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Texas and Louisiana refuges were severely damaged in mid-September.

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The Refuge System manages wetlands to enhance their value for migratory waterfowl and shorebirds, threatened and endangered species and a myriad of native fish, wildlife, and plants.

Fluttering Close to Extinction, page 17.

Antioch Dunes Refuge is out to save the Lange's metalmark butterfly.

A Leadership Reading List

Now is a great time to pick up a volume or two that give us insights into conservation leaders:

- Dreamers & Defenders, American Conservationists by Douglas H. Strong. Henry David Thoreau, Frederick Law Olmsted, John Muir: They're all here as Strong recalled the triumphs and defeats of 12 conservationists.
• Women in the Field, America's Pioneering Women Naturalists by Marcia Myers Bonta. Published in 1991, this title contains the biographies of 25 women, including many whose names have never become as well known as they should have.
• National Leaders of American Conservation, compiled in 1985 by the Natural Resources Council of America. The book presents brief biographical sketches of people who made enduring contributions to conservation and professional resource management.
• Pioneer Conservationists of Eastern America by Peter Wild, a journalist, a backpacker and a poet of the American West. Here you will find John Burroughs, George Bird Grinnell and Howard Zahniser, among others.

RefugeUpdate

September/October 2008 Vol 5, No 5

Independent Analysis Finds Refuge System Struggles to Meet Goals



After an extensive study, Management Systems International (MSI) found the Refuge System at least partially effective in nine of its 12 strategic goals. MSI rated the Refuge System as "highly effective" in one goal: facilitating partnerships and cooperative projects, including its volunteer program. (USFWS)

An independent evaluation has found that the Refuge System experienced an 11 percent decline in real purchasing power between FY 2003 and the FY 2008 requested budget. As a result, the Refuge System has been unable to maintain its level of operational activity, according to the report from Management Systems International (MSI), which conducted the evaluation between October 2006 and September 2007.

The report, titled, "An Independent Evaluation of the Effectiveness of the U.S. Fish and Wildlife Service's National Wildlife Refuge System," was delivered to Service Director H. Dale Hall on July 11. The Service Directorate was briefed in early August.

In its report, MSI rated the Refuge System as "ineffective" in meeting two strategic goals:

- Protecting resources and visitors through law enforcement.
• Strategically growing the System.

Among its 11 principle recommendations, MSI advises increasing the number of full-time Refuge System law enforcement officers from the current 200 to 400. While MSI noted that law enforcement training is "sound and improving," the firm also noted a "critical lack of law enforcement coverage" at most field stations. More than 70 percent of refuge managers indicated they feel law enforcement coverage is "insufficient" at the refuge they manage.



H. Dale Hall

From the Director Defining Leadership

In anticipation of Leadership Awareness Day on October 27,

Refuge Update sat down with Fish and Wildlife Service Director H. Dale Hall to hear his viewpoints about leadership.

Q: Who are your conservation leadership heroes?

A: Other than the traditional iconic heroes, I have heroes throughout the ranks of this organization and other organizations. I find leadership at every level in the Fish and Wildlife Service. A biologist or a clerk in one of our offices can be a leader because leadership is about influencing others to do great work and to meet their maximum potential. Leadership happens every day in the Service. Today's leaders are the ones who are quietly getting the job done.

One crucial time and leader in the Service stands out for me. That's when (former Service Director) John Turner took a very unpopular stand within his political party by supporting the reintroduction of wolves. It took courage and strength, and it cost him in his career in the next administration. It was a true example of leadership. He wasn't out to win a popularity contest; he followed his conscience, and did what he knew was right.

Q: What more should the Service do to groom leaders?

A: First, we have to recognize our outstanding development programs. We are doing a tremendous job at NCTC (National Conservation Training Center), through courses like the employees foundation class, Advanced Leadership Development Program (ALDP), Stepping Up to Leadership, and the SES candidate development program. All are positioning us very

well for future. Hundreds of people may never have realized their potential were it not for such programs.

Beyond that, we need to look for more opportunities to discuss leadership with rank and file employees. It is critical that when supervisors face tough decisions, we explain to employees our thought process. Share your insights and why you went in the direction you did. Not everyone will agree, but everyone needs to understand how you got to the decision. Leadership is the burden of explaining a decision that took into account conflicting viewpoints among good people.

Q: The Service has often talked about the need for Washington experience as a prerequisite for a Grade 15 promotion. What do you see as the unique value of Washington experience?

A: Washington gives you vision – the

continued on pg 14



Geoff Haskett

Chief's Corner Farewell and Thanks

As I pack to take my next assignment as the Regional Director in

Alaska, I leave Washington, D.C., with real sadness – saying good-bye to so many enthusiastic, professional and fun people who work for and support the National Wildlife Refuge System. I am also leaving with real pride in the good things that have taken place over the two and a half years that I was Chief of the Refuge System.

We've seen the establishment of the bipartisan Congressional Wildlife

Refuge Caucus, with 146 members representing 42 states and 228 national wildlife refuges. In October 2007, when we celebrated the 10th anniversary of enactment of the National Wildlife Refuge System Improvement Act, the Capitol Hill room was overflowing with members of Congress, their aides and hundreds of our supporters and Friends. The room was so full that Interior Secretary Dirk Kempthorne could barely shoulder his way to the podium to deliver remarks.

We've seen a reinvigoration of our relationship with the National Wildlife Refuge Association and the growing

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Refuge Update

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Gulf Coast Refuges Rebuilding After Hurricane Ike



Texas Chenier Plains National Refuge Complex caught the full force of Hurricane Ike. The mid-September tropical storm impacted every standing structure on the complex, which at one point was covered with more than ten feet of sea water. (USFWS)

Rebuilding programs are in the works at coastal refuges – prized for the habitat they provide wintering waterfowl and other wildlife – in Texas and Louisiana that were heavily damaged in mid-September by Hurricane Ike.

The cost of cleaning up the field stations and then replacing or repairing an array of administrative and recreational facilities was initially pegged at more than \$260 million. The costs of repairing Service facilities elsewhere that were flooded or otherwise damaged by the remnants of the tropical storm were still being tallied as *Refuge Update* went to press.

Texas Chenier Plains Refuge Complex, 110,000 acres of wetlands that stretch along the upper Gulf Coast between Houston and the Louisiana border, caught the full force of the storm. Every standing structure was impacted. Storm-generated winds covered much of the refuges with more than ten feet of sea water, which is death to freshwater marshland vegetation. “For about 24 hours, every foot of four

national wildlife refuges became part of the Gulf of Mexico,” said complex manager Tim Cooper.

Just to the east, in Louisiana, Ike whipped through Sabine, Lacassine, Cameron Prairie and Shell Keys Refuges, all part of the Southwest Louisiana Refuge Complex. Most of the complex’s 320,000 acres of wetlands were inundated by surging sea water. At Sabine Refuge, two bridges as well as visitor-comfort and recreational facilities – heavily damaged by Hurricane Rita in 2005 and

subsequently rebuilt – were destroyed anew.

As flood water receded, emergency response teams were on the scene at each refuge complex to, among duties, assist refuge staff members whose houses were destroyed or damaged. Trailers were made available and tarps stretched over damaged roofs. “It’s always gratifying to see how well we take care of our own,” said Southwest Louisiana Complex project leader Don Voros.

The Friends of Aransas and Matagorda Island National Wildlife Refuges established a FWS Hurricane Ike Fund to aid Service employees in Texas and Louisiana who have been impacted by Hurricane Ike. Donations are welcome. Checks should be made out to “FAMI” and mailed to FAMI, P.O. Box 100, Austwell, TX 77950.

Contractors and engineers were quickly on the scene to assess damages and prepare estimates of damage-repair costs. Cleaning up Sabine Refuge will be complicated by the presence of containers of hazardous material and oil field debris that Ike scattered over the refuge’s 125,000 acres of wetlands. ♦



The storm also rolled over Southwest Louisiana Wildlife Refuge Complex. At Sabine Refuge, recreational facilities and bridges damaged by Hurricane Rita in 2005 and subsequently rebuilt were destroyed anew. (USFWS)

Preparing Iowa Firefighters for Prescribed Burns

Specialists from two national wildlife refuges in Iowa are helping train volunteer fire departments to assist private landowners and wildlife managers maintain and improve habitat conditions with prescribed fires. Many of the landowners are enrolled in the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program.

"This project benefits critical wildlife habitat in privately owned corridors adjacent to federal lands," said Gregg Pattison, a biologist with the Service's Iowa Private Lands Office in Lamoni. "These habitats include grasslands and woodlands that need fire to maintain a healthy plant community."

The training program stemmed from the experiences of northern Iowa's Smithland Volunteer Fire Department; several of its members previously had been trained by Federal fire-response teams. Five years ago, the department began promoting prescribed burning – mostly aimed at invasive trees and

shrubs – as a public service and as way of raising money. Participating landowners make voluntary donations to the department, which provides "suggested" contribution rates based on acres, fuels, terrain and fire breaks.

The Smithland department's success prompted Agren Inc., an Iowa-based agricultural and environmental consulting firm, to obtain a three-year Conservation Innovation Grant from the U.S. Department of Agriculture to expand the pool of Iowa firefighters who could provide similar assistance to private landowners and help out with much larger wildfires. The now-expanded training project also is supported by Iowa Resource Enhancement and Protection Program funding, the Southern Iowa Oak Savanna Alliance and the Loess Hills Alliance.

Drilled on the Basics

In early 2008, 10 fire departments signed up for a basic wildland fire training course, which was held at Iowa's

Graceland University. Most of the departments were from the western and southern portions of the state, where grasslands are most concentrated. The course was taught in part by prescribed fire specialists from Neal Smith and Port Louisa National Wildlife Refuges. The training, Pattison said, was "by the book" – the same entry level instruction provided for Service employees. The training involved 40 hours of course work and field exercises designed to allow the firefighters to work safely with state and federal fire specialists. The trainees were drilled on the basics of wildland firefighting and the specifics of the fuels and terrain found in Iowa.

In part, the participating fire departments were prompted to learn more about prescribed fires as a way of raising money, Pattison said, but the units wanted to learn more about fighting grassfires, the most common kind of wildfire in Iowa. In parts of southern Iowa, if the weather is especially dry, many departments are called on to control a dozen or more grass fires a year.

As of May 2008, the freshly trained volunteer units had completed burns on more than 500 acres of public and private land. More burns are planned for the fall.

Pattison said that another 30 or so firefighters want to take the training. "We hope to get many more volunteer departments up to a basic level of wildland fire training," he said. "This kind of cooperative program would not be difficult to start in other states if there are good partners to help out. Our national wildlife refuges would certainly benefit." ♦

For more information on the Iowa training program, contact Gregg Pattison at 641-784-5356 or Gregg_Pattison@fws.gov.



Specialists from two national wildlife refuges in Iowa are trainers in a program designed to equip volunteer fire departments with the skills needed to conduct prescribed fires. (USFWS)

How Mississippi Sandhill Cranes Are Rebounding

by Emily Neidigh

Established in 1975, Mississippi Sandhill Crane National Wildlife Refuge safeguards the last remaining population of its endangered namesake, as well as rare wet pine savanna habitat. By using fire and other habitat management techniques, the refuge has so significantly increased crane habitat that the population – which once hit a low of about 45 – is now up to more than 100 birds, the result of the world’s longest-running crane reintroduction program.

Twenty juveniles are to be released this winter.

Efforts to save the crane began in 1965. Eggs gathered from wild nests were used to build a captive breeding program at Patuxent Research Refuge in Maryland as a distinct population then believed to be a part of the Florida sandhills. In 1972, Mississippi cranes were recognized as a separate subspecies; the refuge was established under the Endangered Species Act.

In 1981, the first cranes were released onto the refuge to join 30-40 wild birds. In 1995, the Patuxent birds were moved to the Audubon Institute’s Species Survival Center in Louisiana and to the White Oaks Conservation Center in Florida.

“Cryochick” Conceived

Last year, in a major advance, a Mississippi sandhill crane was for the first time conceived from frozen sperm at the Audubon center. The crane, nicknamed “cryochick,” was released on the refuge in January. Successful use of this technique means that genetic bloodlines preserved over the past 40 years can be used to strengthen under-represented family lines.

At the Audubon Institute, cranes are reared both by parents and by puppets. The young cranes see costumed workers as grey blobs, fixating on puppets that



In a major advance in an on-going drive to enlarge the population of endangered Mississippi sandhill cranes, a chick has been conceived with frozen sperm. (Tracy Garcia/USFWS)

teach them crane survival skills. Chicks at White Oaks are all parent-reared.

When winter rolls around, it’s time for acclimation and release on the refuge. The captive cohorts are banded and fitted with radio transmitters. The cranes also are outfitted with wing restraints that will keep them grounded during their acclimation period.

The refuge has several pens where the young cranes are released. The pens are not covered, giving older cranes a chance to drop by and socialize. The acclimation period usually lasts about 30 days, after which the cranes’ wing restraints are removed. Having never flown, the young cohorts follow the lead of the older cranes and soon begin stretching their wings.

Absence of Rain

Our Gulf Coast location has its advantages and disadvantages. On one hand, the cranes don’t need to migrate. On the other hand, tropical storms can pose threats. So far, not many birds have been lost to the storms. The hurricane

season typically starts after nesting season has completed. The refuge is well above the tidal surge zone, and the cranes are not confined – they can, and do, fly out of harm’s way.

The real problem is a prolonged absence of rain. During a drought, cranes typically will not nest. Those that do often will give up in short order. Drought also makes roosting sites less safe. Cranes typically roost in open water that separates them from approaching predators. In a drought, that open water evaporates, leaving the cranes vulnerable.

This has been a banner year for our wild nests with two chicks fledged and another very close to doing so.

Cryochick I, by the way, is doing just fine. Full-sized and flying, he’s behaving no differently than the other young birds that were captive-reared. ♦

Emily Neidigh is an outdoor recreation planner at Mississippi Sandhill National Wildlife Refuge.

Saving Flavor of the Past on Kofa Refuge



Like many national wildlife refuges, Arizona's Kofa Refuge recognizes the importance of preserving history. In a partnership with Kenai National Wildlife Refuge in Alaska, Kofa Refuge has restored several historic buildings and opened them to the public. (USFWS)

When it's a pleasant 65 degrees during a winter day in western Arizona, as many as 400 people a month make the half-mile trek from the end of a 15-mile-long, four-wheel-drive road at Kofa National Wildlife Refuge, just to see the historic Big Eye Cabin and be reminded of days gone by. Kofa Refuge – like so many national wildlife refuges – has recognized the importance of saving its history.

Today, thanks to a partnership with Kenai National Wildlife Refuge in Alaska, Big Eye Cabin is just one of several historic buildings that Kofa Refuge has stabilized, restored and opened to the public. For visitors who camp overnight – and most don't – the cabins are available on a first come, first served basis.

Kenai Refuge park ranger Gary Titus has visited Kofa Refuge annually since 2002 to oversee restoration not only of Big Eye Cabin, but also the Wilbanks and Hoodoo cabins and the Antares

Mine Building, still being restored. In addition, Kofa Refuge has maintained the two-room Kofa Cabin, built of basalt and mortar in the 1930s.

"I met Gary at the Federal Law Enforcement Training Center in 2001," says Susanna Henry, Kofa Refuge manager. "Gary stressed the importance of saving the Refuge System's great historic structures."

The Kofa Refuge buildings recall a time when mining was a major force in Arizona's economy and lifestyle. Built sometime between 1912 and 1917, Big Eye Cabin was part of the Big Eye Mine, originally held by A.K. Ketcherside of Yuma. It produced \$33,185 in gold – a hefty sum in the day.

The Antares Mine Building, at 900 square feet the largest building on the refuge, was built in the early 1900s, following discovery of the King of Arizona Mine. The wooden building

is the last structure standing from the ghost town of Polaris, which had as many as 2,000 residents at the height of gold mining in Arizona.

Kofa Cabin was built as an administrative building by a unit of the Arizona Conservation Corps, whose members were Native Americans from the nearby Colorado River Indian Tribes (CRIT) Reservation. Still standing strong, Kofa Cabin only needs an annual cleaning of its walls and concrete floor and some periodic repairs to the roof.

Wilbanks Cabin was built by Jack Wilbanks in 1934, three years after he moved to the Kofa Mountains to raise cattle and a family. They were among the pioneering families that first brought cattle to western Arizona. Jack, his wife Martha and their daughters lived in the cabin until 1945. The roof joist of the Wilbanks Cabin – just two rooms, one built around a large wood-burning stove – was reinforced in 2006 after it became apparent that the cabin had begun to sag.

The Hoodoo Cabin, originally a line cabin for the Crowder/Weisser Cattle Company, had been built in the 1940s from a kit. In fact, in the kitchen, visitors can still see the numbered brass medallions that helped people assemble their homes.

Last year, staff from Imperial and Kofa Refuges and Titus repainted the cabin to its original colors – inside and out – and replaced the wood-burning stove with one donated by Kofa Refuge maintenance worker Glen Wilson.

Throughout the restoration projects, Titus recommended that Kofa Refuge work closely with regional archeologist Dave Siegel and Bob Frankenberger of the Arizona State Historic Preservation Office to be certain that any repairs would not jeopardize the opportunity to have the buildings listed on the National Register of Historic Places.

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Another Refuge Week to Remember



Months of planning by refuge staff members, volunteers and Friends group members paid off as thousands of Americans took a running jump into the Refuge System's rich diversity of resources during October's National Wildlife Refuge Week. (USFWS)

Thousands of Americans young and old enjoyed the Refuge System's rich diversity of resources during National Wildlife Refuge Week, October 12-18. Visitors participated in activities ranging from pier fishing to butterfly counts to walks to hunkering down in circles in a unique (and fun) bird-watching program.

Months of planning by refuge staff members, volunteers and Friends group members paid off in a big way as refuges all across America spotlighted the

Refuge System's opportunities for wildlife-dependent recreation.

This year's Refuge Week celebration also highlighted milestones for two programs: The Duck Stamp Program marked its 75th anniversary, the Small Wetlands Program its 50th year.

Ninety-eight cents of every dollar generated by the sale of Duck Stamps goes toward the purchase or lease of wetland habitat for the Refuge System. Duck Stamp sales have helped purchase or protect more than 5.2 million acres of wildlife habitat. For more information about Duck Stamps, go to <http://www.fws.gov/duckstamps/>.

The Small Wetlands Program was created in 1958 to allow proceeds from the sale of Duck Stamps to be used to

acquire waterfowl production areas (WPAs). Close to one million acres of land acquired through the Small Wetlands Program is open to hunting, wildlife watching and photography and other outdoor recreation.

Events on Refuges

Thirty-three refuges showed off their resident plumage by welcoming one and all to the Big Sit!, an increasing popular annual bird-watching event, sponsored by *Bird Watchers Digest* and held this year on October 12.

Visitors to Lake Ilo National Wildlife Refuge in North Dakota built bluebird nest boxes. Blackwater National Wildlife Refuge in Maryland held its 13th Refuge Open House with eagle prowls, live animal programs, a puppet show about invasive species and live animal exhibits. Elsewhere in Maryland, Patuxent Research Refuge joined with Smithsonian Resident Associates to offer a behind-the-scenes tour of captive breeding programs for whooping cranes and conservation-related research on kestrels and diving ducks. ♦

Chief's Corner – continued from pg 2

strength of the 22-member CARE (Cooperative Alliance for Refuge Enhancement) organization. We have an ever more powerful Refuge Friends movement and a record number of Friends organizations. I wish I could be sure that I will attend the National Friends Conference in February 2009, but I know it will be an outstanding educational and networking event.

Public awareness of the Refuge System has grown as our public service

announcement, with the tag line "Get Some Nature into Your Kids," airs on more than 345 commercial and cable television stations in about 170 media markets. People have become aware that the Refuge System is not just the world's preeminent system of public lands devoted to the protection and conservation of fish and wildlife and their habitats, but also an economic engine in some communities. The Refuge System generated more than \$1.7 billion in economic benefits in 2006 and created

about 27,000 jobs. Those facts got huge news coverage when we released them through our *Banking on Nature* report.

I've traveled all across the country during my time as Chief, and I've become acutely aware that none of this could have been done without the support of Refuge Friends and staff. It has been truly an honor to be the Chief of Refuges, and I plan to continue my support from Alaska. ♦

FOCUS . . . *Wetlands*

Restoring the Wild Heart of the South Bay



The largest tidal wetland restoration project on the West Coast is now underway. In the first phase of an undertaking managed in part Don Edwards San Francisco Bay National Wildlife Refuge, more than 15,000 acres of salty ponds and crusted salt flats will be transformed into a mix of tidal marshes, mudflats and managed ponds. (USFWS)

by Mendel Stewart and Steve Ritchie

Over time, large swaths of tidal wetlands that once ringed San Francisco Bay have been diked and filled for farming, residential and commercial development and salt production. As a result, the Bay has lost more than 85 percent of its tidal wetland habitats—

and local residents have lost a valuable wildlife and recreational resource.

Now, a massive restoration project, managed in part by Don Edwards San

Francisco Bay National Wildlife Refuge, is out to turn back the clock. The public process to design a restoration plan, started in 2003, involved a wide array of stakeholders, among them local and national environmental organizations, recreation advocates, local elected officials, homeowners associations and business leaders. The final plan is slated to receive regulatory approvals this year, with the first phase of implementation commencing shortly thereafter.

In the first phase of the South Bay Salt Pond Restoration Project—the largest tidal wetland restoration project on the West Coast—more than 15,000 acres of salty ponds and crusted salt flats will be transformed into a mix of tidal marsh, mudflat and managed ponds. In time, the restored wetlands will host migrating and resident shorebirds, fish and endangered species such as the salt marsh harvest mouse and California clapper rail. The project will also improve water quality for fish and other species by restoring

Turning a Mud Hole into a Wetland

by Margo Stahl

In Florida, Hobe Sound National Wildlife Refuge's partnership with a local utility has turned a lifeless six-acre tangle of mud and weeds located on a corner of the refuge near the Indian River Lagoon into a thriving wetland.

We had a unique opportunity to rescue valuable habitat. Now we've got this little jewel of a wetland!

Years ago, before the refuge was established, the wetland's natural connections with the lagoon—one of the most biologically diverse estuaries in the United States—were blocked as marshes were impounded as a part of mosquito-control efforts. Now the mud hole has

been transformed by brackish water piped in by the utility.

Hobe Sound – an oasis located between burgeoning Jacksonville and Miami – is a coastal refuge bisected by the lagoon. One section is on Jupiter Island, the other on the mainland. The wetland, located on the mainland section, is part of a 300-acre patch of increasingly hard-to-find pine scrub.

The utility, South Martin Regional Utility, provides drinking water for about 20,000 customers. One station the utility uses for extracting potable water from wells is located on a hill not far from the refuge's mainland tract – and the former mud hole. As the station began withdrawing large amounts of salt water from wells

San Francisco Bay's natural filtering system.

And Bay Area residents and visitors will be able to experience the natural edge of the South Bay through a greatly expanded network of trails and viewing platforms. This reconnection of people with the Bay is an essential component of the refuge's mission.

Spread over three distinct sub-regions in the South Bay, 9,600 acres of the restoration project are managed by the national wildlife refuge. The remaining acreage is managed by the California Department of Fish and Game.

Purchased in 2003

The South Bay Salt Ponds were purchased in 2003 from Cargill Inc. with funds provided by federal and state resource agencies and several private foundations. Even before restoration planning began, the refuge had gotten a green light to reverse the salt-making process and prepare the ponds for full-scale restoration. Managers opened culverts

and breached levees in strategic locations at different times of year to gradually reduce the salinity of the ponds and re-connect the shoreline to the influence of tidal action.

A set of three ponds – known as the Island Ponds – was opened to tidal action in March 2006 with dramatic results. Within a few weeks of the breach, thousands of shorebirds and ducks settled down on the ponds. As sediment built up on the newly formed mudflats, researchers spotted native pickleweed beginning to colonize.

The next phase includes breaching additional levees, constructing nesting and resting islands for migrating shorebirds and removing invasive plant species. Between 2008 and 2012, the project will begin actively restoring 1,000 acres to tidal marsh, enhance another 2,000 acres of pond habitat for shorebirds and waterfowl and open about 7 miles of new trails with viewing platforms and interpretive signs. All of this work will be guided by the project's Adaptive Management Plan, which covers

everything from bird and fish counts in the project area to the impact of trail use on wildlife behavior to the possible effects of climate change.

The South Bay Salt Pond Restoration Project is part of an ambitious 50-year plan eventually to transform a landscape the size of Manhattan to a thriving wetland ecosystem.

For the first few years, the refuge and other managers understand that all elements of the restoration project are essentially pilot projects – with “lessons learned” applied to each subsequent advance. Will the work be challenging? Yes, but it's all a part of what is known as adaptive management. ♦

Mendel Stewart is project leader, San Francisco Bay National Wildlife Refuge Complex. Steve Ritchie is executive project manager, South Bay Salt Pond Restoration Project.

that had been over-pumped by previous owners, the utility asked if the refuge could use the water.

We all saw it as a great opportunity. The utility wanted to do something positive.

In short order, the re-hydration project got under way in 2002 and continues to evolve as fish and birds are becoming established. With help of gravity, the brackish water reaches the new wetland in a steady flow through a buried six-inch pipe, which extends under railroad tracks and a highway.

The health of the wetland is monitored by an environmental consulting firm. Among other assistance provided to the refuge, the consulting firm has arranged for the removal of invasive plants from the new wetland. ♦

Margo Stahl is manager of Hobe Sound National Wildlife Refuge in Florida.

Hobe Sound National wildlife refuge's partnership with a Florida utility has turned a six-acre tangle of mud and weeds into a thriving wetland. (USFWS)



FOCUS . . . *Wetlands*

Saving a Region's Wetlands



Created a half century ago to stem the rapid loss of rich prairie habitat, the U. S. Fish and Wildlife Service's Small Wetlands Program has – with the help of thousands of private landowners – become a great American conservation success story.

Thanks to the program, about three million acres are now permanently protected in the Prairie Pothole Region of the northern Great Plains. The wetlands and grasslands of the region – including countless seasonal wetland basins – produce nearly half of America's ducks and provides habitat for many species of grassland birds. These lands also offer excellent places for bird watching, hunting, photography and environmental education.

Voluntary partnerships with private landowners have been key to the Small

Created a half century ago to stem the rapid loss of rich prairie habitat that waterfowl and grassland birds need to survive, the U. S. Fish and Wildlife Service's Small Wetlands Program is a great American conservation success story. (USFWS)

Keeping Green Tree Reservoirs Green

Researchers have concluded that managers of green tree reservoirs (GTR) – concentrations of bottomland hardwood that are flooded every year to provide food and shelter for wintering waterfowl – need to let their trees come up for air now and then. Accordingly, Arkansas' Felsenthal National Wildlife Refuge is now using “flexible management” – varying the timing and depths of its floods – to ensure the long-term health of its GTR, the world's largest.

The 65,000-acre refuge, which includes 15,000 acres of open water that backs up behind a nearby U.S. Army Corps of Engineers dam, has the ability to flood an additional 21,000 acres. The refuge's GTR provides acorns and vegetation for waterfowl as well as for a wide variety of other birds, fish, mammals and invertebrates.

GTRs were first developed in the 1930s. Until fairly recently, it was thought that repeated flooding of these systems for long periods had no ill effects to the trees. That's not the case, researchers say.

Over time, trees in a reservoir can begin showing signs of stress and then die. In addition, the growth of new trees often does not keep pace with the loss of older trees. And, in many instances, the new trees are often less desirable species.

Researchers with the Corps of Engineers, the U.S. Geological Survey's National Wetlands Research Center and other governmental and private institutions concluded that to avoid continued tree mortality, managers should vary the timing and depth of the floods from year to year. Additionally, scientists said that in some years the reservoirs should not be flooded to increase seedling survival and to allow the forests to recover.

Wetland Program's success. "Without them, we wouldn't have much of a program," said Eugene Williams, manager of Sand Lake National Wildlife Refuge (SD).

The Service has purchased some 700,000 acres, but more than 2.3 million acres comprise permanent conservation easements – nearly 30,000 of them – purchased from private landowners. To sustain the region's bird populations, the Service's goal is to permanently protect an additional 12 million acres of high-priority grasslands and wetlands. Reaching those goals may involve overcoming stiff challenges.

"We have a long waiting list of landowners waiting for easements, but we don't have a big enough acquisition budget to meet the demand," says

Jim Leach, a refuge supervisor in the Midwest Region.

President Bush's fiscal year 2009 budget called for increasing the cost of Federal Duck Stamps, whose sales help underwrite the protection of migratory waterfowl habitat in the Prairie Pothole Region and elsewhere.

An infusion of fresh funds might arrive too late for some landowners. "Some people who have been waiting for years to get an offer are tired of waiting," says Larry Martin, manager of Waubay National Wildlife Refuge (SD). "For them, conserving grasslands and wetland look less appealing in a time when grain prices are soaring."

The rapidly increasing prices for grain-based biofuel crops could undermine another Federal land-preservation program that now

encompasses 10 million acres in the region – the Department of Agriculture's Conservation Reserve Program (CRP). The program pays farmers to keep their land in grass and wetland cover for 10-15 year periods.

CRP contracts on some 3.5 million acres are set to expire by 2010. Unless prices for biofuel crops drop sharply, many landowners in the program may allow their conservation contracts to expire so that they can convert their land to agricultural production.

For the foreseeable future, though, there's no shortage of landowners eager to participate in the Small Wetlands Program. "We have a backlog of willing sellers," Sand Lake's Eugene Williams noted. "About 500 farmers in eastern South Dakota alone would like to be approached with an offer."

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In Arkansas, Felsenthal National Wildlife Refuge is using "flexible management" to ensure the health of its green tree reservoir. (USFWS)

In the fall of 2007, Felsenthal Refuge initiated its new management regime. During the preceding 10 years, water had been brought up a full five feet to flood the entire GTR; the new flood level was three feet.

"But I also got calls from folks who said that raising the water only three feet made more areas available to dabbling ducks. These folks also liked the fact that, if you didn't have a boat, you could wade into the GTR to hunt." Most of the complaints eased after Ducks

Wading In

The shift initially received mixed reviews from the influential waterfowl hunting community. "Some hunters who had always hunted in specific areas complained – very loudly – that the lower flooding level didn't provide enough water in the areas they preferred," said project leader Bernie Petersen.

Unlimited endorsed flexible flooding schedules, says Petersen, who has managed the South Arkansas National Wildlife Refuge Complex since June 2007.

During the 2007-2008 hunting season, Petersen and his staff sent out "dozens of letters" explaining the new approach and fielded scores of inquires. A more extensive public outreach program is planned for this fall.

"We want to hold a number of public meetings that will include representatives of the Forest Service, Arkansas Game and Fish Commission and Ducks Unlimited," Petersen said. "I want to make it clear to the public that it's not some new guy at the refuge who wants to make all these changes." ♦

FOCUS . . . *Wetlands*

Warm Springs and Much More In a Nevada Desert Oasis

by *Christina Nalen*

Ash Meadows National Wildlife Refuge, an extraordinary oasis fed by ancient springs, is in the midst of a long-term restoration project. In addition to managing extensive restorations – the land was once extensively farmed and otherwise developed – the staff is responsible for safeguarding eight threatened and six endangered species, among them the Devils Hole pupfish (which is managed by the National Park Service).

Ash Meadows Refuge, surrounded by the Mojave Desert, is a surviving example of the desert oases that are now extremely rare in the southwestern United States. Wetlands, springs and spring outflows are scattered throughout

the refuge. Sandy dunes, rising up to 50 feet above the landscape, appear in the central portions of the refuge. Mesquite and ash groves flourish near wetlands and spring outflows.

The refuge is a major discharge point for a vast underground aquifer system stretching 100 miles to the northeast; more than 10,000 gallons a minute flow year-round. The water arriving at Ash Meadows Refuge is called “fossil” water because it is believed to have entered the groundwater system thousands of years ago. In December 1986, the Ramsar Convention recognized Ash Meadows for having Wetlands of International Importance.

With its rich and complex variety of habitats, the refuge – only 90 miles from



Not too far from the bright lights of Las Vegas, an extraordinarily tranquil oasis of wetlands fed by ancient warm springs – Ash Meadows National Wildlife Refuge – is in the midst of an extensive restoration project. (Christina Nalen/USFWS)

Marsh Restored at Nestucca Bay Refuge

by *Roy W. Lowe*

After 13 years of work – some spent in negotiating with landowners to buy five parcels of land within the project area – Oregon Coast National Wildlife Refuge Complex and its partners have completed restoration of 82 acres of tidal marsh on Nestucca Bay National Wildlife Refuge that will bring back the marsh’s natural functions. The restoration along the Little Nestucca River increased Nestucca Bay’s tidal marshes by about 30 percent.

Response by wildlife has been immediate. The Columbia River Fisheries Program Office and the Siletz Tribe, who monitored the area before and after restoration, are finding juvenile Coho and Chinook salmon, cutthroat trout, Pacific lamprey and other estuarine-dependent fish. A diverse mix of migratory

waterfowl, wading birds, shorebirds and raptors also has returned.

The restored area withstood heavy flooding and winds in excess of 100 mph during a Pacific storm in December 2007. Some residents believe that the larger floodplain area created by the restoration helped relieve pressure on adjacent dikes that protect farmland. The restored tidal marsh is highly visible to the public traveling the adjacent U.S. Highway 101 and Pacific Coast Scenic Byway.

More than a century ago, settlers diked and drained the area, converting the productive tidal marshes of Nestucca Bay to dairy pastures. Lost in this process were not only numerous species of fish and wildlife, but also the overall estuarine health.

Among the refuge’s project partners were Ducks Unlimited

the bright lights of Las Vegas – is a haven for wildlife. Ash Meadows supports at least 24 endemic plants and animals – the greatest density of endemic species in the country. The majority of the refuge’s endangered and threatened species are found nowhere else in the world. More than 239 different species of birds have been recorded on the refuge

Four of the seven species of fish present in refuge waters are endangered: The Ash Meadows speckled dace, the Warm Springs pupfish and the Ash Meadows Amargosa pupfish and the Devils Hole pupfish, one of the first species protected under the Endangered Species Act. The population of Devils Hole pupfish, found in a water-filled cavern cut into the side of a hill, has been isolated for 10,000 to 20,000 years.

Before the refuge was established, Ash Meadows was intensively

farmed. During the 1960s and early 1970s in particular, irrigated row crops, grazing and development took a heavy toll on the area’s natural resources. Plants, fish and wildlife declined as pumping and diversion of spring waters into concrete channels, development of roads, large scale earth moving and the introduction of more than 100 non-native plants and animals occurred in the “blink” of evolutionary time. The Carson Slough, an area in the western portion of the refuge that was historically the largest wetland in southern Nevada, was drained and mined for its peat in the 1960’s. The removal of this peat layer has changed the water-holding capacity of the slough. The refuge is now planning a major restoration of the Carson Slough.

Among other restoration projects, we are re-directing spring outflows back into former natural channels, restoring native riparian and upland vegetation

and removing structures such as unnecessary roads, fences and power lines. To keep costs down, some of the work is being done by volunteers. We’re also removing weeds and trapping exotic aquatic species.

Even as the restoration work continues, more than 65,000 visitors a year are making their way to our 23,000 acres of internationally-recognized wetlands and alkaline desert uplands. The visitors include a good many researchers – botanists, geologists and hydrologists – drawn to this unique remnant of the past. ♦

Christina Nalen is visitor services manager at Nevada’s Ash Meadows National Wildlife Refuge.

Inc., the Confederated Tribes of the Siletz Indians, Oregon Watershed Enhancement Board, National Fish and Wildlife Foundation, Oregon Coastal Program, Pacific Coast Joint Venture, James H. Stanard Family Foundation, The Nature Conservancy and Tillamook People’s Utility District.

Turnbull National Wildlife Refuge in eastern Washington sent a fire crew to William L. Finley National Wildlife Refuge in the Willamette Valley of Oregon to bring down large conifers. The trees were removed to restore oak savanna habitat. The conifers were trucked to the Little Nestucca restoration site and placed in channels and sloughs to serve as large woody debris – important habitat and cover for juvenile salmonids. Nearby Siuslaw National Forest also contributed a truckload of conifers, with root wads still attached.

The Oregon Department of Fish and Wildlife assisted with design and



Oregon Coast National Wildlife Refuge Complex and its partners have completed a restoration of 82 acres of tidal marsh on Nestucca Bay National Wildlife Refuge that will restore the marsh’s natural functions. (USFWS)

implementation to protect and enhance fish habitat. This partner is now working with an adjacent landowner to improve riparian habitat and a stream flowing into the restoration area. The partners are so pleased with the restoration that they are looking to new horizons. They

now have their sights set on Bandon Marsh National Wildlife Refuge, where more than 430 acres of tidal marsh are scheduled to be restored in 2009-2010. ♦

Roy W. Lowe is project leader at the Oregon Coast National Wildlife Refuge Complex.

Outstanding Leadership for the Land

Ken Clough, a realty specialist in the Southeast Region, is the 2008 recipient of the Rudolph Dieffenbach Award, presented by the Refuge System Division of Realty for his innovation in carbon sequestration. Clough has completed several projects that resulted in donations of reforested lands to the Refuge System.

He also worked with the regional solicitor's office and partners in developing a memorandum of understanding to replant wildlife refuges in native hardwood that provide carbon credits and increase wildlife habitat. Through Clough's efforts, about 14,490 acres have been reforested.

Since 2001, the U.S. Fish and Wildlife Service has recognized the accomplishments of individuals and groups through the National Realty Awards program. Other awards presented are:

The Land Legacy Award recipient is **Thomas R. Tornow**, project leader, Madison Wetland Management District in South Dakota. He was selected for his work in securing funds for preserving grasslands and wetlands. Thanks to his leadership, more than \$2 million from non-profit organizations and private individuals helped create the Harvey Dunn Grassland Preservation Project. More than 2,000 acres of grass and 300 acres of associated wetlands will be saved from conversion into cropland this year alone.

Richard L. Erdmann, executive vice president and general counsel, The Conservation Fund (TCF) was awarded the National Land Protection Award for his work in several challenging land acquisitions, especially those at Canaan Valley National Wildlife Refuge in West Virginia. There, TCF's donation – migratory bird habitat that is at the core of the refuge – was in itself a significant accomplishment. During the past 14 years, TCF's transactions have accounted for nearly 14,000 acres of the 16,000 acres protected at Canaan Valley Refuge. ♦

From the Director – *continued from pg 2*

ability to recognize and take into account lots of viewpoints and conditions. I can talk for an hour with an employee in the field and tell you whether they've had Washington experience. We all have a strong desire to stay parochial, but when you're in Washington, you see firsthand just how actively Congress has a role in our work, how actively the Administration has an impact on what we do. You see the role of different groups and their interests. I may get 1,000 e-mails each week telling me what we should be doing. You can only see that when you serve in Washington. It doesn't mean that someone can't do a good job without Washington experience, but when there is competition for a job, someone will be a much better candidate if they have had Washington experience – and truly learned while they were here.

Q: What are the consistent qualities of great leaders?

A: I talk about this every year at ALDP. First, good leaders must understand

the phenomenon of family. That means employees are not just workers, but you have to care about them as individuals. If people see themselves only as workers, they will not accept ownership. The phenomenon of family is vivid in the Service. Service employees know we care about them. When I went to see national wildlife refuges after Hurricane Ike, I said that we had to take care of our employees first; then we'll take care of the land.

Second, every leader has to have vision and be able to articulate it. If employees don't know where you are going, how can they follow? That's why I spend so much time on e-mails and broadcasts to employees.

Third, leaders have to have honesty and integrity. It is critical, crucial. Leaders have to stand up for what they think the truth is. People value that.

Fourth, leaders need to understand that you are always a teacher, always on

stage. I don't care what level you are working on, people are looking for you to teach them. A leader's objective should be to replace ourselves with those who are better than we are.

Lastly, never, ever get wrapped up in your title. Supervision is a privilege. Remember that you have been given an opportunity to influence people's lives. After I leave this job on January 3, nobody will care on January 4 what Dale Hall thinks. Right now, they care about what the Director thinks because I am responsible for an agency with 9,000 employees and a huge conservation mission. When you forget that everyone is coming to see you because of the job you have – the authority you have – then you are setting yourself up for making bad decisions.

Never stop listening. It's more important to listen than to talk. And when you talk, leaders have to remember that it means something. You can be given authority, but you have to earn respect. ♦

Lookout Ivy, Here Comes Bill!

by Dawn Grafe

Bill Medlen, a quiet, hard-working volunteer with a thing about English ivy, is making a big impact at Siletz Bay National Wildlife Refuge.

Before joining the refuge as a volunteer, Bill was an attorney in Los Angeles. He was primed to leave California and hang out his shingle in his home state of Oregon, but decided to take a break before sitting behind another desk. It occurred to Bill one day that he might enjoy volunteering for a short spell.

In the spring of 2007, he discovered the Volunteer.gov Web site, and before long he was standing on a viewing deck at Oregon Islands National Wildlife Refuge, overlooking 5,000 blubbery seals and sea lions and sharing information about the animals with tourists. Bill has always had a keen interest in wildlife; indeed wildlife biology was his first declared major in college.

He was a volunteer at Oregon Islands Refuge for two months. When the tourist season ended, Bill wasn't ready to leave. "I was having too much fun to go back to work" he says.

Last November, he moved 200 miles north to live in a bunkhouse at Siletz Bay National Wildlife Refuge, where he became our sole invasive species volunteer, spending his working hours deep in the patches of English ivy, Scotch broom and Himalayan blackberry that have taken root – and expand rapidly – on the 561-acre refuge.

The refuge was established in 1991 to protect salt marsh, tidal sloughs and mixed coniferous forest. It's in the forest and surrounding edges of the salt marsh where Bill now goes to work each morning, equipped with thick gloves and, depending on the invasives he'll be taking on, a handsaw, loppers and a chain saw. From his childhood, Bill recalls the blackberry and the broom, but the ivy was new to him. "It's come in so recently



Bill Medlen, a quiet, hard-working volunteer with a thing about English ivy, has made a huge difference at Siletz Bay National Wildlife Refuge in Oregon. (USFWS)

and is spreading so fast, covering and choking out large Sitka spruce in the most remote areas."

So far, he has removed more than 7,000 pounds of trash and invasive plants from about 20 acres. At the start, he says he felt like he wasn't accomplishing much. "I thought I was maybe saving a particular tree from ivy for a year or so, but there was so much ivy in the surrounding forest I didn't think I was having a substantial impact."

Now that he has been at it for more than 800 hours (most volunteers chip in about 300 hours a year), he has changed his mind. "I look around in the forest now and see that I have made a real difference."

After weeks of working in the cold, wet and windy Pacific Northwest weather, Bill was looking forward to a warm

and bright summer. One morning recently, from the kitchen window of the bunkhouse he saw a red-breasted merganser leading a brood of newly hatched chicks. He thought to himself living and working here on the refuge is like being inside an episode of *National Geographic*. ♦

Dawn Grafe is visitor services manager for Oregon Coast Refuge Complex.

Restoring Habitat for Masked Bobwhites



Buenos Aires National Wildlife Refuge was established primarily for the purpose of masked bobwhite conservation. Habitat restoration was – and still is – a daunting challenge. (USFWS)

by Mary Hunnicutt

By the late 1950s, the masked bobwhite, a subspecies of the northern bobwhite, was thought to be extinct in the United States and Mexico due to overgrazing and droughts. In 1964, however, bobwhites were spotted along a highway in Sonora, a northwestern Mexico state that shares a border with Arizona. Efforts to save the species subsequently were launched in the United States and Mexico.

The bird has been on the U.S. Endangered Species list since 1967. Fewer than 300 are believed to be living in the wild. A captive breeding facility at Buenos Aires National Wildlife Refuge in Arizona has succeeded in swelling the number of birds to 1,100.

Because habitat conservation in Mexico is so important to the continued life of the species, the refuge has been cooperating in the search for suitable land there for potential releases. An agreement signed in September formalized a habitat-saving partnership involving the U.S. Fish and Wildlife Service and two Mexican ranches. Ranchers agreed to remove cattle from 3,300 acres of prime masked

bobwhite habitat, and efforts to restore habitat will get underway on more than 800 additional acres. Hopefully, similar agreements can be reached with other private landowners throughout the range of the species.

Buenos Aires Refuge, located on the northernmost

fringe of the bobwhite's range, was established in 1985, primarily for the purpose of masked bobwhite conservation. Habitat restoration was – and still is – a daunting challenge.

The exotic Lehmann's lovegrass has invaded the refuge and grown too dense for the bobwhite. Large sacaton grass stands historically used by the birds for hiding from predators have largely disappeared, replaced by yet another non-native species, Johnson grass. To create bobwhite habitat, the refuge has used prescribed fires and mechanical treatments, including aeration and disking, mowing, building brush piles and planting of appropriate food and cover plants.

Turning to Captive Breeding

The refuge's captive breeding facility opened in 1996. Members of the flock, previously housed at Patuxent Research Refuge in Maryland, are descendants of Mexican birds captured in the 1960s, '70s and '80s. In addition to providing chicks for eventual release, the captive flock is regarded as a genetic repository in case the wild population goes extinct.

A near disaster occurred in summer 2007. A lethal mix of bacteria, viruses and intestinal disorders swept the facility, reducing a flock of 600 birds to

fewer than 300 in a matter of weeks. The Phoenix Zoo gave Buenos Aires Refuge staff a crash course in treating sick birds. Biologists from Kofa and Imperial National Wildlife Refuges also pitched in. Once the crisis subsided, the flock rebounded. During the next nesting season, the numbers in captivity recovered to their current level.

Surveys conducted in Mexico in 2007 detected five to seven calling males. Subsequent studies failed to detect any birds. But that does not mean they are gone; significant summer rains later in the year greatly improved habitat conditions. We theorize that birds may have spread into new areas. A Mexican biologist is searching for new pockets of masked bobwhite in the central portion of the state of Sonora. ♦

Mary Hunnicutt is a wildlife biologist at Buenos Aires National Wildlife Refuge in Arizona.



Non-native species such as Lehmann's lovegrass and Johnson grass have crowded out stands of sacaton (pictured above) where bobwhites hide from predators. (USFWS)

Endangered Butterfly Gets New Start

About 30 endangered Lange's metalmark butterflies were returned in late August to their native habitat on Antioch Dunes National Wildlife Refuge in California after being raised in a special breeding facility by students and faculty at Moorpark College as part of a concerted effort to save the nearly extinct species. Antioch Dunes Refuge is the nation's only home for the butterfly that is fluttering dangerously close to extinction.

The goal of the release is to see if the pregnant female Lange's will lay eggs and if larvae released a few weeks earlier will grow to reproduce in their natural environment.

The U.S. Fish and Wildlife Service launched an aggressive effort to restore habitat at Antioch Dunes Refuge, even as it also sought to breed the species in captivity until its wild population can be stabilized. The number of Lange's metalmark butterflies in the wild has plummeted from a peak of 2,342 in 1999 to just 45 adult butterflies in 2006. Counts are conducted weekly on the refuge during adult emergence period, from July through September each year.



Faced with the possible loss of Lange's metalmark butterflies – down to just 45 adults in 2006 – Antioch Dunes National Wildlife Refuge in California launched an aggressive habitat conservation project and a special breeding program with Moorpark College. (Jerry Powell)

Metalmark butterflies – fragile and brightly colored – are named for their grey, or metallic-colored, wing tips. Unlike many other butterflies that can produce several generations in a year, the Lange's metalmark breeds only one group of offspring per year.

One reason for the butterfly's decline has been the growth of exotic weeds that are choking out the butterfly's host plant, the naked-stem buckwheat.

Antioch Dunes Refuge has been fighting the weed, which does not allow sands to shift, mandatory for the growth of the native plant on which the butterfly depends. Refuge staff and more than 100 volunteers have been removing the exotic weeds by hand. So far, so good: buckwheat growth has increased.

Wildfires have also played a role in the butterfly's decline. Fires that burn buckwheat will kill the butterfly in one of its phases.

About 185 Lange's metalmarks were produced from four butterflies brought to Moorpark College last year. So far, there have been 16 confirmed matings, an impressive number since there's never been a confirmed mating of the species in captivity. Small samples of the butterfly's wings were also carefully clipped to provide material for future genetic research, the first time such research was done on the species. ♦

Saving Flavor of the Past on Kofa Refuge – continued from pg 6

“So, for example, we took a sample of the interior sheet rock from Big Eye Mine Cabin to John Wilson, a building restoration specialist at Foxworth-Galbraith Lumber Company in Yuma,” recalls Henry. “He identified it as one-quarter-inch gypsum sheet rock – not commonly used today, except when the builder plans to cover the sheet rock with stucco or plaster. John helped us get the quarter-inch sheet rock we needed to make the appropriate repairs.”

In April 2007, the three daughters of Martha and Jack Wilbanks visited the cabin as part of a family reunion. Kofa

Refuge staff helped the 24 members of the extended family make the trip. The staff not only arranged logistics, but also food, including a Dutch Oven lasagna prepared by refuge volunteers LeRoy and Gloria Iverson.

Now in their 70s and 80s, the sisters had last seen the cabin in 1999, during the 50th anniversary celebration of the establishment of Kofa and Cabeza Prieta National Wildlife Refuges. Jacqueline Wilbanks Schulz now lives in Duluth, GA, Barbara Wilbanks Washum in Pahrump, NV, and Carol Wilbanks Sanders in Dewey, AZ.

Kofa Refuge visitors can record their impressions about the buildings in a logbook. Said Robert Vaughn about Big Eye Cabin, “This is a place created by people with a will and determination as hard as the mountain they worked in.”

“Congratulations on a job well done,” wrote Dwight G. Hodges of Garden City, Utah, “Myself along with eight senior citizens spent the evening at Wilbanks Cabin on March 28, 2006. We had visited the cabin in 2004, so we have a good comparison on which to base our compliments. ♦

Around the Refuge System

Alaska

Kanuti National Wildlife Refuge celebrated its first Dragonfly Day with visits from John Hudson and Bob Armstrong, co-authors of the field guide *Dragonflies of Alaska*. They came to Alaska to teach the ecology of dragonflies, improve knowledge of species distribution and teach biologists to identify and document species. Three dragonfly-collecting walks in Fairbanks attracted some 150 people. Dragonflies can be caught, carefully handled and released unharmed, providing unique opportunities for close-up views.

Kanuti Refuge holds an Alaska record for dragonfly species (20) and the Hudson/Armstrong team hopes others will now begin surveying and documenting different types of dragonflies. Hudson and Armstrong also led a dragonfly walk and taught identification skills at Tetlin National Wildlife Refuge. Hudson who calls interior Alaska “the frontier of dragonfly research,” hopes to return next summer to continue this citizen-science effort to document dragonfly diversity and distribution.



Dragonflies can be caught, carefully handled and released unharmed, providing this unique close-up view at Kanuti National Wildlife Refuge in Alaska. (Joanna Fox)

Florida

Some traffic relief may be on the way for J.N. “Ding” Darling National Wildlife Refuge, one of the most visited stations in the Refuge System. Lee County Transit has been awarded a \$750,000 grant through the Federal Transit Administration under the Alternative Transportation in Parks and Public Lands Program to help the refuge manage its crowds.

The program is designed to enhance habitat protection and visitor enjoyment, while attempting to better manage congestion and pollution on popular public lands.

The refuge protects more 200 species of birds on its 6,400 acres (approximately 2,800 acres are designated as a wilderness area). The refuge, which hosts more than 800,000 visitors a year, struggles to meet their needs while also honoring the refuge’s mandated mission – to protect wildlife and habitat.

Lee Country Transit will conduct a 22-month study of the refuge, its visitors and the ways humans interact with resources at the refuge.

California

Richard J. Guadagno, the former manager of Humboldt Bay National Wildlife Refuge who died on Flight 93 in Pennsylvania on Sept. 11, 2001, is being honored with the creation of a college scholarship fund. Money for the fund was donated by people throughout the country and matched by the National Fish and Wildlife Foundation in an effort to sustain the legacy of Guadagno’s commitment to resource conservation.

The scholarships are intended to support students studying natural resources and sciences at both the College of the Redwoods (CR) and Humboldt State University (HSU). The scholarships provide \$500 for one student each year at CR and \$1000 for an undergraduate student and \$2,000 for a graduate student at HSU each year.

“We are very appreciative of the outpouring of support for Rich. This is a fitting way to keep his memory alive at a place and area he cared for a great deal and considered special,” the Guadagno family said in a statement. The family has donated \$5,000 to the fund. Anyone interested in contributing to the scholarship fund can do so through the National Fish and Wildlife Foundation Web site, at www.nfwf.org, or by contacting Krystyna Wolniakowski at 503-417-8700.

Massachusetts

Parker River National Wildlife Refuge has celebrated two important events with a “Day of Dedications.” These events were the completion of a bridge leading to the visitor center and the designation of the Great Marsh as

a Western Hemispheric Shorebird Reserve Network (WHSRN) site of regional importance.

First, a ribbon cutting ceremony and celebration was held for the completion of the visitor center entrance bridge. The bridge is an innovative design, completed through a partnership with the Federal Highways

Administration. Most importantly, it represented the final step in opening the refuge visitor center and headquarters to the public. Speakers from Federal Highways as well as the Service and city of Newburyport detailed the steps of the project and their great excitement in seeing it come to its fruition.

The refuge also celebrated the inclusion of the Great Marsh, the largest contiguous salt marsh north of Long Island Sound (of which the refuge protects about 3,000 acres), as a WHSRN site of regional importance. The Great Marsh, which is used by more than 67,000 shorebirds of varying species and other wildlife, is vital as migratory habitat. The refuge, along with partners Mass Audubon, the Trustees of Reservations, Essex County Greenbelt Association and the Parker River Clean Water Association,



As part of The Conservation Fund's Go Zero program, Marais des Cygnes National Wildlife Refuge in Kansas is turning 775 acres of retired farmland into a hardwood forest. (Jean LeMunyon Photography)

participated in an unveiling of the designation site sign. A presentation entitled "Shorebird Conservation on a Hemispheric Scale" was given by Charles Duncan, Director of the Shorebird Recovery Project and WHSRN.

Kansas

With the help of several partners, Marais des Cygnes National Wildlife Refuge, just 39 miles south of the Kansas City metropolitan area, has taken the first steps in turning 775 acres of retired farmland into a bottomland hardwood forest as part of The Conservation Fund's Go Zero program, which seeks to reduce and offset carbon emissions. The restoration will not only enhance activities such as bird watching and photography but also trap more than 230,000 tons of carbon dioxide as the trees grow. The restoration is one of

the largest projects undertaken so far through the Go Zero program. In addition to The Conservation Fund, the restoration received support from Allstate, Cambridge Systematics, Delta Air Lines and U-Haul International.

Established in 1992 to restore and conserve bottomland hardwood forest, the refuge is located along a transition zone that changes from southern hardwood forest to tallgrass prairie. The refuge supports a mix of wetlands, bottomland and upland forest and tallgrass prairie habitats. Nationally, bottomland hardwood forest has been reduced by 80 percent since Euro-American settlement, and tallgrass prairie has been reduced by 99 percent.

Independent Analysis – continued from pg 1

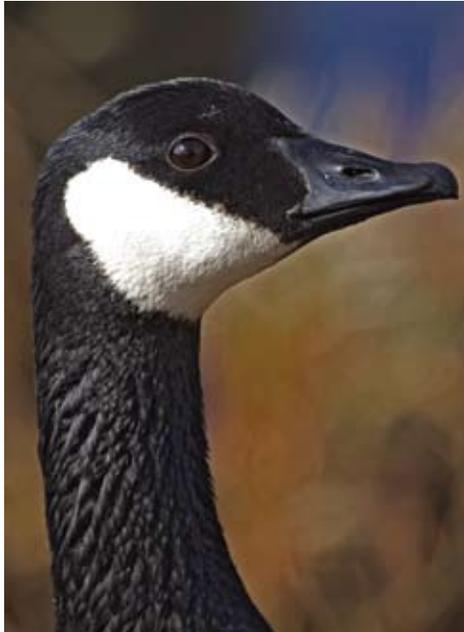
MSI also noted that the rate at which land has been added to the Refuge System had declined “significantly” over the past five years.

Land acquisition funding comes from two sources: appropriations to the Land and Water Conservation Fund (LWCF) and revenues from the sale of Duck Stamps. Appropriations from LWCF have steadily and significantly fallen since their highest level of \$121 million in FY 2001. In FY 08, the Refuge System received \$28 million; in FY 09, the request is approximately \$10.2 million. Revenues from Duck Stamps have consistently averaged about \$40 million per year.

MSI rated the Refuge System as “highly effective” in one strategic goal: facilitating partnerships and cooperative projects. The consultant specifically pointed to the Refuge System’s work with volunteer and Friends organizations as well as state fish and wildlife agencies. MSI calculated that in 2005 alone, partnerships contributed more than \$50 million to the Refuge System – with more than \$30 million in direct cash contributions.

The independent analysis was undertaken in fulfillment of the Program Assessment Rating Tool – part of the President’s Management Agenda – and at the mandate of the Office of Management and Budget (OMB). More than 250 interviews were conducted with Refuge System management in the headquarters office; U.S. Fish and Wildlife Service staff in the field; stakeholders in Congress, the Department of the Interior and OMB; national and local nonprofit partners; and staff from state fish and wildlife agencies.

MSI rated the Refuge System as “effective” in four strategic goals:



A broad study by Management Systems International ranked the Refuge System’s efforts to conserve, manage and restore wildlife resources and habitats as “partially effective.” (USFWS)

- Providing quality wildlife-dependent recreation
- Maintaining infrastructure and equipment
- Completing high quality Comprehensive Conservation Plans
- Reducing wildfire risks and improve habitats.

Among other recommendations, three stand out:

- The report rated the Refuge System as “partially effective” in conserving, managing and restoring wildlife resources and habitats. Forty-one percent of Refuge lands in states other than Alaska were found to be in need of management attention. Therefore, MSI recommended the Refuge System hire more biologists – although the report does not specify how many.

Only about 20 percent of the Refuge System workforce is working as biologists.

A similar recommendation came out of the Conservation in Action Summit, held in May 2006 as a means to map out measurable strategic goals for the near future. The Refuge System has not found the resources to implement the recommendation. But the Refuge System is developing a staffing model, which will identify how many people are needed to work as biologists. The model is expected to be unveiled in coming months.

- The MSI report also recommended the Refuge System develop a water strategy to more effectively assess and address water management issues. MSI advises the appointment of a “water resources coordinator.”

The issues of water quality and quantity are increasingly becoming issues of concern within the Refuge System, at least partially due to population growth, land development, climate change and pollution. A Water Team Initiative has been chartered within the Refuge System in recognition of the need to address the issue more comprehensively, on both the national and regional levels.

- Finally, the MSI report recommended development of a central means to foster information sharing across the Refuge System to help ensure that best practices are more widely disseminated and adopted.

The MSI report has been shared with OMB, the Department of the Interior, the Service, appropriate Congressional committees, members and staff members who have asked to be briefed as well as with nonprofit conservation organizations, including the 22 nonprofit members of the Cooperative Alliance for Refuge Enhancement Care (CARE). ♦

Nature Is Where You Find It



Like four-year-old Laura Guertin (the author's daughter), the two dozen or so children who attended this year's Mountain Prairie Region's "Bring Your Kids to Work Day" event got a good look at both nature and the natural resource profession. In one action-packed day, they learned about wildlife art and birds of prey, built a Web page and got to touch a bison skull, a live snake and salamanders. (Christy Bates)

by Irene James Guertin

Someone once told me that rural South Florida, where I grew up, looks a lot like Vietnam. The comparison seemed odd at first. Vietnam seemed so exotic, so unlike my sleepy hometown, but we tend to forget that the exotic and unusual are often right in front of us.

We like to think that we conquer nature with flood control, air conditioning and fences. Yet, it is always pushing back—snakes, turtles and lizards crowding our yard, giant spiders spinning webs the size of trampolines, tadpoles filling ditches during the rainy season.

I didn't always appreciate this world at my doorstep. Now, we have to be more creative about where to find it. These days, most of the snakes and turtles we see are in zoos and nature centers, pet shops, even the office—if your family works for the U.S. Fish and Wildlife Service.

About 25 children who attended this year's Mountain Prairie Region's "Bring Your Kids to Work Day" event got a good look at both nature and the natural resource profession. In one

action-packed day, they learned about wildlife art, took part in presentations on hydrology and birds of prey, built a Web page, and got to touch live snake and salamanders, wolf pelt, bison skull and more.

The take-home lessons are invaluable, especially at a time when Mom Nature has so much competition. After all, the outdoor world isn't in the picture-

perfect Technicolor that colors our perceptions.

We've learned that the siege starts early. I took my children Laura, 4, and James, 2, to see dinosaur tracks and fossils right after we moved to Colorado. This was big for me. I couldn't take my eyes off of those perfect tracks, like those of a giant, wayward dog running through fresh cement – yet millions of years old. Laura, on the other hand, announced that we would play princesses in the observation tower. We all lived happily ever after, but I still felt a little defeated. What to do?

Here are a few ideas from our experience:

- Some say that success lies mostly in just showing up. So we keep doing that, even when the kids don't seem to be paying attention. Children need repetition. Let's make special natural places live forever in their memories.
- Notice what's right in front of you. There are a ton of excellent wildlife books for children of all ages, so read, read, read.

- Don't be afraid to get a little silly, like making worm pudding together (see the recipe below). My husband calls it the 'picket fence syndrome'—paint it and they will come, brushes in hand.

We recently attended the awards ceremony for the 2008 Colorado Junior Duck Stamp competition. Every winner from across the state was there, with cheering family and friends. One girl in a hip cast had her very proud Dad help her up to the stage to receive her award. The winners are living proof that wildlife can be interesting, accessible and, I dare say, "cool."

There is no magic formula to spark lifelong interest in the outdoors, but you can't go wrong by starting small—something we can see and something we can touch provide an ideal introduction.

Regardless of where children's interests lay or who they grow up to be, what they do early in life sticks with them and becomes part of who they are. If nothing else, nature gives parents a good excuse to be kids again. ♦

Worm Pudding

Ingredients:

Chocolate Pudding

Crumbled Oreo or vanilla wafer cookies

Gummy Worms

Layer pudding, cookies, and plenty of worms in bowls and eat (ok to use fingers).

Irene James Guertin is a former Refuge System chief of budget. She is now living in Denver and still associated with the Fish and Wildlife Service through her husband, who is the Midwest regional director.

Becoming an Expert Volunteer in New Jersey



Edwin B. Forsythe National Wildlife Refuge and The Richard Stockton College of New Jersey are collaborating to train Volunteer Master Naturalists (VMN) and Certified Interpretive Guides. (Tom Graf)

A new partnership between Edwin B. Forsythe National Wildlife Refuge and The Richard Stockton College of New Jersey combines training for Volunteer Master Naturalists (VMN) and Certified Interpretive Guides (CIG) as well as continuing education credits for teachers all in a single program. The first class of 21 graduated in May and included ten refuge Friends and volunteers, several retirees and four active public school teachers. It is believed to be the first time a refuge has initiated a Master Naturalist program before a state chapter has been established.

The 40-hour certificate program is based on a national model designed to develop volunteer naturalists and interpreters through science-based education, conservation and service programs. The *Refuge Update* March-April 2005 and July-August 2007 issues carried articles about the Master Naturalist program – which is where Forsythe Refuge staff first became intrigued with the possibility of offering a program in New Jersey.

Barry Keefe, volunteer and Friends member at Forsythe Refuge, is also a retired social work professor from Stockton College. With the support of the

college's Continuing Studies division and refuge staff, Keefe developed a Master Naturalist curriculum. He chose elements from existing programs in Texas and Florida but made sure to keep the focus on the natural resources of New Jersey.

Mastering the Ecosystems

The curriculum provided a mix of scientific presentations and field experiences.

Students heard experts from Stockton College, the refuge, the New Jersey Division of Parks

and Forestry, Ocean County Parks and the Barnegat Bay Estuary Program talk about coastal birds and mammals, plants and invasives as well as marine and estuarine habitats and the birds of Forsythe Refuge. There were day and weekend field trips, including a two-hour kayaking trip.

Eight hours of the course were devoted to interpretive skills. The goal was to offer one course that would enable participants to become both Certified Interpretive Guides (CIG) and Volunteer Master Naturalists (VMN), although people could also choose to take only one part or the other.

As Forsythe Refuge's supervisory park ranger, Art Webster explains, "ultimately, we wanted to be able to respond to the increasing demand for refuge tours. We are within view of Atlantic City. People who come for extended visits have expressed a need for something other than casinos. We wanted to offer more than just a nature tour, but we couldn't accommodate the requests due to lack of staff."

Graduates of the Naturalist/Guide program must complete 40 hours of approved environmental service plus eight hours of advanced training each

year to maintain certification. While all the service does not have to take place on the refuge, Webster expects to be able to offer seasonal guided walks on weekends, and, "I'd like to spread our activities beyond our headquarters. We stretch for 50 miles along the coast and there are numerous opportunities to connect people with the refuge."

Importance of College

Both Keefe and Webster stress the value of strong partnerships when initiating a Master Naturalist or CIG program. Funding for the New Jersey program came from a Challenge Cost Share Grant, Stockton College and a grant from Barnegat Bay National Estuary Program, since half the refuge is on the shores of Barnegat Bay. Other local, state and nonprofit organizations and agencies participated in program development.

Delaware State Parks was instrumental in providing a Certified Interpretive Trainer.

The partnership with Stockton College was especially important. A college connection not only provides expertise but also a way for teacher participants to earn continuing education credits. Keefe says one of the first teacher participants has already started bringing her inner city students to refuge programs offered by the Friends of Forsythe and she has received a grant to bring fourth graders to the refuge on a regular basis.

All the involved partners hope this first collaborative training effort will be a seed that spreads throughout New Jersey, possibly leading to a new state chapter of Master Naturalists. ♦

For more information:

Master Naturalists – Alliance of National Resource and Outreach Programs
<http://www.nralliance.org/>

Certified Interpretive Guides – National Association of Interpretation
www.interpnet.com

Coming Soon, a Big Anniversary in Key West

Nearly 400,000 people a year visit Key West National Wildlife Refuge in Florida, primarily to boat, fish and dive in the beautiful waters. Many leave without even knowing they have ever been near a national wildlife refuge.

Come November 15, almost everybody within shouting range of the Key West waterfront will know that a very special refuge is nearby. That day, tourists and residents alike will join the refuge staff, members of the refuge Friends group and quite a few visiting luminaries for day-long festivities marking the refuge's 100th anniversary.

Most of the action will be on the waterfront, centered around the Florida Keys Eco-Discovery Center, the two-year-old, 6,400-square-foot environmental education facility operated by the Florida Keys National Marine Sanctuary.

Planned events include the dedication of a plaque commemorating the refuge, a costumed Theodore Roosevelt look-alike who will mingle with the crowd, the reading of a proclamation by Key West Mayor Morgan McPherson and a number of guest lectures. The Key West Post Office will provide a special one-time cancellation commemorating the anniversary. Throughout the day, representatives of the refuge Friends group – the Friends And Volunteers Of Refuges (FAVOR) – will be on hand to sign up new members.

The winners of an essay contest – whose participants are students at the local junior high school and Florida Keys Community College assigned to write about the importance of the refuge to Key West – will read their submissions. Local eco-tour businesses have offered to host snorkeling and kayaking trips to Key West Refuge

Key West Refuge, a designated wilderness located about 140 miles southwest of Miami, includes 2,019 acres of land and 206,289 acres of state waters co-managed with the State of Florida and Florida Keys National Marine Sanctuary. Access to the refuge islands is by boat only.

President Theodore Roosevelt actually signed into law the establishment of the refuge on August 8. The celebration will fall in mid-November for reasons of comfort and safety; the weather is cooler and the annual hurricane season is over.

Key West Refuge provides critical nesting, foraging and roosting habitat for more than 250 species of migratory birds. The refuge also protects critical nesting



On November 15, on the southernmost tip of Florida, tourists and residents alike will join in a day of festivities marking the 100th anniversary of Key West National Wildlife Refuge. (NOAA)

habitat for endangered marine turtles and a large population of the rare Miami blue butterfly. ♦

Saving a Region's Wetlands

– continued from pg 11

For some landowners, like western Minnesota's Woody Olson, it's not just a matter of money. In 2006, he, several members of his family and a friend – who together owned contiguous plots totaling 439 acres – sold easement rights to the Service. “We could have made a lot more money selling to developers who are eager to build houses around

almost every available patch of water,” Olson said. “But we decided that setting aside our land for wildlife would be our legacy for the future.” “Fifty years ago, the pioneers of this program were able to turn the challenges of the day into one of the greatest landscape conservation programs of all time,” says Scott Kahan, manager of Detroit Lakes Wetland

Management District (MN). “Our challenge for the next 50 years will be continuing to work closely with others to turn today's challenges into opportunities that will be enjoyed by generations to come.” ♦

A Look Back . . . Tom Atkeson

Tom Atkeson's first assignment as a junior biologist was to map the new Wheeler National Wildlife Refuge in Alabama. Little did he know in 1939 how vital that experience would be.

Atkeson joined the Army when the United States entered World War II. He was blinded by an antitank mine explosion at Fort Hood, TX; the blast also severed his hands and burned his face. Yet he dreamed of returning to work at Wheeler Refuge, and eventually he did just that, on condition that he pay for his own personal assistant. Later he would write, "I still had something to work with, even if at times it seemed to consist largely of my 'unconquerable soul.' But I meant to do all I could with it."

Focused on memorizing the refuge trails and layout, Atkeson's knowledge of the refuge became so keen that he could tell exactly where he was by the number of turns taken by his vehicle and the sound of the wheels on the roadway. In 1962 he went one step further and became refuge manager, a position he would hold for 25 years.

Larry Williams, chief of the Refuge System budget office, remembers seeing

Atkeson as a first grader during a field trip to Wheeler Refuge. "He was fairly intimidating to a group of first graders. But he kept smiling these great big smiles, and you could tell he loved to talk

to kids about wildlife. That day left a big impression on me."

Atkeson brought in a starter population of otters from the Okefenokee Swamp and added wild turkeys, muskrats, raccoons, beavers and bobcats as well as two endangered bat species and scores of bird species. He also began the practice of cooperative farming, through which local farmers cultivated refuge lands to produce crops that, after harvest, provided food for migratory birds. A trail named in Atkeson's honor passes by some of this farmland as well as a cypress swamp – and it is universally accessible.

Atkeson maintained an interest in the refuge even after he retired. He was twice recognized as Alabama Conservationist of the Year, and Birmingham, AL, once proclaimed a Tom Atkeson Day. When he died in 1999, he was remembered as a man of incredible courage, determination and stamina...a dedicated lover of nature who loved the refuge and all the wildlife it supported. ♦



Tom Atkeson (USFWS)

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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