concern for natural resources an everyday issue for millions.

The fact that national wildlife refuges have an economic payback for communities is an unanticipated benefit – but one worth heralding, especially since we return four times our annual operations and maintenance budget. *Banking on Nature 2004* reports that about 80 percent of our visitors travel at least 30 miles to see a national wildlife refuge. They think it's well worth the trip. Let's give them a huge welcome, and the assurance that we will be around forever.

## Wolf Birth – from pg 23

Valentine's Day 2001, but has never had pups. The former mate, male 779, came from Alligator River Refuge in February 2000, and was released into the wild in October 2000. He did not breed and was shipped to Florida's Lowry Park Zoo in December 2004 in hopes that a new male would produce pups with female 982 on St. Vincent Island.

Her current mate arrived from the North Carolina Zoo in November 2004 and was released into the wild in January 2005 after he acclimated. The pair quickly joined one another and have acted like pair-bonded animals ever since. ♦



*Biologists on St. Vincent NWF, FL, found evidence in June of the first wild-born litter of red wolf pups since 1998. (USFWS)*

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## Send Us Your Comments

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



# RefugeUpdate

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