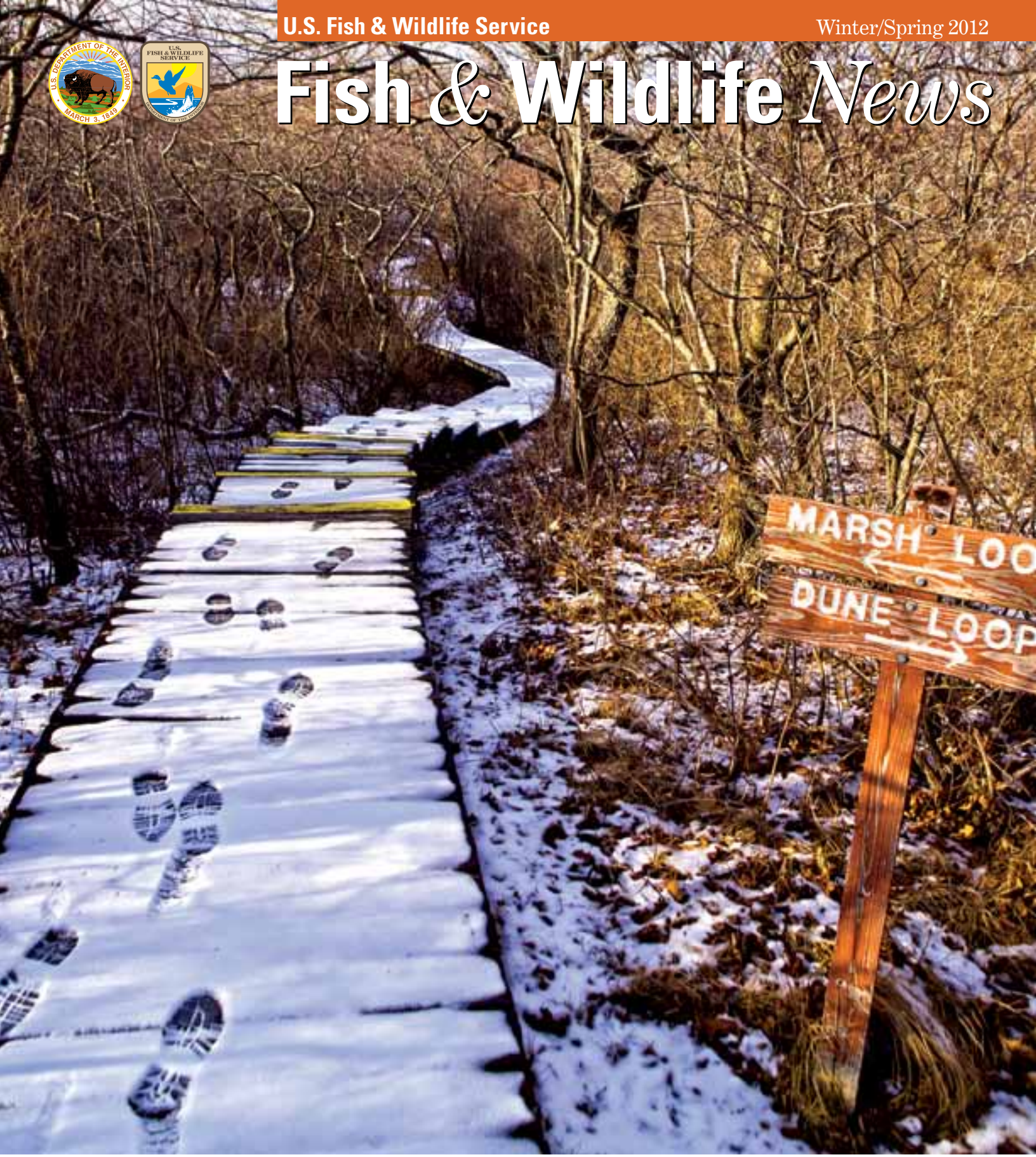
U.S. Fish & Wildlife Service Winter/Spring 2012

Fish & Wildlife News



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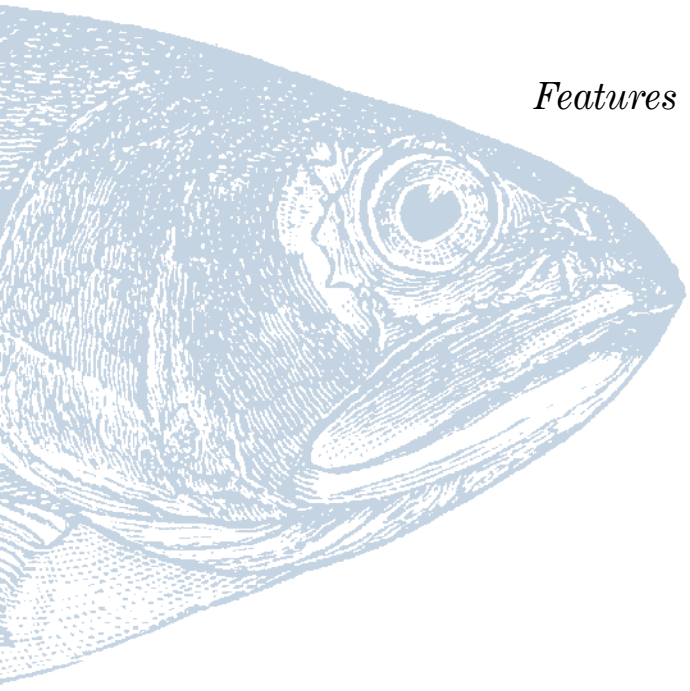


Features

ON THE COVER: **Leave Only Footprints**.
Parker River National Wildlife Refuge.

Everything is Connected

From the Chesapeake Bay to the Great Lakes, the Colorado and Rio Grande rivers to the far Pacific, aquatic species are in great decline. Deteriorating water quality, accelerating habitat loss, invading exotic species, and the diversion and impoundment of once free-flowing streams threaten myriad species. Climate change overlays and exacerbates all these threats.

As conservationists, we know everything is connected. The water that falls on the western slope of the Sierra Nevadas is the same water that nourishes the farm fields and refuge wetlands of California's Central Valley, refreshes the invertebrate life of vernal pools, and sustains the life cycle of anadromous fish populations. If we want to improve water quality in the Gulf of Mexico, we need to understand agricultural practices and navigation in the upper Mississippi and Missouri rivers.

Think about it. Is a mallard a terrestrial or aquatic species? I'd say it's both, because it relies on aquatic and terrestrial habitat during different phases of its life. I know I'm usually standing waist deep when I hunt them. Salmon? Without healthy forest, wetland and riparian habitat surrounding the streams in which they spawn, salmon cannot thrive. I caught my best-ever smallmouth casting to a riffle below a fallen Sycamore.

That's why we need to think and act differently as a conservation community, breaking down the artificial distinctions we've built between aquatic and terrestrial resources and integrating land and water conservation.

This edition of *Fish & Wildlife News* includes a special look at aquatic resource conservation.

We have a proud tradition of innovation and accomplishment in the Fish and Wildlife Service. For instance, the Service was in the forefront of encouraging the American people to rethink the importance of wetlands and their contributions to the environment and human health. In the 1930s, Ding Darling's cartoons of duck hunters in dewatered marshes helped teach a nation about the plight of waterfowl. Later, Service employees like Louise Stickel and Rachel Carson awoke the nation and the world to the dangers of indiscriminate pesticide use. And in the mid-eighties, before anyone was talking about private lands conservation, the Service began an effort called Partners for Fish and Wildlife. Now, it's fashionable in the conservation world to acknowledge that conservation success depends on private lands.

We led these conservation revolutions because we were the world's leading conservation science organization. We've had a two decade hiatus, but now we're reinvesting and reinvigorating that capacity. We're preparing for the next generation of conservation leadership. We're growing our capacity to design and deliver science-driven conservation.

This will require us to make hard choices; acknowledge that we can't save everything; and put our resources where they will do the most good.

For example, the Service has worked with its federal and state partners, for three decades, to restore Atlantic salmon and other fish populations in the Connecticut River. Collectively, we've invested tens of millions of dollars raising and releasing salmon fry and smolts, restoring habitat, creating fish passage, conducting genetics research, and educating the public about the importance of salmon to the Connecticut River watershed.

Our salmon restoration efforts have done some great things for the watershed, such as improving water quality and flow rates and restoring fish passage all benefitting other anadromous fish species such as shad, blueback herring, and alewife. But our primary goal of a restored salmon population has eluded us. Given the fact that the Connecticut River is at the southernmost range of the Atlantic salmon, does it make sense to pour more resources into a river where climate change and population growth will likely continue to cancel our efforts?

These are the kinds of hard questions we need to ask ourselves and our partners. They are challenging questions -- scientifically, professionally, culturally, and ethically. We have to be willing to ask them. We must be committed to building the capacity to answer them. We must leave behind the barriers that our great professions have built within us: fishery, waterfowl, and avian biologist; forester; herpetologist; botanist; and on-and-on.

At the National Wildlife Refuge System vision conference, last summer, in Madison, Wisconsin, the renowned ocean explorer, Dr. Sylvia Earle, challenged us to stop talking about "fish and wildlife" as if they occupied separate universes. She suggested the words "wild life", spoken with appropriate pause between them, suggesting that our goal is to conserve things wild – wet, dry, and in between.

It's all connected.

Thank you for your interest and dedication to conservation.

Amphibians Get Attention

A report on the first 10 years of research into amphibian abnormalities will be finalized this spring.

In 2000, the U.S. Congress asked agencies within the Department of the Interior to address the growing nationwide concerns about the health of amphibians. These concerns centered on population declines and the discovery of large numbers of abnormal frogs, including individuals with missing or extra limbs, in wetland communities.

In response, the U.S. Fish and Wildlife Service's Environmental Contaminants Program began the National Abnormal Amphibian Program programlater that year. The goal of the program is to understand the geographic distribution and severity of amphibian abnormalities on U.S. national wildlife refuges.

Specific objectives of the program are to: 1) determine the prevalence of abnormalities in frogs and toads on refuges; 2) evaluate how abnormality frequencies varied among sites within a refuge, between refuges and over time; and 3) investigate possible causes for the abnormalities through targeted follow-up studies.

Over a 10-year period, over more than 68,000 amphibians were examined for abnormalities at 675 sites on 150 national wildlife refuges, wetland management districts or waterfowl production areas in 45 states.

More information on the program, as well as general information and links on the decline and abnormalities of amphibians can be found on the following website: <fws.gov/contaminants/Issues/Amphibians.cfm>. □

CHRISTINA KRAVITZ, Division of Environmental Quality, Washington Office

USFWS

(Left): Abnormal frog with an extra limb collected as part of the Contaminants Program long term research project.(Below): Service biologists collect amphibians.

USFWS

Wetlands Status and Trends: Spanning 50 Years of Wetland Data

America's wetlands declined slightly from 2004 to 2009, according to a report by the U.S. Fish and Wildlife Service. The findings are consistent with the Service's Status and Trends Wetlands reports from previous decades that reflect a continuous but diminishing decline in wetlands habitat over time.

The Service has been the principal federal agency monitoring and reporting changes to U.S. wetlands since 1954. For more than 50 years, the Service has been a leader in defining the biological extent of wetlands, implementing a national classification system, developing maps and monitoring

standards for wetland habitats, and partnering with federal, state, tribal and private organizations to track wetland changes over time.

The report, which represents the most up-to-date, comprehensive assessment of wetland habitats in the United States, documents substantial losses in forested wetlands and coastal wetlands that serve as storm buffers, absorb pollution that would otherwise find its way into the nation's drinking water, and provide vital habitat for fish, wildlife and plants.

"This report offers us a road map for stemming and reversing the decline," said Service Director Dan Ashe. "It documents a number of successes in wetlands conservation, protection and reestablishment, and will be used to help channel our resources to protect wetlands where they are most threatened and reduce further wetland losses."

The net wetland loss was estimated to be 62,300 acres between 2004 and 2009, bringing the nation's total wetlands acreage to just over 110 million acres in the continental United States, excluding Alaska and Hawaii.

For more details on the report, visit < www.fws.gov/wetlands/Status-And-Trends-2009/>. □

New Wetlands Mapper Now Online

National Wetlands Inventory data are now available through a new and updated Wetlands Mapper.

The Wetlands Mapper is the comprehensive data discovery portal to the Service's wetlands geospatial data holdings and enables resource managers and the public to view and print maps or download digital National Wetlands Inventory data.

Some of the changes include enhanced visual representation; backdrop choices (imagery, streets, topographic); ability to search by location (city, state, ZIP code); enhanced polygon and linear analysis tools; a new riparian data layer; more historical information; improved wetlands code interpreter; improved printing tool; whole state downloads and status maps for the image era (how old are the data), image scale (how refined are the data), and image type (black and white, CIR, true color).

In 2010, the Wetlands Mapper received about 55 million online inquiries for information. □

ANDREW CRUZ, NWI National Standards and Support Team, Washington Office

Screen capture of the Wetlands Mapper showing map status for the conterminous U.S. Try the mapper at: www.fws.gov/wetlands/Data/Mapper.html

Busy Bees: Pacific and Southwest Regions Rise to the National Pollinator Challenge

What would you do if suddenly almonds, blueberries and squash were hard to come by? Or chocolate was scarce and coffee a hard-to-find luxury item? Scary thoughts for many of us, yet with new evidence showing a decline in many species of pollinators worldwide, it may not be long before we see an impact in the availability of some of our favorite foods and plants.

Pollinators are vital to the integrity of the National Wildlife Refuge System, ecosystem health and agriculture. Up to 80 percent of plant species and three-quarters of the world's food crops rely on pollinators. Yet, 35 species of pollinators are listed as endangered or threatened.

The U.S. Fish and Wildlife Service does many things to help pollinators. But Dolores Savignano, Pollinator Conservation Coordinator, thought it could do more. "There was a need to broaden engagement within the Service," Savignano said.

So in 2011, the acting Director of the Service issued a nationwide challenge: From April 15 to July 31, all regions could choose to engage in pollinator education and conservation with the goals of earning the title of 2011 Service Pollinator Champion. >>

"It is the small, daily things we do to improve the survival of pollinators that we can share with the public."

Pollinator, continued from page 3

Regions nationwide met the challenge with enthusiasm. "The response was incredible," said Savignano. "We had twice as many activities during the Pollinator Challenge alone as we reported all last year."

The Pacific and the Southwest regions were especially proactive in their response to the challenge and now share the distinction of being named 2011 Service Pollinator Champions.

JAMIESON SCOTT

(Above): Several offices banded and monitored hummingbirds. (Right): Netting at Big Muddy National Wildlife Refuge.

While both engaged in a range of pollinator-centered events, pollinator monitoring was the key to the Pacific Region's success, said Assistant Regional Refuge Biologist Joe Engler. "There haven't been many done in the past so taking the monitoring angle was really our strength."

Engler said he is thrilled at his region's win in the challenge and credits both the hard work and creativity of everyone from the fish hatcheries to the refuge staff and the "integral contributions of volunteers."

The Southwest Region really shone, according to Pollinator Coordinator Julie McIntyre, in educational events including presentations to the Mescalero Apache Tribal Youth Conservation Corps and the Native American Fish and Wildlife Southwest Regional Conference. She also commended the concerted Service-wide efforts in outreach.

"The key to our success was the tremendous effort and passion of staff," McIntyre said.

The Service Pollinator Champions exemplify the kind of coordination, creativity and engagement that Savignano says can be added to everyday Service work to ensure healthy pollinator populations.

"If we can add to what we already do in our jobs, it makes a difference," she said. "It is the small, daily things we do to improve the survival of pollinators that we can share with the public."

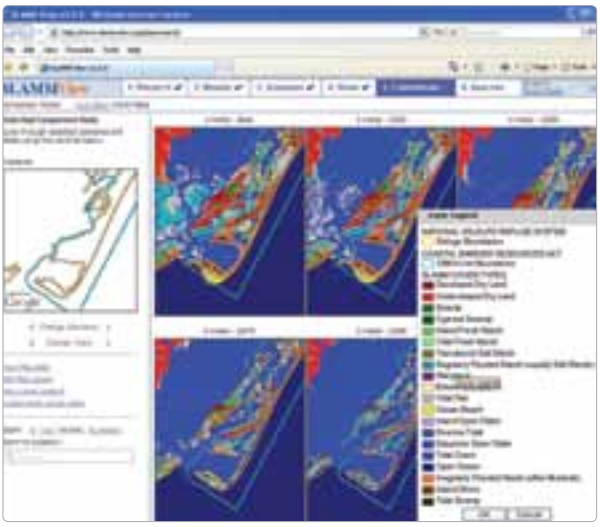
This is a message that, after the success of this first National Pollinator Challenge, the Service will likely have the chance to continue spreading in the years to come. □

AMANDA FORTIN, Public Affairs, Pacific Region

USFWS

Planning for Sea-Level Rise

Version 6 of Sea Level Affecting Marshes Model (SLAMM), used to identify wetlands that may be affected by sea-level rise, was recently released for review.



SLAMM 100 year, one-meter simulations for Chincoteague National Wildlife Refuge showing potential saltmarsh (teal) and tidal flats (gray) losses to open water (medium blue) and other wetland losses or changes. Lou Hines, Refuge Manager, Chincoteague NWR, is using SLAMM in the refuge CCP and for public outreach.

SLAMM uses National Wetlands Inventory (NWI) data, and NWI staff have been involved in developing and refining the system since 1985. SLAMM 6 uses information on local topography, accretion, erosion, inundation, overwash, saturation, salinity, dikes and development to predict effects.

NWI is working with the National Wildlife Refuge System to apply SLAMM to all coastal refuges as an aid in planning, acquisition and management. Refuge managers use SLAMM and other data to make dike and other infrastructure maintenance or abandonment decisions. The Service, as well as its partners are using these data to plan for the likely adverse impacts of sea-level rise on coastal wetlands, non-tidal wetlands, low-lying uplands and the wildlife associated with them. NWI is engaged in a three-year, $300,000 science support project with the USGS to develop the scientific foundations for future SLAMM versions, involving plant growth and sedimentation in response to sea-level rise. SLAMM can be accessed using the following link: <www.warrenpinnacle.com/prof/SLAMM>.

NWI worked with the Chesapeake Bay Field Office to get the SLAMM data online. The SLAMM-View online viewer allows the user to see side-by-side visual comparisons of the predicted effects of various sea level rise scenarios at different timeframes. The recently released SLAMM-View 2 is a browser-based application that accesses various background layers together with NWI wetland data for viewing and provides tabular simulation data for analysis.

To allow viewing and comparison of impacts over time in any area at any scale, the scenario maps are geographically linked—zooming or panning in one map causes an identical action in the other map views. See SLAMM-View at <www.fws.gov/slamm>. □

BILL WILEN, National Wetlands Inventory, Washington Office

Smart Patrols: Protecting Tigers in Thailand's Western Forest Complex

Straddling Thailand's remote western border with Myanmar, high in the mountains of the Tenasserim Range, the Western Forest Complex (WEFCOM) is home to one of the largest and most secure tiger populations in Southeast Asia. With a known population of more than 100 tigers and evidence that the population is breeding, the forest complex is truly one of the last vestiges of tiger wilderness in Southeast Asia. Fortunately for tigers, a substantial portion of the WEFCOM is protected within an 18,000-square-kilometer complex of national parks and wildlife sanctuaries. The U.S. Fish and Wildlife Service's Wildlife Without Borders program has played an important role in conservation of tigers and their habitat in the forest complex by helping to fund the work of Thai government agencies and a variety of national and international NGOs on tiger population monitoring, protected area patrolling, and community outreach.

Since 2005, Wildlife Without Borders has supported the Wildlife Conservation Society's (WCS) efforts to improve the management and monitoring of tigers in the core area of the forest complex. The WCS is focused on the development and implementation of protocols to monitor tiger populations and prey populations, and strengthening the tiger patrol system of rangers in the Huai Kha Khaeng, Thung Yai East and Thung Yai West Wildlife sanctuaries in the heart of the forest complex. Without effective patrolling, the tiger population in these sanctuaries could not be secured from poachers and others whose activities encroach on the protected areas. "Saving tigers requires a good system of foot patrol," says Anak Pattanavibool, Director of the WCS Thailand Program. "Satellite images and remote sensing technology cannot tell how the tiger population is doing. Improving the patrol system is the most cost-effective way to protect the tigers." >>

Thai rangers on patrol.

WCS

Smart Patrols, continued from page 5

To address this critical need for protection, the WCS, together with the Thai Department of National Parks, Wildlife and Plant Conservation, have developed and implemented the "Smart Patrol" system, using Management Information System Technology (MIST). MIST allows rangers on patrol to use handheld Global Positioning System (GPS) devices to record precise field location data on patrol routes; encounters with poachers, snares and other types of disturbances or encroachment in the protected areas; and tiger signs or sightings and other species encountered (such as tiger prey species). The GPS data are downloaded to a central computer and stored in a gridded, spatially explicit database. The data can be used to produce maps showing information such as the distribution and intensity of tigers and tiger signs, and the distribution and intensity of various threats. These maps give managers a big-picture view of where patrolling resources are being committed, where they are being successful and where additional resources may be needed.

The "Smart Patrol" system was first implemented in Huai Kha Khaeng in 2005–06 and has since been expanded to Thung Yai East and West. Over the more than five years of receiving support from the Wildlife Without Borders program, the conservation society has trained more than 350 rangers, officers and database managers in the Smart Patrol and MIST systems. All three sanctuaries have improved their patrol frequency, coverage and reporting and, perhaps most importantly, the pride of park rangers in performing their duties. These improvements have helped tiger and prey populations to slightly increase. "The strength of the Smart Patrol system in WEFCOM is not from the software and technology but from park rangers and officers who are willing to adapt and use it effectively," says Dr. Pattanavibool.

Thai tiger (Panthera tigris corbetti) with prey.

KWAN CHAI WAITANYAKARN / WCS-THAILAND

The Smart Patrol approach has been embraced by Thailand's Department of National Parks, Wildlife and Plant Conservation, which has recently sent rangers from around the country to Huai Kha Khaeng to learn the system. Other tiger range countries from around the region have also followed suit. "The Fish and Wildlife Service is gratified to see the success of the Smart Patrol system in WEFCOM and the enthusiasm by which Smart Patrols have been embraced by countries throughout the region," says Fred Bagley, the Service tiger grant coordinator.

The Service's support for this initiative is provided by the Wildlife Without Borders Rhinoceros and Tiger Conservation Fund and Asian Elephant Conservation Fund. To learn more, please visit: <fws.gov/international/dic/species/tiger/tiger.html>.

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KURT A. JOHNSON, Office of the Science Advisor, Washington Office

Honing the Landscape Conservation Strategy to Save the Copperbelly Water Snake

In early 2008, Don Hultman, then Refuge Manager for Upper Mississippi River National Wildlife and Fish Refuge, wrote an article for *Fish & Wildlife News* describing Strategic Habitat Conservation (SHC) as "an attempt to make common sense the common conservation practice." That summer, Hultman's depiction of SHC inspired Craig Czarnecki, then Field Supervisor at the East Lansing Ecological Services Field Office, to submit a story to the *News*, documenting the fundamentals of SHC as they applied to conserving the copperbelly water snake. Czarnecki described some of the challenges associated with recovery of this threatened species and efforts to reexamine the direction of conservation work. In the three years since that article, the U.S. Fish and Wildlife Service has have continued to hone its strategy for recovering the copperbelly water snake.

Looking at the SHC framework (biological planning, conservation design, conservation delivery, monitoring and assumption-driven research), the Service realized it had many of the pieces in place: a recovery plan that identified population goals, an active cohort of restoration partners—including the Service's Partners for Fish and Wildlife program, The Nature Conservancy, Natural Resources Conservation Service, and state

OMAR ATTUM

Copperbelly water snakes feed on frogs, tadpoles, crayfish and small fish.

agencies from Ohio, Michigan and Indiana — and a researcher investigating copperbelly life history. What the Service needed was to connect the recovery plan and research with on-the-ground habitat work. The SHC framework refers to this transition as "conservation design," which emphasizes the formulation of models to describe the relationship between a species' population and its habitat and the development of decision support tools to help partnerships work toward common goals.

Previous attempts to target habitat restoration identified specific parcels potentially important for copperbelly conservation. These undertakings, however, did not gauge the conservation effort required to increase the landscape's ability to support copperbelly populations at the level necessary to achieve recovery. To move in this direction, our next step focused on generating quantitative habitat objectives to create a landscape conservation design.

First, the Service's Upper Mississippi River and Great Lakes Region Joint Venture Science Office (JVSO) developed a spatially explicit habitat suitability prediction model. Based on current understanding from copperbelly experts and the scientific literature, the Service looked at three copperbelly habitat components: the amount of wetlands arranged in a complex, the amount of forest in the surrounding upland and the distance from disturbance/urban environment.

In this model, the length of wetland perimeter within a wetland complex and the percent forest cover within 250 meters of the wetland complex represent the amount of wetlands and forests, respectively. The Service used the average distance between wetlands and roads to signify distance from disturbance because earlier work had indicated that roads may act as barriers to copperbelly movements.

Combining these three variables, the model predicted the suitability of wetland complexes for copperbelly water snakes. To connect this habitat model with copperbelly populations, density models (based on past survey data) provided an estimate of the carrying capacity for each suitable wetland complex.

These models enabled the Service to explore more in depth the questions of what type of conservation should be implemented, where conservation should be conducted and how much is needed to reach suitable conditions for each wetland complex. the Service can now calculate the expected outcome in terms of increased carrying capacity for each wetland complex if conservation actions could provide the necessary components needed for suitability (i.e., more wetlands, more forest, mitigation of roads or some combination thereof).

The resulting landscape conservation design links population goals to specific habitat objectives and translates copperbelly habitat restoration into an expected population response. To make all of these modeling products more user friendly, the Joint Venture Science Office created a GIS-based decision support tool. With one click of the mouse, you can ascertain the limiting factors (wetland size, surrounding forest and road proximity) for a particular complex of wetlands. This tool should assist partners in carrying out their restoration work.

A major assumption in the models relates to the influence of roads on copperbellies and habitat suitability. A Preventing Extinction grant is funding research on the barrier effect of roads and potential solutions to this problem. In addition, on-the-ground conservation activities are pushing forward, and initiation of a monitoring program this summer will help determine whether efforts to date have improved the populations.

The Service is looking forward to coming full circle in the SHC wheel and using the monitoring and research results to refine the models and update our conservation strategy — or to paraphrase Don Hultman, to get "the right things in the right places." □

BARBARA HOSLER, East Lansing Ecological Services Field Office, Midwest Region, and BRADLY A. POTTER, Upper Midwest & Great Lakes LCC, Midwest Region

Copperbelly 101

The northern population of copperbelly water snakes centers on the tri-state area of Ohio, Michigan and Indiana. Copperbellies use wetland complexes surrounded by upland forest and move frequently among those complexes — much more so than other related water snake species.

Shared Solutions to Protect Shared Values

In response to increasing impacts of climate change and other stressors on America's natural resources, Congress (via the 2010 Appropriations Act Conference Report) has called upon the U.S. Fish and Wildlife Service to help lead development of a national, government-wide strategy to safeguard fish, wildlife, plants and the natural systems upon which they depend.

Called the National Fish, Wildlife and Plants Climate Adaptation Strategy, this unprecedented partnership effort is a cornerstone of the Service's response to accelerating climate change. The goal of the strategy is to produce a national blueprint for sensible, coordinated action that will be a resource to governments, conservation organizations, private landowners and other stakeholders as they deal with managing their lands and resources in a changing environment. The strategy will identify opportunities for cooperation among all levels of government, as well as options for government and private land managers to consider to meet their fish, wildlife and plant management goals.

The Service (through the Office of the Science Advisor) is currently co-leading development of the strategy, working closely with NOAA and the state wildlife agencies. A broad range of federal, state, tribal and partners, including non-government organizations, industry groups and private landowners are also participating. Groups are also coordinating with CEQ to ensure this effort is coordinated with other major federal climate adaptation efforts, such as the National Ocean Policy and the National Action Plan for Freshwater Resources.

NATIONAL *fish, wildlife & plants* CLIMATE ADAPTATION STRATEGY

"This strategy is critical to addressing the challenges we face as an agency that manages fish, wildlife and plants, said Service Science Advisor Gabriela Chavarria. "It recognizes that this cannot be an effort of one agency, but must be a national effort."

Service Deputy Director of Operations Rowan Gould serves as a co-chair of the Strategy Steering Committee, which consists of representatives from 16 federal agencies as well five state fish and wildlife agencies and two tribal commissions.

"This strategy is not something that will sit on a shelf—it is something that is going to be the basis of real environmental thought going forward," Gould said at the last Steering Committee meeting in September. "We are putting together something that is very meaningful because [this issue] is very meaningful."

Technical teams assigned to draft the strategy consist of more 90 representatives from federal, state and tribal natural resource agencies, with representation from the Service across all teams. These teams are organized around major ecological systems of the United States (Forestland, Shrubland, Grassland, Deserts, Tundra, Inland Waters, Coastal Systems, and Marine Systems). The teams have been working to refine strategies and actions, develop and compare indicators of progress, and develop case studies to underscore and illustrate guidance.

An initial draft of the strategy was presented to the Steering Committee on September 19, 2011, along with recommendations for further revisions and refinement. An agency review period takes place this fall, with public review occurring by the end of 2011 or beginning of 2012. A final draft is scheduled to be released by the summer of 2012.

For more information, visit: <www.wildlifeadaptationstrategy.gov>. □

KATE FREUND, Office of the Science Advisor, Washington Office

Whooping Crane Habitat and Wind Energy Mapping Project

In response to a mandate by the Secretary of the Interior to promote renewable energy, the Southwest and Rocky Mountain regions are working with 12 wind energy companies and the American Wind Energy Association (AWEA) to develop a Habitat Conservation Plan (HCP) that is anticipated to cover the highly endangered whooping crane and the lesser prairie chicken, a candidate species. The whooping crane migratory corridor extends from the Texas Gulf through North Dakota, and includes the Great Plains LCC, the Gulf Coast LCC and the Plains and Prairie Pothole LCC.

Wind energy companies Horizon, Acciona, BP, NextEra, Iberdrola and others are involved in this

Whooping Cranes with chick.

GILLIANCHICAGO / FLICKR, CREATIVE COMMONS LICENSE

project. Additional partners in the development of the HCP include the states of Montana, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Colorado, New Mexico and Texas. This bi-regional HCP will be the first of its type in the country to involve alternative fuel sources and climate change issues while protecting imperiled species on a landscape level.

The National Wetlands Inventory is completing a pilot project to update wetland data for 4 million acres and identify Whooping Crane migration/stop-over habitat in Kansas and Oklahoma in the Great Plains Landscape Conservation Cooperative (LCC). This project will support development of a Habitat Conservation Plan (HCP) for the development of wind energy within the whooping crane migration corridor. □

JIM DICK, National Wetlands Inventory, Southwest Region

International Wetlands Convention Celebrates World Wetlands Day

Wetlands are key to moderating local climates and recharging and purifying groundwater; they slow floodwaters and help prevent upland and coastal erosion. Occurring from tundra to tropics, wetlands are among the world's most productive and biologically diverse ecosystems. To date, more than 1,900 sites have been officially designated as wetlands of international importance under the Wetlands Convention, covering a surface area of almost 460 million acres.

The *Convention on Wetlands of International Importance, Especially as Waterfowl Habitat*, or simply, the "Wetlands Convention," is an intergovernmental treaty that provides a framework for conservation and wise use of wetlands. This is currently the only global environmental treaty that addresses a particular ecosystem type.

First launched in 1997, World Wetlands Day is celebrated on February 2 of every year to raise awareness about the importance and value of wetlands. Last year the Convention celebrated its 40th anniversary in Huatulco, Mexico, with 320 national and international delegates in attendance.

On February 2, 2011, Humbug Marsh in Michigan and the Laguna de Santa Rosa Wetland Complex in California were officially designated as wetlands of international importance. Caddo Lake in Texas celebrated the 40th anniversary of the Convention by launching a paddlefish restoration effort. In Hawaii, interpretive signs were dedicated at the Kawainui-Hāmākua Marsh Complex. And at the Ohio State University, the Olentangy River Wetland Research Park held an open house that was attended by more than 1,100 students and included displays of history and research, videos, international food and wetland tours.

This year, the U.S. National Ramsar Committee, the State Department, the U.S. Fish and Wildlife Service's Wildlife Without Borders program, and other partners are celebrating by participating in a social media photo challenge. To see the winning photos, visit the World Wetlands Day Photo Celebration Flickr group at <www.flickr.com/groups/WWD2012PhotoCelebration>. Four U.S. sites were to be designated as wetlands of international importance this year also.

The United States joined the Wetlands Convention on April 18, 1987. Since then, 30 sites across the nation have been officially recognized as wetlands of international importance. At least a third of these are either managed or co-managed by one of the Service's National Wildlife Refuges, and the Wildlife Without Borders program serves as the U.S. administrative authority for the Convention. To learn more about the Wetlands Convention, please visit the Division of International Conservation's website at: <www.fws.gov/international/DIC/global/wetlands.html>. □

ETHAN TAYLOR, Department of the Interior, Office of International Affairs

HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES

In Hawaii, interpretive signs were dedicated at the Kawainui-Hāmākua Marsh Complex on World Wetlands Day 2011.

140 Years of Conservation: The Fisheries Program

Names have changed, but program remains staunch defender of fish, mussels and aquatic habitats

by VALERIE FELLOWS

USFWS

(Top): Fish Cars were used from 1885–1939 to transport fish across the United States. (Above): The Baird Fish Station established in 1872 was the very first national fish hatchery. Today there are 70 fish hatcheries across the country.

The U.S. Fish and Wildlife Service's Fisheries Program celebrates 140 years of fisheries and aquatic resource conservation in 2011, and continues to ensure that generations of Americans enjoy the same resources as those before them.

It got its start in 1871 when Congress established the U.S. Commission of Fish and Fisheries because of a growing concern over the decline in the nation's fishery resources, a lack of information concerning the status of the nation's fisheries and a need to define and protect U.S. fishing rights.

Spencer Fullerton Baird, a prominent research scientist, was appointed the first U.S. Commissioner of Fish and Fisheries. Even before his appointment as Fish Commissioner, Baird had recognized the need for information to help analyze the magnitude of declining fisheries and identify the factors contributing to the decrease in fish populations.

Consequently, the first national financing for fisheries conservation occurred one year before the establishment of the U.S. Commission of Fish and Fisheries.

Commissioner Baird's primary duty, as directed by President Grant and the Senate, was to "*ascertain whether any and what diminution in the number of food fishes of the coast and inland lakes has occurred.*" He was also required to report to Congress the necessary remedial measures to be adopted, and was authorized to take fish from lakes and coastal waters, regardless of any state laws.

In 1872, the Senate and the House charged the Fisheries Commission with the additional task of "supplementing declining native stocks of coastal and lake food fish through fish propagation." Thus, the National Fish Hatchery System was created. The Baird Fish Station on the McCloud River in California was the first national fish hatchery.

The Fish Commission was transferred to the newly authorized Department of Commerce and Labor and was renamed the U. S. Bureau of Fisheries in 1903. In 1939 and 1940, the Bureau of Fisheries was joined by the Bureau of Biological Survey, formerly with the Department of Agriculture, and the resulting agency was called the Fish and Wildlife Service and placed in the Department of the Interior. Though continuing its fish conservation activities was a primary concern, conservation programs for many forms of wildlife also became the responsibility of the agency.

In 1956, the Fish and Wildlife Act created two new bureaus: the Bureau of Commercial Fisheries and the Bureau of Sport Fisheries and Wildlife. In 1970, the Bureau of Commercial Fisheries, an arm of the Fish and Wildlife Service, was transferred to the Department of Commerce and renamed the National Marine Fisheries Service. Today it is known as the National Oceanic and Atmospheric Administration Fisheries Program.

The Bureau of Sport Fisheries and Wildlife remains in the Department of the Interior with a continuing responsibility for freshwater fish and wildlife conservation and related research.

The Fisheries Program still plays a vital role in conserving America's fisheries with key partners from states, tribes, federal agencies, other Fish and Wildlife Service programs, and private interests in a larger effort to continue conservation of fish and other aquatic resources.

The Fisheries Program consists of almost 800 employees nationwide, located in 65 Fish and Wildlife Conservation Offices, 70 National Fish Hatcheries, nine Fish Health Centers, seven Fish Technology Centers and a Historic National Fish Hatchery. These employees and facilities provide a network unique in its broad on-the-ground geographic coverage, its array of technical and managerial capabilities, and its ability to work across political boundaries and embrace a national perspective. The program supports the only federal fish hatchery system, with extensive experience in culturing more than 100 aquatic species.

Fish and Wildlife Conservation Offices (FWCOs) of the Fisheries Program are fulfilling the first of the two original charges assigned to the U.S. Commission of Fish and Fisheries—"*to determine the status and declines of food fish of the coasts and lakes of the United States*." The mission of Fish and Wildlife Conservation Offices is to protect, restore and maintain the health of the Nation's valuable fish and wildlife resources. Its 65 field offices are spread over 32 States, with more than 300 biologists and other experts committed to aquatic resource conservation. Projects and activities are conducted in multiple core areas such as fisheries conservation, interjurisdictional fisheries, habitat conservation, the National Fish Passage Program, the National Fish Habitat Action Plan, tribal assistance and Alaska subsistence fisheries management

The National Fish Hatchery System of the Fisheries Program still honors the second of the charges assigned to the U.S. Commission on Fish and Fisheries. This charge was "*to supplement declining native stocks of coastal and lake food fish through fish propagation.*" But the system propagates fish for more reasons than supplementing declining food species. Hatchery-reared fish are used to replace fish lost through natural events (i.e., drought, flood, habitat destruction) or human influences (i.e., over-harvest, pollution, habitat loss due to development and dam construction). These propagated fish help establish populations to meet specific management needs and to provide for the creation of new and expanded recreational fishery opportunities.

With the diversity of issues that aquatic ecosystems face—barriers blocking fish reaching spawning grounds, competition with invasive species, climate change, etc.—the Fisheries Program is poised to manage the nation's fisheries for generations to come. It is building upon a 140-year platform of conservation techniques to manage the complex factors affecting fish, mussels and aquatic habitats for the future. □

VALERIE FELLOWS, External Affairs, Washington Office

The U.S. Fish and Wildlife Service is using social media to reach out to audiences about our programs and projects. If you like the types of articles in this issue of *Fish & Wildlife News*, connect with us on our social media sites.

You can "like" us at FWS Environmental Quality, USFWS. Fisheries and USFWS Alaska Fisheries and Habitat on Facebook. You can follow us on Twitter at @usfwsfisheries and you can see lots of great videos on our national YouTube channel about our involvement in oil spills, our Natural Resource Damage Assessment Program and the importance of our fish passage program.

To Prepare for the Future, We Look at the Past

By considering invasive history of species, the Service may be better able to prevent unfriendly aliens.

by CRAIG MARTIN, SU JEWELL, DON MACLEAN, JASON GOLDBERG AND MICHAEL HOFF, *Invasive Species program*

(Above): Burmese python

"The bug that's eating America" — that's how *Time* magazine describes the emerald ash borer, one of the most recent examples of an invasive species making national headlines. This beetle, native to China, is rapidly spreading east from the Midwest, leaving an estimated 60 million dead ash trees in its wake. This poses the question, should we fight to exterminate this insect and other invasive species in new lands, or should we accept them as the new future and just "deal with it"?

As a federal agency, the U.S. Fish and Wildlife Service adheres to a 1999 Presidential Executive Order that defines invasive species as "alien species that are not native to an ecosystem and whose introduction is likely to cause economic or environmental harm or harm to human health" <www.invasivespeciesinfo.gov/laws/execorder.shtml>. These species may be animals, plants or even microorganisms, including diseases. Species outside their native ecosystems often don't face predators and disease that work in native environments to balance numbers in a population. In addition, invasive species often have traits that make them prolific in new environments, combined with an ability to exploit habitats and food resources so little is left for other species. Invasive species often have general habitat and food preferences, are prolific breeders and spread to new areas easily.

As an example, according to Ron Brooks, Kentucky Fish and Wildlife Department's Fish Chief, nearly 60 percent of the total fish biomass in some rivers in his state is Asian carp, leaving little space and resources available to achieve other fishery management objectives and societal benefits. The same traits that have propelled Asian carp to become a major pest in the Mississippi River basin, possibly spreading into the Great Lakes <www.asiancarp.org>, have also allowed these fish to cause harm in other parts of the world.

Invasive species come into the United States in two primary ways: transportation-related pathways (as hitchhikers) and commerce in organisms. Zebra and quagga mussels, which are spreading into the West and were most recently documented in New Mexico, serve as examples of a transportation pathway. These species are believed to have gained entry into the country through the ballast water of transoceanic ships. Similarly, the emerald ash borer is believed to have gained entry while burrowed in wood used for shipping pallets. The other pathway category, commerce in organisms, has brought additional high profile invasive species to the United States, such as the Asian carp (silver, bighead and black), the Burmese python, the nutria and the gypsy moth. In 1869, Leopold Trouvelot could not have realized that the moth he imported into Boston for silk production would escape and eventually denude millions of acres of woodlands annually— this one species, the gypsy moth, costing society millions of dollars per year.

Despite this proliferation of species, not all the commentary extols a call-to-arms to fight the threats from invasive species. Some articles suggest that we should get used to the fact that "species do not stay put" and embrace the concept of novel ecosystems. Some natural resource managers consider assisted migration as a viable conservation option. These philosophies could be supported given that the rise of **>>**

Proactive policies must be designed to prevent harmful species from invading the United States; and must be pursued vigorously to enhance our nation's biosecurity.

USGS

Lionfish

GLSC

Asian carp

USFWS

Zebra mussels

Invasives, continued from page 13

globalization will make it more likely that species will spread with the movement of goods, services and people around the globe. In addition, climate change may necessitate that we redefine what we even consider as an invasive species.

However cliché the old saying "an ounce of prevention is worth a pound of cure," it is perhaps nowhere more appropriate than when applied to invasive species. The horrific effects of invasive species can be avoided if a more proactive approach is taken to assess the risk of species allowed for importation into the United States.

A recent article in *Nature*, "Don't judge species on their origins," largely criticizes domestic policy and natural resource management decisions directed toward the management or eradication of all non-native species. However, the authors clarify their position that government agencies and resource managers should focus more on the impacts of a species, and less on the species' origin, and should not abandon efforts to keep harmful species from reaching the nation's borders. This point should not be ignored. Proactive policies must be designed to prevent harmful species from invading the United States, and must be pursued vigorously to enhance our nation's biosecurity. Societal costs are simply too great to do otherwise.

Globalization has given species increased opportunities to spread throughout the world.

Globalization has given species increased opportunities to spread throughout the world. The good news is that globalization has also given resource managers a good indicator of whether a species will likely be a problem in this country. This predictor is called its invasive history, and it is one of the strongest forecasters of invasiveness in new domains— one that we cannot ignore.

Enter the Lacey Act, one of the oldest wildlife laws in the United States (dating back to 1900) and one of the primary statutory authorities the Service has to truly address invasive species. The Service may list wildlife as injurious under the Lacey Act, thus prohibiting its importation and interstate transportation. While the Lacey Act remains an important law enforcement tool to control trafficking and importation, its implementation has been unable to keep up with the unprecedented scope and speed of the invasive species threat. As a result, the Department of the Interior has asked the Service to conduct a comprehensive review of its existing legal and regulatory authorities and recommend measures that will provide the tools we need to act more effectively to prevent the introduction of invasive threats into our country.

We believe that, by assessing organisms as injurious wildlife under the Lacey Act using simple criteria (such as the invasive history of an organism elsewhere) and by applying the latest science-based tools, the Service can better protect the nation from the harmful effects of invasive species. Our new vision of how to deal with invasive species looks at the past, and uses the tools of the present to ensure the problems of the future are prevented before they even arrive. □

ANACOSTIA: MORE THAN THE FORGOTTEN RIVER

Before restoration. Findings indicated that Watts Branch lacked suitable riffle and pool habitat for aquatic and riparian species and exhibited significant bank erosion.

After restoration. It is hoped that the restoration of Watts Branch will help create a healthier local community.

Coastal Program and partners collaborate on Watts Branch restoration — the first large scale stream restoration project in Washington, DC

by JOE MILMOE *and* MARK SECRIST *photos by* JOE MILMOE

Federal and local project partners gather at Watts Branch project site.

"Previously, Watts Branch was an unsightly area that repelled people away from the stream. Today, the restored habitat is aesthetically pleasing with wildlife and sounds of falling water that actually draws people in."

— Josh Burch, DC Department of the Environment

Flowing nearly eight and a half miles through the heart of our nation's capital, the Anacostia or "Forgotten River" is often regarded as one of the most degraded, polluted and abused river systems in the United States.

The 176-square-mile Anacostia watershed historically provided healthy and diverse ecosystems that Washingtonians once used for fishing, swimming and more, But five decades of rapid urbanization has plagued the Anacostia with challenges including runoff, sediment, erosion, sewer overflows, bacteria loads, low oxygen, toxins and trash. These combined challenges result in severely degraded habitats for fish, wildlife and plants. Restoring a healthy natural environment is an important start to renewing the Anacostia community, one of the country's poorest neighborhoods.

Challenged with restoring the Chesapeake Bay beginning at its tributaries, the U.S. Fish and Wildlife Service's Coastal Program, out of the Chesapeake Bay Field Office, developed in 2001 a holistic, partnership-based watershed restoration project in cooperation with the DC Department of the Environment (DDOE) and USDA Natural Resources Conservation Service (NRCS). Also included were dozens of local organizations, DC government agencies and federal agencies. The Watts Branch project is the first restoration project from this partnership. The project features innovative urban restoration that is cleaning up the river, simulating the local economy and building a healthier community. At the same time, the project is enhancing the city's fish and wildlife resources, and increasing the water quality that flows through Watts Branch into the Anacostia River and, eventually, into the Chesapeake Bay.

The project is a true partnership. The Coastal Program's team of highly skilled stream assessment and habitat restoration professionals provided technical expertise in the design, construction and supervision of the project. The DDOE was the lead funding agency, contributing $2.7 million for the stream restoration, as well as providing valuable community outreach and interagency coordination. The NRCS provided specialized technical assistance in contract management and construction logistics.

The restoration effort began with a watershed-wide assessment by Coastal Program staff who measured physical characteristics of the stream (channel dimension, pattern and profile), stability conditions, and watershed characteristics (land use, land cover, soil types, hydrology, topography and geology). They also analyzed historical maps and aerial photography to develop an understanding of how a stream responds to certain land changes over time. The findings indicated that Watts Branch lacked suitable riffle and pool habitat for aquatic and riparian species and exhibited significant bank erosion.

Coastal Program staff used an innovative natural channel design approach to restore Watts Branch to a stable, self-sustaining stream. The design creates a new floodplain to reduce erosive stream flows. It incorporates in-stream structures such as the rock crossvanes to reduce bank erosion, create diverse aquatic habitat and improve aesthetic value of the stream. The in-stream restoration will benefit a variety of species downstream such as the alewife, American shad and striped bass.

The restoration design also incorporates native riparian plantings to create stable banks and riparian habitat. Enhancement of 10 acres of riparian habitat with 3,000 trees and 7,000 shrubs will retain water on the landscape for longer periods, improve groundwater recharge and reduce sediment deposition. In addition, the riparian plantings will improve foraging and nesting opportunities for a variety of trust species, including: Acadian flycatcher, willow flycatcher, prothonotary warbler, red-eyed vireo, northern parula, cooper's hawk, barred owl, great blue heron, Louisiana waterthrush, American black duck, wood duck and mallard.

In collaboration with the stream restoration, the DDOE is implementing best management practices throughout the watershed to improve water quality. The DC Water and Sewer Authority is rehabilitating, replacing or relocating more than 40 sewer line crossings and stormwater outfall that are impacting Watts Branch.

The Watts Branch restoration is the first large scale stream restoration project to take place in Washington, DC. The project will not only showcase innovative urban restoration techniques, but also serve as a comprehensive restoration partnership model for urban stream restoration.

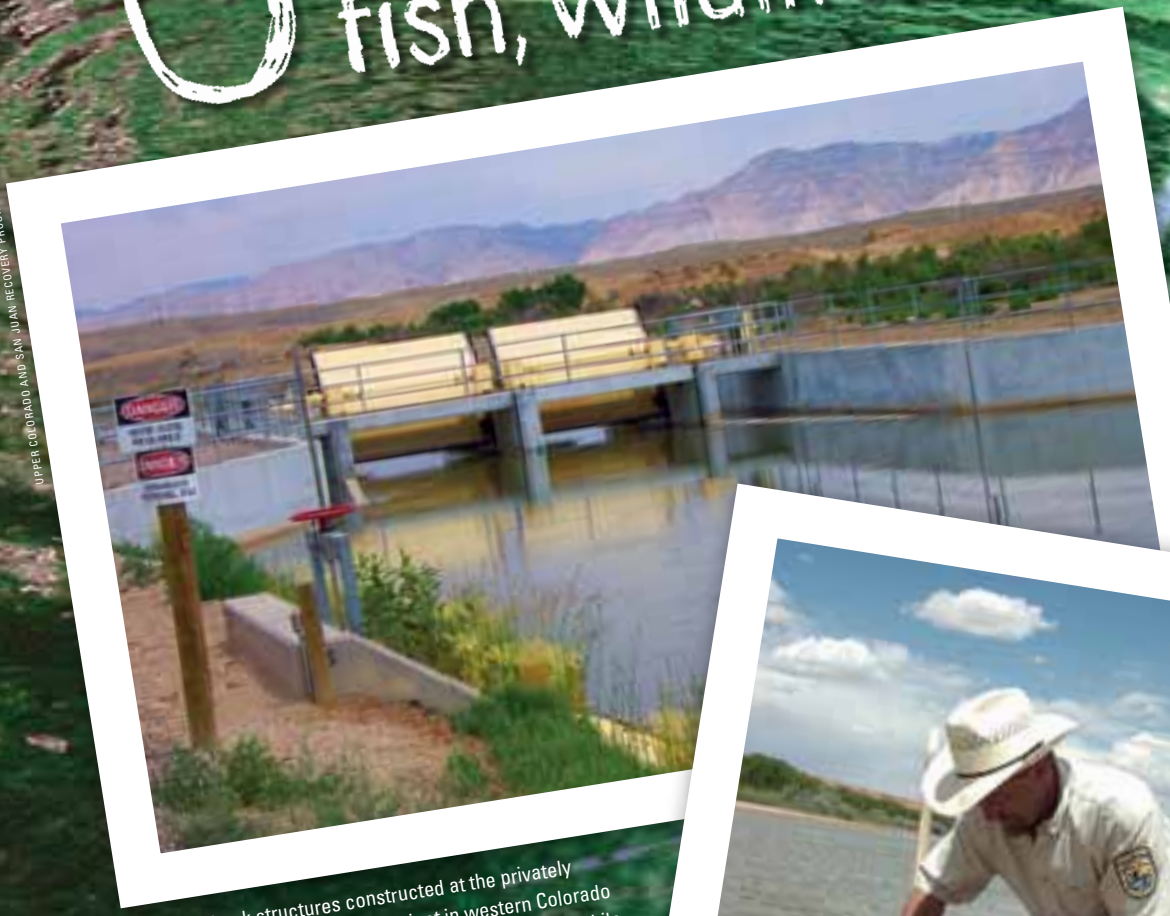
The restoration of Watts Branch serves as a spark to creating a healthier local community by creating green jobs, engaging citizens in stewardship activities, connecting neighborhood residents to their local waterway and providing recreational opportunities for young people. This once underserved and neglected community is now part of a major effort to renew the local Anacostia community, both environmentally and socioeconomically. The restoration of Watts Branch has alone invested nearly $3 million in the local community, creating jobs in manufacturing, surveying, construction, restoration, planting and maintenance of the habitat.

Washington Parks and People (PNP), a nonprofit organization in the District, serves as a voice and advocate for community projects and encourages stewardship by organizing tree plantings and trash cleanups. PNP also created the "DC Green Corps," which provides community youth, elderly, disabled and ex-offenders with a gateway to 50 green career tracks in urban and community forestry and watershed restoration. The DC Green Corps provides specialized environmental stewardship training to classes for local residents, with training in areas such as stream ecology and restoration where Watts Branch serves as an excellent nearby outdoor classroom. Upon student completion of the training, the DC Green Corps facilitates job placement with a wide range of employers such as local and federal agencies, professional and trade associations, trades, professions and industries. Beginning with the tributary right in their back yard, this collaboration of non-traditional project partners is working together to clean up the river, build a healthier community, create green jobs, enhance the city's fish and wildlife resources, and increase the quality of the water flowing through Watts Branch into the Anacostia River and, eventually, into the Chesapeake Bay. □

JOE MILMOE, Partners for Fish and Wildlife Program, Washington Office

MARK SECRIST, Coastal Program, Chesapeake Bay Field office, Northeast Region

UTAH managing water resources for fish, wildlife & people



UPPER COLORADO AND SAN JUAN RECOVERY PROGRAMS

(Above): Check structures constructed at the privately owned Grand Valley Irrigation Project in western Colorado reduce water diversions by 6 to 34 percent each year while meeting irrigation demands. The conserved water benefits endangered fish in the Colorado River.

by DEBBIE FELKER

UPPER COLORADO AND SAN JUAN RECOVERY PROGRAMS

Service biologist Mike Montagne stocks hatchery-raised endangered razorback sucker in the Yampa River as part of an effort to help recover the species.

In the face of a warming climate and persistent drought, people and wildlife along the Colorado River and its tributaries in Utah, Colorado, New Mexico and Wyoming are benefiting from cooperative efforts to recover four species of endangered fish while effectively managing water for human use and hydroelectric power generation.

Service biologist Bobby Duran holds the fourth largest endangered Colorado pikeminnow captured in the San Juan River since 1991.

UPPER COLORADO AND SAN JUAN RECOVERY PROGRAMS

The Upper Colorado River Endangered Fish Recovery Program, established in 1988, covers the Colorado River above Glen Canyon Dam in Colorado, Utah and Wyoming. The San Juan River Basin Recovery Implementation Program was established in 1992 to recover endangered fish in the San Juan River in Colorado, New Mexico and Utah. The partners are state and federal agencies, including the Service, as well as environmental groups, water users and power customers, and in the San Juan River, American Indian Tribes.

These partnerships are recovering endangered Colorado pikeminnow and razorback sucker while water development proceeds in accordance with federal and state laws and interstate compacts. The Upper Colorado Program is also working to help humpback chub and bonytail.

When the endangered fish recovery programs were established, says Upper Colorado Program Assistant Director Angela Kantola, chronic drought conditions in the West raised concerns that altered river flows might result in completely dry river sections in some years.

"Since the late 1980s, partners with both recovery programs had the vision to plan for drought-related, worst-case scenarios," she says. "We didn't call it climate change then. We know much more today. The steps these programs have taken to ensure water for the fishes will provide a safety net for future climate change-related water shortages."

Climate change could have significant impacts to the basin's aquatic ecosystem. Impacts may include:

- Higher water temperatures from increased air temperature;
- Changes in the timing of peak flows from an earlier snowmelt; and
- Potentially lower runoff peaks because of reduced snow packs.

Kantola says current scaled-down models suggest the northern part of the basin may get wetter and the southern portion drier. "But that moisture could come in the form of more spring rains and less winter snow.

"The water we've secured for the endangered fishes over the years has helped see their populations through some pretty serious drought periods, and this water should help us be able to face the challenges of climate change," she says. "Our program partners have developed a number of innovative solutions to provide in stream flows."

For example, the Bureau of Reclamation operates Flaming Gorge Dam in Utah to help meet flow and temperature recommendations for the fish. And operators of a number of reservoirs upstream of critical habitat on the Colorado River have coordinated water releases to provide more than a million acre-feet of water over the last 14 years to enhance spring and summer flows to improve downstream habitat.

The Service established endangered fish flow recommendations for the Colorado, Duchesne, Green, Gunnison, San Juan and Yampa rivers and is working to complete recommendations for the Price and White rivers. As a condition of recovery and delisting, agreements will maintain those flows and other actions that support recovery such as providing fish passage, screening irrigation canals and restoring habitat

Tom Pitts, who represents water organizations for both recovery programs, says flows for the endangered fish are provided in accordance with state water law.

"During times of shortages, whether due to drought or climate change, flows for endangered fish receive the same protection as water deliveries to agriculture, municipalities and industries," he says.

The groups who currently manage these various sources of water will be the people best suited to identify ways to continue to meet the flow needs of the endangered fish in the face of changing flow and temperature regimes. The recovery programs operate under an adaptive management approach, Kantola says, and that will be a vital tool to address climate change impacts.

"Partners in the Upper Colorado and San Juan River Recovery Programs have made important strides toward recovery of the endangered Colorado River fishes," she says. "But climate change can be expected to bring new challenges to these recovery efforts. And it's the strong working relationships formed in these recovery programs that will provide the platform for addressing the effects."

In addition to the Service, the recovery programs' partners include the States of Colorado, New Mexico, Wyoming, and Utah; National Park Service; Bureau of Reclamation; Bureau of Land Management; Bureau of Indian Affairs; Western Area Power Administration; Navajo Nation, Jicarilla Apache Nation, Southern Ute Tribe, Ute Mountain Ute Tribe, power customers, water users and environmental organizations. □

DEBBIE FELKER, Upper Colorado River Endangered Fish Recovery Program, Mountain-Prairie Region

Editor's Note: This article was part of a blog series, The Climate of Conservation in America: 50 Stories From 50 States. Beginning on Earth Day, April 22, the Service launched a series of 50 stories for 50 consecutive weekdays that explored the many ways accelerating climate change is impacting or may impact fish and wildlife across America. Visit <www.fws.gov/home/climatechange/stories505050.html>

pacific

RELOCATION

Millerbirds Brought Back to Laysan Island in Hawaii

A recent project on Laysan Island, part of the Hawaiian Islands National Wildlife Refuge within the Papahānaumokuākea Marine National Monument in Hawaii, may help save a species—and keep local insects on their toes.

On September 10, 24 endangered Nihoa Millerbirds were released on Laysan Island, the result of many years of research and planning by biologists and resource managers, led by a partnership between the U.S. Fish and Wildlife Service and American Bird Conservancy (ABC).

Millerbirds, a lively brown song bird that forages for insects, have been absent from Laysan for nearly 100 years.

"This project will reduce the chances that catastrophic events such as hurricanes or the introduction of invasive predators will extirpate the species, since there will be independent populations of Millerbirds on two islands, 650 miles apart," said Loyal Mehrhoff, field supervisor for the Pacific Islands Fish and Wildlife Office.

The project won't hurt the millerbird population on Nihoa Island either. The 2010 population was estimated at 507 birds, so removing 24 birds, or less than 5 percent, should not be a problem.

Each transplanted millerbird carries a combination of colored leg bands to allow identification in the field and half the birds were fitted with temporary radio transmitters so their locations could be determined during their first three weeks in the new home. Biologists will remain on Laysan for the next year to monitor the birds' movements and behaviors, including, the team hopes, their first nesting attempts.

Biologists transfer endangered millerbirds off Nihoa Island.

PHOTOS: R. KOHLEY / USFWS AND THE AMERICAN BIRD CONSERVANCY

"It is thrilling to see Millerbirds back on Laysan once more, not simply because they have been a missing piece of the island's native ecosystem for so long, but also because this marks a potential turning point in the recovery of the species," said George Wallace, ABC's Vice President for Oceans and Islands.

On Laysan, the Millerbird joins other endangered species, such as the Laysan Finch, Laysan Duck, Hawaiian monk seal, and several plant species, as well as millions of nesting seabirds.

The Service is a co-manager of the Papahānaumokuākea Marine National Monument, which lies northwest of the main Hawaiian Islands and encompasses a string of remote islands, reefs and nearly 140,000 square miles of ocean.

A closer look—a millerbird with band and transmitter.

JIM DICK / USFWS

"Translocation is an important tool for the conservation of endangered island birds, and the Millerbird translocation stands on the shoulders of previous efforts," said Holly Freifeld, a biologist with the Service. "This project also breaks a lot of new ground and has been a model of teamwork and innovation for the past five years." □

TEST OF TIME

Quilcene Fish Hatchery Hits the Century Mark

The late Edgar Albert Sims, a state legislator from Port Townsend, Washington, is credited with transforming the idea of a fish hatchery on the Big Quilcene River into a reality. The hatchery was authorized by Congress in 1909 and began operations in 1911.

The hatchery originally focused on culturing Pacific salmon in support of the commercial fishing industry, but in 1930 the hatchery began producing trout for stocking the waters of Olympic and Mount Rainier national parks and those on military reservations. The trout program grew to encompass two-thirds of the hatchery's total production by the early 1960s. In the late 1970s, the trout program was phased out and emphasis shifted back to anadromous salmonids. Quilcene's recent 12-year hatchery program for threatened Hood Canal summer chum was astonishingly successfu and the fish no longer needs to be raised in captivity.

Today, the hatchery's flagship coho salmon program provides a tremendously valuable resource for five local Native American tribes and the sport fishing community alike. Other work at the hatchery includes restoring the threatened Hood Canal winter steelhead, as well as boosting the Lake Sammamish kokanee salmon population.

A daylong centennial celebration event occurred on August 20, 2011. □

DAN MAGNESON, Quilcene National Fish Hatchery, Pacific Region

southwest

SHAPE OF THINGS

Protecting New Mexico's Fragile Wetlands

Jim Dick, Southwest Regional Wetlands Coordinator for the National Wetland Inventory (NWI) has been instrumental in mapping more than 1.4 million acres of pristine alpine and subalpine terrain. He completed new and updated wetland mapping for all U.S. Forest Service wilderness areas in New Mexico.

Headwater wetlands in an alpine area near the Pecos Wilderness, Santa Fe National Forest, New Mexico.

The state has designated all surface waters in wilderness areas, including these fragile wetland systems, as Outstanding National Resource Waters (ONRW; Clean Water Act designation), and NWI played a vital role in this initial step toward developing protective legislation for New Mexico's critical wetland resources.

State officials recognized Dick's assistance in producing the riparian and watershed-based wetland assessments. Maryann McGraw, New Mexico's Wetlands Program Coordinator, said: "In order to designate waters, they have to be mapped and you so generously mapped these wetlands for us on a tight deadline."

She continued: "Without your help, there would not be wetlands included in this designation... [this] will protect approximately 700 miles of 195 perennial rivers and streams, 29 lakes, and approximately 4,930 acres of 1,405 wetlands in 12 wilderness areas." She added that "protection of these headwaters will help maintain a clean water supply for...downstream uses by municipalities, agriculture, and recreational interests, and will help maintain healthy ecosystems, preserve habitat, and protect vulnerable and endangered species." □

JO ANN MILLS, Team National Wetlands Inventory Coordinator, Washington Office

WILD IN THE CITY

Former Dairy Farm Becomes New Mexico's First Urban Refuge

New Mexico is getting its first urban national wildlife refuge, on a former dairy farm just a few miles south of Albuquerque. Secretary of the Interior Ken Salazar announced the news in late September.

"Once complete, this refuge, which is within a half hour drive of nearly 50 percent of New Mexico's population, will be a place for people to connect with and learn about the natural world and provide valuable habitat for wildlife, including the endangered southwestern willow flycatcher," Salazar said.

An urban refuge will also help generate economic growth and support jobs by attracting visitors, Salazar said. Recreation in refuges, national parks and other public lands alone led to nearly $55 billion in economic contribution and 440,000 jobs in 2009. National wildlife refuges alone currently support an estimated 35,234 jobs.

The U.S. Fish and Wildlife Service and Bernalillo County have long explored the possibility of establishing an urban refuge on the 570 acres of former Price's Dairy Farm. After completing the necessary studies and planning documents, the Service is now authorized to acquire land and establish the refuge.

Equally important, since the Service acquires lands for refuges only from willing sellers, the current owners of the 570-acre site are interested in selling the land.

Once fully restored, visitors to the refuge will likely be able to see waterfowl, small mammals, and neotropical migrant birds, including the flycatcher. □

Wildlife Knows No Borders

USFWS

Mexican nature reserve managers overlook the U.S.-Mexico border. The breathtaking view is also a lesson for these future conservation leaders in the interconnectedness of the two countries—shared species, habitats, conservation threats and partnerships. Technical assistance and training programs like the one depicted here, which was funded by the Service's Wildlife Without Borders-Mexico program, elevate the effectiveness of state-level natural resource management within the Government of Mexico. Learn more at <fws.gov/international/dic/regionalprograms/mexico/mexico.html>.

midwest

NET RESULTS

Crowds Descend to Help Tag Monarch Butterflies

Members of the community gathered at the Neal Smith National Wildlife Refuge in Iowa on September 10 to help tag migrating monarch butterflies in an annual event called "Monarch Madness."

After learning why and how the refuge and its volunteers should catch and tag monarchs, the 170 volunteers set out to find them. Tagging monarchs provides information about their migration routes and how factors like weather may influence their migration and survivorship, and on this day the migrating monarchs kept the volunteers busy!

The monarchs were easy to find, busily feeding and preparing for their fall migration. The newly trained butterfly capturers could be seen running through the prairie with their nets raised high and still just barely cresting above the tall grasses and sunflowers. Excitedly volunteers captured monarchs and triumphantly emerged from the sea of grasses.

Tag, you're it. Two volunteers head out help collect butterflies for tagging.

Rangers tagged the monarch with a small sticker on its wings. With the help of experienced volunteers, the rangers also recorded the date, capturer's full name, the sex of the monarch. Lastly, rangers placed the butterfly in the volunteer's hand and the volunteer released it.

In just an hour, 116 monarchs were tagged!

One important factor that contributed to this year's success was an extraordinary effort by the community. In one day, 66 walk-in visitors came to show their support of the refuge. Counting visitors and volunteers, 236 people visited the refuge to learn, explore and help the prairie. Their combined efforts made "Monarch Madness" a thrilling, fun and rewarding experience for all involved. □

MICHELLE GARCIA, Neal Smith National Wildlife Refuge, Midwest Region

southeast

LONGEVITY

Orangeburg National Fish Hatchery Celebrates a Century

It has been 100 years since the first pond was excavated, with the help of mules and pond scoops, in the creation of Orangeburg National Fish Hatchery. Today the hatchery is an integral part of the community in Orangeburg, South Carolina, near lakes Marion and Moultrie.

"It's an honor to witness a huge milestone of one of the real gems in the Service's National Fish Hatchery System," says Cindy Dohner, Southeast Regional Director of the U.S. Fish and Wildlife Service. "Orangeburg has served a critical role in fisheries conservation in our Region, and its good work will become even more critical in the century to come."

Orangeburg National Fish Hatchery has always adapted to serve the needs of Americans. When first established it provided fish for subsistence, stocking local farm ponds and sending other fish by railcar all across the county. Today it works with endangered species, including the shortnose sturgeon and freshwater mussels. It also produces fish for recreation, like striped bass, a popular sport fish. The hatchery has made significant contributions to the area's renowned fishing opportunities.

The total economic impact of recreational fish production at Orangeburg was more than $13.3 million in 2010, generating 127 jobs throughout many industries, worth $3.3 million in wages.

"The hatchery has been here for 100 years, that shows you the value of what we do." says Willie Booker, the hatchery's manager for the past 20 years. "This hatchery and the work we do really mean a lot to people. I am proud to be a part of it."

Orangeburg is a popular destination for tens of thousands of people each year, offering innovative outdoor classrooms, a nature-explore playground, trails, bird watching, a 100-acre lake and a visitor center with aquarium. By hosting events throughout the year for youth, special needs groups and senior citizens, the hatchery promotes the increased quality of life and conservation benefits provided through fishing and the importance of connecting people, especially children, to nature.

Orangeburg celebrated a century of fisheries conservation with festivities at the hatchery on September 28, 2011. For more information, visit <www.fws.gov/orangeburg>. □

Willie Booker (right), Hatchery Manager for the past 20 of the hatchery's 100 years, works closely with South Carolina Department of Natural Resources on fisheries management issues.

USFWS

northeast

PRESERVATION

Two New Islands Added to Maine Coastal Islands National Wildlife Refuge Complex

Two seabird nesting islands have been added to the Petit Manan National Wildlife Refuge, part of the Maine Coastal Islands National Wildlife Refuge Complex. Sally Island in Gouldsboro is five acres and home to eider ducks, black guillemots and other species. North Twinnie Island in Bar Harbor is 3.5 acres and offers feeding and nesting habitat to various duck species and contains a bald eagle nest.

The Maine Coast Heritage Trust (MCHT), a statewide land conservation organization, secured both islands in recent years with the intent of transferring them to the refuge for permanent conservation when funds became available. The transfer brings the total number of islands in the refuge to 56.

The Maine Coastal Islands National Wildlife Refuge Complex now totals more than 8,100 acres, spans more than 250 miles of Maine coastline and features five national wildlife refuges—Petit Manan, Cross Island, Franklin Island, Seal Island and Pond Island.

Purchase of these islands for their seabird nesting habitat values was strongly recommended by the refuge's Comprehensive Conservation Plan, published in 2005. MCHT was able to acquire these islands over a number of years, thanks to willing landowners. "Protecting these islands is a significant step in the ongoing protection of one of Maine's most fragile natural resources," commented MCHT President Tim Glidden. "MCHT is proud of our longstanding partnership with the refuge to enhance and protect Maine's nationally significant seabird nesting islands."□

BETH GOETTEL, Maine Coastal Islands National Wildlife Refuge Complex, Northeast Region

mountain-prairie

PATHWAYS

Centennial Trail Boardwalk Complete, For Now

Two units in the Mountain-Prairie Region have been added to the National Wildlife Refuge System, getting their official planks in October on the Centennial Trail Boardwalk of Pelican Island National Wildlife Refuge. The boardwalk at Pelican Island, the first national wildlife refuge, now features engraved planks of all 555 units in the National Wildlife Refuge System.

The first, the Dakota Grassland Conservation Area in South Dakota and North Dakota will help sustain the area's ranching heritage and accelerate the conservation of native prairie—both wetland and grassland habitats—within the Prairie Pothole Region in the eastern parts of the states. Working with private landowners, the Service bought a conservation easement in September 2011. The project could ultimately protect up to 1.7 million acres of critical grassland habitat and 240,000 acres of wetland habitat through conservation easements bought from willing sellers. Key partners include the South Dakota Grassland Trust, Ducks Unlimited, The Nature Conservancy, and Partners for Conservation. Ducks Unlimited has already pledged $50 million for this project.

The Flint Hills Legacy Conservation Area in Kansas will help maintain the integrity of tallgrass prairie wildlife habitat, stream water quality and the rich agricultural heritage of the Flint Hills by acquiring and protecting up to 1.1 million acres of habitat through voluntary, perpetual conservation easements. The area was officially established in September 2011 with the donation of one 5-acre tract. Key partners include Kansas, The Nature Conservancy, U.S. Department of Agriculture, Ranchland Trust of Kansas (an affiliate of the Kansas Livestock Association) and Kansas Land Trust.

Other recently added units include the Tulare Basin Wildlife Management Area of California and Cherry Valley National Wildlife Refuge of Pennsylvania.□

Centennial Trail Boardwalk of Pelican Island National Wildlife Refuge.

KEENAN ADAMS / USFWS

alaska

PLAY AT WORK

Staff Go On Field Trip Featuring the Wildlife and Sport Fish Restoration Program

Periodically, U.S. Fish and Wildlife Service programs host outings to familiarize Service staff with the diverse accomplishments of its many programs. On October 19, 21 administrative professionals and new employees embarked on a field trip featuring the Service's Wildlife and Sport Fish Restoration Program.

Tauline Davis, the Alaska Regional Director's Assistant, explains, "The RD's office worked with the Migratory Birds and State Programs and Diversity and Civil Rights staff to host this trip. These trips provide staff with an opportunity to interact, collaborate and work together as a group. There are limited opportunities for such sessions, so it is important to be able to provide these opportunities when we can. The administrative staff enjoys being able to participate in these trips with our new employees. It gives us essential time to collaborate and interact as a group, and learn more about programs the Service is involved in. It's important for us to take time from our busy schedules to make this happen for everyone. Teamwork is essential to a successful organization!"

LAURA WHITEHOUSE / USFWS

A wood bison at the Alaska Wildlife Conservation Center.

The first stop was the Alaska Department of Fish and Game's (ADF&G) new $96 million William Jack Hernandez Sport Fish Hatchery in Anchorage. Hatchery Program Supervisor Jeff Milton explained hatchery operations in expert detail as the group traveled along an airy visitor corridor that overlooks hatchery operations. The facility was designed to be efficient, with about 98 percent of the water recirculated. This decreases the energy required for heating water to accelerate fish growth. The hatchery contributes to the continued vitality of Alaska's sport fishing programs by serving a variety of recreational fisheries and diverse fishing opportunities, as well as supporting the protection of natural stocks.

Stocking programs are designed so that wild fish and hatchery fish do not compete for the same resources or interbreed. Only sterile trout, char, grayling and land-locked salmon are released into Alaska waters. The Service is a partner in this effort by providing funding for hatchery operation and maintenance activities through a Sport Fish Restoration grant.

After lunch, the group continued to the Alaska Wildlife Conservation Center near Portage. Center owner Mike Miller guided the group through the entire facility, observing moose, caribou, elk, muskox, black and brown bears; and the featured animal, wood bison, which are listed under the Endangered Species Act (ESA). These wood bison were brought in from Canada with the goal of being released to parts of their historic range in interior Alaska. The Service is working with the ADF&G to develop special regulations for wood bison in Alaska under the ESA. The Service is providing funding through the State Wildlife Grant program and Federal Aid in Wildlife Restoration; which supports animal feeding, disease-testing and health measures. Project objectives include reestablishing wood bison populations in Alaska that will contribute to recovery of the species and provide benefits to Alaska's people and economy. □

"It's important for us to take time from our busy schedules to make this happen for everyone. Teamwork is essential to a successful organization!"

—Tauline Davis, the Alaska Regional Director's Assistant

JAMES LAWONN / USFWS

TEAMWORK

Alaska's Kodiak NWR Celebrates Volunteer Record

Lashing rain and dark August skies didn't keep people away from an evening of awards, treats and camaraderie at the Kodiak National Wildlife Refuge volunteer appreciation event as refuge staff celebrated an annual record of volunteer hours contributed to the refuge, an estimated 17,432, or about the equivalent of eight full-time positions!

It's been a remarkable year for volunteers at Kodiak NWR; 143 people participated in a variety of projects that spanned nearly all refuge activities. Several large events at the refuge visitor center depended upon local volunteer support, from International Migratory Bird Day celebrations to the first Kodiak Trails Day event. The refuge also hosted the statewide Alaska Envirothon competition for high school students, and several Kodiak residents lent their local knowledge to the event and to staffing at the Visitor Center.

A record number of local volunteers participated in the second year of a citizen science project monitoring avian productivity and

JAMES LAWONN / USFWS

Biology volunteer Deanna Russell holds a Kittlitz's murrelet chick.

survivorship (MAPS) of songbirds near the Buskin River headquarters; several volunteers became proficient at mist net and banding techniques and will be in high demand for next year's program.

Seasonal volunteers consistently went above and beyond in their volunteer work this past summer. Four SCA interns assisted with environmental education, inspiring Kodiak children from toddler age through middle school. Two seasonal volunteers contributed their talents toward local and remote maintenance projects. Ten biology interns worked with Refuge staff for long hours in the remote field, collecting and processing data on mountain goat ecology, Kodiak brown bear habitat and Kittlitz's murrelet nesting ecology.

Kodiak and the entire U.S. Fish and Wildlife Service are grateful for the support of so many wonderful people and look forward to the next year of working with volunteers for the purpose of conservation and education. □

LISA HUPP, Kodiak National Wildlife Refuge, Alaska Region

HOOFING IT

Refuge Completes First Season of Mountain Goat Research

Biologists from the Kodiak National Wildlife Refuge started a field research project this past summer aimed at quantifying mountain goat diets and feeding site selection on Kodiak Island, Alaska.

Although mountain goats on Kodiak are a popular game species, they are not native to the island. The work completed this summer is part of a larger project focused on maintaining viable hunter harvests of mountain goats while avoiding potential negative impacts from the species on alpine flora and fauna.

Eighteen mountain goats were introduced to the Hidden Basin region of Kodiak in 1952 to provide hunting opportunities, and their population has grown dramatically in size and range. Although hunted since 1968, their population grew to approximately 1,000 animals by 1999. They now number more than 2,500 and are widely distributed across most available habitats on the island.

Research was conducted at three study sites, which were selected based on the duration of mountain goat occupancy. Researchers visited each study site twice over the summer, where they collected mountain goat pellets for dietary analysis and surveyed alpine vegetation.

Conducting field research in remote areas of Kodiak presented substantial logistical challenges, including inclement weather, thick vegetation and steep terrain.

"There are always challenges when working with an animal who resides on mountain slopes due to the topography, but even more challenging is the ever changing weather conditions typical of Kodiak Island. During the summer months, rain, wind and dense fog occur more often than not. And, we still navigate the terrain...cautiously," said Heidi Helling, the biological technician on the project

But as McCrea Cobb, a wildlife biologist and the project leader, said: "Despite these conditions, our team excelled, working long days and gathering some of the first data on mountain goat diets on Kodiak Island."

The research team was able to spend 50 days in the field, completing more than 300 vegetation transects and collecting more than 200 mountain goat fecal samples.

The Kodiak Refuge hopes to build upon the work this summer. Future plans include possibly deploying GPS collars on mountain goats to better understand movements, population dynamics and other aspects of their life history. □

McCREA COBB, Kodiak National Wildlife Refuge, Alaska Region

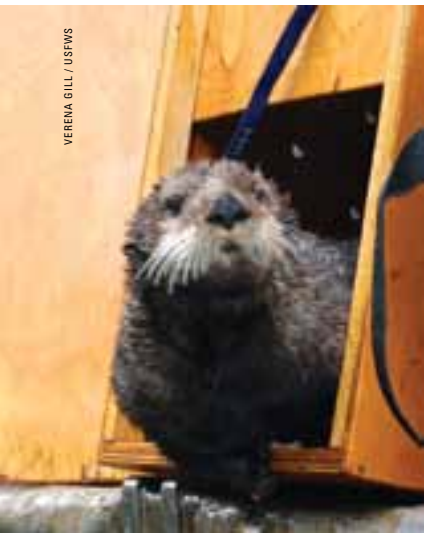
ADIA SOVIE/USFWS

A Mountain goat nanny and her kid feed on Kodiak Island, Alaska.

ALL FOR ONE

Federal Biologists, University Researchers, Local Fishermen Join in Sea Otter Research

A partnership among U.S. Fish and Wildlife Service biologists, University of Alaska researchers, local fishermen, charter boat operators and community members recently culminated in a two-week trip to capture, sample and implant radios in 30 sea otters in southern Alaska, near the village of Kake.



VERENA GILL / USFWS

A tagged sea otter is released from the back of a participating fisherman's boat.

The Southern Southeast Alaska Sea Otter Project is an effort to conduct research on sea otter population growth in southern southeast Alaska and provide information on the potential effects of a growing sea otter population on shellfish and other invertebrate species. As the numbers and range of sea otters in southeast Alaska have increased, so has concern among commercial and subsistence fishermen who harvest species that the otters eat. This is the first time such a research effort has been mounted in this area.

The sea otter is considered a bellwether species for the near-shore marine ecosystem, so all animals captured had samples taken to provide data for a range of projects. A tooth was taken to determine age, urine to determine levels of PSP (paralytic shellfish poisoning), oral and rectal swabs to look at bacteria, and whiskers for diet analysis. The various samples will also be screened for evidence of diseases.

All otters were fitted with VHF radios and flipper tags. The radios are designed to last for up to two years, allowing researchers to track the animals' long-term movements and feeding habits. A Ph.D. student from the University of Alaska will track the animals with help from community members. In conjunction with this project, a biologist from the Service will conduct an extensive aerial survey this summer of sea otters in southeast Alaska. Results of the survey will be available in the fall.

This project was funded by the Service, the North Pacific Research Board and the Alaska Sea Grant Program. □

BRUCE WOODS, External Affairs, Alaska Region

pacific southwest

PAGE TURNER

Coleman Fish Hatchery Joins Summer Reading Program

Seeing a chance to introduce local children to the Chinook salmon, the fish raised at Coleman National Fish Hatchery in Anderson, California, hatchery staff joined the local community library summer reading program.

The Cottonwood library theme "Fun in Kitchen" seemed a great fit for a salmon-raising hatchery.

Each week an invited guest focused on a different food source, such as fowl, beef or fish. The age group of children attending the reading program was 3 to 12, with the bulk of them between the ages of 5 and 7.

Although not a typical event for the hatchery, staffers eagerly accepted the challenge.

Brett Galyean introduces the salmon life cycle during the " Fun with Fish" day at Cottonwood, California, library.

USFWS

Brett Galyean, deputy project leader from Coleman NFH, brought in visual aids focusing the presentation on the salmon eggs and early life stages of the salmon.

The first was a jar full of eggs from one Chinook salmon (about 5,300 eggs) and children attempted to guess how many were in the jar. After about a dozen guesses the children got a number close to the right one.

Galyean also brought a picture showing the five stage egg lifecycle of fall Chinook salmon from Coleman NFH. The salmon lifecycle display really caught the children's attention and they were able to see the development that the salmon go through in just a few short months.

Next up, a Rainbow Bright fish story and a chance to craft their own winds socks with fish on them.

The program "hopefully sparked their curiosity about local wildlife," Galyean said. □

BRETT GALYEAN, Coleman National Fish Hatchery, Pacific Southwest Region

DOUG CORDELL / USFWS

The Service Honor Guard's contribution came at the close of the ceremony as they marched slowly and placed roses on each of the 40 monuments.

REMEMBRANCE

Service Honor Guard Helps Recognize Heroes of Flight 93, Including One of Our Own

"I'm proud to be here," said Shelby Finney, of the U.S. Fish and Wildlife Service Honor Guard, at a Union City, California, ceremony on the 10th anniversary of 9-11, recognizing the heroes of United Flight 93, whose bravery prevented even greater tragedy on that terrible day.

One of the heroes on that flight — and the reason for the presence of the Service's Honor Guard at the ceremony — was Richard Guadagno, refuge manager at Humboldt Bay National Wildlife Refuge and a trained federal refuge law enforcement officer. Guadagno is thought to be one of several passengers who fought back against the hijackers, forcing the plane to crash in a field near Shanksville, Pennsylvania, killing all aboard.

The Union City monument to Flight 93, which features a meandering walkway with individual, red granite pillars for each of the 40 people aboard the San Francisco-bound flight, was created in recognition of the great number of passengers who, like Guadagno, were residents of northern California. The site, dedicated in 2007, includes a Circle of Remembrance, where three 10-foot stones tell the story of Flight 93, and a Plaza of Hope with a flagpole surrounded by colorful tiles made by Union City schoolchildren.

"It's a great memorial," said Honor Guard Samantha Fleming — who, like Finney and the other three members of the guard who made the trip, is a refuge law enforcement officer.

More than 400 people attended the September 11, 2011 event, which included a flag raising procession by the Union City Boy Scouts and a 21-gun salute by the American Legion Honor Guard, District 10. The Service Honor Guard's contribution came at the close of the ceremony as they placed roses on each of the 40 monuments.

Of her presence, and that of her fellow guard members at the Union City ceremony — which, for most, required travel from distant areas of the country — Fleming said: "It's a little thing we can do to honor [those who died]."

Formed more than a year ago, the Honor Guard is composed of 12 refuge law enforcement officers and three active alternates, all of whom were chosen based on their skills and their dedication to the core values of the Service. Several times a year, members of the guard travel to memorials, funerals and other official ceremonies to honor Service employees who dedicated their lives to wildlife conservation and the safety and security of Service lands. □

DOUG CORDELL, Public Affairs, San Francisco Bay National Wildlife Refuge Complex, Pacific Southwest Region

MAKING LEAPS

Herpetologists for a Day at Ash Meadows

More than 50 children and adults spent September 10 exploring the sand dunes at Peterson Reservoir at Ash Meadows National Wildlife Refuge in Nevada.

The event, made possible through a U.S. Fish & Wildlife Service "Connecting People with Nature" grant, sought to expose local families to the diversity of native reptiles in the area and give them a taste of the real-life work biologists do.

To show the kids "that the place they live in is really exciting, that biologists are studying it, that they can become biologists someday — that was really special," said Alyson Mack, a visitor services specialist at Ash Meadows.

Michael Burroughs, a Service biologist specializing in the endangered desert tortoise and other herps, led the group to a study site. The previous afternoon a drift fence array with funnel traps and pitfall traps had been set. During the night and early morning hours, when many reptiles are active, they scurry across the dunes only to be blocked by the drift fence and eventually fall into one of the traps. Burroughs explained the importance of this trapping technique — it allows biologists to see what species are out there, even those that are very secretive and nocturnal.

In 2008, this technique led to the discovery of the southwestern blind snake at Ash Meadows. Resembling an earthworm, this snake spends almost all its time burrowing underground and doesn't have true eyes. The 2008 study was the only time it has been seen on the refuge, and it was almost missed, hiding in the sand at the bottom of a pitfall trap bucket.

The kids and Burroughs made some exciting finds in the traps: a small scorpion, a Nevada side-blotched lizard, an Eleodes "skunk" beetle and an eastern velvet ant. After some very enthusiastic observation time, everybody helped Burroughs with the final steps of field work: cleaning the traps and releasing the critters back into the wild.

CYNDI SOUZA / USFWS

A student from Amargosa Valley elementary school examines an Eleodes beetle that was caught in a pitfall trap.

"It was so great to see the kids' excitement. They were running around, asking questions, taking pictures, laughing, exploring with their friends — they were really learning," Mack said.

Throughout the day the kids learned that being a biologist is physically demanding work (especially when trekking across sand dunes), requires keen observation skills and, judging by their smiles and enthusiasm, is loads of fun! □

ALYSON MACK, Ash Meadows National Wildlife Refuge, Pacific Southwest Region

[THE FISH AND WILDLIFE SERVICE YOU *DON'T* KNOW]

In 1940, Bureaucrat Carl Eklund Boldly Went Where Few Had Gone Before

As Arctic National Wildlife Refuge marks its 50th anniversary, a little equal time for the Antarctic…

by DAVID KLINGER

…and the story of the $10-a-month dog driver who, in 1940, mushed his way across nearly 1,300 uncharted miles of snowy landscape at the bottom of the world as part of Admiral Richard E. Byrd's third expedition to Antarctica.

A sled-bound federal bureaucrat who fought howling, 115-mile-an-hour gales across the frigid desert, descended ancient frozen crevasses, had islands of ice named in his honor, and probed the mysterious riddle of the stouthearted emperor penguin and its solitary, precious egg.

Not your average assistant regional director. But that was Carl Eklund, who completed his U.S. Fish and Wildlife Service tenure in suburban Atlanta in the 1950s — later dying at the young age of 53, his passing marked with a *New York Times* obituary, tributes in papers from Philadelphia to Los Angeles, and mourning in explorers' clubs around the globe.

"He was one of the rare men who had no enemies; he had a great sense of humour and a kind attitude to his fellow man which made him a valued companion," Norwegian colleague Kaare Rodahl eulogized in the journal *Nature* following Eklund's death in 1962.

Eklund's story begins in rural Tomahawk, Wisconsin, in 1909. Born to Swedish-immigrant parents, Eklund honed his conservation credentials at Oregon State College's cooperative wildlife research unit, his Master's Degree focusing on Chinese pheasants. At Shenandoah National Park, he bossed emergency relief projects for three years in the darkest days of the Great Depression.

Eklund migrated to Michigan's Upper Peninsula in 1937, serving briefly as a junior biologist at Seney National Wildlife Refuge — legendary incubator for biological training in the far north, from which it seems everyone who is anyone in Fish and Wildlife Service biological circles has graduated. He logged stints with River Basin Studies (predecessor to today's Ecological Services) in Chicago, Washington and, finally, Atlanta.

Eklund's big break came late in 1939 as part of the first modern-era government expedition to Antarctica. He signed on as the Byrd command's ornithologist at East Base in Palmerland, for the princely sum of a sawbuck a month. There the United States aimed to solidify its military and research presence on the frozen continent. The United States Antarctic Service Expedition was charged by President Franklin Roosevelt with building two bases and launching a battery of scientific research projects, ranging from seismic and tidal studies to cosmic rays investigations and human endurance tests.

Sailing with 125 men on the Bear of Oakland and the North Star, a 1,400-ton wooden ice ship loaned by the Bureau of Indian Affairs, Eklund and Norwegian Finn Ronne soon began an epic journey worthy of any swashbuckling adventure novel.

Their lonely, 84-day, 1,264-mile overland trek into, in Eklund's words, "a sector of the Antarctic continent on which no man had ever set foot before," was a struggle against spitting snow and blinding gales, physical exhaustion, night-time hallucinations, overpowering joy and hair-trigger anger, death, depression, all in the effort "to further strengthen the claim of the United States to a large section of the Antarctic Continent."

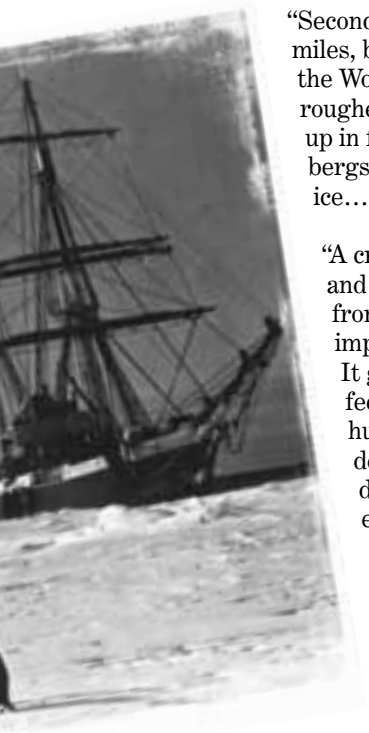
Thirty-one-year-old Eklund emerged from the experience "a gaunt, hollow-eyed, hard-bitten old guy, crusted with dirt, burned black by the sun and wind

The Bear of Oakland, a dual steam- and sail-powered sailing ship built in Scotland, "probably the most famous ship in the history of the Coast Guard," ferried Carl Eklund on Admiral Byrd's third Antarctic expedition in 1939.

…hard as a brick." Seven of his 15 huskies had "worked until they dropped in their tracks" and died.

Eklund and Ronne had been charged with mapping, by dogsled, that part of Antarctica from Stonington Island to the southwest portion of George VI Sound …and to return alive. That they did, discovering a group of islands since renamed the Eklund Islands and establishing that Alexander I Land—long-believed to be attached to the continent—was, indeed, an immense island.

Eklund's 35-page, typewritten account of his journey, "Farthest South," recently unearthed by Association of Retired Fish and Wildlife Employees board chairman Richard Coon and wife Nancy, is a riveting read, a stream-of-consciousness compendium of the exhilarating and the horrific:



"Second day out we made twenty miles, but as we began to climb up the Wordie ice shelf we found rougher going. Ice was jumbled up in fantastic shapes, with bergs, open leads. and pressure ice…"

"A crevasse may be 50 feet wide and 1,000 feet deep. Looking from the top it is often impossible to see the bottom. It gives one an erie (sic) feeling to imagine himself hurtling down into these depths. These are the real dangers of polar exploration…"

"I…crawled into my sleeping bag vowing it was the best place in the world. One night I dreamed of eating honey-dew melons and drinking Cuba Libres in Valparaiso, Chile, where once again we would be meeting friends at that infinitely distant time when we should leave the Antarctic…"

"After we got up the next morning, a horrible pain in the stomach and kidney region hit me. It was unbearable. Finn gave me some morphine…"

"Had to do my first job of dog-killing, something I had anticipated with dread because I had grown so fond of all these animals. Tarzan, one of our lighter huskies, was in very poor condition from the constant grind. We skinned him and fed him to the other dogs…"

"The open sea! Open, ice-free sea sparkling ahead of us as far as the eye could reach. It removes all doubt that Alexander I Land is an island. Besides this being an important discovery, this open water, to me, signified ships and a means of escape from this desolate land."

Eklund would return to the Antarctic in 1957–58, during the International Geophysical Year, a temporary, 18-month thaw in the Cold War. All of the major developed nations of the world joined in earth science investigations, many of them centered in the Antarctic.

There, in "Operation Deepfreeze," Eklund earned renewed fame by fashioning a crude telemetering probe and radio transmitter to measure the incubation temperatures of emperor penguin eggs and those of its surrogate, the Adelie penguin. Proving that these birds maintained average egg temperatures of 92.7 degrees in a world where winter temperatures drop to 79 degrees below zero, Eklund conducted a celebrated ham radio interview from the Antarctic with editors of *The New Yorker* sitting in Manhattan.

Eklund, in the prime of his professional life as chief of polar and Arctic research for the U.S. Army, survivor of brushes with icy death at the bottom of the world, collapsed and died while lecturing at a Philadelphia museum, leaving a wife and two daughters. It can be said that Eklund, like his huskies, worked until he simply dropped in his tracks.

"I felt as if I had done a little bit for my country in the line of exploration—something which we could claim by right of exploration, and not by bloodshed," Eklund recalls in his journal, when he and Ronne placed a small, typewritten note from the U.S. State Department into a tin container, nestled within a 19-foot snow beacon on December 21, 1940. The scrap claims "this hitherto unexplored territory for the United States Government."

Dr. Carl Eklund, hero of the Antarctic—and intrepid assistant regional director of the Fish and Wildlife Service—lies in Arlington National Cemetery. □

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

transitions

Northeast

As chief of the National Wildlife Refuge System in the Northeast Region, **Tony Léger** was a strong advocate for sound science, environmentally sustainable practices, and youth career programs on refuges. Léger retired from the Service in April 2011.

For 15 years, Léger was responsible for the Northeast Region's land acquisition program. During that time, the National Wildlife Refuge System grew 23 percent in the region.

As refuge chief, Léger led the development of standard energy-efficient facility designs that are now commonplace within the National Wildlife Refuge System. Refuges in the Northeast operate using wind and solar generation, ground-source heating and cooling systems and other "green" features. Several of these facilities received the U.S. Fish and Wildlife Service's Environmental Achievement Award in 2005, 2006, 2008, 2009 and 2010.

Léger was also pivotal in the establishment of the region's Career Discovery Internship Program, which annually provides summer internship opportunities for urban youth to work on national wildlife refuges. The program is now a model for Interior Secretary Salazar's Youth in the Great Outdoors Initiative, and several of the students who have participated are now pursuing careers with the Service.

In February, Léger received a Department of the Interior Meritorious Service Award for the contributions he made during his career. He and his wife, Grace, now enjoy running Foothill Farm in western Massachusetts. □

Scott Kahan took the helm as chief of the National Wildlife Refuge System in the Northeast in August 2011. A native of Massachusetts, Kahan returns to New England. Most recently, he was the project leader at the Detroit Lakes Wildlife Management District in western Minnesota where he led a team working with landowners to establish thousands of acres of easements on private lands to conserve important areas for waterfowl.

Kahan has been instrumental in the development of the new vision for the National Wildlife Refuge System. He co-chairs the urban refuge initiative team as part of implementing the vision.

Kahan holds a bachelor's degree in wildlife biology from Colorado State University and is a graduate of the Service's Advanced Leadership Development Program. □

Marvin Moriarty retired in August 2011 after nearly 40 years with the U.S. Fish and Wildlife Service. He served from 2003 until his retirement as the Northeast Regional Director. In recent years, he has worked tirelessly on efforts to protect the Chesapeake Bay.

Moriarty began his Service career in 1972 as a field biologist focusing on wetland and water quality restoration in the Delaware and Chesapeake bays. From there, he established and managed a field office at Gloucester Point, Virginia, and served as the national Coastal Zone Management Coordinator. Moriarty moved into senior management ranks in 1982 when he transferred to Atlanta, Georgia, as Assistant Regional Director for Fish and Wildlife Enhancement (now Ecological Services). Subsequently, he returned to Washington to be the Service's Division Chief for Ecological Services, responsible for major regulatory programs. In 1988 he moved to Minneapolis as the Deputy Regional Director for the Midwest Region.

From his home in western Massachusetts, Moriarty will continue to pursue his interests in photography, fishing, canoeing and canoe-building as well as cross-country skiing. □

In October, Service Director Dan Ashe named **Wendi Weber** as the new Regional Director for the Service's Northeast Region. Weber, a 13-year career Service employee, served as deputy regional director for the region since 2007.

"Wendi Weber is a dynamic and passionate leader who has continually proven her ability to work with others to achieve great things for conservation. She's a tremendous asset to the Service, and I look forward to having her on our leadership team," said Ashe.

Weber is a national leader in the Service's effort to create a more diverse workforce. She also leads a national team of more than 100 government, non-profit and academic partners responding to white-nose syndrome, a disease that has killed more than 5.5 million bats since it was first documented in New York in 2006.

Before coming to the Northeast Region, Weber was the assistant regional director for Ecological Services in the Midwest Region from 2004 to 2007. From 2002 to 2004, she served as chief of endangered species and also worked for the Service's national endangered species and international affairs programs for three years.

Before joining the Service in 1998, Weber worked as a field biologist. Weber has a bachelor's degree in zoology from the University of Rhode Island and a master's degree in fisheries from the University of Georgia. □

Alaska

Gary Edwards retired on June 30, 2011 after 28 years with the U.S. Fish & Wildlife Service. Since 1999 he was the Deputy Regional Director for the Service's Alaska Region. Gary began his career with the Service in August 1983 in Washington, DC, as Deputy Associate Director for Fisheries. In 1989, he became the Assistant Director for Fisheries, a position he held until going to Alaska.

Before joining the Service, Gary worked 18 years for the Arizona Game and Fish Department. He started his career with the state as a wildlife manager along the Colorado River in Bullhead City. He held several positions with the department and was the Deputy Chief of the Wildlife Management Division when he left to join the Service. In addition to his state and federal work, Gary served 31 years in the Army National Guard, for the State of Arizona and the District of Columbia. He retired as a Lieutenant Colonel in 1997.

Gary was presented the Department of the Interior's Meritorious Service Award twice; once in June 1992 and again in May 1999.

Gary earned his B.S. degree from the University of Arizona and a master's degree from Arizona State University. Gary is married and he and wife Jan have two sons. He plans to split his time between Anchorage and Arizona. □

Todd Logan's 32-year career came to a close on April 1, 2011. His work with the U.S. Fish and Wildlife Service is remarkable for its scope—from Florida's wetlands to Washington, DC, and from Arizona's deserts to Alaska's arctic tundra. Just as significant, Todd's entire career has been devoted to the National Wildlife Refuge System at all levels—the field, regional and Washington Office.

Todd first worked for the Service as a student seasonal laborer at Georgia's Piedmont National Wildlife Refuge. Graduating from college, he began as a Biological Technician at Loxahatchee NWR in Florida where he soon became Assistant Refuge Manager. He transferred to Mississippi Sandhill Crane Refuge in 1984 then was promoted to Deputy Manager at Ding Darling NWR in Florida. In 1989, Todd became the first Refuge Manager (and only employee) of the new Florida Panther Refuge. In five years, Todd built the foundation for today's Florida Panther Refuge, partnering with Florida Game and Freshwater Fish Commission.

In 1993, Todd took his combination of field savvy and technological skills to Washington and was instrumental in making the Refuge System the Service's leader in Information Technology, coalescing several computer databases that measured and documented performance, accomplishments, and funding needs. When not working 50-hour weeks, Todd completed a Master's in Public Administration (MPA) degree at George Mason University. After five years, Todd left Washington for Albuquerque as the first Geographical Assistant Regional Director supervising Arizona's refuges.

In 2000 Todd moved to Anchorage, Alaska, as Regional Chief of Alaska's 16 national wildlife refuges. Todd was an exceptional advocate for proper stewardship of more than 76 million acres of pristine and highly productive refuge wild lands, wilderness areas and wild rivers. On the national scene Todd was an amazingly strong and effective advocate for Alaska refuges and Alaska issues. He was always extremely well prepared, articulate and professional. After a decade at the helm of Alaska's refuges, he was selected for the prestigious Senior Executive Service (SES) Candidate Development Program. Following that experience he returned to Alaska to complete his career.

During the course of his career, Todd has been an inspiration to his subordinates, and has led them through numerous difficult resource management challenges. Todd was respected by all—the true sign of a great leader. He was presented the Department of the Interior's Meritorious Service Award in July, 2011. Todd lives in Anchorage where new adventures await. □

Davis Bales retired in July, 2011 after 33 years as Regional Engineer for the U.S. Fish and Wildlife Service's Alaska Region. Davis relished all engineering challenges during that time, ranging from making uninhabitable spaces habitable to working on the cutting edge of new vertical wind turbine technology. He mentored many and his leadership will be missed! □

honors

Service Honors Diversity Champions

The U.S. Fish and Wildlife Service named **Aaron Archibeque**, the Assistant Regional Director of the National Wildlife Refuge System in the Southwest Region, its 2011 Diversity Champion at a recent ceremony.

The Diversity Champion award honors Service employees who promote diversity and inclusion among co-workers and in the public, and who exemplify a strong commitment to diversity and inclusion through their personal behaviors and actions. In line with its commitment to achieve an inclusive workforce, the Service asks each Region to identify a Diversity Champion and then a Senior Executive Diversity Council selects the Service's Diversity Champion.

"To remain important to the nation, the Service needs a workforce that looks like America," said Service Director Dan Ashe. "Aaron and our Regional Diversity Champions are helping us meet that workforce challenge."

As a member of the Outreach Recruitment and Retention Team, Archibeque assisted in the promotion, recruitment and retention of a diverse workforce. He works tirelessly as a volunteer for assignments that work toward increased participation of diverse groups in the workforce. He drafted implementation plans for student employment programs and participated with the recruiting teams, which resulted in several diverse student hires in FY 2011.

Archibeque recently became a Diversity Change Agent and attends numerous diversity events and trainings, embracing every opportunity to learn more about equal opportunity, inclusivity and diversity

The Service would also like to honor the following Regional Diversity Champions:

Kristin Young, Chief, Division of Contracting and General Services in the Pacific Region, developed a diverse workforce and helps maintain it by creating a work environment that respects and values the unique contributions of each member of her team.

Jackie Parrish, Assistant Regional Director, Budget & Administration in the Southeast Region, promotes the benefits of a diverse workforce: consulting on hiring authorities and recruiting strategies to increase opportunities for a more diverse and qualified workforce.

Lamar Gore, Chief, Diversity and Civil Rights in the Northeast Region, created the Career Discovery Internship Program, which introduces culturally and ethnically diverse college freshmen and sophomores from all over the United States to the Service and vice versa.

Regional Director **Dr. Benjamin Tuggle** presents the award to Aaron Archibeque, the Assistant Regional Director of the National Wildlife Refuge System in Region 2.

Ann Timberman, Project Leader at Arapaho National Wildlife Refuge Complex in Colorado in the Mountain-Prairie Region, helped develop the Region 6 Diversity Outreach Plan and lead the Diversity Outreach Team.

Michael Boylan, Wildlife Refuges' Supervisor in the Alaska Region, identified and conducts recruitment with the Alaska Native Science & Engineering Program to bring qualified native Alaskans into the Service.

Kimby Wells, Environmental Education Specialist, San Francisco Bay National Wildlife Refuge Complex in California in the Pacific Southwest Region, crafted a Youth Conservation Corps program that supports diversity and reaches out to underserved communities.

Robert Pos, Fishery Biologist, Branch of Budget, Performance and Policy for the Division of Fisheries and Aquatic Resource Conservation in the Washington Office, works and volunteers with many outreach programs that help build pipelines to the Service, including the Federal Asian Pacific American Council. □

Pacific

Carol "Corky" Broaddus Wins Service's 2011 "Sense of Wonder" Honor

Carol "Corky" Broaddus, supervisor of the Information and Education Program at Leavenworth National Fish Hatchery in Washington, recently received the U.S. Fish and Wildlife Service's 2011 "Sense of Wonder" honor. The Sense of Wonder recognition is presented annually to a Service employee who designs, implements or shows visionary leadership in interpretive or environmental education programs that foster a "Sense of Wonder" and enhance public stewardship of wildlife resources.

"Corky's selection reflects her vibrant passion for wildlife and people," said Robyn Thorson, Director of the Service's Pacific Region. "Throughout her 18 years with the Service, she has created a sense of wonder for students young and old through environmental education, interpretation and outreach at the Leavenworth National Fish Hatchery. Her leadership has helped make the Wenatchee River Salmon Festival a model for outreach events across the country."

The success of Corky's leadership is evident in the passion and inspiration instilled in the people involved with these nationally significant programs, Regional Director Thorson said. "Her leadership and creativity have provided highly successful models for integrating habitat conservation and the

conservation of salmon into the hearts and minds of the entire community of Leavenworth, Washington."

In addition to helping found the salmon festival, Corky helped create the Fish and Wildlife Discovery Alternative School, which is credited with increasing the graduation rate of "at risk" students significantly. The success of the program has compelled the community and school district to carry this model into the future.

Through her vision, initiative and leadership, she has helped the Leavenworth National Fish Hatchery Complex become home to one of the most comprehensive outdoor education and visitor services programs in the system. □

Fish and Wildlife Service Wins Awards in Energy Efficiency, Water Usage

The Service's commitment to energy efficiency and sustainability shone brightly during the Federal Energy Management Program's (FEMP) 2011 Federal Energy and Water Management Awards as **David Guthrie**, the energy coordinator for the Service, took home the prestigious Program Manager's Award and three national wildlife refuges won team awards.

Guthrie, who also won an Exceptional Service honor, has helped make the Service a federal leader in energy management, and his work has helped the Service save millions of BTU of energy, millions of gallons of water as well as much taxpayer money.

"I believe I received the individual award based on the dedication and the hard work of the regional and Washington Office staffs in promoting and completing great projects for sustainable buildings, energy efficiency, and renewable energy," Guthrie said. He also promised to "continue to push harder to help the field stations and the Service achieve carbon neutrality" by 2020, a Service goal.

Assabet River National Wildlife Refuge in Sudbury, Massachusetts, was honored for the sustainable design of its 5,879 square-foot visitor center. The building features passive solar architecture, a cool roof, daylighting, low-e glazed windows and much more. The visitor center's energy performance is 30 percent better than an average building and saves 13.1 metric tons of greenhouse gases annually. The total energy cost saved in 2010 was $2,662. Individual Service members honored were:

- *Libby Herland*, Project Leader/Refuge Manager, U.S. Fish and Wildlife Service
- *Tom Eagle*, Deputy Project Leader, U.S. Fish and Wildlife Service
- *Susan J. Russo*, Visitor Services Manager, U.S. Fish and Wildlife Service
- *Marsha Browning*, Contracting Officer, U.S. Fish and Wildlife Service
- *Tony Leger*, Regional Chief, National Wildlife Refuge System, U.S. Fish and Wildlife Service (retired)

Benton Lake National Wildlife Refuge in Great Falls, Montana, was recognized for its hybrid solar photovoltaic (PV)/wind energy system. In FY 2010, this renewable energy system accomplished a 93 percent decrease in purchased electricity consumption and a 33 percent reduction in energy intensity from the field station's FY 2003 baseline, with a cost savings of approximately $4,000 per year, an energy savings of 121 million BTUs, and 25 metric tons of greenhouse gases avoided. Individual Service members honored were:

- *Kathleen Burchett*, Project Leader/Refuge Manager, U.S. Fish and Wildlife Service
- *Chuck Gess*, Project Manager, U.S. Fish and Wildlife Service
- *Eric Jordan*, Contracting Officer, U.S. Fish and Wildlife Service
- *Rick Coleman*, Assistant Regional Director, National Wildlife Refuge System

San Francisco Bay National Wildlife Refuge Complex in Newark, California, was cited for the renovation of its 9,000 square foot headquarters, which incorporated sustainable design measures that reduces energy consumption 52 percent and indirectly offsets approximately 72 metric tons of greenhouse gases annually. Low-water-use plumbing fixtures save 5,000 gallons per year. The project saved more than $34,000 in energy costs. Individual Service members honored were:

- *Mendel Stewart*, Project Leader/Refuge Manager, U.S. Fish and Wildlife Service
- *John Bradley*, Deputy Project Leader, U.S. Fish and Wildlife Service
- *James Burby*, Civil Engineer, U.S. Fish and Wildlife Service
- *Doug Damberg*, Assistant Refuge Supervisor, Region 8, U.S. Fish and Wildlife Service

The Federal Energy and Water Management Awards honor contributions in the areas of energy efficiency, water conservation, and the use of advanced and renewable energy technologies at federal facilities. The Program Manager's Award honors what are considered exceptional contributions in those fields.

In addition, the **Morris Wetland Management District Office and Visitor Center**, Minnesota, was selected by the Department of the Interior for recognition as part of the FEMP "You Have the Power" campaign. The campaign is a Department of Energy initiative to spread the word about saving energy costs and resources among Federal workers. The 8,240 square-foot Office and Visitor Center at Morris Wetland Management District is a model of sustainable design excellence. □

Service Shines at Partners in Conservation Awards Ceremony

Several U.S. Fish and Wildlife Service programs and individuals were recently honored by Secretary of the Interior Ken Salazar with 2011 Partners in Conservation Awards, which recognize exemplary conservation efforts involving community engagement and local partnerships.

Overall, this year's awards recognize more than 500 individuals from all 50 states and include representatives from tribes, local communities and states, other federal agencies, business and industry, nonprofit institutions and private landowners.

"The Partners in Conservation Awards demonstrate that our nation's greatest conservation legacies often emerge when agencies and citizens from a wide range of backgrounds come together to address shared challenges," Secretary Salazar said.

The Service winners:

An interagency group, DOI **Oceans, Coasts and Great Lakes Activities Team** has partnered with 27 federal agencies, nine regional planning areas; and tribal, state and local governments to develop and implement our nation's first National Ocean Policy. Individual Service members honored were:

Bryan Arroyo
Hannibal Bolton
Gabriela Chavarria
Chris Darnell
Jamie Geiger
Jason Goldberg
Andrew Gude
Angela Gustavson
Richard Hannan
Geoff Haskett
John Huffman
Linda Kelsey
Jim Kurth
Susan Mangin
Will Meeks
Dallas Miner
Marvin Moriarty
George Noguchi
Carol Pollio
Gregory Siekaniec
Jeff Underwood
Bret Wolfe
Charles Wooley

The **Gila Watershed Partnership** of Arizona was recognized for its collaboration with many stakeholders, including the Service's Arizona Ecological Services Field Office, to restore the health of the upper Gila watershed, which includes 7,430 square miles in Arizona. The partnership involves more than 30 government entities, organizations, ranchers, businesses, educational institutions and private landowners.

The **San Joaquin River Restoration Program** in California was honored for its large landscape restoration and water resource management in the San Joaquin River basin, California's second longest river that provides water to more than 1 million acres in the Central Valley. Individual Service members honored were:

Dan Castleberry
Jeff McLain
Rebecca Lorig
Robert Clarke
Stephanie Rickabaugh

(Above): The Camp Lawton Partnership Team in Georgia was recognized for its attempt to determine the exact location of the Civil War-era Camp Lawton stockade at Magnolia Springs State Park, and the Bo Ginn National Fish Hatchery and Aquarium, near Millen, Georgia. Camp Lawton in 1864 as drawn by Private Robert Knox Sneden a Union prisoner. Used by permission of Virginia Historical Society.

The **Camp Lawton Partnership Team** in Georgia was cited for its attempt to determine the exact location of the Civil War-era Camp Lawton stockade at Magnolia Springs State Park, and the Bo Ginn National Fish Hatchery and Aquarium, near Millen, Georgia. Individual Service members honored were:

Allan Brown
Judy Toppins
Phil Kloer
Richard Kanaski

The **Wyoming Governor's Sage-Grouse Implementation Team** was recognized for its work to develop and implement a long-term, science-based cooperative strategy for conservation of the greater sage-grouse, a ground-dwelling bird that inhabits much of the West. Their work has resulted in conservation and resource development options that currently conserve 1 million acres of sagebrush habitats in Wyoming. Individual Service members honored were:

Brian Kelly
Pat Deibert

The **National Wildlife Federation** in conjunction with the Service and the conservation community was honored for development of a guidebook called, "Scanning the Conservation Horizon, A Guide to Climate Change Vulnerability Assessment." This guidebook is being used across Department of the Interior bureaus and the Landscape Conservation Cooperatives. Nancy Green of the Service was singled out.

The Service also nominated other winners—**Friends of Nevada Wilderness**, which has assisted in the designation of more than 3 million acres of wilderness across Nevada; and **Liberty Wildlife Rehabilitation Foundation** and its Executive Director **Megan Mosby.** □

Mountain-Prairie

Biologist Rosenlund Honored by Rocky Mountain National Park

Bruce Rosenlund, a fish and wildlife biologist with the U.S. Fish and Wildlife Service, was recently awarded the 2010 Rocky Mountain National Park Stewardship Award.

The National Park Service presents this award to individuals and organizations that contribute significantly to the stewardship of the park and the surrounding environment.

Rosenlund was selected in recognition of his cooperative efforts advancing the long-term protection of the park and his dedication to fisheries management—particularly the restoration of greenback cutthroat trout.

Rosenlund has been working to reestablish populations of the greenback cutthroat trout for nearly 30 years and still finds it rewarding. "The thrill of being there and releasing greenbacks into their new home, as I did at Dream Lake in the park, is indescribable," he said. □

Northeast

U.S. Fish and Wildlife Service New York Coordinator Honored Nationally by Trout Unlimited

The conservation efforts of the Service's **Carl Schwartz** are certainly becoming well-known in the Northeast.

Earlier last summer, Schwartz was honored as Conservationist of the Year by the Land Protection Committee of upstate New York's Finger Lakes Land Trust, where he volunteers.

More recently, Trout Unlimited awarded Schwartz, who leads the Partners for Fish and Wildlife Program in the New York Field Office, with its national Trout Professional Conservation Award.

The Trout Conservation Awards recognize distinguished contributions and careers dedicated to trout and salmon conservation and habitat enhancement.

"One of the most impressive things about Carl is his ability to work with landowners who in many cases are not overly concerned with the health of a river," said Arthur Coleman of the New York Clearwater Chapter of TU, which nominated Schwartz. "Often their main concern is the property the river flows through. With his knowledge and understanding of river systems, Carl is quickly able to disarm any objections and can work toward solutions that help both the landowner and the river."

Under Schwartz's leadership, the Partners program has worked with hundreds of partners and about 700 landowners. More than 750 projects have contributed to the protection, enhancement and restoration of more than 20,200 acres of habitat and 60 river miles supporting dozens of migratory and federally protected species.

"About 75 percent of our nation's land is privately owned," said Steve Hill, coordinator for the Northeast Region Partners for Fish and Wildlife Program. "Relationships like those Carl has developed with private landowners and partners enable us to protect and restore wildlife and the environments that support them for the benefit of the people." □

MEAGAN RACEY, External Affairs, Northeast Region

Virginia's Will Smith Honored as Conservationist of the Year

The Back Bay Restoration Foundation honored **Will Smith**, of the Virginia Partners for Fish and Wildlife Program, with their Conservationist of the Year Award for 2011.

Smith, who works out of the Service's Virginia field office, led the effort to construct weirs at Lake Tecumseh to maintain a constant water level at Lake Tecumseh.

For nearly 50 years, Lake Tecumseh was a significant source of sedimentation, leading to decreased water quality of the Back Bay watershed. Because of the shallow depth and muddy bottom of Lake Tecumseh, sustained wind events caused significant turbidity in the lake, which resulted in significant sedimentation being discharged into the Back Bay watershed through Asheville Bridge Canal. The turbidity on the lake also resulted in poor habitat conditions for aquatic life.

Several years of data were collected to ensure that the weirs were set at the appropriate height. Within a year after construction, water quality has significantly improved. Submerged aquatic vegetation is now present in the lake. Fish surveys completed by the Virginia Department of Game and Inland Fisheries indicate an increased number of native fishes and the presence of fish species that were not previously found within Lake Tecumseh. □

in memoriam

Pacific

A Scholar and a Gentleman

Remembering Eminent Service Biologist and Conservationist Dave Marshall, 1926–2011

David Brownell Marshall, who died November 22, 2011, at the age of 85, left his mark on the world. An avid biologist and bird lover, he went to work for the U.S. Fish and Wildlife Service in 1949 as a student assistant on the Stillwater Wildlife Management Area in Nevada (now Stillwater National Wildlife Refuge). After graduating from Oregon State University in 1950 with a degree in Fish and Game Management, Dave became the Refuge Manager at Stillwater, where he developed a passion for marsh ecology and management. This passion drove him to study the land and water resources of Oregon's Willamette Valley in hopes of implementing the Pacific Flyway Waterfowl Management Plan, which focused on the protection, control and public hunting of ducks and geese. Three of the sites he assessed eventually became part of the Willamette Valley National Wildlife Refuge Complex (William L. Finley, Ankeny and Basket Slough National Wildlife Refuges).

In 1960, Dave became the Pacific Region's Regional Refuge Biologist, a position that, according to his memoirs, he felt "well-prepared for" despite his lack of "gray hair" and experience in an office. From special assignments in Washington, DC, to authoring a report on the California condor that helped establish the Endangered Species program, Dave had numerous achievements during his time in the regional office. Yet it was his role in the selection of new wildlife refuges in the Pacific Northwest that he looked on as the most rewarding. After more than a decade as a Regional Refuge Biologist in Portland, Dave took a position as Chief Biologist for birds and mammals in the Endangered Species program in Washington, DC, where he wrote conservation-related policy and played a role in determining recovery actions for a variety of species.

In 1976, Dave returned home to Portland and the regional office as a Senior Staff Biologist, overseeing the Endangered Species staff. Five years later, he retired from the Service at the age of 55. He continued to work as a consultant to Oregon Department of Fish and Wildlife and, in 2003, he co-authored *Birds of Oregon*, which has been called "the definitive source for Oregon ornithology."

Roy Lowe, Project Leader of the Oregon Coast National Wildlife Refuge Complex, became friends with Dave during his later years and describes him as "a scholar and a gentleman" who was "truly a conservationist legend." From the refuges he helped establish to the endangered species he helped protect, the legacy Dave left behind is not one we will soon forget.

Dave is survived by his wife, Georgia, his daughter, Janet, and his son, John. □

AMANDA FORTIN, External Affairs, Pacific Region

The Best Photographer You Never Knew...Dave Menke

Many in the Service recognize these now iconic images well—the majestic bald eagle landing in the nest, a purple hued sunrise over Lower Klamath National Wildlife Refuge, Kodiak brown bears standing in tall grass, a bobcat crouched low at Tule Lake National Wildlife Refuge. The list goes on and on. The photographer of these beautiful images was Dave Menke, who died April 28. He was 64.

A Fish and Wildlife Service employee for 33 years, Dave was much more than a colleague to those of us fortunate enough to work with him. We were touched and inspired by his amazing gifts and quiet accomplishments.

I mention quiet accomplishments, because Dave was a humble man, and rarely mentioned the many ways he gave of his time and talents for the Service. Not only was Dave a phenomenal and prolific wildlife photographer, but his generosity was legendary to all who had the privilege to work with him.

Dave, the outdoor recreation planner for the Klamath Basin National Wildlife Refuges, was an expert bird photographer and gave the Service some of its most beloved and used images. A wonderful example is his image of a sage thrasher holding a crimson berry—beautiful enough for any holiday card. He captured the spirit of the wildlife he observed and how they lived in their habitats. He excelled at capturing behaviors that gave us glimpses of the interesting and often secret lives of his subjects.

Just as with birds and other wildlife, Dave chronicled the work of the Service. His sharp eye captured how the Service works on the ground to conserve this country's natural resource heritage—not always safe or glamorous work. From the heat of a controlled burn consuming the acres of Klamath to a hunter in the marsh at sunset, he documented his and our passion for the lands, and as with wildlife, Dave captured the spirit and heart of our agency.

Dave donated hundreds of images, many of which can be found in the National Digital Library, making him one of the Service's more prolific photographers. He will be missed, but we will treasure his legacy of images. □

ELIZABETH JACKSON, Former Image Librarian for the Service

(At right): A sampling of Dave Menke's photography work.

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parting shots

Joseph Hautman of Plymouth, Minnesota, won the 2011 Federal Duck Stamp Contest with his acrylic painting of a single wood duck. Hautman has previously won the contest three times, in 1991, 2001 and 2007. His art will be made into the 2012–2013 Federal Duck Stamp, which will go on sale in late June 2012. Second place went to Adam Grimm of Burbank, South Dakota, for his oil painting of a single gadwall. Richard Clifton of Milford, Delaware, took third place with his acrylic painting of a pair of mallards.

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