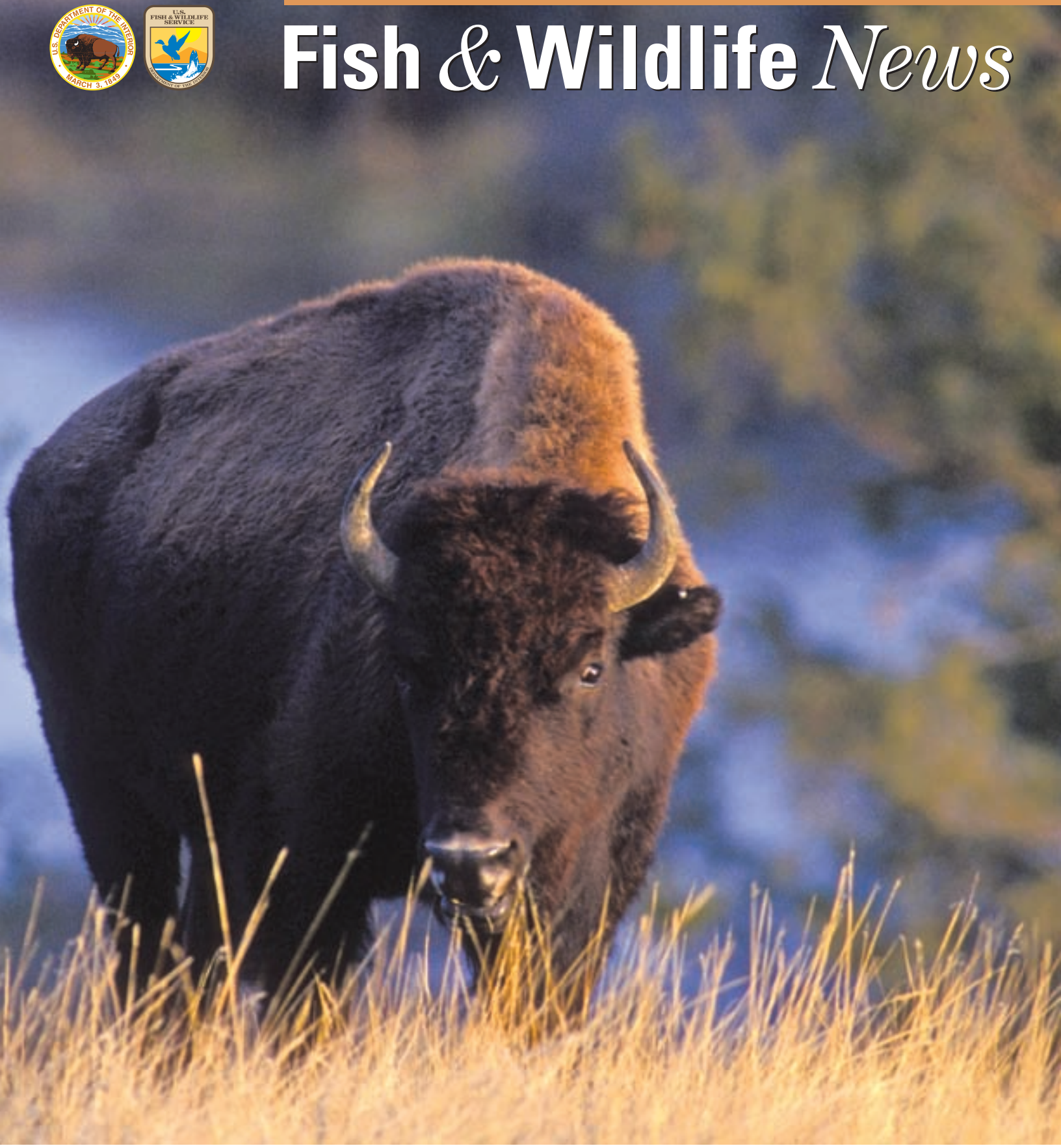
U.S. Fish & Wildlife Service

Winter 2009

Fish & Wildlife *News*



Poetry Upon the Ocean / 8

A Leap Forward / 10

River of Hope / 12

Grim Harvest / 16

what's inside

Departments

Director's Corner / 1

News / 3

Conservation in Action / 22

Field Journal / 24

Around the Service / 25

Fish Tales / 38

Our People / 39

Transitions / 39

Honors / 40

In Memoriam / 43

Features

Poetry Upon the Ocean / 8

The albatross is a bird of legend and extremes.

By Amy J. Gaskill, Marc Romano, Maura Naughton and Greg Balogh

A Leap Forward / 10

The journey to Chiricahua leopard frog recovery has begun.

By Jim Rorabaugh, Melissa Kreutzian, Mike Sredl, Charlie Painter, Roberto Aguilar, Juan Carlos Bravo, and Carter Kruse

River of Hope / 12

Students in the Schools in Schools program are helping restore American shad to the Potomac River.

By Sandy Burk

Grim Harvest / 16

Illegal hunting and bushmeat trade threaten the future of African wildlife.

By Dirck Byler

A Bird's Eye View of Wind Energy / 18

Wyoming's wind energy potential is undeniable, but the state's challenge will be to lessen the downside for wildlife.

By Marilyn Stone

On the cover:
An adult bison in a field at the National Bison Range.

JOHN AND KAREN HOLLINGSWORTH / USFWS

Honesty, Integrity and Professionalism

As I sit down to write my last message to you for *Fish & Wildlife News*, I am filled with humility and pride. Throughout my more than 30 years with the Service, I have had the privilege to work with many of you—retired and active employees—and to witness your dedication to the resource and the Service. I don't have to tell you that we believe our work isn't simply a job; we believe we have a calling that led us to spend our adult lives with the U.S. Fish and Wildlife Service.

In that journey, I have witnessed many things; some pleasant and rewarding, some not so pleasant. But even in the unpleasant times, I was lifted by the honesty, integrity and professionalism of the Fish and Wildlife Service family that surrounded me. For me, life has some simple rules of engagement. Among the most important of those is that to earn respect, one must tell the truth, stand by the truth and conduct business in a manner that gives no one cause to doubt the first two.

Our integrity is and has always been manifested by taking positions that are supported equally by science and law…

When I was a Field Supervisor I told the staff there were three simple rules we must use as our compass. First, we must be biologically correct. That means we are honest in saying what we believe is proven fact, what we believe is probable fact and, most important, what we don't know. Then, we have to superimpose the information at hand with the law that gives our authority or direction to ensure we are legally correct and within the bounds of legislation in any position we may adopt. Finally, we must understand that none of us can do it alone, whether as individuals or as an organization. That means we seek help and advice from our friends and colleagues, or the public if appropriate, to double check our interpretations.

Fish and wildlife conservation is a non-partisan issue. Unfortunately, party agendas or strategy too often put us squarely in the middle of political discussions about science and the laws we are charged to uphold. The public respects us because they know they can come to the Service to get the truth about a particular issue, regardless of the political or emotional arguments that might be swirling. They also know that we have no agenda except truth in science and unemotional interpretation of the laws that govern us. Our integrity is and has always been manifested by taking positions that are supported equally by science and law, rather than saying something is fact when we don't have the science or legislative support.

We have worked diligently to increase the visibility of the Service in science and I am very proud of the scientific work that's done each day in the course of Service business. To highlight those efforts, the Directorate established three new awards to be given annually to both recognize and thank our good scientists for the work they do. The 2008 (and first) winner of the Science Leadership Award went to Ken Berg in the Western Washington Fish and Wildlife Office. The Rachel Carson Award for Scientific Excellence (Group) went to the Habitat and Population Evaluation Teams in Regions 3 and 5. And the Rachel Carson Award for Scientific Excellence (Individual) went to Rachel Mair at White Sulphur Springs National Fish Hatchery for her excellent work with mussels. I offer my congratulations and appreciation to all winners, as well as those outstanding nominees who did not win this year. Each award is accompanied by $50,000 to be used to continue scientific work at the stations where the winners reside.

You have proven your worth as honest and ethical professionals over and over again; there is no doubt about the grit from which you were made. However, I predict that pressures will build as we move into the future, and your resolve will be tested as competition for natural resources increases. It is critically important to remember that whether we surrender our ethics to those with whom we intellectually agree or those with which we disagree, the end result is that we have surrendered our ethics. No one can take our ethical beliefs from us. They can only be lost if we acquiesce and give them away. As my final message to you, I ask that you continue to steadfastly practice honesty, professionalism and integrity in all your endeavors, and conduct business openly with no agenda except truth. I know you'll do that and I know I'm leaving the greatest conservation organization in the world, the United States Fish and Wildlife Service, in extremely capable hands. Thank you for being my professional family and for a wonderful career. □

A polar bear walking along the Beaufort Sea coastline of Alaska. In FY09 the Service plans to identify species and habitats vulnerable to climate change and methods to build connectivity for wildlife across landscapes.

Rising to the Challenge

The Service in December released discussion drafts of its climate change strategic and action plans for employee review. Endorsed by the Service Directorate, the draft plans have been developed by a diverse team of career Service employees to guide the agency's climate change response and chart a course of action through the 21st century.

Employees have a 60-day period during which they can comment on the plans.

The strategic plan focuses on adaptation, mitigation, and education, and encourages Service managers to be innovative and responsive to evolving science, technology, implementation, and habitat conditions across landscapes working with partners.

Along with this plan, the team has developed an action plan for fiscal years 2009–13. From this plan, the Directorate has identified 12 climate change action priorities for FY09—a series of essential first steps for addressing climate change. These steps build on the Service's commitment to landscape conservation using Strategic Habitat Conservation framework and support the agency's FY2010 budget proposal, as well as its transition strategy.

"Doing nothing is not an option," said Service Director H. Dale Hall. "In the year ahead, we will move quickly to begin identifying and filling knowledge gaps, expanding knowledge and understanding, identifying vulnerable species and habitats and methods to build connectivity for wildlife across landscapes, and strengthening key partnerships to effectively anticipate and address climate change. These key first steps will prepare our agency for ambitious efforts to adapt to accelerated climate change in 2010 and beyond."

Work has already begun on many of the FY09 actions (outlined below) in some of the Service's regions. These include:

Developing a national adaptation strategy and inventory and monitoring program. The Service will work with conservation organizations to address accelerated climate change more effectively by ensuring actions are coordinated across landscapes and political boundaries. In FY09, the Service will conduct feasibility studies for the Inventory and Monitoring Program and National Adaptation Strategy, supporting a national "blueprint" for these efforts.

Building regional and field technical capacity for climate change adaptation. Working with our partners, the Service will create and enhance field-level capacity to provide cutting edge science and information that will help managers make decisions related to changing climate. This includes conducting a needs assessment for establishing "regional climate science partnerships" that will boost regional capacity for science. This capacity will be housed in regionally based partnerships called Landscape Conservation Cooperatives (LCCs), which provide field-level capacity for landscape-scale biological planning and conservation design.

Building climate change leadership and management capacities. Within the next two to three years, policy and political decisions of enormous consequence will be made at national, regional, and state levels. The Service will build capacity to affect these decisions and capitalize on the talents of its employees by establishing several key professional positions and a National Climate Change Team.

Identifying priority water needs. The Service will identify and assess priority issues related to water quality and water quantity, reflecting the best available climate change predictions and estimating the anticipated biological outcomes.

Addressing habitat fragmentation. The Service will provide a report of recommendations and agency progress in promoting habitat connectivity to achieve species population objectives.

Facilitating international leadership on climate change and wildlife. The Service will produce a framework and strategy for engaging key countries to share and acquire knowledge of climate change adaptation, mitigation and education strategies; facilitate international exchange of personnel; and identify ways to engage the Service more effectively in the United Nations Framework Convention on Climate Change and other appropriate international forums.

Identifying, prioritizing, and adjusting Service activities to consider the effects of climate change. The Service will begin looking at areas where climate change can be incorporated into planning both our agency's planning efforts and those of State wildlife agencies.

Educating and communicating. The Service will engage and educate our employees, partners and stakeholders regarding the significance of climate change for fish and wildlife. We will also pursue an aggressive internal and external communications effort to support our climate change and landscape conservation work with employees, partners and others.

SUSANNE MILLER

Reducing the Service's carbon footprint. By thoroughly documenting the Service's carbon footprint, we can begin immediately instituting practices to avoid global greenhouse gas emissions, minimize unavoidable emissions and offset remaining emissions. Our goal is to be a "carbon neutral" organization by 2025.

Expanding carbon sequestration for wildlife. The Service will work with conservation partners to expand terrestrial carbon sequestration techniques, restore habitat, and conserve wildlife. We will use landscape conservation planning approaches to determine where, when, how much, and what habitat types should be conserved to achieve population, habitat, and carbon sequestration objectives.

Reviewing legal, regulatory and policy issues. The Service response to climate change must consider necessary and appropriate changes to the legal, regulatory, and policy frameworks within which we operate. The Service will coordinate a review of these frameworks to recommend priority changes in the legal, regulatory or policy frameworks that are necessary to encourage and support effective response to climate change.

Assessing species vulnerability to guide conservation. Vulnerability assessments will help identify the species and landscapes at greatest risk from accelerated climate change, and therefore constitute a crucial initial investment. The Service will develop and test climate change risk and vulnerability assessment methodologies for fish and wildlife species.

Considering climate change in grant criteria. Service programs that administer grant programs, as appropriate, will review, evaluate and develop new criteria that will direct appropriate funding to projects that specifically address climate change.

Assisting in shaping energy policy. Solutions to global warming are likely to focus on clean energy development. The Service will exercise its responsibility as a stakeholder in America's energy future by helping to shape energy policy that considers conservation and energy development objectives.

In early March, key Service opinion leaders will be invited to NCTC to help review employee comments on the draft Strategic Plan and provide suggestions on how the plan can be improved based on the comments.

The strategic and action plans are scheduled to be finalized this summer.

For more information on climate change and to view the Service's strategic and action plans, visit <intranet.fws.gov/climatechange/strategic_plan.html>. □

David Eisenhauer, Public Affairs, Washington, DC

Climate in the Classroom

College students and U.S. Fish and Wildlife Service professionals are learning together this semester in a course on conservation and global climate change at Indiana University-Bloomington (IU).

And, through the use of innovative technology, they are doing so in a way that doesn't contribute to climate change. The IU School of Public and Environmental Affairs course meets on campus, but dozens of Fish and Wildlife Service personnel from eight states participate from their homes or offices, linked to the classroom by a telephone connection and desktop sharing computer software.

The result: high-quality professional development for Fish and Wildlife Service employees, at little cost, little time away from work, and with a small carbon footprint.

Thirty-six IU students, most of them graduate students, attend the weekly class in a distance-learning classroom. A comparable number of staff from the Fish and Wildlife Service Midwest Region — Indiana, Illinois, Iowa, Michigan, Minnesota, Missouri, Ohio and Wisconsin — dial in and log on for every class. Dozens more Service employees join in when the lecture topic interests them or relates to their work.

IU Associate Professor Vicky Meretsky, who teaches the class with Professor J.C. Randolph, lined up the weekly lecturers, including professors at eight universities and officials from such organizations as the World Wildlife Fund and the National Wildlife Federation.

They use PowerPoint slides that are viewed on screens in the IU classroom and, simultaneously, on the computers of Fish and Wildlife Service participants. A "chat" function with the software allows viewers at remote locations to ask questions during the lectures. They can also speak via a dedicated telephone line, which is paid for by the Fish and Wildlife Service.

"Vicky has brought together all of the experts, the top people in their fields, and they're giving us presentations on their research. How can you ask for anything more than that?" said Tom Simon, a fish and wildlife biologist with the Fish and Wildlife Service office in Bloomington.

Simon said learning about climate change is essential for the Fish and Wildlife Service, which is responsible for protecting endangered species and managing refuges and other special areas, many of which are vulnerable to rising sea levels, hotter and dryer summers and other anticipated effects of climate change.

"This approach is ready for prime time; we just seem to be the first people using it in a widely leveraged environment," said Meretsky.

"The spark for this webinar came from a discussion among many Midwest Region staff members who said that they wanted the region's climate forum to minimize GHG emissions or even be carbon neutral, and that it be accessible to staff at all levels >>

Climate, continued from page 3

in the organization. That discussion gave me the idea to contact a Midwest university with distance learning capabilities to propose a collaborative webinar approach," said Teresa A.N. Woods, Special Assistant to the Midwest Regional Director.

Woods said former Midwest Regional Director Robyn Thorson and Deputy Regional Director Charley Wooley were "very supportive" of the project. She called Meretsky, and within a few weeks the webinar was on IU's course schedule.

"It has been a team effort. I am our region's lead for the webinar, but it is the generosity of many—especially IU for allowing FWS to participate without charge—that makes it a success."

Dan Ashe, Science Advisor to Service Director H. Dale Hall, said the class also helps the agency experiment with a new approach to delivering training and to start preparing for the workforce of the future, which will expect more intensive use of distance-learning technology.

"If we're going to meet the challenge of climate change and reduce our carbon footprint as an organization, it's critical that the Service increasingly consider and start using these technologies," Ashe said. "It's an important part of breaking new ground for us, and we appreciate Indiana University's support."

IU students benefit from learning to use the technology and from extensive classroom contact with Service professionals, Meretsky said. IU faculty members plan to produce an article about the class experience and have given poster presentations about it at national conferences. The Service has offered to provide comments on final papers that IU students produce for the class, and possibly to consider them for inclusion in a peer-reviewed agency publication. □

Steve Hinnefeld, Indiana University Communications

Tom Simon, USFWS biologist in Bloomington, sits in on the climate class at Indiana University.

INDIANA UNIVERSITY

Counting Bat Noses

Bat biologists are currently gearing up—at the Fish and Wildlife Service's request—to head underground with digital cameras in tow. They are preparing to take part in the Service's 2009 biennial winter surveys of the federally endangered Indiana bat.

Digital photography is rapidly changing and improving how bat biologists traditionally estimate winter-bat populations within hibernacula (i.e., caves and mines). Having spent hours or days manually identifying and counting thousands of tiny bat noses on computer screens, bat counters have long hoped for a better way. Some have dreamed of running photographs through a software program and instantly receiving an accurate bat count (plus or minus an acceptable amount of standardized error.) Fortunately, the weary bat counters' dreams may be closer to reality, thanks to some USDA Forest Service remote-sensing specialists who recently accepted the challenge.

The Forest Service is used to taking on management challenges associated with the Indiana bat and its habitat. The Indiana bat occurs on national-forest lands in 14 states including Indiana's Hoosier National Forest. Dale Weigel, a forester with Hoosier National Forest, and Andy King, a biologist with the Service's Bloomington, Indiana, Ecological Services Field Office, proposed the bat-imaging project. They submitted it as part of a national competition to the Forest Service's Remote Sensing Applications Center in Salt Lake City, Utah. RSAC selected the unique bat-imaging project for funding and will soon begin

ANDY KING / USFWS

To estimate the bat density in this digital photograph, surveyors superimposed dots on bat noses and then counted. This cluster of bats in Ray's Cave, Indiana, had a density of approximately 380 bats per square foot.

feasibility testing using state-of-the-art image-recognition software. The Service's ultimate goal is to develop a program to more quickly and accurately identify and estimate the number of individual bats within digital photographs. The Service's Bloomington office will be providing the digital images for the feasibility tests.

In recent years, the Service and its partners have been taking steps to improve the accuracy of Indiana bat-population estimates and trends. This information ultimately affects the Service's assessment of the bat's recovery criteria. For example, in 2006 the Service sponsored a field test of bat surveyors. The test determined surveyors using digital photography had significantly less error in their population estimates than those using traditional survey techniques. Digital photography is also valuable because it can reduce field-survey time and disturbance levels in hibernacula and produce permanent records. However, as a survey technique, digital photography is not without limitations. States with large winter populations of Indiana bats (e.g., Indiana, Kentucky, New York, Illinois, Missouri, and West Virginia) rarely have adequate staff to count digital-bat images. Distinguishing pinkish

noses from bent wrists and counting tens of thousands of bat noses in hundreds of images can take weeks. So, if RSAC succeeds in standardizing and automating a system for estimating bat numbers from digital images, it will benefit recovery efforts.

In addition to digital images of healthy bat clusters, the Service and its partners will provide RSAC with those of clusters with fungal growth on noses, ears, and forearms. Scientists have associated this fungal growth with the newly emerging threat, white-nose syndrome (WNS). The current WNS outbreak apparently began at four hibernacula near Albany, New York, during the winter of 2006–07. It rapidly spread this past winter to about 30 additional sites in New York; Vermont; Massachusetts; Connecticut; and, perhaps, Pennsylvania. WNS has affected at least five bat species, including the Indiana bat. And mortality rates have exceeded 90 percent at some sites.

As initial funding allows, RSAC will test the feasibility of imaging software to quickly scan and accurately detect individual bats exhibiting fungal growth. Initially, researchers did not notice low levels of fungal growth, indicative of early onset of WNS, at some affected sites. New York biologists later examined and discovered its presence in digitally enhanced photographs. If feasible, digital-imaging software would provide an efficient means of conducting WNS surveillance across the eastern United States and Canada. □

Andy King, biologist, Bloomington, Indiana

Service Employees Affected by Wildfire in Boise

On August 25, 2008, when the human-caused Oregon Trail Fire blew through a densely populated southeast Boise community, area residents found themselves asking neighbors from the wildland fire community for direction. U.S. Fish and Wildlife Service employees living in the Homestead Rim subdivision directly threatened by the fire jumped in to help neighborhood residents and to assist with the fire suppression efforts as it flanked toward their homes.

Chief, Service Fire Management Branch Brian McManus had just settled in for the evening with his family when the president of the Homestead Rim homeowners association knocked on his door alerting him of the fire. McManus went to assess the situation, returned home to put on his nomex, a flame-retardant suit, and returned to the edge of the subdivision that the fire would reach first.

"I explained to my neighbors what they could do to prepare themselves for the fire," said McManus. "I gave them some simple directions so they did not feel so helpless."

Service employees Chad and Sarah Fisher also live in Homestead Rim. Sarah, administrative officer for the Service Fire Branch, was on her way home from a fire assignment in northern California, when the fire started. Road closures kept her from getting to her home until the situation had calmed down. Chad, Service National Training Specialist, was at home with their son.

FLICKR / LINDSAY DUGMORE

The Oregon Trail Fire burns near a subdivision in Boise, Idaho. U.S. Fish and Wildlife Service employees living in the area assisted with fire suppression efforts.

"I got a message on my cell phone from Chad saying 'Can't talk now. Fighting fire at the house. Beckett is with Michael. We're good at the house. Gotta go.' which summed up the situation for me," said Sarah. "But, I really just wanted to get home."

Chad, whose career includes stints on engines, in helitack, and as a smokejumper, noted that the experience will change his perspective next time he is involved in a wildland situation during a fire assignment. "I will have a lot more empathy and compassion for people whose homes are in the path of a fire," he said. "Emotions run high and people have to make last minute critical decisions about what is most important to them."

Chad and Brian's suppression work and presence on the fireline aided in the eventual containment of the flanking fire which came very close to the edge of their subdivision. Residents of Homestead Rim watched homes above them smolder well into the night.

"One of our biggest tasks was to help calm our neighbors in an intense, highly emotional situation," said McManus.

Another Service employee, Kelly Cardoza, was asked to evacuate her home in another neighborhood that was in the path of the fire. Cardoza, who works in a shared fire outreach position for both the Fire Management Branch and Pacific Region Fire Management, lives with her husband and son in the Oregon Trail subdivision where 10 homes were eventually destroyed and nine others badly damaged by the 93-acre fire.

Later, Cardoza worked with a local fire prevention cooperative to deliver a fire safety and prevention skit to an elementary school in the same subdivision. By dressing up as clowns, and using puppets, music, and >>

Fire, continued from page 5

age-appropriate humor, cooperators from surrounding city fire departments and area federal wildland fire agencies regularly present important fire safety messages to children at many area schools .

"Fire is definitely an emotional topic for our neighborhood right now," said Cardoza. "I had a few students come up to tell me about losing their homes or to describe their personal experience with the fire. Our being there was timely and seemed to give them an opportunity to talk about it in a safe situation."

Chad Fisher participated in a panel discussion with Boise's Mayor, Boise's City Fire Department Chief and others at the Idaho Wildland Fire Conference in Boise to study the Oregon Trail Fire. The panel gave a description of what happened during the fire and Fisher recounted his emotions being a father and husband instead of a firefighter that night. The panel proved to be a highlight of the conference.

With Boise's heightened community awareness and curiosity about how wildland fire burns and what wildland fire professionals do, McManus and his staff have continued to answer requests and conducted community presentations about fire management. One of these was held at the Homestead Rim subdivision one week after the fire burned. McManus, Cardoza, and other firefighters from the city of Boise and the Bureau of Land Management spoke at the meeting, which was planned for 45 minutes but extended by participants to two hours.

Another public presentation given by McManus and Cardoza was held in nearby Garden City, which recently experienced a 30-acre wildfire close to an interstate highway. □

Kelly Cardoza, Fire Outreach Specialist, SE Idaho Refuge Complex

Snake Study

PAUL HESS / USFWS

Shiawasse National Wildlife Refuge Manager Steve Kahl holds an Eastern fox snake. The refuge is partnering with the Friends of Shiawassee NWR, Central Michigan University, and Potter Park Zoo to study one of the most threatened and least understood reptiles in the Midwest.

Deputy Secretary of the Interior Lynn Scarlett (standing, center) and Northeast Regional Director Marvin Moriarty (seated, left) were joined by New York City Commissioner of Parks and Recreation Adrian Benepe (seated, right), Executive Director Audubon New York Al Caccese (standing, right), and Executive Director New York City Audubon Glenn Phillips in signing the partnership agreement.

Big Apple is for the Birds

New York City in October joined an elite group of American cities at the forefront of conservation, becoming the ninth American city to sign an Urban Conservation Treaty for Migratory Birds.

On October 15, 2008, Deputy Secretary of the Interior Lynn Scarlett and Northeast Regional Director Marvin Moriarty were joined by New York City Commissioner of Parks & Recreation Adrian Benepe, the Executive Director of Audubon New York, Al Caccese, and the Executive Director of New York City Audubon, Glenn Phillips in signing the partnership agreement. Backed by a $65,000 grant from the Service, the Urban Conservation Treaty will support migratory bird initiatives throughout New York City. Partnering organizations will match the grant money with funding and "in-kind" contributions of goods and services, with a total contribution of more than $450,000.

New York City lies along the Atlantic Flyway and is an essential urban sanctuary for migrating birds. Ponds, lakes, native trees, and other plant life in city parks provide important resting and breeding grounds for thousands of migrating birds that fly through New York and other cities every spring and fall. With a strong record of natural resource conservation, New York City boasts 53,000 acres of open space and park lands.

As part of the treaty commitment, partners will work together to improve New York City's bird habitat by increasing stewardship, providing restoration of key areas and ensuring proper monitoring in all New York City natural areas, including the city's Important Bird Areas, Forever Wild sites, and other critical habitats.

The Urban Conservation Treaty Program started in 1999, when New Orleans became the first Urban Conservation Treaty city. Other Treaty cities are Chicago, Houston, Philadelphia, Portland (Oregon), St. Louis, Nashville, and Anchorage, Alaska. □

Jennifer Lapis, Public Affairs, Hadley, Massachusetts

Protecting Habitat in New Mexico

The U.S. Fish and Wildlife Service, the Bureau of Land Management and the Center of Excellence for Hazardous Materials Management are encouraging landowners, energy companies and ranchers to join the agencies in a voluntary program to protect and restore habitat for the lesser prairie chicken and sand dune lizard in southeast New Mexico. Both the lesser prairie chicken and sand dune lizard are candidates for protection under the Endangered Species Act.

Included in the program are agreements for participants to voluntarily undertake or fund conservation measures for the species. The Service recommends using the agreements to encourage conservation, while providing greater certainty that if a species becomes listed as "threatened" or "endangered" despite their efforts, landowners will not be required to make significant additional changes in their activities on federal or non-federal lands.

The lesser prairie chicken and the sand dune lizard uses habitat on intermingled federal and non-federal lands. Under the program, a Candidate Conservation Agreement applies to federal agencies and ranchers or energy companies that lease lands from the federal government. A Candidate Conservation Agreement with Assurances applies to private landowners, state agencies, and entities leasing state lands.

"Because of New Mexico's mix of federal, state and private lands, one conservation approach isn't enough," said Southwest Regional Director Benjamin N. Tuggle. "The voluntary agreements provide an avenue to integrate conservation efforts across these intermingled land ownerships."

Landowners who sign on to the Candidate Conservation Program could be asked to do some of the following: allow lesser prairie chickens to be placed on their lands; control mesquite, the potential for which could, if allowed to spread unchecked, negatively impact habitat; make grazing modifications; modify fences to reduce collision by prairie chickens; avoid leasing habitat to energy development; keeping new surface disturbances out of dune areas; removing abandoned powerlines; and, agreeing not to modify occupied and suitable shinnery oak habitat.

The Bureau of Land Management will work with the Service and CEHMM to identify projects and mitigation measures for landowners and companies that participate in the agreements.

Earlier this year, the BLM completed a Resource Management Plan Amendment for public lands in southeastern New Mexico to protect the species. The conservation measures to be applied under the Candidate Conservation program will add to these efforts, and multiply the benefits to the two species. □

Elizabeth Slown, Public Affairs, Albuquerque, New Mexico

Going Green

In November, the Service received seven Department of the Interior Environmental Achievement Awards for energy conservation and sustainability projects.

Interior's Environmental Achievement Awards recognize employees and partners who have made outstanding contributions through departmental projects in preventing pollution and waste, recycling, green purchasing, environmental management, sustainable designing and the greening of facilities, and using alternative fuel and fuel conservation in transportation.

Service recipients are:

Dan Thorington, Comprehensive Recycling Program for Alaska Islands and Ocean Visitor Center, Alaska Maritime National Wildlife Refuge. Thorington started an outstanding recycling program for Alaska Islands and Ocean Visitor Center. He produced a creative and comprehensive recycling guide for visitors and employees. The program has diverted 80 percent of waste from the center, and forged recycling partnership with others in the community.

Nulhegan Basin Green Administration Building and Visitor Contact Center, Silvio O. Conte National Fish and Wildlife Refuge, Vermont. The Nulhegan Basin Administration Building and Visitor Contact Center at the Silvio O. Conte National Fish and Wildlife Refuge is the first Energy Star Building for the Fish and Wildlife Service. It achieved a Silver designation under the Leadership in Energy and Environmental Design rating standard.

Hybrid Solar Photovoltaic and Wind Energy System, San Andres National Wildlife Refuge, New Mexico. Using a tiered approach to install on-site renewable energy generation, the San Andres National Wildlife Refuge is able to supply 100 percent of its own power for several months out of the year and has decreased energy intensity by 80 percent from the Fiscal Year 2003 baseline.

Joel Kemm, Bio-Energy and Habitat Restoration on the St. Croix Wetland Management District, Stanton Prairie Waterfowl Production Area, Minnesota. Kemm created a mutually beneficial partnership with loggers to remove scrub brush and trees for use in bio-energy production. This program saved money, restored habitat at the Stanton Prairie Waterfowl Production Area in Wisconsin and contributed to alternative energy production.

Honorable mentions are Farallon National Wildlife Refuge Environmental Management System Team; Sustainable Tualatin River National Wildlife Refuge Center and Administrative Building Project Team; and Greg Owens, Wilna Lodge Modular Building, Rappahannock River Valley National Wildlife Refuge. □

DOI Communications

poetry upon the ocean

Long viewed as a symbol of good omen, the albatross is a bird of legend and extremes.

By Amy J. Gaskill, Marc Romano, Maura Naughton and Greg Balogh

I remember the first albatross I ever saw. It was during a prolonged gale, in waters hard upon the Antarctic seas…I saw a regal, feathery thing of unspotted whiteness, and with a hooked, Roman bill sublime. At intervals, it arched forth its vast archangel wings…Long I gazed at that prodigy of plumage. I cannot tell, can only hint, the things that darted through me then. But at last I awoke; and turning, asked a sailor what bird was this. A goney, he replied. **—From *Moby Dick,* by Herman Melville**

DAVID PATTE

Laysan Albatross pair tending egg at breeding grounds.

The "gooney bird," or albatross, is a bird of legend and extremes. Long viewed as a symbol of good omen, this wondrous group of birds boasts the species with the longest wingspan at more than 11 feet. Soaring on these "vast archangel wings" the albatross is one of the greatest long distance wanderers in the world. A breeding albatross can fly more than 10,000 miles to deliver a single meal to its chick and a fledgling wandering albatross will fly more than 110,000 miles in its first year alone.

Only two albatross species breed in the United States, the black-footed albatross (*Phoebastria nigripes*) and the Laysan albatross (*Phoebastria immutabilis*). They are distinguished from most other species by their Northern Hemisphere distribution. There are 20 islands that support black-footed or Laysan albatross colonies in most years, spreading from the East China Sea to the waters off Baja California, Mexico. At sea, black-footed and Laysan albatrosses range over most of the North Pacific Ocean and into the Bering Sea of Alaska.

The core of their breeding range is the collection of small islands and atolls of the Northwestern Hawaiian Islands. More than 96 percent of the world's black-footed albatrosses and 98 percent of the world's Laysan albatrosses breed on these islands, most of which are under the jurisdiction of the U.S. Fish and Wildlife Service.

The breeding populations and ranges of both species were greatly reduced during the 1800s and early 1900s, when hunters extirpated birds from most of the colonies in the Western Pacific to provide feathers for the millinery trade. In 1903, President Theodore Roosevelt sent marines to guard Midway Atoll to protect the birds against hunters, and in 1909 he declared the Northwestern Hawaiian Islands a bird

reservation. This area later became the Hawaiian Islands National Wildlife Refuge and today is included in the Papahānaumokuākea Marine National Monument, one of the largest marine protected areas in the world.

Populations of both black-footed and Laysan albatross have increased significantly since the cessation of feather hunting in the early 1900s. However, globally the black-footed albatross is listed as endangered by the International Union for Conservation of Nature (IUCN) and the Laysan albatross is listed as vulnerable. These listings were based on predicted population declines from expected mortalities associated with longline commercial fishing. Other current and potential threats to these species include non-native, invasive predators at the breeding colonies; disease; contaminants; and sea-level rise related to global climate change. In the United States, a petition to protect black-footed albatrosses under the Endangered Species Act was submitted by Earthjustice in 2004 and is currently under review.

The U.S. Fish and Wildlife Service is moving toward the goal of maintaining or increasing black-footed and Laysan albatross populations by working with partners to quantify and address potential threats to these species. To guide this work the Service created a comprehensive Conservation Action Plan (Action Plan) and launched an innovative long-term monitoring program to track albatross populations at their breeding colonies.

The Action Plan was initiated by the Service, but it is truly the product of a diverse group of agencies, organizations, and individuals with a responsibility or interest in albatross conservation. The Action Plan is intended to provide a framework for partnership-based conservation and management. The core of the document is a list of specific action items that, when implemented, will reduce threats to black-footed and Laysan albatrosses and prevent or stem population declines.

Many of the highest priority actions identified in the plan address the issues of mitigation and monitoring of the incidental take of albatrosses in commercial fishing operations (fishery bycatch). Albatrosses spend much of their lives feeding at sea, and their foraging distribution often overlaps with commercial fishing operations. According to the IUCN, incidental fishery bycatch has been the most significant source of mortality for black-footed and many other albatross species. "More than a hundred thousand albatrosses [worldwide] drown in fishing gear every year," said Dr. Beth Flint, a wildlife biologist with the Service's Pacific Remote Islands Refuge Complex.

Biologists are working directly with fishers and industry groups on mitigation measures to reduce the bycatch of albatrosses. Methods such as adding weight to longline fishing gear to quickly sink baited-hooks, or setting fishing gear from the side of the boat instead of from the back are very effective in reducing bycatch. Some other successful measures include dyeing bait dark blue, deploying streamer lines to scare birds away from gear, and setting fishing gear at night. Hawaiian fleets have reduced seabird deaths by 97 percent by employing these techniques. But they aren't the only fishing fleets on the open seas.

The albatross is one of the greatest long distance wanderers in the world.

This light-weight geo-location device enables sea bird biologists to track long-range movements of tagged birds for up to two years.

To truly understand the full range of threats to albatrosses and assess the effectiveness of conservation actions, Service wildlife biologists Maura Naughton and Marc Romano with the Pacific Region Office of Migratory Birds and Habitat Programs, have been working with partners to develop a standardized set of monitoring protocols. These protocols are the foundation of a demographic monitoring program that is being designed with the collaboration of scientists from the U.S. Geological Survey's, Patuxent Wildlife Research Center in Maryland. The monitoring objective is to estimate a variety of key demographic parameters, such as adult survival, reproductive success and proportion of adults breeding each year. This is a challenging task, given that Laysan and black-footed albatrosses are known to live to more than 40 years of age. The information gained from this new monitoring program will allow the Service to track the health of black-footed and Laysan albatross populations over decades. This state-of-the-art monitoring effort is currently taking place on National Wildlife Refuge lands at the main albatross breeding colonies in the Northwestern Hawaiian Islands.

Several other Action Plan priorities have similarly moved quickly into implementation. For example, Naughton and Romano are teaming up with Dr. Scott Shaffer of the University of California, Santa Cruz to track the long-range movements of albatrosses at sea using cutting edge geo-location technology. Small, lightweight devices enable the team to track the daily movements of tagged birds over a two year period. Ultimately, these data will be combined with information on fishing distribution and intensity to determine areas where at-sea albatrosses may be at risk.

A recurring theme in the development of the Action Plan is the integration of education and outreach. A public more aware of the unique nature of albatrosses and their conservation needs serves to generate support for conservation action. The breeding colonies on the main Hawaiian Islands have the potential to serve as demonstration sites where the public can view albatrosses first hand in their natural habitats. Webcams and other interpretive tools are being considered to bring the remote colonies of the Northwestern Hawaiian Islands into homes and classrooms, spawning a conservation attitude toward albatrosses and other Pacific seabird species.

This is an exciting time to spread the story of the albatross because emerging technology and innovative scientific research is providing a new window into their fascinating and unique life history. At the same time, the Service is working in diverse ways to ensure the future of this "living poetry upon the ocean…" which is how author Carl Safina so aptly described these magnificent birds. □

Amy J. Gaskill is a public affairs specialist in the Pacific Region; Marc Romano and Maura Naughton are seabird biologists in the Pacific Region; and Greg Balogh is a seabird biologist in the Alaska Region.

a leap

A Chiricahua leopard frog from the Pajarito Mountains in Arizona near the Mexican border.

Recovery — it is the most important part of endangered species conservation. For most species, considerable funding and staff resources are needed to overcome years of population declines and habitat degradation. Despite the limited resources available, and with a lot of help from friends and partners, the U.S. Fish and Wildlife Service has put together a recovery program for the threatened Chiricahua leopard frog (Lithobates chiricahuensis).

To augment the scarce funds available for recovery activities, the Service has engaged its Partners for Fish and Wildlife Program and applied to grants and foundations. The Service and a dedicated host of partners are slowly making progress toward the recovery of this species.

The Chiricahua leopard frog is a large, often green, spotted frog that historically was common in the mountains and high valleys of central and southeastern Arizona, west-central and southwestern New Mexico, and southward in the Sierra Madre Occidental and associated sky islands of northeastern Sonora and western Chihuahua, Mexico. The frog was known to inhabit 469 historical localities. Declines were first noted in the early to mid-1970s, and today the species is only known to exist at about 41 localities in Arizona and 30 to 35 localities in New Mexico. Its status in Mexico is poorly known, but Chiricahua leopard frogs have declined to some extent there as well. The Mexican government lists it as amenazada (threatened).

The causes of the decline are not always clear, and several interacting factors are often at play, but experts on the Chiricahua leopard frog generally agree that predation by introduced species (especially American bullfrogs, sport fishes, and crayfish), and an apparently introduced fungal skin disease (chytridiomycosis) that is killing frogs and toads around the globe are the leading causes. Other problems, such as loss and degradation of wetlands, recent catastrophic wildfires, drought, and contaminants, have contributed to the decline.

The Chiricahua Leopard Frog Recovery Plan was completed in early 2007. It was developed in an open process with a technical team that provided top-notch scientific expertise, while three stakeholder groups kept the process grounded in the social, economic, and nuts-and-bolts realities of achieving recovery on the ground. Key elements include protecting the remaining populations and habitats, establishing new populations, monitoring progress, research, public outreach, and adaptive management.

The primary threats — introduced predators and chytridiomycosis — are not easily addressed. Predators can be controlled at small sites, but eliminating them from large, complex systems is often impossible with current technology. Except for taking precautions not to spread the disease ourselves, scientists are only beginning to understand how to deal with chytridiomycosis. Some frog populations are persisting with the disease, especially at warmer and lower sites, and they could provide key insights into how to manage the disease. The recovery team is looking into several questions: are the frogs developing resistance to the disease? Are there environmental factors allowing their persistence, or both? The Service has experimented with eliminating the disease from habitats but are a long way from solving that problem. The strategy for now has been to try to maintain the remaining populations and begin reestablishing populations and improving habitats in places where introduced predators and disease are absent or manageable.

Chiricahua leopard frog recovery is still a distant destination, but the journey has begun.

forward

By Jim Rorabaugh, Melissa Kreutzian, Mike Sredl, Charlie Painter, Roberto Aguilar, Juan Carlos Bravo, and Carter Kruse

Combining outreach and recovery, students and their parents from Sierra Vista, Arizona, assist in a release of frogs that were headstarted at the Phoenix Zoo.

These reintroductions typically involve collecting egg masses from the wild, hatching the eggs and headstarting tadpoles at the Phoenix Zoo or other facilities, and releasing late-stage tadpoles or metamorph frogs. Limited wild-to-wild movements of egg masses and frogs, as well as captive propagation, have also been employed. Scientists have honed techniques and protocols over the past 12 years, and most reestablishments now successfully result in breeding populations.

These recovery actions have been facilitated by 1) a special rule under section 4(d) of the Endangered Species Act that allows incidental take of frogs resulting from operation and maintenance of livestock waters on non-federal lands, 2) Safe Harbor Agreements with the Arizona Game and Fish Department and the Malpai Borderlands Group (a progressive group of conservation ranchers), and 3) programmatic grazing consultations with involved federal agencies on public lands. The 4(d) rule and Safe Harbor Agreements help us build trust with ranchers and private landowners, while the programmatic consultations provide a framework within which to move forward on recovery with the Forest Service, Bureau of Land Management, and livestock grazing permittees. Artificial water sources developed for cattle have become important habitats for Chiricahua leopard frogs, so tools that help the Service work in partnership with ranchers are critical to recovery.

On Ted Turner's Ladder Ranch in New Mexico and at a high school in Douglas, Arizona, captive propagation and head-starting facilities are under construction. Thanks to the Arizona Game and Fish Department, Tonto National Forest, and Phoenix Zoo, aggressive efforts to restore habitats and reestablish populations are rebuilding a metapopulation (a group of spatially separated populations that exchange individuals through immigration and emigration) of Chiricahua leopard frogs near Young, Arizona. Meanwhile, the Phoenix Zoo and the Arizona-Sonora Desert Museum near Tucson are cautiously breeding the last remaining frogs from the Coconino National Forest and the Santa Rita Mountains in Arizona for reestablishment at multiple sites. Major habitat restoration programs underway at two sites in southeastern Arizona, and one in the boot heel of New Mexico will benefit Chiricahua leopard frogs and other imperiled wetland species. We are also working with Mexican partners to build capacity for amphibian conservation in northwestern Mexico. In August 2008, the Service will hold a workshop at a private reserve in northern Sonora owned by Naturalia (a Mexican conservation group) to instruct Mexican biologists on survey protocols and techniques for captive husbandry, propagation, and headstarting of amphibians.

Restoring an imperiled species is not an easy process, but with hard work from many partners, all parties are beginning to see how the Chiricahua leopard frog might one day be secure again. Recovery is still a distant destination, but the journey has begun. □

Jim Rorabaugh, the Service's recovery leader for the Chiricahua leopard frog, is located in the Tucson, Arizona, Field Office. Melissa Kreutzian, the Service's lead for Chiricahua leopard frog recovery in New Mexico, is located in Albuquerque. Mike Sredl is the Ranid Frog Programs Manager for the Arizona Game and Fish Department in Phoenix. Charlie Painter is the herpetologist for the New Mexico Department of Game and Fish in Albuquerque. Roberto Aguilar, DVM, is the Director of Conservation and Science at the Phoenix Zoo. Juan Carlos Bravo, Naturalia's Northwestern Mexico representative, is located in Hermosillo, Sonora. Carter Kruse is a senior aquatic biologist with the Turner Endangered Species Fund in Bozeman, Montana.

SANDY BURK

Students sample fish near Elizabeth Hartwell Mason Neck National Wildlife Refuge after their shad release.

Students in the Schools in Schools program are helping restore American shad to the Potomac River—and learn the value of conservation.

By Sandy Burk

river of hope

Painting of American shad by Andrea Barnes

This spring, hundreds of Virginia students traveled to Occoquan Bay National Wildlife Refuge part of the Potomac River NWR Complex near Washington, DC to release thousands of American shad and see bald eagles fishing. For more than 15 years students have hatched and restocked shad as part of the Potomac River American Shad Restoration Project's Schools in Schools program.

The program is coordinated by Living Classrooms of the National Capital Region in partnership with the U.S. Fish and Wildlife Service, Interstate Commission on the Potomac River Basin, Chesapeake Bay Foundation, Anacostia Watershed Society, Chesapeake Bay Restoration Fund, Chesapeake Bay Trust, and the Mirant Corporation, LLC.

American shad are the largest herring in the world and make up a critical part of the food webs of the coastal rivers of the United States. During the past century, shad numbers declined dramatically due to overharvesting, dams, and pollution. Schools in Schools students are helping bring them back.

Harrison Lake National Fish Hatchery has been a key partner in this effort since its inception, designing the student tanks with the Chesapeake Bay Foundation and offering technical assistance for hatching and raising the fish. Shad release sites on the Potomac River now include Occoquan Bay, adjacent to part of the historic spawning grounds for American shad on the Potomac River.

Getting kids outside to refuges, especially for school credit, can be a challenge for any school or refuge staff. Liability, standardized testing, limited time- all of these are hurdles teachers often face when trying to get their students outside to learn.

Schools in Schools is helping to change that by offering activities that help teachers reinforce the curriculum concepts they teach, as well as provide field experiences that give students credit toward graduation.

Understanding the effect of human activities on the local watershed has been a focal point for the science curriculum in many states, including Virginia, where teachers and students are encouraged to participate in a Meaningful Watershed Educational Experience (MWEE). Releasing fish, monitoring water quality, and doing bird surveys at a refuge allow students to participate in these MWEE experiences, which can then lead to service learning credit.

In Virginia, starting in the eighth grade, and Maryland, starting in the sixth grade, students can earn service learning credit for restoring shad, doing native plantings and monitoring wildlife as part of the Schools in Schools project. These activities support the Service's Connecting People with Nature initiative by getting kids outside and involved with nature for credits through working with a National Fish Hatchery and refuge complex.

During the Schools in Schools project, students join Service and River Commission biologists and watermen to fish for shad and to collect shad eggs. They get to bag eggs and help transport them to their schools. While collecting fish or releasing shad, they often see bald eagles and osprey fishing, too, observing the food web of the river first-hand.

Back in the classroom, students hatch the shad in tanks designed by Harrison Lake National Fish Hatchery staff. With guidance from Living Classrooms and hatchery staff, students monitor and treat the tanks to ensure successful shad hatching and growth until they are released by students.

After raising the shad for a week, students travel to release sites along the Potomac River including Occoquan Bay and Great Falls National Park. Occoquan Bay lies in the tidal section of the Potomac River, just downstream of Washington, DC. Great Falls is just upstream of Washington. Waters adjacent to the refuge are part of the historical spawning area for American shad.

Since 1996, more than 100 schools have raised and released hundreds of thousands of shad into the Potomac River. Shad students also helped get a fishway into the Little Falls dam, which was blocking their shad from returning upriver to spawn.

Shad are now returning to the Potomac in great numbers. The program has been featured on national TV and in an award winning book *Let the River Run Silver Again!*, which shad students helped write. Schools from other river areas around the mid Atlantic—from North Carolina to New Jersey—have also started to raise shad.

Last year, Schools in Schools teachers received training in a new food web activity and how to use the eagle web cams at Blackwater National Wildlife Refuge and the Service's National Conservation Training Center. During the food web activity, students built the food web of their river with plant and animal cards including the bald eagle and shad. The food web activity illustrated how the entire ecosystem of a river—including the eagle—benefits directly from healthy fish populations, including shad.

Students also watched the eagle cams, observing eagle behavior in the nest. Both eagle cams vividly showed the eagle parents feeding their eaglets fish, with the Blackwater eagle cam on the Chesapeake Bay showing the eagles feeding shad to **>>**

MARTY MCLEVY / USFWS

Jim Cummins, a biologist with the Interstate Commission on the Potomac River Basin, harvests eggs with elementary school students.

American shad make up a critical part of the food webs of the coastal rivers of the United States. During the past century, shad numbers declined dramatically due to overharvesting, dams, and pollution.

River, continued from page 13

their eaglets. Such visual reinforcement of their food web lesson was exciting for the students and dramatically reinforced their understanding of food webs.

Students learned that eagles need to feed their young every two hours or so until they fledge, and that their primary food is fish, including shad and other herrings for coastal eagles. They also learned that the Elizabeth Hartwell Mason Neck National Wildlife Refuge, across from where they release their shad, was the first refuge to be specifically established for the protection of the bald eagle. According to Deputy Refuge manager Daffny Hoskie, this area of the Potomac River is now home to one of the largest concentrations of bald eagles in the mid Atlantic.

Watching the eagle cams at school led many shad students and teachers to want to visit Elizabeth Hartwell Mason Neck NWR and Occoquan NWR, two of the three refuges within the Potomac River NWR Complex, to see the eagles first-hand. So Refuge Ranger Marty McLevy and shad project staff from Living Classrooms planned their field experience at Occoquan NWR to include releasing the student-raised shad, monitoring water quality and bird watching for eagles and other birds.

On the shad release day, students from Virginia's South County Middle School in Fairfax County lined the Occoquan Bay beach to release their fish. Service fishery biologist Lisa Moss explained to the students how their shad would migrate to the Atlantic Ocean and return in three to four years to lay their eggs near the refuge. She also told how the Service helps restore fish such as American shad through the hatchery program.

NCTC Distance Learning Coordinator Randy Robinson followed with a talk on the history of the bald eagle and how proper management by the Service and the banning of the pesticide DDT had resulted in the bald eagle's recovery. The eagle was removed from the endangered species list in June 2007.

Robinson pointed out that the eagles continued success depends on healthy fish populations in our nations rivers, and that eagles on the eagle cams and those they were about to see on the refuge may someday feed on the very shad that they were releasing when those shad returned to the river to spawn.

After releasing their shad, the seventh graders walked the refuge to do a bird survey with McLevy. Spotting a bald eagle nest and eagles fishing across the river at Elizabeth Hartwell Mason Neck NWR, the students were thrilled. Having watched eagles hatch and grow on the Service eagle cams, the students were excited to see some active eagle nesting and hunting grounds at the refuge.

JEANETTE O'CONNOR / LIVING CLASSROOMS

Fisheries biologist and author Sandy Burk shows students how to care for American shad hatching in the shad tank built by the students.

Online Resources

To view the NCTC eagle cam, visit <www.fws.gov/nctc/cam>

To view the Friends of Blackwater eagle cam, visit <www.friendsofblackwater.org/faq.html>

Watch for the new "Be an Eagle Biologist For A Day" Student activity under the Student and Teacher section of both eagle cams.

To learn more about the Schools in Schools program, visit <www.livingclassroomsdc.org/ShadRestoration.htm>

To learn more about the Potomac River shad restoration project, visit <www.potomacriver.org>

To see the free food web activity listed in this article, visit <Growingnative.org> and click on Educational Resources, Growing Native Curriculum, Lesson 3.3.5.

Viewing the distant eagle nests across the bay from their shad release site and seeing the eagles hunting overhead, the students made the connection first-hand on how the bald eagle was a beneficiary of their shad restoration work. In three to four years, the shad that they had just released could return to feed the refuge's eagles.

To complete their field experiences, Schools in Schools students got a chance to participate in the first annual Nation's River Bass Tournament held in May at National Harbor on the Potomac River. The event was coordinated by Living Classrooms and featured fishing guides and dignitaries such as Service Director H. Dale Hall, and Tim Keeney, Deputy Secretary at the National Oceanic and Atmospheric Administration. South County Middle School teacher Jeanine Carter and her students won the tournament's first prize, catching the largest largemouth bass—another important part of river's ecosystem and prey of the bald eagle. And underneath their boats, baby shad were swimming down the Potomac River to begin their great journey to the sea. □

Sandy Burk is a fisheries biologist and educational consultant currently working at the National Conservation Training Center. She has developed environmental education outreach materials with the Service for more than 15 years.

THOMAS BARNES / UNIVERSITY OF KENTUCKY

Students are taught the connection between their shad restoration efforts and how it has helped recovery of the bald eagle.

GRIM HARVEST

Illegal hunting and bushmeat trade threaten the future of African wildlife.

By Dirck Byler

Increasing pressure from poaching is driving the decline of Eastern Africa's magnificent assemblages of wildlife. Fueled by an expansion of the commercial trade in bushmeat—a term applied to any wild game hunted for food—illegal hunting is decimating populations of hippopotamus, wildebeest, zebra, and many other species that play a critical role in maintaining important ecological processes.

The threat is not just to wildlife but to a lucrative tourist industry that is also one of the continent's biggest employers. The intense pressure is overwhelming the existing capacity of wildlife agencies to address the issue, which is fueled by a booming demand for bushmeat from urban markets and even from African immigrants living in the United States. It's a trend the U.S. Fish and Wildlife Service and dozens of partners have worked for years to reverse—largely in the forested areas of Central and West Africa.

As part of a larger effort to raise awareness, build conservation capacity, and take direct action in Eastern Africa, the Fish and Wildlife Service recently launched an innovative new fellowship program at the College of African Wildlife Management in Mweka, Tanzania. The MENTOR Fellowship Program (Mentoring for Environmental Training in Outreach and Resource conservation) is aimed at training emerging wildlife professionals from four Eastern African countries (Kenya, Southern Sudan, Tanzania, and Uganda) in the requisite skills required to address the illegal bushmeat trade. "This new fellowship program will not only directly bolster capacity of wildlife professionals in Eastern Africa to address the illegal bushmeat issue, but increase the capacity of the college to provide instruction to our existing student body," said Freddy Manongi, Deputy Principal of the College, during a ceremony marking the start of the program.

Migratory species, including wildebeest and zebra (above), and animals outside of well-protected areas are particularly susceptible to meat hunters' snares.

MICHELLE GADD / USFWS

The foundation of the program is the involvement of four highly experienced African conservation professionals who will work side-by-side with the fellows throughout the 18-month program. "As a mentor in this program, I see an opportunity to focus public attention on this issue, as well as to involve students in carrying out practical field activities to conserve wildlife in my country and throughout Eastern Africa," says William Olupot, a senior research scientist with the Wildlife Conservation Society. Thadeus Binamungu, another mentor and a senior project officer with the African Wildlife Foundation, says "It's a chance to pass on our experience in wildlife conservation, especially on issues related to illegal bushmeat, to the next generation of wildlife professionals."

The diverse backgrounds of the fellows selected reflect the multiple facets of the illegal trade, (policy, education, law enforcement, and science). Vincent Opyene, a Ugandan fellow and attorney who has worked as a government prosecutor, wants to increase his knowledge of the issue to ultimately improve Ugandan wildlife regulations. "Many in the Ugandan legal community are simply not aware of the legal guidelines and regulations concerning wildlife crimes. Issues related to wildlife are not often part of legal course work at our universities. We need to increase the understanding of wildlife values and develop precedence for successful wildlife prosecution under Commonwealth law."

Many of the fellows are personally involved with the issue, having witnessed declining wildlife populations during the past two decades in their own villages or towns. Lowaeli Damalu grew up in a small Tanzanian village that depended upon hunting. Damalu's interest in wildlife conservation was cemented at a young age, having seen the importance natural resources played in the life of her family and larger community, "As a young girl, many of the hunted species were plentiful in the areas around my village, but today they are gone. My father once depended upon hunting to put food on the table, but this is no longer an option for my community." Initially, many told her wildlife management would be too tough for a woman, but fortunately she was hired as an Assistant Warden at Saanane Island Game Reserve in Tanzania. She later became a wildlife law enforcement and intelligence officer for the Ministry of Natural Resources and Tourism.

Today, as a fellow in the MENTOR program, Domalu is seeking to address a key component of the issue—consumer demand for bushmeat in urban areas such as Tanzania's capital Dar es Salaam. "I'm looking at ways to reduce the demand," says Damalu, "by raising awareness of the impact bushmeat hunting has on biodiversity, human health, organized crime and increasing the availability of sustainable alternatives."

EVANSON KARIUKI / USFWS FELLOW

Bushmeat hunter caught by park police in Kenya.

Evanson Kariuki, a MENTOR Fellow from Kenya, has spent many years working on desnaring campaigns in the Masaai Mara and is now very concerned about the impact of bushmeat hunting on tourism development. He says, "It is heartbreaking for tourists to see wildlife hurt by snares such as elephants who have lost parts of their trunks. The bushmeat trade could have longer term negative impacts on ecotourism growth and prosperity in Eastern Africa."

Finding sustainable alternatives to illegal bushmeat requires an understanding of the nutritional, economic, and cultural needs of local communities. "The MENTOR program brings together expertise from numerous sectors, such as community development and health," comments Heather Eves of the Bushmeat Crisis Task Force. "Fellows in the program become part of a larger community of practitioners working in multiple disciplines and coming up with alternatives to assist local communities in meeting their needs." Fellows participating in the program also gain greater exposure to the international dimensions of the issue and develop new contacts with the overall long-term goal of developing a coordinated response to the bushmeat crisis in Eastern Africa.

During the course of the program, the fellows implement field projects in their home countries. The first phase involves conducting national and local bushmeat assessments through field work, research, monitoring, stakeholder workshops, and policy reviews. Based on these assessments, the fellows develop innovative pilot interventions to address issues such as alternative livelihood and food security strategies, policy and legal solutions, law enforcement, wildlife-human health interactions, and/or education and constituency building activities.

The 18-month fellowship program culminates in a major regional conference, organized by the fellows themselves. The conference will involve participants from a diverse range of backgrounds to discuss illegal bushmeat and the intersection of health, development, and conservation. "By bringing together multiple stakeholders, we hope to achieve consensus on the next steps necessary to reduce the impact of the illegal bushmeat trade in Eastern Africa, while improving the livelihoods of local people," says Nancy Gelman, program coordinator.

The MENTOR fellowship program is funded through a cooperative agreement signed by the Fish and Wildlife Service, the College of African Wildlife Management, and the Africa Biodiversity Collaborative Group, (a consortium of the African Wildlife Foundation, Conservation International, the Jane Goodall Institute, the Nature Conservancy, Wildlife Conservation Society, World Resources Institute, and the World Conservation Union (IUCN), World Wildlife Fund). □

Dirck Byler is Program Officer for the Division of International Affairs-Africa Programs, in Arlington, Virginia.

A BIRD'S EYE VIEW

Wyoming's wind energy potential is undeniable, but the state's challenge will be to lessen the downside for wildlife.

By Marilyn Stone

Birds and bats fly. An obvious statement, but have you pondered the ramifications of airspace as habitat? Wind energy development and its impacts on aerial wildlife prompt us to consider airspace in new ways. What should soaring raptors use of wind currents when hunting tell us about turbine siting? How does weather affect the altitude of migrating songbirds and how can we mitigate mortality from collisions with spinning blades? Why are there more dead bats than birds found beneath turbines?

Wildlife biologists are seeking the answers to these and other questions as wind joins the country's suite of energy resources.

Many wind energy turbines are sited on private land, which often restricts data collection of the turbines' impact on wildlife. To address this roadblock, the U.S. Fish & Wildlife Service and several partners have purchased conservation easements in the Prairie Pothole region of North and South Dakota where wind turbines are sited. In 2008, the first year of a three-year study was completed on the effects of turbines on breeding dabbling ducks, such as mallards and blue-winged teal. Insights from this study in North America's Duck Factory may help with siting and mitigation considerations as wind energy facilities spring up across the country.

In Wyoming, wind energy potential ranks seventh in the nation according to American Wind Energy Association (AWEA). The state's challenge, as it is elsewhere, will be to lessen the downside for wildlife.

Wind turbines' penetration of airspace has caused bird and bat mortality, although the amount and impact of that mortality is disputed. Land-based turbine blades are intruding farther into airspace. To harvest energy from lower speed winds, both towers and rotors must reach higher, which also increases the rotor-swept areas and the intrusion into air habitat. New models now exceed 425 feet in height and a new blade developed by Knight & Carver in partnership with Sandia National Laboratories is being tested. The blade measures about 89 feet in

OF WIND ENERGY

length, approximately 10 feet longer than previous standard designs.

Dave Young, a wildlife biologist with WEST, Inc. an environmental consulting firm in Cheyenne, says their studies have found less bird mortality, especially raptor mortality, with larger turbines with slower moving blades. Slower is a relative term, however. The turbine blade tips may still be moving between 100 and 185 miles per hour depending on the turbine model and the wind speed.

A decrease in the visual smear effect is one hypothesis to explain the decreased mortality among raptors. Visual smear occurs when a blade, such as a small plane's propeller, spins so fast that it disappears to visual perception.

A Rough Ride

Just as a building creates swirling snowflakes, the turbine blades create turbulence, too. Does this turbulence only give birds and bats a rough ride if they enter that airspace or is there something more sinister occurring? Bats have been found beneath turbines with collapsed lungs and burst blood vessels, but no other sign of injury, which makes a decompression-related death a possibility, in the opinion of Dr. Al Manville, a biologist with the Service's Migratory Bird Office.

Young has seen up to 70 percent to 80 percent of the mortality at newer wind energy projects made up of passerines or perching birds. Total estimates of mortality are only one or two birds per megawatt, however, so the total number of birds killed isn't alarming, in his opinion, especially when compared to other sources of avian mortality such as building windows, highways, communications towers, oil spills, pesticides and cats.

On the flipside, Manville is concerned that populations already in decline or threatened can't take another hit. In fact, Wyoming passerine species such as Western meadowlarks, lark buntings and bobolinks, have been declining in North America for many years. In his words, "It's a tough nut to crack."

Biologists disagree as to whether the study design captures an accurate picture of mortality, however. **>>**

FLICKR / GARY WEDDLE

Studies have found that sage grouse abandon mating areas near tall structures where predators could perch.

Wind, continued from page 21

Manville has concerns that scavengers are removing songbird carcasses before they're counted, thus skewing mortality estimates toward the low end, although these are still the best data available.

Bob Oakleaf, head of Wyoming Game and Fish Department's non-game section, shares Manville's concerns on mortality estimates, especially regarding the search area for small birds such as bluebirds, saying, "The first feather drop might be in Nebraska" after a collision with a turbine blade. Some studies suggest resident birds learn to avoid the turbines, with migrants accounting for most of the body count.

Migrating songbirds usually fly at altitudes of 500 feet or higher during fair weather, but the turbine heights are approaching that elevation. Storms-especially at night-boost the risk to migrants, as the birds fly much lower during inclement weather. Turbine lighting differs from that of communication towers, however, and the difference means less mortality for birds. Lights on the nacelles of turbines, the gearbox and drive train housed at the top of the tower, are generally red-strobe or red-blinking incandescent lights, which seem to be less attractive to the birds.

Although resident birds may have the advantage of familiarity with local dangers, they're not bulletproof, so to speak. Jim Watson, research biologist with Washington Department of Fish and Wildlife, has been studying ferruginous hawks in Wyoming and elsewhere in the West. "When raptors are in a territorial encounter with another bird, they go charging through their territory haphazardly. That's when they're most likely to get whacked," says Watson. "It's somewhat speculative at this point and it's only been shown in a golden eagle study, but I think it makes a whole lot of sense."

FLICKR / CHARLENE BURGE

Altamont Pass Wind Resource Area in California.

Habitat Impacts

Even without direct mortality, Watson sees the wind energy projects as a permanent habitat alteration that will diminish available habitat.

"The faulty logic in mitigation for turbines presently is largely to account for the footprint occupied by the turbine," explains Watson. "But the area they're affecting is much wider. There's a vertical airspace component, plus a greater horizontal zone in which the raptors probably won't forage."

Researchers are investigating several technological or structural mortality mitigation strategies. For instance, the angle of the blade can be adjusted or feathered to stop or slow rotation. Feathering keeps the blades from spinning too fast and breaking in a gale. If radar could detect in-coming flocks of birds and signal the turbines, the blades could be feathered until the birds pass.

Current radar technology can generally detect "targets." Although the targets might be birds, bats, insects or weather phenomenon such as rain, radar is still valuable. Researchers can tease out the identity of targets by using filters, interpreting the images, and validating the "targets" by visual or other means.

Biologists studying wind energy projects in West Virginia and California found that the most mortality in a row of turbines along the ridgeline occurred at the first turbine, leading to another potential mitigation strategy. Perhaps a "dummy turbine" at each end of the row would alert birds to avoid the danger of the real thing.

Sometimes mitigation means attempting to maintain a balance between predators and prey. Overhead power lines to the wind energy projects can provide raptors with new perches in an environment historically devoid of such advantages. Although there's no force of law behind best management practices, Bureau of Land Management's (BLM) guidelines suggests burying low-voltage lines up to 69 kilovolts, which includes lines providing power to turbine motors, remote-control communication lines and lines carrying electricity generated by the turbines. The lines are buried in a common trench adjacent to roads so habitat disturbance is minimized.

Walt George, National Project Manager with the BLM in Cheyenne says, "The industry (wind energy) acknowledges that it's cost-effective, practical and safe to bury low voltage power lines."

Alternatively, wind energy companies can use compensatory mitigation where they make modifications at other sites to decrease wildlife mortality. For instance, local power distribution lines built back in the 1930s and 1940s can electrocute raptors. The wires are too close together, allowing the birds to touch two lines at the same time. Wind energy companies can sometimes choose to install perch guards, for instance, to prevent electrocution on old power lines rather than at the site of the turbines.

Altamont Pass Wind Resource Area east of San Francisco in California taught us valuable lessons about location. One of the factors making the facility particularly deadly for raptors was siting it on a ground squirrel colony where the birds hunt.

In addition to avoiding sites of colonial prey habitat, Oakleaf of Wyoming Game and Fish Department says it's important to locate wind energy projects back from canyon rims. Raptors use rising wind currents as they soar and survey the ground below for prey. Migration corridors should also be avoided, although Oakleaf recognizes there's much biologists don't know about aerial migration corridors.

The Service would like to make sure that renewables—including wind—are done in as wildlife friendly, habitat-friendly way as possible. That's an unquestionably huge challenge.

Dr. Al Manville, biologist for the Service's Migratory Bird Office

Bad for Bats

Mitigation by siting isn't simple, however. What's good for birds might be bad for bats.

To avoid further habitat fragmentation that disturbs both ground-nesting birds and birds in the air, biologists recommend locating wind energy projects in cropland or areas already fragmented, but researchers need to study the impacts on bats. At least one wind energy project in agricultural and open prairie in southern Alberta, Canada has been associated with much higher than expected bat fatalities.

Dracula's nocturnal escapades may be well documented, but the natural history of bats in the non-mythical realm remains illusive. Bats are 20 percent of the mammals as a group collectively in Wyoming and an important predictor of environmental health, but the research challenges they present mean we know little about them.

Martin Grenier, non-game mammal biologist at Wyoming Game and Fish Department, says the largest of Wyoming's bats, such as the hoary and big brown bats, only weigh 12 to 25 grams or less than an ounce. That limits the weight of radio transmitters to about 5 percent of the bat's body weight or about a half of a gram. A radio transmitter that size lasts only about three weeks. Couple that with bats' nocturnal activity and wildlife managers are operating in the dark, so to speak.

Not all bats found under turbines are dead, however. Some may have been stunned by a non-fatal collision with a blade, but are unable to get airborne from the ground. Pallid and long-eared myotis bats, both found in Wyoming, can fly from the ground, but not all species can do so, including the hoary bat.

Often there are no visible wounds on all bats found dead beneath turbines. Ed Arnett, a biologist with Bat Conservation International says, "Some necropsies by Europeans have found burst blood vessels in the body. We know bats don't fly into stationary objects, but some may get caught in the vortex and suffer some form of rapid decompression. Or maybe they're hitting the blunt ends of the blades."

Necropsies have found bats with collapsed lungs also, again pointing to sudden and fatal decompression.

Grenier is concerned that wind energy projects are being constructed in wind corridors without adequate information on how bats, especially migratory species use the corridors.

Unlike birds, bats seem to be attracted to the turbines, although we don't know why. Based on thermal imaging, bats investigate towers, non-moving and slow-moving blades. Arnett hypothesizes that the bats are curious and may be attracted to potential sites for congregating with other bats or a food source. Bat kills are highest when the wind is light enough to allow the insects to swarm, but still strong enough to propel the turbine blades.

Turbines don't seem to emit ultrasounds that attract bats from long distances says Arnett, but it's possible the swishing sound of the rotors turning or the rotors' movement attracts the bats.

Arnett is experimenting with an acoustic deterrence device that would jam the bats' signals, thus inhibiting their sonar and prompting them to hunt elsewhere. Bats avoided the jamming signal in laboratory experiments, and bats' activity in the area affected by the device was reduced by 50 percent during field tests. The range may be limited to six to seven meters, however, depending on the frequency used by different species, and it could be limited by a time factor as well.

"The history of wildlife management is replete with using deterrence mechanisms, but animals often habituate, so effectiveness declines over time," says Arnett.

If the bats do habituate or if deterrence technology is too pricey, it may be cheaper to feather the blades at certain times, but the effectiveness remains unproven as yet. Changing the sonar signature of the blade may be another way to discourage bats from a fatal flight path, but this has yet to be investigated.

Arnett wants rigorous pre- and post-construction research studies so that wind energy companies and wildlife biologists can identify patterns of mortality and thus predict which sites will have low and high mortality.

"We've found higher fatalities on lower wind nights, for instance," says Arnett. "By doing daily searches, we could correlate fatalities with the previous night's wind and temperature patterns."

Manville says the Service endorses renewable energy, but he voices the concerns of many wildlife biologists when he says, "The industry is moving forward rapidly and we're (the Service) a little behind the power curve. The Service would like to make sure that renewables, including wind, are done in as wildlife friendly, habitat-friendly way as possible. That's the challenge. It's unquestionably a huge one." □

Editor's note: The Service has convened a federal advisory committee to study the effects of wind turbines on wildlife and develop guidelines to assist in the sitting of land-based turbines.

Marilyn Stone is a freelance writer in Paonia, Colorado. This article was originally published in Wyoming Wildlife *magazine.*

Back to Life

Scientists discover that the trispot darter—a species that hadn't been collected in Alabama's waters since 1947—is alive and well.

By Denise Rowell

Female trispot darter collected in the Big Canoe Creek watershed.
DR. PATRICK O'NEIL / GEOLOGICAL SURVEY OF ALABAMA

It was an unusually cold October morning, when six biologists woke up in the small Alabama town of Gadsden. After a hearty, southern breakfast of biscuits and gravy, U.S. Fish and Wildlife biologist Jeff Powell waited for the fog to lift and the air to warm up. The goal was to perform fish surveys at several sites in the Big Canoe Creek watershed, a part of a statewide effort to reintroduce imperiled aquatic species into the state's most sensitive watersheds.

"We were in the process of selecting sites at which we could begin monitoring baseline conditions, prior to the reintroduction," explained Powell.

Alabama is rich in aquatic diversity, with more than 750 species of freshwater fishes, mussels, snails and crayfish. Protecting and restoring them can be overwhelming, and with hundreds of species in trouble, there's no time to lose. That's why biologists are following the Alabama Field Office's Strategic Five-Year Plan. The plan prioritizes the most imperiled habitat types and species, focusing on six different regions within the state. One of those areas includes the Big Canoe Creek Watershed.

"This basin supports at least one known listed mussel species and is designated critical habitat for seven others. In addition, it's a relatively small watershed, which makes restoration somewhat easier than if you were working in a large basin that's receiving a myriad of impacts," explained Powell. "You want to try to hit home runs when you can."

Little did they know, they were about to embark on an incredible discovery.

Beneath the murky water was a treasure-chest of species, and it didn't take long for one biologist to strike gold. Dr. Patrick O'Neil, co-author of Fishes of Alabama, picked up a small fish out of the seine.

"It was different than any of the other species we had collected that morning," said Powell.

After preserving the fish, O'Neil and Powell took a closer look.

"It had three distinct saddles across its back, a reddish band of spots along its dorsal fin and a dark tear drop under the eye," said Powell.

Its characteristics were eerily similar to that of a species that hadn't been collected in Alabama's waters since 1947. Could they have possibly picked up a trispot darter?

"No one had seen one alive in decades," said Powell. "In fact, it was believed to have been extirpated in Alabama for the more than seventy years."

Could it be that this ghost of a fish had come back to life?

Blown away by their findings, Powell was eager to see if they had indeed discovered the trispot darter. After further examination by O'Neil, it was confirmed. The trispot darter was alive in the state of Alabama. Powell says the magnitude of the discovery is immeasurable.

"It's very important because we thought this species was gone forever," said Powell. "Now, it gives all the more credence to our restoration efforts."

Biologists collected eight darters altogether. So, was the discovery just dumb luck?

Not hardly.

In this case, timing and planning were everything. Trispot darters begin their spawning ritual during late autumn. However, most biologists conduct surveys in the summer.

"During the summer, trispot darters are laying-low in their non-breeding habitat. They lurk under the stream banks and other areas that are often difficult to sample," explained Powell. "However, they are much more active and vulnerable to collection in the winter. In late autumn, they actually begin an upstream spawning migration in search of small springs and seeps to deposit their eggs. It just goes to show that you can discover different things at different times of the year."

So, what's the next step for this fickle fish? Powell says it's time to re-evaluate the population status of the species, and begin developing a clear monitoring plan. As for the ground-breaking discovery, Powell says it brings even more motivation to the biologists who have dedicated their lives to conserving and understanding these complex aquatic systems.

"The possibilities are endless," beamed Powell. "As long as we have a solid strategic plan and a passion to explore, who knows what else we can find?"

Denise Rowell is a Public Affairs Specialist with the Alabama Ecological Services Field Office

Conservation in Action is an ongoing series of stories and essays highlighting Service conservation efforts and partnerships. Submissions can be e-mailed to <david_eisenhauer@fws.gov> or sent to David Eisenhauer, editor, Fish & Wildlife News, 4401 N. Fairfax Dr., MS 330, Arlington, VA 22203.

Biologists sorting through a seine full of leak material—the preferred habitat of the trispot darter.

MARTY KODIS / USFWS

River Booty

Anyone who works at a small field station is well acquainted with the need to rally to the cause and help with whatever the day demands. As Visitor Services Manager at Ohio River Islands National Wildlife Refuge (full-time staff of six), I've found myself driving a tractor pulling a tree planter, swirling a brush around the bowl of a toilet, smoothing the surface of freshly poured concrete—it all just needs to be done and sometimes it's your turn even if you're not all that good at it.

Most of the time I welcome these diversions from the routine (except maybe the toilet brush), and you never know where your willingness might take you, like 14 years ago when I agreed to train as a scientific diver. Our refuge biologist, Patty Morrison, needed diving as a tool to assess and monitor native freshwater mussels and asked me to consider training for a dive team.

So there began underwater adventures that have ranged from entering a dark, spooky dredge hole in a murky river to aquarium-style viewing in a sparkling tributary. I truly feel lucky that my work sometimes allows me to witness the underwater world of mussels and to bring these experiences back to the public. But despite all the memorable dives I've had in search of mussels, they've all been trumped by a discovery that had nothing to do with wildlife.

An assignment on the Allegheny River brought our dive team to a bridge demolition site. During a span of three years, we helped with the task of removing mussels, including hundreds of endangered clubshells and northern riffleshells, within the footprint of the project area. With that work finally completed, Patty and I began retrieving the underwater lines that marked the work area.

I think it was in back of both of our minds that this would also be the last chance to find something the locals had asked us to be on the lookout for. Two or three safes were missing from nearby businesses following burglaries that occurred some time back. Although the suspected burglar was in jail, the safes were never recovered.

The entire team of divers that week—10 in all—joked about what we might find. Good visibility made for tantalizing notions about finding the booty. Patty, in fact, reported a rectangular box that she encountered when checking the lines on the first day, but decided it was just some miscellaneous debris associated with the bridge.

On that final dive, she showed me the box, but this time we saw something more. Screw bolts were visible on one side as though the box had once been attached to something. We rolled the box to examine it further, and there peering up at us was the dial knob of a safe! Being prepared as we were to haul up large bags of mussels, we tied lines around the safe, surfaced to our support boat, and had the crew take the line attached to the safe.

We towed the safe into shore and called the police. Within minutes, word spread to the local community and the rightful owner identified the safe. Although it remained in police custody, she was thrilled to learn that the safe had never been opened despite pry marks around its door. She said it had been stolen following a "big weekend" for her small business about a year and a half earlier.

Although we never learned the exact amount of cash inside the safe, we did know it was in the thousands of dollars. The owner offered to reward us, but, of course, we declined. The real reward is in the story it now allows us to tell about our diving adventures.

Service divers Patty Morrison (right) and Janet Butler (left) display their river booty with volunteer Dick Esker and EPA diver Jim Gouvas.

And one more thing: we only recovered one of the "two or three" missing safes. With another trip to the bridge site planned this year (to return the rescued mussels to their original home), it's possible that more "river booty" awaits!

Janet Butler is Visitor Services Manager at Ohio River Islands NWR in Williamstown, West Virginia

Field Journal is an ongoing chronicle of conservation and life in the U.S. Fish and Wildlife Service. Please send personal essays, profiles, and other submissions (700 words or less) to: Field Journal, Fish and Wildlife News, 4401 N. Fairfax Dr., MS 330, Arlington, VA 22203 or e-mail <david_eisenhauer@fws.gov>

USFWS

Arroyo (right) with ranch manager Stacy Davies.

pacific

Learning the Ropes

Assistant Director of the U.S. Fish and Wildlife Service's Endangered Species Program, (Bryan Arroyo), spent three days working as a ranch hand on Southeastern Oregon's Roaring Springs Ranch last July. Roaring Springs' ranch manager Stacy Davies taught Arroyo the art of ranching in the west and how he manages Roaring Springs to enhance wildlife habitat.

Davies and Arroyo participated in the job exchange program "Walk A Mile In My Boots" a highly-successful program established in 2003 as a partnership agreement between the Service, the National Cattlemen's Beef Association and the National Cattlemen's Foundation. This program was designed to foster a greater mutual understanding, respect and improved communication between ranchers and natural resource employees in the challenging conservation decisions they each make every day.

"The Fish and Wildlife Service is committed to working with landowners and ranchers. The Walk a Mile in my Boots program provides us an opportunity to experience first hand how these ranchers make a living while maintaining biodiversity on their ranches," said Arroyo.

"The Walk a Mile in My Boots program gives us an opportunity to bring someone from an agency into our lives, to share our challenges and our success with them and to better understand how the agency works and what a fellow like Bryan needs to do on a daily basis," said Davies.

Owned by the Bob and Jean Sanders family of Portland, Oregon, the vast cattle operation encompasses 260,000 deeded acres and 800,000 acres of federal grazing allotments in the shadow of 9,773-foot Steens Mountain.

"This ranch is here to be environmentally, economically and socially sustainable," said Davies. "The environmental portion of the mission is highly dependant on working cooperatively with natural resource agencies like the Fish and Wildlife Service. Working cooperatively with them is critical to the overall management and sustainability of this ranch."

The ranch employs 14 cowhands —who wrangle 6,000 cow-calf pairs while hay crews harvest more than 200 tons of alfalfa annually from 20,000 acres of irrigated meadows.

Roaring Springs supports 1,050 wild mustangs, plus uncounted pronghorn antelope, Rocky Mountain elk, cougars, coyotes, bobcats and thousands of birds, among them raptors, cranes and migrating waterfowl, shorebirds, wading birds and songbirds.

"From where I sit at a desk in DC you don't get to see this first hand. Yesterday I learned about seedlings of native grasses, water infiltration and implications of recovering from juniper infestation. These are state-of-the-art University of Nevada, Reno research projects information that Stacy will build into his management scheme," said Arroyo.

"In 1997 this ranch entered into the Catlow Valley Fishes Candidate Conservation Agreement with federal and state agencies. We identified 130 threats to redband trout and laid out an action plan to address these threats. In this past 10 years we've eliminated 110 of those 130 threats," said Davies. "These actions have kept the redband off the endangered species list."

Davies developed a high-intensity, short-duration grazing schedule that keeps his cattle fed while safeguarding the range grasses, including the willows along 140 miles of streams and rivers.

As part of the reciprocal Walk a Mile in My Boots exchange, Davies joined Arroyo in Washington, DC last August, spending his three days meeting with legislators on a variety of conservation issues and meeting with the staff at the Service's national headquarters to educate them on ranching and wildlife management.

"My biggest goal is to move forward with the Service with regard to endangered species, that it would be a positive rather than a negative to a landowner if you have a listed species on your land. I think it is possible. My gaining a better understanding of how things work in Washington, DC maybe I can help influence it in that direction," said Davies.

"Managers like Stacy are really the way to ensure that we'll have both the legacy of ranching as an economically viable function in our economy and also the biodiversity conservation of resources that we are all entrusted with and cherish in this country," said Arroyo.

"I think the agencies and the National Cattlemen Beef Association are on the right track with programs like Walk a Mile. There's no way for an average rancher like myself to reach Washington, DC without this kind of program," said Davies

Rangelands are a valuable part of our heritage, showing that rural landowners care deeply about the land. Ranchers like Stacy Davies have shown that stewardship of the land has been and will continue to be critical to the conservation of fish and wildlife. The Walk a Mile in My Boots program is showing that there is a shared optimism that land management practices are improving and that together we can find ways to continue this positive trend.

To learn more about this program please visit <www.fws.gov/walkamile>. □

Amy Gaskill, Public Affairs, Portland, Oregon

Recovery Milestone

The captive breeding program for the Guam Micronesian kingfisher reached its goal of 100, bringing one of the few remaining Guam forest birds a step closer to re-establishment of a wild population.

Since the mid 1960s, nine of the 11 species of native forest-dwelling birds from Guam have gone extinct, primarily due to predation by the non-native brown treesnake. The kingfisher, known as "sihek" in Chamorro (their native dialect), is one of the few remaining native bird species from Guam.

The sihek was originally listed as endangered in 1984. By 1988, the species no longer existed in the wild, and now is found only in captivity. Captive breeding efforts to save the species began in 1983 with the start of the Guam Bird Rescue Project. During the first two years of the project, 29 sihek were moved from Guam to several mainland zoos; and by 1990 the captive population was up to 61 birds.

The first captive-reared sihek were returned to Guam in 2003. More birds were returned in 2004 and in 2008 bringing the captive population on Guam to 10 individuals. The program has expanded to include 17 captive propagation facilities on the U.S. mainland and Guam. Hindered by high mortality rates and poor reproduction, progress has been slow; however, this year the goal of 100 individuals was finally reached.

"Our goal is to bring this colorful native bird species back to Guam and its people. Thanks to the efforts of the Government of Guam, the American Zoological Association and our other partners, this beautiful bird has been saved from extinction. The future and its reintroduction back into the wild depend in large part on the involvement and commitment of the people of Guam," said Patrick Leonard, field supervisor for the Service's Pacific Islands field office.

Micronesian Kingfisher

GUAM DIVISION OF AQUATIC AND WILDLIFE RESOURCES

The revised recovery plan, released November 15, focuses on actions that will coordinate and monitor recovery efforts, restore populations, control predators, protect and manage habitat, and increase public awareness to ensure the long-term survival of this bird species. One example of a recovery action is extensive predator control, especially that of the brown treesnake, throughout habitat where the bird has been reestablished.

Criteria for upgrading the species' status under the Endangered Species Act are to establish two subpopulations of at least 500 birds each; ensure both subpopulations are either stable or increasing for a period of at least five consecutive years; ensure sufficient habitat is protected and managed; and control brown treesnakes and other introduced predators. To remove the species from the endangered species list altogether, the two subpopulations must increase to 1,000 individuals, but the timeframes are extended to ten years.

Sihek are relatively small, measuring about 8 inches in length and weighing 1.8 to 2.7 ounces, with females being slightly heavier than males. The adult male has a cinnamon-brown head, neck, upper back, and underparts. A black line extends around the nape and the eye ring is black. Some of the lower back, wing, and shoulder feathers are greenish-blue, and the tail is blue. The feet and eye are dark brown, and the bill is black except for some white at the base. The female resembles the adult male, but the upper breast, chin, and throat are paler, and the remaining underparts and underwing linings are white instead of cinnamon.

Historically, the sihek occurred throughout Guam in all habitats except pure savannah and wetlands, and as late as 1945 it was considered a fairly common forest bird. Factors that may have led to their decline include habitat loss or degradation, pesticides, competition with the introduced black drongo bird, disease, and introduced predators such as cats, rats, monitor lizards, and brown treesnakes. □

Ken Foote, Public Affairs, Honolulu, Hawaii

southwest

Keeping with Tradition

The Navajo Nation held a youth hunt this past fall in Arizona for Navajo tribal youth who have never hunted before. From written essays submitted, 20 hunters were chosen to participate in the program, which is in its fourth consecutive year. Participants had to pass both the state of Arizona and Navajo tribal hunter education courses, as well as participate in several shooting sessions. Their reward was the opportunity to be part of a deer hunt in the Tribe's trophy management unit. Participants were provided with all hunting gear necessary and rifles borrowed from the tribal Fish and Wildlife Department.

Joe Early, Southwest Region Native American Liaison, volunteered as a mentor and guide. The tribal and non-tribal mentors help the hunters learn about deer and their habitat, why tribes hunt, and tracking, gutting, and skinning skills. Early helped his young hunter get his first deer during the two day hunt. The first-time hunters harvested a total of 20 deer. The venison and the skins from the deer were used by the participants and the Tribe. The youth hunt was filmed and is expected to air as part of a new program called "Bone Collectors" on the Outdoor Channel this spring. □

Penny Gage, Public Affairs, Washington, DC

Citizen Stewards

Lynn Scarlett, Deputy Secretary for the Department of the Interior, joined the U.S. Fish and Wildlife Service and Bureau of Land Management (BLM) in December to kick-off an innovative conservation program that encourages landowners, energy companies and ranchers to protect and restore habitat for the lesser prairie chicken and sand dune lizard.

The agencies and the Center of Excellence for Hazardous Materials Management will administer voluntary Candidate Conservation Agreements (CCAs) for oil and gas lease holders on federal lands and Candidate Conservation Agreements with Assurances (CCAAs) for state and private landowners to benefit the species.

Partners can now take actions to reduce or eliminate threats to the lesser prairie-chicken and sand dune lizard on all land ownership types. In return, private landowners will receive assurances that their operations will continue regardless of whether the species ever come under the protection of the Endangered Species Act, and operators on federal lands will receive a greater degree of certainty that their operations will not change. Both species live in southeast New Mexico.

The Service, BLM and Marbob Energy Corporation of Artesia signed a Candidate Conservation Agreement. Marbob will minimize surface disturbance within a lease in Lea County by reducing and relocating the number of wells it plans to drill, and by constructing infrastructure in locations that avoid habitat for the lesser prairie-chicken.

Chris Brininstool, a rancher in Lea County, signed a Candidate Conservation Agreement with Assurances covering the operation of 1,280 acres of private lands within her ranch. Brininstool will undertake a variety of conservation activities: marking fences to prevent mortality in pre-dawn flights to 'booming' grounds; construct escape ramps in livestock tanks for birds and other wildlife to exit safely; and maintain habitat (e.g., restore grasslands) so that these lands can be used for future reintroductions of lesser prairie-chickens.

Southwest Regional Director Benjamin Tuggle accepted the signed agreements and noted, "The people who work for the Service and the BLM are truly dedicated and they do so much to create and maintain healthy landscapes," Tuggle said. "But we know that it's the folks who live and work on the land every day—the citizen stewards who are responsible ranchers, private land owners and energy companies—who sustain those good conservation practices." □

Elizabeth Slown, Public Affairs, Albuquerque, New Mexico

USFWS

(Left to right) Southwest Deputy Regional Director Brian Millsap, Southwest Regional Director Benjamin Tuggle, Lea County rancher Chris Brininstool, Doug Lynn, Executive Director of the Center of Excellence for Hazardous Materials Management, and Deputy Interior Secretary Lynn Scarlett.

Restoring a Native

The reach of the Rio Grande that flows through Big Bend Ranch State Park, Big Bend National Park, and the Rio Grande Wild and Scenic River will play an important role in recovering a native fish that has been absent from Texas waters for nearly 50 years. Approximately 500,000 Rio Grande silvery minnows were released into the river in December. The release supports the Fish and Wildlife Service's plan to recover the rare minnow so that it no longer needs the protection of the Endangered Species Act.

About 100,000 of the minnows came from the City of Albuquerque's RGSM Rearing and Breeding Facility. The majority came from the Service's Dexter National Fish Hatchery and Technology Center in New Mexico. The Center breeds and rears fish to maximize genetic diversity and supplement wild populations.

Reintroduced minnows in the Texas reach of the river will be considered nonessential and experimental. The designation is allowed under a section of the ESA that encourages the reintroduction of a species by reducing regulations.

"Using a nonessential, experimental designation ensures that the daily activities of water users and landowners are unaffected by the reintroduction," said Benjamin N. Tuggle, Southwest Regional Director for the Service. "Community leaders told us they were supportive of the reintroduction program but emphasized they needed to count on reliable flows and water delivery. We can satisfy both fish and human needs." □

Elizabeth Slown, Public Affairs, Albuquerque, New Mexico

midwest

A Boost to Rare Beetle

At first glance, the American burying beetle isn't exactly the poster child for the effort to save endangered species through reintroduction. For one thing, it's an invertebrate—no fur, no feathers, nothing to endear it to the public. And then there's the beetle's lifecycle—adults find a freshly dead animal and use its carcass as a nursery and food source for the larvae. But it's exactly this behavior that makes the American burying beetle a marvel of adaptation. And a partnership of agencies is helping the beetle toward recovery in part of its historic range by releasing burying beetles and creating conditions that help them produce young.

Most recently, the Service joined with the Ohio Division of Wildlife, the Ohio State University's Department of Entomology, the St. Louis Zoo, and the U.S. Forest Service to bring the American burying beetle back to the Buckeye State. In late June, 228 pairs of American burying beetles were released in Wayne National Forest in southeastern Ohio with hopes they will establish a population.

The beetles were released in Athens County, in an area of Wayne National Forest surveyed in 2006 and 2007 to determine whether the species was still present. The last known record of an American burying beetle in the State of Ohio was in 1974 in Hocking County, which is adjacent to Athens County.

The beetle release process involves digging holes, or plugs, at specially selected sites, placing a quail carcass and a pair of tagged beetles in each cavity, and re-covering the plugs. This process simulates a natural setting for the beetles' life cycle.

Partners plan to monitor the release sites for signs of breeding activity by checking for larvae and later for new adult beetles.

The American burying beetle was designated a federally endangered species in 1989—the first insect to be so recognized. This beetle species was historically found in 35 states, including Ohio, and several Canadian provinces. Remnant populations of the American burying beetle presently occur only in eastern parts of Oklahoma, Kansas, Nebraska, South Dakota, and on Block Island, Rhode Island. The beetles' population decline has been attributed to pesticides, loss of habitat and habitat fragmentation, light pollution, and competition with other carrion feeders.

American burying beetles are about 1 to 1.5 inches in length with orange and black bodies, and feed on dead animals, or carrion, as larvae and adults. American burying beetles form a brood chamber and prepare the carrion for use by their offspring. Burying beetles are one of the only species of insects that display a high level of parental care, with both males and females tending the larvae.

Breeding programs for the American burying beetle are taking place at the St. Louis Zoo, the Roger Williams Park Zoo in Providence, Rhode Island, the Ohio State University, and at the Wilds, a conservation center in southeastern Ohio. □

Georgia Parham, External Affairs, Bloomington, Indiana

An adult American burying beetle and larvae. The Service is partnering with other groups to reintroduce the endangered beetle in Ohio.

SERENA SELBO / USFWS

Meeting the Neighbors

With squally winds blowing, dark gray clouds blocked the sun's rays all morning on Saturday, June 28, 2008. But the gloomy weather did not prevent citizens from the small Illinois town of Jacob from getting a bird's eye view of a new neighbor that moved into town in late May. Fish and Wildlife Service employees from Middle Mississippi National Wildlife Refuge and Marion Ecological Services Field Office put together an event to introduce the people of Jacob to the endangered least tern.

The project got its start when local terns decided to nest on a gravel road in Jacob. Generally, the bird makes its home on open sandbars along the Mississippi River, but high water levels forced the bird to make Swan Pond Road its temporary home. The road floods at least once every two to three years, leaving behind sand and small gravel, which the birds use to camouflage its two or three buff, lighted spotted eggs in a shallow scrape in the substrate. To protect the terns, county officials closed the road until the birds completed their nesting cycle.

During the event, the Service provided spotting scopes and binoculars to help visitors view the nesting terns from a distance. But participants got a bonus: one adult male decided to put on a show — as television news cameras rolled — by flying overhead into the strong winds and calling loudly. The bird hovered in one spot over the inundated farm fields, peered downward in search of an appetizer to bring its mate, folded its wings and slammed into the water.

USFWS

Kevin Lowry connects children with nature by offering information on the life history of the federally endangered interior least tern.

"Holy cow, did you just see that?" said Missy Klein of Jacob. While the audience continued to look on, the adult male exploded out of the water and flew off with a small minnow in its beak, bringing it back to the nesting female.

Those who attended the program were treated to gift bags, courtesy of Ecological Services, full of bird-related stickers, pencils, posters, coloring books, as well as a least tern beanie baby. Administrative Assistant Shelley Simmonds from the Marion ES Field Office and Assistant Field Supervisor Joyce Collins ordered and filled all gift bags and handed them out to members of the audience. Collins, along with Refuge Manager Robert Cail answered additional questions after the program ended.

"This is a wonderful opportunity to inform and inspire not only adults but also our youth, who will be the decision-makers in the future," said Cail.

The interior least tern is a very small white tern with black cap, white forehead, pale gray back and wings, black-tipped yellow bill and very shallow wing beat. The interior population was protected under the Endangered Species Act as endangered in 1985 after populations declined due to threats such as habitat loss and degradation and disturbance of nesting sites. □

Kevin Lowry, Middle Mississippi River National Wildlife Refuge

southeast

Quick Response

The Fish and Wildlife Service's Southeast Region Spill Response Strike Team and Delta National Wildlife Refuge leaders responded to an oil spill in New Orleans, Louisiana, last summer providing wildlife rescue, contaminants expertise and damage control to federal, state, and private organizations and companies to help mitigate damage to fish and wildlife.

On July 23, 2008, the equivalent of 9,000 barrels of Number 6 fuel oil was released in the Mississippi River following an accident involving a ship and barge. Ships and generators use Number 6 fuel oil — also known as bunker C fuel — to run their engines. This oil type became notorious during previous spills for spontaneously sinking and re-floating, as well as covering wildlife in a thick black sticky mess.

The spill stopped commercial shipping and recreational boating on about 80 miles of river for about a week. The closure extended from River Mile 98 in New Orleans south to the Southwest Pass Sea Buoy at the mouth of the Mississippi. The oil in the river, on shorelines, and in adjacent wetlands in the area was a significant threat to fish, wildlife, and habitat quality.

Responders and the public reported 879 oiled birds and other wildlife, but most were still mobile and escaped capture. At least 55 birds, mammals, and alligators were captured for rehabilitation, with about 32 being successfully cleaned and released. >>

Response, continued from page 29

"The challenge with this spill was the complex nature of the terrain, combined with the length of riverbank we had to search—in excess of 200 miles of riverbank from the impact zone in New Orleans downstream to Venice, Louisiana," said Buddy Goatcher, contaminants specialist with the Service's Lafayette Ecological Service Office, and operations team chief for this incident. "We responded to public and other responders' sightings, and we also searched from our helicopters, airboats, and other vehicles. We located and captured oiled wildlife and transported them to the rehabilitation team in Venice."

The quick-response Strike Team included 15 environmental contaminants specialists, logistics, and External Affairs staff from the Service who responded on a rotational basis, in four to 20 day tours.

"Our high visibility, and constant presence at the Command Post made us a valuable contributor in the spill response," said Felix Lopez, environmental contaminants specialist from the Service's Caribbean Field Office, "We participated in strategy meetings, press conferences, and worked with the National Oceanographic and Atmospheric Administration Scientific Support Coordinator and the Shoreline Cleanup Assessment Team."

Lopez described the Shoreline Cleanup Assessment Team as an interagency team headed by NOAA that assesses oiled shorelines and recommends or evaluates cleanup options.

The Strike Team used several small outboard powered boats, surface drive mud boats, airboats, helicopters, and a floatplane to assess the impacts, make suggestions to reduce and mitigate the spill's damage to wildlife and their habitat, and rescue oiled wildlife for rehabilitation and release.

This incident represented one of the largest deployments of a contingent of Service environmental contaminants specialists and personnel on record. These contaminants specialists have all responded to numerous past spills, resulting in increased protection for wildlife and greater protection for the environment, but this was the first time the Strike Team deployed en masse since it was officially formed over a year ago.

At least four personnel from Southeast Louisiana Refuges Complex and Delta NWR, near the mouth of the Mississippi River, also sprang into action to battle the onslaught of the mixture of light sheen and black tar that formed after the oil reacted to the water temperature and evaporation.

"We did our best to stop this oil from hitting the marsh here at Delta National Wildlife Refuge," said Jack Bohannan, refuge manager at Delta NWR. The refuge staff worked to protect the refuge by placing booms at key locations to try to deflect the oil from entering the refuge.

Trained experts from U.S. Department of Agriculture Wildlife Services also supported the Wildlife Group's response team by using their wildlife

TOM MACKENZIE / USFWS

Oiled great egret in the marshes between the Mississippi River and the levy near Belle Chasse.

knowledge and professional skills to capture oiled birds, mammals, and reptiles. They also used live traps and cannon-fired nets to remove animals from the oiled marshes in between the river and the levee.

An additional six boats also supported the Delta NWR booming efforts from Clean Harbors Environmental Services, a specialized cleanup company well-versed in recovery and response. Delta NWR reported only a light sheen in the area, but had to suspend use of dredging materials to create wetlands as the dredging materials had been contaminated.

Apparently, some of the oil that sank and headed downstream was pulled up by dredging operations near the mouth of the Mississippi. Delta National Wildlife Refuge uses dredged material to create wildlife habitat and reconstruct the disappearing wetlands. The wetlands there have been disappearing partially due to the lack of sediment renourishment when the mighty Mississippi River was channeled for navigation, sending the rich sediments deep into the Gulf of Mexico instead of creating marsh habitats with natural sediment deposits from the river.

"Most of the birds that died from the spill were ducks, often covered in oil," said Bill Starkel, Southeast Regional Spill Coordinator, based in Atlanta. "Wading birds tended to be oiled in the front—from their beaks to their legs—from feeding in the oiled water."

The Strike Team assessed the impact of the oil spill and provided advice and support to the Incident Command led by the United States Coast Guard. They also conducted hazing to protect wildlife by using 100 propane cannons (loud automatically fired noisemakers), an airboat, bird-scare balloons, Mylar tape and hand-held noisemakers similar to bottle rockets launched from flare and starter pistols. The intent of the hazing was to deter the birds from being contaminated by the oil pooled along the banks through the nearly 100-mile stretch of the Mississippi, from New Orleans to its mouth in the Gulf of Mexico.

A month after the spill, members of the team continued to support the cleanup efforts. □

Tom MacKenzie, External Affairs, Atlanta, Georgia

Botanists Blitz Appalachian Cliffs for Endangered Plant

Even for a botanist, it was an unusual workday. Chris Ulrey, a botanist with the National Park Service, tossed the rope over the cliff's edge, announced his descent, and began dropping down the cliff face. But any semblance to recreational rappelling vanished when, dangling from the rope, Ulrey lifted the hammer drill that was slung over his shoulder, put a hole in the rock next to a cluster of endangered plants, nailed a numbered tag into the hole, and began yelling out plant measurements to a note taker below.

The rappelling, tagging, and data collection is part of an extended effort to track the endangered spreading avens, a plant found only on a handful of cliffs and rocky outcrops on some of the highest mountains in the Southern Appalachians.

"The goal is to get an accurate picture of the abundance and well-being of as many spreading avens populations as possible," said Carolyn Wells, a botanist with the U.S. Fish & Wildlife Service.

Spreading avens was protected under the Endangered Species Act as endangered in 1990, and it's a focal species for high-elevation rock outcrops and cliffs in the Southeast; a habitat with several rare species, many of which suffer from the same threats. These threats include inadvertent trampling and associated erosion from hikers and climbers and over-collection. Some botanists also suspect the encroachment of competing shrubs may also pose a threat.

Service Botanist Carolyn Wells seeks out endnangered spreading avens.

USFWS

Wells and Ulrey are part of a team canvassing the small number of mountaintops where spreading avens is found. The team also includes botanists from the U.S. Forest Service, North Carolina State Parks, North Carolina Natural Heritage Program, Grandfather Mountain, Tennessee Department of the Environment and Conservation, and the Archbold Biological Research Station.

Spreading avens grows in rosettes, with a circular pattern of small leaves just above the ground and a tall center stem bearing bright yellow flowers. The plants grow in patches ranging in size from a single rosette covering less than a square inch to hundreds of rosettes covering two square yards. The scientists will measure the size of each patch, tagging each with a metal tag, and then use a laser range finder to map the patches in relation to one another. In addition, they'll search for individual seedlings, tagging them with a metal pin. Returning annually to verify the presence of the tagged plants and patches, remeasure the patches, and note new seedlings will allow the botanists to track changes in the population.

Once five-to-six years of data have been collected, scientists can run population viability analyses to estimate the extinction risk for each population.

"A population viability analysis looks at two things—how quickly new plants are being added, and how quickly plants are dying; basically birth and death rates," explained Wells. "It then estimates the risk of extinction at various points into the future, based on these rates. If we see a population declining, we can try to determine why and address the problem."

A possible growing threat to the plant that isn't directly addressed by this work is climate change. Spreading avens is adapted to some of the coldest places with the harshest weather in the Southern Appalachians, and biologists expect two possible outcomes from warming temperatures. In one scenario, warmer temperatures may enable lower-elevation plants to move up the mountain, displacing cold-weather plants. Under another scenario, the declining frequency of harsh weather events, such as snow and ice—which periodically scour the rock surface, clearing away less hardy vegetation and opening up habitat for spreading avens—could also lead to declines in the plant. Less frequent snow and ice could mean the rock outcrops wouldn't be scoured, allowing competing vegetation to grow and out-compete the endangered spreading avens. While the work done by the botanists is unlikely to provide a definitive cause and effect link between global warming and any impacts to the plant, it will show population trends over time that may be correlated with changes in temperature and other environmental factors. □

Gary Peeples, Outreach Specialist, Asheville, North Carolina

northeast

Beyond the Classroom

In June, Parker River National Wildlife Refuge hosted second and third-graders from Francis M. Leahy Elementary School in Lawrence, Massachusetts for a first-hand lesson in the wonder of nature.

In 2007 the refuge established a partnership with the school, working with them to provide quality environmental and science education to minority children in an underserved community. Prior to their refuge visit, Service employees had the opportunity to visit the classroom to deliver a one hour lesson to grades kindergarten through fourth grade. This lesson engaged the students in what a marine environment looks like, and who the major players are. Two different lessons were conducted for varying age groups.

Younger students (K–3) were called up one by one to pick a once-living creature from a rubber container. Students were most excited about the exoskeleton of a horseshoe crab, the prickly dried tube feet of the starfish, the carnivorous moon snail, and most confused by the piece of litter scattered with the beautiful beach treasures. The interactive experience with the students as they grew closer to the marine animals, made them more excited about their upcoming field trip.

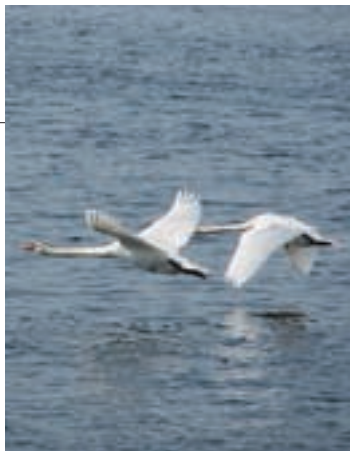
Fourth graders participated in an activity to develop environmental sensitivity. In this activity, students were given a legal sized piece of paper with a shoreline drawn on it. Students were instructed to imagine they had inherited a piece of land and a "good sum of money." Given 10 minutes and no boundaries on how to use their imaginary property, students drew expansive homes, farms, shopping centers and carnivals. Students then were lined up, facing each other with their property and their waterfront meeting that of their neighbors. Excitement grew as they saw who their new neighbors were and what amenities they were provided with.

Every student was handed two pieces of garbage (pre-rinsed recyclable items) to hold onto. The students at the top of the line, "headwaters" passed their garbage to the student to the right of them. Students accumulated more as the water flowed and were not allowed to pick up what had been dropped. This lesson demonstrated the flow of a river, and the passing of litter from headwaters to ocean. At the end of the garbage pass, students in headwaters had virtually no litter, while students in the "ocean" were disgusted at the mess. At the end, students realized that what they pollute on their property affects other people and beings.

When the buses finally arrived at the refuge, it was evident that the kids were excited to be there. Along the way to the southern end of the refuge, they were fortunate enough to see several salt marsh birds, and a deer. The students then split into three groups with names: Sharks, Jellyfish and Seals. Each group was assigned to a station with a naturalist from the refuge. Station 1 encouraged students to think like scientists as they investigated the essential beach material (sand); Station 2 students investigated dune habitats; and Station 3 practiced tide pooling.

The teachers appreciated a day of sunshine and learning, the students were exhilarated by their foray into nature and the refuge staff was thrilled to be a part of it all. □

Kate Toniolo, Supervisory Park Ranger, Parker River National Wildlife Refuge



FLICKR / LAURA ORABONE

Swans at Trustom Pond National Wildlife Refuge.

Nature Through the Lens

The sun begins its retreat below the horizon, casting a rosy hue upon the clouds. Bank swallows venture out to make an evening snack of the insects hovering above calm waters. The evening choir starts its warm-up as crickets, cicadas and frogs take up the song. The calls of a few catbirds, a belted kingfisher and a great blue heron soon join the chorus. The scene is set for a beautiful evening at Trustom Pond National Wildlife Refuge in Rhode Island.

In our developing world, the beauty seen here is becoming harder and harder to find. The Service devotes itself to the conservation of these protected lands all over the country. Its purpose is to create a balance between nature and its rapidly changing environment. The key to this balance is bridging the gap between our nation's natural habitats and the surrounding communities. What better way to start than with the future generation?

One goal of the Fish and Wildlife Service and the National Wildlife Refuge System is to instill a sense of wonder in young minds about the natural world. The best way to accomplish this is to connect children directly with the habitats that they will one day help to conserve. The class that refuge volunteer Tom Tetzner teaches does exactly that. He combines an active field aspect with the art of photography. This creates an activity that gets kids excited about getting outdoors and interacting with the natural world around them.

The class consists of two-hour sessions taking place at several national wildlife refuges located in Rhode Island. A group of 6 to10 children and several adults follow Tetzner as he takes them from forests and shrublands to vernal pools and salt ponds. The knowledge he has gained as a former scout master provides the perfect background for our exploration of the ecosystems.

It is wonderful to see children scatter around the vernal pool at Kettle Pond Visitor Center. They excitedly dip their nets into the murky water catching all sorts of critters: spotted salamander larvae, wood frog tadpoles and to everyone's delight—an adult green frog. Everyone gathers in a circle as a Service employee gently places the freshly caught specimen on the leafy ground. The frog actually seems to pose as the cameras click and flash.

Each child and parent is trying to get the best picture they can before the frog hops away. Plastic bins bearing water are filled with the afternoon's fruitful findings. Water beetles, dragonfly nymphs, salamanders and frogs all swirl in the shallow pools. Not only do the kids get to take pictures of what they see, they get to touch and feel them too. This provides them with an exciting hands-on experience that they can't seem to stop talking about as they take the trail back to the visitor center.

These kids not only learn to take pictures of wildlife, but Tetzner also teaches them about landscape photos and taking shots of the beautiful plant life as we walk the trails at Ninigret National Wildlife Refuge. At Ninigret Pond they get to take underwater pictures of crabs and jellyfish, as well as learning how to fish for clams. Everyone has so much to learn from Tetzner about photography and about nature. He takes walks just about every day to observe nature and capture its beauty. The pictures these walks yield are stunning. The knowledge and experience he shares creates a wonderful learning experience for his young students.

Getting people interested in nature and its conservation is very important to the Fish and Wildlife Service. Tom Tetzner's efforts are the mark of a truly devoted volunteer and he hopes in future years to expand his photography class to all ages and further spread a love and appreciation of the natural world around us. □

Sarah Lambson, SCN intern, Trustom Pond National Wildlife Refuge

mountain-prairie

Fish Passage Ceremony in Colorado

In July the Upper Colorado River Endangered Fish Recovery Program (recovery program) held a dedication ceremony to celebrate this spring's completion of a 900-foot-long fish passage at the Price-Stubb Diversion Dam in western Colorado. The dam was the last remaining barrier to fish migration on the Colorado River from Utah's Lake Powell to the upper end of critical habitat near Rifle, Colorado.

Other capital projects in western Colorado for endangered fish were also recognized. These include fish passages and screens at three privately owned and operated diversion dams; a hatchery raising endangered razorback suckers to stock in rivers; canal check structures that help conserve water; a barrier net at a local reservoir that prevents nonnative sport fish from escaping into the Colorado River; and more than 1,100 acres of restored floodplain habitat.

"Today, we celebrate the completion of capital projects in Colorado's Grand Valley to benefit endangered fish," Deputy Secretary of the Interior Lynn Scarlett told a crowd of more than 100 people. "These projects are a result of the collaboration, cooperation, and hard work of Recovery Program partners and the community to ensure that endangered species conservation and water development and management can co-exist."

The Bureau of Reclamation (Reclamation) supervised all aspects of the construction of the capital projects. Reclamation Deputy Commissioner Kris Polly said, "Reclamation has examined each project from different perspectives, tested new ideas, and created state-of-the-art solutions for endangered fish recovery. Today, with screens installed to prevent canal entrapment, fish can freely swim upstream with access to restored floodplain habitat. It is a success for endangered fish recovery in the Grand Valley."

Established in 1988, the Recovery Program is a voluntary, cooperative program whose purpose is to recover the endangered humpback chub, bonytail, Colorado pikeminnow and razorback sucker while water development proceeds in accordance with federal and state laws and interstate compacts.

Recovery Program partners include the States of Colorado, Utah, and Wyoming; Fish and Wildlife Service; National Park Service; Bureau of Reclamation; Western Area Power Administration; Colorado River Energy Distributors Association; water development interests; and environmental organizations. The Recovery Program received a Department of the Interior Cooperative Conservation Award on April 21, 2008.

"Completion of capital projects in the Grand Valley brings these rare, big-river fish a giant step closer to recovery," said Jay Slack, then deputy regional director of the Fish and Wildlife Services Mountain-Prairie Region. "Colorado pikeminnow and razorback suckers are known to migrate long distances to complete their life cycle. With the opening of the Price-Stubb fish passage, fish now have the ability to move freely in 290 miles of the Upper Colorado River. >>

Former Mountain-Prairie Region Deputy Regional Director Jay Slack has his hands full showing Deputy Interior Secretary Lynn Scarlett an endangered razorback sucker raised at the Grand Valley Endangered Fish Facility in Grand Junction, Colorado.

ELLEN SZCZESNY / COLORADO RIVER RECOVERY PROGRAM

Black wolf

STEFANIE BERGH / MONTANA FISH, WILDLIFE AND PARKS

Ceremony, continued from page 33

"Restoring passage at these barriers gives fish access to river reaches above diversion structures where more water and habitat are available. Not only will this benefit the endangered fishes, but also other native fish species including bluehead sucker, flannelmouth sucker and roundtail chub", Slack added.

Other dedication speakers were: U.S. Representative John Salazar; Jennifer Gimbel, director, Colorado Water Conservation Board; and Greg Trainor, utility and streets director, City of Grand Junction. Recovery Program Management Committee Chairman John Shields from the Wyoming State Engineer's Office, served as master of ceremonies.

Following the dedication ceremony, many participants toured a fish passage and screen at the privately owned Redlands Water and Power Company facility. They also visited a restored floodplain wetland at the Grand Valley Audubon Society's Lucy Ferril Ela Wildlife Sanctuary.

The Recovery Program continues to manage fish habitat, work to reduce the threat of nonnative fish species while maintaining sportfishing opportunities, produce genetically diverse fish in hatcheries and stock them in the river system, and monitor and collect data on the endangered fish to measure progress toward achieving recovery goals. The Recovery Program's efforts will help ensure that the endangered fishes remain an important part of the West's heritage. □

Debbie Felker, Information and Education Coordinator, Upper Colorado River Endangered Fish Recovery Program

Wolf Watch

It was just the guys and me on four wheelers, checking sites set up to catch grizzly bears on camera in the remote, wilderness of the Wind River Mountains. I was along for the ride with four men: Ben, a tribal Fish and Game warden; Lee and Sam, two recent college graduates temporarily working for the Wyoming Fish and Game; and Ben, a tribal member. It was absolutely beautiful; crisp air, blue skies, no wind. We couldn't have asked for a better day.

We were on the rim of Bold Mountain and the Bob Creek drainage above Crowheart Butte in Wyoming. As we crested a rise, we spooked a herd of elk cows and calves grazing and lazing about in the valley below and they ran south. With their prey vanishing, two wolves sprang from the underbrush. One ran after the herd, the other saw us and ran west. When he discovered he was by himself, he circled a few times, then sat down and howled. This caused the herd of bull elk 100 yards away to run over the crest to the north.

Wind River Reservation is a large, ecologically diverse tract of land in the heart of Wyoming, and the present home of the Northern Arapaho and Eastern Shoshone tribes. These two tribes work hard at working together for the benefit of the land and the species inhabiting it. Bobby St. Clair has been the director of the joint-tribal Wildlife Department for two years. He needs more staff; he'd love to have more game wardens. He also depends on the Fish and Wildlife Service conservation office in Lander, run by Dave Skates, for biological work and direction. The Tribes have been successful in obtaining a Tribal Wildlife Grant for work with grizzly bears and other, large mammals. It is because of this grant that I was privileged to see a remote part of the mountains and inadvertently interrupt the wolves' lunch.

In the heartland of a state that considers gray wolves predators, Wind River Reservation is a haven for wolves. The Service's conservation office and its sister ecological services office helped the Tribes develop a Wolf Management Plan. The plan includes a Memorandum of Understanding (MOU) with the Service that designated the Tribes as its agents for wolf-related management activities on the Reservation "to the maximum extent possible under federal statutes and regulations…" The MOU extends until July 2013, and may be amended.

Since their reintroduction to Yellowstone in 1995, wolves have been spotted on the reservation at the East Fork, Gooseberry/Owl Creek, and near Crowheart. Data from 1907 show that wolves had dens in the same areas they are roaming in today. While the 2.2 million acre reservation is not in the State of Wyoming's wolf conservation area, it includes 500,000 acres of wolf habitat, and management is the responsibility of the Tribes. The wolves are attracted to the plentiful herds of antelope, deer and elk, and the number of wolves will probably expand in the future.

"The tribes look neutrally upon wolves and consider them as a wildlife species for which management is needed, due to tensions that will arise between the needs of wolves and the needs of people. Traditional Tribal views recognize wolves as kin,…as helpers, as strong, and as deserving of respect and placed here by the Creator for a purpose."

For a year and a half, the writers of the plan and MOU interviewed elders and learned of the importance of the wolf in Eastern Shoshone and Northern Arapaho cultures. The elders told stories and memories. One of the most powerful statements made by an elder is, "Wolves wandered to wherever the food was, like earlier people did. They did not know boundaries. Now, wolves are being confined to certain areas, like Native Americans have been confined to reservations."

The plan designates wolves as game animals, not predators, for which hunting and trapping seasons will be established for all lands within [the] 1868 exterior boundary of the Wind River Reservation, as modified by the Lander and Thermopolis agreements. This important distinction recognizes the role wolves play in the cycle of life and the need to control population numbers so wolves don't make it a habit of preying on cattle and sheep for their fare instead of elk and deer.

Biologists anticipate the wolves staying in the higher elevations and remote parts of the reservation, although lack of food may make livestock tempting. Therefore, wolves that prey on

livestock may need to be managed to minimize impacts on livestock. The MOU permits the Tribes' Fish and Game Department to handle depredating wolves.

The tribes intend to conduct wolf monitoring, handling of livestock depredations, and education and information programs for the wolves throughout the reservation. St. Clair said in three years, his department will conduct a study to determine how many wolves are on the reservation. If wolves are no longer listed and the numbers of wolves justify it, his department will use a lottery system to award a couple of tags only to tribal members for hunting and/or trapping.

To educate the folks about wolves, his department installed 4-foot by 4-foot signs at trailheads with information about wolves and where they are located on the reservation. His department provides handouts to the public and makes presentations at the local schools to fourth graders and above. They discuss wolves as one of the many animals on the reservation. Soon, they will have a wolf hide and a stuffed wolf to show the students as part of their museum of animals.

The handout for adults got my attention: a bumper sticker freely distributed by St. Clair that says, "Real Men Aren't Afraid of Wolves." It gets a chuckle as it is intended to do, yet it makes an important point. As the one wolf ran away from us when it saw us, I learned that wolves are more afraid of us than we are of them. Humans are one of their predators. □

Kim Greenwood, Tribal Liaison, Denver, Colorado

alaska

Close Call

When refuge biologists first felt volcanic Kasatochi Island shake, they dismissed it as just another fact of life in the volatile Aleutian Islands. But after a few days of the tremors becoming more frequent, Ray Buchheit and Chris Ford started getting a little anxious. Volcanoes were on everyone's mind as two other volcanoes on the Alaska Maritime National Wildlife Refuge, Okmok Caldera and Mt. Cleveland, had already erupted unexpectedly and explosively within the prior three weeks. Still, no one suspected that long dormant Kasatochi Volcano was just days away from a cataclysmic eruption that would bury the entire island—the refuge cabin, the bird cliffs, the sea lion rookery—and send the biologists fleeing for their lives.

Buchheit and Ford were the only people on Kasatochi, 1,100 miles southwest of Anchorage. The refuge's ship M/V Tiglax brought them to the island in May, and would pick them up the end of August. They lived in a trapper's cabin from the 1920s and studied seabirds as biologists every summer on Kasatochi for 13 years. Kasatochi was lush and green and boasted a beautiful blue lake in a deep caldera. A hundred thousand least and crested auklets, storm petrels and puffins lived on the 700-acre island qualifying it as one of the best islands in the central Aleutians for bird study.

On August 5, Buchheit and Ford first voiced their concerns over the radio to biologist Lisa Spitler, who manned the office on the closest inhabited island—Adak Island, 50 miles away. Spitler immediately turned to the Alaska Volcano Observatory (AVO) volcano monitoring website which gave no indication of trouble brewing. Spitler followed up with a call to the AVO, but Kasatochi was considered dormant with no historically recorded eruptions. AVO did not maintain monitoring instruments on Kasatochi and could not detect exactly what was going on. Disbelief mingled with anxiety as tremors increased and became detectable to the AVO.

On August 6, the refuge, the regional office, and the AVO all concurred that evacuation was the prudent choice and Spitler set to work trying to arrange it. The problem was that the M/V Tiglax was 24 hours away, the nearest Coast Guard ship was 24 hours away, there were apparently no fishing boats in the area, and a Coast Guard helicopter on Adak that could have easily accomplished the rescue was broken down and needing a part that was 24 hours away. Finally Spitler lined up local fisherman Al Giddings, who would be ready to sail at dawn from Adak in his 32-foot boat, Homeward Bound, to accomplish the rescue.

Dawn of August 7 was accompanied with rapidly increasing tremors and a strong, sulphur smell. About 10 a.m. >>

RAY BUCHHEIT

View of the Kasatochi Island caldera in August 2008. The crater rim is enlarged, there are active steam fumaroles and vents and the crater is beginning to refill.

a nine-minute earthquake caused rock falls and convinced Buchheit and Ford it was time to head to the beach. The next few hours were tense as tremors intensified and neither the two on the beach nor Spitler in Adak could raise the Homeward Bound on the radio. It wasn't even certain that Giddings could get his small boat across the rough, open water to reach isolated Kasatochi. Buchheit and Ford contemplated launching their skiff and had an emergency course plotted in their GPS for the nearest island, Great Sitkin Island 20 miles away. But the day was foggy and the surf was rough. At sea, they wouldn't be visible to their rescuer. Finally, seven miles out from Kasatochi, Giddings came on the radio and assured all he would make it to the island. When the Homeward Bound arrived, no time was wasted in abandoning the shaking island, leaving gear and computers behind. Just a few hours into their journey to Adak, Buchheit, Ford, Giddings and deckhand, Eric Mochizuki did not hear the mountain erupt, blowing ash to 45,000 feet, burying the island with scorching pyroclastic flows, and disrupting air travel from Anchorage to Seattle.

Two weeks later, Buchheit stepped ashore on a new Kasatochi courtesy of an AVO helicopter carrying scientists to document the eruption. Buchheit said that "It was impressive; the way it had changed. Definitely a sight to see."The refuge cabin was buried under up to 100 feet of ash, a new coastline extended hundreds of yards beyond the old coast and the birds were gone. Buchheit tried to find the exact spot of the cabin but, "The ground got too hot. I didn't think I needed to go any farther." Sea lions had returned to the beach at only about half of their former number and only two pups were observed with the herd.

There was virtually nothing green left showing on the island and biologists estimate it will take decades for plants to re-colonize. Service botanist Steve Talbot, who has pre-eruption data from Kasatochi and saw the island after its eruption, couldn't help but be intrigued by the possibility of studying the return of the plants. Replacing Kasatochi as an annual seabird monitoring site is a problem refuge biologist Jeff Williams will face. Annual monitoring sites are key to providing trend data and 13 years of study on Kasatochi helped the refuge paint a picture of what was happening with seabirds in the central Aleutians.

The refuge owes a debt to Giddings and Mochizuki for their rescue mission, which was a lot more daring than they probably realized at the time, and to Lisa Spitler for her work in setting up the rescue and maintaining constant communication with Buchheit and Ford. According to Marianne Guffanti of AVO, "Kasatochi is yet another example of a very important lesson we are learning in volcanology. We don't necessarily have much time from when a volcano first shows signs of unrest until when it can erupt explosively." Needless to say, this presents special challenges for managing a refuge of volcanic islands on the 'Ring of Fire.'"

To learn more about the refuge's restless volcanoes and see more images visit the Alaska Volcano Observatory website <www.avo.alaska.edu>. □

Poppie Benson, Outreach Specialist, Anchorage, Alaska

california/ nevada

A Rare Breed

Ken McCloud's wife, Rose, used to bang on their mailbox every day before collecting the family's letters.

"She was afraid someone had put a rattlesnake in there trying to get me," McCloud said.

It wasn't just paranoid behavior. In his 30 years busting up wildlife smuggling cartels as an inspector and undercover agent for the U.S. Fish and Wildlife Service, Ken McCloud dealt with gun-wielding criminals almost daily and had at least three contracts taken out on his life.

McCloud, an expert in rare reptiles, retired from the federal government in June and took a job with the Peninsula (California) Humane Society & SPCA as a major crimes investigator.

"To my knowledge he is the only person with his skill set working with a local humane society anywhere in the world," society president Ken White said. "Sadly, there is no shortage of a local application…of the international smuggling of animals. We already have a number of significant cases that he is heading for us."

McCloud said he can't provide details on those cases because many of them are covert.

But as a federal agent, he routinely changed his identity and set up phony businesses to infiltrate plant and animal smuggling rings.

From 1992 to 1996, McCloud sported a long ponytail and dyed beard while investigating reptile smugglers in Madagascar, Germany, Canada and Indonesia. He had an extra phone line installed in his home and took calls in the middle of the night from smugglers in other continents.

The investigation led to numerous arrests and the felony conviction of a curator at the San Diego Zoo.

For his next big case, Operation Botany, McCloud posed as an importer of rare and endangered plants. He used a fake name, phony IDs and hidden cameras to gather incriminating evidence against international Cycad smugglers. Authorities indicted 12 men in the case, nine of whom were convicted.

"Usually I feel like I'm playing a role like an actor," McCloud said. "Knowing quite a bit about reptiles, I can walk the walk and talk the talk."

McCloud, 54, grew up in Los Altos, California, and earned a bachelor's degree in biology at Foothill College. He loved reptiles from an early age, and as a child in diapers would stand in the backyard calling out to lizards.

In 1977, McCloud joined the Fish and Wildlife Service, where he also studied criminology. He retired after suffering serious injuries to his back while working undercover.

"He's the master, flat out," said Dr. David Martin, an independent consultant in biological law enforcement who has worked closely with McCloud off and on since the late 1980s.

"Ken is a very soft-spoken individual. He's unassuming, which is atypical for law enforcement officers," Martin said. "He doesn't come across as a cop."

Martin noted that while McCloud doesn't have the advanced graduate degrees some researchers possess, "I don't think there's more than maybe 30 people in the world who know more about reptiles and amphibians.

"He blows me away, and that's my field," Martin said.

Wildlife smuggling is an international cash cow, rivaling drugs and arms trafficking with estimated profit margins in the billions of dollars, said Sandy Cleva, a spokeswoman for the Service's Law Enforcement division. Estimates have put that number between $10 billion and $20 billion a year globally.

It includes the illegal transportation of live animals and plants, as well as dead animal products such as ivory or skins, across international borders and state lines. Customers agents, trained to look for drugs or fake passports, often don't have the expertise to identify extremely rare and endangered wildlife, which can be as lucrative to traffic as drugs and fetches far milder punishments, according to Martin.

But the consequences for the environment and animals, many of which die in transit, can be disastrous.

"The intrinsic value of wildlife clearly makes these kinds of crimes worse than smuggling guns or drugs," Martin said. "We're going to cause the extinction of species. Now what's that going to do to the ecosystem, to the very environment that we share?"

White said McCloud reports directly to him and is working on humane cases with the society's three cruelty investigators and 15 animal control operators. He added that, while McCloud is unlikely to log international travel, the society has sufficient funds to back his investigations.

"He's going to be a diamond," Martin said. "You're really going to see a difference." □

Jessica Bernstein-Wax,
Palo Alto Daily News.
Reprinted with permission.

Pictured (from left) Major Fawaz Faleh Elfayez, Chief of Environment and Nature Protection, Division of Environmental Rangers Directorate; Mahdi Quatrameez, Head of Wildlife Law Enforcement Division, Royal Society for Conservation of Nature; Jordanian Ambassador to the U.S., His Royal Highness Prince Zeid Ra'ad and Deputy Interior Secretary, Lynn Scarlett.

Up Close and Personal

After learning from Kathy Washburn of the Department of Interior's International Affairs Office about a need for binoculars for anti-poaching enforcement at Wadi Mujib Reserve in Jordan, Marc Weitzel, project leader at Hopper Mountain National Wildlife Refuge Complex, arranged to obtain a combination of new binoculars from Vortex optics, and very good condition, used binoculars to outfit the Reserve's 15 rangers with excellent optics.

On November 3, Deputy Secretary of the Interior Lynn Scarlett presented 15 advanced binoculars and spotting scopes to His Royal Highness Jordanian Ambassador to the United States Prince Zeid Ra'ad Zeid Al-Hussein for the Jordanian Royal Society for the Conservation of Nature. The equipment will be used at Wadi Mujib Nature Reserve, the home of the endangered Nubian Ibex, to assist in anti-poaching efforts.

"It's always satisfying when we can directly assist our international partners with their important conservation work," said Weitzel, who has served as an advisor on the office's International Technical Assistance Office for several years. "We often times take for granted the resources we have available to support our jobs, but for many of our international counterparts, even simple field tools, like binoculars, can be a luxury."

Prince Zeid Ra'ad, for his part, expressed his gratitude on behalf of the Jordanian government for the generous donation noting that "Jordanian-American cooperation in the conservation of Jordan's rich biodiversity is testimony to the strength and breadth of the Jordan-U.S. partnership."

The head of Wildlife Law Enforcement Division for the Royal Society for the Conservation of Nature, Mahdi Quatrameez, was also present at the meeting. He has been investigating law enforcement procedures on a study tour funded by the U.S. Agency for International Development. "I am anxious to return to Jordan to get this equipment into the field to support our enforcement efforts, where it will be much appreciated," Quatrameez said. □

Scott Flaherty, External Affairs, Sacramento, California

COURTESY OF THE NATIONAL LIBRARY OF MEDICINE

Walter J. Freeman

Bad Medicine

That Dr. Walter Freeman—the "father of American lobotomy"—got his start working for the U.S. Fish and Wildlife Service's parent agency is both a fascinating account of muddled missions in the Federal bureaucracy and a challenging reminder to today's arbiters of "sound science" that standards in medicine—like biology—evolve, and can take occasional wrong turns down dark and perilous alleys.

"Aside from the Nazi doctor Josef Mengele," one critical contemporary biographer concludes, "[Freeman] ranks at the most scorned physician of the twentieth century."

Historically, the Interior Department and its bureaus have displayed a schizoid personality, their pasts a cluttered attic of responsibilities and missions that now seem alternately charming and baffling. Interior once managed the District of Columbia jail, the pensions of Civil War veterans, a colonization plan for freed Haitian slaves, and the Columbia Institution for the Instruction of the Deaf and Dumb (now the prestigious Gallaudet University). Fish and Wildlife's past is littered with forgotten refuges and decommissioned fish hatcheries unfamiliar to contemporary ears…and its curious assignment of servicing Congressional fish tanks on Capitol Hill.

But our employer's penchant for oddball responsibilities took its most unusual twist during Interior's 88-year management of the Government Hospital for the Insane, a Washington asylum for mental patients from the District, the military, and other Federal agencies founded in the 1850s by legendary reformer Dorothea Dix. Later renamed St. Elizabeths, Interior's supervision lasted until 1940.

With a dramatic rise in institutionalization of the mentally ill in the early 1900s, St. Elizabeth's cared for 4,300 patients by 1924…and hosted one newly-arrived neuropathologist intent on making a name for himself…Dr. Walter Freeman.

"Even in the 1920s, hospitals lacked treatments that healed, or even helped, many patients, and institutions like St. Elizabeths had grown into huge warehouses of the sick," writes Jack El-Hai, author of *The Lobotomist: A Maverick Medical Genius and His Tragic Quest to Rid the World of Mental Illness*. "Psychiatric hospitals of the 1920s really could do little for patients with mental disease except house and feed them…Younger, often idealistic psychiatrists bridled at this sterile incarceration and sought alternatives."

That alternative was the new technique, pioneered in Portugal, of leucotomy—popularly called lobotomy—by which the nerve fibers of the prefrontal lobes of the brain were cut in an effort to relieve various psychiatric disorders like anxiety, anger, and violent mood swings. Walter Freeman, St. Elizabeths' supervisor of autopsies until 1933, became its greatest American proponent, performing the first lobotomy in the United States.

Because of its invasive nature, limited track record, and wildly varying results, lobotomy was—and remains—a controversial surgical procedure. Some patients experienced remarkable success in their restoration to a semblance of normal life. Others were reduced to dull and listless shadows of their formerly violent and raging selves. An unlucky few died on the operating table.

Freeman, having left St. Elizabeths and in private practice and on the staffs of Georgetown and George Washington universities by 1936, accelerated the pace of lobotomies with his "transorbital" technique. The procedure employed icepick-like tools through the bony orbit of the eye sockets to reach and sever the offending sectors of the brain.

Part medical visionary, part operating room showman, Freeman would perform 3,500 such quick-turnaround operations, assembly-line style, at state hospitals across the nation. He travelled in a van known as the "lobotomobile," in a career that lasted until his death in 1972. Once hailed as a miracle technique by the international medical community, lobotomy began its rapid decline by the 1950s, eclipsed by various mood-altering psychiatric drug therapies that didn't require invasive surgery.

Far less than a story of good and evil than a complex account of science in a more primitive era—barely a generation ago—a retrospective portrait of Interior's Walter Freeman is the complicated story of a caring physician who employed a deeply flawed and largely unproven surgical technique in what were believed to be the best interests of his patients. Such accounts force us to question how we regard good medicine, and remind us that one generation's scientific optimism is occasionally discredited upon the arrival of the next. □

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

transitions

Headquarters

Jerome Ford was promoted to the position of Deputy Assistant Director for Migratory Birds. His last position was a Fish and Wildlife biologist for the Director's Office.

Jay Slack has become the second Director of the National Conservation Training Center in Shepherdstown, West Virginia, succeeding John R. "Rick" Lemon, who retired in May.

Slack, 44, most recently served as Deputy Regional Director for the Fish and Wildlife Service's Mountain/Prairie Region in Lakewood, Colorado. Slack joined the Service in 1991 as a herpetologist in the Phoenix Ecological Services office. In 1993, he moved to the Washington Office, where he was Chief of Listing and coordinator of Section 7 consultations in the Endangered Species program. Slack went on to supervise the Vero Beach Ecological Services office in Florida for nine years.

Slack received his B.S. in biology and M.S. in ecology in 1986 and 1988, respectively, from Illinois State University in Normal, where his academic research in herpetology centered on the speciation of rare frogs in the United States. He received the Interior Department's Meritorious Service Award in 2005.

Slack and his wife Heather McSherry, a former Service biologist, will live in Shepherdstown. □

Greg Siekaniec, formerly Refuge Manager of Alaska Maritime Refuge, has been named Assistant Director of the National Wildlife Refuge System. A 24 year veteran of federal service with the Refuge System, Siekaniec started his career at J. Clark Salyer NWR as a refuge clerk and progressed through management positions in Montana, North Dakota, and Wyoming in addition to Alaska. He completed a stint in Washington, DC as the Deputy Chief of Refuges prior to joining the management team at Alaska Maritime Refuge in 2001.

Hannibal Bolton has been named Assistant Director for State Programs and Federal Assistance. Bolton is a 30-year veteran of the U.S. Fish and Wildlife Service, having served in several technical fisheries positions in Indiana, Wisconsin, Michigan, Minnesota, Missouri, Ohio and Iowa. He has served as the Deputy Assistant Regional Director for the Fisheries Program in the Great Lakes Big Rivers Region, and was responsible for policy development and implementation, as well as Tribal and hatchery issues, for the eight state program. His scope of management encompassed seventeen field stations. Bolton most recently served as Acting Assistant Director for the Wildlife and Sport Fish Restoration Program in Washington, DC. Bolton will oversee the Wildlife and Sport Fish Restoration Program. Through administration and oversight of federal grant programs that provide hundreds of millions of funding yearly, the program helps states, insular areas and the District of Columbia to conserve, protect, and enhance fish, wildlife, their habitats, and the hunting, sport fishing and recreational boating opportunities they provide. □

Southwest

Brian Hanson spent 32 years working for the Service before retiring at the end of 2008. The majority of his tenure was spent with the New Mexico Ecological Services field office serving as Deputy. While there, Hanson worked on multiple water development projects, the largest of which was to guarantee water supply for the Zuni Indian Reservation, which included multiple species inventory of the area. Additionally, he completed instream flow work on both the Rio Chama Wild and Scenic River. Hanson also worked at the Denver Wildlife Research Center studying the impacts of contaminants on prairie bird species, and served as lead for the Water Acquisition and Management Subcommittee on the Middle Rio Grande. Recently, he solidified the Southwest Region's connection with Strategic Habitat Conservation by serving as the Regional Coordinator. Hanson's experience and thoughtful approach will be sorely missed. □

Northeast

HEATHER BELL / USFWS

Kyla Hastie has taken the position of assistant regional director for External Affairs for the Northeast Region. Previously based in Athens, Georgia, Hastie worked in a number of positions for the Southeast Region, including public affairs specialist, Native American liaison, friends group coordinator and special event planner. Hastie's new responsibilities in the 13-state region include managing the Service's relations with the news media, Congress and Native Americans, as well as the region's Internet presence, and audiovisual and publication production.

Hastie began her career in conservation with The Nature Conservancy, working as a government affairs specialist in Arlington, Virginia, and as outreach coordinator for the Altamaha River Bioreserve in Darien, Georgia.

A native of Huntsville, Texas, Hastie holds a bachelor's degree in biology from Southwestern University, a master's degree in public affairs and a master's degree in environmental science.

Hastie and her husband Keith, also a Service employee, live in Shutesbury, Massachusettes, with their two young daughters. □

HEATHER BELL / USFWS

Mike Bartlett was the project leader of the New England Field Office and a strong presence in the conservation arena for 13 years until he retired this spring. Bartlett's Rhode Island accent and his distinctive laugh characterized his rock-solid commitment to the Service coupled with an appreciation for the challenging issues he worked so hard to resolve.

In May, the Environmental Protection Agency gave Bartlett its lifetime achievement environmental merit award, calling him a stalwart protector of fish and wildlife resources who fought for habitat protection, especially wetlands and fish habitat, across the six-state New England landscape.

Recognizing Bartlett's leadership in conserving trust species and habitat, the Service gave him its meritorious service award. He played a role in several Natural Resource Damage cases, including a $20 million Superfund settlement

in New Bedford, Massachusettes, where he persuaded trustees to fund projects with fish and wildlife value.

Bartlett began his 38-year career with the Service working for Animal Damage Control in Ohio. He moved to the New Jersey Field Office, one of the first Ecological Services offices, in 1974 and remained in the Northeast Region for the balance of his career. He was deputy assistant regional director in the regional office for 17 years before moving to the New England Field Office.

Bartlett earned a bachelor's degree in mathematics and a master's degree in animal science-wildlife management from the University of Rhode Island. He served in the Army from 1966 to 1968.

Bartlett's post-retirement life includes sitting on the board of the New Hampshire chapter of the Coastal Conservation Association; teaching classes for American Military University; and spending time with his wife Jeannie, his three daughters and one granddaughter. □

HEATHER BELL / USFWS

Karen Mayne retired after 30 years of federal service. Mayne's career include working on bald eagle recovery and helping to create four national wildlife refuges. She was also the first woman Ecological Services project leader in the country.

Mayne was with the Corps of Engineers' regulatory program in Norfolk, Virginia, before she moved to the Service's Gloucester office in 1978. There, she and now-Regional Director Marvin Moriarty worked on wetland permit reviews and federal projects for two months before he left for the Washington office, leaving Mayne as the sole employee.

More staff joined Mayne as the workload grew from focusing on water resources to endangered species, habitat restoration and environmental contaminants. She became project leader of the newly named Virginia Field Office, where spent her entire Service career.

Mayne said her involvement in management and recovery of the bald eagle was especially rewarding.

"When I started my career," she said, "it was rare to see an eagle. Now we see them throughout the Chesapeake Bay area. I just hope we can keep it that way."

Helping to establish refuges—Eastern Shore of Virginia, Cedar Island Unit of Chincoteague, James River and Rappahannock River Valley national wildlife refuges—was, according to Mayne, her most fulfilling work experience.

"Our work pointed to imminent development threats to fish and wildlife habitat," she said. "Happily, the Service acquired those areas with help from our partners."

Mayne was born in Norfolk and raised in Salisbury, Maryland. She bagged apples for a produce company to earn money for college. She earned a biology degree from Old Dominion University in Norfolk and a master's degree in organizational management from George Washington University in Washington, DC.

Prior to retirement, Mayne received the Department of Interior's Meritorious Service Award. □

Paul Santavy was brought to Maine by fish. He has been appointed the manager for the U.S. Fish and Wildlife Service's Maine Fisheries Program Complex in East Orland, which oversees the Craig Brook and Green Lake National Fish Hatcheries and the Maine Fishery Resources Office. In his three years with the Service, Santavy has served as project leader at the Green Lake National Fish Hatchery in Ellsworth and as acting project leader at the Maine Fishery Resources Office in East Orland.

Santavy's new duties will continue his current work of leading a conservation hatchery program that contributes more than 70 percent of all sea-run Atlantic salmon returns to the U.S. annually. In addition, Santavy's responsibilities will include providing Service leadership, policy coordination and technical expertise within a multi-agency framework for recovering Atlantic salmon in Maine and other interjurisdictional fisheries in the Gulf of Maine.

Prior to coming to the Service, Santavy worked with Montana Fish, Wildlife and Parks, the Prince William Sound Aquaculture Corporation in Alaska, and the Oregon Department of Fish and Wildlife.

Currently, Santavy serves on the Board of Directors and the Land Stewardship Committee of the Great Pond Mountain Conservation Trust, which owns over 4,300 acres of land in Maine and provides conservation land trust services on small tracts of land with a high conservation value. He is also a member of the American Fisheries Society, Wildlife Society, Ducks Unlimited and Bucks Mills Rod and Gun Club.

Originally from Michigan, Santavy grew up on his family's farm, where he developed an interest in nature, conservation, land management, hunting and fishing. These interests lead him to complete a B.S. degree in wildlife biology and fisheries management at Michigan State University. Paul spends his free time hunting, fishing and enjoying nature with his wife, Rebecca. □

Midwest

Bob Bryant retired on September 30, after 24 years with the Service. Bryant's accomplishments have spanned three Regions and two

programs, and his land acquisitions for numerous refuges have left a lasting mark on the Refuge System. Midwest Regional Director, Robyn Thorson presented Bryant with the Meritorious Service Award from the Secretary for his significant contributions to land acquisition and realty and the Wildlife and Sport Fish Restoration programs.

In the Northeast Region, Bryant helped acquire the first tracts of land on the Stewart B. McKinney and Sunkhaze Meadows NWRs. In the Pacific Region he helped establish the Sacramento River, Tualatin and Grays Harbon NWRs, and helped expand California's San Pablo Bay and San Joaquin River NWRs. In the Midwest Region, Bryant directed land acquisition for the Migratory Bird Acquisition Program, helped establish Detroit River NWR, and made significant additions to Patoka River, Cypress Creek, Ottawa and Big Muddy NWRs.

As Chief of the Midwest Region's Division of Wildlife and Sport Fish Restoration, Bryant worked diligently with state partners to facilitate recreational hunting and angling. Notable efforts include Indiana's acquisition of the 8,000 acre Goose Ponds for waterfowl hunting and Ohio's acquisition of 8,000 acres of former Owens-Illinois forest for turkey hunting.

Bob Bryant's excellence and outstanding contributions to the Service were recognized in a retirement presentation at the Midwest Regional Office. John Christian, Midwest Region ARD for Migratory Birds and State Programs, said, "A good measure of a person's character is what they have accomplished that is lasting, and Bob has made a lasting contribution to fish and wildlife conservation." □

honors

Headquarters

Service Aviators Win "Gold Standard" for Safety Standards

The General Service Administration awarded the Service's aviation program a "Gold Standard" award at the Department's Aviation Board of Directors meeting in October, 2008. Michael Grant, the Service's aviation manager, accepted the award on behalf of Paul Schmidt, the Service's aviation executive. The award currently hangs on the wall of the Service's conference room at Main Interior.

"This award signifies the achievement of our goal to develop better processes and procedures for managing the Service's aviation program in a safer, and more effective and efficient manner," said Grant. "This is especially important since our pilots routinely fly at altitudes as low as 150 feet off the ground when flying wildlife management missions over some of the most austere areas in Lower 48 States, Alaska and Mexico. There is no room for error."

Each year, 63 active Service pilots and six Service trained and evaluated contract pilots fly 18,000 hours. This roughly equals 72 trips around the earth at the equator. Pilots undergo extensive training in the air and in the class room each year. The Service currently maintains at fleet of 59 aircraft, 37 of which are in Alaska.

Three key Service programs maintain aircraft and pilots for their operations. The Refuge System uses aircraft for wildlife telemetry, easement enforcement, and habitat evaluations. Law Enforcement uses aircraft to support their missions. Migratory Birds uses aircraft to survey and count breeding and wintering waterfowl and eagles.

The Interagency Committee for Aviation Policy's federal aviation "Gold Standard" program is a voluntary, self-certification program to recognize those agencies that have made the commitment to federal aviation. The Committee adopted a set of "Safety Standards and Guidelines" to provide agencies with a framework for developing their own comprehensive flight program standards to enhance operational safety and effectiveness in their flight programs.

Applicants were evaluated on their operations and maintenance manuals, training and safety program, aircraft surveys and data reporting. □

Nicholas Throckmorton,
Public Affairs, Washington, DC

Members of the **Special Operations Unit of the Service's Law Enforcement Branch** were honored by the Department of Justice and U.S. Attorneys Office on December 9, 2008, for their part in a three-year undercover investigation of sea turtle smuggling. Operation Central—a major covert Service investigation of large-scale trafficking in sea turtle skins, shells, and products from Mexico and China—resulted in the successful prosecution of seven defendants from those countries who were arrested in the United States. Investigations or prosecutions of more than a dozen other individuals implicated in this case are still underway. Honorees included: George Morrison, Curtis Graves, Leo Suazo, Henry Lopez, and Alejandro Rodriguez. □

The Special Operations Unit is congratulated by the Service Director and the Department of Justice. Pictured (starting from left): Service Director H. Dale Hall, Curtis Graves, Leo Suazo, George Morrison, Ronald Tenpas, Assistant Attorney General for the Justice Department's Environmental and Natural Resources Division, and Benito Perez, Chief, Law Enforcement.

USFWS

Seth Mott is being recognized for the body of work he has performed in relation to the initiation, planning, and execution of the workshop on The Future of Waterfowl Management. The impetus for this workshop was a recommendation from a joint task group of North American waterfowl experts representing the states, the Federal Governments of the U.S. and Canada, Universities and the private sector. This group, commissioned by the North American Waterfowl Management Plan Committee and the National Flyway Council proposed the adoption of a more cohesive waterfowl management framework with meaningful, measurable goals that integrate habitat conservation, harvest management, and stakeholder interests. To address the institutional needs and policy decisions necessary to implement this framework, a waterfowl policy summit was convened.

While the National Flyway Council, the North American Waterfowl Management Plan Committee, the Service Regulations Committee and leaders of the Association of Fish and Wildlife Agencies all endorsed the concept of conducting a Waterfowl Policy Summit as recommended in the 2007 Joint Task Group report; no one knew exactly how that should be accomplished. Mott volunteered to head this effort and assembled a cadre of volunteers from Canada, the U.S., and the NGO community to develop and plan this meeting.

Over the course of the past year Mott has steered this group as they wrestled with complex and substantive issues related to discussions on waterfowl population management, harvest, and conservation.

The Workshop was completed in August, 2008, and the consensus achieved there set the course of creative work in waterfowl management for the next several years. This is a testament to the dedication and perseverance of Mott and the many others who have worked on taking this from a concept to reality. This award is in recognition for Mott's role in all phases of this effort and his continuing dedication to improving the understanding and management of North America's waterfowl resource. □

Eight Service employees were nominated for this year's Sense of Wonder award for excellence in the field of environmental education and interpretation: **Susan Kain**, Visitor Services Manager at Deer Flats NWR, Idaho; **Dennis Pritchard**, Supervisory Wildlife Refuge Specialist at Sevilleta National Wildlife Refuge, New Mexico; **Byron Fortier**, Supervisory Park Ranger at Southeast Louisiana NWR Complex; **Laury Zicari**, Deputy Field Supervisor at the New York Ecological Services field office; **Suzanne Fellows**, Assistant Nongame Migratory Bird Coordinator at the Regional Office, in Denver, Colorado; **Neesha**

Wendling, biologist at the Fairbanks Office in Alaska; **Janet Schmidt**, Park Ranger at Stillwater NWR, Nevada; and **Donna Stanek**, Chief of Visitor Services and Outreach in Minneapolis, Minnesota. The Sense of Wonder award celebrates a legacy started by former Service employee Rachel Carson, whose book A Sense of Wonder illustrates the bond between nature and the human spirit. □

Midwest

Honoring nearly a decade of whooping crane recovery efforts, **John Christian**, Assistant Regional Director for Migratory Birds and State Programs for the Midwest Region, received a National Audubon Society's Green Hero Award for his instrumental role in establishing and supporting the Whooping Crane Eastern Partnership (WCEP). Funded by Toyota, the Together Green program, "aims to provide inspiration, leadership and opportunities that inspire people everywhere to take action at home, in their communities and beyond to improve the health of our environment."

Christian was instrumental in establishing and co-chairing WCEP, a coalition of Federal, state and non-governmental organizations dedicated to restoring the endangered whooping crane as a self-sustaining species in eastern North America.

"The state agencies, non-governmental organizations, and individuals we work with are key partners in this unprecedented effort to reintroduce whooping cranes into the eastern flyway," said Christian. "We are grateful for the efforts of our whooping crane colleagues in helping to make this project a success. Quite simply, we couldn't do this without them."

Through the WCEP ultralight project, whooper chicks are hatched at the U.S. Geological Survey's Patuxent Wildlife Research Center in Laurel, Maryland, and at the International Crane Foundation in Baraboo, Wisconsin. After initial rearing and training, they are transported to Necedah National Wildlife Refuge in Wisconsin to begin learning how to fly behind ultralight aircraft piloted by partner Operation Migration in preparation for the long journey to Florida's gulf coast. Through this unprecedented project, WCEP representatives have worked together to release more than 60 whooping cranes into eastern migratory population.

This October, the WCEP group launched its eighth migration since 2001, leading fourteen whooping crane chicks from Necedah NWR to two national wildlife refuges in Florida—St.Marks and Chassahowitzka NWRs. The ultralight-led flock will pass through Wisconsin, Illinois, Kentucky, Tennessee, Alabama, and Georgia to reach the final destinations.

"It is incredibly important for future generations to develop an appreciation for nature now," Christian says. "As this project progresses, it is important that we continue to share the whooping crane story with the public, because the survival of this species really does depend on how the human and nature interaction plays out. This project truely is making wildlife history and has captured the publics imagination. I have described it as the wildlife equivalent of putting a man on the moon!"

Whooping cranes were on the verge of extinction in the 1940s. Today, there are only about 500 birds in existence, 350 of them in the wild. Aside from the 68 Wisconsin-Florida birds, the only other migrating population of whooping cranes nests at the Wood Buffalo National Park in the Northwest Territories of Canada and winters at the Aransas National Wildlife Refuge on the Texas Coast.

Whooping cranes, named for their loud and penetrating unison calls, live and breed in wetland areas, where they feed on crabs, clams, frogs and seeds. They are distinctive animals, standing five feet tall, with white bodies, black wing tips and red crowns on their heads.

WCEP was formed in 1999 under the leadership of representatives from the International Crane Foundation, Operation Migration Inc., Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, the U.S. Geological Survey's Patuxent Wildlife Research Center and National Wildlife Health Center, the National Fish and Wildlife Foundation, the Natural Resources Foundation of Wisconsin, and the International Whooping Crane Recovery Team. □

Northeast

The Federal Executive Association (FEA) of Western Massachusetts selected **Pamela M. Dansereau**, Investigative Case Specialist in the Northeast Regional Office, as professional employee of the year in the category of emergency management, public safety and law enforcement. Dansereau received the award at FEA's 2008 Excellence in Government Awards ceremony. She has worked in the regional law enforcement office for 12 years and for the Federal Government for 25 years. □

Six Northeast Region employees competed for awards in various categories. In addition to Dansereau, the nominees were: distinguished federal supervisor, **Linda Shaffer** (deputy chief, ITM); professional employee of the year, administrative, **Sharon Woodin** (program analyst, BF); outstanding support employee, **Sharon Koroski** (grants assistant, FA) and **Stacey Pacheco** (administrative support assistant, Silvio O. Conte NFWR); and distinguished federal manager, **Tony Lèger** (chief, NWRS). □

Mountain-Prairie

Steve Moran and **Ron Reynolds** (left) were recently presented the prestigious National Blue Heron Award sponsored by the North American Waterfowl Management Plan. This award recognizes outstanding contributions toward the conservation of waterfowl habitat.

Moran has served as the Service's Rainwater Basin Joint Venture Coordinator since 1993. During this time, he has worked to form habitat conservation partnerships based on trust and cooperation with many private landowners, thereby achieving unprecedented wetland improvements on private lands. There is a tremendous sense of pride in the habitat conservation accomplishments of the Joint Venture by its partners.

Since 1991, Reynolds has served as the Project Leader for the Service's Habitat and Population Evaluation Team. Ron's contributions to the conservation and understanding of waterfowl and their associated wetland and grassland habitats at state, national, and international levels are substantial. He is a respected and proven leader in waterfowl and wetlands conservation in the Prairie Pothole Region and his advice and guidance is regularly sought by individuals and agencies throughout the U.S. and Canada. □

Alaska

Deborah Corbett, Regional Historic Preservation Officer for the Alaska Region, was one of four recipients of the first annual Secretary of the Interior Historic Preservation Award. The winner in the Federal Preservation Office Category, Corbett is the Service's only archeologist in Alaska—a region that contains 16 National Wildlife Refuges totaling more than 78 million acres. Her responsibilities cover all aspects of the federal preservation program, including research, identification, protection, coordination with Native villages, and care of museum collections.

In 2008, Corbett partnered with more than a dozen organizations, universities, government entities, and tribes to leverage federal funds to accomplish dozens of projects. Other projects include the complex issues associated with World War II in the Pacific in the Aleutian Islands as well as coordination with the Japanese government. She has also partnered with the Kenaitze Indian tribe and sponsored a youth Susten Camp for Native kids that connects kids with their past and trains them for possible careers in natural and cultural resource management.

Corbett has been involved with vast stretches of the Iditarod National Historic Trail and has assisted the research along the route and sponsored archaeological investigation through a major community on the trail. □

in memoriam

Bob Ashworth, Deputy Assistant Director for Business Management and Operations, collapsed and died suddenly while on a site visit in conjunction with the Service Deputies Group meeting in Lake Placid, New York this fall.

He leaves behind his wife, Annamarie, and three children, Christina, Bobby and Thomas. The Service extends deepest sympathies to them in this difficult time.

Ashworth joined the Federal government in 1985 as a clerk/typist for USGS, rising through the ranks to become a Contract Administrator. He received the Department's Superior Service Award for his accomplishments at USGS. He then served as a senior Grants Management Analyst with the Corporation for National Service, a Federal grant-making agency, before joining the Service in 1999 as chief of the Branch of Contracts. Ashworth was promoted to chief of the Division of Contracting and General Services in 2001, and in 2006, he became Deputy Assistant Director for Business Management and Operations.

In an agency of people who get things done, Ashworth stood out for his problem-solving skills, his attention to detail, and his unwavering focus on supporting the Service's mission. As we rightfully emphasize wildlife conservation, it is important to remember the vital contributions of skilled administrators like Ashworth who work tirelessly behind the scenes to keep our waterfowl survey planes flying, important habitat work on schedule and thousands of our employees supplied with essential equipment.

Ashworth will be sorely missed by his friends, family and coworkers. He was a man of many accomplishments, but most of all, he was a dedicated father and husband who was deeply involved in his community. To a person, those who knew him best characterize him as a kind and compassionate person who treated everyone with respect. □

Captain Kevin Bell, 53, passed away this past January in Homer surrounded by his family. Bell had been struggling with brain cancer for about a year. Bell was a "larger-than-life" character who had sailed on the Alaska Maritime National Wildlife Refuge's M/V Tiglax since its commissioning in 1987. Through his intelligence, dedication and zest, Bell worked his way up from cook/deckhand to become Captain of the 120 foot ship, the largest in the Service's fleet.

A memorial service was held for Bell with a reception following at the Refuge's Islands & Ocean Visitor Center. He was a well known figure in the biological, seafaring, and Homer communities. Bell was a Cub Scout leader, a coach, and a tireless advocate for youth hockey, being one of the founders of the Homer Hockey Association.

Captain Bell liked to refer to himself as "just the boat driver," but this was a gross underestimation. Bell was a passionate advocate for wildlife, for the work of the Refuge, and for the Aleutian Islands. Driven by his great curiosity about the natural world, he enthusiastically supported the scientific work conducted from his ship. He was a great champion of people, praising and encouraging all who set foot on the Tiglax. He particularly loved to introduce children to the Aleutians and the work of the Refuge, leading spirited school programs and Tiglax tours.

Captain Bell received the Department of the Interior's Honor Award for Meritorious Service signed by Secretary of the Interior Dirk Kempthorne and presented by Regional Director Tom Melius in 2007. The award, one of the highest given in the Department, was granted in "recognition of his many years of outstanding seamanship and exemplary support of international maritime conservation programs" for the Service. □

Mary Joyce Hemenway Williams, whose tenacious conservatism and patriotism fervor found fertile ground in the Fish and Wildlife Service's "Take Pride in America" campaign during the Reagan and Bush administrations, died July 21 in Arlington, Virginia. She was 47.

Daughter of a U.S. Foreign Service officer, Williams was born in 1961 in Munich, Germany as Cold War tensions erupted at the start of the Kennedy administration, and was raised in an atmosphere that prized public service and commitment to country. Upon graduation from the University of Redlands in California with training in communications and political science, Hemenway worked as an editor for the Heritage Foundation, a Washington, DC think tank. Later, she served as press secretary to Idaho Senator Steven Symms—at the time, she was the youngest press secretary on Capitol Hill.

As "Take Pride" coordinator for the Service in the 1980s, Williams fashioned a series of wildlife-oriented projects in support of the government-wide promotional campaign, including print and television public service advertising that enlisted the talents of Hollywood celebrities to rekindle public support for public lands conservation. Her flair for the >>

Williams, continued from page 43

artistic and a dogged political savvy were later enlisted to support other agency efforts, including the Federal duck stamp program, outreach to the Boy Scouts of America, and to Washington-area special needs audiences, such as Gallaudet University's environmental education programs for hearing-impaired children.

In chronic pain for much of her career, Williams suffered from multiple sclerosis for more than 20 years, and her health was further compromised by a diagnosis of breast cancer in 2006. Her final Federal Government employment was as a writer-editor for the Department of Homeland Security.

Williams is survived by her husband, Fielding Williams, a U.S. Marine Corps Captain; a son; and her parents. She was buried in Arlington National Cemetery. □

Susan B. Martin, Project Leader for the Upper Columbia Fish and Wildlife office in Spokane, Washington, died after a long battle with cancer on September 15 at her home in Coeur d'Alene Idaho, surrounded by her loving family.

Born in Salt Lake City, Utah, in 1951, Martin grew up in Blackfoot, Idaho, not far from Yellowstone National Park.

After graduating with a B.S. in biology and an M.S. in microbiology from the University of Idaho, Martin served with the U.S. Forest Service, and then the Idaho Department of Environmental Quality.

When she joined the Service in 1991, Martin worked in the Snake River office in Boise, Idaho. In April 2000 Martin took on her duties as the Supervisor in the Spokane Ecological Services field office. Here she supervised up to 45 staff, including a branch office in Wenatchee and the Central Washington field office.

Martin was dedicated to conservation and the protection of fish and wildlife, and consistently emphasized the need for communication and collaboration in order to reach resolution on controversial issues. Her negotiation skills and innovative thinking were admired and appreciated throughout the conservation community.

Martin loved the outdoors, camping, whitewater rafting, and backcountry skiing with family and friends. She had a long infatuation with the rugged Sawtooth Mountains of central Idaho where her outdoor adventures often took her. She also took great pleasure creating gourmet dinners, and was an avid reader.

Martin was an active member of the Idaho chapter of the American Fisheries Society for 30 years, and served as their first woman president. Friends, family and colleagues are in the process of establishing a memorial graduate scholarship in her honor, to be administered by the Idaho Chapter.

Martin is survived by her husband Donald; daughter Jamie and son Aaron and their spouses, and the many friends and colleagues who will miss her greatly.

Memorial donations can be sent "In Memory of Susan Martin" to the Sawtooth Society, P.O. Box 268, Boise, Idaho 83701. To make an online donation, or to learn more, visit their website at <www.sawtoothsociety.org>. □

Keith M. Schreiner, former Regional Director of the Alaska Region, passed away September 19, at his home in Grand Junction, Colorado. He was 83. Schreiner served 27 years with the Service.

Schreiner roles within the Service are numerous. He joined the Service in 1956 as a Wildlife Biologist in Tulsa, Oklahoma. He then worked as the Assistant Federal Aid Supervisor in Albuquerque, New Mexico before coming to the Washington office where over an 11 year period he worked as a Wildlife Research Specialist in the Division of Federal Aid, then as Chief of the Office of Endangered Species/International Affairs, and finally as the Associate Director of Federal Assistance. From the Washington office he moved to Alaska, serving as the Area Director for the Alaska Region, then as the Regional Director until his retirement in 1983.

Funeral services for Schreiner were held in September in Ollie, Iowa. □

Donald V. Gray died in June, 2008 at the age of 97. Gray was an exemplary Service employee, working across the country during his 37-year career. He was Refuge Manager of St. Marks NWR in Florida, Santee NWR in South Carolina, Horicon NWR in Wisconsin, Lower Souris (J. Clark Salyer) NWR in North Dakota, and the Upper Mississippi NWR in Minnesota. Gray was presented the Service's Distinguished Service Award by Stewart Udall in 1968.

David Harold "Kawika" Woodside died in June, 2008 at the age of 84. His 22-year stint with the Service was just the most recent chapter in a long and incredibly rich career of natural resources management in Hawaii. He brought to his work and to his colleagues, a vast breadth and depth of knowledge resulting from decades of experience with Hawaii's flora and fauna.

During his time as a Service employee, Woodside spent a decade working for the Hawaiian and Pacific Islands NWR Complex. He made important contributions to the establishment of the Oahu Forest NWR, the Kona Forest Unit of the Hakalau Forest NWR, Palmyra Atoll NWR, and the Kingman Reef NWR. Following his time with Refuges, he worked for 12 years in various programs within the Division of Ecological Services in Honolulu, including Environmental Review and Partners for Fish and Wildlife.

Prior to his work with the Service, Woodside spent 27 years working for the Hawaii Division of Fish and Game. This segment of his career started in 1952, seven years before Hawaii became a state. Among his positions with the Division of Fish and Game were Non-game Wildlife Section Leader and Wildlife Branch Chief. One of his tasks as a State biologist was to manage the Hawaiian Islands NWR (now part of the Papahanaumokuakea Marine National Monument) under a management agreement with the Service, prior to the stationing of Service personnel in Hawaii. He was also instrumental in the successful effort to reestablish populations of Hawaii's state bird, the nene. Woodside retired from the State in 1979.

Born in Kapa'au on the island of Hawaii, to a long time Hawaii family (his grandfather was a whaler); Woodside showed an interest in wildlife at an early age. He began his wildlife career in 1939, assisting pioneer botanist and ornithologist George C. Munro with the banding of seabirds on offshore islets of Oahu. At age 15, Woodside was a founding member of the Hawaii Chapter of the Audubon Society, remaining an active member all his life. Joining the Army during WWII, Woodside was on a troop ship bound

for the invasion of Japan when the war ended. Following his military service, he attended Washington State University, and graduated in 1951 with a degree in wildlife management.

Woodside's continuous desire to get out and explore nature resulted in countless treks to mountain tops, river bottoms, rainforests, wetlands, seabird colonies, remote islands, caves, coral reefs and more. As a result, he saw firsthand Hawaii's natural places and rarest species, a number of which are now extinct.

Woodside served as a mentor and teacher for several generations of Hawaii biologists, passing on to them his extensive experience in Hawaii's natural environments and his encyclopedic knowledge of the state's plants and animals. □

Gerald "Gerry" Deutscher passed away after a three year battle with colon cancer. The Refuge system and its people had always felt like family to Deutscher, a retired Refuge Manager. Just days before his death, Deutscher, whose most recent home was in Avon, Indiana, watched migrating cranes as they winged their way north, and lamented that his sixtieth spring would be his last. Until the end, Deutscher was busy planting trees and planning habitat for backyard visitors.

Deutscher started his career in 1975 at LaCreek NWR near Martin, South Dakota. From there, he journeyed southwest to Browns Park NWR in Colorado. Under the mentoring of Manager Jim Creasy, Deutscher's love of refuge work was born and became a life-long commitment. For the next ten years, he found himself managing Bear Lake NWR in Idaho. Deutscher's next staging area was the Stillwater NWR in Nevada, and a year later he was back home in Montana working for the Bureau of Land Management. But the call of refuge work was strong, and he once again landed in Idaho at Camas NWR in the Southeast Idaho Complex. Like all migrating species, the lure of moving on once again caught Deutscher, and finished his career with the Service as Manager for Guam NWR.

Like most refuge personnel, Deutscher loved the land and its creatures. He grumbled when paperwork kept him desk-bound, but there were always evening and weekend treks around the refuge that fueled his spirit.

The legacy Deutscher leaves behind is his passion and concern for managing natural resources for all those to come. □

Ron Rothschadl, one of the Service's first Web managers, died November 26 following a brief battle with acute leukemia. He was 64.

Rothschadl was enthusiastic about communications and using the Internet for sharing the Service's conservation message. He began working for the Northeast Region as the Accomplishment Reporting System/Web manager in External Affairs. As the Service's Internet presence grew, his job evolved to focus solely on Web management.

Rothschadl was an active and respected member of the national Web Council. In August he hosted the council's meeting, "Possibilities…Web 2.0 and Beyond" in Hadley, Massachusetts. One Web Council member noted that despite Rothschadl's usually quiet demeanor, during this meeting he took the spotlight to shine it on important issues.

His colleagues remember Rothschadl as a kind and thoughtful man who was dedicated to doing a thorough job. They also remember his wicked sense of humor. He epitomized the behind-the-scenes worker, but he was also an eloquent man with a deep passion for his family and for conservation.

Rothschadl began his federal career as a National Park Service park ranger at Jewel Cave National Monument and Wind Cave National Park in South Dakota. He worked for the Bureau of Land Management as an outdoor recreation planner in Worland, Wyoming, and Medford, Oregon. He also worked for the U.S. Forest Service, first at the Willamette National Forest in Eugene, Oregon, and then as a public affairs specialist for Wayne-Hoosier National Forest in Bedford, Indiana. He worked in the communications field for several years in the private sector before joining the Service in 2000.

Born and raised in Watertown, Wisconsin, Rothschadl attended Michigan Technical University in Houghton and graduated with a bachelor's degree from Wisconsin State University in Whitewater. He served two years in the Army, then returned to school to earn a master's degree in outdoor recreation management from Colorado State University in Fort Collins.

Rothschadl intended to retire in the spring. One particular mountain in Colorado called to him, and had plans to climb it. He leaves his wife Anne; and his daughters, Laney of Denver and Theresa of Chicago. □

Wartime Relic

STEVE HILLEBRAND / USFWS

B-24D Liberator bombers such as this one which crashed due to weather on Atka played a significant role in WWII in the Aleutians. World War II Valor in the Pacific National Monument was created by Presidential Proclamation signed by President Bush December 5th. Sites on the Aleutian Islands of Attu, Kiska and Atka within the Alaska Maritime National Wildlife Refuge were included in the monument along with locations in Hawaii and California.

USFWS

Outgoing U.S. Fish and Wildlife Service Director H. Dale Hall pauses during a hunting trip in 2006. Hall retired from the Service in January 2009 after a career spanning more than three decades.

Fish & Wildlife News
Editor: David Eisenhauer

Submit articles and photographs to:
David Eisenhauer
U.S. Fish and Wildlife Service
4401 N. Fairfax Drive, MS 330
Arlington, VA 22203
703/358 2284
Fax: 703/358 1930
E-mail: David_Eisenhauer@fws.gov

Deadline for future issues:
Spring Issue 2009
(Migratory Birds): by February 1, 2009

Summer Issue 2009
(Climate Change): by May 1, 2009

Printed on recycled paper

Please do NOT mail disks or photos via the U.S. Post Office. The irradiation process melts them.