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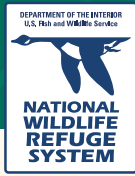
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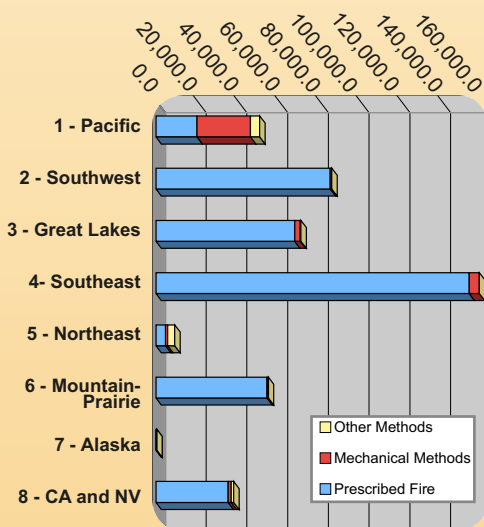
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Protecting a 6,000-Year-Old Path of the Pronghorn



In Wyoming, National Elk Refuge and other federal land managers in the Greater Yellowstone ecosystem are part of an effort to preserve migration paths that a pronghorn herd has used for thousands of years. (USFWS)

Acres Treated



Reducing the Risk of Wildfire – Sometimes with Fire

In 2007, the Refuge System reduced hazardous fuels – overgrown, dead and accumulated vegetation that ignites only too easily into a major blaze – on 470,140 acres. That compares to 373,930 acres treated a year earlier. Most hazardous fuels are treated by planned, prescribed fires. Other acres are “mechanically” treated, not using fire but cutting trees and brush. A much smaller portion of the acres – shown as “other” – is treated with a variety of methods, from chemical applications to using grazing goats.

In western Wyoming, migratory trails that a herd of pronghorn has used for nearly 6,000 years are clogging with development. In response, National Elk Refuge and several other federal land managers in the Greater Yellowstone ecosystem, along with state agencies and conservation groups, are taking steps to preserve the “Path of the Pronghorn.”

The herd – which numbers around 200-300 – makes a twice-yearly trek of nearly 160 miles to reach its wintering grounds in southwestern Wyoming and then, with the spring thaw, gradually returns to its northwestern warm weather grazing lands.

Over time, six of the eight historic migration paths used by the Yellowstone pronghorn have vanished.

The remaining paths are threatened by a natural gas boom that has been sweeping the once wide-open spaces south of Greater Yellowstone. The boom has been accompanied by a surge of residential, commercial and transportation construction.

In general, the animals are easily spooked by change. And physical characteristics limit their abilities to bound over fences and other barriers. Wildlife analysts say all that development could eventually block the pronghorn’s remaining paths altogether, prompting them to give up their migration, which in turn could lead to the end of the herd.

Earlier this year, representatives of National Elk Refuge, Grand Teton National Park and Bridger-Teton



H. Dale Hall

From the Director Hand in Hand with our Volunteers

Joel Brown calls the volunteers who act as plover wardens at Parker

River National Wildlife Refuge in Massachusetts – and he’s one of them – the “unloved hall monitors of the beach.” After all, they have to tell beach-goers why the beach they love is closed to their frolicking. And yet Joel keeps manning his four-hour shifts because he knows what happens if piping plover nests aren’t protected. Volunteers have been helping with beach closures at Parker River Refuge since 1991.

Crystal River Refuge in Florida depends on volunteers to lend their weight to the 16-member manatee rescue team that is on call 24 hours a day to ride to the rescue of the gentle mammals. More than half of the manatees at the refuge are hit at one

time or another by propellers – some as many as 20 times.

And then there’s Harold Burgess, officially retired after 33 years working with the Refuge System, who then donated nearly 12,000 hours over 27 years to the system that had employed him. He retired in June 2007 from volunteering at Santa Ana Refuge in Texas – right after he celebrated his 90th birthday.

Volunteer statistics for 2007 are in: About 36,700 people volunteered with the Fish and Wildlife Service in fiscal year 2007 – up from about 36,160 a year earlier. In 2007, they donated just a little less than 1.5 million hours, giving about \$27.7 million in sweat equity to the fish and wildlife resources we all share.

So what makes these people – and thousands of others – give their time

and energy? Like those of us who chose this profession, they believe in the importance of the resource and its value to future generations. We salute them.

We all know that we are working not for ourselves, not for today, but for wildlife that might not have a tomorrow without us. With the support, enthusiasm and dedication of our volunteers, we will continue to fulfill the legacy left to us by the conservation pioneers we admire and work to emulate. ♦



Geoff Haskett

Chief’s Corner History on the Land

In Arizona, Big Eye Cabin is just one of several historic buildings that Kofa National

Wildlife Refuge has stabilized, restored and opened to the public – reminders of a time when mining was a major force in the state’s economy and lifestyle.

Along the Virginia-North Carolina border, Great Dismal Swamp National Wildlife Refuge has long been identified as an important thoroughfare in the Underground Railroad to Freedom. Just a year ago, an archaeologist uncovered evidence of largely self-

sufficient settlements established between the colonial era and the Civil War by fugitive slaves known as “maroons”.

Thousands of settlers in wagon trains traveling westward along the Oregon and Mormon trails stopped for rest and water at the Green River on what became Seedskaadee National Wildlife Refuge in Wyoming.

In North Dakota, Lake Ilo National Wildlife Refuge is managed to promote waterfowl nesting and brood rearing. But in the 1980s, when water in the lake was lowered, refuge staff was amazed

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RefugeUpdate

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Friend of the Year, Other Awards Are Announced

The Friends of Sherburne National Wildlife Refuge in Minnesota were named Friends Group of the Year while Kevin Brennan, manager of the Fergus Falls Wetland Management District, is the 2008 Refuge Manager of the Year. The awards were given by the National Wildlife Refuge Association in partnership with the National Fish and Wildlife Foundation.

Other winners were Clyde Morris, manager of Don Edwards San Francisco Bay National Wildlife Refuge, named Employee of the Year; and John Bertrand from Friends of the Bosque del Apache National Wildlife Refuge in New Mexico as Volunteer of the Year.

The Friends of Sherburne Refuge co-sponsor six special events each year, including National Public Lands Day, a wildlife film festival and a Christmas bird count. The group also maintains memberships in four local chambers of commerce and partnerships with the Rapids Archer Club, National Camera Exchange, the University of Minnesota Raptor Center and others.

With grants from the National Fish and Wildlife Foundation, the Friends purchased 40 acres of wetland habitat that were donated to Crane Meadows National Wildlife Refuge. In 2007, the group provided financial support for an intern in the Student Conservation Employment Program and has just launched a capital campaign to raise \$5 million for a new visitor center.

Employee of the Year **Clyde Morris** “has a unique ability,” said San Francisco Bay Refuge Complex project leader Mendel Stewart. “He knows how to get things done.” Stewart says Morris brings to his work a rare combination of natural science knowledge, effective leadership skills and common sense.

Morris’ openness to innovative solutions and entrepreneurial spirit saved millions of dollars in the restoration of Bair Island in San Francisco Bay. He also reaches out to the public effectively, leading public participation efforts for the South Bay Salt Pond Project and working with residents to explain a new hunting plan.

Kevin Brennan was one of the first refuge managers to promote the Wildlife Habitat Easement Program. More than 4,180 acres of productive, privately owned wetland and grassland habitats in the Fergus Falls WMD are now perpetually protected. Brennan also led the effort to create and manage the Prairie Wetlands Learning Center, which hosts 50,000 visitors a year, including 100 fifth graders who attend classes there every day. Minnesota officials took note of the program’s excellence and funded a \$2 million expansion, which will double its capacity by next fall.

Volunteer **John Bertrand**, a convincing and avid spokesman for refuges, founded *Habitat!* 14 years ago as a professional-quality news magazine for Bosque del Apache Refuge. *Habitat!* is a paid insert in four local newspapers as well as among another 50,000 readers statewide.

Bertrand has recorded 11,651 volunteer hours at Bosque del Apache Refuge, but he also contributed to the grand opening of the Islands and Ocean Visitor Center at Alaska Maritime National Wildlife Refuge and served as a full-time resident volunteer at Selawik National Wildlife Refuge in Alaska. ♦



Clyde Morris, Employee of the Year



Kevin Brennan, Manager of the Year



John Bertrand, Volunteer of the Year

Ridding Rat Island of Its Rats



The rule of the invasive rodents on Rat Island – one of nearly 2,500 islands in Alaska Maritime National Wildlife Refuge – is about to end. In October, the refuge will begin reclaiming the habitat for native wildlife. (USFWS)

Rats were introduced to a rugged, uninhabited island in the Aleutian Island chain – and to Alaska – in the late 1700s when the rodents swam ashore after a Japanese sailing ship ran aground.

Before long, the 6,871-acre island – formerly a predator-free heaven for puffins, auklets and storm-petrels – fell silent as a tomb. Because many of the birds nest on the ground or in cracks in the volcanic rock, they, their chicks and their eggs were easy prey for the rapidly multiplying rats. And before long, the island – formerly called Hawadak – was widely known as Rat Island.

The rule of rodents on Rat Island – one of nearly 2,500 islands in Alaska Maritime National Wildlife Refuge – is about to end.

In October, the refuge and its partners will begin reclaiming the habitat. Helicopters equipped with specialized buckets will take to the air and blanket the island with rodenticide-laced

grain pellets. Biologists on foot will poison rat dens that are beyond the reach of air crews.

This same technique has restored habitat on islands throughout the world, among them Anacapa Island in California's Channel Islands National Park. Anacapa's bird populations, included an endangered species, subsequently have rebounded. Worldwide, more than 250 islands have been cleared of non-native rats.

Once the Alaska Maritime reclamation project is completed, Rat Island will become the third-largest island in the world to become rat free. Expectations are that the island's natural ecosystem will re-establish itself (maybe with a little human help), giving native vegetation – also ravaged by the rats – a chance to recoup and setting up the return of nesting seabird colonies.

“Rat Island will be a first for us,” says Will Meeks, acting manager of Alaska Maritime Refuge. “We have had 50 years experience restoring habitat by removing non-native foxes and grazing animals but never before rats. We hope we will learn enough from this to be able to restore seabird nesting on some of our other rat infested refuge islands and islets.”

Alaska Maritime Refuge – which extends from the Arctic Ocean to the state's southeastern panhandle – provides nesting habitat for an estimated 40 million seabirds, representing 80 percent of all of North America's seabirds. Several species nest nowhere else in the world.

Island Conservation and The Nature Conservancy are two lead partners. Experts from New Zealand also are lending a hand; they were involved in a rat eradication program that cleared the rodents from, among other locations, the 27,900-acre Campbell Island.

The Rat Island restoration is strongly supported by the public. During a public comment period on an environmental assessment, only two of 37 respondents opposed the plan.

The refuge also has an active program aimed at keeping rats at bay elsewhere in the state. In collaboration with partners, the refuge provides rat kits to vessels that operate in Alaskan waters. More than 400 kits have been distributed so far. When a ship runs aground, refuge staff members go to the site to prevent a “rat spill,” which, Meeks says, can be deadlier and much more long-lasting than an oil spill.

“Oil will degrade over time,” he observes. “Rats do not. They just keep on multiplying and spreading.” ♦

Archeological Sites Make Tempting Targets

by Rick Kanaski

Lake Marion forms the western border of Santee National Wildlife Refuge in South Carolina, a history-rich area that was once home to ancient Indian nations and the location of Revolutionary War battles. The man-made lake, created between 1939 and 1942, drowned approximately 177,000 acres of the Santee River's floodplain as well as agricultural and timber lands. It also submerged many traces of that earlier history.

The Southeast's extended drought has dramatically lowered Lake Marion's water levels, exposing priceless archaeological sites. These sites and artifacts have whetted the interest of scientific researchers.

But they have also attracted a growing number of law-breakers – intruders armed with shovels, rakes, probes, and metal detectors who are looking for highly valuable arrowheads, pottery, bottles and, occasionally, human skeletal remains. The looters add the artifacts to their collections, sell them on Web auction sites and at antique shops, trade

with other collectors or even swap them for illegal drugs.

Looting is a problem all across the National Wildlife Refuge System. At Alaska Maritime Refuge, Aleutian Islands burial caves are being plundered. Pre-Columbian burials have been looted at Malheur and Stillwater Refuges. At Desert Refuge, caves, rock shelters and open-air sites have been targeted. Looters have chiseled out fragments of rock art at Desert, Sheldon and a number of other western refuges. At Key West and Blackbeard Island Refuges, looters dig deep for “buried treasure.”

At Santee Refuge, intruders frequently target the Santee Indian Mound/Fort Watson site, a National Register property. It is a Mississippian Period [A.D. 1000-1543] complex occupied between the 9th and the 18th centuries and, later, the location of a Revolutionary War-era British fort. Dr. Leland Ferguson, a University of South Carolina archaeologist, recovered artifacts and human skeletal remains in the early 1970s. The remains and a number of funerary artifacts were repatriated to the Santee Sioux Tribe in 2003.

Law Enforcement Hindered

At Santee Refuge as elsewhere, individuals who casually pocket pre-Columbian and historical artifacts are violating federal law. Avid collectors and those who harvest artifacts to finance criminal activity are also aware that many federal prosecutors and law enforcement officers – including those assigned to national wildlife refuges – have limited time and financial resources to pursue complicated cases. Staffs at many refuges – especially those that encompass thousands of acres and several units – sometimes are unaware that culturally important sites have been disturbed because the sites often are in remote locations.

To protect culturally significant material, many refuges have launched anti-looting educational efforts. They have prepared, among other material, informative brochures and posters. I am working with Virginia Parks, a staff archaeologist in the Pacific Region, to adapt “The Value of Archaeology” exhibit for use at Santee Refuge and other southeastern refuges.

Santee Refuge has also prepared or contributed to articles describing the need to protect fragile non-renewable resources, stressing that it is illegal to dig into and otherwise disturb archeological sites. The articles have appeared in several local and state-wide newspapers. Refuge staff have placed “closed” signs around the bank of the now-exposed lakebeds and “no collecting” signs at several points, including boat ramps and the Santee Mound/Fort Watson site. Patrols by refuge Law Enforcement officers have been stepped up. Efforts to protect a refuge's fragile cultural resources never end. ♦

Rick Kanaski is the Southeast Regional archeologist, stationed at Savannah Refuge Complex in Georgia.



Ancient archeological sites at Santee National Wildlife Refuge in South Carolina are being illegally plundered by avid collectors of rare – and valuable – artifacts and by others out to make a profit. Looting is a problem all across the Refuge System. (Rick Kanaski/USFWS)

A Trail That Opened Up Alaska

Celebrating the Iditarod

by Debra Corbett

On Christmas Day 1908, two prospectors struck gold on the banks of central Alaska's Iditarod River, triggering the state's last big gold rush. An overland trail was soon staked out, connecting the gold rush town of Nome with the ice-free port of Seward. The 938-mile-long Iditarod Trail, a kind of superhighway for sled dogs, was heavily used until 1925, when airplanes replaced sleds.

The Iditarod National Historic Trail – one of the first National Trails – commemorates that route. Earlier this year, Alaska Governor Sarah Palin unveiled plans for the four-year-long Iditarod National Historic Trail Centennial.

The trail transects a small part of Alaska Maritime National Wildlife Refuge. About 140 miles of the main trail crosses the heart of Innoko National Wildlife Refuge. During the centennial, Innoko Refuge will continue to document the trails and its associated historic sites.

The Historic Iditarod Trail Alliance has secured a U.S. Fish and Wildlife Service Challenge Grant of \$16,000 to help highlight the historical importance of the trail to Innoko Refuge. These funds will underwrite research along the southern portion of the main trail. With the assistance of volunteers, we hope to find several reported roadhouses and plot their exact locations. The information will be used to prepare interpretive displays and for brochures.

During its evolution into a vast transportation and support network, the trail reached mining camps at Iditarod, Flat, Ganes Creek, Ruby and Ophir. In time, towns sprang up along the way. In the heart of Innoko Refuge, the town of Dishkakak, a small Ingalik Indian village (abandoned by 1920), suddenly became a commercial hub with a population of about 100.

The Iditarod National Historic Trail saw its share of frontier drama. One year, a steamship crew took off across a flooded plain in an effort to reduce their travel time to the town of Iditarod. They were left high and dry when the waters suddenly receded; fragments of the ship remain – the boiler and a few planks – stranded on the tundra, far from any river.

Often not places for the faint hearted, roadhouses provided essential stopping points for travelers to rest and eat. Spaced about 20 miles apart, more than 14 are known to have existed on Innoko Refuge. Like many other structures along the once-booming trail, most of the old roadhouses have never been located.

Since the establishment of Innoko Refuge in 1980, efforts to plot the history

of the Iditarod National Historic Trail and its importance to the area have been on-going. In 1994, refuge historian Sally Collins and I visited and mapped building foundations at Simels Trading Post and collapsed cabin ruins at Dishkakak. We found an old paddlewheel steamer abandoned in a slough and located a few cans and a foundation at the town of Innoko at the mouth of the Dishna River. The refuge plans to restore cabins found at Rennie's, a gold supply camp.

As stewards of part of the Iditarod National Historic Trail, we will be working closely with partners to help preserve and celebrate this remarkable symbol. ♦

Debra Corbett is the Alaska Region's historic preservation officer, based in Anchorage.



During Alaska's Iditarod National Historic Trail Centennial, Innoko National Wildlife Refuge will spotlight the rich history of the trail and many remnants of the Gold Rush days, among them this fragment of an abandoned steamboat. (USFWS)

Overwash Creates Nesting Habitat



Cape May National Wildlife Refuge in New Jersey created an overwash area to expand nesting habitat for piping plover and other beach-nesting species. (USFWS)

by Virginia Rettig

With nesting habitat becoming scarce in New Jersey, Cape May National Wildlife Refuge has partnered to create an overwash area that is already succeeding in enticing birds to nest on the refuge. The area not only benefits the threatened piping plover, but also the least tern and black skimmer, both listed as endangered by New Jersey.

Overwash occurs if the wave action and/or the storm surge level – that is, water level in excess of predicted tide – exceed the beach crest height. In this instance, the flow of water and sediment over the crest of the beach does not directly return to the ocean after water level fluctuations return to normal.

Overwashes generally occur outside of the breeding season during spring high tides and large storms (Nor’easters).

In 1999, approximately 450 acres of beach strand, maritime forest and tidal marsh habitat were transferred from the U.S. Coast Guard to Cape May Refuge. Due to its importance to both nesting and migrating shorebirds, the

refuge beach is closed annually to public access from April 1 through September 30.

The refuge beach has been accumulating sand due to the nearby jetty. The fore-dune continually creeps toward the ocean, leaving very little unvegetated beach – or nesting habitat – between the dunes and the high tide line. New Jersey’s nesting habitat is suffering from beach stabilization, high recreational beach usage and beach raking.

One hundred sixteen pairs of piping plovers nested in New Jersey in 2006 – an improvement over the previous year. But the statewide fledging rate was 0.84 chicks per nesting pair, well below the levels needed to maintain or increase the population. Plovers historically nested regularly on adjacent property; none had recently nested on the refuge.

In 2007, Cape May Refuge partnered with the U.S. Fish and Wildlife Service New Jersey Field Office, the New Jersey Department of Environmental Protection and the U.S. Army Corps of Engineers, Philadelphia District, to improve refuge nesting habitat.

In January 2007, the Corps of Engineers mechanically scraped approximately 650 feet of fore-dune to lower the beach elevation to allow an overwash to occur on about one acre. Habitat islands were also created to provide areas for birds to seek cover. Crushed shell was placed in sections of the overwash.

Within weeks, piping plovers arrived; one pair nested on the overwash. Additionally, a pair of American oystercatchers also nested. So far, all nesting attempts and chicks were lost to predators, but the site will be maintained to provide quality habitat for beach-nesting birds. ♦

Virginia Rettig is deputy manager at Cape May National Wildlife Refuge in New Jersey.

Refuges Support Great Lakes Colonial Waterbird Survey

Caspian tern distribution and abundance are changing throughout the Great Lakes. That information is important to the National Wildlife Refuge System because one of the few nesting colonies in northern Lake Michigan in 2007 was located on Michigan Islands National Wildlife Refuge, administered by staff at Seney National Wildlife Refuge.

The information, gathered during the Binational Great Lakes Colonial Waterbird Survey, has particular value to Seney Refuge manager Tracy Casselman. “With this information, I will try to marshal efforts to monitor the island where the colony is located during the breeding season and be more restrictive with the activities allowed near or on the island.”

The massive survey, started 30 years ago, is conducted approximately every 10 years. Its main purpose is to estimate the distribution and number of nesting pairs of all colonial waterbirds breeding in the Great Lakes. The survey is a cooperative effort between the U.S. Fish and Wildlife Service and the Canadian Wildlife Service.

The first survey in the mid-1970s estimated numbers for a dozen species. Up to 17 species have now been recorded, including gulls and cormorants, pelicans, terns, egrets and herons. Francesca Cuthbert, survey coordinator for the U.S. Great Lakes and a University of Minnesota professor, says a few of these species are “one time nesters and occur in very small numbers.” None of the birds in the survey is federally endangered, but some are species of regional or state concern.

The survey was initiated to provide baseline data on colonial waterbirds, which collectively are very abundant in the Great Lakes. These waterbirds are also very sensitive to environmental change.



Two of only a handful of active Caspian tern colonies in Lake Michigan in 2007 were located on islands managed by Seney and Horicon National Wildlife Refuges. (USFWS)

There are approximately 800 colony sites included in the census in the United States; another 1,400 are found in Canada. Survey team biologists and refuge staff from at least five national wildlife refuges count the nests toward the end of the incubation period at: Gravel Island and Green Bay Islands Refuges (managed by Horicon Refuge) in Wisconsin; Detroit River International Refuge in Michigan; Huron Islands Refuge (managed by Seney Refuge) in Michigan; Michigan Islands Refuge (managed by Seney and Shiawassee Refuges); and West Sister Island Refuge in Ohio. Cuthbert says counters are professionally trained.

Counting Every Nest

In decades past, Cuthbert says every colony site was visited. Now, she and her research team obtain estimates for many sites from aerial photographs that can be viewed on a computer screen. Not only does this method eliminate disturbance to nesting birds, Cuthbert says it can be more accurate as well. For example, the nests of great egrets, great blue herons

and cormorants are very similar. The birds fly off the nest when counters are on the ground, but the easily identifiable adult birds stand out on the aerial photos.

Colonial waterbirds are important indicators of ecosystem health. Monitoring their numbers will track changes in the Great Lakes environment that are important to humans as well as fish and wildlife.

“Fluctuating lake levels and global climate change could affect the distribution of waterbirds,” says Nancy Seefelt, a biology professor at Central Michigan University. “The survey gives us some baseline data so we will know if and when to implement management to protect the birds.”

Cuthbert says no one yet knows what might be altering Caspian tern distribution or how these threats will affect other waterbird species. She and her colleagues plan to use aerial photography to track Caspian tern numbers and colony breeding success during the next several years. ♦

Sending Warmth to Flood-Ravaged Town

When a huge flood hit the small rural town of Vernonia, OR, in December 2007, a desperate cry went out for firewood. Staff at William L. Finley National Wildlife Refuge heard the call on National Public Radio and sprang into action.

Jock Beall, Steve Smith, Greg Hagedorn, Frank Connor, Glen Warner and Walt Hammond put on gloves, picked up chainsaws and went to work filling a 10-yard dump truck with Douglas fir.



William L. Finley National Wildlife Refuge employees (l to r) Jock Beall, Steve Smith and Frank Connor preparing firewood for delivery to stricken town. (USFWS)

The next day, it was delivered to the grateful residents.

So where did the refuge get the wood so quickly? It came from Oregon white oak restoration work at the refuge. For the past five years, the refuge has been removing Douglas firs that have encroached into the oak stands that once covered the area.

“The Douglas fir will gradually overtop and shade out the oak, killing legacy

trees that are sometimes more than 200 years old,” said refuge biologist Jock Beall.

Historically, periodic fires prevented Douglas fir from getting established while the fire-tolerant Oregon white oak thrived. But as the area was settled and fires suppressed, the Douglas fir, also an Oregon native, started taking over. Beall said the refuge can’t use prescribed fire safely until the understory is cleared and the Douglas fir has been removed.

As the Douglas fir was cleared over the years, many of the logs were trucked to watersheds in western Oregon to create in-stream habitat for restoration projects. But small logs and end trimmings not used in fish habitat restoration projects were stockpiled in Finley Refuge’s shop yard.

The soggy residents of Vernonia were thrilled. After the water receded, people burned the wood to dry out their homes. The community of Vernonia sent a heartfelt “thank you.” ♦

Protecting a 6,000-Year-Old Path of the Pronghorn – *continued from pg 1*

National Forest signed a pledge to help preserve the path of the pronghorn “for the benefit of the area’s ecology and enjoyment of current and future generations.” National Elk Refuge is home for many members of the pronghorn herd.

Refuge manager Steve Kallin notes that while the pledge is largely symbolic, it could influence planning processes so wildlife managers and state and local officials keep the needs of the pronghorn in mind when making land-use decisions.

Raising public awareness is a major goal. Toward that end, informational kiosks that describe the historical significance of the pronghorn herd and its established travel routes have been placed in the Greater Yellowstone ecosystem and

elsewhere. Private grant money paid for fence crossing markers along the pronghorn path.

Meanwhile, the state is making efforts to acquire conservation easements along the migratory route. All across the path, residents and ranchers who want to enclose their property are encouraged to use fencing that pronghorn can crawl under. Separately, the installation of driver warning signs and motion sensors along highways crossed by pronghorn accelerated after an incident in which 21 pronghorns died after they inexplicably stampeded into a moving truck.

The Bureau of Land Management, at the urging of the Wyoming Game and Fish Department, has withdrawn parcels from energy lease sales because the land

was on wildlife migration routes used by pronghorn and mule deer.

“In a nation of so many million people, it’s a marvel that America still has a herd that has been following the same migratory paths for thousands of years,” Kallin says. “It’s our responsibility to do our best to protect this marvel of nature.” ♦

FOCUS . . . *Through the Eyes*

“Let’s Go Outside”

by Rick Lemon and Janet Ady

As Richard Louv highlighted in his 2005 book “Last Child in the Woods – Saving Our Children from Nature Deficit Disorder,” many Americans, especially children, have grown increasingly disconnected from the natural world. Time once spent exploring in the woods or simply playing in the backyard has been replaced by time spent indoors, often in front of a flickering screen. The U.S. Fish and Wildlife Service is taking a number of carefully considered steps to instill in America’s kids our own passion for wild places and wild things.

With the theme of connecting people with nature designated by Service Director H. Dale Hall as one of his priorities, the Service in December 2007 brought together 100 professionals from various disciplines at the National Conservation Training Center (NCTC) for custom-

tailored training in “Connecting People and Nature: Making it Happen in your Community.” A far-reaching national plan to support and guide regional work is taking shape, putting the Service in the forefront of public land agencies that will help awaken the next generation of conservationists.

There are endless opportunities for Service employees to get kids (and their parents) outside. On national wildlife refuges, people can use 2,500 miles of water and land trails to watch or photograph wildlife. They can participate in programs of nature interpretation and environmental education, or go hunting and fishing. National wildlife refuges already welcome about 39 million people each year. Hundreds of thousands of school children often have their first taste of environmental education – and of nature, itself – when they visit a national wildlife refuge.

“Ask the Lady”

by Melinda Abrazado



Steward Joan Ebeling talks to beachgoers about the importance of Cape May National Wildlife Refuge. (Heidi Hanlon)

At Cape May National Wildlife Refuge in New Jersey, the refuge’s Environmental Stewards each summer set the boundary and explain the magical “why” that differentiates a closed beach and the densely populated beaches of the Wildwoods. The difference is marked physically by a row of pilings and a rope out to the mid-tide mark.

Cape May Refuge’s Two Mile Beach Unit is a 500-acre tract with about a half-mile of Atlantic Ocean beachfront and some of New Jersey’s last areas of maritime forest. The beach is used in the warm half of the year by nesting shorebirds – including the endangered piping plover – and other migratory

Many refuges are working with youth-oriented public and private partners who freely share their know-how and resources. In tandem with savvy partners, we can give more children, in more places, opportunities to get outside and enjoy nature.

Many potential partners are not among our usual sidekicks. For instance, a family health clinic in West Virginia has in its waiting room maps of nearby outdoor areas and visitor guides to national wildlife refuges and, on its Web site, links to state and federal recreational lands, including wildlife refuges.

Health professionals in many places want people to get outside for their health. At a Health Professionals Roundup in February, the Service set a bold goal for 2010: Creating 25,000 partnerships with health related entities and natural resource organizations.

The Service wants to work more closely with parents. The Connecting People



We are instilling in American's kids our own passion for wild places and wild things. (USFWS)

with Nature Working Group has posted tips for parents on the Web at fws.gov/children. Service employees can find many articles, research ideas, success stories, frequently asked questions and related resources on the intranet fws.gov/nctc/childrenandnature/. An array of interactive exhibits, activity pages, banners and PowerPoint presentations is also available.

Coming soon: A new NCTC course aimed at service employees and other conservation professionals who are interested in partnering with schools to create schoolyard habitats and outdoor classrooms. A new interactive computer lesson – designed for children in grades 4-6 – will get kids involved in a “Let’s Go Outside Club” that exposes them to birding, fishing and hiking.

We have little doubt that, in time, more and more of this nation’s kids will come to share our enthusiasm for – and our interest in preserving – America’s extraordinary natural world. ♦

Rick Lemon recently retired as director of the National Conservation Training Center. Janet Ady is chief of the center’s Division of Education Outreach and leader of the Connecting People with Nature Working Group.

birds, so it is closed to public access all summer. At the same time, adjacent public beaches are solidly packed with frolicking people, brightly-hued umbrellas, coolers and beach chairs.

The Stewards give regularly-scheduled tours through the maritime forest, but that interests more adults than children. The youngsters like the ocean where they collect things on the public beach and bring them to the Stewards. I’m one of the Stewards, easily recognizable thanks to the U.S. Fish and Wildlife Service shirt, jacket and hat that I wear. Time and time again, as I’ve sat on the refuge side of the boundary line, I’ve seen a child find something and the parents point to me and say, “Ask the lady.” The regular beachgoers get to know me well as the summer unfolds.

Ray Egg “Mermaids’ Purses”

I bring field guides to the beach, and the children and I look through books to identify the shells, the feathers, the seaweeds they bring. Sea collars, whelk egg strings, ray egg “mermaids’ purses” all fascinate children. Once, some of them brought me a plastic bucket with a squid egg mass “mop.” The squidlings hatched as we watched. The kids hustled the bucket and its contents back to the surf and left that day, convinced they all would become marine biologists.

Most of the children are excited to see the obvious attractions: dolphins showing off in the surf, ospreys catching fish and gulls stealing bocce balls and sandwiches. Some kids get more involved and find that little things live in clumps of seaweed and crabs have social interaction with their kind. They are the future scientists.

When one child finds something interesting, the others watch, become involved, ask questions and learn. They run to the Environmental Steward on duty. They watch the birds and dolphins. They see and touch their first starfish, first sand dollar, catch (then release) pipe fish, peer down crab holes, and ask, ask, ask. Even though they can’t come to “my” side of the beach, they learn why we keep it closed and they feel like they, too, are defending the birds’ personal space. The children understand better than some of the adults.

The Environmental Stewards program began at Cape May Refuge in 2000. The one-day orientation helps us to quickly learn about the Service, the Refuge System, the biology of the beach and exactly why the beach is closed each year.

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FOCUS . . . *Through the Eyes*

In Southern Arizona, A Wetland Classroom

Buenos Aires National Wildlife Refuge, 118,000 acres of semi-desert grassland in southern Arizona, has kicked off an innovative get-close-to-nature program that will connect children to the rich habitats of this relatively isolated refuge. The program focuses on a spring-fed desert wetland, or *ciénega*, one of the few left in the state.

Located near the town of Arivaca on the east side of the refuge, Arivaca Ciénega is a seasonal marsh that attracts an abundance of birds and birdwatchers. Water, lush vegetation and majestic cottonwood trees provide a nesting and wintering area for birds and a travel corridor for many kinds of wildlife.

To take advantage of the full potential of its unusual outdoor classroom, Buenos Aires Refuge created attractive and innovative teaching material for a Ciénega Discovery program with the financial assistance of the refuge Friends

group. A just-produced *Educator's Manual* helps prepare teachers for field trips and includes pre-trip and post-trip activities. For the students, the manual is chock-full of colorful flash cards, information booklets with enticing images of animals and plants, and a journal to take home.

One set of booklets and handouts is geared for kindergarten through third grade, another set for fourth through eighth grades. First, a general walk through the mile-long route takes the edge off the kids' energy. Then, after a snack at the trailhead, smaller groups rotate among several stations along the trail to study plants, animals and other aspects of nature. Microscopes, nature artifacts and hands-on activities hold the youngsters' interest, and trained instructors guide the students at each station.



The week-long Urban Wildlands Ecology Camp, a partnership between the Friends of Mid-Columbia River Wildlife Refuges and the private Oasis School, lets children engage in interdisciplinary learning that helps them appreciate ecological relationships. (Daniel Murray)

Urban Wildlands Ecology Camp at McMurray Park

by Shannon Hays-Truex

At McMurray Park in Richland, WA, children in the week-long Urban Wildlands Ecology Camp explore what some once derided as “just a ditch,” the McMurray Park Waterway. The stream – sometimes no deeper than two or three feet – is a wonderland for the youngsters, who find their special connection with nature by attending the camp, which serves grades 2-6.

Volunteer Sheila Beck, new to the refuge this year, and Bonnie Swarbrick, the station's outdoor recreation planner, designed the program. Beck has broad experience in the U.S. and other countries as a business efficiency advisor. Swarbrick draws on experience in wildlife biology and a tour as manager of an environmental education center in California.

Best of the Best

Their approach is inspired by several tried and true instructional approaches used in the Refuge System and elsewhere. The use of multiple stations was patterned after field trips organized at Brazoria Refuge in Texas. Other activities incorporate information from, among other sources, the *Salt Marsh Manual* used at Don Edwards San Francisco Bay National Wildlife Refuge in California, Tucson Audubon Society's Desert Birding School and Project WILD.

In March, the Blue Goose and Buenos Aires Refuge staff members made a "surprise" visit to the Sopori School and stopped by all elementary classrooms.

The stream, far healthier since the community began caring for it three years ago, has a diverse community of macro-invertebrates, a variety of ducks and wading birds, and some muskrats – the reason one boy named it "muskrat river." The children are rewarded for their investigation with bucketsful of tiny fish and water bugs to examine through field microscopes.

Created through a partnership between the Friends of Mid-Columbia River Wildlife Refuges and Oasis School, a local private school, the camp has served the community since June 2006. Sometimes as many as half of the 40 campers are from the subsidized housing or low income areas around the park. The children engage in interdisciplinary learning that helps them understand and appreciate plants,



Buenos Aires National Wildlife Refuge in Arizona has launched an innovative get-close-to-nature program to introduce children to the desert's natural wonders. (USFWS)

The Blue Goose danced and "high-fived" with the kids; meanwhile, Beck, Swarbrick and refuge student interns provided the enthralled children with a preview of the adventures awaiting them at refuge.

wildlife, the environment and the ecological relationships between and among them.

The camp complements other education programs offered by the Friends at McNary National Wildlife Refuge and the Oasis School. Since 1997, McNary Refuge has introduced children to the diverse wildlife, native plants and habitats of the Columbia Basin bioregion and the Refuge System as part of the school-year curriculum. The programs seek to cultivate a bond with nature and inspire in the youngsters an ethic of caring for the earth – as does the Urban Wildlands Ecology Camp.

The same concepts and inquiry-based techniques are used in the Oasis School Habitat Restoration Program, which was created in 2005 and modeled after

A few weeks later, for the premier of the Cienega Discover program, first-graders were bused over for a visit. The ever-present Blue Goose waved them in to the trailhead and got them started on their nature adventure. Members of the Friends group, refuge staff and volunteers helped out at the nature stations, provided snacks and helped the children reflect on their learning through drawings, poems and journals.

The first graders sang the "Caterpillar Song" and learned about the habitat and major plants and animals found in this rare wetland. A highlight of the day was the discovery of the muddy – and fresh – tracks of a mountain lion and her cub on a boardwalk.

At the end of the day, many kids didn't want to leave – clear enough evidence that the refuge has a hit on its hands. ♦

the Habitat Conservation Program that I developed as a member of Friends. The program's success inspired me and Oasis School teachers to reach out to the community through the Urban Wildlands Ecology Camp.

The Friends provides the structure and curriculum for the hands-on and inquiry-based science activities. Several Friends lead camp programs. McNary Refuge provides equipment – everything from tables and microscopes to hip waders and even pelts and skulls. Campers learn about freshwater and terrestrial invertebrates, vertebrates, plants and habitats, nature writing, Native American culture and nature, and how to test for water quality.

Running from 9 a.m. to 3 p.m., the camp uses the skills of teachers from

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FOCUS . . . Through the Eyes

Teaching Lessons They Can Pass On

by Julie Concannon

Twenty-five Girl Scouts from the Columbia River Council in Oregon, all ages 13 to 15, are having the times of their lives this year as they participate in science projects on seven national wildlife refuges – including two in Hawaii.

But more importantly, they may well be learning a passion that will last them a lifetime and give them the tools to teach others how they can make a difference on behalf of wildlife conservation.

The program, which began March 29 at Tualatin National Wildlife Refuge, is part of a Girl Scout conservation leadership program – tagged ECO-Gig (Ecology Girls in Green) and funded by grants from Connecting Girls to the Landscape-U.S.A. Girls Scouts and the National Fish and Wildlife Foundation Nature of Learning program.

The girls were selected from among 40 who responded to a survey sent to about 1,000 Girl Scouts in fall 2007. Part of the Girl Scout program is to help the girls learn how to make their own decisions and create their own destinies. So, I laid out a map of the Refuge System and



The Girl Scouts are pictured at the mudflats of Yauquina Bay in Portland, OR. On the Oregon Coastal Refuge Complex, the Scouts were taught how to use binoculars and collect data during the spring migration of shorebirds. (Julie Concannon/USFWS)

Saving the Jewel of the Nebraska Sandhills

Just how enthusiastic do you think a bunch of middle school students could get about a small purple flower that thrives in the sandhills of Nebraska? Very enthusiastic, judging by last year's student blogs on a Web site for the Penstemon Protectors of Walnut Middle School in Grand Island:

"I got up early and was pumped to go to Valentine (National Wildlife Refuge)." *Thomas*

"This was a very fun and enriching experience. I have had an awesome time and I wish I could do this again." *Colby*

"I think we should go again to Valentine because we learned a lot of cool things." *Tom*

One of the "cool things" students saw was the blowout penstemon, a spectacular flowering plant that grows in sandy blowouts created by wind erosion. There are 300 species of penstemon and the

asked them as a group to select four to six refuges in the Northwest Region.

From March through August, the Girl Scouts will visit Tualatin Refuge in Oregon, Deer Flat Refuge in Idaho, Oregon Coastal Refuges, Willapa and Ridgefield Refuges in Washington and Hawaiian Islands Refuge and Oahu Forest Refuge in Hawaii. The visit to the Hawaiian refuges still depends on further fundraising.

The Girl Scouts – all aiming for their Silver and Gold Awards – are immersed in specific projects on each refuge, such as writing journal entries that will be presented at the National Association of Interpretation annual meeting, creating artwork that is part of the educational modules created before each refuge trip, and building powerful photo shows that engage the observer.

At Ridgefield Refuge, the Girl Scouts helped to open the historic Cathapotle Plankhouse for the season. They also measured ancient oak trees, updating 15-year-old data as the refuge prepares its Comprehensive Conservation Plan.

At Willapa Refuge April 12-15, after camping on state lands, the Girl Scouts helped to catalog amphibian diversity. We found northern red-legged frogs and rough-skinned newts as well as their egg masses. These species and more were collected for fourth graders who later came to visit the refuge. Some of the Scouts returned to Willapa Refuge in May to help with a field day for younger children.

Rite in the Rain

At Tualatin Refuge, they helped to reforest a riparian oak bottomland forest, part of a bluebird restoration program. At the end of the day, they wrote in their “rite in the rain journals” that the tree planting was their favorite part of the excursion and that being able to plant with other girls was “a bonus.” One Scout created a photo essay on how to plant a tree.

I have worked with each of the refuge managers, visitor services specialists and wildlife biologists to make the program as valuable as possible. On the Oregon Coastal Refuge Complex, the Scouts were taught how to use binoculars to help collect data during the spring migration of shorebirds at Yaquina Bay Estuary. In

June, they will travel to Idaho in search of raptors and hope to provide service to Deer Flats Refuge near Boise.

We hope to visit Hawaii August 5-13, where the Scouts will help monitor leatherback turtles on Northern Oahu and plant Koa trees in the Hakalau Forest National Wildlife Refuge. We still have to raise the money to get to Hawaii. Regardless of which refuge we visit, the parents are as excited about the program as the girls are. One parent said she would drive the girls to Hawaii if her van could be converted to a boat.

Seeing national wildlife refuges firsthand and participating in on-the-ground science give the girls the impetuosity and ability to bring more volunteers into the National Wildlife Refuge System. They will spread our message throughout their lives. I am reminded of a quote from Margaret Mead: “Never doubt that a small group of people can change the world. Indeed, it is the only thing that ever has.” ♦

Julie Concannon is chief of Natural Resource Damage Assessment and Oil Spill Response in the Northwest Region.



Students from Walnut Middle School transplanted 2,100 penstemon plants in the sandy blowouts of Valentine National Wildlife Refuge in Nebraska. (Jim Stubbendieck)

blowout penstemon of Nebraska is one of only two with a fragrance. It is the only plant in Nebraska on the federal endangered species list.

When Jim Stubbendieck, professor of grassland ecology at the University of Nebraska (Lincoln), began working with penstemons in

1981, there were only 600 plants in the world – all in Nebraska. A graduate student once planted 20,000 seeds in the blowouts. Three germinated but they all died.

So Stubbendieck developed ways to grow the seeds in a greenhouse. The seedlings are transplanted in blowouts where they flower and produce more seeds. Now, there are 20,000 plants growing on private, state and federal land, including Crescent Lake and Valentine National Wildlife Refuges – some with the help of the Walnut Middle School students.

The students germinated seeds from the greenhouse in their classroom. The

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FOCUS . . . *Through the Eyes*

In Alaska, a Calendar's a Great Teacher

by Terry Fuller

Eleven of Alaska's field stations are using a popular annual migratory bird calendar competition to teach important lessons about bird conservation to rural Alaskan children, many of them Alaska Natives, as well as their friends and families. The contest attracts nearly 1,500 combined poster and literary entries from more than 50 towns and villages.

The calendar competition, which has been evolving and steadily growing during the past 20 years, is aimed at children who attend schools in towns and villages that are adjacent to or within 10 national wildlife refuges. Other students participate through the U.S. Fish and Wildlife Service's Fairbanks office. For each year's contest, students submit one bird-related drawing or one literary entry. Each year's calendar has a different theme; the 2009 theme is "Many Birds, Many Teachers."

In many villages, the contest inspires a great sense of pride: community members get excited about their kids taking part in the contest. When I talk about the calendar and the contest with village residents, many eyes light up and stories are told about past winners and calendars. Anecdotes about ducks, geese and hunting are common. In many schools, the contest is as etched into the school calendar as the Christmas program or standardized testing.

The first Alaska Migratory Bird Calendar (originally called the Goose Calendar) was produced at Yukon Delta Refuge in 1985 as part of a broad conservation, education and management effort aimed at reversing the declines in four species of geese. Due in large part to increased public awareness, the decline of the targeted species' populations ended. In recent years, the focus of the calendars has shifted from geese to all waterfowl.

The first Alaska Migratory Bird Calendar was produced in 1985.

Refuges as Classrooms, Playing a Role in Environmental Education



St. Marks Refuge environmental education specialist Lori Nicholson holds a bunny for students to pet. She has not only developed programs at St. Marks, but also correlated them with Florida state school curricula.

Most of the school children, kindergarteners to third graders, who participate in the Butterfly Lifecycle Game at St. Marks National Wildlife Refuge on Florida's panhandle end up as butterfly angels after struggling to elude predators and collect golf ball eggs. It is a

stark life lesson about hazards in the life cycle of a Monarch butterfly.

The butterfly encounter is one of 16 educational programs that environmental education specialist Lori Nicholson has either updated or developed at St. Marks Refuge. She has also correlated nine of the programs to Florida state standards, so that they help teachers meet annual teaching goals.

In other St. Marks Refuge programs – all of which are aimed at various age groups – students measure meteorological conditions to gauge effects on wildlife and habitat or determine the advisability of a prescribed burn. They also explore freshwater ecosystems and become coastal explorers. During their high school senior year, students learn about



An annual Migratory Bird Calendar competition that involves 11 Alaska's field stations is teaching rural Alaskan children important lessons about bird conservation. (USFWS)

Refuges Help Spread the Word

Teachers' guides are available to help educators incorporate migratory bird conservation into their lesson plans. Several refuges – including my own, Togiak – reinforce the messages during school visits. Togiak Refuge staff members make presentations – which include information about the calendar,

the variety of career choices that are available in the U.S. Fish and Wildlife Service. Nicholson says she begins by describing the positions, such as biologist and ranger; that are available at St. Marks and then expands to jobs at other refuges. She introduces the entry-level STEP and SCEP programs.

Working since last August on a 40-week contract with the St. Marks Refuge Association, the Friends group, Nicholson is the first environmental education specialist to work at St. Marks Refuge and one of only a handful in the Refuge System. Most refuge educational programs are run by rangers or biologists. Before Nicholson was hired, Refuge ranger Robin Will says she “did what she could” to run educational programs, and they were not

The competition is open to students in grades K-12. In late February each year, local contests are held at field station offices. There, judges select winning drawings and written submissions in each of four categories (grades K-2, 3-5, 6-8 and 9-12), and ribbons are awarded to each

tied to state teaching standards. “I can’t do what Lori does,” says Will, pointing to Nicholson’s undergraduate degree in education and her experience teaching in the Oklahoma public school system. She also has a master’s degree in wildlife and fisheries ecology.

Between September 1, 2007, and March 31, 2008, Nicholson and a group of regular volunteers have reached 3,843 kids, either on the refuge or through programs that they take to the schools. She has exceeded goals set for her by the Friends group to increase educational programs on the refuge by 20 percent and school visits by 10 percent. “Usually we have 20 to 60 students come for each program,” says Nicholson. “When we go to a school, it may be for one class or six or seven. So, we usually see between 20 and 120 students in one visit.”

its theme and the importance of migratory birds – to students in 12 different villages in three school districts in or near the refuge, which covers 4.7 million acres. Most of these villages have 100-500 residents and are served by a single school. In 2007, I delivered 38 classroom presentations in seven schools in five villages.

local winner. Every entrant gets a certificate of appreciation.

Winning entries are then forwarded to the Service’s Alaska Region office in Anchorage, where five judges select 12 statewide literary and 12 statewide drawing winners to be printed in the next year’s calendar. They also select one Grand Prize Literature and one Grand Prize Poster winner. This year, one Grand Prize winner will receive a new bike and helmet; the other will receive a digital camera. The other statewide winners receive ribbons and other prizes. About 18,000 calendars are printed each year and distributed to households where the entries originated as well as to partners.

The Service has a number of partners to conduct the competition, including the National Audubon Society, Ducks Unlimited, Alaska Department of Fish and Game, the North Slope Borough Department of Wildlife Management and Conoco Phillips Alaska. ♦

Terry Fuller is an education specialist at Togiak National Wildlife Refuge in Alaska.

Most of the students are from unserved and underserved populations in five counties in the largely rural area around Tallahassee. Many have low achievement test scores.

Will hopes that St. Marks Refuge can serve as a model for other refuges that want to develop environmental education programs. She says the students generally are not exposed to the outdoors. “They don’t see people in environmental careers coming to their schools.” And many area schools can’t afford field trips, particularly with the rising cost of gasoline. This has led St. Marks Refuge to create a fund that pays for roundtrip bus transportation.

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FOCUS . . . *Through the Eyes*

Getting Hooked on Fishing

At a fishing derby held by the Edwin B. Forsythe National Wildlife Refuge and the Township of Galloway, NJ every spring, kids get lessons for life on the perils of drugs and (if they're lucky) their hooks into a fish or two.

On the morning of May 10, about 135 enthusiastic children and their adult fishing partners lined up around Galloway's Patriot Lake – the centerpiece of a public park – which is regularly stocked with perch, bluegills, sunfish and catfish.

The first derby was held on the refuge and attracted about 25 kids, says Sandy Perchetti, the refuge's community partnership and volunteer coordinator. "Before long, the refuge couldn't accommodate everybody, and we moved to the town lake. For safety reasons, 135 children is our limit – we can have only so many hooks flying around at once – so sometimes we have to turn kids away.

Some participants have fished before; for many others, the derby is where they learn the basics."

At this year's derby – the seventh – several volunteers were stationed around the lake to help as needed. Several bait stations parceled out worms. During the derby, a fishing organization conducted a casting contest.

Before the first hook hit the water in the catch-and-release competition, though, the children visited several different informational stations. At the most extensively equipped stop, they heard about the dangers of drugs from Galloway police officers aided by Explorer Scouts. In addition to straight talk and brochures, the effects of drugs were brought home by exhibits such as a pickled liver, preserved to show the life-ending damage that addiction can bring.



Throughout the Refuge System, invasive plants are a pervasive, hard-to-fight problem. Children are some of the best weapons because they just love to rip out weeds – and to use electronic gadgets to locate invasives. (USFWS)

Kids Join the War on Invasives

by Jenny Ericson

In 2007, about 2.4 million acres of Refuge System lands were infested with invasive plants. The war against non-native species never stops. Kids are one especially effective weapon – they just love to pull weeds.

The Refuge System's National Volunteers and Invasives Program has involved thousands of volunteers of all ages. From August to September 2007, Boy Scouts from Willmar, MN, joined staff at Weber Waterfowl Protection Area to help clear invasive woody plants that are gradually replacing native prairie and oak savanna. Under close supervision and after receiving safety training, the Scouts, ranging in age from 10 to 18 and armed with loppers and saws, slashed woody plants, such as honeysuckle and buckthorn, while sparing the natives,

including lead plant, wild indigo and prairie rose.

Humboldt Bay National Wildlife Refuge in California and two nearby high schools are collaborating to encourage students to participate in the refuge's annual South Bay weed-pull in September. Both high schools have been active in previous refuge events, including tree plantings and invasives removal for a number of years. Students receive extra credit and community service hours for participating. The South Bay weed-pull focuses on removal of newly detected weed populations to ensure that new infestations don't have a chance to get established.

In 2006 and 2007, barnyard grass was hand-pulled from the only known infestation at Humboldt Bay Refuge. In the first year of the project, uprooted



At the annual fishing derby New Jersey's Edwin B. Forsythe National Wildlife Refuge and the Township of Galloway hold every spring, kids get lessons for life on the perils of drugs and (if they're lucky) their hooks into a fish or two. (Ed Reed)

The annual derby is affiliated with the "Hooked On Fishing – Not On Drugs" program of the American Sportfishing Association's Future Fisherman Foundation.

Other stations provided information on aquatic ecology, outdoor ethics and the basics of how, when and where to fish. Friends of Forsythe set up a station to promote the refuge. "We handed out information about the refuge – which many people, especially the newcomers, didn't know about – and promoted memberships in our Friends group," says Ed Jones, Friends president and derby coordinator.

A representative of a state hatchery made a timely appearance with a truck full of fish and gave a brief talk on the six species common to New Jersey ponds. And then, in one of the highlights of the day, fish were scooped up in nets and

placed in buckets for the children to empty into the lake.

The two-hour fishing period began and ended with blasts from an ambulance siren. At the conclusion, children and their families sat down to a lunch contributed by a local restaurant. Prizes were awarded to the 1st, 2nd and 3rd place winners in two age categories, 5-8 and 9-12. The child who landed the longest fish of the day – a 19" catfish – was also recognized. All winners received plaques and fishing gear. Every child got a tackle box with lures and a t-shirt.

One parent told refuge staff, "Thank you for having such a wonderful event. We need more family activities." ♦

weeds filled enough trash bags to load the back of a pickup truck. The second year, the bags filled only a quarter of the truck. The two-year-old program is supported by a grant that covers, among other things, the cost of gloves and trash bags.

GPS Training Pays Off

In addition to providing competitive grants, the National Volunteers and Invasives Program trains refuge staff and volunteers to use hand-held computers and global positioning system (GPS) devices to map invasive plant infestations on refuge lands.

Invasive plants infested more than half of Eastern Neck National Wildlife Refuge on Maryland's Eastern Shore. The refuge relies on dedicated volunteers, among them 13-year old Rob Bennington, who spent long hours walking and

scouting for non-native plants. Rob was 10 when he started mapping invasives with his dad, Ben Bennington.

Three years later, Rob is still enthusiastic about tromping through the woods and wetlands with a GPS unit. "I can go deep into the refuge, be close with nature and pull up nasty weeds," Rob says. He understands that invasive species management is important "so the refuge doesn't get choked up with the nasty plants." Asked if would continue to map invasive species, Rob says without hesitation, "Definitely! It's a neat project!"

In Wisconsin, Girl Scouts armed with GPS units were on the hunt at Horicon National Wildlife Refuge, where they found and marked locations of buckthorn, an invasive tree that prevents oaks from regenerating and shades out native

flowers, ferns and other woodland plants. Their efforts helped restore 40 acres of forest along the auto tour route and hiking trail. Their work was part of the National Girl Scout "Linking Girls to the Land" program, and helped them receive a refuge award in March for the most hours worked by a volunteer group.

And along the way, the girls get to watch birds, listen to frogs and walk trails. "It was an unforgettable experience," says Scout leader Dennis Block. ♦

Jenny Ericson is the Refuge System's national invasives volunteer program coordinator. Several refuge staff members contributed to this article: Rachel Cliché, Eastern Neck; Wendy Woyzcik, Horicon; Scott Glup, Litchfield Wildlife Management District; and Patricia Clifford, Humboldt Bay.

Around the Refuge System

New Mexico

The roster of mammal species that has called Bosque del Apache National Wildlife Refuge home has a new addition – an oreodont, a critter that looked like a cross between a pig and a camel and had its heyday 10 million to 15 million years ago. In February, researchers discovered fossils embedded in a steep cliff face. The discovery was identified as the upper and lower jaw of an oreodont, not a common find in the southwest. A team from the New Mexico Museum of Natural History and Science then excavated the bones, which are now being studied at the museum. The fossils will be added to the museum's collection, but in the future replicas may be displayed at the refuge's visitor center.



Kansas

Recent visitors to Quivira National Wildlife Refuge may have seen deer sporting numbered ear tags and radio collars. The refuge is the site of the state's first large-scale study of white-tailed deer.

The study, which involves several state and federal agencies, aims to build a better understanding of the refuge's deer population, specifically the ways the animals use and impact habitats, their population and social dynamics and their movements. Captured deer are sedated to allow biologists to fit them with ear tags and radio or GPS (Global Positioning System) collars. The collars beam continuous signals to track the animal's movements. By knowing deer's preferred habitat, biologists can better plan management.

Louisiana

Sabine National Wildlife Refuge and the Creole Nature Trail All-American Highway have a lot to celebrate. Rebounding from the devastation of Hurricane Rita, the refuge has reopened its highly popular wetland walkway and other recreation areas located along the Creole Nature Trail.

Before Rita struck in September 2005, Sabine Refuge, 124,511 acres of coastal marsh in southwest Louisiana, was one of the region's most popular attractions. Rita devastated the refuge. The 1.5-mile walkway, the most visited segment of the Creole Nature Trail, was among the many, many structural casualties. Among other improvements, the walkway is sporting a brand-new observation tower. Don Voros, project leader of Southwest Louisiana National Wildlife Refuge Complex, said all of Sabine Refuge's recreation areas have undergone extensive re-building.

Puerto Rico

Visitors to Vieques National Wildlife Refuge, the most ecologically diverse refuge in the Caribbean, now have to make do with a sampling of the facility's natural wonders. Much of the refuge's land, formerly used by the Navy for target practice and amphibious training exercises, is off-limits.

Earlier this year, federal officials announced an inter-agency agreement designed to speed up a Navy-led clean-up of unexploded ordnance that began in 2005. The agreement – which involves the Environmental Protection Agency, Department of the Interior, the Navy and the Commonwealth of Puerto Rico – specifies the roles that the agencies will play as a comprehensive assessment continues and the cleanup accelerates. The Navy announced that it had set aside \$200 million for a seven-year-long ordnance removal program.

California

Nearly 450 acres of rare vernal pool habitat has been added to the Don Edwards San Francisco Bay National Wildlife Refuge. The newly added pools support the endangered Contra Costa goldfield, a wildflower endemic to a limited range within the San Francisco Bay Area, the endangered vernal pool tadpole shrimp and the threatened California tiger salamander. Vernal pool tadpole shrimp have developed a special relationship with the vernal pool cycle of wetting and drying. Each winter, the shrimp produce many drought resistant cysts that remain viable in the soil until hatching conditions are favorable. The

cysts can remain dormant and viable for as long as 10 years. California tiger salamanders migrate to vernal pools to breed during the rainy season. During the summer, salamanders persist in open grasslands, using ground squirrel and pocket gopher burrows as non-breeding habitat.

The process of acquiring the habitat began in 1997 after Catellus Development Corp. (now ProLogis) was required to mitigate for developing a proposed business park with the construction of a vernal pool wetland preserve. ProLogis transferred the property sooner than expected. In exchange for the early donation, ProLogis created a permanent endowment to pay for fund management of the area.

Wyoming

National Elk Refuge is using a new technique to collect critical data that guide management of its supplemental winter feeding program for the Jackson elk herd. Refuge biologist Eric Cole teamed up with a local naturalist, Kurt Johnson, who took weekly high-resolution digital photographs from a butte overlooking the refuge. Johnson downloaded the images on his computer, magnified the photographs and the elk-counting began.

Cole compared the figures with daily estimates made by the feed-truck crews. "Kurt's photo estimates helped us validate the daily counts," Cole said. "Improving the accuracy of our estimates greatly enhances our ability to accurately assess the number of elk in the different feeding areas and reach a target allotment of supplemental feed per animal." Last winter, an estimated 8,100 elk were eating the supplemental feed. The refuge operates the feeding program for an average of 74 days each winter.

New Jersey

This state's national wildlife refuges owe a lot to the late Helen Fenske, a tenacious conservationist who initially operated from the kitchen of her home in Green Village. Accordingly, a new visitor center at Great Swamp National Wildlife Refuge – a refurbished farmhouse that is more than 100 years old – set to open next year will be named in her honor. Among other achievements, she led a grassroots campaign that helped raise more than \$1 million to purchase and donate nearly 3,000 acres of land for Great Swamp Refuge. She also played a major role in the establishment of Great Swamp Wilderness Area, the first designated wilderness on Department of the Interior lands. While serving in state government, she promoted the creation of Walkkill River and Cape May National Wildlife Refuges and helped preserve wetlands.

Nevada

In an effort to reduce damage caused by feral horses and burros at Sheldon National Wildlife Refuge, the U.S. Fish and Wildlife Service has unveiled

a revised stop-gap management plan that will be in effect until the refuge completes its Comprehensive Conservation Plan (CCP). An estimated 900 horses and burros currently wander freely year-round across Sheldon Refuge, established in the 1930s to conserve American pronghorn antelope and other native wildlife. The combined horse and burro population, which totaled less than 400 in the early 1990s, is growing at an estimated annual rate of between 17 and 23 percent. The horses and burros trample vegetation, compact soils and otherwise directly and indirectly harm native fish, wildlife, plants and their habitats.

Sheldon's Horse and Burro Management Program seeks to maintain relatively stable numbers at the 2007 population levels of approximately 800 horses and 90 burros until the CCP is completed around 2010. This will be accomplished by periodic roundups and an adoption program that would move horses and burros off refuge lands in a humane manner.



The visitor center at Great Swamp National Wildlife Refuge in New Jersey will be named for the late Helen Fenske, a tenacious conservationist. (USFWS)

Keep on Truckin'

Most of us are lucky to travel a few thousand miles without some sort of traffic incident. Clayton Christenson, maintenance worker at Charles M. Russell National Wildlife Refuge in Montana, has driven 250,000 miles with no accidents, “and he’s not buzzing around in a compact sedan but behind the wheel of a big rig,” says Terry Black, safety specialist in the Mountain Prairie Region.

“No one in the region has put that many miles on a heavy piece of equipment without any accidents,” says maintenance lead Bruce Booth with obvious admiration.

During more than 20 years at Charles M. Russell Refuge, Christenson has towed everything from heavy equipment to portable outhouses, using two tractor trailer rigs that are still in service. On one truck, he engineered and built the service body which holds tools and supplies for the field. And Christenson is frequently in the field: “I’ve known him to hear of a sister station needing a piece of equipment,” recalls Black, “and he’ll jump into his rig to haul that loader or excavator or other needed piece of equipment many hundreds of miles, usually the same day.”

“When we get into fire season,” says deputy project leader Bill Berg, “Clayton is not fire qualified but he still assists wherever he can, moving equipment,

running meals...” Christenson routinely handles all the heavy equipment hauling in the Mountain Prairie Region. He also trains refuge employees in using ATVs, backhoes and other heavy equipment and is an active member of the regional Wage Grade Council, which works to coordinate maintenance, network and share knowledge. Christenson is frequently praised as a great mentor to younger maintenance workers and even new to refuge managers.

Carmen Luna, project leader at Bowdoin National Wildlife Refuge in Montana has periodically been on the receiving when Christenson is at the wheel. “Clayton loves what he does and you can tell. He is forthcoming with information, knowledge of the job and truly believes in the team spirit...he treats everyone with respect...he is the type of individual you and I would fall on our swords for.”

Black has called on Christenson’s expertise when she has questions about heavy-equipment and securing loads. “He



Clayton Christenson, maintenance worker at Charles M. Russell National Wildlife Refuge in Montana, has driven his rig 250,000 miles without an accident. (Brian Haugen)

is a consummate professional in his work ethic and attention to safety,” adds Black.

Christenson began his long career in the Service at Morris Wetland Management District in his native Minnesota. He went on to Bitter Lakes National Wildlife Refuge in New Mexico before coming to Charles M. Russell Refuge in 1984. A proud veteran of the Vietnam War, Clayton and his wife have two grown children – a daughter who is a nurse and a son who operates cranes in Bozeman, MT.

In a recent tribute to Christenson, his colleagues at the refuge said “Clayton is known for his great wisdom, infinite skills and the oh-so-famous ‘Get R Done’ attitude.” ♦

Refuges as Classrooms – continued from pg 17

First, the Overview

All programs begin with an overview of the refuge. “Right at the start of each program, I introduce the refuge, the concept of a national wildlife refuge, who owns it, who is responsible for it, now and in the future, what they can do here, what kinds of animals are found on our refuge,” says Nicholson.

One of the most popular programs is “coastal explorer” in which fourth to sixth graders gather specimens from Apalachee Bay – like fiddler crabs – and learn about them. “They love getting in the water,” says Nicholson, adding that many have never even been to the ocean before.

Hired in 2005 as a seasonal ranger, Nicholson got her 32-hour per week

contract at St. Marks’ Refuge because the Friends group views education as a vital part of its mission. “Without connecting to youth, our refuges will have no tomorrow,” says board member Barney Parker. “Since Lori came, the education program is more organized and more in demand than ever. The request for educational programs continues to increase.” ♦

Midway Tours for a Lucky Few

For the first time in six years, Midway Atoll National Wildlife Refuge – location of an epic naval battle in 1942 and now the home of a jewel of the National Wildlife Refuge System – has reopened its doors to tour groups.

The tours, coordinated by the Oceanic Society, began in mid-March when 16 men and women stepped off their chartered turbo-prop Gulfstream after a five-hour flight from Hawaii. The refuge tours are designed to foster public awareness of the importance and sensitivity of remote atoll ecosystems and to allow participants to delve into the historic significance of Midway Atoll and Papahānaumokuākea Marine National Monument.

The Oceanic Society – a nonprofit marine conservation organization based in San Francisco – has been authorized to coordinate seven week-long tours in 2007 and another round of island visits in 2008. The tour season runs through December, with an August to October break while the albatross are at sea. For now, each tour is limited to no more than 16 participants.



For the first time in six years, Midway Atoll National Wildlife Refuge – site of an epic naval battle in 1942 – has reopened its doors to tour groups. (Wayne Sentman)

According to Wayne Sentman, a Society naturalist who escorts the groups, people have signed up for the tours for a variety of reasons. “Quite a few are making return visits; they had previously been involved with service and research projects on the atoll,” he said. “Others come specifically to see the marine environment, but most are attracted to Midway because they want to learn more about it. You can read all about the naval battle and the birds, but that’s not the same thing as seeing the place up close.”

Early in each tour, refuge staff members gave the visitors a crash course on the unique nature of Midway Atoll, islands where birds reign. The atoll is home to massive colonies of Laysan and black-footed albatross. Nearly two dozen other seabird species use Midway for nesting or resting. Other residents include the endangered Hawaiian monk seal and a small but growing population of Laysan ducks recently transplanted from Hawaiian Islands National Wildlife Refuge.

Members of the Community

“I tell our visitors that this is not a tourist resort,” says refuge manager Barry Christenson. “Many have been on ecotours to pretty special places in Africa, South America and the South Pacific, but this is like no other place they’ve been. And for the week they are here, they are a member of our community.”

Accordingly, members of tour groups eat three meals a day in the company of other U.S. Fish and Wildlife Service workers and U.S.

Geological Survey staff members as well as employees of a firm contracted to maintain Midway’s air field and infrastructure. At night, the visitors bed down in refurbished Bachelor Officer Quarters. (The refuge inherited several Navy-era structures when Midway Atoll was transferred to the Service in October 1996.)

Daylight hours are typically devoted to guided natural history expeditions that include wildlife observations, bird watching and snorkeling. Visitors can also participate in habitat restoration projects or tasks such as the collection of marine debris. After-hours events include conversations with staff biologists around tables in Captain Brooks, the island community center.

People who’ve taken part in one of this year’s Midway expeditions give the tour program rave reviews. Kerry Weinhold, of Lancaster, PA, who with his wife were members of an early tour group, was making a return visit. He said his initial trip in 2000 had been prompted by a newspaper story on places to go if you are interested in wildlife.

“Midway’s natural beauty hasn’t changed a bit,” he said. “And, as before, it is a unique experience in a place that is so isolated from the rest of the world. “There are a lot more birds now,” he added.

Refuge manager Christenson, who notes that the tours present staff with new challenges and extra demands on their time, is also a fan.

”We welcome these visitors, for this is not just a fun vacation but a life-changing experience. Our visitors leave with new-found knowledge of how their activities at home can affect a small remote atoll in the midst of a vast ocean. Our goal is to inspire them to make our world a better place.” ♦

Restoring Habitat Along the Lower Colorado River



A federal/state partnership that is restoring critical wildlife habitat in a 400-mile stretch of the Lower Colorado River has completed its first project – the construction of six ponds at Imperial National Wildlife Refuge that provide habitat for endangered fish species.

by Lesley Fitzpatrick

An ambitious long-term federal/state partnership that aims to restore critical wildlife habitat in the lower Colorado River has completed its first project – the construction of six ponds at Imperial National Wildlife Refuge in Arizona. Before the \$6.5 million restoration program at Imperial Refuge is completed, the ponds, which provide 80 acres of habitat for two endangered fish species, will be joined by a 12-acre marsh and 34 acres of native cottonwood-willow trees.

The broad goals of the partnership – the Lower Colorado River Multi-Species Conservation Program (MSCP) – include creating 8,100 acres of riparian, marsh and backwater habitat for four listed wildlife species and 22 other species native to a 400-mile-long stretch of the river. Over time, habitat along the lower Colorado River has been degraded by, among other factors, construction of large water storage and flood control dams, channelization, floodplain development for agriculture, and diversion of water for agricultural and municipal purposes.

The MSCP is the largest federal/state partnership of its kind

in the country. Under an agreement signed by the Secretary of the Interior, the Department will cover half of the 50-year program's estimated \$626 million cost; California, Nevada and Arizona will together provide the other 50 percent. The federal Bureau of Reclamation is responsible for implementing the program.

Other Refuges Playing Key Roles

Through its Arizona Ecological Services Office, the U.S. Fish and Wildlife Service was involved in the program's planning and is now, with MSCP funding, implementing conservation projects at Imperial Refuge and two other national wildlife refuges and using the facilities of three national fish hatcheries to help the program reach its goals.

Work on Havasu Refuge, located on 30 miles of the Colorado River between Needles, CA and Lake Havasu City, AZ was instrumental in developing riparian restoration concepts. Further research on the mass planting of trees continues at Cibola Refuge in Arizona.

The six ponds at the 26,000-acre Imperial Refuge are designed to support populations of the endangered razorback sucker and bonytail. The ponds, isolated from the Colorado River to prevent non-native fish species from entering, are not linked; each will be independently managed. When water is released from a pond, it will enter a drainage channel, where it will support native wetland plants. The ponds also provide a laboratory for studying the most effective designs of ponds and the life history of these nearly extinct native fish.

Historically, backwater ponds on the Colorado River also supported adjacent marsh habitats, and this feature was built into the design of the ponds. Twelve acres of bulrush-dominated marsh will be created near the ponds for the California black rail. The river is one of the last strongholds for this small rail, and the new marsh habitat will guide the design of future conservation areas for the species.

The third natural habitat is cottonwood-willow riparian woodland. Thirty-four acres adjacent to the ponds are being planted to provide habitat for southwestern willow flycatchers and yellow-billed cuckoos. ♦

Lesley Fitzpatrick is the aquatic animal recovery coordinator in the Arizona Ecological Services Office and the lead biologist in development of the Lower Colorado River Multi-Species Conservation Program.

Life Stories from the Service

While the U.S. Fish and Wildlife Service has long collected a wide variety of physical and historic artifacts through its Heritage Program, personal stories – details about Service employees' work experiences, successes and even disappointments – are being assembled for the first time in the launch of *Retirees' Almanac*. The publication will also carry stories from long-time employees who are contemplating retirement in the near future.

The publication – expected to be annual – will debut in the fall at the Retirees Reunion October 9-12 in Minneapolis. The almanac may increase its publication frequency, depending on the

amount of material submitted. It will be produced at the National Conservation Training Center and distributed free to Service retirees.

“We believe there are lots of manuscripts out there,” says Mark Madison, Service historian. “I think we can learn a lot from such stories, most of all, what it is that connects us to the same goals.” Not limited to only the stories of retirees, the *Retirees' Almanac* will carry stories that run about 1,000 words.

Service Director H. Dale Hall believes, “This is a wonderful idea. It isn't so much about the capturing of important experiences as it is in the sharing of those

experiences with others. It's a chance to learn something from one another.”

Send stories and photos by August 1 to Almanac editor, Spence Conley, at Wildfish65@aol.com. You can mail your story on a disk to Conley at 24 Clark Mountain Road, Sunderland, MA 01375. If you have questions, please contact him at 413-665-8004. Conley retired about five years ago as assistant regional director for External Affairs in the Northeast Region. ♦

Saving the Jewel of the Nebraska Sandhills – *continued from pg 15*

seeds have a thick coat to withstand their sandpaper environment, and Stubbendieck showed the students how to soak the seeds in concentrated sulphuric acid. “It was awesome, watching the steam come off the seeds,” wrote one student.

Camping with a Mission

By spring 2007, the students were ready to transplant 200 of their own penstemon plants at Valentine Refuge as well as about 2,000 more from the greenhouse. They camped on the refuge for three nights, adding immensely to the adventures recorded in their blogs:

“We saw a lizard. We also learned about burning the grass and why that is important on the refuge. The box turtle felt cool, so did the snake. You could feel its muscles through its skin.” *Miranda*

“We finally finished planting 14 flats in record time. After that we went fishing and boating at Clear Lake. I had a mud fight with C.J. It was fun.” *Preston*

“I had many first time experiences such as fishing in a boat, canoeing, s'mores and sleeping in a tent. It was



The blowout penstemon is native to the Nebraska Sandhills. Loss of habitat, an invasive moth and demanding germination conditions put the penstemon on the endangered species list in 1987. (Jim Stubbendieck)

a good experience because we had the chance to save plants.” *Tom*

The students had high praise for refuge biologist Mel Nemmeman, who led the planting mission and introduced them to lizards, bull snakes and a kangaroo rat. He returned their praise in words now on the student Web site: “With your help,

the penstemon transplanting that would have taken a week was done in two days.”

The plants are doing well under the watchful eyes of this year's students, who are weeding, fertilizing and documenting their progress.

A new class of 16 students prepared for another planting trip. They have added public education to their mission, including a poster contest for fourth through sixth graders in all Grand Island schools. There are also podcasts on the Penstemon Protectors Web site.

Stubbendieck is excited not only by the potential of saving a plant that can prevent erosion and could eventually have commercial value as a bedding plant, but also by the opportunity to get kids interested in science. “They are highly motivated, they pay attention and ask intelligent questions,” says Stubbendieck with admiration. “Maybe some of them will make a big contribution to society one day.” ♦

To learn more about the Walnut Penstemon Protectors go to: http://www.gips.org/Walnut/Penstemon%20Protectors/Penstemon_Protectors/Penstemon_Protectors/Welcome.html

Chinese Wildlife Experts Visit California Refuges

Where can you find significant waterbird habitat surrounded by a sea of riceland? Sacramento National Wildlife Refuge Complex in California and Poyang Lake National Nature Reserve in China.

Under the leadership of US Geological Survey biologist John Takekawa, a delegation of wildlife and habitat managers from China visited Sacramento Refuge Complex and San Francisco Bay National Wildlife Refuge Complex in January. The delegation included reserve managers from Qinghai Lake, the largest saline lake in China, and Poyang Lake, the largest freshwater lake in China. There were also researchers from the Chinese Academy of Sciences who conduct studies on the Chinese reserves in much the same way that USGS does in this country.

“Both California refuges are large complexes dealing with multiple areas and issues affected by encroaching development, very similar to the reserves in China” explains Takekawa. The Chinese representatives were particularly interested in restoration work, resource monitoring and interpretive displays. “They were very impressed by the interpretive displays because they lack the experience to make life-like displays in China,” said Takekawa.



Chinese wildlife officials visit Sacramento and San Francisco Bay National Wildlife Refuge Complexes in California in January. (USFWS)

The Chinese visitors enjoyed an auto tour and an airboat ride, as well as videos and slide presentations...and lots of geese. “Our refuges are situated right in a sea of rice,” said Sacramento Refuge manager Kevin Foerster. “They were surprised by all our open areas. What surprised me were the commonalities. We have a completely different culture yet there is someone who is my equivalent and shares my value of wildlife and conservation.”

Takekawa hopes to continue exchanges. “Avian influenza has shown that resource management is a global concern. Similarly, climate change may be best

understood at areas first affected, such as the world’s highest elevation area on the Tibet-Qinghai Plateau.”

The leader of the Chinese delegation, Ji Weitao, expressed interest in establishing a formal sister relationship between Poyang Lake Reserve and Sacramento Refuge. Foerster is looking into that possibility. “The exchange of information could be valuable,” says Foerster. “We may have a lot to learn.” Several refuge staff members have already volunteered to travel to China. ♦

Urban Wildlands Ecology Camp at McMurray Park – *continued from pg 13*

Oasis School, aided by parents and even students who are peer educators. We all help coordinate groups of kids, assist with camp activities and often photograph campers in action. We lead art and craft projects.

Campers learn about wetland, riparian and shrub-steppe habitats of the park that for some children is in their own backyard. In addition, campers learn creative ways to express their experiences in nature. Visual arts, writing, drama, dance and music afford/allow/give the children different ways of articulating and understanding their



The McMurray Park Waterway in Richland, WA is a wonderland for kids in the week-long Urban Wildlands Ecology Camp.

connection with nature.

Some of the refuge Friends – most of whom are retired professionals in education or the sciences – are also naturalists, poets, artists or storytellers. They bring to the camp not only their training in the goals and objectives of the refuge education programs, but also their passion for the land. My mother, a poet and retired education professional, designs and leads the daily nature writing. Oasis School teachers and I design and integrate elements of visual and performing arts into the day.

History on the Land – continued from pg 2

to discover a tepee ring on the floor. The discovery turned out to be the first of 58,000 stone artifacts recovered from the lake bed, some of them rare Folsom spear tips belonging to Paleoindians 10,500 years ago.

Widely known as a leader in preserving the nation's wildlife and natural wonders, the Refuge System is less renowned for its

protection of archaeological and historic sites. It shouldn't be.

There are more than 2,060 historic structures on refuge lands – with 89 properties listed on the National Register of Historic Places. We have about 16,000 archaeological sites and nearly 2,200 museum collections.

The cultural legacies that people left behind – their footprints on the landscape – give fascinating insights into our past. The connection between our historic roots and our natural resource roots is unbreakable. So, even as we battle some cultural resource looting – as told in a story on page 5 of this Refuge Update – we remember that in protecting the land, we conserve the tales and dreams of our ancestors. What fine stories we have to tell. ♦



During the camp, sponsored by the Friends of Mid-Columbia River Wildlife Refuges and a local private school, students learn about wetland, riparian and shrub-steppe habitats.

Over the years, the kids have had the benefit of learning from a U.S. Fish and Wildlife Service wildlife biologist, a plant ecologist from the Pacific Northwest National Laboratory, a lepidopterist from the community and wildlife rehabilitators.

Immersing children in an urban wildland fosters a sense of belonging in the natural world and helps them realize their fundamental connection with nature. That concept is the heart and soul of Urban Wildlands Ecology Camp.

One 12-year-old captured the essence and value of the camp experience:

My place is sacred
It is sacred under watch of my Friend,
the Curly Willow.
He is there, waiting for me
to come.

He has waited hundreds of years
for me to discover him
and find his comfort

under the dome of his arms
and in the grass
or in his branches
or on the roots of
Long Fallen
who still grows.

But Curly Willow is better
because he protects me
from everything
Nature or not
He will give comfort
throughout everything
even a storm.

He can calm a storm
the ones within me.
He is a comforter, a Friend.
Who, you ask?
He is Curly Willow ♦

Shannon Hays-Truex is the environmental education coordinator for the Friends of Mid-Columbia River Wildlife Refuges.

“Ask the Lady” – continued from pg 11

Before we begin our annual on-the-beach duty, we practice scenarios with refuge staff. They play the roles of one type of beach goer or another. As good as the staff is at role playing, they never really match the curiosity of the children I see.

These children, after all, will be the next generation that decides why land should be set aside for wildlife. When important decisions need to be made concerning the future of wildlife, I hope they remember what they learned when they spent their summers at the shore. ♦

Melinda Abrazado is a volunteer at Cape May National Wildlife Refuge, NJ.

A Look Back ... Jake Valentine

Sandhill cranes are among the oldest and most endangered of all surviving bird species. The only wild population of Mississippi Sandhill Cranes lives on the refuge which bears its name, founded specifically to protect these cranes and restore their wet pine savanna habitat. One man's concern, courage and persistence stand out in the battle to save the cranes and establish the refuge – Jacob M. (Jake) Valentine.

A tall, imposing man born in Wisconsin in 1917, Valentine earned the Army's Silver Star for heroism under fire in New Guinea during World War II, when he swam a river several times carrying wounded comrades. He studied with Aldo Leopold at the University of Wisconsin and then went directly to Slade National Wildlife Refuge in North Dakota as refuge manager. After stops at Chincoteague (Virginia) and Arthur R. Marshall Loxhatchee (Florida) Refuges, Valentine became wildlife biologist for the Gulf Coast Region. He lived in Lafayette, LA, for almost 40 years before his death in 2000.

Valentine's investigation and court testimony delayed completion of an interchange on Interstate 10 in Mississippi when the National Wildlife Foundation challenged the potential loss of critical crane habitat. The settlement of the

case designated 2,000 acres near the interchange as one of the first parts of Mississippi Sandhill Crane Refuge.

In 1981, Valentine held back tears as the first nine cranes from a 16-year captive breeding program at Patuxent Research Refuge in Maryland were released into the wild at Mississippi Sandhill Crane Refuge. Thirty years later, the Mississippi



Jake Valentine

sandhill crane population has grown from 30 birds to 135, with 25 breeding pairs on the refuge. Valentine said to one of his colleagues, "These last wet pine savannas are beautiful, wondrous places, but without the cranes, they would have lost their soul."

In 1996, Valentine received the first Walkinshaw Crane Conservation Award from the North American Crane Working Group for lifetime achievement in crane conservation.

Jim Kurth, deputy chief of the National Wildlife Refuge System, remembers walking with Valentine along the entire Chandelier Island chain at Breton National Wildlife Refuge in the Gulf of Mexico, ever impressed with Valentine's meticulous field notes. "He challenged you to grow professionally," recalls Kurth. "He was a consummate naturalist, but he also enjoyed a fine glass of port with a cigar. I don't remember every orchid I saw with him, but I remember his generosity, his laughter and his love of life." ♦

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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