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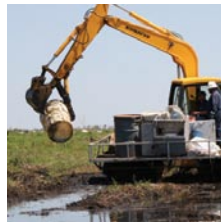
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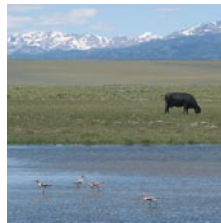
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More than a year ago, Hurricane Rita roared through Sabine NWR. Today the refuge is slowly healing.

By Tom MacKenzie and Diane Borden-Billiot



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A wetlands rotation program at Tule Lake National Wildlife Refuge enhances wildlife habitat and farm production.

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Protecting waterfowl on both sides of the border.

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H. Dale Hall



Vision from the Past

During much of the past year, I've talked a lot about shaping our future. What do we want to look like in the next five or 10 years and beyond? What should our priorities be? How can our workforce adapt to meet the challenges that lie ahead?

Adapting to change is never easy, but we can find inspiration in kids with grass-stained knees who someday will inherit the job of protecting our natural resources. And we can find it in old friends whose passion for hunting and fishing helped define conservation as we know it today.

A few hundred years ago, people sailed from England to America to start a new life. These colonists hungered for the freedom to live as they wished, pursue happiness and enjoy the gifts of nature. In their home country, only the wealthy and elite owned game. Poachers—those who took game that belonged to the crown—could be hanged.

Hunters and anglers are the backbone of the system's success.

The guiding principles of the North American model are simple: take only what you need and manage natural resources for the benefit of future generations. In the 1930s, after decades of commercial hunting had decimated game populations and threatened that public trust, sportsmen stood up and said, "We want the game and we know someone has to pay to manage it." Then they suggested something that is virtually unprecedented: "Tax us."

In 1934, the Federal Duck Stamp program was born. Since then, Duck Stamp sales have generated more than \$700 million used to acquire and protect millions of acres of wetland habitat for waterfowl and hundreds of other wildlife and plant species.

But that wasn't enough.

In 1937, sportsmen stood up again to help create the Federal Aid in Wildlife Restoration Program (Pittman-Robertson Act), a Federal excise tax collected on firearms, ammunition, and later, archery equipment to support wildlife management programs; the purchase of wildlife habitat and lands for public hunting access; and hunter education and safety classes. In 1950, the Federal Aid in Sportfish Restoration Act (Dingell-Johnson Act, later amended as the Wallop-Breaux Act) followed suit. Each of these two programs alone have now paid more than \$10 billion in real dollars—a figure that if adjusted for inflation would be many times greater—to restore fish and wildlife habitat in this country.

Our conservation heroes—Teddy Roosevelt, Rachel Carson, Aldo Leopold and countless others—dedicated their hearts and minds to protecting our natural resources. Add to that list hunters and anglers, who for more than 70 years have embodied the soul of our conservation heritage. As we look forward to a New Year of challenges and great promise, we should challenge ourselves to embrace that same courage and vision as we go about the work of shaping our future.

Our conservation heroes—Teddy Roosevelt, Rachel Carson, Aldo Leopold and countless others—dedicated their hearts and minds to protecting our natural resources.

This is why our Nation's founders ensured that all people in this country could hunt, fish and otherwise benefit from the new nation's abundant wildlife resources. Today, any U.S. citizen—regardless of background or socioeconomic status—can claim this extraordinary gift.

The notion of wildlife as a public resource eventually formed the cornerstone of what is known as the North American Model of Wildlife Conservation—a system that keeps wildlife as a public and sustainable resource, scientifically managed by professionals and agencies such as the Fish and Wildlife Service and our state counterparts.

Refuge Neighbor Wins Duck Stamp Contest

Waterfowl artist Richard Clifton, this year's winner of the Federal Duck Stamp Art Contest, says he lives so close to Prime Hook National Wildlife Refuge he can see the blue goose signs from his front yard.

Clifton's family home, farm and studio border the refuge on Delaware Bay. He grew up on the wetlands that continue to inspire him today.

Clifton's painting of a pair of swimming ring-necked ducks will grace the 2007–08 Federal Duck Stamp. His entry was chosen from among nearly 300 in the contest, judged in October in Memphis, Tennessee. The Fish and Wildlife Service sponsors the event—the oldest and most prestigious Federal art competition—each year. This is the first time Clifton has won the national event, although his art has adorned 26 other duck stamps, including four in his home state and one in Australia.

"I don't know how many times I've entered," said Clifton, "But at this point it was starting to add up. After a while it's just a big relief to win. I'm just tickled to death."

A self-taught artist, Clifton has made a living from his art for 18 years. He prefers to paint waterfowl and says the wildlife he watches at Prime Hook inspires much of his renowned work. With access just around the corner, Clifton spends a lot of time on the refuge, taking photographs, contemplating future paintings or simply enjoying the solace of the outdoors.

"Richard has been a friend of Prime Hook National Wildlife Refuge for more than 25 years," said Refuge Manager Jonathan Schafler. "He genuinely loves this place. His commitment to wildlife and wild areas runs much deeper than his art."

Clifton's connection to the wildlife refuge is evident. He is a dedicated member of the Friends of Prime Hook, and one of his paintings, a wall-sized mural of an East Coast marsh with Canada geese and black ducks, greets those entering the refuge's visitor center. The Clifton family history, in fact, is inextricably tied to the place. Lands that they historically owned and farmed are now part of the 10,113-acre wildlife refuge. □

*Terri Edwards, Public Affairs,
Hadley, Massachusetts*



Richard Clifton poses with his winning entry.

An Investment in Conservation

Originally created in 1934 as a requirement for waterfowl hunting, the Migratory Bird Hunting and Conservation Stamp—or "duck stamp"—protects wetlands for wildlife. What's the connection between a stamp and land conservation? When anyone buys a \$15 duck stamp, 98 percent of the proceeds go to the Migratory Bird Conservation Fund, which supports the acquisition of important wildlife habitat for waterfowl. To date, duck stamp sales, primarily to hunters, have raised more than \$700 million for the purchase or lease of more than 5 million acres for the National Wildlife Refuge System.

The 2007–08 Federal duck stamp will go on sale in June. Sales of the stamp generate approximately \$25 million

annually to buy land for national wildlife refuges.

In winning artist Richard Clifton's home state of Delaware, duck stamp revenue has fueled the growth of its two national wildlife refuges. More than \$5.2 million from the Migratory Bird Conservation Fund has supported the acquisition of 8,356 acres at Prime Hook and 15,278 acres at Bombay Hook National Wildlife Refuge.

For hunters and non-hunters alike, dollar for dollar, duck stamps are a great way to invest in protecting the nation's wetlands.

Visit <www.fws.gov/duckstamps> or more information about the Federal Duck Stamp Program.

Secretary Kempthorne Helps Celebrate Rocky Mountain Arsenal NWR Expansion

JOSH BARCHERS / USFWS



Interior Secretary Dirk Kempthorne celebrates National Wildlife Refuge Week at the Rocky Mountain Arsenal National Wildlife Refuge near Denver, Colorado.

Interior Secretary Dirk Kempthorne marked National Wildlife Refuge Week 2006 at a flagship event at the Rocky Mountain Arsenal National Wildlife Refuge, in Commerce City, Colorado.

Joined by EPA Administrator Stephen Johnson, Members of the Colorado congressional delegation, representatives of the U.S. Army, Shell Oil Company, the State of Colorado, and more than 250 other partners, employees, and volunteers, the Secretary celebrated the transfer of more than 7,250 acres of land from the Army to the Fish and Wildlife Service. The land transfer more than doubled the size of the refuge.

The Secretary and partners also planted native short-grass prairie vegetation to dedicate the Egli Heritage Garden, named after a homesteader family that farmed the land in the decades before World War II.

The Secretary used the occasion to recognize the lasting relationship that Americans have with their National Wildlife Refuge System.

“For more than 100 years, Americans have put into practice the belief that a society that protects wildlife and wildlife habitat is a richer and healthier one, and that the conservation of natural wonders is an important, defining characteristic of who we are,” he said.

Located about 10 miles northeast of Denver, the Rocky Mountain Arsenal National Wildlife Refuge grew from 5,000 to more than 12,000 acres this fall, following the successful clean-up and transfer of land. The refuge is home to more than 330 species of wildlife, including bald eagles and burrowing owls, and includes important wetland and short-grass prairie habitat. The refuge

has a dynamic public use program that emphasizes environmental education for communities along Colorado’s rapidly-growing Front Range.

For the past 14 years, the Service has partnered with the Army and Shell Oil Co. to convert the Arsenal from an environmental clean-up site to a premier urban national wildlife refuge.

The Army built the Arsenal in 1942 to manufacture chemical weapons as a deterrent against the Japanese. The Army later leased facilities to private companies, including Shell Oil who produced agricultural chemicals at the site.

Manufacturing ceased in the early 1980s, and the site was added to the EPA’s Superfund list in 1987.

The refuge was officially established in 2004, after the EPA certified that the clean-up of 5,000 acres of Arsenal land was complete and took the land off

the Superfund list. The EPA recently approved removing another 7,000 acres from the list, which allowed the U.S. Army to transfer the land to the Service to manage as part of the refuge.

Secretary Kempthorne noted that the refuge had become one of the largest urban wildlife refuges in the nation, and he applauded the partnership among the Army, Shell, the Service, EPA, and state and local regulatory agencies.

“You have turned an Arsenal of democracy into an Arsenal of conservation,” he said. “This is a world-class refuge against the backdrop of a world-class city.”

The \$2.4 billion clean up of the Rocky Mountain Arsenal is almost two-thirds complete. By the time the work is finished, another 2,500 acres will be added to the refuge. □

Matt Kales, External Affairs, Denver, Colorado

USFWS



Rocky Mountain Arsenal NWR.

Conserving the Devils Hole Pupfish

Managers from the National Park Service, the Fish and Wildlife Service, and the Nevada Department of Wildlife face a situation that any resource manager hopes to avoid. They are working to recover a small endemic fish located in the Mohave Desert that is now battling extinction. Reversing the decline of the Devils Hole pupfish is difficult, and the situation is compounded by the low population numbers, short lifespan and the difficulty of rearing them in captivity.

The Devils Hole pupfish (*Cyprinodon diabolis*) was listed as endangered in 1967. The only natural habitat for this iridescent blue, inch-long fish is in the 93-degree waters of Devils Hole Cavern, which is a detached unit of Death Valley National Park. Although the cavern is more than 400 feet deep, the pupfish are believed to spawn exclusively on a shallow 1,800-square-foot rock shelf just under the water's surface. They are believed to have been isolated at Devils Hole for at least 600 years.

The Devils Hole pupfish has never occurred in large numbers. Since population surveys began in 1972, the population has not exceeded 553 individuals. This short-lived species (a lifespan of less than one year) has a natural high and low cycle because of natural die-off during the winter months.

A 1975 Supreme Court decision resulted in protection of the Devils Hole pupfish spawning habitat, reducing groundwater pumping. At that time there were only 127 individuals. Although the water level in Devils Hole never recovered to pre-pumping levels, populations of pupfish did increase.

Beginning in 1997, fall population surveys documented a downward trend from an average of 275 individuals to 84 adults in November 2005. An all-time low population count of 38 adults was recorded in April 2006. The only captive population of Devils Hole pupfish at Hoover Dam Refuge also has declined. Surveys at the refuge located 29 adults in April 2006 and 18 adults in August 2006.

"We are at a critical time and face an extremely challenging situation with the Devils Hole Pupfish," said Bob Williams, Nevada Fish and Wildlife Office Field Supervisor. "The situation of the pupfish can be compared to the California condor, North Carolina red wolf and the Florida panther, and we have some difficult decisions facing us as we try to increase its population."

Management decisions regarding conservation efforts for the Devils Hole pupfish were elevated to the leadership of the Fish and Wildlife Service, National Park Service and Nevada Department of Wildlife. In late August, managers used a formal process known as structured decision making to evaluate risks and benefits of numerous management options presented by scientists. As a result of that process, the agencies have decided to:

- Consolidate all but two male Devils Hole pupfish that currently exist outside of Devil's Hole at Willow Beach National Fish Hatchery (WBNFH) in Arizona, where biologists will work to propagate and rear the pupfish.

- Leave two male Devils Hole pupfish at Shark Reef at Mandalay Bay in Las Vegas where biologists will use experimental reproduction techniques with hybridized female pupfish (a cross of Devils Hole pupfish and Ash Meadows Amargosa pupfish) to develop pupfish that genetically resemble pure Devil's Hole pupfish.

- Task local resource managers and scientists with completing a comprehensive species management strategy that includes a propagation plan and genetics plan.

A population survey conducted in Devils Hole in September 2006 found a population of 85 adults, which is more than double the number in April 2006.

"Although the number of Devils Hole pupfish fluctuates during the year, we are encouraged with the increase, which indicates the pupfish are successfully reproducing and recruiting in their natural environment," Williams said. "We are optimistic that the majority of adults observed will persist over the winter and reproduce in the spring."

Propagation efforts at WBNFH are being assisted by Dr. Arcadio Valdes Gonzalez, a pupfish expert from Monterrey, Mexico. Successful spawning and hatching of Devils Hole pupfish in aquaria has occurred with the assistance of Dr. Valdes and the expertise of the Fish and Wildlife Service WBNFH and Dexter Research and Technology Center. In late September, four larvae survived to the juvenile stage. While this is a limited success in the rearing of Devils Hole pupfish in captivity, it is one step closer to recovery for the fish.

The Devils Hole pupfish is a flagship species that provides attention to and protection for other desert species and ecosystems, and contributes significantly to our overall scientific understanding of small populations. Managers and scientists will continue working together using all resources to manage and conserve the Devils Hole pupfish. □

*Jeannie Stafford, Public Affairs,
Reno, Nevada*



The Devils Hole pupfish.

Partnership Turns Tide On Island's Erosion

Rising sea levels and erosion are causing the islands of Chesapeake Bay to rapidly slip from sight. Unique wildlife habitat is being lost as the islands disappear. Isolated from the mainland, the islands provide desirable nesting sites for colonial water birds, bald eagles, and diamondback terrapins. In addition to their value to wildlife, the islands and surrounding tidal wetlands buffer the developed shoreline of Maryland's Eastern Shore from storms and ocean waves.

Barren Island, one of several national wildlife refuge islands forming a 60-mile archipelago through the middle of the bay, is one-tenth of its size less than a century ago. In an effort to stem the erosion, the Fish and Wildlife Service, National Aquarium in Baltimore <www.aqua.org>, other Federal agencies and organizations, and community volunteers have worked together since 2000 to establish a salt marsh on the island to reduce erosion and benefit native wildlife.

The Service and the Army Corps of Engineers initially raised the elevation along the western edge of the island, which was losing ground a rate of up to 15 feet per year. Fortified with geotextile bags, or geotubes, an area was filled in with excess clean dredge material from projects in the Bay, creating an intertidal zone suitable for later marsh planting.



Chesapeake Bay residents have contributed tens of thousands of hours to plant grasses on Barren Island. Areas planted several years ago now resemble natural marshes.

More than a thousand Chesapeake Bay area residents have since contributed nearly 10,000 hours to the project. The National Aquarium, which strongly promotes public stewardship in its conservation program, organized its first volunteer planting event on the island in 2001. That summer, volunteers with the Aquarium's Conservation Team, students, national wildlife refuge friends groups, and local watershed and birding organizations planted 100,000 smooth cordgrass (*Spartina alterniflora*) plugs over approximately seven acres. An additional 18 acres along the western length of the island have been planted in subsequent seasons.

"The first time I went to Barren Island, it was truly barren. There wasn't an animal to be found on the mud flats," according to volunteer Ron Tillier.

"To see the tremendous change in Barren Island, and to have been a small part of that success, is a very rewarding experience. This project is a model on how to restore disappearing islands and how to rally volunteer support for their conservation," said volunteer Tom Hook.

The sites planted four and five years ago now resemble the natural marshes on the bay. They are frequented by fish, fiddler crabs, periwinkles, and wading birds. The more recently planted and maturing sites attract an increasing number of species each season. The Friends of Blackwater National Wildlife Refuge, with assistance from the Aquarium, will continue long-term monitoring and maintenance of the project sites.

"If we, as a society, are to restore ecosystems, the process must engage the community, apply good science, be conducted through a broad public-private partnership and do so as inexpensively as possible," said Glenn Page, director of conservation for the National Aquarium.

Barren Island is managed as part of the Chesapeake Marshlands National Wildlife Refuge Complex. It is one of a group of Chesapeake island refuges, including Eastern Neck and Martin, established in the mid-1900s to provide sanctuary for birds migrating along the Atlantic Flyway. □

*Terri Edwards, Public Affairs,
Hadley, Massachusetts*

One-Of-A-Kind Vessel

The M/V Spencer F. Baird was christened and commissioned September 7 during a ceremony at the Great Lakes Maritime Academy Pier in Traverse City, Michigan.

Operated by the Fish and Wildlife Service, the 95-foot Baird is a fish stocking and population assessment vessel that will annually stock nearly 4 million lake trout into lakes Huron and Michigan, furthering a four-decade effort by the Service and its partners to restore depleted lake trout populations in the Great Lakes and establish self-sustaining populations of this native fish, which was nearly wiped out in the late 1950s because of invasion of sea lampreys, overfishing and pollution.

Some 200 invited guests and members of the public gathered for the christening and commissioning ceremony. After a speaking program, Director H. Dale Hall read the official Orders to Commission the Baird. Assistant Director for Fisheries and Habitat Conservation Mamie Parker and Midwest Regional Director Robyn Thorson each broke a champagne bottle to officially christen the vessel.

The captain of the M/V Spencer F. Baird is Mike Perry. The Baird's engineer is Bob Bergstrom.

"This is a proud day for the Fish and Wildlife Service," said Robyn Thorson, the Service's Midwest Regional Director. "With a fisheries-related economy of \$5 billion per year, we know that the Great Lakes are vital not only to fisheries but to people, as well."

Of more than 90 science vessels on the Great Lakes, the Spencer F. Baird is the only hatchery fish distribution vessel in operation, distributing fish reared at the Service's Iron River National Fish Hatchery in Wisconsin and Pendills Creek and Jordan River national fish hatcheries in Michigan.

In addition to its stocking duties, the Baird—operating with a crew of three—will evaluate the performance of stocked lake trout. It will also measure the abundance and distribution of other fish species, which will help meet the information and research needs of the Service and its state, tribal, provincial and Federal partners.

The M/V Spencer F. Baird is named for a prominent zoologist associated with the Smithsonian Institution, appointed in 1871 by President Ulysses S. Grant as the first head of the U.S. Fish Commission, a forerunner agency to the U.S. Fish and Wildlife Service.

The Service produces nearly 4 million lake trout each year and transports 95 percent of these fish to key Great Lakes offshore sites for release. Offshore stocking results in better survival and increases the probability that lake trout will spawn at offshore habitats near stocking locations. The goal of the program is to re-establish self-sustaining populations of lake trout in their historic spawning reefs.

For more information, visit www.fws.gov/midwest/fisheries/baird. □

Rachel F. Levin, External Affairs, Minneapolis, Minnesota

NCTC Hosts Children and Nature Conference

Experts in childhood and health gathered together in early September at the National Conservation Training Center to discuss the how to reconnect a generation of youth with the natural world—and secure the mental and physical health benefits that go with it.

The keynote speaker was author Richard Louv. His book, *Last Child in the Woods—Saving Our Children from Nature Deficit Disorder*, chronicles the benefits children receive from

unstructured time in the outdoors and how our society is making it harder to carve out that time.

"For eons, human beings spent most of their formative years in nature, but within the space of a few decades, the way children in many Western countries understand and experience nature has changed radically, with profound implications for mental and physical health, cognitive development, creativity and for the future of nature itself," said Louv.



STEVE HILLENBRAND / USFWS

Participating in the Conference were 350 educators, health professionals and conservationists, including Secretary of the Interior Dirk Kempthorne, Fish and Wildlife Service Director H. Dale Hall, The Conservation Fund's President Larry Selzer, David Kahn, Executive Director of the North American Montessori Teachers' Association and Yale University's Stephen Kellert.

"Fishing and just playing around in the woods was an important part of my childhood," Hall said. "Our kids need to have chances to tromp through a woodlot or muck around in a creek. That's the foundation of a healthy relationship with the outdoors and a way to spark a conservation ethic."

The event—sponsored by The Conservation Fund—explored the problems associated with the separation of young people from the natural world. Breakout sessions during the event allowed participants to share viewpoints, challenges and solutions and outline first steps to implement strategies to improve children's lives and ensure a healthy outdoors for them and their descendants.

The Service is currently involved in many programs and activities that connect children with nature.

From San Francisco Bay at the Don Edwards San Francisco Bay National Wildlife Refuge, where students sample brine shrimp in the salt ponds or wander on trails with their parents, investigating bird and plant life; to the Chesapeake Bay Field Office, where students create Schoolyard Habitats right outside their classroom door, with guidance from Service staff.

Young people participate in the reintroduction of the endangered Karner Blue butterfly, by growing seeds and planting lupine in the Concord, New Hampshire pine barrens and the "Kids in the Creek" program gets high school students in Chelan County, Washington, to assess stream health by identifying aquatic insects. Students actually "go to school" for a semester at the Prairie Wetlands Learning Center in Fergus Falls, Minnesota, and learn all of their traditional subjects in an outdoor learning environment. These are among dozens of Service programs that get children outdoors, while accomplishing important wildlife habitat goals and generating wonder and respect for natural resources. *Fish & Wildlife News* will highlight some of these in an upcoming issue. □

Joshua Winchell, Public Affairs, Washington, DC



(From left) Thad Bingham, Travis Francis and Brian Scheer with offspring Bailey, Tristan and Peyton.

JUSTYN HOCK / U.S. BUREAU OF RECLAMATION

Something in the Water

Three biologists with the U.S. Fish and Wildlife Service, responsible for raising thousands of baby fish, now have a few more young ones to care for.

Each spring Thad Bingham, Travis Francis and Brian Scheer are responsible for overseeing the spawning and raising of thousands of baby razorback suckers at the Upper Colorado River Endangered Fish Recovery Program's Grand Valley Endangered Fish Facility, located north of Grand Junction, Colorado.

This past spring, they had babies of their own. Bingham's daughter, Bailey, was born April 26, Francis' son, Tristan, came May 11, and Scheer's daughter, Peyton, was born May 17.

While raising their own children is the most important job the trio will ever have, the biologists say the babies they're raising at work are pretty important, too.

The razorback sucker has been around for nearly a million years and is only found in the Colorado River Basin.

"These fish are an indicator species," Francis said. "They indicate the health of the environment around them. So if they're not doing well, there is obviously something wrong with the environment that needs to be corrected."

The Grand Junction Hatchery was built in 1996 to raise the endangered fish and eventually maintain a self-sustaining population of razorback suckers in the Colorado River Basin again. The recovery program requires that 14,500 razorbacks be stocked annually.

There are 94 tanks at the hatchery where baby razorback suckers are raised for 12 to 14 months. For the first six weeks, the fish are fed by hand. As the fish get bigger, fish are separated to reduce the numbers per tank. >>

Corrections

The photo on page 21 of the Summer 2006 issue was taken by USFWS staff on on Izembek National Wildlife Refuge. The bird is an eider, not a shorebird. On page 29 of the same issue, a retirement announcement for Pacific Region Outreach Specialist Susan Saul incorrectly stated that she served 20 years for the Service. She served 33.

(Water, continued)

The goal of the hatchery is to raise the fish to a length large enough to survive when introduced to the wild. Once they've reached that size, the fish get placed in "grow-out" ponds around the valley where they stay for six months.

Grow-out ponds allow the fish to adapt to the wild slowly, and to learn how to forage on their own in a predator-free environment.

"Essentially it's a stepping stone to the river," Francis said. "We're putting them in the wild without the additional stress of the current."

In the fall, the razorback suckers

are captured out of the ponds to be stocked in the Colorado and Green rivers.

The biologists say there are parallels to rearing fish and raising babies.

"They both need to be fed a lot and have to be cleaned up often," Francis said.

"About the only difference," added Scheer, "is the fish don't cry." □

Sharon Sullivan, The Grand Junction Free Press

This article was excerpted with permission from the Grand Junction Free Press.

Fish Story

Armed with nets and optimism, biologists from South Dakota Department of Game, Fish, and Parks, Army Corps of Engineers, and the U.S. Fish and Wildlife Service braved cold and blustery temperatures this fall to see if endangered pallid sturgeons still swam in Lake Sharpe near Pierre.

Although there have been occasional reports of sturgeons in the lake, no one knew for certain if any still survived or if they could be caught. The group was rewarded with five pallid sturgeons estimated to be between 40 and 50 years old. The sturgeons ranged from 13 to 20 pounds and 3 to 5 feet in length. Native to the Missouri River, pallid sturgeons are one of the oldest living creatures on earth with a history goes back millions of years.

Thanks to the combined efforts of the three agencies, the captured



Service biologist Greg Wanner with a pallid sturgeon caught in Lake Sharpe.

pallid sturgeons will provide an opportunity for scientists to learn more about the genetic makeup of the fish and add to the genetic diversity of the brood fish. Since 1994, more than 100,000 juveniles have been propagated and restocked into the Missouri River.

Now residing at the Service's Gavins Point National Fish Hatchery near Yankton, South Dakota, the pallid sturgeons are being pampered in hopes that they will spawn next spring.



Rainwater Garden

In between the largest mall in the country and the largest airport in the upper Midwest, lies one of only four urban wildlife refuges in the nation—but that's not all that makes the Minnesota Valley National Wildlife Refuge unique. Minnesota Valley is the first refuge to use a retrofitted rainwater garden to treat rainwater on site.

A rainwater garden consists of a depression that serves as a holding area for runoff from rain on developed surfaces, such as driveways, sidewalks and parking lots. The runoff can carry pollutants such as fertilizers, pesticides, yard water and sediments. Native perennial plants are planted in the basin of the rainwater garden and their deep root systems serve as conduits for the runoff to infiltrate through the soil removing the pollutants, recharging groundwater supplies and completing the earth's natural water cycle.

Though contractors broke ground in late June and

completed the project the second week of July, plans for the rainwater garden began developing four years earlier.

When the refuge visitor center was built in the 1990s, it was not common practice to treat water runoff at the source, so water from the parking lot flowed into the Minnesota River, adding to the river's degraded water quality. That was until Refuge Operations Specialist Terry Schreiner started looking in the northern metro areas, which had been installing rainwater gardens in ditches in yards of new residential homes.

"We are one of the first refuges that I know of to use a rainwater garden to retrofit a conventional storm water treatment system," Schreiner said.

The garden will be filled with native prairie flowers during the growing season, but it is not just a feast for the eyes. The refuge also integrated the garden into its environmental education program, which reaches 34,000 annual visitors. Interpretive signs will explain how the garden works and why it is important.

“It is crucially important for an urban refuge to contribute because we have access to phenomenal resources and we have so many people we can reach,” said Refuge Manager Patricia Martinkovic. “We need to educate and inform the public that they can do the same things for the environment, just on a smaller scale.”

The Friends of the Minnesota Valley helped coordinate funding for the project from the Metropolitan Council, the Hennepin Conservation District, the Lower Minnesota Watershed District and the Fish and Wildlife Service. Lori Nelson, executive director of the Friends of the Minnesota Valley, said the group was proud to play a role in the project.

“It (rainwater garden) is a good example of a cooperative project that is typical of what can happen when you can get partners involved,” Nelson said. “It is a leading example for conservation groups as well as citizens in the community.”

Minnesota is fortunate to have an abundance of lakes, but since many of these lakes are in urban areas, the storm water runoff needs to be treated at ground level. The Minnesota Valley refuge is proof that existing storm water systems can be turned into aesthetically pleasing and environmentally friendly systems that reduce the runoff impact on our lakes, rivers and wildlife habitat. □

Robin Schreiner, University of Minnesota journalism student

Threatened Seabird Benefits from Oil Spill Settlement

Last August, the Fish and Wildlife Service, National Oceanic and Atmospheric Administration (NOAA), Washington Department of Ecology (WDOE) and the Makah Indian Tribe—all Trustees for the Tenyo Maru oil spill restoration—joined in announcing the protection of 900 acres of coastal forest habitat critical to the survival of the Federally protected seabird, the marbled murrelet.

The \$4.7 million used to purchase the property resulted from one of Washington’s most devastating oil spills. On July 22, 1991, a Chinese freighter carrying more than 400,000 gallons of oil hit the Japanese fishing vessel Tenyo Maru, sinking it in 540 feet of water, approximately 23 miles off the northwest coast of Washington at Cape Flattery. More than 100,000 gallons of oil were spilled.

The oil killed thousands of seabirds and fouled miles of pristine beaches along the Washington and Oregon coasts. Washington beaches involved were primarily Makah Indian Reservation and Olympic National Park. Two of the areas now being set aside for seabird habitat occur on the Makah Reservation and the third has become a part of the Willapa National Wildlife Refuge.

“It was like a nightmare,” said Makah Tribal Chairman Dr. Don Johnson, who hosted the ceremony at the Neah Bay Marina. “We understood the movement of the oil and [that] it was a fairly significant amount of bulk #2 oil—the worst kind to be



GUS VAN VLIET

A marbled murrelet, one of the many types of birds affected by the Tenyo Maru oil spill.

coming across our area. We were concerned about the pristine nature of the beaches.”

Johnson held up a small olive shell, a rare shell that occurs along the Makah reservation coastline that he had saved from that horrible time. The shell was partially covered in oil.

“[The Makah] have been imprinted in a way—over thousands of years—having lived here and derived a living here,” he said. “We understand the rhythms of the natural world in our area. And so we had a deep desire to protect it and keep it going.”

Vince Cook (Makah Indian Tribe), Dick Logan (Washington Department of Ecology), Gail Siani (NOAA, Seattle), and Cindy Schexnider (Service Western

Washington Fish and Wildlife Office in Lacey, Washington) served as the Natural Resource Damage Assessment and Restoration (NRDAR) Trustee Committee. The Trustees’ efforts were aimed at compensating the public for the losses that resulted from the oil spill. This was one of the first times that the Federal Oil Pollution Act, under which the NRDAR process is invoked, had been implemented.

To replace or provide a functioning and sustainable ecosystem in the area where the oil spill injuries occurred, the NRDAR Restoration Plan placed special emphasis on enhancing populations of seabirds and kelp beds, protecting habitats that are biologically rich and not permanently protected, and providing education to boaters, kayakers, pilots of small aircraft and others who use areas near sea bird colonies and delicate marine environments.

To reach the plan’s goals, the Trustees:

- Funded the purchase of one parcel of land for management by the Willapa National Wildlife Refuge;
- Purchased the conservation rights on two parcels of land on the Makah Indian Reservation for 200 years—one parcel at Anderson Point and one in the Waatch Valley;
- Conducted marbled murrelet nesting surveys to increase regulatory protection on almost 3,000 acres of old growth habitat; >>

(Seabird, continued)

- Provided initial temporary funding to station an emergency towing vessel to the Strait of Juan de Fuca;
- Printed and distributed 6,000 educational posters to marine supply stores and ports;
- Installed 11 large panels at coastal marinas along the Oregon coast; and
- Placed informative kiosks “ at two popular trailheads in Northwest Washington, one at Cape Flattery and the other at Shi Shi beach.

“The biggest challenge in doing this natural resource damage assessment was that the Oil Pollution Act was very new when the spill occurred. There were a lot of things we had to overcome; we had a big learning curve,” Schexnider said. “When you work across cultures like we do when we go with the Indian Tribes, it takes a little bit longer to build those partnerships and understanding of each others processes.”

But the hard work paid off—for the Makah Tribe, the public, and the generations of people yet to come to the beautiful Northwest shores of the United States. Most of all, it will pay off for the many Pacific Northwest species of wildlife that depend on old growth forests and clean water for survival. □

Taylor Pittman, Information and Education Specialist, Lacey, Washington

Saving Trees at Pelican Island

Florida developer Paskor Properties, LLC, donated more than 150 mature trees to Pelican Island National Wildlife Refuge this summer instead of cutting them down.

The developer’s property borders the refuge on three sides, with the fourth side fronting Highway A1A across from the Archie Carr National Wildlife Refuge. With a little help from the refuge friends group, the Pelican Island Preservation Society, and the Service, the trees were transplanted for \$30,000.

The trees included 143 sabal palms and 12 live oaks. Each tree was scooped out of the ground by its roots from the construction site and moved several hundred feet to the refuge. The trees were planted on the barrier island portion of the refuge between the Atlantic Ocean and the Indian River Lagoon.

Pelican Island, the first national wildlife refuge, was established by President Theodore Roosevelt in 1903. Back then, Pelican Island was the last brown pelican rookery on the east coast of Florida. Today, the island is thriving as a major rookery for an assortment of colonial water birds. Since the original establishment of the island, the refuge has grown to include more than 5,400 acres of

JOANNA TAYLOR / USFWS



A live oak tree is scooped out of the ground from the developer’s site and makes its way to its new home at Pelican Island National Wildlife Refuge, just hundreds of feet away.

surrounding mangrove and spoil islands, submerged lands in the Indian River Lagoon and former citrus groves on the barrier island uplands.

The refuge is restoring native wildlife habitat on hundreds of acres of grapefruit plantation land, and is looking for innovative partnerships to help. Transplanting mature trees can jump start the refuge’s restoration plan. So far, the survival rate is better than expected for these newly uprooted trees. All of the 143 palms and 75 percent of the live oaks are thriving in their new protected home.

In addition, the refuge and Paskor have arranged a land swap of conservation and drainage easements to protect a mature maritime hammock on the developer’s property. In exchange for a 0.3-acre maritime hammock, the refuge granted a 0.3-acre drainage easement to the developer on cleared refuge lands. Allowing the developer to build a drainage swale on the cleared land will allow the refuge to save and protect the remaining maritime hammock on the developer’s western boundary. □

Joanna Taylor, Refuge Ranger, Pelican Island and Archie Carr National Wildlife Refuges

Hands-On Learning

Oklahoma's Tishomingo National Fish Hatchery and Tishomingo National Wildlife Refuge teamed up in September for a day-long celebration of National Fishing and Hunting Day. About 250 to 300 people, a third of whom were children, participated in the morning events at the fish hatchery. Dr. Stuart Leon, Chief of the National Fish Hatchery System hosted the opening ceremonies. The Choctaw Nation presented the colors, followed by a welcoming speech by Dr. Mamie Parker, Assistant Director of Fisheries and Habitat Conservation.

Children and adults alike took part in a variety of activities. A master-caster from the Federation of Fly Fishers offered fly casting lessons. The Oklahoma Fish Stickers jointly with the Native Fish Conservancy showed how to bow-fish from stands positioned over large fishless tubs of water. A few feet away participants marveled over a huge alligator gar while they learned about a diminishing range and increasing conservation need of the second-largest freshwater fish in North America. This brood fish held at the hatchery was on the small side at six feet long; they are known to reach 13 feet long and 300 pounds.

Around the hatchery grounds participants saw displays from the Chickasaw National Recreation Area, Partners for Fish and Wildlife, and a "hands-off" display of alligator snapping turtle from Oklahoma State University. Turtle researcher

Day Ligon showed off a few of the turtles he's studied at the auspices of the hatchery. He and hatchery staff have successfully bred the turtles in captivity and Ligon now follows alligator snapping turtles implanted with radios released at Sequoyah National Wildlife Refuge in Oklahoma.

Later in the day at Tishomingo National Wildlife Refuge, the National Wild Turkey Federation offered lessons in calling in gobblers, the Archery Trade Association offered attendees of all ages instruction in shooting 3-D targets, and professional wildlife photographer, Bill Horne, offered tips on composing better images of the outdoors.

"We united our partners and friends and brought smiles to faces of children," said Refuge Manager Kris Patton. "The future depends on future generations supporting conservation and the refuge system, and this event portends a bright future indeed."

National Hunting and Fishing Day was established to recognize the contributions that hunters and anglers have made to conservation in the United States. More than half of the 545 National Wildlife Refuges support hunting and fishing programs and nearly all of the 70 National Fish Hatcheries produce recreational fish species. The Tishomingo event was co-sponsored by the Wonders of Wildlife Museum in Springfield, Missouri. □

Craig Springer, Fisheries and Habitat Conservation, Albuquerque, New Mexico



Oklahoma State University researcher Day Ligon gets up close and personal with an alligator snapping turtle during National Hunting and Fishing Day at Tishomingo Hatchery and Refuge. "They'll eat just about anything they can put in their mouth," Ligon says.

Guidelines for Photo Submissions



Because many images submitted to *Fish & Wildlife News* are in digital format, here are a few guidelines that can help you take better photos.

A high-quality digital camera (preferably 4 megapixels or higher) can produce a print-quality photo as long as you use the highest resolution and largest dimension settings.

Settings will differ depending on the camera, but you should be able to easily select the right ones (high resolution is sometimes labeled as "superfine"). If you are not sure whether your digital camera can produce high-resolution images, please use a conventional camera with slide or print film. We will return your photos as soon as possible.

Thanks for helping us maintain quality FWS publications.



A rusted production tank serves as a reminder of Hurricane Rita's fury.

After the Storm

More than a year ago, Hurricane Rita roared through Sabine NWR, dumping tons of debris into the marsh. Today the refuge is slowly healing.

By Tom MacKenzie and Diane Borden-Billiot

Photos by Tom MacKenzie

Months after the storm, the scars remained. Piles of dead vegetation the size of football fields; oil production tanks the size of 18-wheelers; refrigerators, teddy bears, flip flops, shampoo bottles—anonymous remnants of life before October 2005, when Hurricane Rita ripped through Sabine National Wildlife Refuge on Louisiana's Gulf Coast.

Rita's 15-foot storm surge demolished coastal towns like Holly Beach and Cameron and turned this wildlife haven into a toxic trash heap. Service Director H. Dale Hall, who surveyed the damage at Sabine during a June visit to the Gulf Coast region, could only watch in silence as he toured the area via airboat.

"It was like visiting a family member in the hospital—you could feel the pain of the marsh," Hall later told Service employees at the Louisiana Ecological Services Office in Lafayette. "I know she'll heal, but it still hurts to see it."

Rita not only ravaged the refuge's marshes, but it also damaged beyond repair a number of offices, support buildings and the visitor center that had hosted 300,000 visitors a year before the hurricane hit.

Almost one fourth of the 125,511-acre wetland refuge was filled with the widely scattered remains of homes, businesses, and industries from along Louisiana's coast. The seven million cubic meters of debris found on Sabine equates to 250,000 dump truck loads. The Service and its partners have been working to remove the debris and recover the valuable marsh habitat, which had been credited with saving inland communities by reducing the storm surge.

A post-hurricane assessment identified 1,400 items containing an estimated 115,000 to 350,000 gallons of hazardous liquids and gases inside propane tanks and huge fuel tanks blown throughout refuge wetlands. During the past year, many had sunk in canals and beneath the moist soils of the marsh.

After Hurricane Rita, FEMA had the U.S. Army Corp of Engineers and the U.S. Environmental Protection Agency clean up neighboring Cameron Parish, but the Stafford Act prevented them from working on Federal property. The highly technical—and possibly dangerous—recovery of identified hazardous materials was estimated to cost millions of dollars to remove, which the Service did not have. On June 15, 2006, President Bush and Congress approved a \$132.4 million emergency supplemental fund for the Service for clean-up and hurricane-related repairs throughout the Southeast. \$12 million from this supplemental is being used for the current clean-up operation,

which as of Fish and Wildlife News' November deadline was expected to be wrapped up by the end of 2006.

"The scope and complexity of this recovery effort is unprecedented," says Don Voros, Project Leader of the Southwest Louisiana National Wildlife Refuge Complex. "We've made excellent progress to make this refuge safe for the public and for the wildlife."

An Incident Command staff composed of the Fish and Wildlife Service, U.S. Environmental Protection Agency, U.S. Coast Guard, and Tennessee Valley Authority employees assembled in July 2006 to oversee the Sabine clean-up operations. Shortly after, the Service contracted with Clean Harbors Environmental Services to remove the debris.

It takes thoughtful planning and specialized equipment to safely remove hazardous debris from sensitive wetland areas, and that job is a whole lot harder without road access. Service staff and wetlands specialists plan the recovery of each item in a safe manner that does the least amount of damage to the wetlands.

The clean-up team includes up to 140 recovery workers operating more than 40 highly specialized pieces of equipment. Equipment used to accomplish the mission requires a fascinating array of special purpose equipment which might look more familiar to a Mad Max movie set: single, double, and triple engine airboats, airboat cranes, outboard boats, pontoon barges, long and short reach excavators, marsh buggies and draglines, four wheelers, vacuum trucks and other miscellaneous equipment.

As of December 2006, the container recovery unit had collected more than 12,000 items from the marshes from debris fields along a seven mile portion of the refuge. The first container recovered was a leaking 55-gallon drum of oil sighted during an aerial reconnaissance and removed last August.

The clean-up of the hazardous tanks requires delicate handling throughout each step of the recovery. These are the

steps to recover one 55 gallon tank: First, it is discovered with an aerial over flight or from airboat observation. Then teams operating specially-equipped airboats carefully lift the container from the marsh and place it aboard another airboat. The airboat hauls the container, possibly by itself, possibly with other debris the one or two miles to an offload site within the marsh. There, it is loaded aboard a large tow or three-engine airboat or possibly a barge for the two-mile trip to a staging area over the marsh and along a canal. A large crane then uploads the recovered containers and other debris onto a truck, which takes it along a single lane dirt road to another holding area with secondary road access. There the freon, or other gases, fuel or other liquid is extracted from the item in a controlled and secure area. The items are then sent to a recycler for scrapping.

The most hazardous materials collected so far have been propane, antifreeze and gasoline tanks. The largest tank removed had a 30,000-gallon capacity, but contractors have routinely pulled 20,000 gallon oil production tanks from the marsh. As these large containers are brought into the collection site, owners are being contacted to pick them up. So far, all have agreed to reclaim the tanks, at substantial savings to taxpayers.

After the immediate debris clean-up is finished, the roads, restrooms and other facilities will still need to be reconstructed, which could take an additional six months or longer.

"We hope to have portions of the refuge open by next summer," Voros says.

Voros adds that the Service will have an ongoing monitoring program to be prepared for any items not found during the initial recovery effort which may be later discovered and might pose a threat to public safety, wildlife or the environment. □

Tom MacKenzie is Chief of Media Services in the Southeast Region. Diane Borden-Billiot is Refuge Outreach Coordinator for the Southwest Louisiana National Wildlife Refuge Complex



Service Director Dale Hall (right) tours Sabine National Wildlife Refuge with refuge wildlife biologist Roy Walter.

Refuge Refuse

Items recovered as of December 2006

- 397 containers smaller than a 55 gallons drum
- 752 containers the size of a 55 gallon drum or slightly larger
- 87 tanks the size of refrigerators
- 43 tanks the size of refrigerators to large 18-wheelers
- 294 large propane tanks
- 171 reusable stainless steel containers called totes
- 70 gas and or helium cylinders
- 8,744 household hazard waste items such as paint cans and cleaning supplies
- 1,190 refrigerators, washers and dryers
- 68 electronic items or electronic goods like televisions and computers
- 138 tires
- 363 miscellaneous items including ATV's, jet skis, boats, and transformers

12,317 total items

walking wetlands

A wetlands rotation program at Tule Lake National Wildlife Refuge enhances wildlife habitat and farm production.

By Kathy Coatney

Migratory waterfowl that make an annual stopover at Tule Lake National Wildlife Refuge are once again increasing in number after several decades of decline, and the area's farmers and ranchers are largely responsible for that recovery.

Established in 1928, Tule Lake National Wildlife Refuge in northern California was once considered the single most important waterfowl refuge in North America, providing a home to more than 2.5 million ducks and 1 million geese.

During the ensuing decades, the number of waterfowl at the Northern California sanctuary dropped to a mere fraction of what migrated through the area in the 1920s. But those numbers are increasing again thanks to the cooperative efforts of local farmers and ranchers, the Tulelake Irrigation District, the U.S. Fish and Wildlife Service and the U.S. Bureau of Reclamation.

Beginning in the late 1990s, the groups involved began an experimental wetlands rotation on commercial farmlands within the Tule Lake National Wildlife Refuge. When initial results showed enhanced soil

fertility and reduced pest populations, the program was expanded into the Walking Wetlands Program.

The program was so named because the wetlands rotate from field to field on a set schedule. Each field stays in wetlands for three years, after which the water is drained and the field is planted with an agriculture crop.

One of the program's most enthusiastic participants is Tule Lake farmer Marshall Staunton, who with his brothers, Sid and Ed, produces a variety of crops at Staunton Farms.

Staunton recalls that he planted barley in his first field out of the Walking Wetlands Program and noted that the crop had a very high yield. He also reported improved fertility and a zero nematode population in the field.

"The next year we planted potatoes and had the University of California run a sample out in our field, and the yield was very high. And we did not have to go to the expense of fumigants, so we became highly interested at that stage, and it's worked," Staunton says.

As growers like Staunton examine the inherent advantages of the wetlands program, the environment continues to benefit as well. Every year in late April, close to a half-million Arctic Nesting Geese pass through the refuge basin, according to Ron Cole, Klamath Basin Wildlife Refuge manager.

This is the most critical time of year in the birds' life cycle, Cole says, because they must build up fat reserves for nesting. The agricultural land provides 100 percent of their diet during this period. In addition to the Arctic Nesting Geese, there are up to 250 other bird species in the basin.

"We wouldn't see those numbers (of birds) in the basin if it weren't for agriculture," Cole says. "I don't think farmers and

*Walking Wetlands
Program
participant
Marshall Staunton
shows land
being flooded
for wetlands at
the Tule Lake
National
Wildlife Refuge.*



ranchers have received their due recognition for the conservation practices that are sustaining these birds,” he says. “That contribution needs to be recognized, and if society feels that those kinds of birds in those big numbers are important, then they better recognize who is responsible for that.”

Meanwhile, the successes associated with the Walking Wetlands Program have created a friendly competition among growers.

“There’s been almost a bidding war” to enroll in the program, Staunton says.

Several farmers, including Staunton, have expressed an interest in incorporating wetlands onto their private lands if an economically workable program can be created.

Dave Mauser, a wildlife biologist with the Fish and Wildlife Service, says that the main problem with initiating a wetlands program on private lands is that when the growers’ land is in wetlands status, it is not providing any income.

Incentives help encourage growers to participate, he says.

“One thing that we’re doing is that we have a certain amount of farming on the refuges here, and so if a guy puts say 100 acres or 200 acres into walking wetlands on his own land, we compensate him with similar acreage with farmland on the refuge,” Mauser says.

Staunton and other farmers are trying to get the rules changed so that more growers can afford to put part of their acreage into wetlands. They propose rotating the fields on a two- to three-year basis as is currently done with the Tule Lake National Wildlife Refuge lands.

“Right now you can be paid to create wetlands, but they have to be permanent or long term,” Staunton says, adding that the ground must be set aside for 15 to 30 years, which from a financial standpoint is difficult for growers.

Extending the wetlands program to private land would also be costly. Because Tule Lake is mostly row crop

and sprinkler operations and there are no levees, the levees would have to be built to hold water on designated fields, Mauser says.

A grant through the Natural Conservation Resources Service has been requested. If funded, the grant would assist growers in creating a pilot wetlands program on their lands. A payment strategy through the Farm Bill would be another way to compensate farmers while their lands are in wetlands status, Mauser says.

The Walking Wetlands Program has resulted in increased levels of waterfowl, including species that have not been seen at Tule Lake National Wildlife Refuge in 25 years. “The program has created a win-win situation,” Mauser says. “Farmers get cleaner, more productive land while wildlife habitat increases.” □

Kathy Coatney is a reporter for the California Farm Bureau Federation. This article is reprinted with permission from the California Farm Bureau Federation.

Women on the Wing

Waterfowl are an international wildlife resource and women on both sides of the border are passionate about their protection.

By Marilyn Stone



THE STONE AGENCY

The Prairie Pothole region of the northern-central United States and south-central Canada is an important breeding area for many duck species.

Whitetail deer migrate 50 miles or less. Mule deer can migrate up to 150 to 200 miles. Despite their size, elk may travel less than 100 miles between winter and summer ranges. On the other hand, a three-pound mallard duck sometimes migrates thousands of miles from northern Alaska to Mexico.

State wildlife agencies manage species within their borders, but waterfowl's transcontinental migration routes require an international management team effort among the U.S., Canada and Mexico. In the U.S., the lead agency for waterfowl management is the U.S. Fish and Wildlife Service, which coordinates migratory waterfowl management with Canada and Mexico.

Each May a fleet of a dozen pilot-biologists take to the air to conduct the Breeding Population and Habitat Survey of waterfowl in the northern U.S. and Canada. The U.S. team counts ducks as they fly over ponds and wetlands on a pre-determined 180- to 200-mile transect line. Meanwhile the Canadian ground crew counts ducks in a sample section of some transects flown by the pilot-biologists.

Jim Wortham, chief of migratory bird surveys with the Service, sums up the importance of the international relationship, "It's great to get the Canadian biologists' perspective on the conditions of the waterfowl breeding grounds as we plan the May waterfowl breeding pair survey. We can study the satellite pictures and get the digital data from the Internet, but there's nothing like getting a report card from people with experienced eyes."

The survey, the brainchild of biologist Fred Lincoln, has been conducted the same way for more than 50 years. The Migratory Bird Treaty Act, an international treaty that protects waterfowl and other migratory birds in North America, informs the survey. No waterfowl-hunting season can occur in North America until Service statisticians crunch the numbers. It is the largest wildlife survey in the world.



Fred Lincoln probably wouldn't have imagined a woman sitting in the passenger's seat of one of the orange and white "duck planes," let alone piloting the aircraft. Times change. Now there are two women pilot-biologists who have joined this elite crew.

Breaking the Gender Barrier

Elizabeth Huggins, now stationed in Klamath Falls, Oregon, was the first female flyway pilot-biologist. A Service employee since 1988, she was hired by the Division of Migratory Birds in 1991.

No one in Huggins' family of glider aviators and outdoors people told her girls and women just weren't supposed to do certain things. Perched in front of the television, Huggins dreamed of becoming Wild America's host Marlin Perkins. For her 12th birthday, she asked for a lesson flying her grandpa's glider. She had to be propped up on the seat with blocks to keep her feet from dangling above the pedals.

To her dad and grandpa, pilots were pilots—period. Huggins learned everyone wasn't as gender-blind as her family, but that didn't mean she would let the world stand in the way of her dreams.

Huggins had already graduated from Humboldt State University in Arcata, Calif. and was working as a biologist in Alaska when she heard of her pilot-biologist dream job. It would take more training, including 500 hours of low-level flying, 900 hours of pilot-in-command hours, a commercial and instrument ticket so she could carry passengers, a multi-engine rating, a single-engine land and sea rating, plus three years of knocking on the door. She estimates it cost her \$10,000 to earn her wings as a pilot biologist.

Landing the job may have been tough, but the challenges weren't over. It was five years before she felt she had mastered the intricacies of the job, including conducting habitat assessments and tallying ducks by species and gender from 150 to 200 >>

"Ducks are hunted and need to be managed, so a lot of financial resources go toward waterfowl management and research," says Bollinger, who believes all wildlife is special, but has a special fondness for ducks.

The Right Stuff

It takes diverse skills, education and the right personality to join the elite group of Service pilot-biologists:

- Bachelor of Science degree in wildlife management or closely related field, but a Master's degree is preferred.
- Commercial pilot's license with instrument privileges, meaning the skill to fly by gauges instead of looking out the window
- At least 500 hours of flight time
- Documented experience and knowledge of waterfowl management principles and practices or closely related disciplines.

Like the technology the pilot-biologists rely on, preferred experience continues to evolve. Real-world experience in mapping technologies, water landings and seaplane ratings are all advantages. Technical skills aren't enough, though. Pilot-biologists also must possess the finesse and people skills to obtain hangar space, lodging, transportation and mechanical assistance whether it's in the U.S., Canada or Mexico.



“Ducks are our canaries in the coal mine for wetlands.”

Service pilot-biologist Elizabeth Huggins

(Women, continued)

feet in the air while piloting the plane at 90 miles per hour. Flying small planes never loses its challenge, however, especially navigating around the cell phone towers and power lines that make low-level flying so dangerous.

Huggins' survey area in Alberta covers part of the “duck factory,” the prairie provinces of Canada and the northern U.S. To hunters and biologists, it's the duck factory because of the astounding success of duck hens in raising their broods—when there's ample water. When the precipitation doesn't come, duck populations plummet into the other half of their perpetual boom-and-bust cycle.

Drastic population declines can be discouraging for biologists struggling to manage waterfowl in the face of weather beyond their control. At those times, Huggins remembers the boom part of the cycle and knows the ducks will return—when the habitat conditions are favorable.

As Huggins' crisscrosses Alberta from south to north, she works closely with Canadian ground crews, such as Sam Barry and Erin Whelan out of Drumheller.

Canada Connection

It's the ground crew's job to count every duck in their 12- to 18-mile long, quarter-mile-wide sample transect. Their count provides a visibility correction factor for the ducks the pilot-biologists miss flying at 90 miles per hour. For instance, if the ground crew finds 25 mallard ducks and the air crew sees 20, the statisticians know they need to add 20 per cent to the mallards counted by the pilot-biologists.

Barry and Whelan and their counterparts across Canada, rise each morning in the dark to reach the start of the day's survey by dawn. They must complete their sample transect by noon. In the afternoon, the ducks are loafing on shore, not feeding, making them harder to count and compromising the survey's accuracy.



Bollinger with a mallard at the Mills Lake Banding Station, Canada.

Thoroughness is crucial in the survey. The ground crew slogs through marshes in chest waders, yelling at ducks to spook them from their hiding places in the cattails. Sometimes they must climb up on the truck cab to see ducks in a flooded, grassy meadow with a spotting scope.

In southern Alberta, Whelan and Huggins survey prairie and agricultural fields, but the survey extends over the Canadian and Alaskan roadless bush as well.

Birds in the Bush

Karen Bollinger, a 26-year Service veteran now stationed in Fairbanks, Alaska, surveys the boreal forests of western and southern Ontario. She often flies without ground crew support since the ground crews can't travel these roadless transects.

“The boreal forests of Ontario are beautiful” she says. “There are numerous lakes interspersed throughout the forest. It's as important to survey those areas, especially because of their tremendous size, but they don't have the density of

ducks as the prairies do with contiguous marsh habitat. Also, different habitats are preferred by different species of ducks.”

Nesting success hinges in part on shallow bodies of water and precipitation to fuel vegetative growth for nesting cover.

“In the prairies, a lot of what drives duck populations is water—was it a wet year or dry year?” says Bollinger. “The boreal forest is a lot more consistent between years as to water, just because of the more permanent water bodies, such as the lakes, and so there’s not as much variation between years as to water conditions.”

However, some biologists believe the boreal forests help stabilize duck populations, boosting that habitat’s status in the big picture of waterfowl populations.

Bollinger knows her section of the survey plays a role, even if the prairie duck factory dwarfs the duck population of the boreal forest.

“Ducks are hunted and need to be managed, so a lot of financial resources go toward waterfowl management and research,” says Bollinger, who believes all wildlife is special, but has a special fondness for ducks.

Passionate Pioneers

Huggins and Bollinger have battled gender stereotypes, spent thousands of dollars and hundreds of hours just to qualify for a job demanding dangerous low-level flying, long hours and extensive travel from families to do a job they love. It’s not just for them, though.

“We’re collecting data that directly benefits the birds,” says Bollinger. “It makes a difference, and not just for hunters. People can identify with ducks. They can see ducks anywhere flying and landing on marshes. It’s pretty special.”

Whelan, the next generation of women waterfowl biologists, knows the Earth has

no political boundaries when it comes to ecosystem health. “Many of our rivers run into the U.S.” notes Whelan. “If we pollute or build a dam, it affects your water quality or the amount of water. It’s better to work internationally to fix a natural resource problem.”

But marshes and wetlands are disappearing as humans on both sides of the border pave over and plow up the shallow puddles where mallard hens once raised their broods of ducklings.

“Everything needs water,” says Huggins. “Ducks are our canaries in the coal mine for wetlands.” □

Marilyn Stone is a freelance writer specializing in people profiles, conservation and the social issues of hunting. She lives in Utah.

THE STONE AGENCY



A pintail nest and eggs.

The Ducks

More than 30 species of ducks breed in North America, in areas as diverse as the arctic tundra and the subtropics of Florida and Mexico. For many of these species, however, the Prairie Pothole region of the northern-central United States and south-central Canada is the most important breeding area.

The two most comprehensive and reliable sources of information about North American duck populations are the Breeding Population and Habitat Survey, conducted since 1955 and encompassing the Prairie Pothole region, boreal forests, and tundra habitats from South Dakota to Alaska; and the Midwinter Survey, encompassing the United States and portions of Canada and Mexico.

The Breeding Population and Habitat Survey is conducted during May and June when most

species occupy their breeding ranges. Pilot-biologists and observers in airplanes identify and count ducks on a sample of transects. Not all ducks are visible from the air, so some transects are resurveyed more thoroughly from the ground to obtain complete counts. This information is used to correct the air counts and obtain unbiased estimates of duck densities in these areas.

This survey, conducted by the Canadian Wildlife Service and the U.S. Fish and Wildlife Service, is among the most extensive and comprehensive surveys for any group of animals anywhere in the world. Survey estimates determine regulations for sport duck hunting by both Canadian and United States provincial, state and federal governments.

common ground

*Medicine and fishery
management merge—again.*

By Craig Springer

The parallel is too curious to be overlooked. James Henshall, M.D., had his home just a short walk away from his work in a Victorian two-story that still stands. There on the grounds at a national fish hatchery in Bozeman, Montana, Henshall hit his stride in the late 1800s—not practicing medicine—but directing fish culture operations as the superintendent of a fledgling federal hatchery.

Today, modern fish culture and medicine again merge at the Bozeman station where Henshall once lived and worked.

Henshall is probably best known as author of the classic *Book of the Black Bass*, which is still available at most any book store. In the book he wrote about the “eminently American fish” and its behavioral traits: “the arrowy rush” of the “gamest fish that swims.” Henshall waxed poetic about smallmouth bass and argued that the spotted bass did not exist as a distinct species. He gave up a career as a medical doctor for distinguished work in conservation and fish culture.

The Fish and Wildlife Service’s Aquatic Animal Drug Approval Partnership (AADAP) program is based at what is now known as the Bozeman Fish Technology Center. This national program is designed to generate, compile, and manage much of the complex information needed by the U.S. Food and Drug Administration (FDA), for one purpose—to get new aquatic animal drugs and therapeutics on the market and in use. No matter if the drug is to be used for treating parasitic infection in largemouth bass, gill disease in

walleye, or bacterial infection in salmon and trout—fish you might find on the end of your line or under plastic at the grocery—AADAP plays a major role in channeling that information to the FDA.

It’s an arduous process to get a new aquatic animal drug approved, and it can take years of research and millions of dollars. In some respects, getting new drugs approved for fish and other aquatic animals is more difficult than it is for people. That’s because people eat fish and shellfish. New drugs must effectively target specific diseases and disease-causing pathogens. They must also be manufactured at the highest quality, and be safe for the target species, the environment and for people—and all such claims must be supported by solid scientific data.

“With any new animal drug that’s been approved by the FDA, you know it’s met the gold standard,” says Dr. Dave Erdahl, AADAP’s director. “Getting useful drugs and therapeutics approved and into the hands of fishery managers and fish culturists results in healthy fish, healthy people, a healthy environment and a healthy economy.”

Recent examples of new drugs are worthy of note: The FDA approved formalin for controlling external parasites in all species of fish. The new animal drug Chorulon enhances fish propagation (it is used to induce spawning) and has utility in endangered species conservation. OxyMarine is a new skeletal marking agent. With it, fishery biologists can quickly, safely, and with low cost, mark fish en masse so that they can more effectively assess fish populations. In fall 2005, the FDA approved Aquaflor for catfish—the first new antibacterial drug approved in many years.

AADAP is a partnership; its scientists help coordinate the data generated from more than 130 entities composed of state and Federal agencies, Native American Tribes and private companies—all set on seeing new aquatic animal drugs approved.

The parallel continues. Henshall made a mark in fisheries conservation, and certainly influenced the pursuit of what is today America’s favorite game fish. AADAP’s work resounds in fisheries managed for public good or private gain. To learn more, visit <www.fws.gov/fisheries/aadap>. □

Craig Springer is a fisheries biologist in Albuquerque, New Mexico.



James Henshall, M.D., called this home. It's now home of the FWS's Montana Fish and Wildlife Management Assistance Office, located on the grounds of the Bozeman Fish Technology Center; along with AADAP.



Dr. Dave Erdaahl, AADAP director; holds a shovelnose sturgeon from the Yellowstone River. The fish is used as a surrogate to the endangered pallid sturgeon to determine dispersal patterns of larval fish drifting in the current.



Continental

Playa Lakes Joint Venture partners are working to restore wetlands in Jamestown Wildlife Management Area that provide critical migration habitat in north-central Kansas for high priority ducks, such as northern pintails, enjoyed by hunters and birdwatchers alike.

A flock of northern pintails glides gracefully above the gentle curve of Marsh Creek, then splashes down on open water bordered by tall autumn grasses glowing orange in the morning light. The birds join thousands of other waterfowl that have already arrived, following in the flight path of thousands of shorebirds and waterbirds that have come and gone.

Some birds arrive from breeding grounds in far northern Canada. Most will continue their journey south to winter in the southern U.S., Mexico, or South America, linking the states, landscapes, and countries they visit.

Marsh Creek is the main watercourse that traverses Jamestown Wildlife Area, a wetland complex in north-central Kansas. The area provides critical migratory habitat along the central flyway, connecting Nebraska's Rainwater Basin to the north with Cheyenne Bottoms and Quivira National Wildlife refuge to the south.

But the habitat is not what it used to be. The construction of two dams along Marsh Creek in the 1920s and 1930s altered the course of the stream, destroyed the intermittent nature of the wetlands, and resulted in sediment accumulation and dense cattails stands.

This past spring, a partnership of 10 public and private agencies, coordinated by the Playa Lakes Joint Venture, received a

nearly \$1 million North American Wetlands Conservation Act grant from the Migratory Bird Conservation Commission. The grant will fund a three-phase project to conserve 2,770 acres in the Jamestown Wildlife Area wetland complex.

“The Jamestown Wildlife Area represents an important cornerstone for migrating waterfowl and other birds, connecting the breeding grounds to the north with wintering grounds in the south. Once completed, this multi-phase project will provide a seven-mile corridor of wetland and native grassland habitat of tremendous wildlife value and spectacular beauty,” says project leader Scott Manley of Ducks Unlimited.

Managed by the Kansas Department of Wildlife and Parks, the project will acquire and restore wetlands and grasslands along Marsh Creek and its tributaries, helping restore water quality and minimum stream flows. Most importantly, it will secure habitat for high priority migratory waterfowl, such as lesser scaup, and other priority wetland-dependent birds such as sandhill cranes, short-eared owls, snowy plovers, and black terns.

Waterfowl conservationists celebrate the 20th anniversary of the North American Waterfowl Management Plan—and future restoration.

By Roxanne E. Bogart

Conservation

All across the continent, bird habitat joint ventures—regional public-private partnerships—are carrying out wetland conservation projects such as this. From the Atlantic Coast west to the mid-continent prairie potholes, from the Pacific coast south to Baja California, and from the long arc of the Gulf of Mexico north to the Great Lakes, each partnership's story is shaped by the natural, cultural, and political terrain of the region.

The joint ventures use an array of conservation strategies. They pool funds to acquire habitat for state or Federal management. They partner with landowners to conserve habitat on private lands. And they work with conservation district leaders to increase incentive payments and cost-sharing for farming practices that benefit wildlife.

Though each of the U.S. and Canadian bird habitat joint ventures is unique and self-directed, they all share a dedication to sustaining abundant waterfowl populations by conserving vast landscapes through partnerships that are guided by sound science—the mission of the North American Waterfowl Management Plan.

This year, waterfowl conservationists are celebrating the 20th anniversary of the original 1986 signing of the plan by the governments of Canada and the United States.

“The North American Waterfowl Management Plan created a new paradigm for wildlife management,” says Fish and Wildlife Service Director H. Dale Hall. “It ushered in an innovative era of continental bird conservation through biologically based, landscape-oriented partnerships.”

The 1986 plan represented a strategic response to scientific information about declining waterfowl populations and habitats. Surveys revealed that by 1985, waterfowl populations had hit record lows. Inventories found that 53 percent of the U.S.'s original 221 million wetland acres—habitat waterfowl depend upon for survival—had been destroyed and were continuing to disappear at a rate of 60 acres per hour. Surveys revealed similar habitat trends across Canada, where a large percentage of waterfowl nest.

International Cooperation

By 1985, 18.6 million people observed, photographed, and otherwise appreciated waterfowl and each year spent \$2 billion doing it. Recognizing the need for international cooperation to recover such highly valued migratory species, the U.S. and Canadian governments crafted the plan as a shared vision and framework for action. Mexico joined the effort in 1994 to complete the continental partnership.

Given the scope of the problem, the Federal governments recognized that private organizations and public agencies would need to pool resources and work together to restore habitat for the continent's waterfowl plummeting populations. Thus, the joint venture partnerships were born.

This year also marks the 20th anniversary of the Farm Bill's Conservation Reserve Program, which takes marginal land out of agricultural production to be used temporarily for conservation. These lands have proven extremely beneficial for high priority grassland breeding birds, including blue-winged teal, greater prairie-chickens, and Baird's sparrows.

The three countries updated the plan in 1994, 1998, and most recently, in 2004, each time refining and re-emphasizing certain aspects of the original vision to respond to new environmental challenges and a changing conservation arena.

Today's waterfowl conservationists are confronted with human population growth, increasing demands for energy, water, food, and fiber; urban expansion, invasive species, oil spills, chemical contaminants, and global climate change. The emergence of other bird conservation initiatives for landbirds, waterbirds, shorebirds, and resident game birds has created opportunities for broader partnerships, >>



Innovative technologies to monitor seasonal distribution, in particular the movements of ducks between concentration areas, have revealed the critical importance of key molting and wintering areas.

(Conservation, continued)

as well as the need for new funding sources for integrated bird conservation.

In September, the Plan Committee released a draft of the first-ever continental progress assessment of the plan for partner review. Developed by an independent review team, it highlights the excellent efforts of the last 20 years and outlines the work that remains.

According to the draft report, the waterfowl conservation community remains committed and better organized than ever before. The joint ventures have

stimulated an impressive amount of innovative habitat conservation, on more than 13 million acres of habitat in North America. Many waterfowl populations fluctuate currently near plan objectives or, in a

few cases, are overabundant. And species joint ventures for sea ducks, black ducks and arctic geese are providing clear guidance on changing research priorities.

But the job is far from done. Northern pintail and lesser scaup populations remain well below objectives and sea duck species, such as eiders and scoters, have experienced substantial declines. Limiting factors are unknown for a majority of sea ducks—species that historically have been poorly monitored.

Through the aggressive efforts of the Sea Duck Joint Venture, however, significant research progress is being made. Innovative technologies to monitor seasonal distribution, in particular the movements of ducks between concentration areas, have revealed the critical importance of key molting and wintering areas.

Most managers agree that continental population growth for key species of

dabbling ducks is largely limited by events on the Canadian and U.S. prairies. Despite plan accomplishments in this region, nearly 3 million acres of natural grassland in the U.S. prairies have been converted to cropland since 1985. More than five million acres enrolled in the CRP are due to expire by 2010—nearly 2.8 million in 2007 alone. This would reduce nesting cover in the Prairie Pothole Region to levels not yet seen. Moreover, wetland loss on the Canadian prairies since the 1970s is largely responsible for the decline in waterfowl reproductive capacity since 1971.

To meet population objectives for many species of dabbling ducks, partners will need to boost reproductive rates on the prairie breeding grounds by promoting beneficial agricultural policies and programs across this broad landscape.

The report goes on to state that, given declining habitats and resources, the need for scientific ingenuity has never been greater. The report challenges the habitat joint ventures not to ask ‘where can we work,’ but ‘where should we work’ and ‘how much habitat is needed?’

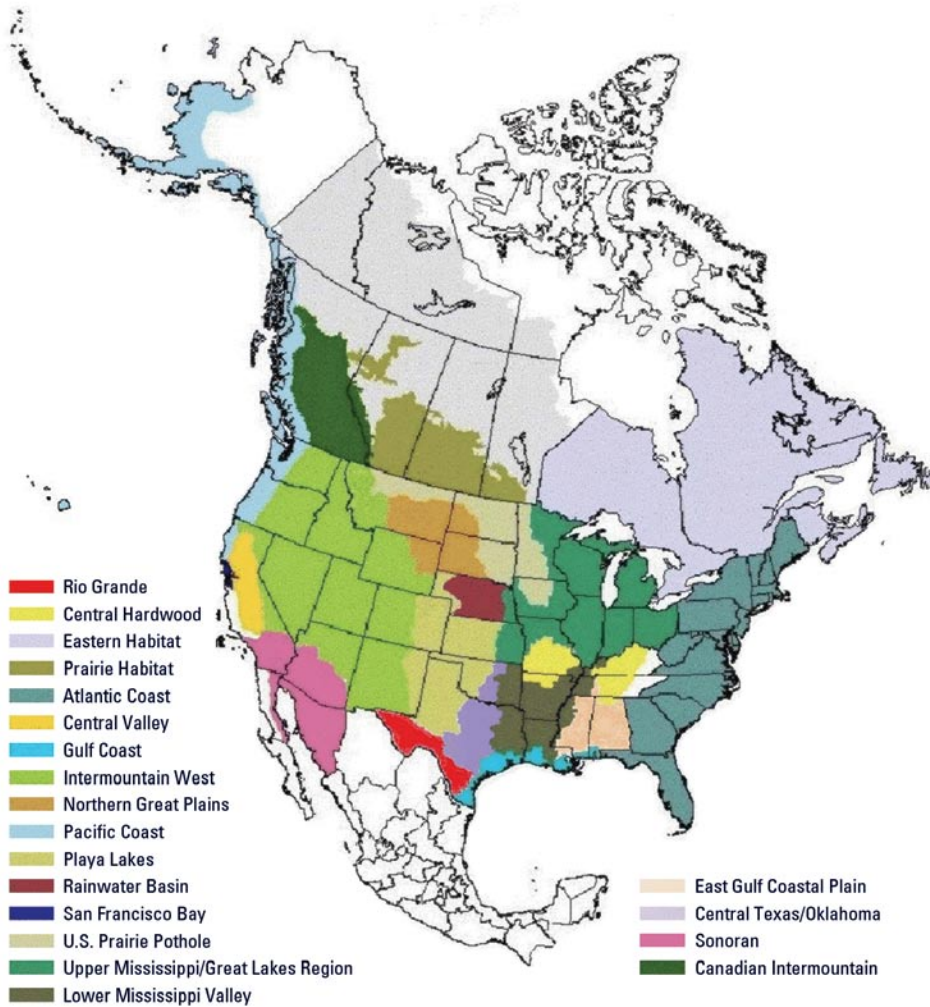
To answer these questions, the draft report recommends that all joint ventures develop spatially explicit, biologically based planning models that predict how on-the-ground actions affect vital rates or populations responses. With the advent of conservation design, joint ventures are well-positioned to develop the technological capacity to create and evaluate blueprints for sustainable landscapes for birds and other wildlife, working beyond both political and programmatic boundaries.

This anniversary year, waterfowl conservationists are not only celebrating their accomplishments, but looking strategically into the future to restore these remarkable migratory bird species for generations to come.

For more information visit, <www.fws.gov/birdhabitat/NAWMP/index.shtml>. □

Roxanne Bogart is a wildlife biologist in the Division of Bird Habitat Conservation

North American Joint Ventures



North American Duck Species of Continental Priority* High

- Mallard
- American black duck
- Lesser scaup
- Northern pintail
- Common eider
- Moderate-High
- Blue-winged and cinnamon teal
- American wigeon
- Canvasback
- Redhead
- Common goldeneye
- Long-tailed duck
- King eider
- Steller's eider¹
- Spectacled eider¹
- Black scoter
- White-winged scoter
- Surf scoter
- Muscovy duck²
- Masked duck
- Eastern Barrow's goldeneye³
- Eastern harlequin duck³
- Hawaiian duck¹
- Laysan duck¹

* NAWMP 2004 Implementation Framework: Strengthening the Biological Foundation

¹ Listed as Threatened or Endangered in U.S.

² Listed as Threatened or Endangered in Mexico

³ Species of Special Concern in Canada



Bridging

One hundred years of mining and smelting operations in the Coeur d'Alene Basin threatened the area's habitat, fish and wildlife.

Ecological Contaminants biologists help turn environmental hazards into healthy wetlands.

By Brian Spears



the Gap

When hazardous substances enter the environment, fish and wildlife can be injured. Perhaps no example is more evident on a local and national scale than in the Coeur d'Alene Basin in northern Idaho, one of the nation's largest Superfund sites. Plants, fish and wildlife using the area are threatened by exposure to heavy metal wastes generated by more than a century of mining. The specialized biologists of the Service's Ecological Contaminants (EC) program, however, are bridging the gap between Superfund contamination, cleanup and the Service's mission of restoring the health of our trust resources.

As late as the 1880s, the 1,500-square mile Coeur d'Alene Basin was rich with fish and wildlife. The Basin had abundant evergreen forests, cottonwoods and silver beeches and was home to deer, beaver, muskrat, otter, wolves, mountain lion, badgers, wolverines, moose, bear, numerous bird species and schools of trout. During the next 120 years, that would change.

Discovery of gold in the Coeur d'Alene River's North Fork in 1883 attracted thousands of prospectors and their families. While the gold rush was short-lived, the upper basin became the largest historic silver, lead and zinc mining district in the world, ultimately producing 7 million metric tons of lead, 30,000 metric tons of silver and 3 million metric tons of zinc. Impacts soon followed: mining wastes, including arsenic, cadmium, lead and zinc, were discharged directly into the river and its tributaries or were deposited on land, migrating into ground and surface water. The Coeur d'Alene River carried these contaminants west

into Lake Coeur d'Alene and into adjacent wetlands, and occasional river flooding deposited contaminated sediment throughout the 19,200 acre lower Basin floodplain. More than 100 million tons of soil and sediment were affected by mining. Waste rock, tailings, mine drainage, and contaminated flood plain sediments continue to pollute the ecosystem with extremely elevated metals contamination.

In 1983, the Environmental Protection Agency (EPA) placed the Bunker Hill Mining and Metallurgical Complex Superfund facility on the National Priorities List, in response to human health risks associated with mining-related metals contamination. In 1991, the U.S. Departments of Interior (Service and Bureau of Land Management) and Agriculture and the Coeur d'Alene Indian Tribe (collectively known as the Coeur d'Alene Basin Trustees) initiated a Natural Resource Damages Assessment (NRDA) to assess damages under CERCLA and the Clean Water Act.

This group documented that, among other things, approximately 18,300 acres (95 percent) of the lower floodplain contained lead levels above those observed to harm waterfowl, and approximately 15,400 acres (80 percent) contained lead levels above those observed to kill them. A comprehensive cleanup has been estimated at more than \$1 billion.

Despite its heavy-metals contamination, the Basin continues to be a major stopover for waterfowl migrating along the Pacific Flyway. Local waterfowl are exposed to lead and lead toxicity via ingestion of contaminated sediment while feeding. EC biologists have documented this as the cause of death in more than 10 waterfowl species, and the primary cause of death in tundra swans using the 5,362 wetland acres in the Lower Coeur d'Alene Basin as feeding habitat. Tundra swan deaths in the Basin have been documented since 1924, and continue today. Spring migration deaths, due to lead poisoning unrelated to lead artifacts (i.e., hunter lead shot), averaged 150 per year between 1981–2004. A population model developed to convert Basin tundra swan mortality to lost swan-years (based on a life span of 25 years, and lost first-year progeny) estimates that 40,000 swan-years were lost between 1981 and 2004, with future mortalities expected to continue. >>

Despite its heavy-metals contamination, the Basin continues to be a major stopover for waterfowl migrating along the Pacific Flyway.

(Gap, continued)

To partially compensate the public for resource injuries, EC biologists proposed providing waterfowl feeding areas within the Basin that included sediment below toxic metals concentrations. This meant restoring wetland structure and function, and thus safe feeding areas for tundra swans.

Service EC biologists aren't typically involved in Superfund Record of Decision (ROD) discussions. However, close EC involvement throughout the 1990s proved to be invaluable. They determined early on that the best way to jump start ecological restoration was to get this work included in the EPA's ROD for the lower Basin. Despite the fact that Superfund RODs usually deal with human health rather than wildlife concerns they were able to insert language requiring waterfowl feeding areas in the ROD. The ROD involving the lower Basin was signed in 2002, and specifies cleanup goals within the Basin. The goals provide for 4,500 acres of safe waterfowl feeding areas, which include remediating 3,000 acres of contaminated palustrine and lacustrine habitat, and converting 1,500 acres of agricultural land to wetlands.

Success Stories

A project on private property in the center of the lower Basin quickly became a major success story. Soil sampling in 1999 by EC biologists from the Spokane field office helped identify this farm and ranch as having high quality potential for inclusion in the Superfund remediation program. EC biologists facilitated discussions between the landowners, Ducks Unlimited and EPA to restore 380 of their historic wetland acres drained for farming. These discussions culminated in EPA's purchase of a perpetual conservation easement in April 2006, and an announcement of this innovative approach by EPA, the Service,

the Coeur d'Alene Tribe, the State of Idaho and Ducks Unlimited.

Since then, EC biologists have continued to provide multiple avenues of technical assistance to EPA, including more accurately determining the location and best way to remediate low-level metals contamination; identifying the best sources of clean water for perpetual wetland flooding purposes and technical aspects of long-term wetland function; reducing future wetland operations and maintenance costs; and helping address water rights issues and legalities of Superfund work. The Service has also facilitated pass-through technical assistance agreements from EPA to Ducks Unlimited for help in evaluating the area and providing input on designs for the most efficient, productive wetlands possible.

EC biologists are also helping to identify other areas suitable for wetland remediation and/or restoration in the Basin, with a focus on areas where hydrological alterations or other modifications have destroyed or impaired former wetland habitat. Because these activities are being conducted under the Superfund program, they are funded by EPA. This work helps EPA fulfill its ecological remedial goals, while spending very little Service funding to conduct valuable ecological restoration activities.

In addition, EC biologists are also Trustee representatives for the Service on the Coeur d'Alene Basin Natural Resource Trustee Council, which is proposing to spend NRDA settlement funds on a number of related restoration projects. For example, the Trustees are focusing on finding willing participants in acquiring land preservation agreements for high quality current or historic wetlands that, once restored or remediated, would improve water quality and ecological

diversity. EC biologists continue to lead the Basin NRDA process in developing opportunities to work with local and regional planning groups while coordinating with ecological remediation activities conducted through Superfund.

The Service relies on innovative EC approaches to conduct work in areas like the Coeur d'Alene Basin, where restoring wetlands in the middle of a highly contaminated Superfund site can provide healthy habitats. The vision that perhaps one day their work will help restore the wild spectacle that once astounded visitors to these unique areas is why the Service's EC biologists dedicate their careers to this vital work and help other agencies with public health responsibilities achieve success—for wildlife and people. □

Brian Spears is a Resource Contaminants Specialist at the Upper Columbia Fish and Wildlife Office in Spokane, Washington

By The Numbers

1 Number of Federal programs solely charged with ensuring the health of wildlife and the quality of their habitat (Service EC program)

500 Approximate number of hazardous waste cleanups completed on national wildlife refuges

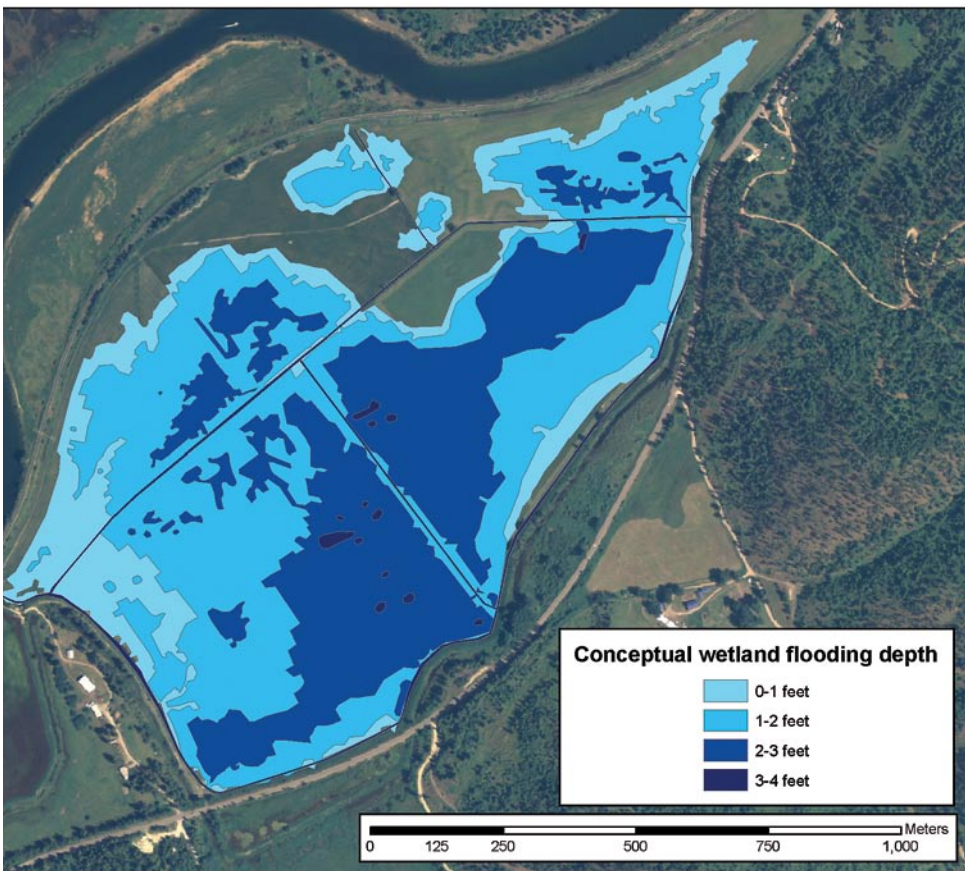
200 Approximate number of sites damaged by oil or hazardous substance spills assessed by EC biologists resulting in Natural Resource Damage Assessment restoration settlements

23,288 Number of wetland acres restored/enhanced by FWS during fiscal years 2004–06 through the EC related Natural Resource Damage Assessment process

58 Percent of FWS EC biologists currently working solely off non-FWS funded reimbursable salaries to accomplish the program's mission



Above: Dead tundra swans collected from a private property in the Coeur d'Alene Basin on April 19, 1997. The DOI estimates that approximately 150 tundra swans die from ingestion of lead contaminated sediment each Spring migration in the Coeur d'Alene Basin, Idaho.



Left: Service EC biologists continue to aid EPA in the cleanup and wetland restoration of a contaminated private property in the Coeur d'Alene Basin, including facilitating negotiations, providing toxicological technical assistance and helping develop conceptual flooding designs.



Fred Wetzel

*Fire Program Adviser,
National Wildlife Refuge System*

When Hurricane Rita ripped through the Gulf Coast last October, the Louisiana town of Holly Beach was literally pushed miles north. Houses, tractor trailers, oil drums and other remnants of civilization were left sinking in the once pristine marsh of Sabine National Wildlife Refuge. Many area homes—including those of refuge personnel—were heavily damaged. How did Service employees respond? What needs did they attend to first?

Fred Wetzel, Fire Program Adviser at the National Wildlife Refuge System's headquarters in Washington, DC who served as Incident Commander for the Service's response to Rita, has a straightforward answer: "Employees trained in all-hazard response first take care of themselves and families, then their neighbors and community," Wetzel said. "Once those needs are met, then employees can tend to the refuge."

When Rita hit, Wetzel was serving as District Fire Management Officer for refuges in parts of Alabama and Georgia and was stationed at Okefenokee National Wildlife Refuge. "Fire employees tend to be the first utilized in all-hazards because they are well trained and well disciplined for stressful situations," he said.

In Wetzel's new position, he is helping to develop training programs and expose Service employees outside of the fire program to take roles in the all-hazard arena. "In an all-hazard response, the causal agent for the emergency is hopefully over," he said. "One of the responder's jobs is to stabilize the situation and bring calm to the chaos."

All-hazard response refers to the list of calamities—such as earthquakes, hurricanes and terrorist attacks—to which Service employees may have to respond.

"Regardless of background, Service employees from the field to Washington want to help in time of need," Wetzel said. "I get to seek ways to provide training and find opportunities for employees to help in meaningful ways."

The fire community moves along a structured path of training and experience. Wetzel will be working with LeaAnne Thorne, Physical Security/Emergency Manager for the Service, during the next few years to develop all-hazard structure and training similar to the tried and tested "red-card" system fire employees know well.

"Fred's group and the fire community understands incident command and can design the necessary training," Thorne said. "This new all-hazards structure will coordinate boots on the ground and the Service's mission essential functions and facilities in times of emergencies."

Wetzel replaced National Fire Plan Coordinator Art Latterell, who recently retired. His job is to serve as a liaison between the Refuge Fire Management Branch, the National Wildlife Refuge System and cooperators from other Interior Department agencies and the

Forest Service. All-hazard aside, Wetzel said fire is still the core of his job.

"I want to make sure that where possible fire management is conducted on refuges," Wetzel said. "Nothing can replace fire in these ecosystems. Without a doubt, it is the most cost effective tool for managing habitat on refuges and reducing hazardous fuel." □

Nicholas Throckmorton is a Public Affairs Specialist in Washington, DC



Faces in the Field regularly features Service employees whose work is rarely publicized but is critical to the Service's mission. Send your profile suggestions to:

David Eisenhauer
Fish & Wildlife News, Room 3360
1849 C Street NW
Washington, DC 20240
<david_eisenhauer@fws.gov>

Scientific Inspiration

The importance of professional society membership and engagement

By Dan Ashe, Tom Melius, and Benjamin Tuggle

The three of us have followed somewhat different career paths, but we share at least one thing in common: Early in our careers, we each had influential mentors who were deeply engaged in scientific organizations. They valued their membership in a larger professional community, and they instilled that value in us. During recent discussions, we asked ourselves whether we are doing our part to pass such values on, and so, decided to team up and author an article for *Fish & Wildlife News* to better articulate our thoughts on the role and importance of professional society membership and engagement.

Why join a professional organization? Well, it seems to us that the Service's policy—outlined in a July 27, 1999 memorandum signed by then-acting Director, Dr. John Rogers —gets it right <intranet.fws.gov/region9/scienceadvisory/Memberships.htm>. Membership in, and participation in, scientific societies are essential to maintaining and strengthening the scientific competency and professionalism of our organization.

Neither persons nor organizations are islands. We belong to larger professional communities, and engagement with these communities enhances our capabilities in natural resource management; helps us recruit, maintain and retain a professional workforce; buttresses the public perception of the Service; and contributes to employee development, effectiveness, and morale. Through our personal involvement with professional organizations, we have come to believe that participation in scientific societies is an important dimension of professionalism.

Admittedly, we do not read every article in the *Journal of Wildlife Management* or *Bioscience*; we do not attend every annual meeting; and we no longer publish original research. However, the direct and intangible benefits of these professional affiliations are enduring and invaluable.

And despite the fact that sometimes it seems far too difficult for Service employees to do so, it is our agency's policy to support and encourage attendance at scientific society meetings. Again, the July 1999 memo is spot on. Professional meetings provide a forum for Service employees to present findings to their peers, meet colleagues, and hear about new methods, issues, approaches, and perspectives.

In September, the 13th Annual Conference of The Wildlife Society was held in Anchorage, Alaska and 60 Service employees were among the more than 1,500 total attendees. Overall, Service employees contributed 32 scientific papers and posters, facilitated numerous symposia and workshops, coordinated a variety of meetings and special events, served on the conference arrangements committees, and volunteered for tasks from staffing the registration desk to planning the farewell banquet. As Alaska Regional Director, Tom Melius attended nearly all of the Service's presentations, met with The Wildlife Society's Council, and spoke with colleagues and friends at the Department of Interior's reception. The engagement and professionalism of Service employees was evident in each presentation and poster, and in the efforts and countless hours of Service conference volunteers.



Similar employee engagement was demonstrated at recent conferences of the American Fisheries Society and the Society for Conservation Biology. The Wildlife Society's 14th annual conference will be held September 22–26, 2007 in Tucson, Arizona. Dr. Benjamin Tuggle, Southwest Regional Director, will challenge Region 2 employees to aspire to the high standard set by their Region 7 colleagues this past September and use this venue to share their findings and experiences.

The Southwest Region faces many challenging conservation issues, including the Mexican wolf and Sonoran pronghorn recovery programs; restoration and conservation of native desert fishes and amphibians; salt cedar and Chinese tallow control; karst ecosystem conservation; hurricane recovery in Texas coastal marshes and bays; and conservation of grasslands and associated wildlife. Dr. Tuggle will also encourage Region 2 project leaders and managers to consider scheduling regional meetings or symposia in conjunction with The Wildlife Society's conference, as happened recently when the California-Nevada Operations Manager, Steve Thompson, sponsored a CNO Symposium in conjunction with the annual meeting of the Society for Conservation Biology, in San Jose, California. >>

Of course, we have to be realistic. While we would like to see every Service employee engaged in a professional organization, our agency certainly cannot afford to send everyone to every meeting. The Service spent \$89,000, in a very tough budget climate, to support employee attendance at the recent 2006 TWS conference, a 100 percent increase over the expense for participation in the 2005 TWS conference. This took leadership and support from the Director and the Assistant Secretary for Fish and Wildlife and Parks. We can do even better in the days ahead, but we must improve our process and criteria for approving meeting attendance.

We want to ensure that employees have ample opportunity to attend professional meetings, and that greater preference is given to participation by field employees. To accomplish this, Deputy Director Ken Stansell recently directed establishment of a committee to develop a more effective approach to attendance at scientific meetings. The committee includes Dan Ashe, Bob Blohm, Pam Matthes, Teiko Saito, Eric Taylor, Greg Weiler, Tara Wertz, E.J. Williams, and Everett Wilson, and will complete its review and present recommendations to the Director by January 2007.

Many of us might remember the first time we attended a large professional meeting. We saw people who were giants in our profession. We were inspired. We were motivated. Now we owe it to ourselves, our employees, our organization, and our profession to allow others to share these experiences and to continue this tradition. □

Dan Ashe is Science Adviser to the Director in Washington, DC; Tom Melius is Alaska Regional Director in Anchorage; Benjamin Tuggle is Southwest Regional Director in Albuquerque, New Mexico

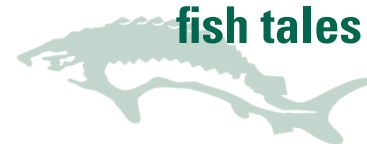
Take Off



A mixed flock of ducks take off at Chincoteague National Wildlife Refuge.

STEVE HILLEBRAND / USFWS

COURTESY, ACADEMY OF MOTION PICTURE ARTS AND SCIENCES

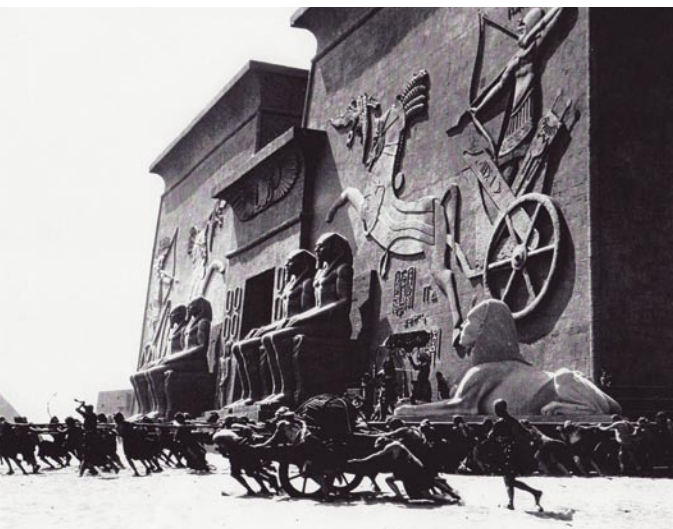


The Lost City

Remember the “4 Cs”?

Before former Secretary of the Interior Gale Norton begat “communication, consultation, and cooperation, all in the service of conservation,” the U.S. Fish and Wildlife Service already possessed the “10 Cs.”

The Ten Commandments, that is, which lie buried not beneath the Holy Land’s Mount Sinai, but next door to a national wildlife refuge on the California coast.



The story begins in 1923, as young, up-and-coming silent movie director Cecil B. DeMille sought an outdoor location for the filming of his classic film epic chronicling the Book of Exodus, in which the children of Israel flee Pharaoh Ramses and are pursued across the Red Sea in perhaps cinema’s most spectacular chariot chase.

The “City of the Pharaoh,” built in Guadalupe, California for Cecil B. DeMille’s 1923 silent epic, The Ten Commandments. Designed by French artist Paul Iribe, the future “father of Art Deco,” the set was over 100 feet tall and 700 feet wide. It included more than 500 tons of massive plaster statuary, most of which was buried when filming was completed.

DeMille settled on Guadalupe-Nipomo Dunes, a vast complex of sand dunes overlooking the Pacific Ocean near the small town of Guadalupe, California. It was one of the first attempts by DeMille to shoot on location, far away from Hollywood, with 3,500 actors and extras, backed by an army of 1,600 set designers, carpenters, and plasterers who labored in the California desert to replicate the ancient City of Seti, complete with 21 sphinxes, four 35-foot-tall statues of Ramses, and a commanding 110-foot-high set of massive city gates.

With DeMille near bankruptcy when filming ended—and environmental rules being what they were in the 1920s—the chicken-wire-and-plaster sets of this massive biblical city were dynamited and buried in the dunes, where the accumulated debris (including period costumes) moldered away for the next six decades, covered beneath five feet of sand by constant wind and gradually disappearing, too, from public consciousness.

Things began to change in 1983, when urban archeologists, led by filmmaker Peter Brosnan and archeologist John Parker, pinpointed DeMille’s buried

ancient city within a Santa Barbara County park, about two miles distant from what is now the Service’s Guadalupe-Nipomo Dunes National Wildlife Refuge. This sandy unit of the Hopper Mountain Refuge Complex was formed in 2000 as part of an ambitious effort by Federal, state, and local agencies to protect 18 miles of coastal dunes, their unique ecosystems, and several endangered species, chiefly the western snowy plover and the California least tern.

At one point, the excavation was perhaps the most active archeological dig in Egyptology (outside of Egypt); to date, a horse’s head, some bottles, various fragments of wood, and a plaster big toe (presumably Ramses’) have been recovered. Much remains buried; other plaster statuary probably has deteriorated beyond recovery. Although the actual dig is off-limits to visitors, various artifacts are on display at the Dunes Center in nearby Guadalupe.

Efforts to unearth and preserve DeMille’s rapidly deteriorating “lost city” were endorsed by The Nature Conservancy in 1988 when it first assumed management of the site and when the Bank of America (whose famous founder, Italian-American banker A.P. Giannini, originally backed DeMille in funding his silent epic) donated money in 1990 for an archeological survey of the site. Subsequent funding has been slow, but a “Friends of the Lost City” was formed in 1998 on the 75th anniversary of The Ten Commandments and a 2005 National Public Radio story turned a spotlight, once again, on the remnants of the eerie subterranean world.

“It’s amazing to see the draw of visitors who want to understand the ‘City of the Pharaohs’ and who want to visit the Dunes Center to examine the artifacts. It gives us a unique opportunity, too, to interpret the Refuge System, the dunes, and the amazing biological diversity of the area to new audiences,” says Chris Barr, Hopper Mountain’s deputy project leader.

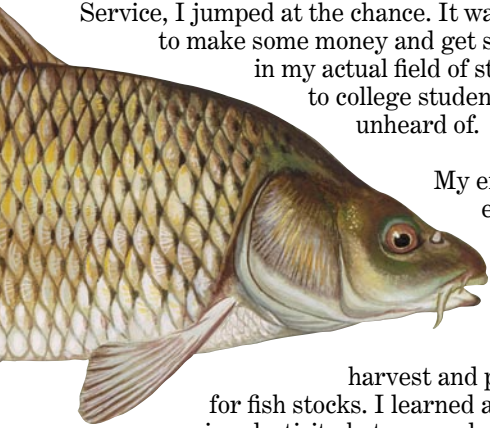
Perhaps the best window on the “Lost City” is the 1923 silent movie itself, which can be rented on DVD. Many film purists believe it is superior to the 1956 remake, which duplicated exactly the 1923 movie set (largely within a studio soundstage) and featured Charlton Heston as Moses. Commentary on the DVD version of the original movie by Katherine Orrison, author of several books on DeMille and motion picture history, provides a charming description of the silent movie set and its later discovery. □

This is the third in a series of short features about little-known aspects of the U.S. Fish and Wildlife Service by David Klinger of the National Conservation Training Center, Shepherdstown, West Virginia.

Carp(e) Diem

By Rowland Graus

This past June I found myself depressed after returning from a 10-day vacation in Barcelona. My parents had always taught me that a penny saved was a penny earned. They don't have that proverb in Spain. So when I was offered a summer position in the economics division of the Fish and Wildlife Service, I jumped at the chance. It was an opportunity to make some money and get some experience in my actual field of study—which, to college students, is of course unheard of.



My environmental economics class had prepared me to calculate economic rent, sustainable

harvest and producer surplus for fish stocks. I learned about the cross price elasticity between salmon and bass.

It even taught me why monopolies conserve fishery resources better than competitive industries. What the class did not teach me was what it felt like to try to carry two 30-pound carp past security in a congressional building.

It was August 2, the day before my 20th birthday, and it was hot—very hot. At least five times as hot as I was old. Kari Duncan, chief of the Branch of Invasive Species in Region 9, and I had been charged with bringing in a Bighead and Silver carp to be displayed at a congressional briefing in the Rayburn Building. The taxi let us off on the wrong side of the building, so we needed to walk all the way around it. Did I mention that it was hot? We carried the carp in a cooler filled with ice and taped shut, but I could still smell them.

Kari and I finally made it to the correct entrance. We set down the cooler outside the Rayburn building and stood for a moment before realizing that we were early. The person we were counting on to help us get in the door and through security wasn't planning to arrive for at least an hour, and he wasn't answering his cell phone. We wouldn't be able to get this big cooler past security for this government building on our own would we? The cooler was huge, certainly too big to be x-rayed. Even at an airport we would have been turned away in a second. So we made a decision.

When we finally got through the door, we confirmed that the cooler was indeed too big to fit through the scanner. It might have been just the right size to carry a bomb or two, though, as all five security guards appeared to notice instantly. The fact that I was very obviously holding my head as far from it as possible probably didn't help. One of the guards told us to put the cooler on to the table. We waddled over and hoisted it up with visions of being strip searched or otherwise embarrassingly apprehended. The lead guard removed the tape and got the cooler halfway opened.

"Yeah, that's fish," he said immediately. He quickly shut the lid and resealed it. All five guards backed away as we passed through.

When I took my summer job here I expected to gain perspective on what a career in economics was like. I got that, and came away with a life lesson far more important: Give a man a fish and you feed him for a day. Give a man two dead fish in a big box on a hot day and he can get in anywhere. □

Rowland Graus is a junior at the University of Virginia and intern for the Division of Economics, in Washington, DC

Send us your stories

Fish and Wildlife Service employees often are called upon to pitch in and do work that isn't covered in their performance plans, to put it diplomatically. Since many of these extra jobs also make good stories, *Fish & Wildlife News* invites you to share your most unusual tasks for this periodic series titled, "Other Duties As Assigned."

Please send a detailed description of your most memorable "other duties" (between 300 and 500 words) to: David Eisenhauer, Editor, *Fish & Wildlife News*, 1849 C St. NW, Room 3360, Washington, DC 20240. Fax: 202/219 2428, <David_Eisenhauer@fws.gov>

transitions

Marshall Jones Retires

Marshall Jones, Deputy Director and former Acting Director of the Fish and Wildlife Service, retired in January after an illustrious 31-year career that included major accomplishments in conserving some of the world's most imperiled wildlife.

Jones began his career with the Service in 1975 as a biologist and technical writer in the Endangered Species office in 1975. He was one of two endangered species biologists asked to work on the first CITES Conference in 1976, serving as what he describes as the "jack of all trades" for the Service. Jones worked on consultation and recovery actions in Washington, and served in a detail in the Mountain-Prairie Region before transferring to the Southeast Region in 1980. There, he helped set up the Regional endangered species program and led the first efforts to establish endangered species listing and consultation actions as a field office activity. He worked with states in Federal Assistance and then became the Regional endangered species division chief in 1985.

Jones returned to the Washington Office in 1987, serving as the Acting Chief of Ecological Services before being appointed to head the Division of Management Authority. In that position he worked hard to improve relationships with state fish and wildlife agencies, which had become frayed over bobcat trade issues. He also worked on U.S. policies regarding panda conservation and the 1989 U.S. moratorium on trade in African elephant ivory. He remained a leader of U.S. participation in CITES throughout his career.

In 1994, Service Director Mollie Beattie decided to combine all the Service's international activities into one program. Jones was selected as the first Assistant



AARON ARCHIBUDE / USFWS

Director for International Affairs. In this position he served as a gifted promoter for Service programs, and as a tireless advocate for the importance of professional fish and wildlife conservation programs throughout the world. He devoted himself to helping other nations learn from U.S. experience and providing assistance and training for their scientists. In the process, Jones says he learned a great deal about all Service programs, and he visited every national wildlife refuge that is a Ramsar-designated "wetland of international importance." During these years, the Service's international program successfully built and managed grant programs benefiting elephants, great apes, rhinos, tigers and neotropical birds.

Jones recognized that sustainable international conservation was fundamentally an economic issue, and developed and implemented strategies that provided economic incentives to achieve conservation objectives. This was exemplified by the broad international alliances that were forged under the Convention to promote the conservation of a host of species including African elephants, mahogany and sturgeon.

After a stint as acting Deputy Director, Marshall was officially named to the position in October 2000. He served as the agency's Acting Director for 13 months during the Clinton-Bush Administration transition period.

In a recent interview, Jones said his proudest accomplishments were establishing endangered species as a field office activity; the African elephant ivory ban, which helped turn around the dangerous decline in elephant populations; the growth and success of grant programs for other international species; and strengthening the Service's relationships with state fish and wildlife agencies.

Possibly his biggest regret, he said, is that he did not find the ivory-billed woodpecker in the mid-1980s, when the Service received a spate of reported sightings and the Southeast Region began to put together information for a recovery plan. He still hopes someday to see an ivory-bill.

He is widely known and respected within the agency as a tireless supporter of the Service's people. He spent time with every Advanced Leadership Development Program class and addressed Foundations, Stepping Up to Leadership, Refuge Academy and other Service training classes as often as he could.

His contributions to the agency, and to conservation, were recognized by administrations of both political parties. He received a Distinguished Service Award, the Presidential Rank Award (an honor conferred upon a select number of career senior executives) and Executive Leadership Awards from the Interior Department in 1999 and 2006.

Jones majored in zoology and English at the University of Michigan and received an M.S. in vertebrate ecology from Murray State University in Kentucky. He did additional graduate work at Cornell University and served in the U.S. Army from 1969-71.

Megan Durham, Deputy Assistant Director for External Affairs, Washington, DC

Headquarters Region



Assistant Director for Law Enforcement **Kevin Adams** has agreed to accept a new term position on the Directorate

to lead the Service's efforts to develop strategic and operational initiatives that support the 'Shaping Our Future' activities. He will focus on expanding the Service's efforts to work cooperatively with others; develop a more integrated approach to problem solving; find efficiencies and set priorities; incorporate new skills and competencies in the Service workforce; and adapt and lead through change.

As Assistant Director for Law Enforcement, Adams was a Service leader in workforce planning and change management. Benito Perez, currently Deputy Assistant Director for Law Enforcement, will take over as the Acting Assistant Director.

Fish and Wildlife Service Director H. Dale Hall in November named **Geoffrey L. Haskett** Assistant Director, National Wildlife Refuge System (NWRS). Haskett, former Deputy Regional Director for the Service's Southwest Region, served as NWRS Acting Assistant Director since early June, replacing former Assistant Director Bill Hartwig. >>

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"I am privileged to take the helm of the Refuge System, which leaves an indelible mark on America's outdoor heritage," Haskett said. "The world's smartest, most dedicated people work for the Service and our Refuge System. Our work for America's wildlife is second to none, and our interest and ability to work cooperatively with all other Service programs is our strength."

Haskett served as Deputy Regional Director for the Southwest Region from 1997 to 2006. During that time he helped develop cooperative conservation efforts throughout the Southwest area with state, local and private agencies to improve protection efforts for natural resources. Most recently, he completed the Department of the Interior's Senior Executive Service Candidate Development Program (SESCDP) in May 2006.

Prior to going to the Southwest Region, Haskett served as Assistant Regional Director for Refuges and Wildlife in the Southeast Region, where he was responsible for the National Wildlife Refuge System in the 10 Southeastern states, Puerto Rico and the Virgin Islands. He also served as Geographic Assistant Regional Director for the Region's Southeastern ecosystems.

Haskett worked in the Service's Washington Office from 1988 to 1994 as Branch Chief of Operations for the Division of Realty, and later, as Chief of Realty. He started his Service career in 1979 in the Portland Regional Office.

In addition to his work with the Service, Haskett served as a Supervisory Realty Officer for the National Park Service in Alaska, where he was Deputy for the Alaska Lands Program. From 1980 to 1984, he was responsible for the Bureau of Land Management's (BLM) Realty Program for 3.5 million acres of public land in the Burns District, high desert country of Oregon.



Bryan Arroyo has been named Deputy Assistant Director of Endangered Species. Arroyo previously

served as Assistant Regional Director for Ecological Services in the Service's Southwestern Region; acting Field Supervisor in Panama City, Florida; and acting Deputy Regional Director in the Midwest Region. Most recently, Arroyo served as acting Deputy Assistant Director and Assistant Director for Endangered Species.

Dr. Roger Helm is Chief of the Division of Environmental Quality for the Service in the Washington Office. This Division includes four branches: Environmental Response and Restoration, Invasive Species, Analytical Methods, and Environmental Contaminants.

Helm has been with the Service for 15 years. For the past 12 years, he has served as the Branch Chief for Natural Resource Damage Assessment and Restoration (NRDAR) and Spill Response in Portland, Oregon. Under his leadership, the Pacific Region obtained settlements in 36 NRDA cases, including several of the largest cases in the nation, and begun more than \$2 million in natural resource restoration projects.

Helm has written nine referred and 27 technical publications and co-authored a book, *Marine Mammals of California*.

Northeast Region

Kathi Bangert, who retired Dec. 1, brought a passion for public service to the Northeast Region when she became Assistant Regional Director for External Affairs in 2003. She attributes her interest in public service to her father's long



career in the government and to a professor at Lebanon Valley College in Annville, Pennsylvania, where she earned a

bachelor's degree in political science. "They are chiefly responsible for instilling in me a desire to serve the greater good through public service within the Federal government," she said.

When she retired, Bangert had been a Federal employee for more than 33 years, having worked in the Coastal Program, in Endangered Species, in Program Development and in Legislative Services in Washington, DC. She also worked at the Chesapeake Bay Field Office in Annapolis, Maryland. Prior to working for the Service, Bangert worked for six years on the Hill for the Senate Commerce Committee and the Senate Environment and Public Works Committee.

Bangert is the recipient of the Wildlife Society's prestigious Conservation and Education Award as well as the Take Pride in America Award, which she received at the White House under the Reagan Administration.

Bangert recently rekindled her interest in music and has retirement plans to assist her fiddle teacher with public relations work. Her husband, Steve Funderburk, also works for the Service. The couple has five adult children and four grandchildren.

Mountain-Prairie Region

John Cornely will retire in January 2007 after more than 33 years of Federal service, more than 26 of which were with the Service. From 1978 to 1988 he was a refuge biologist in Oregon—first at Malheur NWR, then at Western Oregon Refuges. As the Regional Migratory Bird Chief in Denver since 1988, he managed a diverse program that included Migratory

On Camera



Pacific Region Migratory Bird Program Chief Brad Bortner answers media questions about avian influenza and the Pacific flyway during an interagency media event in November at Yolo Bypass Wildlife Area near Sacramento, California. The event, which included representatives from the Service, U.S. Geological Survey, U.S. Department of Agriculture and California Department of Fish and Game, provided media with information on the national HPAI monitoring program, individual agency roles and an update on California's monitoring program.

Game Birds, Migratory Nongame Birds and the Regional Migratory Bird Permit Office. He also served as the primary Regional liaison to the Region 9 Division of Migratory Bird Management and the Pacific and Central Flyway Councils. Cornely helped establish five North American Waterfowl Management Plan joint ventures and may be the only biologist to serve simultaneously on four different joint venture technical committees. He recruited and mentored more than 20 SCEP students during his career and advocated improved biological programs on refuges. He represented the Service on trips to China in 1996 and 2000 and Russia in 2001. Since April 2006, Cornely has been acting Assistant Regional Director for Migratory Birds and State Programs. In retirement, he will continue to be active in natural resources, including a consulting trip in Israel in early 2007. In his spare time, Cornely plans to fish, hunt, travel, watch baseball and hockey and sample a diversity of beers.



Emily Jo Williams will be joining the Mountain-Prairie Region as Assistant Regional Director for Migratory Birds

and State Programs in March 2007. Williams has served as ARD for Migratory Birds and State Programs in the Southeast Region since 2003. A native Georgian, she attended the University of Georgia and earned B.S. and M.S. degrees in Wildlife Biology from the Warnell School of Forestry and Natural Resources. Prior to joining the Service, Williams worked for 14 years in the Wildlife Resources Division at the Georgia Department of Natural Resources. She and her husband, John Murphy, a Conservation Law Enforcement Officer with the Georgia Department of Natural Resources, enjoy fishing, hunting, birding, and skiing, and share their home with a black lab and a golden retriever.

Harvey Wittmier retired in December 2006 after 33 years of government service. After a stint with the U. S. Army in the early 1970s, Wittmier enrolled at Utah State University, where he received a BS in Wildlife Science. He started his Service career with Ecological Services in Bismarck, ND in 1975, working on the Garrison Diversion Unit. Wittmier also worked with ES in Utah before joining the Division of Realty in 1980 as a field biologist in Aberdeen, SD. He moved to the Denver Regional Office in 1985, and worked as a biologist and then the Chief of land acquisition planning for National Wildlife Refuge System until 1995, when he became Chief of the Division of Realty for the Mountain-Prairie Region. During his tenure as Realty Chief, Wittmier managed a land acquisition program that strategically used conservation easements to protect large landscapes, including the Prairie Pothole Region. While in the Planning and Realty chief positions, Wittmier worked to establish many new national wildlife refuges including Cokeville Meadows, Boyer Chute, Marais des Cygnes, Blackfoot Valley, Rocky Mountain Front, Two Ponds, Rocky Mountain Arsenal, Baca, and Mortenson Lake NWRs. Land acquired during Wittmier's tenure as Realty Chief totaled more than 1.2 million acres throughout the region. In 2005 he received the Service's Rudolf Dieffenbach Award for national employee of the year for the Division of Realty.

David Wiseman, a veteran of the National Wildlife Refuge System since 1977, retired in January 2006. Upon completion of his U.S. Navy Service, Wiseman completed his B.S. and M.S. degrees in Wildlife Ecology at Oklahoma State University before entering civilian service as a biologist with the U.S. Forest Service in Utah. Wiseman's Refuge career began in the Prairie Pothole Region at Waubay NWR as a manager trainee. He went on to hold other assistant manager positions at Sequoyah NWR and Tishomingo NWR. Wiseman then assumed the project leader position at Flint Hills NWR where he was instrumental

in establishing the Kansas Partners for Wildlife program. He next served as project leader for the National Bison Range Complex in Montana. While at the Bison Range, he worked closely with Federal, state, tribal and governments as well as NGOs to preserve refuge and private land habitat for wildlife including migratory birds, bison, bull trout, wolves and grizzly bears. After nine years in Montana, Wiseman was reassigned to the Denver regional office, where he supervised refuge operations in Colorado, Kansas, Nebraska and portions of South Dakota and Wyoming.

Wiseman's accomplishments include improving wildlife habitat on refuges in the Southwest and Mountain-Prairie Region and advancing a change from an agriculture-based management focus to more natural systems of native grassland, bottomland hardwoods and moist soil management. He was heavily involved with the creation of both Marais des Cygne NWR and Lost Trail NWR, facilitated the introduction of new bison herds on tribal lands and assisted tribes and multiple states with bison herd management aimed at improving genetic diversity. Wiseman considers his collaboration with state fish and wildlife agencies to improve refuge hunting, fishing and law enforcement programs a career highlight.

Midwest Region



After 16 years in Hawaii, **Jason Holm** returned to his Midwest home as the Assistant Regional Director-External Affairs

for the Midwest Region. Prior to this assignment, Holm was the Deputy Chief of Public Affairs Operations for US Army, Pacific, and was the Public Affairs Officer for Pearl Harbor Naval Shipyard, Hawaii's largest industrial employer. Additionally, as an Army officer in

both active and reserve duty, he served in a variety of Military Police, Special Operations and anti-terrorism positions.

Holm grew up in the Minnesota DNR (literally), following his father through state park tours around the state. He received his BS from University of North Dakota and his Masters in Diplomacy from Hawaii Pacific University. He has had numerous articles and photos published in newspapers, magazines and academic journals throughout the Asia-Pacific region. He has been recognized as a Kentucky Colonel, a Defense Information School Honor Graduate, and Pacific Business News "40 Top Businesspeople Under Age 40."

Additionally, Holm is involved with several charities and civic activities, including visiting and working with orphanages in Uganda and Kenya. He and his wife, Susan, have three daughters, Dylan, Samantha and Madison.

Northwest Region

Ren Lohofener was named Regional Director of the Service's Pacific Region in September. The Region includes Idaho, Oregon, Washington, Hawaii and the Pacific Islands.

"Ren has impressive credentials and experience and I look forward to his counsel, his advice and his energy in this new role," said Service Director Dal Hall. "Having worked closely with him in New Mexico and in Washington, DC, I have every confidence in his judgment and his abilities."

Dr. Lohofener succeeds David B. Allen, who retired in August.

"I am very pleased to be in the Pacific Region. The Service has a great workforce and the Region has some of the Service's most exciting and challenging conservation opportunities," Lohofener said. "I believe that collaboration is essential to all conservation >>>

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efforts and I look forward to working with our partners.”

Lohofener, 56, joined the Service in 1989 after working for six years as an ecologist for the National Marine Fisheries Service. Before that, he was a Research Associate and Adjunct Professor at Mississippi State University. Since joining the Service, Lohofener has been a field biologist, the agency’s Texas State Administrator and Assistant Regional Director of the agency’s Southwest Region. While in the Southwest, he worked with 11 national wildlife refuges, four National Fish Hatcheries, two Fisheries Management offices and the Ecological Services program. Immediately prior to assuming responsibilities in the Pacific Northwest, he was an Assistant Director in the Washington Office for Endangered Species.

Southwest Region



Dr. Benjamin N. Tuggle was named Regional Director of the Service’s Southwest Region in September. The

Region encompasses the states of Arizona, New Mexico, Oklahoma and Texas.

Dr. Tuggle has served as the Region’s Acting Regional Director since January and has served in leadership positions throughout the organization for the past 25 years. His prior assignments included serving as the Acting Special Assistant to Service Director Dale Hall and prior to that as Chief of the Division of Habitat and Resource Conservation, a position he held since 1997.

“Benjamin began his career researching wildlife diseases,” said H. Dale Hall, Service Director. “He still has that same curiosity and desire for answers. These are attributes that make for a great leader. I’m partial to the southwest

having served as its Regional Director myself so I took great care with this appointment.”

Dr. Tuggle brings an exceptional range of skills to the realm of environmental management, including water issues, resource development and associated wetland and upland habitat protection and mitigation, habitat conservation and restoration, transportation, energy development, marine mammal protection and other related conservation issues that impact fish and wildlife resources.

“I’m looking forward to continuing the great work already being accomplished throughout this Region, especially in collaboration and partnership with other Federal, state and local resource agencies, tribal members, landowners and the non-governmental environmental groups,” said Tuggle. “These partnerships will benefit everyone in the Southwest and will secure the conservation of fish, wildlife and their habitats for the future.”

Brian Millsap has been named the New Mexico State Administrator for Ecological Services. Prior to his arrival in Albuquerque, Millsap served as Chief of the Division of Migratory Bird Management for the Service in Arlington, Virginia. He has a B.S. in wildlife biology from Colorado State University and an M.S. in evolutionary and systematics biology from George Mason University. Millsap’s professional background includes assignments as a wildlife biologist for the U.S. Bureau of Land Management in Wyoming and Arizona (1978-82), raptor biologist for the National Wildlife Federation in Washington DC (1982-86), Chief of the Nongame and Endangered Species Program for the Florida Fish and Wildlife Conservation Commission (1986-2002). He served as President of the Nongame Wildlife Association of North America, Florida Chapter of the Wildlife Society, North American Falconers Association, and Raptor

Research Foundation. Millsap has been a falconer since 1968 and an active bird bander since 1972.

honors

Mountain Prairie Region



Service Director H. Dale Hall recently recognized the **Colorado Wetlands Program** as a model partnership that uses cooperative approaches to conserve wetlands in Colorado.

Hall and Mountain-Prairie Regional Director Mitch King presented Bruce McCloskey, Director of the Colorado Division of Wildlife, with an award recognizing the program at the Annual Association of Fish and Wildlife Agencies’ annual meeting in Snowmass, Colorado in September.

The Colorado Wetlands Program began in 1997 as a partnership between the Colorado Division of Wildlife and the Colorado Division of Parks and Outdoor Recreation (both divisions of the Colorado Department of Natural Resources), the Service’s Partners for Fish and Wildlife program, Ducks Unlimited, Great Outdoors Colorado (a grant-making organization that funds conservation projects from state lottery revenues) and The Nature Conservancy. The program has grown to include many additional partners, including private landowners, municipalities, other state and Federal agencies, and nongovernmental organizations, all working together to conserve Colorado’s wetlands resources.

In the decade since its inception, the Colorado Wetlands Program has generated nearly \$70 million to conserve almost one-quarter million acres of wetlands and associated habitats through fee title purchases, conservation easements, and restoration projects, benefiting fish, wildlife and plants; water management, including flood control and groundwater recharge; livestock production; recreational activities, including hunting and fishing; and, a wide variety of other environmental, economic, and social benefits.

In July, the **Montana Partners for Fish and Wildlife** (PFW) program received the Innovations in American Government Award from the Ash Institute for Democratic Governance and Innovation at Harvard’s Kennedy School of Government and the Council for Excellence in Government. The award recognizes the Montana PFW program for its community-based cooperative conservation efforts to restore the Blackfoot River watershed. The award includes a \$100,000 grant, which the Service and the Blackfoot



Greg Neudecker, Assistant State Coordinator for the Montana Partners program and the Service’s representative in the Blackfoot; Jim Stone, Chairman of the Blackfoot Challenge; and Deputy Interior Secretary Lynn Scarlett at the July 2006 ceremony honoring recipients of the Innovations in American Government awards.

Challenge—a landowner-based group that coordinates management of the watershed - will use to develop and deliver outreach and training aimed at replicating the successful Blackfoot model in other watersheds in Montana and beyond.

The Blackfoot Valley, located in northwestern Montana, is home to an agricultural economy and a diverse array of fish and wildlife species. The ranchers who live and work on the land are essential to the success of conservation in the Blackfoot. Working with ranchers and many other public and private partners, the Service is advancing watershed management approaches to restore and conserve the ecological integrity of the Blackfoot, while maintaining the economic viability and rural lifestyles of community members.

During the past 13 years, the Blackfoot Challenge, the Montana PFW program and many other partners have restored 38 miles of stream, 2,600 acres of wetlands, 2,300 acres of native grasslands; reduced conflicts between humans and grizzly bears by 50 percent; and, permanently protected 90,000 acres of private lands for wildlife habitat, all on private lands. In addition, these same partners have worked with local, state, and Federal agencies to develop management strategies on public lands that enhance and complement ongoing private lands conservation activities in the watershed.

"I measure our collective success in the Blackfoot not just by the amount of habitat we have restored and conserved," said Greg Neudecker, Assistant State Coordinator for the Montana Partners program and the Service's representative in the Blackfoot, "but also by the diversity of partners with whom we work and the level of trust we have built in the community. Our approach considers people—and their interests and values—as well as wildlife."

Sherry James, park ranger supervisor at the Rocky Mountain Arsenal National Wildlife Refuge in Commerce City, Colorado, has been recognized with the 2006 Sense of Wonder Award. The award is the Fish and Wildlife Service's highest honor for achievement in environmental education and interpretation. "Her efforts have enriched the lives of thousands of Colorado school children by exposing them to the wonders of wildlife and the natural world," said Dean Rundle, refuge manager at the Arsenal.

Lee Metcalf National Wildlife Refuge staff recognized the volunteer contributions of 42 individuals and/or partner organizations. In 2006, more than 8,500 hours of time (from about 227 volunteers) have been dedicated to refuge projects.

Rob Mediak of Rochester, New York was voted the 2006 Volunteer of the Year by refuge staff. Mediak was given a gift for this achievement: a **Big Sky** bronze casting of three native trout species. Refuge visitors can see some of Rob's volunteer work in the wildflower garden landscaping right outside of the Visitor Center entrance.

Refuge staffers, David Bohnam (law enforcement) and Cal Henry (maintenance) also were presented certificates of achievement signed by Service Director H. Dale Hall for their work in Louisiana after Hurricane Katrina.



Project Leader Steve Whitson (left) presents the Volunteer of the Year award to Rob Mediak.

Northeast Region

The Missisquoi National Wildlife Refuge "Green" Headquarters and Visitor Contact Station Team in Swanton, Vermont, received a 2006 Department of the Interior Environmental Achievement Award. According to DOI, the Missisquoi NWR construction project "upholds the principles of sustainable design including minimizing energy use, making efficient use of resources, and reflecting sensitivity to the site." The new facility has features in all of the Leadership in Energy and Environmental Design (LEED) categories: innovation and design process, sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. It achieves notable results benefiting the environment, including sustainable design; environmentally preferable materials; recycled content materials; construction waste recycling; water conservation; and alternative energy systems which capture geothermal, solar, and wind energy. The renewable energy system produces enough power, on an annual basis, to operate the lighting, computers, and miscellaneous plug loads of the facility (per estimate prepared by Efficiency Vermont). Water conservation features save an estimated 250 kgal of on-site well-water annually.

Missisquoi NWR was established in 1943. The refuge provides 6,592 acres of important feeding, resting, and breeding habitat for migratory birds, especially waterfowl, in the northern Lake Champlain section of the Atlantic Flyway. The refuge is an important link in a chain of refuges that extends along the Flyway for migratory birds that migrate between northern breeding grounds and southern wintering areas.

Regional employees **Diana Weaver** and **Liz Dawson** captured top honors during the "Excellence in Government" awards banquet sponsored by the Federal Executive Association of Western



Missisquoi National Wildlife Refuge Headquarters and Visitor Contact Station.

Massachusetts. The Excellence in Government program honors the "best and the brightest" in Federal service in Western Massachusetts. Weaver, chief of media services in External Affairs, was recognized for her professionalism, her willingness to mentor field staff, and her dedication to promoting public relations principles within the Federal bureaucracy. She was lauded for her ability to spot a media opportunity in every day events and to work with field staff to identify and promote their stories.

Dawson, an architect in the Office of Engineering, was honored for her contributions to the successful completion of a number of regional construction projects. Among these were the renovation of the Swallow Hollow Nature Trail at Iroquois National Wildlife Refuge and the construction of the facility outreach pond at the Northeast Fishery Center, Lamar, Pa. Additionally, Dawson managed the successful construction of the \$2 million refuge headquarters and visitor contact station at the Nulhegan Basin Division of the Silvio O. Conte Fish and Wildlife Refuge in Brunswick, Vermont. Dawson was also recognized for her role as a Hurricane Katrina emergency responder, during which she worked with the U.S. Army Corps of Engineers in their Gulfport, Miss. office on "Operation Blue Roof."

More than 100 Federal employees were nominated. Other Region 5 finalists included: Barry Brady, >>

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National Wildlife Refuge System, Technical and Scientific Employee of the Year; Susan Macdonald, Budget and Administration, Unsung Hero; Kenneth Sprinkle, Federal Assistance, Technical and Scientific Employee of the Year; and John Fellows, Migratory Birds, Outstanding Federal Volunteer.



Dr. John Organ, Chief of Federal Assistance in the Service's Northeast Region, was installed as president of The Wildlife Society (TWS) at the

organization's annual conference in Anchorage, Alaska, in September. Organ has served on the TWS Council since 1999, initially as the northeast section representative and recently in ascending one-year terms as vice-president (2004–2005) and president-elect (2005–2006). He will hold the office of past-president beginning in fall 2007. Organ has worked for the Service in the Northeast Region for 27 years, nearly half that time in the Division of Federal Assistance.



Dr. John McDonald, wildlife research specialist with the Region 5 Division of Federal Assistance, was elected as a TWS Fellow

at the 2006 conference. McDonald achieved this prestigious lifetime appointment in recognition of his contributions and service to the wildlife profession. He is the first Service employee to receive this honor. Prior to joining the Service, McDonald was the deer and moose biologist for the Massachusetts Division of Fisheries and Wildlife from 1995 to 2000. He is currently the Northeast Section president of TWS, and has previously served as student chapter advisor, state chapter president, and as a student mentor within the organization.

The Wildlife Society, founded in 1937, is a non-profit scientific and educational association dedicated to excellence in wildlife stewardship through science and education. It is the principal organization for wildlife professionals in the U.S. with a current membership of approximately 8,000.

The Northeast Region's divisions of External Affairs and Refuges and Wildlife received first place in the 2005 Association for Conservation Information Awards Program for the region's *This Land is Your Land* brochure. The brochure was created as the keystone publication for the Region's campaign to celebrate the acquisition of the half-millionth acre for the National Wildlife Refuge System in the Northeast. It profiles a significant addition to the Refuge System in each of the 13 states. The content portrays the diversity of wildlife and habitats protected on national wildlife refuges, as well as the challenges of protecting 500,000 acres of land in the most densely populated region in the country.

The Association for Conservation Information is a non-profit association representing government agencies and private conservation organizations in the United States and Canada. The annual awards program is the only nationwide competition exclusively for conservation education, information and public relations professionals in the natural resources field. There were 14 entries in the color brochure category of the 2005 awards program.

The *This Land is Your Land* team was chaired by Terri Edwards (EA) and Tom Sampson (Division of Realty), and members included Kathi Bangert, Greg Thompson, and Kathy Whittemore from External Affairs; Sarah Bevilacqua, Andy French, Bill Porter, Heather Ruel, Walt Quist, and Kathy Zeamer from Refuges and Wildlife; and Joe McCauley, Kathy Owens and the entire staff of Rappahannock River Valley National

Wildlife Refuge. Maggie Haddad, under contract with the Service, designed the brochure.

Southwest Region

The Department of the Interior recently recognized Fish and Wildlife Service hydrologist **Cynthia Abeyta** with the Manuel Lujan, Jr. Champions Award. The Lujan award is given out during Hispanic Heritage Month to identify employees who

carry out the Department's mission in areas that most impact Hispanic communities. Lujan is a New Mexico resident and a former Secretary of the Interior. Abeyta is the Middle Rio Grande Coordinator for the Service's New Mexico Ecological Service's office located in Albuquerque. "It was a tremendous honor to receive the award," Abeyta said. "I feel very fortunate to work in the Rio Grande Corridor where there is a multitude of cultural significance."

Historic Transfer



Refuge ranger Sallie Gentry (right) transfers major portions of Okefenokee National Wildlife Refuge's collection of historical photos, manuscripts, and film footage to Jeanne Harold, NCTC museum archivist, as part of the Georgia refuge's efforts to secure its heritage at the Fish and Wildlife Service's central historical archive. The Okefenokee collection includes motion picture footage of turn-of-the-century logging in south Georgia, rare transcription recordings by the Department of State from a 1951 government radio show about the refuge, and the original journal of first refuge manager John M. Hopkins, chronicling the years 1900 to 1945.

TODD HARLESS / USFWS

in memoriam



Mary Conser, computer specialist in the Northeast Regional Office, died in September after a five-month battle with cancer. She was 66 years old.

Conser began working for the Fish and Wildlife Service in 1986. She provided technical computer support to the region and became the regional security manager. Energetic and vital, she was a musician and made jewelry, pottery and furniture at various times in her life. As she prepared for retirement, Conser was developing a business of handmade, personalized books.

Born in Bozeman, Montana, Conser earned a master's degree in education from Montana State College. She left her Montana home with her 3-year-old son and lived in Puerto Rico for 21 years, first founding a K-12 school and later working as educational director at the zoo in Mayaguez.

Just 11 days before her death, Conser flew home to Montana. While she waited for a change of planes in Minneapolis, three of her Region 3 colleagues delighted her with a surprise visit. She spent her last days in her sister's home with her family around her.



C. Gordon Fredine, 96, a wildlife conservationist with the Fish and Wildlife Service and National Park Service who was on

the forefront of the movement to conserve renewable resources in the late 1970s and the 1980s, died of cancer August 8 at his home in Bethesda, Maryland.

Fredine became principal naturalist at the Park Service in 1955. His interest in the application of ecological principles influenced the service's research and wildlife-management programs. In 1964, he became acting chief of the international affairs division, and he helped develop the agency's policy that led to increased international activities.

He assisted in the establishment of the Latin American Committee on National Parks and the Inter-American Conference on Renewable Natural Resources in Argentina.

Fredine received the Interior Department's Distinguished Service Award. After serving as staff director for the Second World Conference on National Parks, he retired from the Park Service in 1973.

A native of St. Paul, Minnesota, Fredine worked as a biologist with the Game and Fish Division of the Minnesota Conservation Department from 1935 to 1941, and he was an assistant professor of wildlife at Purdue University in the 1940s.

He enlisted in the Navy in 1943 and served as a malaria control officer in the South Pacific. After World War II, Fredine was the regional supervisor of River Basin Studies for the Fish and Wildlife Service in Atlanta until 1952.

He transferred to Washington and co-wrote "Wetlands of the United States" (1956), which became known in the wildlife conservation field as the original wetlands inventory of the United States.

Fredine was a charter member of the Wildlife Society and served as executive secretary and later vice president. He was elected to the Washington Biologists' Field Club and was its president from 1973 to 1976.

As a volunteer, he was assistant editor of *Parks* magazine and executive director of the Renewable Natural Resources Foundation. He also coordinated the volunteer advisory staff of the American Fisheries Society, which honored him with its Distinguished Service Award.

Francis James Gramlich, 85, died April 16, 2006, in Augusta, Maine. Gramlich served as a state supervisor for the Fish and Wildlife Service in Augusta. During his tenure he was instrumental in bald eagle recovery efforts and repopulating terns and puffins on the offshore islands of Maine by eradicating depredating cormorants and gulls. He retired in August 1982.

William O. (Bill) McDermith, 70, died February 3, 2006 at his home in Clifton, Colorado, after a short battle with cancer. McDermith worked in maintenance for the Fish and Wildlife Service for 38 years, serving most of his career at the Monte Vista National Wildlife Refuge in Colorado and shorter periods at Arapahoe National Wildlife Refuge in Colorado and Las Vegas National Wildlife Refuge in New Mexico.



David C. Nettles, age 53, fishery biologist with the Service's Lake Champlain Fish and Wildlife Resources Offices in Essex Junction, Vermont, died

Oct. 10 in an automobile accident in Keene, New York. He had worked for the Service for 14 years, dividing his time between Essex Junction and a Ray Brook, New York, office of the Bureau of Fisheries, New York State Department of Environmental Conservation.

Nettles was a tenacious advocate for fisheries, a staunch supporter of sea lamprey control in Lake Champlain, and a creative thinker in the field of fisheries management. He was an accomplished kayaker, motorboat captain, skier and turkey hunter.

Born in Watertown, New York, Dave earned bachelor's and master's degrees in science from Brockport State College in Brockport, New York. He worked for New York State DEC and Cornell Cooperative Extension before joining the Service. He was a college instructor for several years, and he worked to preserve and restore the fishery in Lake Champlain.



Duck Stamp Winner. Wildlife artist Richard Clifton's (profiled on page 2) depiction of a pair of swimming ring-necked ducks won the 2006 Federal Duck Stamp Art Contest—the oldest and most prestigious wildlife art competition in America. The contest was held in October in Memphis, Tennessee. Clifton's painting—chosen from among 297 entries from artists representing 49 states—will grace the 2007–08 Federal Duck Stamp, which goes on sale in late June 2007.

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*Executive Editor: Megan Durham
Editor: David Eisenhauer*

Submit articles and photographs to:

*David Eisenhauer
U.S. Fish & Wildlife Service
Room 3360
1849 C Street, NW
Washington, DC 20240
202/208 5631
Fax: 202/219 9463
E-mail: David_Eisenhauer@fws.gov*

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