



Refuge Update

National Wildlife Refuge System

www.fws.gov/refuges

U.S. Fish and Wildlife Service staff help release two rehabilitated brown pelicans – transported from Louisiana – into the wild near Aransas National Wildlife Refuge in Texas in late June. See related stories on Pages 2, 20 and 22. (USFWS)

Oil Spill Presents An Extraordinary Challenge

By Bill O'Brian

The Deepwater Horizon oil spill response is uncharted territory for all involved, including the three dozen national wildlife refuges potentially in harm's way.

This spill is clearly in a league of its own – and not just because of the sheer volume of oil.

First, “even the term ‘spill’ is not quite right. This isn’t a spill; it’s an uncontrolled release of oil,” says Jewell Bennett, a biologist based at the U.S. Fish and Wildlife Service office in Fairbanks, AK, who served as operations coordinator of the Unified Command wildlife rescue and recovery effort in Louisiana in late May and early June.

Second, unlike cold-water spills with which the public is familiar – such as the 1989 Exxon Valdez spill – this is a warm-water spill.

Third, unlike other spills that typically occur as one-time events in relatively shallow water close to land and immediately overwhelm wildlife and habitat, this incident has been emanating from a source more than 50 miles offshore in extremely deep, current-filled water. It took about a month for the first oil to come ashore in Louisiana, and it is moving unpredictably in various locations along the Gulf Coast.

All of which makes rescuing wildlife and protecting habitat an extraordinary challenge.

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LCCs and I&M: Parallel Missions

By Karen Leggett

Landscape Conservation Cooperatives – self-directed partnerships that link science and conservation delivery – have moved from concepts to functioning entities since they were first proposed more than a year ago. Many have formed steering committees, named coordinators and identified priority species and habitats. Already, projects are being launched that will inform conservation actions on the ground.

Nine LCCs are being established in 2010; several have projects already underway. As of May, the Plains and Prairie Potholes LCC is supporting three activities: examining the effects of climate change on grassland and wetland bird distribution and abundance; producing digital maps of wetlands throughout the

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Chief's Corner

Saving Our Conservation Heritage



Greg Siekaniec

On June 16 – Day 58 after the Deepwater Horizon oil rig exploded in the Gulf of Mexico – more than 475 U.S. Fish and Wildlife Service people are working in Louisiana and other Gulf Coast states

to protect and understand the fragile marshland, habitat and wildlife.

Some are serving as public information officers, diligently getting out the facts. Others are wildlife biologists, contaminant experts, fire management experts, administrative officers, cartographers and a host of other specialists. All are working 14 days straight, often from 7 in the morning to 9 at night, for one simple reason: We are dedicated to and believe in the mission of conservation.

In early June, I met many Service employees in the various incident command centers established to respond and assess damage in the Gulf. Their passion was evident. Whether advising in a command center, staffing a skiff patrol sector, managing evidence collection, handling oiled wildlife or walking beaches as pre-assessment surveys, their dedication was unmistakable. Almost to a person, personnel from other agencies, departments and BP commented on how professional, skilled and knowledgeable Service employees are, and how they look forward to working with the Service under less trying circumstances in the future.

News from the Deepwater Horizon oil discharge changes almost hourly, so keep apprised by visiting our Web site, <http://www.fws.gov/home/dhoilspill/index.html>. The final outcome for wildlife and the residents of the Gulf area is nowhere in sight. As Acting Service Director Rowan Gould told one pair of reporters, "This will affect fish and wildlife resources in the Gulf, and maybe across the continent, for years to come, if not decades."

But no matter what happens, you will see Service people working tirelessly to recover the wildlife and protect the lands and waters that constitute a rich and rewarding way of life. That's just what Service people do on behalf of a nation we love. We know how important natural resources are to the very foundation of our lives and our livelihoods. Now, that message is being televised around the world as we witness the damaging effects of discharged oil on the nation's beaches, marshes, bird and marine life, and the very communities we call home.

We don't stand alone in our dismay and trepidation. Millions of Americans are glued to TV, the Internet – whatever their favorite medium is – to see what will happen to oiled birds, fish, endangered sea turtles and the hundreds of species that are our mission. People care – tremendously.

Listen to one woman who worked for just a year in the Refuge System headquarters as a writer before moving home to Tuscaloosa, AL. Here's what she wrote to me:

"I've found myself actually weeping over the last five weeks. Every summer, my family rented a quite simple cottage on the Alabama/Florida line: Twenty miles along the Alabama/Florida line of *unsullied* beach! When I was 11, I could walk out the door and down miles of gorgeous beach – white sand, clear aquamarine water, dunes and sea oats. That was years ago, and now expensive McMansions are built on what was once cheap-per-acre coast. But even today, the sand was still white; the water still clear; it still smelled wonderfully of saltwater; and the pelicans still dived . . . until now. I can't begin to tell you how sad I am, how angry, and how so distressed."

The Fish and Wildlife Service feels the same pain. That's why our people work 14-hour days in hopes of maintaining our nation's conservation heritage. There are no words that express the gratitude we owe all Service employees for stepping up in this difficult time. We look to the future for better days.

Refuge Update

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National Key Deer Refuge, FL, is taking stock of its freshwater solution holes to make sure they can support its namesake deer. Page 7

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Inside and outside the National Wildlife Refuge System, people and programs are working to cultivate the next generation of conservation leaders in America. Pages 8 to 15

Putting the “Wet” Back Into Wetlands

By Mary Tillotson

Sculpted over time by glacial melt, wind and fire from the sandy bottom of a dry lake bed in what is now Michigan’s Upper Peninsula, Strangmoor Bog National Natural Landmark is the largest patterned fen in the Lower 48 states.

Strangmoor’s 9,600 acres lie within the 25,150-acre wilderness of Seney National Wildlife Refuge. The patterns at Strangmoor, striations of wet and dry land, “took thousands of years to create,” says Mark Vaniman, Seney Refuge manager. “Man’s only been tinkering [with the ecosystem] the last century or so. We’re trying to return it to what nature built.”

After an eight-year restoration project at Seney Refuge, areas adjacent to the fen are now as close to their natural state as they have been in more than 100 years. “We’re trying to put the ‘wet’ back in wetlands,” says Seney Refuge forester Greg Corace.

From the 1880s until the early 1900s, logging companies cleared pines from the dry stretches of the refuge that once had vegetation patterns similar to Strangmoor. After the trees were gone, speculators dug an extensive system of drainage ditches hoping to sell the land to immigrant farmers. Excavated soil was piled alongside the ditches and left.

“These aren’t the shallow ‘ditches’ I played in as a kid,” says Corace.

They are more like contemporaneous trenches dug for World War I: wide, deep – and disastrous for the wetlands. The Walsh Ditch was “the great-granddaddy of the ditches,” says Corace, “at least 15 miles long.”

But soil in the area is sandy – poor for farming. The growing season in the Upper Peninsula is short. Farmers didn’t come; the land lay fallow. In 1935, the area reverted to federal control as a wildlife refuge.

The wetlands restoration project began in 2002, directed by former refuge

manager Mike Tansy. During two field seasons, heavy equipment pushed the earth piled up along the Walsh Ditch back into place at 16 points, creating “ditch plugs.”

“Some of the plugs are 60 feet wide, 20 feet high” says Corace, “which gives you an idea of the dimensions of this ‘ditch.’ ”

Good Sign: Dying Trees

From aerial photos, he and Vaniman know some wetlands are reviving. “Trees are dying, and that’s a good sign,” says Corace. Pines that had spread opportunistically as the fen dried out are now dying off, as they should.

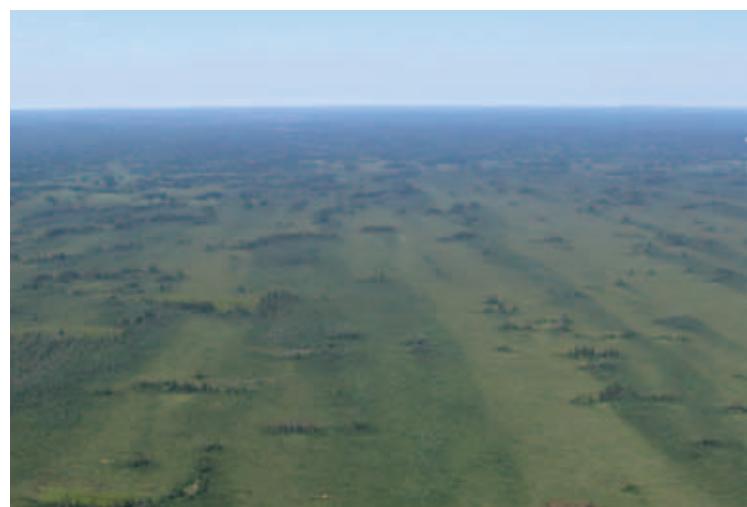
“We can see the habitat reverting,” says Vaniman. “Water’s going where it should be going, taking out trees that shouldn’t be there.”

What should be there are beavers, and they’re returning, building dams in a wetland environment that welcomes them again.

The irony, says Corace, is that wetlands restoration means humans are less able to use heavy equipment to plug more ditches. The land’s too soggy for heavy machinery. Beavers and their dams have become partners in the restoration project.

“Developers,” Corace says, “wanted to simplify the environment. We’re trying to restore the complexity of the natural order. Beavers are part of that complexity.”

In the 1930s, the Civilian Conservation Corps (CCC) expanded the wetland drains. The CCC work altered the “natural” landscape. But it must be viewed in the broader context of



After an eight-year restoration project at Seney National Wildlife Refuge, MI, areas adjacent to Strangmoor Bog are as close to their natural state as they have been in more than 100 years. (Erin Cooney)

conservation, says Corace. “There are probably more eagles and ospreys here now than before Europeans came to the area. They’re thriving on CCC ponds.”

Refuge staff and graduate students from Michigan Technological University have begun studying the impact of the restoration project. And Corace and colleagues from Ohio State University and Michigan Tech hope to find funding to further assess wetlands restoration at Seney/Strangmoor.

Such a study, says Corace, would help draw a road map of what steps toward wetlands restoration should come next. For example, what are the pros and cons of restoring some CCC-altered wetlands.

Vaniman says that such a broad assessment would reveal more than whether the restoration project is achieving its intended goals on the refuge: “There is such a vast expanse of publicly owned land on the Upper Peninsula, we can see not only what restoration is doing at Seney, but on the huge, contiguous blocks of land that border the refuge. This is a chance to do work on an ecosystem scale.” 

Mary Tillotson is a frequent contributor to Refuge Update.

Four Refuge System Employees Honored



*Beacon Award winner
Andrea VanBeusichem,
Montezuma National
Wildlife Refuge, NY
(USFWS)*

developed a self-guided cell phone tour at Montezuma Refuge in the Finger Lakes region of New York. Visitors call a local number at identified stops along a walking/auto tour route to hear short messages about the refuge – information about emergent marshes, bald eagle recovery and the history of the Erie Canal.

Andrea VanBeusichem, visitor services manager at Montezuma National Wildlife Refuge, NY, received the American Recreation Coalition's Beacon Award for creative use of technology. VanBeusichem



*Legends Award winner
Nancy Haugen,
Sherburne National
Wildlife Refuge, MN
(USFWS)*

Award acknowledges extraordinary personal efforts to enhance outdoor recreation programs and resources. Under Haugen's leadership, the five-mile-long Blue Hill Trail, traversing the refuge's oak savanna, woodlands, prairie and wetlands, earned recognition as a National Recreation Trail. Haugen coordinated the work of more than 840 volunteers while developing a strong partnership with the Retired Senior Volunteer Program and guiding the development of the refuge's very active Friends group.

Nancy Haugen, park ranger at Sherburne National Wildlife Refuge, MN, until her retirement in May 2010, received the 2010 Legends Award from the American Recreation Coalition. The Legends



*Magnuson Puget
Sound Legacy Award
winner Jean Takekawa,
Nisqually National
Wildlife Refuge, WA
(USFWS)*

Jean Takekawa, refuge manager at Nisqually National Wildlife Refuge, WA, received the 2010 Warren G. Magnuson Puget Sound Legacy Award for her tireless efforts to restore more than 760 acres of the refuge to tidal wetlands.

The largest such restoration on the West Coast, the project involved partnerships with the greater Puget Sound community and contributed to groundbreaking science on estuarine restoration monitoring.



The 2010 Federal Land Manager, a Take Pride in America Award, is **Dawn Gafe**, supervisory park ranger for the Oregon Coast National Wildlife Refuge Complex. Gafe is credited with establishing a coastal volunteer program that is a model for outreach and interpretation on a large scale. Working successfully with numerous partners, Gafe added new interpretive sites, coordinated training and organized volunteers to control invasive plant species and lead environmental education field trips. Gafe has been praised for sustaining and growing a volunteer program to meet refuge needs, finding creative solutions to problems (such as seasonal housing) and using available resources and talent to combine forces and produce superior results. 

Dawn Gafe, supervisory park ranger at Oregon Coast National Wildlife Refuge Complex, is the 2010 Federal Land Manager. (Roberta Guarino)

Saving a Butterfly

By Susan Morse

In Oregon's Willamette Valley, a fragile creature's survival has hung on refuge biologists' ability to woo private landowners to join in habitat restoration efforts. The effort is paying off, and now the Fender's blue butterfly, an endangered species, is enjoying its highest population in more than a decade.

"It's an exciting story," says Steve Smith, private lands biologist for the Willamette Valley National Wildlife Refuge Complex. "Valley-wide, Fender's blues now number as high as 6,000, up by more than 1,500 from estimates in 2005, not bad for a creature thought to be extinct until 1989."

The Willamette Valley, nestled between the Oregon Coast Range on the west and the Cascade Mountains on the east, is about 150 miles long and 50 miles wide. It stretches from the mountains south of Eugene to the Columbia River in Portland. Its population has grown dramatically in recent decades. Roughly 2.6 million people, or 70 percent of Oregonians, live in the valley.

It is also the only habitat for Fender's blue butterflies. The largest population of Fender's blues in the Refuge System occurs at Baskett Slough National Wildlife Refuge, one of three refuges in the Willamette Valley complex.

The small blue butterfly, with a wing span of one inch, lives only in native prairie, home to its host plant, Kincaid's lupine, and native wildflowers that provide the butterfly with nectar. The life cycle of a Fender's blue begins in late spring or early summer when an adult female deposits an egg on the underside of a Kincaid's lupine leaflet. The egg soon hatches and the larva feeds on lupine leaflets. The larva may pass through one molt before dropping to the ground in mid-June or July, when it goes into hibernation for the fall and winter. In the following March or April, the larva begins to feed on fresh lupine leaflets again. After three to four additional molts, it emerges as a butterfly in May and begins the cycle again.

However, Kincaid's lupine is a threatened species, and loss of native prairie has

resulted in the isolation of butterfly populations that were once interconnected. That native prairie has shrunk to less than 1 percent of its historic distribution because of farming, development and a century's suppression of fire. Left alone, most of the undeveloped prairie land would turn to forest.

"The biggest threat to remnant prairies is the invasion of woody vegetation or nonnative or even native plants due to lack of fire," says Smith. "Prairie habitat is replaced by forest habitat."

So refuge staff have interceded, aggressively mowing, pulling or chemically treating weeds on refuge land, harvesting trees and staging controlled burns. They've also persuaded 65 to 70 private landowners to preserve prairie remnants on their land in the same manner for the benefit of the butterfly.

Working in partnership with state and university scientists, refuge biologists have identified areas of key habitat, protected core populations of the listed species and returned thousands of acres of habitat to their original condition. They have cultivated native forbs and expanded seed collections to ensure genetic diversity. They've not only doubled known parts of the Fender's blue butterfly population, they have discovered new populations of the species.

"We actually have more cooperators on projects than we

have the resources to keep up with," says Smith, "so we're very excited about that."

For their efforts, staff at the Willamette Valley complex and their partners won a Recovery Champion award from the U.S. Fish and Wildlife Service. The awards recognize Service employees and colleagues for contributions to the recovery of threatened and endangered species.

For a complete list of the Recovery Champions, visit <http://www.fws.gov/endangered/recovery/champions/index.html>. 

Susan Morse is a writer-editor in the Refuge System Branch of Communications.



Thanks to Willamette Valley National Wildlife Refuge Complex staff and partners, the Fender's blue butterfly is recovering in Oregon. (USFWS)

"Green" Meeting in Alaska = Trees on Louisiana Refuge

By Helen Armstrong and Bruce Woods

Some might have questioned the Alaska Region for holding a project leaders' conference in February 2010. It was a time of tight budgets, and there was a risk that the event might be perceived as an unnecessary generator of greenhouse gasses, particularly because it focused largely on climate change.

Those who planned the gathering were not blind to such concerns. They were determined that the conference would be "green." So, before the first poster was produced, planners settled on ways they could reduce the event's environmental impact:

- They provided reusable coffee mugs, and purchased bus tokens to encourage attendees to use public transportation.
- They provided U.S. Fish and Wildlife Service vehicles for short-term needs, reducing the use of personal vehicles and encouraging carpooling.
- They held the meeting in downtown Anchorage, enabling people to walk to restaurants and stores.
- They distributed materials electronically to minimize handouts.
- They installed a central recycling bin in the hotel.

These efforts alone could not make for a green meeting. So the region decided to further offset the impact. Organizers first surveyed attendees to determine the conference's carbon footprint. They learned that:

- Approximately 30,000 air miles were accumulated.
- About 7,300 miles were driven in cars and about 2,000 miles in trucks to get to the conference.
- Two attendees rode bicycles to and from daily meetings. (One rode 20 miles roundtrip every day. In February! In Alaska!)



As a result of a carbon-offset donation from the Alaska Region to The Conservation Fund's Go Zero program, 2,500 trees will be planted at Red River National Wildlife Refuge, LA. (USFWS)

- Two staffers walked to and from the event, each logging 11 miles for the week.
- Eight used public transportation, traveling a total of 230 miles by bus.

Planners estimated that the gathering's footprint totaled approximately 29.8 short tons of carbon dioxide. But, in the end, Regional Director Geoffrey Haskett and his directorate team decided to compensate for more of the region's carbon footprint than simply the conference. They also offset all of the electricity the region consumes in a year, as well as all of the greenhouse gas emissions generated by regional motor vehicles, furnaces and boilers. All told, the region calculated that it would cost about \$24,000 to plant 2,500 trees to offset everything.

The region then contacted The Conservation Fund's Go Zero program. Using a federal grant, the region purchased 2,500 trees that will be planted next year at Red River National Wildlife Refuge in Louisiana. That refuge was established in 2002, and its agricultural

lands are being reforested with oak, cypress, green ash and other native species.

Although the Alaska Region recognizes that such an offset is not a perfect solution, the process was a learning experience that will help make future events greener still as the Service works to become carbon neutral by 2020. 

Helen Armstrong of the Alaska Region's Office of Subsistence Management leads the regional carbon-neutral task force. Bruce Woods is the region's chief of media relations.

Counting Solution Holes for Key Deer

By Phil Kloer

Key deer are dependent on freshwater in a setting where freshwater can be scarce – the Florida Keys, the only place where the federally endangered deer live.

At National Key Deer Refuge, freshwater collects in small ponds that form in limestone. These ponds are known as solution holes, but are they plentiful enough, and fresh enough, to support the petite deer?

That question is being addressed by two Student Conservation Association interns in a project funded by the American Recovery and Reinvestment Act. Kristie Killam and Joshua Albritton are splitting a \$50,000 contract to study the refuge's resource holes this year.

Specifically, they are re-inventorying about 270 solution holes on or near the refuge. They are comparing what they find with data from the last time the solution holes were sampled in the 1980s. They hope to determine if the holes have changed measurably in terms of salinity, biodiversity, wildlife usage and even their very existence.

"These holes haven't been thoroughly inventoried for more than 20 years," says refuge manager Anne Morkill. "So, Kristie and Joshua are doing a biological assessment of as many as they can." Last time, the solution holes were hand-drawn on maps. This time, the interns are using a Global Positioning System (GPS) device to mark the holes' precise locations and entering the data into a Geographic Information System (GIS).

"The way these holes work," Morkill says, "is that the Miami oolite limestone on top is less porous than the coral-like Key Largo limestone found elsewhere in the Keys, so rainwater is captured in pond-like formations. But because the elevations are low – an average of less than three feet above sea level – storm surges and rising sea levels are bringing more saltwater into these basins."

Visiting Personally

Killam has taken the lead on the project for the summer while Albritton returns



Key deer habitat is the focus of a Student Conservation Association project funded by the American Recovery and Reinvestment Act at National Key Deer Refuge, FL. (USFWS)

to the University of Tennessee to pursue graduate coursework in ecology and evolutionary biology. Killam's seven years of experience as a wildlife biologist in Florida, three years as an environmental consultant in Maryland and 13 years as a public high school science teacher make her a wildlife veteran. As part of her transition back into a natural resources management career, she visits roughly half a dozen solution holes a day. Some are as small as six inches in diameter; others as large as several meters wide.

By comparing salinity and biological data, the study may help determine if climate change is affecting the solution holes and, thus, Key deer on the fragmented, 9,200-acre refuge, which is intersected by private lands with homes and by roads.

It's too early to draw conclusions, but, says Killam, preliminary findings indicate that, "in areas that have been developed, there has been quite a loss in the number of solution holes that can be used by wildlife. Some are even fenced inside people's yards."

In many ways, the study is also an informal census of wildlife that frequent

the solution holes: alligators, turtles, leopard frogs, blue wing teal, egrets and ibises, raccoons, dragonflies and damselflies. Since the project started, Killam says, it has blossomed beyond the Key deer into a broader look at endangered species (particularly marsh rabbits), invasive plants (Australia pine and Brazilian pepper plants) and invasive wildlife (green iguanas and fire ants).

But the refuge's namesake and the salinity of the solution holes remain the primary focuses. "Anything below 15 parts per thousand is drinkable," Albritton says, referring to salinity measurement, "and anything above that, the Key deer are going to avoid that hole."

Phil Kloer is public affairs officer for the Southeast Region of the U.S. Fish and Wildlife Service.

Focus... Tomorrow's Conservation Leaders

For Employees: Plenty of Pathways to Success

By Bill O'Brian

In his remarks to the White House Conference on America's Great Outdoors in April, President Obama made half a dozen references to nurturing a sense of conservation in the next generation. Two months earlier, Interior Secretary Ken Salazar had directed Department of the Interior bureaus to increase youth employment in 2010 by 50 percent.

"Fulfilling the Promise," the strategic vision document that has served the National Wildlife Refuge System since 1998, has a chapter devoted to leadership, and the new Vision Process, which will result in an updated vision for the Refuge System, has one of its five Core Teams dedicated to much the same subject.

The Refuge System Division of Budget, Performance and Workforce has projected that approximately 20 percent of System employees will retire within five years and nearly 45 percent within 10 years.

Clearly, fostering tomorrow's conservation leaders is a priority at the top and an urgent matter for the Refuge System.

The Refuge System offers many paths to career advancement. Along with the U.S. Fish and Wildlife Service, it provides plenty of guidance if you know where to look.

Career Pathways Report

Larry Williams, chief of the Division of Budget, Performance and Workforce, says one place to start is <http://www.fws.gov/Refuges/about/careerResources.html>. There you will find links to a series of Career Pathways Reports designed to point the direction for individuals interested in visitor services, realty, conservation planning, refuge manager and senior leadership positions.

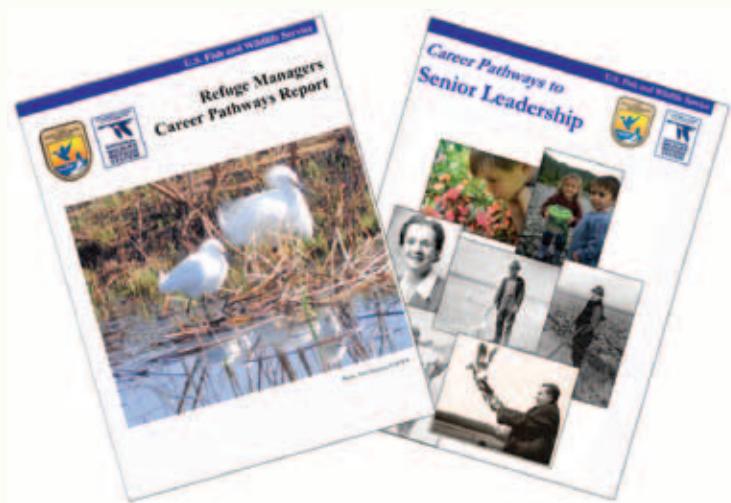
You will also find a link to the Service's Leadership and Employee Development page, <http://training.fws.gov/LED/>

BranchReference/LeadershipTraining.htm. It will introduce you to: Stepping Up to Leadership (SUTL), a six-month leadership program for Service employees in grades GS-11 and GS-12; the Advanced Leadership Development Program (ALDP), for GS-13 and GS-14 employees; and the Leadership Challenge Workshop, a three-day program offered at the National Conservation Training Center (NCTC).

Williams also recommends the Department's Senior Executive Service Candidate Development Program (SESCDP) at <http://www.doi.gov/hrm/pmanager/ed6g.html> for upper managers and, for employees at grades GS-5 through G-9, The Wildlife Society's Leadership Institute at <http://joomla.wildlife.org/>. [Related article on Page 14.]

One concern Williams has is that Refuge System employees do not take part in the SUTL and ALDP programs to the same degree that other Service employees do. The low participation rate probably hurts the ability of Refuge System employees to advance into the Service Directorate, he says.

Williams knows the advancement terrain. As a college student in the late 1980s, he volunteered at Eufaula National Wildlife Refuge in Alabama. He soon secured a permanent GS-4 trainee position at Eufaula and before long moved to St. Marks Refuge in Florida to continue his training. Later he worked as an assistant or deputy manager at national wildlife refuges in South Carolina, California and Mississippi before coming to the



Washington Office. And, in 2006-07, he participated in the ALDP.

He encourages employees to think big, shed any natural reluctance they may feel and enroll in the leadership courses. "There's nothing to be afraid of – it's just training. It might be a stretch for you, but not an uncomfortable stretch." The payoff, Williams says, is "you'll be able to inspire others and, in the end, deliver more wildlife conservation on a larger landscape."

As with any journey, personal initiative is required. To take a short online course about creating an effective Individual Development Plan (IDP) of your own, go to <http://training.fws.gov/led/idp/>. An IDP forces you to put your career thoughts in writing, Williams says, "and I think there is value in that ... It also gives you an opportunity to have a conversation about your career with your supervisor."

This issue of *Refuge Update* takes a look at how people and programs, inside and outside the Service, are working to engage young people and cultivate the next generation of conservation leaders in America.

Kids Get to Know Creatures Through Creative Arts

By Chantel Jimenez

Imagine a block party – the kind of gathering where everyone is invited to meet, mingle and get to know their neighbors.

Imagine that the hosts are a 316-acre Southern California marsh and an adjacent nature center.

Imagine that the invited guests are all residents of the San Diego's South Bay area, especially the children.

That will give you a notion of what the May 22 "Get to Know Your Wild Neighbors Through Art" event was like at Sweetwater Marsh National Wildlife Refuge, which is just south of San Diego and just north of Tijuana, Mexico.

The gathering, co-sponsored by the refuge, the Chula Vista Nature Center, San Diego Gas and Electric, and the Robert Bateman Get to Know Program, was a kid-friendly BioBlitz-like experience in which young guests were urged to write about, draw pictures of and simply learn about their wild neighbors and the biodiversity found in their own backyard.

The goal of the Get to Know Program is to encourage children, ages 18 and younger, to abandon an increasingly sedentary lifestyle, get outdoors and bond with nature through the creative arts. Its motto is "Connect, Create, Celebrate."

About 100 children from San Diego who participated in the event were encouraged to walk the trails. The children investigated what lives in San Diego Bay and inventoried plant and animal species they saw. They were given a field journal, developed by the Get to Know Program, to use as a guide to explore the trails, draw the animals they encountered and write the names of wildlife they saw at the Chula Vista Nature Center, a living museum that focuses on wetlands and coastal resources.



San Diego National Wildlife Refuge manager Jill Terp works with children at May's "Get to Know Your Wild Neighbors Through Art" event. (USFWS)

The children hit the Sweetwater Marsh trails with biologists, refuge managers, park rangers and volunteers as they recorded the species around them.

Replica animal scat and tracks provided an opportunity for the kids to learn about the wildlife signs that scientists study. A bird bingo game taught kids how to use binoculars in the field. Plankton net drags opened young eyes when brittle stars, fiddler's crab and crab larvae were found within the nets.

Sweetwater Marsh, a unit of the San Diego Bay National Wildlife Refuge on the east side of south San Diego Bay, was once home to the Kumeyaay Indians, later housed a kelp-processing facility and most recently was a commercial tomato farm. It was established as an urban refuge in 1988 and now supports populations of light-footed clapper rail, California least terns, Western snowy plovers and the state-listed Belding's savannah sparrow.

The May 22 event was designed to introduce the community to the Robert Bateman Get to Know Program, which the U.S. Fish and Wildlife Service launched in Southern California in 2009 as an art, writing and photography contest for young people. The 2009 contest drew 7,000 entries from across the United States. To see the 2009 contest winners and to learn how to participate in the 2010 contest, visit <http://www.gettoknow.ca/us/contest/>.



Chantel Jimenez is an environmental education specialist at San Diego National Wildlife Refuge Complex.

Focus... Tomorrow's Conservation Leaders

The Young and the Refuge

By Ashley Hodes

Rocky Mountain Arsenal National Wildlife Refuge in Colorado has not only transformed a landscape that once housed a chemical munitions plant. Its robust youth employment program also is transforming the lives of young men and women.

Native Americans first occupied the 16,000-acre expanse of shortgrass prairie northeast of Denver. Then came homesteaders after the Civil War. During World War II, the land was home to a chemical-weapons manufacturing facility. Eventually, Shell Chemical Co. leased the land and, in partnership with the Army and the U.S. Fish and Wildlife Service, began to clean it up. And, after a pair of nesting bald eagles was found, Congress determined that the site would become a national wildlife refuge, which it did in 2004. Since then, the land has continued to undergo extensive cleanup and restoration.

The refuge's youth employment program, which began five years ago, provides a necessary labor force on the refuge, teaches young adults about natural resources, gives young people an interesting, invigorating job and plays a role in training the next generation of conservation leaders.

Each year, the refuge hires youth through the federal Student Career Experience Program (SCEP) and Student Temporary Employment Program (STEP). Those students do everything from welcoming first-time refuge visitors to banding kestrels.

In recent years, the refuge has partnered with Mile High Youth Corps, a nonprofit that offers meaningful service opportunities and education to young people, and with Groundwork Denver, a nonprofit that focuses on at-risk youth. Through these partnerships, and with funding assistance from the Denver Botanic Gardens and Shell, the refuge hires crews each summer to maintain

trails and remove invasive plants.

"It has the potential to turn kids' lives around," says Rocky Mountain Arsenal Refuge manager Steve Berendzen.

In addition to improving habitat, the young people learn about natural resource management. They visit the refuge's bison enclosure and an on-site repository where confiscated, illegal animal items are stored. They learn that without good habitat there is little wildlife, and that controlling weeds and invasives is one step in habitat management and restoration.

Polishing Future Leaders

"This is a great opportunity while you're going to school," says Seanacie Donoho, a STEP employee who is also completing a certificate in geographic information systems (GIS) at Metropolitan State College of Denver. "You learn more when you're out in the real world than when you're in a classroom listening to lectures."

Young people hired at Rocky Mountain Arsenal Refuge develop leadership skills. Take Veronicca Solis. The 19-year-old Denver-area resident, a student at the University of Portland in Oregon, is in her second year on the refuge with Mile High Youth Corps.

"The hundreds of thousands of Russian olive trees can be overwhelming," says Solis, chuckling about the invasive trees she has worked hard to control. "But I learned that when push comes to shove, I like to see results. A work ethic shows your character. I want to be someone



Members of Mile High Youth Corps remove invasive Russian olive trees at Rocky Mountain National Wildlife Refuge, CO. (USFWS)

who stands out with my work ethic and dedication."

In cutting down Russian olive trees, Solis improves wildlife habitat and gains valuable experience. "It brought me a whole new level of experience," she says. "The 10-hour workdays pushed my boundaries and helped me grow as a person."

Christopher Vieyra, also a second-year corps member, finds inspiration in the transformation of Rocky Mountain Arsenal. "It's cool coming to an area where they used to make chemical bombs and now they're conserving wildlife and trying to restore the natural habitat," says the Northern Arizona University environmental engineering student.

Ultimately, the program at Rocky Mountain Arsenal Refuge is about education, stewardship and, most important, leadership. "It gives young people an opportunity to do work they can be proud of," says Berendzen. "It helps them take ownership of the refuge." 

Ashley Hodes is a student at Howard University in Washington, DC, and a SCEP intern this summer at Montezuma National Wildlife Refuge, NY.

"Perfect Synergy Between the College and the Refuge"

By Bill O'Brian

Michael Noonan thinks big, demands excellence and understands "cool."

Asked why he founded Canisius Ambassadors for Conservation (CAC), the Canisius College biology professor replies: "I want to leave the world a better place." And, he says, "to inspire the next generation of citizens to be good stewards of wildlife."

Over the past five years, CAC has introduced more than 7,500 schoolchildren to wetlands and wildlife at Iroquois National Wildlife Refuge, NY.

"It's very important to the refuge. We're now hitting 2,000 kids a year that we might not otherwise reach," says refuge manager Thomas Roster. "A lot of times, it's showing an inner-city kid something that he or she has never seen before. It's an opportunity that would be lost if [Noonan] were not doing it."

CAC is an ambitious environmental education effort based at the college in Buffalo, 30 miles from Iroquois Refuge. Noonan meticulously trains and uses college students as inspirational role models for schoolchildren.

"For a middle school child," says Noonan, "a college student is really a cool thing. To have a college student be really excited about wetlands, and birds and bird migration really does establish a coolness factor for the young children."

To excite the collegians about wetlands, Noonan challenges them, mentors them and offers them a conservation trip of a lifetime. In return, they must work for five weeks – from the college school year's end to the middle school year's end – as wildlife ambassadors at Iroquois Refuge.

How It Works

The program is funded primarily by Canisius College with help from the Friends of Iroquois National Wildlife Refuge and the refuge. It costs about \$35,000 annually.



The Canisius Ambassadors for Conservation program has introduced more than 7,500 middle school students to wetlands at Iroquois National Wildlife Refuge, NY. (Michael Noonan)

Roughly 30 college students apply for eight slots annually. The winnowing process includes a live tryout in which each applicant is assigned a species and 24 hours later must give a five-minute, kid-friendly presentation about that species.

Then, Noonan takes the CAC students on an all-expenses-paid conservation trip "to someplace exciting ... It's not just travel. It's educational travel. They take the equivalent of a three-credit course crammed into a three-week period." This year's trip to the Texas Gulf Coast in February before the oil spill focused on whooping cranes and culminated at Aransas National Wildlife Refuge. Past destinations include the Arctic National Wildlife Refuge (twice), British Columbia and Florida. After returning, the CAC students "practice, practice, practice" for weeks on end being ambassadors at Iroquois Refuge.

Next, says Noonan, "we advertise the program to every middle school in a four-county region" and tackle the logistics of scheduling about 25 middle school day trips a year to Iroquois Refuge.

Each refuge day trip starts with a two-hour, wetlands-focused tour on Swallow Hollow Trail, which includes emergent

marsh, flooded woodlands and upland forest. "It's a perfect teaching trail," says Noonan.

Each middle schooler is given binoculars. The CAC students present carefully scripted lessons that seem spontaneous to the middle schoolers. But when wildlife happens by, the CAC students go off script to discuss it. "My students have to be able to [instantly] deliver a lecture about a fox or a cedar waxwing or a wood duck or a leopard frog or whatever they find." They also must be able to find the relevant page in *Peterson Field Guide to Birds* within 15 seconds of seeing a bird, he says.

At lunch, the collegians sit with the middle schoolers – chatting and being "science kids who are cool."

Playing Games

The day concludes with Jeopardy!- and Pictionary-style "eco-games" in which energized middle schoolers compete based on questions about the trail walk. In Pictionary, Noonan says, a task might be to draw detritus. "It's a challenge – and we have 11-year-olds doing it. And the kids are screaming, 'Detritus! Detritus!' "

The program is "a perfect synergy between the college and the refuge," says Noonan, a Friends of Iroquois National Wildlife Refuge board member. Since 2006, 34 CAC students have led tours at Iroquois Refuge, including Sarah Lang, now a visitor services specialist at Sachuest Point Refuge in Rhode Island.

What advice would Noonan give a refuge that wanted to emulate CAC at Iroquois? Start small with a pilot project in partnership with a university or an Audubon Society chapter. "You have to have very effective, dedicated instructors," he says. "At the college, for me to get very effective, dedicated, excellent [student] instructors, I have to dangle an exciting wildlife trip in front of them." 

Focus...Tomorrow's Conservation Leaders

A Q&A With Nature Photographer Dudley Edmondson

Dudley Edmondson, author of the 2006 book, *The Black & Brown Faces in America's Wild Places*, has been a nature photographer for 21 years.

He traces his passion for the outdoors to Hoover Reservoir near his hometown of Columbus, OH, where his family often picnicked. As a boy, he found nature to be a therapeutic refuge from life's tension, and he turned his bedroom into a conservatory of sorts, full of aquariums, insectariums and terrariums. "I learned at an early age that nature calms me and settles me," he says.

In 1989, he became a nature photographer after spending substantial time at Hawk Ridge Nature Reserve on Lake Superior near Duluth, MN, where he now lives.

The Black & Brown Faces in America's Wild Places is designed to present outdoors role models for young people of color. It includes portraits of a black cowboy from Minnesota named Hank

Williams Jr. and other African Americans who love nature and are committed to conservation. Edmondson has held photography workshops at Minnesota Valley National Wildlife Refuge. He is also a filmmaker and public speaker. According to his Web site (<http://dudleyedmondson.com/>), he hopes "to encourage other African Americans to discover the beauty and solitude of the natural world."

Here are excerpts from a recent *Refuge Update* interview with him.

Q. Why do you think African Americans in particular, but ethnic minorities in general, tend to not visit national wildlife refuges and other remote natural outdoor settings and generally are less active in conservation?

A. I don't really believe there is one particular reason for it. It's complicated. I don't want this to be taken the wrong way, but conservation and the outdoors have an image problem. Whenever something along those lines comes

up, there is a white face attached to it. People of color get the impression that it's not for us. You see people like Rachel Carson and Aldo Leopold, and it seems like it's always been that way. There is the impression that the outdoors and conservation are things that white people do. And, for African Americans, the history of race in this country matters. There is almost a matter of safety attached to it. Fifty years ago in the South, you could get hung for walking along a country road in the middle of nowhere. To this day, I am cautioned by family members to be safe in remote places.

Q. What tips do you have for National Wildlife Refuge System management and staff who want to attract Americans of all ethnicities to refuges and conservation?

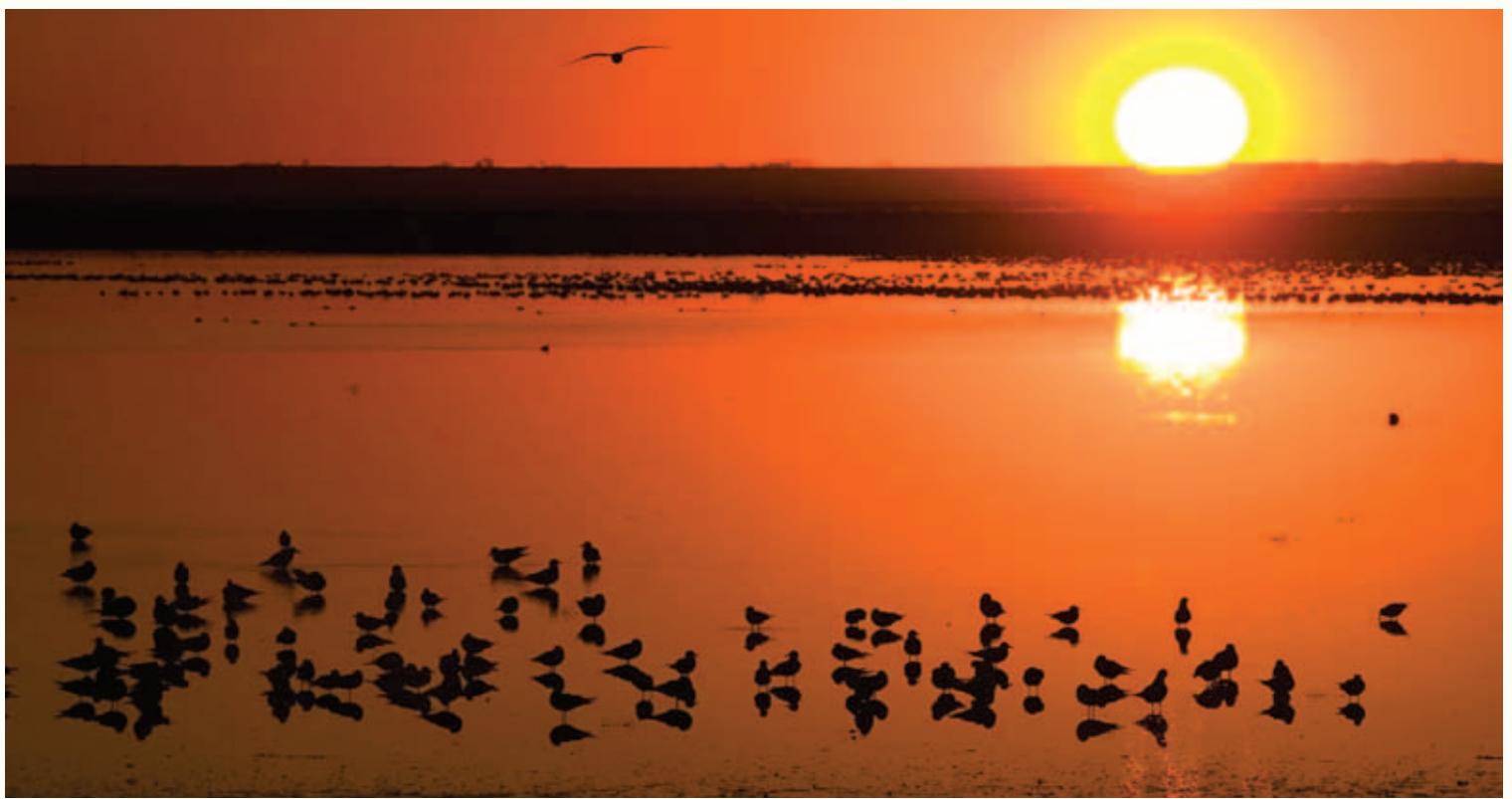
A. I don't know that this is anything that one particular agency could address. It may be more of a Department of the Interior issue rather than the Fish and Wildlife Service alone. There is a certain amount of information that needs to get out. There needs to be a PSA type of campaign like Nancy Reagan's "Just Say No." I know that the Fish and Wildlife Service has done PSAs about getting kids and families outside. I think there needs to be more of that kind of thing for non-whites to explain to them all of the things that belong to them – something to let them know that there are more than 600 million acres of public land that belong to them. It has to show people that the land can be welcoming, friendly and restorative.

Q. What tips do you have on how to best interest young people of color in conservation careers?

A. I think going into school systems and figuring out some sort of "shock and awe" campaign that really gets the interest of young people. I have worked with the National Park Service in the Gary, IN, area and talked to kids in Michael Jackson's old neighborhood



Dudley Edmondson has been a nature photographer for more than two decades. (Courtesy Dudley Edmondson)



Edmondson took this photograph of sunset at Quivira National Wildlife Refuge in central Kansas. It is one of his favorites. (Dudley Edmondson)

there. Almost like the military recruiters, you have to sell the children on outdoors and conservation. Particularly, sending black interpretive rangers to schools would work. I was just at Loxahatchee Refuge in Florida, and I know there are black rangers there. I can't see you sending a black ranger into a school system and kids not being interested. When you bring something to kids that they have never seen or heard of, they take an interest.

Q. What do you most appreciate about being on a national wildlife refuge or in other remote natural settings?

A. For me, it's mostly about the solitude and being at peace with the natural world. There is something comforting for me when I see plants and animals that I know. It's almost like seeing old friends that I haven't seen in a while. I recently went out for a seven-mile nature run, and I heard the first warblers of the year. It was like, "Those are my buddies; I haven't seen these guys since last year." I've been totally invested in nature since I was 12 or 13

years old, and I'm 48 now.

Q. What is your favorite place you have ever visited on a national wildlife refuge?

A. I've been to so many, it's hard to say. I think the thing that sets the refuges apart from, say, the national parks is access. I've spent more time at Ottawa National Wildlife Refuge in Ohio than any other refuge. I would drive 2½ hours every weekend from Columbus to spend half a day watching peregrines or bald eagles passing through. Quivira Refuge in Kansas is up there pretty high for me, and probably Chincoteague Refuge in Virginia. The access at both was very good, and, in terms of the wildlife, what was there was very approachable on foot.

Q. Can you name three or four organizations that are making a concerted effort to engage people of color with nature and conservation efforts?

A. I can think of two off the top of my head. One is REI. Its marketing department has taken a look at my suggestions and created catalogs with

black and brown people in them. The Wilderness Society is trying really hard, and it has a pretty diverse governing body. And then, of course, there is the Fish and Wildlife Service, which has arranged for me to do public speaking across the country. Also, the Black Swamp Bird Observatory outside Toledo, OH, which has been attempting to get a much more diverse birding community, even when it might not be the most popular thing to do. Directors Kim and Kenn Kaufman have made a tremendous effort.

Q. I understand that you got into birdwatching as a senior in high school. How did that happen? Can you remember any specific birds that got your attention and why?

A. It would have been the result of my art teacher, who was an avid birder. The species was the peregrine falcon. I was just totally amazed with their aerial skill set and speed. It's jaw-dropping, really.



Focus... Tomorrow's Conservation Leaders

Leadership Institute Guides Emerging Professionals

By Laura Bies

The Wildlife Society had long realized that, without active intervention on our part, large-scale workforce trends in America could deplete the professional conservation field and threaten our overarching mission: to ensure a world where humans and wildlife coexist. So, in 2006, we launched the Leadership Institute.

We did so after the coming "brain drain" was reported in a 2004 study, *Demographics of Retirement and Professional Development Needs of State Fisheries and Wildlife Agency Employees*. That study, conducted by Steve McMullin, an associate professor in the fisheries and wildlife science department at Virginia Tech, found that 77 percent of employees in state fish and wildlife leadership positions across the country could retire by 2015.

"We're concerned about the numbers of conservation leaders that are projected to retire in the next decade," says Michael Hutchins, executive director of The Wildlife Society. "We established the Leadership Institute to address the upcoming shortage."

The six-month-long Leadership Institute is designed for individuals who are two or three years out of school and working full- or part-time in a professional wildlife management or conservation position. Limited slots are available for recent college graduates who have shown strong evidence of leadership skills. All applicants must be members of The Wildlife Society.

The institute's goal is to train participants in the skills needed to increase the number of leaders in the society and the wildlife profession as a whole.

Now in its fifth year, the institute boasts 45 alumni, including six current or former National Wildlife Refuge System employees. A seventh Refuge System staff member, Lindsay Smythe – a biologist at Kofa National Wildlife



Biologist Bridgette Flanders-Wanner with a hawk in South Dakota. (USFWS)

Refuge in Arizona – is taking part in this year's program. The classes of 2006, 2007 and 2008 each had 10 participants. Thanks to funding from the Refuge System, the institute was able to accept 15 participants this year and last.

Defining a Career Vision

"Because proper training and recruitment is such an important ingredient for our success in the Refuge System, we provided funding for The Wildlife Society to expand the number of program participants," says Noah Kahn, national performance manager for the Refuge System.

Each year, the institute begins in May and culminates in intense mentoring activities and training at The Wildlife Society's Annual Conference in October. Participants come from state, federal and nonprofit conservation entities across the country. During the spring and summer, participants receive five distance-learning and hand-on assignments, as well as a reading list, to help them prepare for the annual conference. Through these assignments, participants become aware of their leadership skills and abilities, begin to define their visions for natural resources and their career, and start thinking about a means to implement these visions.

One assignment is to conduct an oral history interview with a leader in the wildlife field to be archived in the society's Celebrating Our Wildlife Conservation Heritage program. Some readings, such as *7 Habits of Highly Effective People*, teach general leadership and time management skills. Others, such as Jack Ward Thomas's essay *On Being Professional: The Responsibilities of a Worthy Vocation*, are specific to the wildlife field.

Early on, participants read an instructional text published by the society, *The Leadership Workbook: Building Leadership Skills in the Natural Resource Professions and Beyond*. It includes basic information about human behavior, the foundation for developing any management or leadership style. It provides guidance on how participants can evaluate their own behavioral characteristics, and it explores current knowledge about how people react, cope and learn in various situations. Throughout the book, exercises encourage the reader to self-evaluate, evaluate the actions of others and develop new leadership skills.

"That book, for me at least, was a very visceral experience because it made you answer some very difficult questions about yourself" and your work style, says Bridgette Flanders-Wanner, a wildlife biologist at Huron Wetland Management District in South Dakota and a 2006 participant. "It's a very guts-out-on-the-table experience" that you have to share with co-workers and supervisors.

Flanders-Wanner, who has remained affiliated with the institute, heartily recommends it to other young wildlife professionals: "The conference alone – just to reach that cross section of wildlife biologists from across the country – is worth it in itself." 

Laura Bies, director of government affairs at The Wildlife Society, coordinates the Leadership Institute.

Gamble on Your Dream

By Jerome Ford

My interest in nature was inevitable because I grew up in rural north Louisiana. My grandfather was a farmer, carpenter and timberman. He was a proud man who taught us to be fearless, determined and independent. As a young boy, I thought I could do anything that I chose.

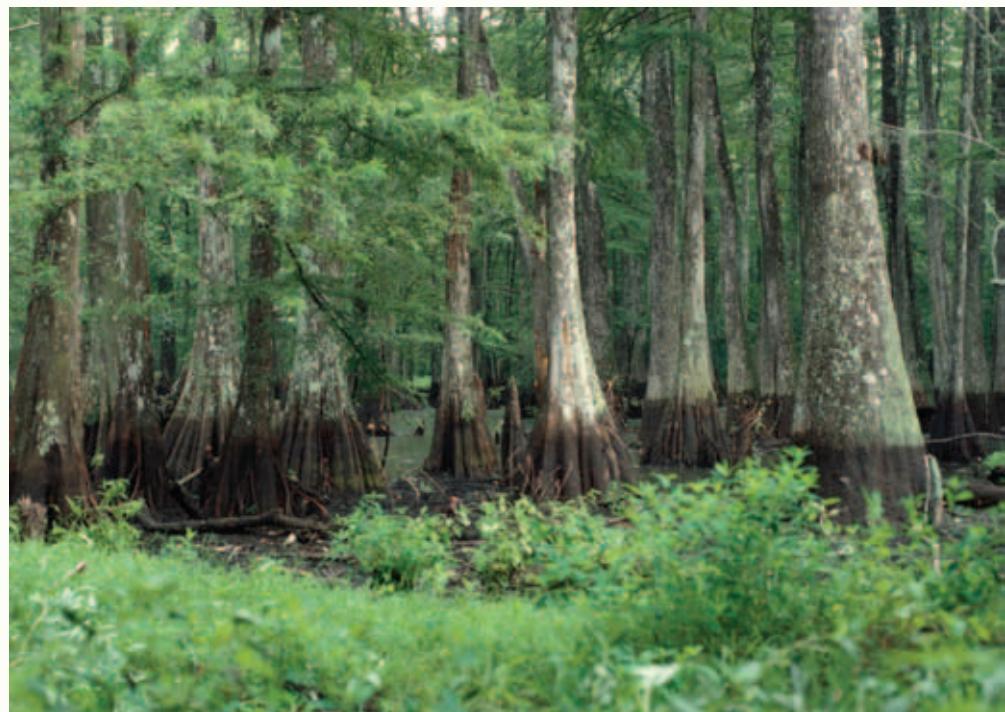
I decided that I wanted to be a scientist. As I made my way through high school as a true student athlete, I thought the history of life and how all living things are connected were the most amazing concepts known to man. I spent endless days learning from my grandfather how to preserve the land that had taken great care of my family for many generations. My parents constantly reminded my siblings and me that we had no choice but to take care of the environment, because it had taken good care of us. In short, I had a debt to repay to nature.

When I went off to college, I had no idea how to express my love for nature or how to repay my debt to the land. Luckily, the U.S. Fish and Wildlife Service sent a representative from D'Arbonne National Wildlife Refuge to Grambling State University. I knew immediately that the Service was the avenue for me. I decided to delay graduation and obtain the required wildlife courses to qualify as refuge manager.

Over the next two years, I did cooperative education stints at D'Arbonne and Tensas River Refuges, both in Louisiana, and at Mississippi Sandhill Crane Refuge. To meet the co-op requirements quickly, I worked summers, holidays and adjusted my fall schedule so that I could work four days a week (including weekends) during my final semester. I took a gamble on my dream, and it was paying off.

Values That Endure

My first job with the Service came two months before graduation. I started as a refuge manager at Logan Cave Refuge, AR, three years later became deputy



The author got his first chance at leadership as project leader at Bayou Cocodrie Refuge, LA. (USFWS)

project leader at Holla Bend Refuge, AR, and, three years after that, got my first chance at leadership as project leader at Bayou Cocodrie Refuge, LA. I developed that refuge from the start with a truck, a boat and an ATV. I posted boundary, built the first office, wrote the first hunt plan and the first water management plan, and performed many other firsts. Six years later, hard work continued to pay off as I became project leader at Tensas River Refuge, where I had been a co-op student. You truly can come home again.

After six years at Tensas River Refuge, I became the special assistant to Service Director Dale Hall. Hall valued three traits he said we shared: honesty, integrity and trust. He always said that every human being is looking for those three things in all people, and that people will endlessly gravitate toward a person who has them. I say to aspiring leaders: If these three things make up your core and guide your life, then people will seek you out.

I also say: Utilize role models and mentors; always know, as my grandfather knew, that you can do anything you set your mind to; be resilient; select a dream and live it; do not let anyone tell you that you are not allowed to make your dream a reality. 

Jerome Ford is the U.S. Fish and Wildlife Service assistant director for migratory birds.

Around the Refuge System

Wisconsin

Seven whooping crane chicks – nearly double the combined total over the past decade – hatched at or near Necedah National Wildlife Refuge in late May and early June, according to refuge manager Doug Staller. As of mid-June, five of the chicks had survived, three on the refuge and two on adjacent property, Staller said. “We’re cautiously optimistic,” he said. “We are excited to see this many chicks hatch successfully, and about the possibility of fledging wild chicks this year.”

Before this spring, only four whooping cranes had hatched in the wild at Necedah since reintroduction to the eastern United States began in 2001 under the auspices of the Whooping Crane Eastern Partnership. Of those four, only one survived into adulthood. The whooping crane is an endangered species. The Necedah population, one of only three wild populations of whoopers in North America, summers in Wisconsin and migrates to winter in the Southeast.

Tennessee

The May flooding that inundated Nashville and left the Grand Ole Opry waterlogged in the state’s worst flooding since 1944 also did considerable harm to



Two whooping cranes with hatchlings at Necedah National Wildlife Refuge, WI. (Matt Strausser/International Crane Foundation)

Tennessee and Cross Creeks National Wildlife Refuges at what is usually one of their busiest times of the year.

“There has been pretty severe damage on our levees” in the Duck River Unit of the Tennessee Refuge, said refuge manger John Taylor. “The receding flood waters caused considerable erosion and scouring of levees and roads, and debris removal from boat ramps, roads and fields will take weeks ... We haven’t been able to add it all up yet, but there is certainly hundreds of thousands of dollars of damage on Tennessee and Cross Creeks refuges.”

As of late May, Taylor estimated, 90 percent of roads and boat ramps on the impacted units were still closed. “Some of the roads won’t be open till the end of the summer or into the fall” because of public safety concerns, he said.

Farming was also halted on the refuges. Of the six farmers who work with the refuges on waterfowl management operations, three had total losses for the season, and one had partial loss, Taylor said. One farmer lost three tractors to the flooding.

Texas

For much of this spring, staff at Laguna Atascosa National Wildlife Refuge

thought that a female ocelot on the refuge had recently given birth to one kitten. But, in June, close examination of photographs taken by remote camera at night showed that the mother ocelot had two offspring. “It’s really good news,” Laguna Atascosa Refuge wildlife biologist Jody Mays told the *Brownsville Herald*. “Ocelots can have one or two kittens. The last time we

knew we had two kittens was maybe 10 years ago.” The extra kitten puts the endangered species’ known total at 13 on the refuge. All of the estimated 50 ocelots remaining in the United States live in extreme South Texas. The Laguna Atascosa Refuge kittens were born sometime in April; their mother has been named Esperanza, which means “hope” in Spanish. To see photos, visit *Viva the Ocelot!* on Facebook, a page created by Friends of Laguna Atascosa National Wildlife Refuge.

Colorado

Lightning hit a herd of bison at the Rocky Mountain Arsenal National Wildlife Refuge in late May, and a biologist saw a bolt strike and kill a cow. “It was a very unusual moment in time to be able to have somebody witness the lightning bolt actually hit the cow and the herd,” Terry Wright, supervisory range land management specialist at the refuge, told the NBC-TV affiliate in Denver. The refuge plans to salvage the carcass and see if the bison can be mounted and displayed in its new \$7 million visitor center. Bison were reintroduced to the refuge in March 2007 and 48 remain.

Georgia

The popular Cane Pole Trail at Okefenokee National Wildlife Refuge is now wheelchair accessible as a result of a novel partnership between Trails Unlimited and the refuge. The trail, which parallels the Suwannee Canal for less than a quarter-mile, leads to a platform overlooking an open area of swamp. Before the makeover, it was an uneven, root-filled dirt trail. Now, after construction of a five-layer artificial surface that involved tons of clay, gravel and other materials, the trail looks like natural dirt but will wear like concrete. It’s the first time the U.S. Forest Service has assigned Trails Unlimited to a project at a national wildlife refuge, assistant refuge manager Maury Bedford, told the Web site *Macon.com*.

Washington, DC

Secretary of the Interior Ken Salazar announced in June that the Migratory Bird Conservation Commission has

approved \$35.7 million for refuge acquisitions and wetlands grants for migratory birds. Of that amount, \$30.4 million will conserve more than 6.1 million acres of wetlands and associated habitats in the United States and Canada under the North American Wetlands Conservation Act, and \$5.3 million in Federal Duck Stamp funds will add about 1,850 wetland acres to six units of the National Wildlife Refuge System.

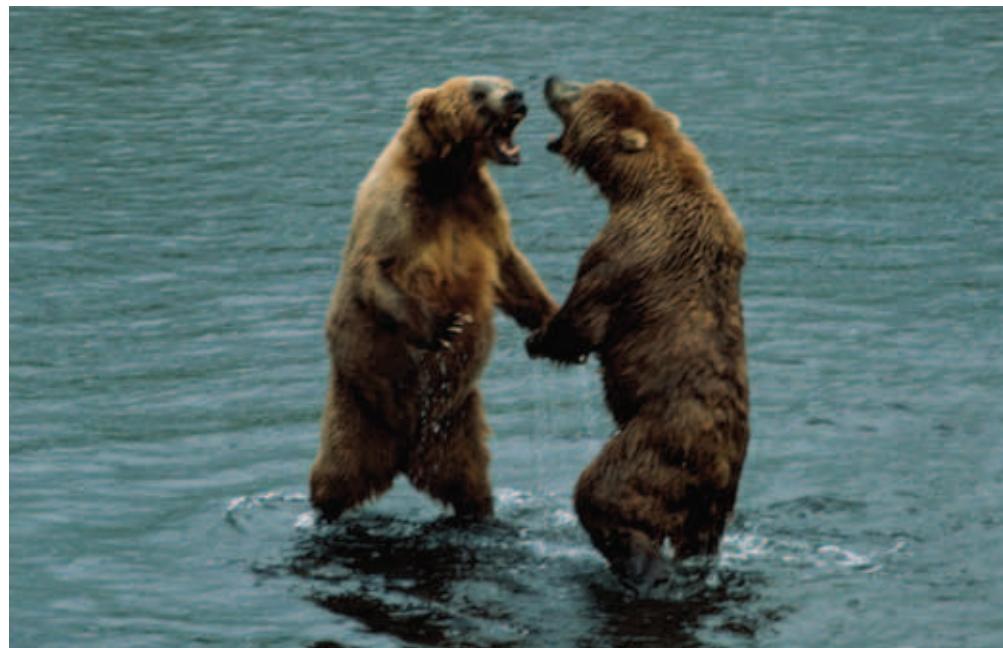
The latter funding will acquire and restore 180 acres of bottomland wetlands at Cache River National Wildlife Refuge, AR; acquire 288 acres for protection of wetlands at San Bernard National Wildlife Refuge, TX; protect 866 acres that support wintering waterfowl at Lower Hatchie National Wildlife Refuge, TN; protect 243 acres of wetlands and upland fringes at Edwin B. Forsythe National Wildlife Refuge, NJ; protect 162 acres of northern forest wetland and waterfowl nesting habitat at Silvio O. Conte National Fish and Wildlife Refuge, NH; and protect 110 acres of riparian habitat at Stone Lakes National Wildlife Refuge, CA.

Minnesota and Wisconsin

More than 160 people entered the Upper Mississippi River National Wildlife and Fish Refuge “Island Naming Contest” this spring. The public was asked to help name nine newly constructed islands in a 3,000-acre backwater area between Brownsville, MN, and Stoddard, WI, built as part of an Environmental Management Program-funded project to restore habitat for migratory birds, reptiles, amphibians, fish and mammals in Pool 8 of the Mississippi River. The names selected were: Broken Bow Island, Snake Tongue Island, Small Fry Island, Log Island, Old Scribbler Island, Cant Hook Island, Cygnet Island, Dabbler Island and Raft Island. The winners received a certificate designating their contribution to the project.

Nevada

Two new species of bees were discovered this spring at Ash Meadows National Wildlife Refuge northwest of Las Vegas. David Tanner, who is a biologist and postdoctoral fellow at Utah State



Starting next June, visitors will be able to view wild bears in the O’Malley River area of Kodiak National Wildlife Refuge, AK. (USFWS)

University, and two graduate students made the discovery when they were collecting data at the refuge for a study about the relationship between pollinators and rare desert plants. Both of the new species are distinct forms of the genus *Perdita*, according to Tanner. The new species have not yet been named. A lab operated by the U.S. Department of Agriculture in Logan, UT, has confirmed the find. Tanner told the *Salt Lake Tribune* that stumbling onto a new species made him “feel like a child again.”

Alaska

Beginning in June 2011, wildlife photographers and other visitors to Kodiak National Wildlife Refuge will be able to view wild bears in the O’Malley River area of the refuge. The opportunity is scheduled to be open to guided groups of 10 people or fewer from late June to late September annually. A 12-foot-by-20-foot viewing platform is to be built this summer. “We’d expect that folks coming to O’Malley would see quite a number of bears,” refuge manager Gary Wheeler told the *Anchorage Daily News*. “There have been times we’ve documented 60 bears or more fishing on O’Malley at one

time. It’s certainly one of the highest – if not the highest – density on the refuge.”

A former drug-running vessel that has been retooled for research duty and was featured in the May-June issue of *Refuge Update*, has been renamed the *Arlluk*. *Arlluk* means “orca” in the native Alutiiq language. The vessel will ferry biologists, conservationists and law enforcement officers around the Alaska Peninsula and Becharof National Wildlife Refuges.

California

A new canoe area dedicated to a former refuge employee opened to the public this spring at Tule Lake National Wildlife Refuge. Visitors may use their own non-motorized boats or check out a canoe available on-site when the refuge visitor center is open. The canoe area is in Discovery Marsh, which often dries up during the late spring and summer, so visitors should contact the refuge before planning a trip. Wildlife viewing opportunities vary seasonally. The canoe area was developed in memory of David Champine, a refuge visitor services specialist who died in 2009 at age 40 after battling a lifelong heart condition. 

New Technology Aids Understanding of Puma

By Shawn Gillette

More than 150,000 visitors each year view and photograph an amazing diversity of wildlife at Bosque del Apache National Wildlife Refuge in New Mexico – from sandhill cranes and snow geese to elk and javelin. But one species seldom seen in the Middle Rio Grande Valley is the secretive puma, better known as the mountain lion.

Refuge staff members have found tracks, scat and even remains of animals killed by puma, but until now, there was little hard data on numbers of puma on the refuge or prey. A new partnership with Furman University in South Carolina will establish baseline data on this apex predator at Bosque del Apache Refuge, including population estimates, habitat use and prey selection.

Furman researchers had been developing and testing techniques for gathering data about the puma on private ranch lands near the refuge. They were excited to partner with the refuge to test those techniques. On February 1, a contract field biologist with several years of experience in tracking and trapping large carnivores set up operations on Bosque del Apache Refuge and worked with refuge staff to establish an array of humane traps in areas known to be frequented by puma.

Within weeks, the contractor captured and marked several puma. Tissue samples were taken, and the cats were measured and weighed before being safely fitted with a collar and released.

Collars remain on the animals for up to a year. They are programmed to fall off the animals and be retrieved.

Furman's researchers rely on two key data-collecting tools – modern GPS telemetry equipment and the strategic deployment of advanced remote cameras. The researchers "mark" cats with GPS equipment and monitor their known locations. Comparisons can then be made with the number of "unmarked" cats seen on cameras to create a statistically strong measurement of puma populations. Daily monitoring of telemetry equipment provides information on movements, habitat use and prey selection.

Puma territories can be large, extending in some cases 100 miles or more. Because Bosque del Apache Refuge represents only a portion of that territory, other partners – such as the New Mexico Department of Game and Fish, USDA Wildlife Services and San Andres National Wildlife Refuge – are assisting in the study. "Research such as this project is only successful when multiple partnerships are involved," says John Vradenburg, land management, research and demonstration biologist at Bosque del Apache Refuge, who is coordinating

the study.

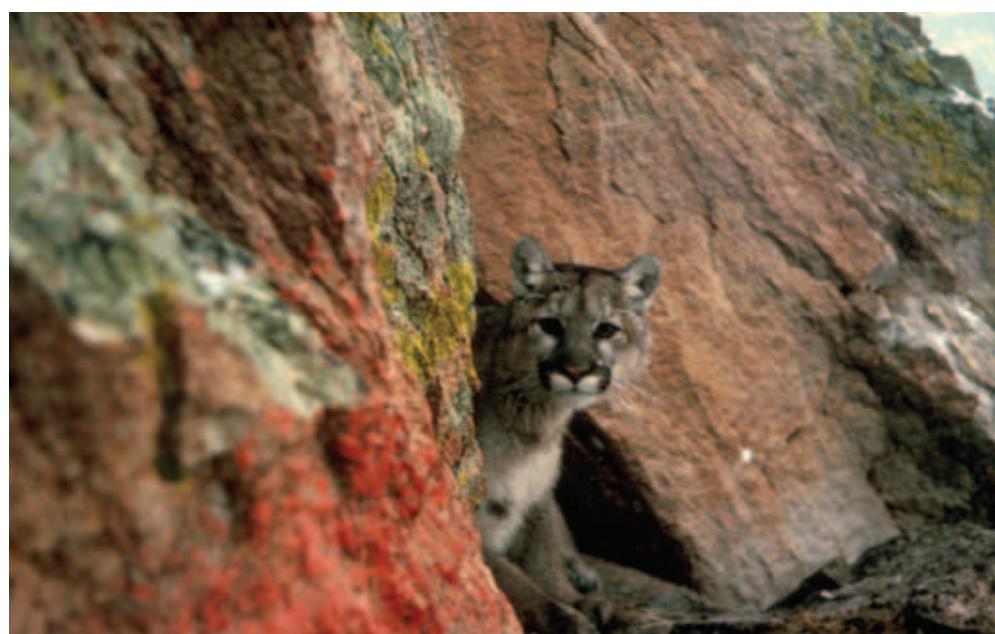
"Refuge staff has been excited by the data collected so far, which is shedding light on how these animals use their environment," says Vradenburg. "We were surprised by some of their prey selection. One cat exhibits a skill for taking down large herbivores such as the non-native African gemsbok and elk in addition to more abundant small prey, such as beaver, raccoon and badgers."

The camera array, says Vradenburg, has been particularly effective in providing data to make better population estimates. More cats have been caught on film than were trapped and marked, confirming what refuge staff has long suspected – that several cats include the refuge within their territorial ranges. "It's difficult to determine or predict when the cats will utilize the bosque," says Vradenburg. "Their territories are large, and they come and go as they please."

Refuge staff members are encouraged by the study's initial results. "There's no doubt that the techniques used in this study can be applied to the monitoring of other species," says Vradenburg. Refuge staff will continue to work with partners on this study for up to a year and then

analyze the data in the hope of generating an accurate understanding of the population density and territorial ranges of the elusive Southwestern puma. 

Shawn Gillette is supervisory outdoor recreation planner at Bosque del Apache National Wildlife Refuge.



A new partnership between Bosque del Apache National Wildlife Refuge in New Mexico and Furman University in South Carolina will establish baseline data on the puma, including population estimates, habitat use and prey selection. (USFWS)

"Adopt an Area" Gives Merritt Island a Real Pick-Me-Up

By Kathy Eichinger

The spring day is crisp and clear. Your long-awaited Florida vacation is finally a reality. After touring Kennedy Space Center, you visit Merritt Island National Wildlife Refuge, a 140,000-acre sanctuary that overlays the space center.

Your first stop is Scrub Ridge Trail, where you will be looking for the threatened Florida scrub jay. If you get really lucky, you might see two endangered residents, the gopher tortoise and the Eastern indigo snake. You pull into the trailhead parking lot and are horrified to see food wrappers, Styrofoam containers, cans and bottles strewn about.

Your next stop is Bairs Cove boat ramp, where you hope to see endangered Florida manatees lounging in the basin. You also see monofilament tangled in the mangroves.

You wonder about the refuge habitat and wildlife, and you think, "Can't they do anything about the littering problem?"

They can, they have, and it's working.

In April 2009, Merritt Island Refuge launched Adopt an Area, an anti-litter program patterned after the national "adopt a road" campaign. Individuals, families, businesses, clubs and other organizations adopt a roadway, shoreline, trail or high-traffic spot at the refuge. For agreeing to clean up their area at least three times a year, adopters receive a certificate of adoption. Soon after their first cleanup, a small sign recognizing their service is placed in the adopted area. Additionally, an annual hot dog roast honors Adopt an Area volunteers.

As of April 2010, there were 18 groups in the program, and 247 individuals had contributed 494 volunteer hours. They had removed more than 350 bags of litter as well as tires, waste oil, monofilament, concrete blocks, boat parts and other debris.



Adopt an Area volunteer Lucy Pruss: "When people see you out in the hot sun picking up trash, it's surprising how often they stop and say, 'Thank you.'" (Tom Crandell)

Giving Ownership

"People really respond to this. They just love the refuge. And when they come out here and see the litter, it drives them crazy," says Merritt Island Refuge ranger Nancy Corona. "I've been here seven years, and there are certain areas that just get beat up" despite the best efforts of the refuge's two law enforcement officers, who are stretched beyond thin. "It's so unsightly. It's ugly. It's a safety issue. It gets very frustrating."

The Adopt an Area program "seems to have an effect by giving ownership to an area," Corona says. The posted signs may dissuade potential litterers, and they give participants a morale boost. "The structure and the recognition give the volunteers a kind of hope, rather than having them feel defeated week after week."

The program is easy to maintain. Promoting it is easy, too – in local newspapers, at the refuge visitor center and entrances, and at nearby retail locations. Once the program is explained to interested parties, a portfolio of pertinent information is mailed to them.

When people decide to adopt an area, they sign an agreement and schedule their first cleanup. After their first cleanup, the groups function largely on their own. Not only has the program reduced litter, it has given individuals with limited time a sense of stewardship in the refuge.

"I know I'm making a big difference," says Adopt an Area volunteer Lucy Pruss, a 25-year-old lawyer from nearby Cocoa, FL. "When people see you out in the hot sun picking up trash, it's surprising how often they stop and say, 'Thank you.' And I hope that people who see me will think twice before throwing trash out the window."

Like other participants, Pruss, whose group has adopted a two-mile portion of Black Point Wildlife Drive, is required to go out three times a year. But, she says, her group is "trying to do it every other month to try to stay on top of the trash."

For which refuge ranger Corona is truly grateful. Without people like Pruss, she says, litter removal "wouldn't get done at all, and it would look horrible. The program gives the presentation that the refuge cares, and it does it with limited funding." 

Kathy Eichinger is volunteer coordinator for the Adopt an Area program at Merritt Island Refuge. For more information, contact refuge ranger Nancy Corona at Nancy_Corona@fws.gov.

"Thanks for Everything You're Doing for Us Down Here"

By Bill O'Brian

Charlie Hebert was standing on the dock at Cypress Cove Marina in Venice, LA, squinting slightly in the late-afternoon twilight and patiently answering on-camera questions from a Fox News Channel television crew.

Hebert was exhausted. He'd been working 15 hours daily with just two days off in the previous month. Yet here he was, taking more time to describe to the public the nuances and challenges of the Deepwater Horizon oil spill Unified Command wildlife rescue, recovery and rehabilitation effort.

Hebert, a biologist and oil spill response coordinator in the U.S. Fish and Wildlife Service Pacific Region, had just driven more than two hours to Venice, and he was in the waning moments of a 30-day detail, in which he had served as deputy chief of the Unified Command wildlife branch at the BP Operations Learning Center in Houma, LA.

The Houma location is one of five Unified Command centers dedicated to the Deepwater Horizon oil spill response. The center is reminiscent of NASA Mission Control in the movie "Apollo 13" – a building full of 800 or so smart, committed, sleep-deprived men and women trying to address urgent, vexing problems with no firm precedent for how to proceed in the face of a disaster, in this case the worst oil spill in American history.

Hebert is one of more than 600 Service staff members who have contributed to that effort since the Deepwater Horizon oil rig exploded on April 20. This article recognizes just a handful of individuals from the Service, the National Wildlife Refuge System and other entities whose work in southeast Louisiana was observed during a two-week period in late May and early June. The article is by no means definitive. Rather it is a snapshot meant to give the reader a sense of what it feels like in the affected region and to acknowledge the extraordinary effort and skills of some dedicated people.

- People like . . . **Ron Britton**, who took over for Hebert as deputy chief of the Unified Command wildlife branch in late May and helped reenergize the rescue and recovery effort. Britton, a supervisory wildlife biologist at Alaska Peninsula/Becharof National Wildlife Refuge Complex, applied lessons he learned in the *Exxon Valdez* spill to fortify a personnel structure that emphasized interagency teamwork and the need to be available to the news media.

- People like . . . **Ken Litzenberger, James Harris, Jack Bohanan and their staffs** at the Southeast Louisiana National Wildlife Refuge Complex. Bohanan, the refuge manager at Delta and Breton Refuges, recently wrote:

"The hardest part of working this spill is the unknown. We don't know exactly how much oil has actually been released

into the Gulf, we don't know where exactly it will go, and we don't know how much impact it will have on the resources entrusted to our care. Dealing with the unknown is probably the biggest source of fatigue, greater even than the long days of arduous work."

- People like . . . **Kayla DiBenedetto**, a biologist based in the Service's Baton Rouge office who displayed dogged persistence and impressive athleticism with a net as a member of a multi-agency team rescuing oiled brown pelicans in 100-degree heat after an arm of the spill overwhelmed Barataria Bay off Grand Isle, LA, on the first weekend in June.
- People like . . . **Sharon Taylor**, a Service veterinarian based in Carlsbad, CA, who was deployed in Houma for six full weeks, May 1 until June 11, and now is rotating in and out of Louisiana. Taylor oversees the Unified Command veterinary operation, runs the wildlife morgue in Louisiana and coordinates the release of rehabilitated birds into the wild at places such as Merritt Island, Pelican Island and Egmont Key National Wildlife Refuges, all in Florida. On June 6, flying back to Houma with a Coast Guard crew of four, after a bird release in Florida, the right engine of the C-144 twin-propeller plane Taylor was on caught fire, forcing an emergency landing. No one was hurt.
- People like . . . Acting Service Director **Rowan Gould**, who quietly rallied and guided haggard Service personnel at the operations center in Houma and, on occasion, in the field. In early June, when Gould stepped onto the Service barge at Dennis Pass to visit the 35 or so Service rescue and recovery workers living there, it was as if the President himself had stepped onto an aircraft carrier. The boost to staff morale was palpable; people were taking pictures of people taking pictures with Gould.
- People like . . . **Mike Downie**, a supervisory law enforcement officer at the Southeast Louisiana National Wildlife Refuge Complex, and **Mark Littlefield**, a Service wildlife biologist based in Sacramento, CA. Downie and Littlefield were the bosses of the Dennis Pass barge, and they and their crew graciously accommodated media crew after media crew who boarded



About 35 wildlife rescue and recovery workers live on the Service barge at Dennis Pass off Venice, LA. (Bill O'Brian/USFWS)



Kayla DiBenedetto, a biologist based in the U.S. Fish and Wildlife Service's Baton Rouge conservative office, carries an oiled brown pelican she helped net in Barataria Bay off Grand Isle, LA. (John D. Miller/U.S. Coast Guard)

their vessel even though it was clearly disruptive to their routine.

- People like . . . **Jason Duke**, a Service GIS coordinator/information technology specialist based in Cookeville, TN, and **his colleagues**, who developed a detailed Service map of the Unified Command wildlife rescue and recovery operation and the shoreline cleanup assessment team (SCAT) in Louisiana. The map, which is updated daily at <http://www.fws.gov/home/dhoilspill/maps.html>, is so useful and distinctive that it is regularly used by the media as a backdrop for interviews, often without proper attribution. Duke and his colleagues have since developed a similar map for Mississippi, Alabama and Florida.

- People like . . . **Jay Holcomb** and **Barbara Callahan** of the International Bird Rescue Research Center, who oversaw the Fort Jackson Wildlife Rehabilitation Center in Buras, LA. The tireless work of their staff speaks for itself.

- People like . . . public information officer **Doug Zimmer** in the Joint Information Center (JIC) in Robert, LA. Zimmer, a supervisory information and education specialist for the Service in Lacey, WA, provided patient, steady advice on countless occasions.

- People like . . . **Mike Patterson**, **John Miller** and **Ann Marie Gorden** of the U.S. Coast Guard. The latter two took photos for the Service when one of our cameras malfunctioned, and all three were a pleasure to work with. In fact, all of the dozens of Coasties, as they call themselves, stationed at Houma were unfailingly professional, polite and competent.

- People like . . . **Richard Blackburn**, a motorboat operation certification instructor based at J.N. "Ding" Darling National Wildlife Refuge, FL, who coordinated Service boat schedules out of Venice and Grand Isle with remarkable efficiency and grace under hectic, ever-changing conditions.

- People like . . . professional fishermen-turned-wildlife-rescue-and-recovery boat drivers **Alfred "Hawk" Pete**, **Lou Domino** and **Albert Ballard**, who day after day took out-of-town strangers out on the water. Despite the fact that this spill has imperiled their livelihoods, the three men beamed with pride and showed exceptional patience and maritime skill as they navigated the marshes, bayous and bays of coastal Louisiana. When asked what he would do if Gulf of Mexico commercial fishing doesn't recover, Ballard, a 38-year-old father of two who speaks in a comfortable Cajun cadence, replied: "I don't know. I've never had a job on land in my life."

And finally, here's a nod to the three young servers in four separate Louisiana restaurants who, upon seeing my Service shirt, said: *Thanks for everything you're doing for us down here.* They happened to be speaking to me, a Refuge staff member with a minor public information role, but, really, they were thanking the Service as a whole.

Oil Spill Presents An Extraordinary Challenge — *continued from page 1*

As of mid-June, in coastal Louisiana the wildlife rescue and recovery operation was a joint venture of the Service, the Louisiana Department of Wildlife and Fisheries, the U.S. Department of Agriculture (USDA), Tri-State Bird Rescue & Research and the International Bird Rescue Research Center. (The National Oceanic and Atmospheric Administration – NOAA – was conducting offshore searches for sea turtles and mammals.)

Weather permitting, scores of boat teams a day staffed with personnel from the Service, USDA, the state and the bird rescue organizations conducted coastal Louisiana rescue and recovery missions. The teams, which worked from staging areas at Hopedale, Dennis Pass, Grand Isle, Cocodrie and Trinity Island, were supported by daily helicopter surveillance out of Lakefront Air Operations near New Orleans. That aerial observation identified where oil had moved overnight and where birds – generally brown pelicans, northern gannets, egrets and herons – may have been affected. All recovered birds were taken to the Fort Jackson Wildlife Rehabilitation Center in Buras, LA, for examination, treatment and cleansing.

On the water and in the coastal marshes, the rescue and recovery teams' missions were not simple roundups; they were surgical expeditions influenced by a number of factors.



A wildlife rescue and recovery team based on the U.S. Fish and Wildlife Service barge at Dennis Pass searches for oiled birds in Garden Island Bay near the mouth of the Mississippi River off Venice, LA. (Bill O'Brian/USFWS)

In a warm-water spill, such as this one, oiled birds are less likely to die immediately from exposure and hypothermia because they remain warmer. So, they generally have a higher rate of survival – in the short term, at least. The birds can become severely ill or die from ingesting oil, of course, but stress also can compound the effects of oiling and lead to death.

Bird Triage

Each time a team encounters an oiled bird, the team must “make sure the remedy is not worse than the problem,” according to Charlie Hebert, a biologist and oil spill response coordinator in the Service’s Pacific Region who served as deputy chief of the Unified Command wildlife branch in Houma, LA, in May. Rescue and recovery personnel must

tread lightly and carefully to avoid injuring or stressing healthy birds, trampling nests and ruining sensitive coastal habitat.

The teams often must make difficult, nuanced decisions, Hebert says. Not all birds can or should be captured. A stressed bird

sometimes needs to be given time to settle down before capture is attempted. An oiled adult protecting or shading chicks presents a dilemma because rescuing the adult would leave the chicks vulnerable to predation. Generally speaking, oiled birds that are able to fly (and thus can forage for food) are not captured.

And because the whole rescue and recovery effort is part of a comprehensive scientific damage assessment, the capture process is painstakingly executed. At every step of the way, rescue, recovery and rehabilitation personnel must protect the scientific integrity of the data derived from each bird so that the eventual scientific investigation will be able to accurately determine what happened to the bird.

When considering the overall wildlife mortality of the spill, it is useful to keep two other points in mind:

- Small fish have been observed feeding on oil patties in the water, and wildlife biologists have no clear idea what effect this oil in the food chain ultimately will have on the fish themselves or on the birds that feed on those fish.
- The Gulf Coast is one of the most fertile bird nesting grounds in the world. Several nesting areas have been oiled, particularly on Chandeleur Island at Breton National Wildlife Refuge, LA. Those oiled eggs, which will not hatch, were not, as of mid-June, being counted in collected bird totals. 

For the Latest Information . . .

For the latest information on the number of birds, sea turtles and mammals that have been rescued, recovered or released along the Gulf Coast in Louisiana, Mississippi, Alabama, Florida and Texas since the Deepwater Horizon oil spill began on April 20, go to <http://www.deepwaterhorizonresponse.com/go/site/2931>, pull down the Currents Ops tab, click on Fish and Wildlife Report, and open the daily PDF at the bottom of the screen. The daily PDF chart contains a detailed breakdown by state, type of animal and level of oiling.

For detailed U.S. Fish and Wildlife Service maps of the Unified Command wildlife rescue and recovery operation and the shoreline cleanup assessment team (SCAT) operation along the Gulf Coast, go to <http://www.fws.gov/home/dhoilspill/maps.html>.

For Service fact sheets regarding many aspects of the spill, including the Natural Resource Damage Assessment and Restoration Program, and links to national wildlife refuges potentially in harm's way, go to <http://www.fws.gov/home/dhoilspill/factsheets.html>.

LCCs and I&M: Parallel Missions — *continued from page 1*

LCC; and assessing the status of all priority aquatic habitats in the region. The Pacific Islands Climate Change Cooperative will be estimating future rainfall changes over the Hawaiian Islands from 2046–2100. The Arctic LCC will begin long-term monitoring of the impacts of climate change on glaciers and rivers in the Arctic National Wildlife Refuge.

The North Atlantic LCC will be developing maps and computer models to predict how habitat conditions will be affected by such stressors as urban growth and changing climate. The LCC will develop user-friendly tools to help make decisions regarding such stream fish as Eastern brook trout. Such tools include maps of stream fish habitat and a Web-based program that refuge managers can use to evaluate different management actions in streams as small as 30 feet or river basins that run hundreds of miles.

As interim coordinator for the Gulf Coastal Plains and Ozarks LCC, Bill Uihlein is excited about the potential of LCCs to address problems that no single agency can solve. He is working to ensure that the LCC is “adding value to the conservation community without risking partnership fatigue.” The Gulf Coastal Plains and Ozarks LCC is itself a combination of three existing landscape-level joint ventures that support migratory birds and the Southeast Aquatic Resources Partnership. Twenty-four agencies, including the Service, belong to one or more of the joint ventures.

Collaboration is the engine that drives LCCs. “It takes time to nurture successful partnerships, says Uihlein, “yet LCCs must also demonstrate success in using shared resources wisely.”

To that end, the Gulf Coastal Plains and Ozarks LCC is initiating development of an aquatic resource database that will be linked with water resources data being collected in the Plains and Prairie Potholes LCC. “We need to stitch all the LCCs together across the Mississippi River watershed,” explains Uihlein. “For example, with this particular project, we

are trying to help the Service and the conservation community identify ‘how much,’ ‘how much more’ and ‘where’ in terms of water resources. What are the limiting factors? What are the parameters we need to target conservation action?”

Integrating Multiple Initiatives

The LCCs will function across regions and also as a national network of science capacity responding to broad-scale issues ranging from development to endangered species. They will use climate change data from eight new Department of the Interior Climate Science Centers as well as data gathered through the Refuge System inventory and monitoring (I&M) program being developed at the new Natural Resource Program Center in Fort Collins, CO. Center Chief Mark Chase says, “We are going to collect, store and make available information about resources in the Refuge System that is credible, scientifically rigorous and reliable.” He sees the LCCs as one of the center’s customers.

“We expect that LCCs will use the information we provide to generate predictive models about habitat and relationships of species and habitat,” says Chase. “In return for that, our decision makers on the ground will get support tools that will help them make management decisions and set land acquisition priorities. If, for example, you are interested in duck production, it will be helpful to know that a particular 200 acres of land is better than a different 200 acres, based on predictive models.”

The Refuge System I&M program and the LCCs are developing on parallel tracks; Chase expects patterns of



New inventory and monitoring biologists will be stationed at Glacial Ridge National Wildlife Refuge, which is part of the Plains and Prairie Potholes Landscape Conservation Cooperative. (USFWS)

cooperation to emerge over time. Already, staff resources are intertwined. The Service is co-locating staff hired through the I&M program with some LCCs. New I&M biologists will be stationed at the Fergus Falls Wetland Management District Office and Glacial Ridge National Wildlife Refuge, both in Minnesota and part of the Plains and Prairie Potholes LCC. Four new biological positions, including a hydrologist, aquatic/marine specialist, terrestrial species specialist and a forester/botanist, will be added at Alligator River (NC); Cape Romain (SC); Okefenokee (GA); and Savannah (SC) National Wildlife Refuges. Their work will focus on Refuge System I&M priorities and feed into the South Atlantic LCCs.

LCCs will not make conservation management decisions for any partner or refuge. Rather, they will provide the high-quality science on which such decisions should be based. “LCCs develop a blueprint for landscape sustainability,” says Uihlein, “and it’s up to managers to decide how and where to implement particular practices based on that information.”

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A Look Back . . . Warren Parker

Once, red wolves roamed as far north as Pennsylvania and as far west as central Texas. No longer. In 1980, they were declared extinct in the wild.

Today, more than 100 live in northeastern North Carolina – the world's only population of wild red wolves. That is due in large part to the leadership of Warren Parker.

Parker began his career as a wildlife biologist at Savannah National Wildlife Refuge, GA, in 1957. In 1984, he became the U.S. Fish and Wildlife Service's first red wolf project coordinator. That same year, John Taylor became the first manager of the newly established Alligator River National Wildlife Refuge, NC. The two began a professional friendship that continues to this day. Parker took part in the June celebration of Taylor's retirement from Tennessee River National Wildlife Refuge.

Having determined that Alligator River Refuge was an appropriate site to reintroduce red wolves, Parker, Taylor and a team initiated plans to bring captive-bred wolves from Tacoma, WA, to North Carolina. Public opinion was the biggest problem, recalls Parker. Families worried about the safety of their children and pets, while sportsmen worried about deer.



Warren Parker, John Taylor and Chris Lucash tag a red wolf in the late 1980s. (Courtesy of Warren Parker)

Taylor says Parker's honesty and personality won the day. "Warren is always smiling, even at a public meeting when there is a lot of heat. You can't help but like the guy and believe him."

"If you start saying, what good are grizzly bears or elk, where do you stop?"

says Parker. "Red wolves are part of the ecosystem of the Lower 48 states."

"It was an exciting time," recalls Taylor. "We were writing a new chapter in wildlife management. Never had a species been reintroduced into the wild after being determined extinct." Chris Lucash, a young biologist at the time and still at Alligator River Refuge, says, "It took a lot of courage and determination to write that new chapter. They did it with an unflappable sense of optimism."

Parker retired in 1991, after 34 years in the Service. Yet, he is never far from wolves, consulting with the Arizona Game and Fish Department on its Mexican gray wolf recovery program and speaking to the public about red wolves whenever he can. He listens to them howl at night near his home in North Carolina.

"The red wolf is fortunate," says Lucash, "that men of such caliber came along when they were needed." 

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.