U.S. Fish & Wildlife Service Spring 2013

Fish & Wildlife *News*

SPOTLIGHT

Science and a Changing Climate 8

Kid's World 12

The Most Remote Place in Alaska 14

Cape Fear River Restoration 18

what's inside

Departments

From the Director / 1

News / 2

Around the Service / 22

Our People / 32

Features

SPOTLIGHT

Science and a Changing Climate / 8

Kid's World / 12

Connecting children with nature across the globe

by VALERIE ROSE REDMOND

The Most Remote Place in Alaska / 14

Service researchers, partners journey to St. Matthew Island

by MARC D. ROMANO, MARIANNE APLIN *and* POPPY BENSON

On the cover: *Spring storm in the Great Basin in Utah. Larry Crist / USFWS*

Thinking and Conserving for the Long Term

I am sure most of us have seen those AT&T ads where an adult asks children what's better: faster or slower, more or less, two things or one thing?

They got me thinking of my own question: What's better: a long wait or short wait?

Well, of course, waiting a short time is better. Right?

Not in conservation. Conservation is about the long term.

Our job is to make sure wild things and wild places are around not just for us and our children, but for our children's children and even longer.

Unfortunately, we live in a world where fast is often better than slow, where more is usually better than less, where two are valued better than one, and where short-term thinking is more rewarding. Nowadays the stakes seem so much higher and long-term thinking is so challenging.

Less than 100 years ago, there weren't even 2 billion people on the planet. Now, we have more than 7 billion. By the middle of the century, we will be sharing this planet with 9 billion others, or maybe 11 billion.

No matter how you slice it, we humans are going to ask more of the planet: More food, more fiber, more fuel, more fresh water. Less will be available for the rest of what we call "biodiversity," the wild things.

That means we cannot expect tomorrow's world to have all of today's wild life, in all of today's diversity and abundance, and in all of today's places.

It also means that we will have to make active choices. We must decide what will come to the future with us, in what abundance and diversity, and in what places.

And we'll face the more challenging decision: What will not.

This doesn't mean we are giving up on some species. It just means that in many cases, we may not be able to prevent extinction.

We must make these decisions, thinking about the long term. We must ask ourselves: Can this species survive in the future and how? What will it need and what can we do to help it?

We were thinking long term recently when we tried to eliminate most commercial trade in polar bears at March's meeting of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The proposal fell short. Opposing countries said that trade is not a major issue and that polar bears are threatened by climate change. Certainly, a warming climate is the overpowering issue, but trade is a growing concern. And the world could have done something about it. Instead, CITES parties chose to value short-term thinking over the long-term survival of polar bears. Sad.

Long-term thinking is also behind our surrogate species effort. One species is the specific target of our conservation efforts — that gives us a goal and lets everyone clearly see conservation successes. But many other species also benefit.

For instance, since 1991, the Service and many partners have reintroduced thousands of the really cute black-footed ferrets into the wild. Protecting and conserving the prairie landscape for the black-footed ferret supports many other species that call the western grasslands and sage-steppe prairie home.

Most people may care only about the black-footed ferret (did I mention they're cute?), but we in the conservation community can appreciate the benefits coming to eagles and other raptors, mountain plovers, burrowing owls, swift fox, pronghorn, bison, several types of prairie grouse and more.

We are emphasizing conservation work that brings the biggest long-term return on our investment.

Surrogate species will also help us remain relevant in a world where two beats one, faster beats slower, more beats less. As people are more disconnected from nature, they seem more and more fascinated with wild life. If we choose the right conservation targets, the right surrogates, in the right places, people will support us.

Mollie Beattie, the first Service Director I worked for, once said, "There's only one conflict, and that's between short-term and long-term thinking." She got it right. Here's to playing the long game!

news briefs

Migratory Bird Program Grantee Wins Coveted Conservation Award

BirdLife International, a world-renowned organization and a grantee of the Service's Neotropical Migratory Bird Conservation Act, has won a BBVA Foundation Biodiversity Conservation Award for their Important Bird Areas program. BBVA, a Spanish foundation, gives this prestigious award to a single winner in Latin America each year, with a prize of 250,000 euros (about $325,000).

BirdLife is an organization of 117 conservation groups in as many countries. Its work on Important Bird Areas has recorded a whopping 2,345 biodiversity hotspots for birds in Central and South America. These hotspots help countries design habitat networks to protect the world's most diverse birdlife, "which is proving an invaluable aid...since birds are a key biodiversity indicator species," members of the prize jury noted. The jury went on to praise BirdLife for "proving a catalyst for new structures and organizations to work collaboratively on conservation issues across Latin American countries."

A biodiversity hotspot is an area with a large number of species. These species-rich areas provide important habitat and natural resources, particularly for wildlife struggling for survival. Identifying them can help prioritize areas to protect to help wildlife the most.

Important Bird Areas have helped show that Central and South America have the most avian diversity of any area on Earth. Many of these are migrants—of the 800 bird species in the United States, 500 migrate, the majority of them to Latin America and the Caribbean. The Neotropical Migratory Bird Conservation Act provides grant funding to conserve these species, and has funded BirdLife for the last nine years, putting more than $2 million toward the organization's critical conservation work. Because the act requires a 3 to 1 match of grant funds, this investment has leveraged an additional $6.5 million for bird conservation.

The Service's grant funds to this project, and the matching funds, helped BirdLife document the role of Important Bird Areas in conserving Neotropical migrants and helped to develop an online directory for the highest priority areas for conservation action. Grant funding also supported linking communities in Canada, Mexico and the United States to sites in South America to develop collaborative conservation projects and protect birds throughout their migratory journey. BirdLife will use the BBVA Foundation award to strengthen monitoring and conservation in and around Important Bird Areas that are at risk due to habitat destruction and other threats, and to further leverage funds from the act.

For more information

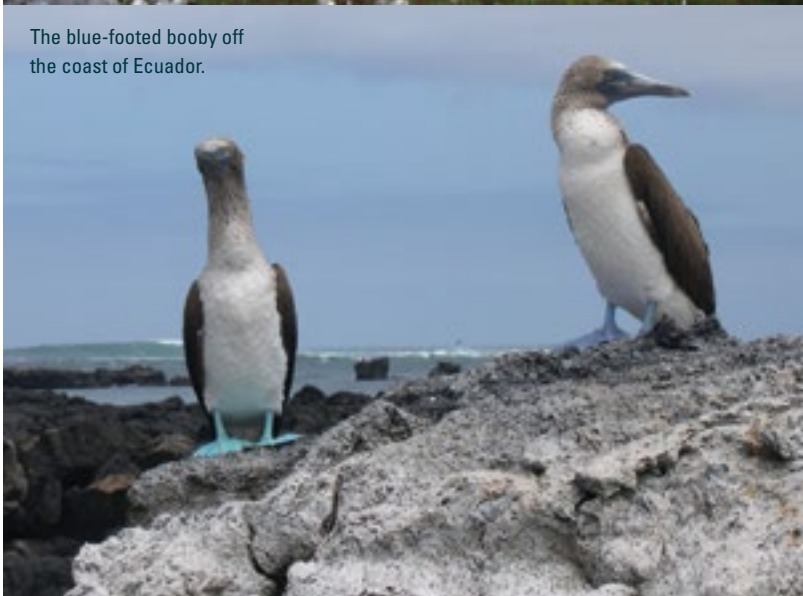
BBVA Foundation Award
<bit.ly/WjNQgA>

BirdLife International
<www.birdlife.org>

Neotropical Migratory Bird Conservation Act
<fws.gov/birdhabitat/Grants/NMBCA/

Puerto Rican Woodpecker

An Important Bird Area in Haiti in the Massif de la Selle provides a breeding area for black-capped petrels.



The blue-footed booby off the coast of Ecuador.

Wintering Habits of Burrowing Owls Come as a Surprise

Winter migration certainly doesn't mean a romantic getaway for burrowing owls—males and females don't even winter in the same place.

Burrowing owls are listed as endangered in Canada and as a species of special concern in the United States, where their distribution and numbers are shrinking. In order to more effectively manage the population and, hopefully, reverse the decline, biologists need to know more about the wintering habits of the owls. "You can't manage a species knowing half the story," says Service biologist Mike Gregg who described "gaps in knowledge" about when and where the owls winter and how many of them make the trip.

From 2009 to 2011, researchers from the Service, Global Owl Project and Environment Canada came together to begin to fill this gap. Ninety-three owls from Saskatchewan, Oregon and Washington were fitted with ultra-lightweight geolocators weighing less than a nickel—dubbed "owl backpacks" by the biologists. These units record ambient light levels every 10 minutes and helped determine the owls' winter distributions. The geolocators from 25 recaptured burrowing owls (15 males/10 females) held some surprising data for biologists.

Burrowing owls are formally endangered in Canada and of special concern in the USA. This map shows wintering distribution sites for 25 adult burrowing owls, based on geolocator data.

"The data showed us the owls don't all go south for the winter like we thought previously," says David Johnson, Director of the Global Owl Project. Nine of 10 female owls wintered in California (the other wintered in east-central Oregon). Only four of the 15 males wintered in California; a male from Saskatchewan wintered in south Texas. The remainder of the males wintered in east-central Washington; some of the Oregon owls actually moved north into Washington. One male (from Washington) stayed on its territory over the winter.

These results brought an "aha moment" for Johnson, who hypothesizes that most of the males stay close to home to secure a viable burrow and productive territory to attract returning females. "This is a major breakthrough in our understanding of owl migration," says Johnson, adding that knowing where the owls winter has conservation and management implications. "Now we know that these owls have a large capacity for movement, and we need to make sure we are thinking in terms of landscape-level conservation."

A crucial component for the landscape of burrowing owls is the presence of badgers, prairie dogs, ground squirrels or other mammals that create the burrows the owls use. While both Gregg and Johnson support the use of artificial burrows to help the owl population, they agree that a longer-term solution is to promote the health of the overall ecosystem owls inhabit. "Artificial burrows have been a success, but we need to think bigger," says Gregg. "Knowing where the owls go in the winter is one piece of the puzzle, and now we have to think about what is next."

So what's next for the backpacking owls? Both Gregg and Johnson answer with one word: satellites.

Geolocators can only give approximate locations (e.g., within a 50-mile radius of the actual location). To get detailed information on the owls' locations, 5-gram solar-powered satellite transmitters will allow researchers to track the owls in real-time. This kind of data contributes site-specific knowledge of the owls' wintering areas, migration pathways and habitats.

"Using satellite transmitters will help us gather data on owls in other regions to help us solve the migration mystery," says Johnson. □

AMANDA FORTIN, External Affairs, Pacific Region

ALFREDO COLON, COURTESY BIRDLIFE INTERNATIONAL

JIM GOETZ, COURTESY BIRDLIFE INTERNATIONAL

AMIRO PEREZ LEROUX, COURTESY BIRDLIFE INTERNATIONAL

OWL: GEORGE GENTRY/USFWS

MAP ILLUSTRATION: JANE PELLICCIOTTO, BASED ON MAP BY DAVID H. JOHNSON, TROY WELLICOME AND LINDSEY HAYES.

Career Awareness Toolkit Shows Students the Many Jobs in the Service

Anna Harris, the implementation coordinator of Conserving the Future, the 10-year strategic plan for the National Wildlife Refuge System, is an economist by trade and is at home in the world of computer presentations. But thanks to the Service's Career Awareness Toolkit (CAT), she is also comfortable introducing students to conservation careers, without the use of PowerPoint.

Developed in 2010 by the Service's National Conservation Training Center's Career Awareness Branch, the toolkit provides Service members with a collection of interactive games, exhibit resources, lesson plans, materials and ideas to promote careers in the Service.

Harris admits she is not well-versed in educational outreach and finds it very handy "to have this resource that I can just take out of the box—it makes it easy."

Harris uses the "Put a A Spin on Your Career" wheel and a "Guess my Career" Jeopardy board to show there are "more careers at the Fish and Wildlife Service than just a biologist," combatting a stereotype she says she hears a lot.

She says that even parents have been interested in her presentations showing such job possibilities in the Service as pilot, computer professional or environmental educator.

Students sometimes say, "Wow, I didn't know this," and Harris says she can point them in the right direction to get more information. "It's been really helpful," she says.

She has used the Jeopardy board at fishing camps and in local high school classrooms and the career wheel at a local middle-school Outdoors Day events.

Service employees can access the toolkit simply by typing CAT into a Service web browser. □

USFWS

Students practice removing birds from a net, from the Day In The Life of a Wildlife Biologist lesson plan of the toolkit.

USFWS

Shelly Belin of the Mescalero Tribal Fish Hatchery teaches students about conservation careers using the Career wheel.

Conservation Plan Keeps Edwards Aquifer Flowing

A kayaker navigates near Texas wild-rice, another endangered species covered by the EARIP HCP.

COURTESY OF THE EDWARDS AQUIFER AUTHORITY

For Texans suffering through the seventh straight year of drought, the summer of 1956 seemed especially brutal. Crops were on the verge of failing yet again, and livestock were struggling to survive on the parched range. Then the unthinkable happened. On June 13, Comal Springs, part of the Edwards Aquifer system, one of the largest freshwater springs in the Southwest and a key source of water, stopped flowing for the first time in recorded history.

Just this year, the Service and stakeholders began implementing a Habitat Conservation Plan that balances conservation goals for listed species while providing uninterrupted water supplies for more than 2 million Texans that rely on the Edwards Aquifer as their primary water source.

The Edwards Aquifer has been called an "underground river" that flows 180 miles through south-central Texas to emerge at the springs at Comal and nearby San Marcos. Clean fresh water has attracted the region's inhabitants for as long as people have been in Texas. Spanish missionaries reported large encampments of Native Americans when they first arrived at Comal Springs in 1691. The Edwards Aquifer also supports many unique flora and fauna such as the Texas blind salamander, confined to the aquifer's dark caves and subterranean waters for so long it has lost the need for eyes. Whooping cranes depend on the inflows from the springs of the Edwards Aquifer to maintain estuaries where they spend their winters on the Texas coast. The spring-fed Comal and San Marcos rivers also host the fountain darter, a small fish found nowhere else in the world.

For more than four months in 1956, the pools of water in the drying Comal riverbed slowly shriveled under the summer sun. Rain on November 4 brought the springs back to life. But by then, the fountain darters in the Comal River were gone. In the 1970s, fountain darters were reintroduced to Comal.

Concerned citizens and researchers began realizing that the Edwards Aquifer was like no other ecosystem. More than 40 native plants and animals are found nowhere else in the world. It was also becoming apparent that these species could face the same fate as the fountain darters at Comal Springs. Meanwhile, Texas' human population continued to grow, and the expanding cities, farms and industries began to exert greater demands on the water supply shared by the region's wildlife.

By the 1990s, some had become concerned that unregulated groundwater pumping coupled with another drought like that of the 1950s could spell disaster for the area's fish and wildlife. A series of legal battles ensued, and a federal court directed Texas and the Service to maintain springflows that would protect the area's unique native wildlife. Fifty years after the 1956 drought, in 2006, the Service invited interested parties to discuss approaches to the challenges of aquifer management to balance the region's water needs with those of listed species. The Edwards Aquifer Recovery Implementation Program (EARIP) was created to understand the needs of the area's growing population, requirements of listed species and the potential effects of a drought like the one in the 1950s.

The EARIP determined that current pumping volumes during a drought like the one of the 1950s would stop springflows at Comal Springs for more than 39 months. This would be a disaster not just for the area's wildlife but for the people and the entire south-central Texas economy that rely on this water.

Under the leadership of EARIP Manager Dr. Robert Gulley, the stakeholders built consensus around a plan in which all participants agreed to contribute water to protect the springs during drought, and they crafted the Habitat Conservation Plan to help secure the regional economy dependent upon the waters of the Edwards Aquifer while achieving recovery goals for listed species.

The EARIP and the Service are committed to this plan that ensures that the springs at Comal and San Marcos will continue to flow, and that species including the fountain darter and the Texas blind salamander will survive even if Texas experiences another drought like the one that caused Comal Springs to stop flowing on that hot summer day in 1956. □

KEVIN CONNALLY, Austin Ecological Services Field Office, Southwest Region

NOAA

CITES Parties adopted rules to protect manta rays.

CITES Meeting Ends With Support for Many U.S. Priorities

On March 15, 2013, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) wrapped up its 16th Meeting of the Conference of the Parties (CoP16) in Bangkok, Thailand. The conference was an overwhelming success, with approval for many U.S. proposals to increase protections for native and foreign species as well as to strengthen the implementation of CITES.

This meeting, which brought together representatives from more than 150 countries to discuss current issues in wildlife trade, marked a huge milestone in protection of sharks and manta rays. Colombia, along with the United States and Brazil, submitted a proposal to include oceanic whitetip sharks in CITES Appendix II to ensure that trade is legal and sustainable. This proposal as well as others to protect porbeagle sharks, three species of hammerheads and manta rays were all adopted.

Another victory at CoP16 was widespread protection for freshwater turtles. CITES Parties (member countries) voted to increase protections for 44 species of Asian freshwater turtles and tortoises and three species of North American turtles. The United States had jointly submitted with China two proposals to increase CITES protection for a number of Asian softshell and hardshell turtle species. These proposals were agreed to by consensus with strong support voiced by range states and non-range states.

To battle the ongoing ivory crisis, CITES Parties strengthened controls on ivory trade by creating an Ivory Enforcement Task Force, increasing monitoring and cooperative investigative actions regarding illegal ivory trade, and adopting a series of country-specific, time-bound actions for those countries acting as source, transit or consumer for illegal ivory trade.

Rhinos also received additional protection as CITES Parties agreed to a series of actions for both rhino range states and consumer countries to more effectively combat poaching and illegal rhino horn trade, including country-specific, time-bound actions particularly focusing on Mozambique and Vietnam.

The CITES Parties also agreed to add a number of timber species to the CITES Appendices. These include proposals put forward by Madagascar to list their native populations of rosewood and ebony and proposals by Belize to list three species of rosewood. These listings will strongly support the efforts of these countries to ensure that the international timber trade is conducted legally and in a sustainable manner.

In addition to the increased protection of wildlife, CoP16 passed several resolutions to clarify, simplify and strengthen CITES rules. These included the adoption of a resolution that makes CITES a more effective tool in preserving marine species.

Parties also adopted a proposal for the creation of a musical instrument passport program, making it easier for musicians to travel internationally with their instruments through the issuance of just one document.

CoP16 set a standard for international collaboration to successfully conserve wildlife. The U.S. delegates left the conference hopeful for the future, knowing that CoP16 marked a momentous occasion for wildlife conservation and international cooperation. □

CLAIRE HOOD, International Affairs, Headquarters

Opening Ceremonies of CITES CoP16.

Birds of a Feather Flock to National Wildlife Refuges

Some national wildlife refuges attract more birds from a single species than can be found anywhere else in the country or continent, according to data from the Christmas Bird Count, the National Audubon Society-sponsored event involving tens of thousands of volunteers across the country.

Results from the 2011–12 count were published by Audubon in the journal *North American Birds* and confirm refuges' important role in protecting habitat for birds.

Take snow geese, for example. Nowhere in North, South or Central America could you find more snow geese between December 14, 2011, and January 5, 2012, than the 490,000 tallied at Squaw Creek National Wildlife Refuge in western Missouri.

Tundra swans? Nowhere were more spotted than the 37,000 counted in that same period at Mattamuskeet Refuge in coastal North Carolina.

Ditto for the 30,000 sandhill cranes counted at Muleshoe Refuge in west Texas, the 12,500 ring-necked ducks at White River Refuge in Arkansas, and the 3,600 red-throated loons at Back Bay Refuge along Virginia's southeastern coast. And on it goes.

All told, Audubon lists 70 bird species for which country-high or continent-high counts were recorded in areas wholly or partly occupied by national wildlife refuges.

Waterfowl and wading birds aren't the only migratory birds to benefit from refuge protection, the count shows. Refuges also recorded national-high counts for birds of prey such as falcons and hawks; galliformes such as turkey and grouse; pelagic seabirds including petrels, albatross, shearwaters, boobies and tropicbirds; shorebirds such as plovers, sandpipers and dowitchers; and passerines such as blackbirds, jays and flycatchers.

Bird migration is an ever-changing dynamic affected by shifts in climate, habitat and food availability, and early reports from the 2012–13 Christmas Bird Count suggested the picture is changing. Some refuges with high species counts in 2011–12 reported lower numbers after two and a half years of drought. Quivira Refuge in Kansas, for example, counted 1,000 snow geese in the most recent count, down from 4,000 in 2011, 25,000 in 2010, and 111,000 in 2009.

Barry Jones, visitor services specialist at Quivira Refuge, is wary of blaming any one cause, though. "It could be there aren't that many birds in the region, or they would be here. It could just be a matter of timing. There could be birds to the north of us that haven't come through. There are so many factors." □

Get information on the Christmas Bird Count: <birds.audubon.org/christmas-bird-count>

USFWS

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Snow geese gather at Squaw Creek National Wildlife Refuge in Missouri.

Building FOR THE Future

In the face of landscape-scale stressors, Refuge Manager and wildlife biologist Bill Radke knows the future is now for threatened habitats.

Bill Radke, refuge manager of the San Bernardino and the Leslie Canyon National Wildlife Refuges in the southwest borderlands, assisting with research on the rare gila monster lizard.

Tanned, blonde and rugged—think part California surfer, part Western cowboy—Bill Radke has a love affair with the environment and a mission to protect it. Wearing his official uniform, a camera bag slung over his shoulder and a disarming sense of humor, he is all suited up for a day's work in southern Arizona's Cochise County.

BILL RADKE/USFWS

A Service officer and Border Patrol agent talk with a suspect.

That work could be anything from monitoring wildlife trends with digital photography, to collaborating with local ranchers on restoring wetland habitat, to seeking cooperative solutions in a border region where landscape protection and national security interests sometimes clash. It helps that Radke, an ecologist and manager with the Service for three decades, is also a sworn officer of the law. "We want to get the bad guy—but do it in an environmentally sensitive way," he says.

Radke is in charge of the San Bernardino National Wildlife Refuge and the Leslie Canyon National Wildlife Refuge in the small Rio Yaqui watershed, which bumps up against the U.S.-Mexican border at Sonora. The Service acquired these lands in the 1980s to catch and store precious water resources and provide habitat for eight species of native fish, some of which are federally listed as threatened or endangered.

For thousands of years the valley wetlands have attracted a variety of creatures—some with fins, some with four legs and some with two. A large colony of lesser long-nosed bats live in the adjacent mountains and visit the watershed nightly to feast on flowering agave plants. More than 355 documented migratory birds have dropped by to quench their thirst and refuel their batteries en route to cooler points north.

An occasional endangered ocelot or jaguar wanders over the border to spend a little time on the refuges, and several of their non-endangered cousins, including mountain lions and bobcats, call the refuges home. Radke and his science-based management team use non-invasive digital trail cameras to document the passage of these and other mammals through the U.S.-Mexican corridor.

As for human traffic, "This was a very important trade route," says Radke, recalling the region's colorful past. "You can find seashells from the Sea of Cortez that certainly didn't get here on their own."

Long before Francisco Coronado, the Spanish conquistador, arrived with his army in 1540 to seek the fabled Seven Cities of Gold, the fertile watershed was a major passage for migrating tribes of Native Americans. Apache leader Geronimo used the valley as an escape hatch in the 19th century—jumping back and forth between jurisdictions when U.S. and Mexican armies were both in hot pursuit.

HUMBERTO RODRIGUEZ

Climate Change

Tough as he was, Geronimo eventually surrendered to U.S. authorities. Today southern Arizona faces a more intractable challenge. "Climate change wasn't on my radar screen when I came here 12 years ago," says Radke. For a dozen years, he and his team have been monitoring the groundwater, and the data are disconcerting. Water flowing in Leslie Creek through Leslie Canyon during the month of June relies on precipitation that fell on the Chiricahua Mountains the previous winter, and the decline in groundwater matches the decline in mountain snowfall. Winter snowstorms still turn the mountains white, but the snow melts quickly, and there hasn't been a been a significant snow pack for the last decade. As a result, the aquifers are not recharging sufficiently to sustain the watershed. The stream that used to serve up liquid refreshment to wildlife at the Leslie Canyon Refuge all year round now runs dry except immediately after a thunderstorm.

Science-Based Management

Science-based management requires making critical decisions in the face of uncertainty and incomplete information, and Radke and the Service are aggressively moving in that direction. In a world of accelerating climate change, the Service aims to conserve habitats on a significantly larger scale and at a considerably faster rate. Ensuring a bright future for fish and wildlife in the face of widespread environmental threats will require conservation efforts by many different individuals, agencies and organizations at a landscape scale. Scientists and conservationists will work together to develop new approaches to scientific modeling and forecasting, test them in action, learn from experience, and continually improve.

"The world has changed over time. We know this from fossil records, so we can't lock ourselves into thinking that everything will always be the same," says Radke. "The Service's emphasis on reinvigorating science through science applications, refuge inventory and monitoring programs, and similar efforts are helping reduce scientific uncertainty and help people deal with change, which tends to be a struggle for humans."

He worries that, as a society, we tend to get caught up in the blame game—a dangerous distraction at best. "We should be focusing on how we can be adaptable enough to survive changing patterns and trends instead of debating whether or not climate change is manmade or whose fault it is," says Radke.

Humor helps when it comes to finding common ground among divergent interest groups. As a boy, Radke was the class clown. As an adult problem-solver, he finds that poking gentle fun during a group presentation or one-on-one encounter diffuses the tension in the room and helps to personalize the conversation.

Win-Win Solution

Climate change is a long-term issue, but for threatened habitats the future is now. A plan underway in Leslie Canyon is a promising model for environmental collaboration elsewhere. When the water began drying up in Leslie Canyon, the Service collaborated with upstream landowners to protect threatened fish species. "Refuge planners didn't just establish a protected area and put a fence around the boundary. They were visionary in encompassing the whole watershed, and they viewed it as an entire landscape instead of just the occupied habitat for these endangered fish," says Radke.

The Service owns about one-tenth of the Leslie Canyon Refuge boundary acreage, which was essentially the occupied habitat for the fish. The remaining upstream land is privately owned. Over the last 12 years, the Service has purchased conservation easements on those private lands to make sure that habitats are available for these species within the entire acquisition boundary of the refuge.

"It lets the Service have some control over the destiny of these fish, but it also gives landowners control over their own destiny. It isn't this clash between 'I want to ranch' or 'I want to protect endangered fish,'" says Radke. If the species continue to decline, the Service can move the fish onto private lands with available water in the form of stock tanks, springs, lakes or ponds—most of which were originally constructed for livestock management. This positive collaborative relationship with others has led to a win-win formula for landscape conservation and endangered species recovery. □

SOUTHWEST REGION SCIENCE APPLICATIONS AND NWRS

Radke and Arizona Game and Fish Biologist Sharon Lashway working a pool in Rucker Creek.

C. LOHRENGEL / USFWS

RISING TO THE CHALLENGE OF CLIMATE CHANGE

The *National Fish, Wildlife and Plants Climate Adaptation Strategy,* released in March, is the nation's first strategy to help public and private decision-makers prepare for and reduce the impacts of climate change on species, ecosystems, and the people and economies that depend on them.

The strategy is intended to guide the nation's efforts over the next five years to respond to impacts of climate change on our natural resources including: changing species distributions and migration patterns, the spread of wildlife diseases and invasive species, the inundation of coastal habitats with rising sea levels, changing productivity of our coastal oceans and changes in freshwater availability with shifting precipitation and habitat types.

The strategy, designed to give decision-makers the tools to consider and respond to climate change as part of their ongoing activities, identifies seven key steps to help safeguard the nation's fish, wildlife and plants in a changing climate:

- Conserve habitat to support healthy fish, wildlife and plant populations and ecosystem functions;
- Manage species and habitats to protect ecosystem functions and provide sustainable cultural, subsistence, recreational and commercial use;
- Enhance capacity for effective management;
- Support adaptive management through integrated observation and monitoring and use of decision-support tools;
- Increase knowledge and information on impacts and responses of fish, wildlife and plants;
- Increase awareness and motivate action to safeguard fish, wildlife and plants;
- Reduce non-climate stressors to help fish, wildlife, plants and ecosystems adapt.

"For years, hunters and anglers across the country have been telling the Theodore Roosevelt Conservation Partnership that we need to address climate change head on. The National Fish, Wildlife and Plants Climate Adaptation Strategy offers the kind of prudent action that Theodore Roosevelt himself would have demanded to deal with climate change," said Whit Fosburgh, president and CEO of the Theodore Roosevelt Conservation Partnership. "Roosevelt would have used his bully pulpit to tell us that this strategy needs to be implemented—not tomorrow, but now."

The strategy's development was guided by an innovative partnership of federal, state and tribal fish and wildlife conservation agencies in response to a 2010 call by the U.S. Congress for a national, government-wide climate adaptation strategy to assist fish, wildlife and plants, and related ecological processes in surviving the impacts of climate change. More than 90 researchers and managers from natural resource management agencies across the country participated in drafting the strategy.

The partnership was co-led by the Service, the Department of Commerce's National Oceanic and Atmospheric Administration and the New York State Department of Environmental Conservation (representing state fish and wildlife agencies). An intergovernmental steering committee that included representatives from 15 federal agencies, five state fish and wildlife agencies, and two inter-tribal commissions oversaw development of the strategy with support from the Association of Fish and Wildlife Agencies.

The National Fish, Wildlife and Plants Climate Adaptation Strategy can be found on the web at **www.wildlifeadaptationstrategy.gov**

DAYLIGHT

Bringing Climate Data Out of the Dark in California

You're a land manager trying to figure out how soon sea level rise will put your bay-front hiking trail under water. Or you're an agricultural planner researching what kind of crops a particular plot will support in the future, given climate-driven changes in rainfall. Where do you turn for information?

The California Climate Commons aims to be the go-to library, data repository and online forum for planners, land managers and scientists who need up-to-date climate change data and analysis. "We want to make the information easy to navigate, transparent and responsive to changing needs," says Deanne DiPietro, project lead for the Commons, which is based at PRBO Conservation Science's office in Petaluma, California.

As shelves groan with new research reports and servers swell with terabytes of data on everything from groundwater movement to bird distribution, the need for someone to organize the research, put it in context, and make it available in formats data users need was increasingly obvious. So the California Landscape Conservation Cooperative (Cal LCC) in mid-2011 booted up the Commons.

While scientists will find this information hub useful, it's aimed primarily at practitioners who need to make on-the-ground decisions about land acquisition, restoration design and regulatory policy changes. The creators of the Commons hope it will become a digital watering hole where researchers and land managers exchange information and analysis so they actually shape decision-making. As a funder of climate research, the Cal LCC wants to make sure that its investments in science get as widely used as possible.

climate.calcommons.org

DiPietro and the rest of the five-person team who spend time managing the Climate Commons don't just organize and index datasets and reports. They write guides to explain issues of data scale and resolution, and detail the differences among climate models. The Commons also hosts datasets —providing the physical server and architecture for storing and disseminating information. In other words, it provides the virtual shelf space for information, as well as the card catalog and reference librarians.

DiPietro says that the more users participate in uploading data and discussing technical issues on the site's forums, the more valuable the Commons will become. "We hope to build a community of practice, and the library is just one piece," she says.

Tom Robinson, a planner at the Sonoma County Agricultural Preservation and Open Space District, used information from the Commons to help recommend sites for preservation that will provide the greatest ecosystem benefits, given expected changes in the climate. He needed to get a sense of what the habitat, precipitation and groundwater conditions in the vicinity of certain parcels are now—and what they are likely to be in 50 years.

Through the Commons, Robinson got this information from the California Basin Characterization Model, which was created by Lorraine and Alan Flint of the U.S. Geological Survey and published by the California Energy Commission.

Now, anyone with an Internet connection can access the data and find historic patterns as well as projections from four future climate scenarios. Robinson says that "breaking down research silos" is what is exciting about the Commons. By meeting up in the ether, researchers and practitioners can collaborate more effectively to make good decisions on the ground.

SUSAN K. MOFFAT, California LCC

kids' WORLD

Connecting Children with Nature across the Globe

by VALERIE ROSE REDMOND

Above left: Ben Faulks stars in *Mr. Bloom's Nursery*. Above right: *Andy's Wild Adventures* is popular online as well as on TV.

Everywhere you look, you see efforts to engage children with nature. This is particularly important because a lack of outdoor activity has been linked to a childhood health crisis with climbing rates of obesity, Type 2 diabetes, attention deficit-hyperactivity disorder and depression. Research shows that a connection to nature contributes to human health and well-being. When children experience the outdoors before age 11, it shapes their attitudes about nature as adults.

The Service's Connecting People with Nature Working Group is hard at work on efforts to interest children in nature and outdoor activity. The group's national strategy focuses on goals ranging from communicating with external audiences to building partnerships and leveraging resources to encourage people of all ages to get outdoors.

Decision-making based on this disconnect to the natural world will undoubtedly have ramifications, as Richard Louv notes in his book *Last Child in the Woods*. The education of coming generations is key to conservation's future, another reason engaging children is so critical.

The United States is not alone in facing this problem. It is a global problem—with planetary issues such as changes in climate and animal migration, disappearing pollinators, contamination, human population growth, and the acidification of lakes, oceans, rivers and streams—and countries everywhere are trying to bring kids to nature.

One example is Britain, where an award-winning TV programmer is taking on the disconnect.

Kay Benbow, head controller of CBeebies, BBC's preschool children's channel, is making noteworthy conservation headlines with her content selections.

To engage the minds of very young children, her shows pair education and entertainment. "I'm particularly passionate about the very young," Benbow says, "because I think if you give children the very, very best when they are very small, then it gives them an expectation of what's good, what's quality." And several of Benbow's shows focus sharply on nature.

Awarded the British Academy of Film and Television Arts Award (analogous to the Emmy Award) for children's channel of the year for two consecutive years, Benbow's CBeebies has found a strong audience.

Andy's Wild Adventures, one of Benbow's wildlife shows, opens up a whole new world for young viewers. By using green screen technology and archive footage from BBC's Natural History Unit, series host Andy Day races around the world to interact with animals of all types, many of which are endangered.

In one wildlife adventure, Day shrinks down and travels to Yellowstone National Park to watch otters. In other episodes, Day observes a Chacma baboon and he travels to the Galapagos Islands in South America in search of giant tortoises.

"What's so lovely [is] because you're featuring animals from all over the world," Benbow says, "you're opening up all the different areas to the preschool audience." The series also has an online offering, and both have been enormously successful.

"There's such a lot for them to take in. I think that's also why it repeats so well," Benbow says. "And because you have a web offering for them to go to as well, it gives them the opportunity to explore and take in facts. And hopefully be inspired to go and find out more."

Another successful CBeebies show commissioned by Benbow is *Mr. Bloom's Nursery*. The series features actor Ben Faulks as a happy gardener who helps children to get in touch with and inspired by nature with the help of smiling vegetable puppets.

Benbow understands the impact that exposure has on the young mind. At age 3, she remembers connecting with a series in the United Kingdom called *Play School*, the first color children's television series on BBC. "I just remember sitting watching it and thinking it was for me. It wasn't for my mom, it wasn't for my dad, it wasn't for my gram, it wasn't for adults. It just connected with me."

Stateside is no different. Connecting people with nature is an official priority for the Service. In *Last Child in the Woods*, Louv says that when they have little or no direct connection with nature and feel separate from the world, people can feel fear, apathy, disregard for and discomfort with nature.

The Service established the Connecting People with Nature Working Group in 2008. In 2010, it aligned with the Department of the Interior Youth in the Great Outdoors initiative and added career awareness, networking, materials development and training. The initiative focuses on contact with the next generation of conservation leaders in the regions and field offices across all programs.

The Service's Midwest Region has adopted several effective strategies designed to ensure the future of conservation. One program engaged students from the University of Missouri School of Journalism in a partnership to develop a targeted advertising campaign designed to reach the young adult market. Dubbed Mojo, the program was spearheaded by Ashley Spratt in the External Affairs Office and made huge strides. To learn more about this effort visit: <go.usa.gov/gx6d>.

Another method making a big splash in the Midwest is seasonal festivals. Jordan River National Fish Hatchery's Fall Fest drew in crowds of children and their parents <www.fws.gov/midwest/fisheries/fishlines/feature5.html>. Similarly, the horse-drawn sleigh rides, snowshoeing, scavenger hunts and bonfires at the annual Winterfest at Sherburne National Wildlife Refuge continue to attract countless families, as well. To learn more visit: <go.usa.gov/ga99>.

The Prairie Wetlands Learning Center in Minnesota<go.usa.gov/g96Q> has huge success with its environmental education programs.

The Service's 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation shows the success of efforts to connect people with nature, whether through family nature clubs, outdoor discovery areas, career awareness activities, and more. The survey found that more than 90 million U.S. residents 16 and older participated in some form of wildlife-related recreation in 2011, up 3 percent from five years earlier. Hunters nationwide increased 9 percent while anglers grew 11 percent.

It's too early to tell, but the efforts from the Service's Connecting People with Nature priority, the BBC nature-oriented children's programs, and support from other countries may well result in children all over the world engaged with the excitement and wonder of nature.

VALERIE ROSE REDMOND, External Affairs, Midwest Region

THE MOST REMOTE PLACE IN ALASKA

Service Researchers, Partners Journey to St. Matthew Island

by MARC D. ROMANO, MARIANNE APLIN *and* POPPY BENSON

The Alaska Maritime National Wildlife Refuge is home to some 40 MILLION NESTING SEABIRDS and represents the very vision of wilderness. Its 3.4 MILLION ACRES encompass 2,500 FAR-FLUNG ISLANDS reaching from the "panhandle" of southeast Alaska, west to the tip of the Aleutian Islands, and north beyond the Arctic Circle to the frozen shores of the Chukchi Sea. Lonely St. Matthew Island stands out as not only the most remote island on the refuge but the most remote location in Alaska. »

THE CLOSEST CIVILIZATION TO ST. MATTHEW IS

the Cu-pik Eskimo village of Mekoryuk (pop. 191) more than 200 miles away on Nunivak Island. That's about the same distance as from Boston to New York City, but traveling from Mekoryuk to St. Matthew you won't cross a single road, see a single house or likely see another human.

Last July, an interdisciplinary team of 13 researchers boarded the Service vessel R/V Tiĝlax̂ bound for St. Matthew to conduct intense seabird and other surveys—appropriately termed a "bioblitz." Owing to the location, refuge staff only visit the island, as well as two smaller islands nearby, Hall and Pinnacle, about every five years. This recent visit by the researchers was patterned loosely after an 1899 expedition to St. Matthew Island.

Wealthy railroad tycoon Edward Harriman funded an Alaska expedition that year on a retrofitted steamship. To plan it, Harriman turned to C. Hart Merriam, the first chief of the Division of Economic Ornithology and Mammalogy, the Service's predecessor. Merriam put together a group of world renowned scientists, artists, photographers and naturalists (including John Muir, George Bird Grinnell, William Dall, John Burroughs and Louis Aggasiz Fuertes) to explore and document the trip along Alaska's coast and on to Siberia. One of their stops was St. Matthew Island, and their accounts helped persuade President Teddy Roosevelt to protect the three islands as the Bering Sea Reservation, one of Alaska's first wildlife refuges.

Last summer's expedition also assembled a world-class crew of scientists and sailors, and the severe and unpredictable Bering Sea weather became the first challenge.

Fog grounded them for several days in Anchorage and once the ship reached St. Matthew, expedition participants had to wait two days for rough seas to calm so they could land.

Nearly a million seabirds nest on Hall Island, which is a long-term seabird monitoring site for the refuge. Fulmars, puffins, auklets, cormorants, kittiwakes and murres called from their steep cliff nests to greet the landing party, while others swarmed to the sea and back on feeding forays, unconcerned about the new arrivals.

Hall's nesting colonies have been counted approximately every five years since 1983, and the data show that nearly all seabird species have experienced population declines. Data collected on this journey should help provide clues to the current status of seabirds, which may be particularly vulnerable to climate change.

Despite the July arrival, ice still hugged parts of the rugged coastline of St. Matthew, while the island itself offered a spectacular display of brightly colored flowering plants. The island is a plant collector's dream, and the team's botanist (Monte Garroutte, a graduate student at the University of Alaska, Fairbanks) kept very busy. Garroutte managed to collect and identify 227 species, including an iris that has never been recorded on St. Matthew. His collections from Hall Island are believed to be some of the first plant specimens ever obtained from that island. Other researchers on the team conducted surveys for voles, fish and invertebrates.

Although the islands are uninhabited today, that hasn't always been the case. Dennis Griffin, an archaeologist with the State of Oregon Heritage Program who has extensive experience working in Alaska, accompanied the biological researchers to the islands. His investigations focused on what is believed to be a 400-year-old house site used by the Thule people and a separate house site believed to be used by an 1810 Russian fur hunting expedition. Both sites yielded important artifacts including pottery, bone tools and animal remains that will help confirm details of the occupation of these sites. Interestingly, one of the historic sites was discovered rather unexpectedly, right next to the team's camp site. Apparently a good camp site centuries ago is still a good camp site these days.

Despite the lack of a human population on the islands, the team was never completely alone. Arctic and red foxes greeted visitors with a watchful eye. The fox species and the St. Matthew singing vole are the only year-round terrestrial mammals found there today. Island isolation breeds species found nowhere else. Known as endemics, the St. Matthew Islands have two such species, the singing vole and McKay's bunting, one of North America's rarest songbirds.

Dr. David Klein, professor emeritus at the University of Alaska, Fairbanks, is working on reconstructing St. Matthew's past. He has visited the island six times during the last 55 years and on this visit studied geology, climate and paleo-environment, and their influence on the wildlife community. He hopes evidence from this trip will provide a window into the distant past, the last Glacial Maximum. During that period, these islands were not so isolated, since the lower sea levels connected St. Matthew to both the Asian and North American mainlands.

Studying such a remote place represents a considerable investment of people, effort, time and money, and from the beginning this expedition was planned to include as many research partners as possible.

The Alaska Maritime Refuge is unique among refuges because it was created in part to support an international science program. The 2012 St. Matthew Expedition is an example of how the refuge facilitates collaborative scientific research, using the R/V Tiĝlax̂ as a platform to access such unique wild and remote islands. Scientific expeditions like this help track the health of the refuge, while providing the information needed for effective management of this important resource. □

MARC D. ROMANO, MARIANNE APLIN and POPPY BENSON, Alaska Maritime National Wildlife Refuge, Alaska Region

PREVIOUS OVERLEAF: MARC ROMANO/USFWS

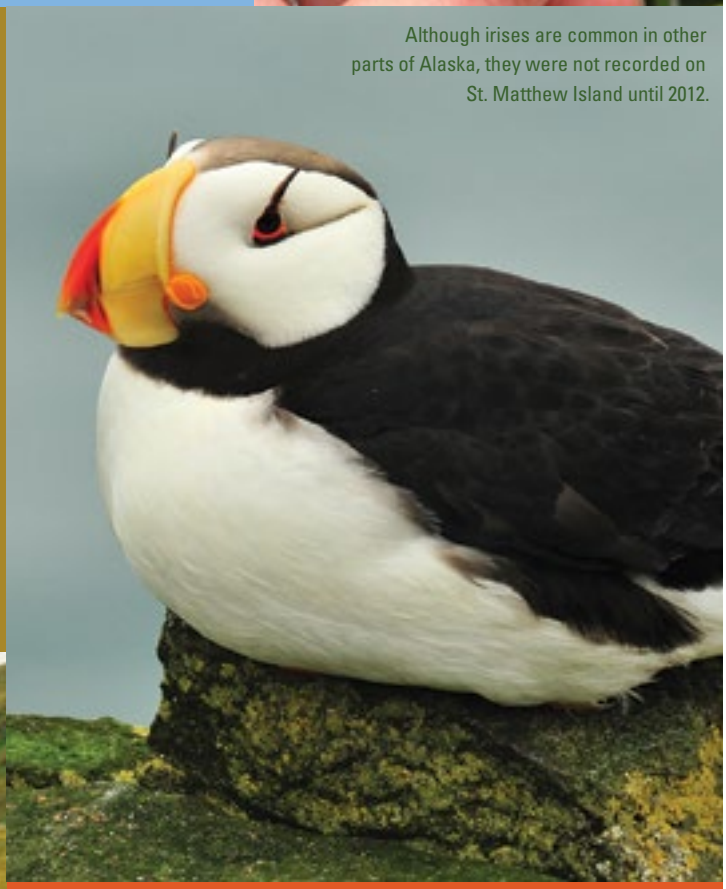
MONTE GARROUTTE

Although irises are common in other parts of Alaska, they were not recorded on St. Matthew Island until 2012.

In The Footprints of Polar Bears

"We landed on St. Matthew Island early on a cold gray August morning, and judge our astonishment at finding hundreds of large polar bears...lazily sleeping in grassy hollows, or digging up grass and other roots, browsing like hogs.

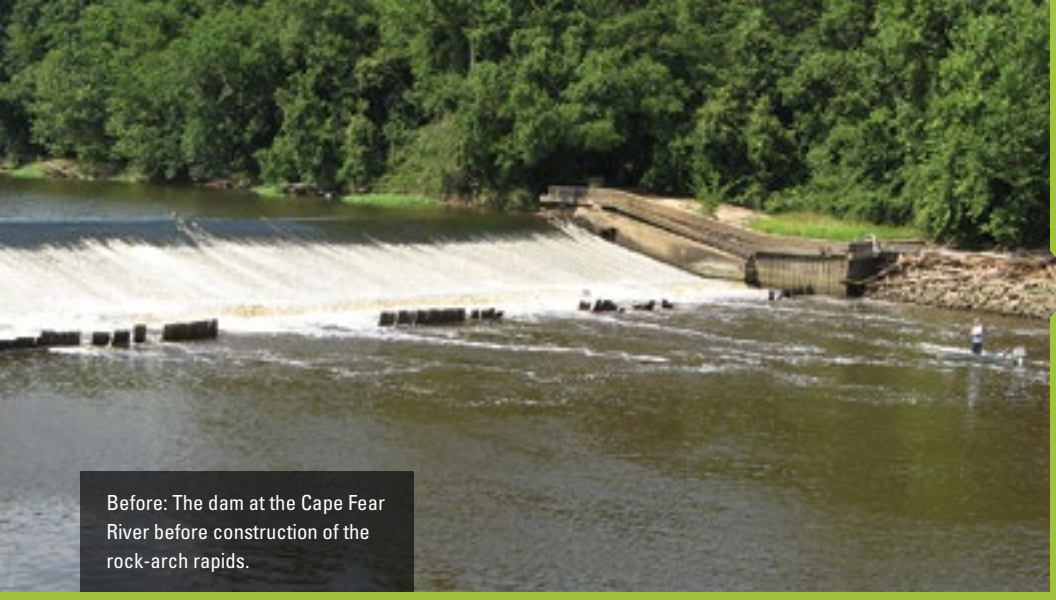
HENRY WOOD ELLIOTT 1875



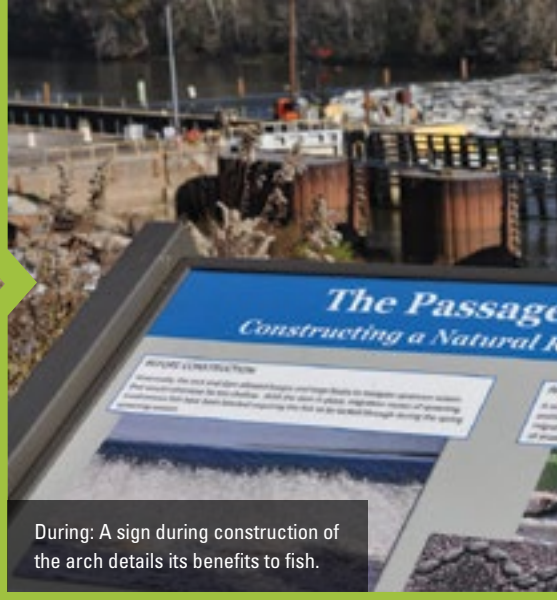
USFWS

Dr. David Klein (left) checks out an old polar bear trail on St. Matthew Island. In the later part of the 19th century, St. Matthew Island was home to an estimated 250 polar bears. These polar bears were unique because, unlike the bears to the north that follow the pack ice as it retreats during the summer, these bears spent summer on the island. Sadly, the polar bears of St. Matthew Island were killed off during the 1890s, but their trails are still visible today, etched into the landscape.

The horned puffin is one of the most easily recognizable birds of St. Matthew Island. Their striking bills and black and white plumage are unmistakable.



Before: The dam at the Cape Fear River before construction of the rock-arch rapids.



During: A sign during construction of the arch details its benefits to fish.

LET THE RIV

A river restoration project that started as a way to help migrating fish like the federally listed shortnose sturgeon and Atlantic sturgeon and game fish like shad and striped bass has evolved into a powerful tool for economic development and community revitalization on the Cape Fear River in North Carolina, 40 miles northwest of Wilmington.

The Cape Fear River Basin is the largest in the state, covering 9,322 square miles and 6,049 linear stream miles. It is one of just four basins entirely within the North Carolina state boundaries. It flows southeast from the north central Piedmont region of the state, near Greensboro, to the Atlantic Ocean near Wilmington.

And it was on the Cape Fear River, in southern Bladen County, that the U.S. Army Corps of Engineers built a $13 million rock-arch rapid across the face of Lock and Dam No. 1 with federal Recovery Act funds. Construction started in June 2011 and was completed in November 2012.

This structure, a collection of strategically placed rocks and boulders, retained the original structure and purpose of the dam while creating a way for fish to get over the dam, including pools where fish can swim and rest at their own pace while moving upstream to spawn. This innovative approach to fish passage is an improvement over fish ladders and other engineered solutions because it looks (to a fish) like a natural shoal on the river.

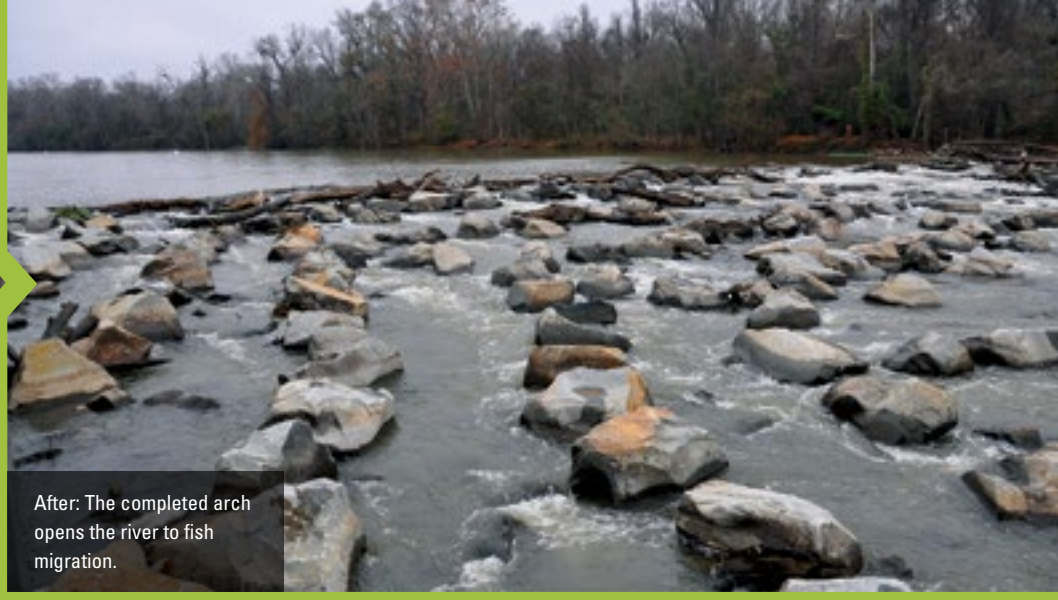
Redesigning the dam to emulate nature is redefining the role of the Cape Fear River as a working river. The lock and dams on the Cape Fear River were built between 1915 and 1935 to promote commercial navigation. Today, the river is no longer a route for commercial traffic, but cities and businesses benefit from the water supply pools created by the lock and dam systems.

Captain Doug Springer, former executive director of Cape Fear River Watch, remembers one of his first initiatives in 2006–2007—to start an awareness campaign for river restoration and find consensus on how to accomplish that restoration. "We wanted to open fish passage, but taking down the dam wasn't going to happen and people were going to tug forever. We were under drought conditions, so the water intakes were needed. Taking the dams out was not a conceivable option."

William Kopp, chairman of the Lower Cape Fear Water and Sewer Authority, explains that Brunswick, Hanover and Pender counties get raw drinking water behind Lock and Dam No.1. "Taking down the dams would have been extremely detrimental. The rock-arch rapid is a win-win for both the environment and maintaining the water supply for half a million people," says Kopp.

Building rock-arch rapids supports the aging dams, maintains water supply and allows migratory fish to swim over the dams. The North Carolina Division of Marine Fisheries conducted a tagging study while the rock-arch rapids were under construction and found three total

LEFT: U.S. ARMY CORPS OF ENGINEERS, MIDDLE + RIGHT: JOSHUA RAABE



After: The completed arch opens the river to fish migration.

VER RUN

Water in motion, an unstoppable force for change and inspiration

fish, one American shad and two striped bass, swam over the dam at Lock and Dam No. 1 on their own. For the next two years, North Carolina State University will evaluate fish passage over the redesigned Lock and Dam No. 1 with a primary focus on anadromous fish migrations in the spring. Additional efforts are underway to explore the possibility of a fall migration for sturgeon.

"For us at the Fish and Wildlife Service, the benefits of the rock-arch rapids to fish are unbeatable", says Mike Wicker, Coastal Program coordinator for the Service. Conservation partners would like to build two more rock-arch rapids at Lock and Dams No. 2 and No. 3 to reestablish fish stock in the Cape Fear River basin at Elizabethtown and Fayetteville respectively, Wicker says. Partners are seeking funding from state, federal and private sources, he adds.

"The Service's Coastal Program restores migratory fish stocks to historical levels by allowing fish to reach their former spawning areas. The Coastal Program also works to preserve and enhance the coastal environment that helps define North Carolina. These actions benefit both nature and the state's economy through enhanced outdoor recreation and tourism," Wicker says.

Captain Jot Owens, an outfitter specializing in fishing trips, explains that fishermen are excited about the arch rapids because opening the Cape Fear River to striped bass migration will turn the river into a year-round fishing destination. "Striped bass is a winter fishery, so it will fill the tourism industry gap from January through March for local businesses like hotels and tackle shops," Owens says.

Captain Charles Robbins with Cape Fear River Adventures offers guided canoe and kayak trips. Robbins has seen increased business since the word got out about the rapids.

Springer, who now runs a business called Wilmington Water Tours, takes people up the river through the lock and dams in a Catamaran. He says, "The restoration is an inspiration for us and the people that come here. The business is growing even in tough economic times," he adds. "When I show the river and the rapids to visitors, they go back home ready to move here," Springer says.

Indeed, people are moving to the area. According to the North Carolina Office of State Budget and Management, growth rates in Brunswick and New Hanover counties are among the highest in the state.

Expanded environmental, recreational and educational opportunities will benefit most directly the town of East Arcadia, near Lock and Dam No. 1 in Bladen County. Every spring, this community celebrates its heritage at the Cape Fear River Shad Festival. Maybe this year, as people eat fried shad, steamed roe and hush puppies, they will look over the river and count how many of the American shad returning to the Cape Fear River make it through the rapids.

LILIBETH SERRANO, Public Affairs Specialist, Southeast Region

KEMP BURDETTE, executive director for the Cape Fear River Watch, collaborated on the story.

Service biologists at the Leadership Institute: Megan Cook (from left to right), Dominic Bachman and Liisa Schmoele.

by LIISA SCHMOELE, MEGAN COOK *and* DOMINIC BACHMAN

A Lifetime Investment

The Wildlife Society's Leadership Institute

Last year, three Service biologists were among 10 early-career professionals selected to participate in The Wildlife Society's Leadership Institute, a leadership development program geared toward biologists at the beginning of their careers. The Leadership Institute (LI) launched in 2006 to help prepare up-and-coming biologists to fill leadership roles and positions vacated in the mass retirement of managers forecast for the coming years. The three were Dominic Bachman from Modoc National Wildlife Refuge in California, Megan Cook from the Office of the Science Advisor at Headquarters and Liisa Schmoele from the Arcata Fish and Wildlife Office in California. They participated in a variety of assignments from May until October 2012 that culminated at The Wildlife Society's Annual Conference in Portland, Oregon. This is their story:

Our six months in LI were challenging yet well worth the effort. We read books, interviewed distinguished wildlifers for the Conserving Our Wildlife Conservation Heritage Program and delved into issues important and relevant to the wildlife field.

One of Liisa's favorite assignments was to lead a discussion on a leadership issue of interest. It was slightly overwhelming at first, given that this was only our second assignment and Liisa was not accustomed to thinking about leadership issues, much less leading a discussion on one! She happened to read Anne-Marie Slaughter's article in The Atlantic around the same time ("Why Women Still Can't Have It All") and a light bulb went off. Liisa held a conversation with Amy Salveter and Kelly Srigley Werner of the Service and Esther Stroh with U.S. Geological Survey about why the wildlife conservation field has so few women in leadership positions and how to improve recruitment of women leaders. It was amazing to speak candidly with these women about their experiences and to realize that at one point, all of them had been in the same place Liisa is in now. Liisa carried this theme through the remainder of her assignments as well as her current involvement as a mentor and in working groups.

For the same assignment, Megan led a discussion on barriers to the wildlife profession, focusing on our current model of having to accept low-paying or unpaid positions to obtain the necessary experience to enter the profession. Individuals from minority groups disproportionately come from economically disadvantaged backgrounds and are therefore less likely to be able to take an unpaid internship. This critical issue is missing from the conversation. Megan also received insights on this topic through her Heritage program interview of Dr. Mamie Parker, retired Assistant Director of Fisheries and Habitat Conservation for the Service. Dr. Parker said we need to remember that it is lonely to be a pioneer and, along with recruitment, we must work on being welcoming and supportive to all who join. Megan's mother, a third-generation Japanese-American, was actively discouraged from pursuing wildlife biology by her college professors because of the lack of jobs. Megan feels we should never have to turn away anyone interested in our profession.

These thought-provoking assignments redefined how we view leadership and our current, future and potential roles as leaders in the wildlife profession. One unexpected lesson was that being a good leader begins with knowing yourself. Dominic interviewed Paul Bailey, a 35-year veteran of his local U.S. Forest Service office and a third-generation native to the county Dominic works in. Paul's face lit up when he talked about the good mentors and leaders he worked with in the Forest Service and on major fires. The most memorable part of the interview was Paul saying "a good leader must be comfortable in their own skin." This really resonated with Dominic because the best supervisors, coaches and mentors in his life have all been unbelievably comfortable with themselves. Dominic was also shocked to learn that Paul has hunted at Modoc NWR every year since the hunting program opened in 1961, certainly the only person to have done so! Dominic felt enriched to speak with someone with such a wealth of traditional ecological knowledge about the refuge and has since consulted Paul several times and even persuaded him to join Modoc NWR's Hunting Working Group.

At the conference in Portland, our time was spent in TWS Council meetings (a lot actually happens at those, it turns out), serving as mentors in student-professional activities and participating in numerous discussions and functions with the current leaders of our field.

One of the most vivid moments for Liisa was a panel comprised of Robin West, EJ Williams, Jim Miller and Jack Ward Thomas. The combined experience and leadership exuding from them was almost palpable. She took pages of notes full of quotes like "you can't lead with email" (Jack) and "leadership is an activity" (EJ). Much of the wisdom passed on to us in those three hours also applies to our personal lives: be passionate, persistent and persuasive; never do anything you know is wrong; maintain your composure; and earn credibility. Megan also found encouragement in the message that no one can be perfect at everything—the key is knowing your weaknesses and enlisting colleagues and partners to fill the gaps.

For another assignment, Dominic and Liisa presented ideas to the Council on how to recruit and retain a diverse workforce, including active recruitment by Service biologists. They put this idea into practice at the conference, staffing the Service booth along with LI graduate Lindsay Smythe to speak with current students and seasoned biologists about career options. All three are Service wildlife biologists and former SCEP students who have worked all across the country and connected really well with the diverse people interested in the Service.

Well, now what? If there is one thing LI graduates are encouraged to do, it is to take on greater leadership roles within The Wildlife Society and our careers. We discovered a common theme among the three of us is our strong motivation to give back to the profession. Protecting wild things and wild places are the reasons we entered this field, and we feel strongly that in order to do that, we must remain relevant to the public and strengthen the wildlife profession through supporting diversity and inclusiveness. Dominic and Liisa are continuing to recruit and mentor young professionals by giving USAJobs workshops and recruiting at career fairs whenever possible. Megan and Liisa are both working with TWS Ethnic and Gender Diversity Working Group to increase the recognition of wildlife conservation as a career path for high school and college students interested in science, technology, engineering and math (STEM), and especially highlighting the great work that biologists from under-represented groups are doing. We intend to focus our energy and new insights on these issues, and know we will be most effective when we apply our passion to what we do every day and remember to enjoy ourselves while we are at it!

We face many challenges as we begin our careers, individually and as the Service, but those same challenges inspire us to take advantage of the opportunities they bring. The Leadership Institute was an excellent opportunity for leadership development, and we left Portland with a broader sense of the many roles we play in wildlife conservation and how integrating those roles is critical for our future. We better understand what it means to further the mission of the Service through our roles on the refuge, in ecological services, and supporting science in our agency. We are wildlife managers, scientists, communicators, recruiters, lifelong students, mentors, ambassadors and conservationists. It's a tough job, but we can do it! □

To learn more about The Wildlife Society's Leadership Institute and how to apply, visit <wildlife.org/professional-development/leadership-institute>.

pacific

Two Idaho Hunters Owe Their Lives to Refuge Officer

Federal Wildlife Officer Russell Haskett is a hero, but he won't call himself that. He is understated when describing how he waded into Idaho's frigid Snake River around noon December 1 and pulled two duck hunters, one of them nearly dead, to safety.

"It was a calculated risk," the officer for the Southeast Idaho National Wildlife Refuge Complex says of his decision to go in after the men. "It was either (go in) or watch those two guys drown."

The men, Michael Jones and Norman Davis, both of Pocatello, Idaho, were clinging to their capsized canoe in the middle of the Snake River near Minidoka National Wildlife Refuge when Haskett heard a sheriff's radio report of the incident. The Snake River is wide in that spot and has a current but no rapids. High winds were holding the men and the canoe in place, despite the current, and they'd been in the freezing water a half-hour despite their attempts to get to shore. Jones was unconscious. Davis couldn't speak.

Haskett, the first law enforcement responder on the scene, weighed the risks of trying to save the men and stay alive himself. He knew the river in that area was a mix of rock shelves and deep holes, so he inched his way in until he was up to his neck and close enough to toss a stick with a rope tied to it. When he got the stick hooked on Jones' body, he pulled the men and the canoe to where he could reach them. Grabbing a man in each arm, the burly Haskett, 45, pulled them to shore, about 75 yards away.

"I've pulled people out of the river before," he says matter-of-factly, noting he as been in other rescue situations where people had hypothermia. Haskett was a fish and game officer for the Shoshone-Bannock Tribe in Idaho for 13 years before joining the Service in 2004.

Three hunting buddies of Jones and Davis waited anxiously on shore, and as soon as Haskett brought in the victims, he and the others put Jones and Davis in dry clothes and lay down around them to transfer their body heat while they waited for help.

Jones, 42, started to go into cardiac arrest. He was taken by Lifeflight to the Portneuf (Idaho) Medical Center, where the emergency room staff had prepared for his arrival. The helicopter team was performing CPR as they wheeled him in for treatment.

Making a miraculous turnaround, Jones reportedly was conscious six hours later and asking for ice cream. He was released from the hospital about 10 days later. Haskett visited him twice in the hospital and even returned to the rescue site to find Jones' eyeglasses. Davis, Jones' hunting buddy, had been treated and released the day the men were rescued.

Dr. DeLaRosa, the cardiac surgeon, calls Jones "a miracle man" and his survival "the miracle on the Snake."

Everyone is calling Haskett a hero. But the father of three says he is just thankful that he and the hunters are all OK. □

JOAN JEWETT, Public Affairs, Pacific Region

USFWS

Federal Wildlife Officer Russell Haskett standing near the Snake River.

USFWS

southwest

Friends of Hagerman NWR Receives Southwest Region Friends Award

The Friends of Hagerman National Wildlife Refuge, a Texas-based non-profit organization, received the Service's Southwest Region Friends Award.

Dr. Benjamin Tuggle, Regional Director for the Southwest Region, presented the Friends with the award in March to recognize their significant contributions to environmental education and outreach benefiting Hagerman National Wildlife Refuge.

"At a time when partnerships are paramount, organizations like the Friends of Hagerman NWR are one of the most important allies in the National Wildlife Refuge System's wildlife conservation effort," Tuggle said.

Children enjoy a wildlife presentation at Hagerman NWR.

> *These are local folks who devote a lot of time and effort to supporting their national wildlife refuges.*
>
> —Dr. Benjamin Tuggle, Regional Director for the Southwest Region

Based near Sherman, Texas, just north of Dallas, the Friends were established to protect, support and enhance the 12,000-acre refuge that is managed for the benefit of wildlife. The all-volunteer organization was recognized for its many accomplishments this past year, including:

- Serving more than 1,000 children and 400 adults who participated in Second Saturday, Nature'ology and other environmental education programs hosted on the refuge by the Friends.
- The purchase and operation of an electric tram used to conduct free weekend tours on the refuge's Wildlife Drive, providing the visiting public an excellent opportunity to see and enjoy wildlife.
- The establishment of the Bluestem Chapter of Texas Master Naturalists.
- Managing the Nature Nook bookstore within the refuge's visitor center. It is operated entirely by the Friends and volunteers with 100 percent of the proceeds benefitting the refuge.
- Hosting of a nature photo club, including two annual refuge photo safaris and a photo contest to foster awareness and respect while photographing natural resources.
- Creating and sponsoring BirdFest Texoma, a festival that brought hundreds of birders and nature enthusiasts to the community in May for field trips and workshops.

"These are local folks who devote a lot of time and effort to supporting their national wildlife refuges," said Tuggle. "Their hard work and dedication directly benefits wildlife, as well as the visiting public who come out to enjoy refuges." □

Celebrating Record High Population Numbers of Mexican Wolves in the Wild

At the end of every calendar year, the Service and its state partners survey the wild population of Mexican wolves in Arizona and New Mexico and release this information to the public. From 2002 to 2011, the numbers bounced between 40 and 60 Mexican wolves in the wild. Then, in 2012, the Service documented 75 Mexican wolves in the wild, a record number!

Southwest Regional Director Dr. Benjamin Tuggle called the number "very exciting," adding that "our strategy for 2013 will be to increase the genetic viability of the wild population."

This minimum number, 75, shows the Service's recovery program is on the right track. For the past two years, the recovery team has focused on a number of management actions—in collaboration with partners and stakeholders—that have helped reduce conflicts related to recovering a sustainable population of wolves on a working landscape.

Population data were collected on the ground by the Mexican wolf Interagency Field Team (IFT) from November through December 2012, as well as an aerial survey conducted in January 2013. This number is considered a minimum number of Mexican wolves known to exist in the Blue Range Wolf Recovery Area, Other non-collared wolves may be present but were not confirmed during the survey period.

The aerial survey was conducted by a fixed-wing aircraft that uses radio telemetry to locate collared wolves, and then call in the helicopters that fly low to the ground to try to get visual »

A Mexican wolf is brought to the Alpine facility for processing during the 2012 population count.

USFWS

contact and count. Biologists on the ground also use radio telemetry and actual sightings of wolves to help determine the count. The results of the survey confirmed that there are 38 wolves in New Mexico and 37 wolves in Arizona, with 13 known packs.

The 2012 minimum population count includes 20 wild-born pups that survived to the end of the year. This marks the 11th consecutive year in which wild-born wolves have bred and raised pups in the wild, and is again an increase in the number of pups surviving to the end of the year. □

midwest

Illinois Refuge Helps Ornate Box Turtles

Like many turtles around the world, the ornate box turtle (OBT) faces an extinction threat. But this threat won't become reality if wildlife biologist Jeramie Strickland, other Service staff at Upper Mississippi River National Wildlife and Fish Refuge in northwest Illinois, and numerous conservation partners have anything to do about it.

The OBT is dependent on native sand prairie habitat, but native prairie habitat in Illinois has been nearly extirpated, with less than 1 percent remaining. And habitat loss is threatening the turtle.

The turtle serves key roles in the essential health of ecosystems such as helping plant diversity by spreading seeds through its droppings and helping to balance sand prairie food webs. The turtle embodies a critical lesson of ecology and conservation—everything is connected. If the turtles become extinct, the ecosystem will suffer.

Threats such as loss and fragmentation of the turtles' sand prairie habitat, their collection by hobbyists, as well as slow reproduction and predation have led several states, including Illinois, to protect the turtle as a threatened species.

Upper Mississippi River National Wildlife and Fish Refuge has been studying the OBT since 2008 with several goals in mind. In 2012 alone, more than 2,500 hours of research was conducted through numerous partnerships.

Wildlife biologist Jeramie Strickland talks about ornate box turtle conservation efforts with students from Western Illinois University in September 2012.

Gaining knowledge into the OBT population helps identify best practices for managing the turtle. For instance, learning hibernation patterns helps managers know when and where to schedule prescribed burns that won't hurt the OBT.

Through the use of automated telemetry, researchers monitored population traits including nesting and daily activity periods of 68 turtles with radio transmitters. Management techniques have been adjusted accordingly to protect and conserve OBTs. The data will also be used for a future statewide OBT recovery program.

Another goal is to reestablish a viable population of OBT at the refuge's Lost Mound Sand Prairie area. A few turtles existed in this area, but not enough to consider it a viable population.

To achieve this goal, the refuge worked with zoos and preserves to transport OBT eggs and sometimes turtles themselves (turtles found in harm's way on roads and in agricultural fields) to Lost Mound.

It hasn't been easy.

Coyotes were an early problem, preying on the turtles and sometimes chewing off the radio transmitters during predation attempts. But last spring, researchers renovated a 7-hectare enclosed area at Lost Mound with a 5-foot wire fence that has kept predators out, and last July, a hatchling was found, the first documented successful reproduction within the new population.

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In addition to partnering with conservation organizations, universities, zoos, developers, private land owners, and local, state and federal agencies, the refuge has made sure to emphasize education and outreach.

This outreach has provided public awareness on the plight of this imperiled species. And it has driven several students into advanced conservation studies.

Strickland got this note from a young person: "Jeramie, I saw your published Ornate Box Turtle article in the *Outdoor Illinois* magazine, and it was actually what pushed me to apply to graduate school …"

This year, the study and reestablishment effort will continue, using surveys and radio telemetry. Several graduate students will also be working on OBT research. And the refuge will continue outreach, emphasizing private landowners. The majority of land in northwest Illinois is privately owned, so public awareness and education are critical for the future protection of isolated OBT populations that occur on private lands. □

southeast

Is the Everglade Snail Kite's Primary Food Source Being Contaminated by Copper?

Emily Bauer enjoys slogging around in the bogs of south Florida looking for apple snails. She's determined to find out if levels of copper in apple snails are potentially harmful to the endangered Everglade snail kite that eats them.

Apple snails are snail kites' primary food source. Concerns arose about possible high levels of copper found in these snails living around old agricultural areas.

Too much copper can lead to reduced weight and other health related problems in chicks. In addition, high levels of copper can affect a bird's ability to reproduce through reduced egg production.

Bauer is an ecologist working in the South Florida Ecological Services Office Contaminants Section. Her section represents the Service on the interagency Copper Working Group, which was formed because of all the issues associated with potential copper contamination in and around Comprehensive Everglades Restoration Plan (CERP) sites.

"Many of CERP sites are on old agricultural lands—especially citrus, where copper was used as a fungicide," Bauer says.

For the apple snail study, the Service entered into a cooperative agreement with the Avian Research and Conservation Institute (ARCI). Under the leadership of Ken Meyer, technicians from ARCI primarily trap snail kites at areas believed to be highly contaminated with copper, as well as areas believed to be minimally contaminated. Once the birds are captured, the team takes samples and analyzes them for copper content.

Bauer and her cohorts from the Contaminants Section, Supervisory Ecologist Bob Frakes and Toxicologist Anthony Sowers, generally go out to the sites collecting snails, as well as sediment and water samples.

"Once all of the data are gathered and analyzed, we look to see what type of correlation there is between levels we're seeing in the birds versus levels we're seeing in their environment," Bauer says.

She adds that their preliminary findings have been pretty good news because while feces collected at the high-copper sites showed some elevated copper levels, blood levels and feather levels were fairly consistent with what was found in samples taken at the sites with far less, if any, copper contamination.

"This tells us that even if the birds are ingesting snails with lots of copper in them, the contamination appears to be passing through their bodies," she says.

"However, we need to keep in mind that these birds can move around quite a bit and there's no guarantee what we are calling exposed birds are truly exposed. Bauer says. »

Anthony Sowers (left) and Bob Frakes examine empty apple snail shells near an Everglade snail kite perch along a drainage canal near Marshall Loxahatchee NWR.

EMILY BAUER/FWS

BOB PACE/USFWS

Emily Bauer displays a couple of apple snails.

In a related study, Sowers put some of the highly contaminated soil into containers and then put some apple snails into it. Not surprisingly, these snails developed high concentrations of copper in them. Eventually, he'll put those snails into a simulated snail kite digestive system to see how much of the copper is actually expelled. "Emily and I will compare notes. Hopefully, our studies won't contradict each other and will instead point to the same types of findings," he says.

Bauer says the Copper Working Group will incorporate data from the studies into a risk assessment and set acceptable levels of copper in these birds. They hope to have a final report this spring. □

KEN WARREN, South Florida Ecological Services Field Office, Southeast Region

Tensas River National Wildlife Refuge Hosts Successful Hunts

Tensas River is a major public land deer hunting destination for people from all over Louisiana. In addition to public deer hunting throughout most of its 80,000 acres, the refuge also hosts three hunts in the Greenlea Bend area. This area is usually closed to public hunting because the wildlife drive is there. However, two youths hunts and a hunt by wheelchair users, are highly anticipated by refuge staff members and the lucky participants.

On the third Saturday in September, Tensas River holds the annual Hunting and Fishing Day event, which ends with a drawing for coveted spots for young people 8–15 on guided deer hunts. The refuge holds two of these hunts each season, with refuge staff and knowledgeable volunteers serving as guides. The purpose of these hunts is twofold. They help manage deer populations within an area closed to public hunting, and more importantly provide opportunities to get kids excited about hunting, conservation and national wildlife refuges.

This year, the hunts were on December 27 and January 3, and kids, parents, staff and volunteers all had a wonderful time. Although some of these children had prior experience deer hunting, others harvested their first deer. For some of these children, the Tensas youth hunt is their first time in a deer stand. These hunts are also great fun for the guides and refuge staff members who volunteer to sit with the youths.

The young people harvested 31 deer during the two hunts. Many of these young people will be at Hunting and Fishing Day in September 2013, ready to enter the drawing again!

The refuge also hosts a hunt by wheelchair users. This hunt is held in partnership with National Wild Turkey Federation's Wheelin' Sportsmen program, which administers several of these hunts throughout Louisiana during deer season.

Fifteen participants are randomly drawn from a larger pool of applicants. These hunters and their helpers use box blinds set up throughout the closed area. Volunteers cook breakfast and lunch for the hunters and other participants, shuttle hunters to their blinds, help them get situated and unloaded, and even help process the deer that have been harvested. This year, five deer were harvested.

Dillon Cotton harvested his first deer ever, a two-and-a-half-year old, 8-point buck. Excited does not even begin to describe how Dillon was feeling! He even wanted his father to strap his wheelchair onto the trailer pulled behind their truck so that he could ride with his deer. Although he obviously didn't get his wish for the ride home, the smile on his face certainly made the entire day worthwhile for everyone involved. □

Hunters, guides, family and volunteers.

northeast

MARSH! Now Four Years Strong at Montezuma Wetlands Complex

From tree planting to frogbit and water chestnut removal, Montezuma Alliance for the Restoration of Species and Habitats! (MARSH!) participants have enjoyed restoring and exploring the Montezuma Wetlands Complex in New York for the past four years.

The MARSH! program is part of a larger effort to restore, protect and enhance wildlife habitat on nearly 50,000 acres in the complex, which includes Montezuma National Wildlife Refuge. MARSH! was formed to support the habitat restoration efforts of the Service, New York State Department of Environmental Conservation, New York Audubon and other partners within the MWC.

Throughout the year, more than 120 volunteers, ranging in age from 5 to 85, contributed more than 1,400 hours of service to ensure healthy habitats persist throughout the complex. Various work days emphasized invasive plant removal or native plant and habitat restoration. Tons of invasive plants including frogbit, water chestnut, garlic mustard and Japanese stiltgrass were removed; more than 400 native trees and shrubs planted; and more than 150 pounds of wetland seed harvested and sown by hand into newly restored marshes.

PHILLIP BONN

MARSH! participants use canoes to remove frogbit.

> *"...feel privileged to be able to work and learn with skilled wildlife biologists to enhance and preserve the ecosystem for generations to come.*
>
> —David Marsh, volunteer

A project introduced in 2012 allowed volunteers to "enjoy" paddling through emergent cattail marshes. The task was simple, to collect as many water depth readings as possible. The result was accurate depictions of the bottom elevation of more than 3,350 acres of Montezuma wetlands. The maps will be used for better management of wetland impoundments.

MARSH! 2012 was a success not only based on the amount of work accomplished, but also because MARSH! participants got much more out of the program than the satisfaction of volunteering and restoring habitat—they gained a backstage pass to some of the most diverse areas of the refuge.

"I am always in awe of the lush beauty of the Greater Montezuma Wetlands, its abundant wildlife, the songs of its inhabitants, and feel privileged to be able to work and learn with skilled wildlife biologists to enhance and preserve the ecosystem for generations to come," says David Marsh, who attended more than 20 MARSH! events in 2012.

The MARSH! season ended with staff and volunteers joining together for treats and to discuss how to strengthen the program and reach out to others who may enjoy working with MARSH! in 2013 and years to come. □

KELLY PURKEY/USFWS

mountain-prairie

Sand and Gravel Mining Companies in Nebraska Help Pave the Road to Recovery for Terns and Plovers

Since 1985, the Service and the Nebraska Game and Parks Commission have worked to restore the endangered interior least tern and threatened piping plover to Nebraska's landscape. The Tern and Plover Conservation Partnership joined the effort in 1999. In addition, since the recovery's inception, sand and gravel mining companies in Nebraska have teamed up with these organizations and have enthusiastically taken an integral role as tern and plover conservationists.

Both the interior least tern and piping plover travel thousands of miles each year, from their wintering grounds along the Gulf of Mexico and the Caribbean Sea to their breeding grounds in Nebraska and other Midwestern states. From late April until mid-August, Nebraska hosts these birds as they return to the same nesting areas year after year.

Upon arrival in spring, both species seek out sparsely vegetated, sandy shorelines and mid-river sandbars, where they establish territories, build nests, and feed and care for their young. In Nebraska, some of the appealing and most reliable habitat of this sort is found along the beaches of sand and gravel pits.

For decades, sand and gravel mining companies have mined large quantities of high quality aggregates at sites along Nebraska's rivers. This industry »

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Plover chicks use coloration to blend into their pebble-lined nest.

is important to the state's economy, generating millions of dollars in revenue every year and providing useful products and materials for road building, home construction, concrete production, landscaping and glass manufacturing.

Some of the best aggregate sources in Nebraska are found along the Platte, Elkhorn and Loup rivers. Mining activity creates expanses of barren sand, which are extremely attractive to interior least terns and piping plovers. Unfortunately, active sand and gravel mines are busy places. Nests can be accidentally run over by equipment, loud noises can cause birds to abandon nests, and windblown sand can bury nests. As a result sand and gravel companies have made it their corporate goal to minimize the likelihood that birds encounter these man-made hazards.

In 2012, representatives from several leading sand and gravel companies in Nebraska, the Service and NGPC prepared a Memorandum of Understanding establishing themselves as partners in the effort to protect and recover interior least tern and piping plover populations.

"The Tern and Plover Conservation Partnership has been outstanding to work with, and due to their constant training and involvement, Western Sand's feelings toward the plovers and terns have changed over the years from being a 'nuisance' to 'amazing creatures of nature,'" says Dave Brakenhoff of the Western Sand and Gravel Company.

In 2012, approximately 310 least terns and 66 piping plovers occupied cooperating mines in Nebraska. To ensure the safety of these birds, the partners improve nesting habitat, implement on-the-ground management, routinely monitor bird populations, and practice cooperation, open communication and coordination of efforts.

"Being responsible stewards of the land and the wildlife that inhabit it is an important corporate priority," says Carol White of the Lyman-Richey Corp. "Our involvement with the Tern and Plover Conservation Partnership is the latest step for us to ensure habitat for the least tern and piping plovers is preserved and enhanced for future generations." □

ANGELINA WRIGHT, Ecological Services, Mountain-Prairie Region

alaska

Calling Elvis? Check Togiak NWR

It's not Graceland…it's a whole lot prettier!

Dillingham, Alaska, in early spring held its annual community celebration, called Beaver Round-Up, a nod to when the fur trade was a big part of the town's make-up. The event kicks off with a parade, and Dillingham resident Togiak National Wildlife Refuge always takes part, normally to enthusiastic fanfare on the part of parade on-lookers. This year was no different.

This year's Round-Up theme was "Rockin' 55 Years" in recognition of the 55th anniversary of Beaver Round-Up. The logo featured a '60s era Rock 'n' Roll/Elvis theme, and many of the parade floats reflected this.

The Togiak Refuge float featured staff member Jon Dyasuk channeling his inner Elvis—if Elvis had been a sport fisherman on the refuge. Parade-goers seemed to enjoy Dyasuk's portrayal of the King, and judges named Togiak's entry as the first-place float.

The Beaver Round-Up parade is always a fun event, and it provides the refuge with a nice annual opportunity to connect with the community. With steady laughter in its wake, this year's float certainly accomplished that. □

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Jon Dyasuk looks like he's got a Vegas career pegged, if he ever decides to hang up his Service shoes.

USFWS

Regional Director Geoff Haskett (middle) and Myron Naneng, the president of Sea Lion Corp., shake on the deal. In the background is Ted Murphy, BLM Associate State Director. BLM helped the Service by making sure that land status/ownership was correct and by issuing the patent that deeds the federal land to Sea Lion.

Alaska Land Exchange Is a Win-Win Deal

A recent land exchange between the Service and an Alaska Native Village corporation will remove barriers to the corporation's ability to manage for the future and add to the habitat and wildlife diversity of Yukon Delta National Wildlife Refuge.

The lands included in the exchange are near Hooper Bay, 500 miles west of Anchorage, and are within the boundaries of the Yukon Delta National Wildlife Refuge. The Sea Lion Corp., which entered into the exchange with the Service, is an Alaska Native Village corporation that received title to lands through the Alaska Native Claims Settlement Act of 1971.

The Service conveyed more than 13,200 acres of its owned subsurface estate beneath Village Corporation-owned surface, with the aim of avoiding potential for contamination and conflicts that might result from the relocation of the city's landfill. In addition, the agency turned over about 2,500 acres of Service property, which was surrounded by corporation lands, resulting in consolidated land ownerships that will make for more efficient refuge and corporation management and reduce habitat fragmentation.

In exchange, the Refuge System acquired more than 5,150 acres of upland habitat on the western flank of Kusilvak Mountain bordering Nunavakanak Lake. This mountainous terrain is uncommon in the Yukon Delta and is essentially an island habitat within the vast low-lying delta. The Service believes this acquisition will enhance the protection of outstanding natural values of the area and will further the purposes for which the refuge was established. □

DIANA BIESANZ, Realty Program, Alaska Region

Research Reveals Long-Term Cycles in Salmon Abundance

Three national wildlife refuges in Alaska collaborated with the University of Washington and seven other academic or government research institutions on a study that sheds light on cyclical changes in sockeye salmon runs over the past 500 years.

The study's results were reported in the January 2013 Proceedings of the *National Academy of Sciences*: <www.pnas.org/content/early/2013/01/15/1212858110.abstract>.

Salmon managers have long understood that run size is highly variable, changing from year to year and often showing cyclic change that persists for decades. But the study reveals cycles in salmon abundance on a scale not previously imagined, some lasting up to 200 years.

The study also shows big differences in salmon runs by river system. While abundance in some river systems increased, it decreased in other systems. This is consistent with other recent research on modern-day salmon systems that indicates overall stability when the systems are intact, even though the individual elements show extreme variability.

This high variation in abundance and cycles of short to extremely long duration mean that salmon harvest regimes must have the flexibility to scale up or down appropriately. Given that the global salmon industry is valued at more than $3 billion annually, and given the ecological and social importance of salmon, this is a powerful insight not just for managers of Alaskan refuges but for salmon managers everywhere.

CAROLINE CHEUNG/USFWS

Sockeye salmon swim upstream in a tributary of Karluk Lake, Kodiak NWR.

The study took place on 25 lakes throughout southwestern Alaska, 14 of which collectively are on Togiak National Wildlife Refuge, Alaska Peninsula/Becharof National Wildlife Refuge and Kodiak National Wildlife Refuge.

More than 4 million sockeye salmon annually return to their natal waters in lakes and streams on these refuges. But more than 10 million salmon destined for these spawning areas annually are intercepted by the commercial fishery. The single most significant conservation concern for these three refuges is whether this level of exploitation is sustainable. To this end, the refuges have hosted or supported collaborative investigations for more than 30 years. □

For more information, contact:

PATRICK WALSH
<Patrick_Walsh@fws.gov>
RON BRITTON
<Ron_Britton@fws.gov)
BILL PYLE
<Bill_Pyle@fws.gov>

pacific southwest

San Luis' HQ/Visitor Center Is Service's First to Earn Highest 'Green' Ranking

Energy-efficient work at San Luis National Wildlife Refuge Complex has paid off as the U.S. Green Building Council in February certified the refuge's visitor center/headquarters facility as a LEED Platinum facility, the highest mark in this "green" rating system. It's the first LEED Platinum facility in the Service.

The Service opened its headquarters and visitor center on the San Luis NWR near Los Banos, California, in 2011. The 16,500 square-foot facility (funded through the American Recovery and Reinvestment Act) provides offices and work space for the entire staff of the San Luis NWR Complex, which is composed of three refuges and a wildlife management area. The visitor center includes a 1,500 square-foot interactive exhibit hall with more than 20 displays focusing on the unique wildlife and habitats protected by refuge lands, as well as a 1,000-square-foot classroom with audio-visual capability.

LEED stands for Leadership in Energy and Environmental Design and provides architects, builders, owners and operators with a framework to identify and implement practical, measureable and sustainable solutions to building design, construction, operations and maintenance.

Because the green building elements incorporated into the visitor center are widely available, the facility serves as an example in the region to builders and homeowners wishing to construct more environmentally friendly homes, neighborhoods and communities. Some of those elements are:

The San Luis NWR Visitor Center exhibit hall has more than 20 displays focusing on the unique wildlife and habitats protected by refuge lands.

I-TING CHIANG

The Service is embracing LEED-identified principles of sustainable design in its new and renovated facilities as it works to become carbon neutral by 2020.

Two arrays of photovoltaic **solar panels** provide the majority of the building's electrical needs.

Tall north-facing windows in office spaces and let in light while avoiding direct sunlight from the south that would heat the building's interior. **Natural ambient light** is also enhanced with specially equipped skylights that magnify incoming light and by light-colored ceilings that reflect natural light into rooms. When ambient light is not sufficient, **ultra-efficient LED** and florescent fixtures, designed to turn off automatically when no one is in the room, are installed throughout the facility.

The building benefits from **natural heating** and **cooling features**, such as clerestory windows open during the cooler nighttime hours to vent hot air built up inside during the day. This creates airflow that works together with the building's cooling and ventilation systems to cycle air throughout the building. Wooden arbor structures over the front entrance and over the wildlife viewing windows shade the lobby from direct morning and afternoon sunlight. Those elements, along with shades on all the building's windows, help keep the interior cool during the Central Valley's long hot summers.

Low-flow fixtures and automatic faucets in the restrooms, as well as native-plant landscaping requiring little to no additional water once plants are established, mean the facility uses less than half the water of a standard building of comparable size.

Recycled or **low-VOC** (volatile organic compounds) materials are used throughout the facility.

The Service is embracing LEED-identified principles of sustainable design in its new and renovated facilities as it works to become carbon neutral by 2020. □

MADELINE YANCEY, San Luis NWR Complex, Pacific Southwest Region.

FLICKR/CREATIVE COMMONS/JAC.6FLICKR

BOB CLARKE/USFWS

Fisherman and Service employee Bob Clarke holds a Lahontan cutthroat trout caught at Pyramid Lake.

Anglers Include Lahontan Cutthroat Trout in the Sierra Grand Slam

The Lahontan cutthroat trout, listed as endangered in 1970 and reclassified as threatened in 1975, was reintroduced to Nevada's Pyramid Lake in 2006. Now fish weighing nearly 20 pounds are being caught and the trout is emerging as an important member of the Sierra Grand Slam.

A Grand Slam in fishing is when an angler catches four species in a single day—the four species vary by region. For instance, the Great Lakes Grand Slam consists of walleye, northern pike, lake trout and steelhead. For years a Sierra Grand Slam on the West Coast was brown trout, rainbow trout, brook trout and golden trout, but with the Lahontan cutthroat on the road to recovery, a growing number of anglers are including it as a member of their slam, replacing the golden trout.

Some anglers have tried to change the name of the slam to reflect the importance of landing a Lahontan cutthroat and names like Super Grand Slam and Perfect Slam have been proposed. One angler using the screen name Sierra_Smitty writes on a popular fishing blog, "I'm not sure what you'd call it if you caught a cutt [Lahontan cutthroat] too, but it would be pretty dang impressive...all I know is that there are only a handful of places you could do it."

One such place is Pyramid Lake, an area described by one Tackle Tour writer as "a jewel in the Nevada high desert, and the treasure here comes in the form of big trout quite unlike those found anywhere else." The fishing opportunities at Pyramid Lake would not be possible without the Service's close partnership with the Pyramid Lake Paiute Tribe. The lake is on the tribe's reservation, and staff at the Lahontan National Fish Hatchery work with the Pyramid Lake Paiute Tribe's fisheries program to stock and gather information about the Lahontan cutthroat trout.

Size limits and other special fishing restrictions help protect the integrity of fishable populations, but the extra restrictions have not stopped the trout from becoming an important fish among anglers.

Along with the help from the Paiute Tribe, a special exception under the Endangered Species Act—known as a 4(d) rule – allows the public to fish for these threatened trout. A 4(d) rule allows the Service to tailor the ESA's protections to meet conservation needs of threatened species (which may be more or less restrictive).

With size limits in place, continued monitoring and protection by the Service and the Pyramid Lake Paiute Tribe, the Lahontan cutthroat trout's recovery will continue, balancing sport and conservation. □

CINDY SANDOVAL, External Affairs, Pacific Southwest Region

Sleeping One Off

ERIC COLE / USFWS

In February, National Elk Refuge staff collared four wolves from the Pinnacle Peak pack, a group that has resided on the refuge for several years. From the data generated by the collars, biologists will monitor the size of the pack, document its distribution, record mortalities, measure the pack's reproductive success, note breeding pair status, and generate other documentation. This wolf was the last to recover from the effects of the drug used to sedate him. Two biologists remained on site to ensure he got safely back up on his feet.

transitions

Headquarters

After more than six years as Assistant Director for External Affairs, **Elizabeth H. Stevens** has accepted a senior leadership position in the Service's Alaska Regional Office.

Beth began her tenure with the Service in 1987 and has served in a wide variety of senior leadership positions since. She first served as a Special Assistant to the Director on Alaska issues and later as Special Assistant to the Assistant Director for Fish and Wildlife Enhancement.

In 1992, she became Associate Regional Director in the Service's Mountain-Prairie Region, and, in 1998, was named Deputy Manager for the newly established California/Nevada Operations Office in Sacramento, California. In 2001, she returned to the Service's Headquarters as the Deputy Assistant Director for Endangered Species. In 2006, Beth was named Assistant Director for External Affairs.

In an email to the Directorate, Service Director Dan Ashe called Beth "the right choice for External Affairs during what turned out to be a period of unprecedented upheaval in communications," adding that "Her leadership, integrity and tenacity have been just what our agency has needed to build and sustain a strong communications function for the Service in this time of dynamic change. "

Of particular note, during the Deepwater Horizon oil spill, Beth worked with Interior officials to obtain a waiver for the Service to begin using social media tools. She also was a driving force behind the Wildlife and Hunting Heritage Conservation Council and stronger relationships with both the Sportfishing and Boating Partnership Council and the Recreational Boating and Fishing Foundation. In addition, she assumed a major leadership role on tribal issues within the agency.

She was born and raised in Alaska and is a graduate of Ohio Wesleyan University. □

Northeast

James "Jaime" Geiger, Assistant Regional Director of Fisheries for the Northeast Region, retired on April 1 after 35 years in the Service.

He began his career with the Service in 1978 as a fisheries research biologist at the Southeastern Fish Cultural Laboratory in Marion, Alabama. He then worked for Texas Parks and Wildlife Department as assistant chief of hatcheries on an intergovernmental assignment. He went on to serve as scientific director of the Service's Fish Culture Research Laboratory in West Virginia and then moved to Washington, DC, as division chief for Fish and Wildlife Management Assistance.

Jaime came to the Northeast Region as Assistant Regional Director for Fisheries and Federal Aid in 1993. He oversaw 27 fisheries offices, including national fish hatcheries, fisheries management offices, and a fishery center focusing on fish health and technology.

On reflecting on his career, Jaime said, "I feel fortunate to have worked for supervisors who have recognized the needs of their employees." He credits them for giving him training opportunities in science, management and especially, leadership. In turn, he has encouraged his employees to take leadership training. "Leadership training helped me learn about myself and how to help others be their best. Leadership training is investing for the long term."

Jaime earned a bachelor's degree in biology from Tulane University, a master's degree specializing in insect physiology/biochemistry from Virginia Commonwealth University, and a doctorate in zoology from Virginia Tech.

In retirement, Jaime hopes to reconnect with family and friends, scuba dive, resume playing the five-string banjo and embrace his inner Zorba the Greek. He plans to laugh more, beginning with his retirement on April Fools' Day. □

Mountain-Prairie

Will Meeks has been named Assistant Regional Director for Refuges in the Service's Mountain-Prairie Region. He has more than 18 years of experience working for the Service. He currently serves at the project leader of the Habitat and Population Evaluation Team (HAPET) in Bismarck, North Dakota, where he has distinguished himself as the leader of a science-support organization.

Before HAPET, Will worked in Headquarters as both the deputy division chief for Natural Resources and Conservation Planning, and as branch chief for the Branch of Wildlife Resources. He also directed the Planning Branch of the Refuge System, which included Comprehensive Conservation Plan development as well as land acquisition planning efforts in support of America's Great Outdoors initiative. Will has also served as deputy refuge manager at Alaska Maritime National Wildlife Refuge in Alaska and refuge manager at Lostwood National Wildlife Refuge in North Dakota. □

The Service has selected **Clint Riley** as the Assistant Regional Director for Migratory Birds and State Programs for the Mountain-Prairie Region.

Clint previously led the Pennsylvania Ecological Services Field Office of the Service's Northeast Region. In that position, he was responsible for projects ranging from endangered species protections to private lands conservation through Partners for Fish and Wildlife projects. Before that, he served at Headquarters in several positions. Before joining the Service in 2002, Clint worked six years as an attorney for the Kansas Department of Wildlife, Parks and Tourism.

His childhood was split between the mountains of Colorado and the prairies of Kansas. He studied chemical science and philosophy at Kansas State University. After graduation in 1991, he studied environmental philosophy in Costa Rica and earned a law degree from the University of Chicago in 1996. □

Alaska

Retirement "Wave" no Setback for Service Conservation in Alaska

The Service's Alaska Region experienced an unprecedented slew of retirements on December 31, 2012. The mass exodus was driven by changes in federal retirement and locality pay policies. As a result, the Alaska Region lost a total of 54 employees in 2012, approximately 10 percent of its total workforce, and the benefit of a combined total of more than 1,000 years of institutional conservation experience!

The retirements were disproportionally skewed toward those in leadership positions (not surprising, since those with long federal careers had steadily advanced through their years of Service). For example, Alaska said farewell to a third of its refuge managers, in addition to individuals in upper management positions in other programs.

Some of these employees started their careers before passage of the Alaska National Interest Lands Conservation Act of 1980, which doubled the number of wildlife refuges in Alaska and increased their total acreage to the point that the 16 refuges in the Alaska Region account for approximately 80 percent of the land in the entire National Wildlife Refuge System. These men and women have witnessed the revolutionary introduction of electronic tracking for wildlife survey work, and watched the evolution of these devices from great bulky collars to technological marvels so small they can be carried by birds on migrations covering thousands of miles, or actually inserted into the bodies of fish. Where dogsleds were once commonly used tools for remote refuge staff, now snowmobiles are often the vehicles of choice, and commercial flights serve locations that were once only accessible by bush planes. Digital cameras, thermo-imaging and even satellites have all found uses in conservation in Alaska in recent years.

Given all that, it would be easy to assume that December 31 was a disaster for conservation in Alaska, but a conversation with some of the recent retirees laid those fears to rest. Institutional knowledge isn't the property of individuals, they said, but is, because conservation is a team effort (especially in Alaska), "marbled" through the region, with components of it shared by every younger employee who's had the benefit of working with those who recently walked out the door.

Then again, as noted above, the technology of conservation is

USFWS

Regional Director Geoff Haskett (third from left) and Deputy Regional Director LaVerne Smith (second from left) join friends and family to congratulate Doug Alcorn and Russ Oates (holding awards, left to right) on their retirement.

rapidly changing, and the new employees who step up will have grown up with the innovations that are now shaping and will continue to shape our efforts in the future. For example, while Service pilots in Alaska have long been recognized to be among the most skilled in the nation, tested and proved by our mountains and wide open spaces and often brutal weather, the time will likely come soon when much of the work now done by aircraft will be handled by unmanned drones, controlled by computer jockeys rather than pilots.

Alaska Regional Director Geoff Haskett summed it up nicely. "There's no doubt that the recent wave of retirements will be felt by Region 7, and that there will be sometimes painful tradeoffs between what we've lost and what we'll gain," he said. "However, conservation has a relatively short but eventful history in the Great Land, and you can be sure the Service is using the knowledge gained through those experiences to prepare for an equally eventful, and equally successful, future."

Among those taking on new jobs in the wake of the retirements are people both familiar and new to the region.

Bo Sloan, the new manager of **Kodiak National Wildlife Refuge**, moved to Alaska just over three years ago from Mississippi to serve as manager for Innoko Refuge. Trading the hot and humid Mississippi Delta climate for the cold and dry of the Alaska Interior, Bo fit right in and has helped build partnerships among the villages in and around the refuge by developing and presenting clinics to get young people (and adults) outside and engaged in some of the traditional activities that have seen a decline in recent years. Bo and wife Holly were to move to Kodiak in mid-May.

Susan Alexander has been selected as manager for **Alaska Peninsula/Becharof Refuge**. For the last several years Susan served as the deputy project leader for the South Arkansas Refuge Complex. But before that she was the Alaska Refuge System's budget chief. Susan brings with her 25 years of Alaska experience in refuge management, budget, and realty; as well as insight into the world of non-governmental conservation organizations, having worked for The Nature Conservancy and the Alaska Center for the Environment. Susan and husband Karl were to arrive back in Alaska in early May.

Brian Glaspell will also be returning to Alaska, having been selected as the manager for **Arctic National Wildlife Refuge**. Before leaving Alaska almost three years ago, Brian was the visitor services manager at Kodiak Refuge and worked in the regional office. He is currently the recreation/wilderness/volunteers and partners program manager for the Medicine Bow-Routt National Forests. Brian brings with him a wealth of knowledge and leadership in public use and wilderness management. He was to arrive in Alaska in late April. His family will join him later in June after his children finish up the school year.

New to Alaska will be **Susanna Henry**, selected to serve as manager for **Togiak Refuge**. Susanna is currently the refuge manager for Kofa Refuge near Yuma, Arizona. Managing large landscapes (by lower 48 standards at least!) is nothing new to Susanna, as Kofa contains one of the largest chunks of congressionally designated Wilderness outside of Alaska. Before joining the Service, Susanna was a wildlife biologist with the BLM, also in Arizona. Susanna was to arrive in late May after her daughters' graduations. Her husband will join her later this summer after his retirement.

Holly Gaboriault is also a newcomer to Alaska, named refuge supervisor to oversee **Arctic, Alaska Maritime, Izembek, Kanuti, Tetlin, Yukon Delta and Yukon Flats Refuges**. Holly started her Service career at Chincoteague Refuge as a biological science student trainee, moving up into refuge management in less than three years. After Chincoteague, Holly spent time working at Stewart B. McKinney Refuge and Silvio O. Conte Refuge in wildlife biology and in refuge management, before moving into her current position as the deputy refuge supervisor for Area II in the Southeast Region. □

BRUCE WOODS, Media Relations, Alaska Region

Alaska Region retirees in 2012

Pamela Ables
Douglas Alcorn
Brian Anderson
Ignatius Andrew
Michael Boylan
Alan Brackney
Wennona Brown
Claire Caldes
Jeff Carter
Helen Clough
A. Dawn Comish
William Crabtree
David Daum
Lynn Denlinger
Richard Ernst
Peter Finley
Suzanne Gautney
Sandra Groth
Stephen Hanson
Janet Hohn
Judy Jacobs
Danielle Jerry
Walter Johnson
Richard Johnston
William (Bill) Larned
Robin Leatherman
Janet Lehrman
Paul Liedberg
Kevin McClure
Claudette McDonald
Rosa Meehan
Richard Morris
Marilyn Myers
James Neely
Mary Nelson
Russell Oates
Douglas Palmer
Vivian Powell
Ann Rappoport
Nancy Reagan
Patricia Reynolds
Mark Russell
Bill Schaff
Mary Scherer
Ben Sherburne
Rodney Simmons
James Spiry
Henry Timm
Hedy Towne
John Trent
Richard Voss
Mark Wegner
Gary Wheeler
Charles Young

Southeast

KIM JEW

Mike Oetker, a fisheries biologist with extensive experience in interstate water issues, is the new Deputy Regional Director for the Service's Southeast Regional Office in Atlanta.

Mike is a 13-year Service veteran and has been the Assistant Regional Director for the Fisheries Program in the Southwest Region since 2008.

"Mike has a track record of cultivating strong, effective partnerships, particularly in the controversial and complex Colorado River Basin," Southeast Regional Director Cindy Dohner said. "I'm excited to bring his leadership, expertise and partner experience to the Southeast. He will fit in wonderfully, helping us continue a proud tradition of building rock-solid relationships and producing conservation results with our state and federal partners, as well as tribes, non-governmental organizations and private landowners."

In the Southwest Region, headquartered in Albuquerque, New Mexico, Mike developed collaborative approaches to manage shared resources. He was heavily involved in negotiations with numerous agencies over water management, recovery of federally listed species, water transfers and movement of injurious species.

Mike got his start in natural resource management and policy development as a Knauss Sea Grant Fellow, working for the Committee on Natural Resources in the U.S. House of Representatives. While there, he worked on the reauthorization of the Sport Fish Restoration Program championing an effort to restore more than $135 million to state agencies.

"I enjoy working in areas where unique ecosystems and species are faced with competing demands on those resources," Mike said. "I also am a longtime hunter and angler and know I will feel at home in the Southeast where these values are strong." □

The beginning of 2013 brought two new members to the Mississippi Ecological Services Field Office team—**Amy Carson** and **James Austin**. Both biologists joined the staff on January 14.

Amy Carson, hired as a fish and wildlife biologist, is the office's liaison to the Mississippi Department of Transportation. She came to the Fish and Wildlife Service from the USDA Forest Service where she was a biological science technician for the aquatic fauna team at the Southern Research Station's Forest Hydrology Lab in Oxford, Mississippi. At the lab, Amy studied the ecology of freshwater mussels, fish and crayfish.

"Working for the Fish and Wildlife Service is an exciting opportunity for me," Amy said. "I am especially looking forward to aiding MDOT in protecting federally threatened and endangered species."

Amy earned both a master and a bachelor of science in biology from Missouri State University in Springfield, Missouri. Amy did her thesis research on the behavioral ecology of darters in the genus *Etheostoma*.

A native of Missouri, Amy grew up in the St. Louis area. She has always been interested in nature and the outdoors and became motivated to study biology after she learned to scuba dive as a teenager while visiting her sister in the Caribbean.

Amy and husband Sanford, a support services specialist for the USDA Forest Service, have two daughters, Chloe, 4 years old, and Molly, 2 years old.

James Austin is also new to the Service. He is a biologist responsible for implementing private lands projects through the Mississippi Partners for Fish and Wildlife and the Partners for Fish and Wildlife programs.

"I am excited to be working for the U.S. Fish and Wildlife Service," James said. "I am looking forward to working with Mississippi landowners to improve wildlife habitat on their properties."

James' background equipped him well for being a biologist. His previous position was with the USDA Natural Resources Conservation Service. As a district conservationist for a five-county area along the Georgia coast, James worked to enhance wildlife habitat through the Farm Bill and programs like the Wildlife Habitat Incentives Program and the Wetland Reserve Program. He also did a lot of partners work with state and federal agencies and non-governmental organizations.

James also worked as a regional wildlife biologist for the National Wild Turkey Federation and was stationed in Georgia. His job was a partnership position with the NWTF, NRCS and the Georgia Forestry Commission, and one of his main focuses was again on wildlife habitat restoration.

James began his career in Mississippi – first as a district biologist, then the turkey program coordinator for the Mississippi Department of Wildlife, Fisheries and Parks in the Jackson area.

James earned a master's and a bachelor's degree in Wildlife and Fisheries Science from Mississippi State University. He did his thesis work on raccoon ecology in the eastern part of the state.

Originally from Louisiana, James grew up hunting and fishing with his dad. James and wife Emily have a 7-year-old son, Andrew. The family enjoys hiking and camping together and going squirrel hunting with Rocky, their pet hunting dog. □

honors

Charlie Herbert Earns DOI Meritorious Service Award

Service biologist Charles "Charlie" Herbert was awarded the Department of the Interior's Meritorious Service Award early this year, just before announcing his retirement from 33 years of federal service.

Meant to recognize Service employees who support the agency's mission through their exceptional contributions, the Meritorious Service Award is the second highest honor a Service employee can receive.

"Charlie is a dedicated professional who has made outstanding contributions to the Fish and Wildlife Service and the Department of the Interior," said Robyn Thorson, Director of the Service's Pacific Region. "His accomplishments truly embody what it means to be a public servant."

Hebert was one of the Service's key leaders of the agency's on-the-ground response following the 2010 Deepwater Horizon oil spill in the Gulf of Mexico. He was deployed for six months to Houma and New Orleans, Louisiana, where he was instrumental in coordinating and advocating for fish and wildlife response actions. His negotiation skills ensured that fish and wildlife needs were adequately addressed by senior Coast Guard officials, who were balancing a wide range of actions. Hebert also played a key role in advocating for wildlife after Hurricane Katrina in 2005.

He has been instrumental in coordinating spill and natural resource damage assessment with the Pacific states and the oil industry through the first Joint Assessment Team established in the United States. In recognition of his expertise in contaminant-related issues, the Canadian government asked for Hebert to assist with large-scale disaster response efforts.

Hebert's career began as a National Wildlife Refuge biologist in Baton Rouge, Louisiana, in 1978. Throughout his career with the Service, he served as a National Wildlife Refuge manager and contaminant specialist. He gained an outstanding reputation as one of the Service's premier oil and hazardous substance spill responders. Employed at refuges in Louisiana, North Carolina and Rhode Island, Charlie was actively involved in biological, law enforcement, and management issues, and coordinated closely with the public, other agencies and local congressional offices.

Charlie led the Service's pre-spill readiness and response efforts. He played a pivotal role in preparing the agency for and responding to major oil spills in coordination with field offices, the Coast Guard, the Environmental Protection Agency and non-governmental organizations. □

LAMAR GORE/USFWS

At the CDIP orientation, interns learn about turtle trapping.

Wildlife Society Recognizes Service's Career Discovery Internship Program for Outstanding Diversity Programming

The Wildlife Society recognized the Service's Career Discovery Internship Program (CDIP) with its 2012 Diversity Award, which recognizes outstanding efforts in promoting ethnic and gender diversity in the natural resource-related professions, especially wildlife conservation and education.

"My summer at Parker River National Wildlife Refuge was one of great adventure. Throughout this experience, I have become more aware of how pertinent it is for humans to lend a helping hand in conservation and sustainability…."

—Claire Revekant, CDIP Intern

CDIP is a youth immersion program, which began in the Northeast Region in 2008. The Service partners with the Student Conservation Association to provide conservation experiences to culturally and ethnically diverse freshmen and sophomore college students, who would not otherwise participate in a conservation-based job. SCA conducts student recruitment for the program and works closely with the Service to plan and coordinate the CDIP orientation.

Through the program, students gain hands-on conservation skills, bond with fellow program participants and mentors, and achieve personal, intellectual and physical goals. CDIP also provides staff the opportunity to work with culturally and ethnically diverse youth at Service field stations.

Ultimately, some of the participants advance to full-time jobs with the Service. Over the past five years the program has grown to involve the Service's Southeast, Midwest and Alaska regions. More than 193 students have participated at more than 70 Service field offices. About 17 percent of participants

in the program from 2008 to 2011 have advanced to staff positions within the Service and an additional 2 percent fill temporary positions.

The award was presented at The Wildlife Society's 19th annual national conference in Portland, Oregon, on October 15, 2012. Lamar Gore, acting chief of Diversity and Civil Rights for the Service's Northeast Region, accepted the award at the conference.

For more information on CDIP, visit <www.fws.gov/northeast/youth/cip.html> □

in memoriam

Southeast

Thomas Hugh McCartney, a 30-year Service employee, died April 6, 2013 at his home in Willow Spring, North Carolina. He was much loved by his family and friends and is remembered for his warm personality, sense of humor and service.

Tom earned degrees in fisheries (BS, Utah State University) and medical technology (MS, State University of New York), and began his Service career as a biochemist at the Tunison Laboratory of Fish Nutrition in New York (then in the U.S. Bureau of Sport Fisheries and Wildlife and now the USGS Tunison Laboratory of Aquatic Science). Tom's research focused on nutrition and husbandry of trout and salmon, and his publications continue to be used in fish physiology literature. Tom moved from research to applied conservation at Ecological Services field offices in Corpus Christi, Texas; Cortland, New York; and Raleigh, North Carolina, where he retired in 2002. During that time Tom represented conservation interests in assessment of energy, transportation and other development projects, working to reduce impacts on fish and wildlife.

In retirement, Tom loved to travel, visit his grandchildren and make morning treks throughout the community. He enjoyed fishing, watching college women's basketball and softball and college football. He continued to be an avid reader and reviewed his research work over the years.

Tom is survived by his wife, the Rev. Carole McCartney, sons Gary, Doug and Dale, brother William, and brother-in-law David. They request that those wishing to honor Tom's life consider a memorial contribution to White Memorial Presbyterian Church (1459 White Memorial Church Rd., Willow Spring, North Carolina 27592) or Hospice of Wake County (250 Hospice Circle, Raleigh, North Carolina 27607). □

Wise Mom

At least 62 years old, Wisdom the albatross is a mother again for what is estimated to be at least the 30th time. Her chick hatched on Sunday morning, February 3, 2013, making it the sixth consecutive year Wisdom has hatched an egg on Midway Atoll National Wildlife Refuge.

J. KLAVITTER/USFWS

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Office of Communications
U.S. Fish and Wildlife Service
4401 N. Fairfax Drive
Room 330
Arlington, VA 22203

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So Long, Farewell. Fish Biologist Sean Connolly and about 100 fourth- and fifth-graders from Boise-Eliot/Humboldt Elementary School gather at Drano Lake in Washington to say goodbye to the fish they have raised for the past 70 days as part of the Service's Salmon in the Classroom program. Thanks to the innovative curriculum developed by the Columbia River Gorge National Fish Hatcheries Information and Education Office and the collaboration of partners at The Oregon Youth Development Council, The Black Parent Initiative and Portland Public Schools, these student scientists had a chance to observe and learn about the life cycles of salmon and the important of ecosystem health.

PAT EDWARDS/USFWS

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Editor: Matthew Trott
Editorial adviser: Craig Rieben, Chief, Internal Communications
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4401 N. Fairfax Drive, MS 332-A
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703/358-2512
Fax: 703/358 1930
E-mail: matthew_trott@fws.gov

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