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"Fish & Wildlife News: May/June 1999" (1999). *Fish & Wildlife News*. 12.
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U.S. Fish & Wildlife Service

Fish & Wildlife News

May/June 1999

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Action Plan Sets Priorities in Motion

On May 6, Director Jamie Rappaport Clark announced the completion of an action plan addressing her resource priorities for the Service for the next 18 months. The plan, which serves as a blueprint for achieving these four priorities, is available on the Service's Internet homepage at <http://www.fws.gov/R9extaff/priorities.pdf>. Printed copies will be shipped to all field offices.

The Service's four priorities for 1999-2000 are:

- Set a new course that will strengthen the National Wildlife Refuge System
- Lift migratory bird conservation efforts to a higher level
- Lead efforts to prevent the introduction and spread of invasive species
- Strengthen the ecosystem approach to fish and wildlife conservation

"Committing to these priorities was the easy part," Clark said in the plan's introductory message. "The difficult part was deciding what to do about them and how to demonstrate marked success at the end of the two-year time-line."

On the Cover:

A view of Kenai NWR in Alaska. *The two-million acre northern Alaska refuge encompasses a wide variety of habitat and plays host to a multitude of birds, fish and mammals. Thousands of people visit Kenai each year to watch wildlife, canoe and hike. Photo by Karen Hollingsworth.*

After Clark announced the priorities in a satellite broadcast last October, teams of employees from all regions and program areas, led by the Service's assistant directors, developed specific recommendations and steps to meet these priorities.

Clark encouraged all employees to read the action plan, which contains a section on each of the four priorities with specific goals, actions and opportunities. Target completion dates and responsible program offices are listed for many of the actions.

"Already we have either achieved or are in the process of accomplishing many of them, and I am hopeful and determined we will complete them all," she said. "...By clearly setting our priorities and establishing specific steps to meet them, the action plan will allow us to do what we do best even better."

One priority action has already been achieved with Clark's recent signing of *Fulfilling the Promise*, the blueprint for strengthening the National Wildlife Refuge System in the coming year.

Putting the Promise in Writing

On March 23rd, Director Jamie Rappaport Clark signed *Fulfilling the Promise*, formally adopting the Service's vision for the future of America's National Wildlife Refuge System.

"Strengthening the National Wildlife Refuge System is one of my priorities as Director, and I am ready to do what is needed to help us all make this vision a reality," Clark said.

The vision is multi-faceted, reflecting the great breadth of land, water, air, fish and wildlife stewardship, and public involvement required to manage this vast system of lands. It stresses several basic principles:

- Wildlife comes first
- Ecosystems, biodiversity and wilderness are vital concepts in refuge management
- Refuges must be healthy
- Growth of the system must be strategic

Fulfilling the Promise envisions a refuge system that the public can appreciate, use and support, and also recognizes an internal commitment to leadership and excellence in wildlife management.

Implementation of *Fulfilling the Promise* will be the job of a Promises Team led by the Assistant Director for Refuges and Wildlife and including the Chief of the Division of Refuges, and the programmatic assistant regional director and one other staff member from each Service region. The Promises Team met in February and has developed a charter and begun discussion of implementation priorities.

Going Once, Going Twice...

The signing of *Fulfilling the Promise* caps off a process that began in November 1996, when the Directorate authorized a national refuge managers conference for the first time. The conference steering committee expanded the original concept to include the entire Service, with the goal of developing a Servicewide vision for the system. Four teams—wildlife, habitat, people and leadership—developed the language, which was the focus of discussion at the National Wildlife Refuge System Conference, held last October in Keystone, Colorado.

The full report went to press shortly after the Director signed it, and a report summary was distributed via e-mail to all Service employees.

Approval of *Fulfilling the Promise* is the latest in a string of major successes for the refuge system. Congress passed the National Wildlife Refuge System Improvement Act in 1997, putting into law the first organic legislation governing the use of the system. Major budget increases for fiscal years 1998 and 1999 addressed a backlog of maintenance needs. The 1998 TEA-21 legislation included \$100 million over 5 years to maintain refuge roads.

Finally, President Clinton signed the National Wildlife Refuge System Volunteer and Partnership Enhancement Act of 1998 in October, enabling the Service to further expand education, partnerships, and a volunteer network that already accounts for 20 percent of all work performed on refuges.

“The *Promises* document is going to serve refuges for many years to come,” said Director Clark. “It is a wonderful reflection of literally scores of refuge folks and others working together for a common vision.”

*Eric Eckl, Public Affairs,
Washington, DC*



Careful examination. *Tamesha Woulard, a wildlife inspector from Region 1, inventories property at the National Wildlife Property Repository in Denver. USFWS photo.*

What would you do with a warehouse overflowing with snakeskin and lizard boots, handbags, belts, and watchbands? If you're the Division of Law Enforcement, you would hold an auction.

The National Wildlife Property Repository in Denver, Colorado, stores hundreds of thousands of these items, acquired over the last several years as a result of wildlife violations uncovered by Service law enforcement officers. A June 4 auction of excess products valued at more than \$1 million netted the Service nearly \$450,000.

Proceeds from the sale will support wildlife conservation education and pay for the care of live animals that are forfeited or abandoned to Service law enforcement. Auction revenue will also be added to the Service's reward fund, which compensates citizens whose help leads to prosecution of individuals for wildlife violations.

The Service sold more than 100,000 items—all legal on the open market—to the highest bidders. Most items were acquired at U.S. ports of entry from travelers who lacked the required permits. The Service is responsible for inspecting all wildlife products entering or leaving the country for compliance with laws aimed at conservation and protection. These regulations include the Endangered Species Act, Convention on International Trade in Endangered Species of Wild Fauna and Flora, Migratory Bird Treaty Act, Wild Bird Conservation Act, Marine Mammal Protection Act, and African Elephant Conservation Act.

Nothing made of threatened or endangered species, migratory birds, or marine mammals was offered for sale. The repository maintains these types of items for conservation education, and provides them for public display and school programs nationwide.

The most valuable of the 613 lots at the auction was a collection of 892 pairs of caiman lizard cowboy boots, which a western wear store in Grand Junction, Colorado, bought for \$250,000.

In preparation for the auction, Service employees from across the country inventoried and sorted items at the repository, located on U.S. Army property at the Rocky Mountain Arsenal. They destroyed used and damaged items and checked products selected for sale at least three times to ensure no protected species were inadvertently included. Various species specialists spent more than 100 hours on identification alone.

*Karen Miranda Gleason, External Affairs,
Denver, Colorado*

Western Group Initiates Prairie Dog Strategy

Mountain-Prairie region biologists joined a meeting of 19 agencies and groups to kick off the development of a rangewide conservation strategy for the black-tailed prairie dog. Initiated by Colorado's Division of Wildlife, the meeting included representatives of wildlife and agricultural agencies from nine states, two Native American tribes, three federal land management agencies, the Western Governor's Association and the National Wildlife Federation.

Participants agreed to work together on a landscape-scale strategy to address prairie dog conservation. In addition, they left the door open for using a broader approach to address all prairie dog species and the entire short-grass prairie ecosystem.

"I am committed to working with federal and state agencies, tribes, and other partners to conserve the prairie dog and the short and mixed-grass prairie ecosystem where most prairie dog habitat lies," said Ralph Morgenweck, director for the Mountain-Prairie region.

The newly formed group will look at similar conservation partnerships, such as one formed in 1996 to address the decline of the lesser prairie chicken and other wildlife on the southern High Plains. That partnership encourages land owners, agricultural organizations and conservation groups to work together to benefit declining species.

Wild About Rice. Ribbon-like leaves of Texas wildrice, emerald-green and three feet long, undulate with the river's current. Their sinuous movements reveal the very flows so important to this plant's survival. Fewer than 150 stands of this endangered plant exist in the wild, all less than two miles from the San Marcos River. The San Marcos National Fish Hatchery & Technology Center and Uvalde NFH both maintain refugium populations of Texas wildrice. From those, they derive young plants destined for refugium stock, research and eventually the wild. USFWS photo.

Craig L. Springer, Division of Fisheries, Albuquerque, New Mexico

Like the lesser prairie chicken effort, landowner incentives will be a part of the prairie dog strategy, the group agreed.

However, incentive funds have not been available to tribes, which are concerned about sustaining their current management plans for the species. The majority of black-tailed prairie dogs in South Dakota, the only state with a completely plague-free population, reside on tribal lands managed by the Cheyenne River Sioux and Rosebud Sioux.

"Each of the tribes is therefore a major player," said Pete Gober, a biologist in the Service's Pierre, South Dakota, office, the Service's lead office on black-tailed prairie dog issues.

Regardless of the outcome of the Service's prairie dog status review, the Western group agreed to pursue a common strategy as the foundation of any conservation effort. An interim steering committee will direct the initiative over the next few months.

Karen Miranda Gleason, External Affairs, Denver, Colorado



Service Announces Prairie Dog Status Review

The Service announced in March that it will conduct a comprehensive review of the black-tailed prairie dog over the next nine months to determine whether the species should be proposed for listing under the Endangered Species Act.

The determination came in response to petitions filed by the National Wildlife Federation in July and the Biodiversity Legal Foundation in August. Under the act, the Service was required to review the petitions to decide whether they contained substantial information supporting a full review of the species.

The Service will complete the review before making a decision about proposing a listing. To ensure that the review is as complete and comprehensive as possible, the Service asked the public to submit any additional scientific information.

"This is the first step in a long scientific process to review the status of the species," said Ralph Morgenweck, regional director for the Mountain-Prairie region, which contains most prairie dog habitat. "What we are saying today is that the two petitions contained enough substantial information to warrant a more comprehensive look at the species."

The black-tailed prairie dog is a small, stout ground squirrel measuring 14 to 17 inches long and weighing 1 to 3 pounds. It is found in Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Wyoming, southern Saskatchewan, Canada and northern Mexico. The prairie dog's range has declined by approximately 95 percent in the United States during the last century, with less than 1 million acres remaining of what may have been more than 100 million acres of original habitat.

The petitioners cited many factors in the decline of the prairie dog, including control programs and the conversion of rangeland to cropland. Based on the information available to the Service for this preliminary finding, biologists believe the greatest threat may be sylvatic plague, an introduced disease that is lethal to prairie dogs.

The Mountain that Became a Mole Hill



Under review. *Prairie dog habitat has shrunk nearly 95 percent during the last century. The Service is reviewing the status of the species and will decide whether to propose listing under the Endangered Species Act. Photo by Gary M. Stolz.*

Poisoning, unregulated shooting, legislatively-mandated eradication programs, and the destruction and modification of habitat also may be significant factors affecting black-tailed prairie dog populations

Five species of prairie dogs exist in North America. Black-tailed prairie dog complexes can contain thousands of individuals and extend for miles. Today, seven black-tailed prairie dog complexes larger than 10,000 acres still exist

These seven colonies represent about 36 percent of all remaining occupied black-tailed prairie dog habitat in North America. Four of these colonies are located in South Dakota where plague is absent at this time. The remaining three are in Montana, Wyoming and Mexico.

When the Service received a petition to list the black-tailed prairie dog as an endangered species, we knew that whatever we decided, we would have a tough job explaining it to the public.

We knew the press would have a field day when we announced a 90-day finding on the prairie dog; we were studying the possibility of listing a species that still numbers in the millions. We wanted to educate the media and the public about the prairie dog's unique biology and the process we use to evaluate a species for listing.

Working together, teams of Public Affairs and Ecological Services personnel in regions 2 and 6 and the Washington office pulled together a highly coordinated outreach effort.

Some of the lessons learned in handling this story as it unfolded might help others facing a difficult announcement. Many tactics may be applied to most any controversial situation.

First, we looked for potential problems. We found three:

- People would think we had listed the species and over-react to the announcement
- Prairie dogs number in the millions and people see them every day, making critical a thorough but simple explanation of the evaluation process for listing, the immediate threats to the species and its unique biology
- Federal agencies, including the Service, still controlled black-tailed prairie dog populations, in some cases by lethal methods, even as we evaluated a petition to list them.

After identifying and evaluating these areas, we felt we could answer any question critics asked. Staff from the two regions and Washington, DC, together decided how to answer.

We also had to keep federal and state agencies across the prairie dog's range—ten states—informed about our review process. Since various agencies still controlled prairie dog populations on their lands, we had to give them early notice of our 90-day finding. Field staff kept in contact with state and federal agencies. These agencies got together before the announcement to talk about possible prairie dog conservation efforts to prevent further declines and possibly avert federal intervention.

Service Director Jamie Rappaport Clark also contacted her colleagues in other agencies a few days before the announcement to alert them to the finding.

We also needed to talk to the press and the public. The Washington and regional offices received numerous calls about the status of the review process. Instead of simply telling these callers we had no decision yet, we took these opportunities to educate them so that by the time they hung up they knew what a 90-day finding was and better understood the process.

For the day of the announcement we scheduled two press conference calls with key reporters from each affected state. We used each invitation to a reporter for the conference call as an opportunity to educate them. Every reporter asked whether we were going to announce that we were listing the prairie dog; educating them before the call helped to defuse the situation.

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The Mountain that Became a Mole Hill

(continued)

On the day of the announcement, 14 reporters called in to talk with lead biologist Pete Gober and Skip Ladd, the geographic assistant regional director for Region 6, who explained the process and the prairie dog's status.

Additionally, everyone who spoke to the press during this time stuck to a standard message of explaining the process and the status of the prairie dog.

Our organized effort paid off. Every story printed the day after the announcement contained an accurate description of the finding. No headlines confused the public and no reporters made predictions about the future or speculated about the effects of a possible prairie dog listing. Instead, we saw fair and accurate headlines.

This is not the end of the story. To keep people informed and aware of our process, we will continue talking and meeting with the public and the press on the status of the black-tailed prairie dog and the prairie ecosystem.

The lessons we learned will help us the next time we make a controversial announcement.

*Cindy Hoffman, Public Affairs,
Washington, DC*

Young Artists Create, Learn and Inspire

A high school student from Illinois took top honors in the Federal Junior Duck Stamp Conservation and Design contest, held April 30. Contest judges, all of whom were Service employees, agreed that choosing a winner from among 51 pictures—one from every state plus the District of Columbia—was difficult.

“I was amazed by the art,” said Nan Rollison of the Broadcasting and Audio-Visual office. “I wish I could give them all awards.”

Sixteen-year-old Ryan Kirby of Hamilton, Illinois, won first prize in the contest with his painting of a pair of wood ducks rendered in oil and colored pencil. His design will become the 1999-2000 Federal Junior Duck Stamp, which the Federal Duck Stamp Office sells for \$5 to stamp collectors and conservationists.

Second place in this year's contest went to Sara Stack, 18, of Maplewood, Minnesota, for her acrylic painting of lesser scaup. Benjamin Carlson, 17, of West Burke, Vermont, took third place with his rendering of bufflehead on scratchboard.

Growing problem. *A Service crew trawled Duluth Harbor for just 5 minutes before making a catch containing 90 percent ruffe, a non-indigenous fish believed transported to the Great Lakes via ballast water discharged from mammoth international freighters. Delegates to the Ninth International Zebra Mussel Aquatic Nuisance Species Conference in Duluth, Minnesota, examined the ruffe-laden trawl catch and saw the Great Lakes Ballast Demonstration Project on a barge where biologists tested filters and other technology which may help limit the spread of invasive species. Duluth Harbor, located on Lake Superior, is among the busiest ports in the world, moving tons of grain, coal and iron ore from the United States abroad yearly. Delegates from the United States and Canada and observers from other countries met in Duluth for five days to discuss a wide range of aquatic nuisance species problems and solutions. Service Director Jamie Rappaport Clark is the co-chair of the Aquatic Nuisance Species Task Force, which sponsored the harbor tour.*

*Ken Burton, Public Affairs,
Washington, DC*



The 1999-2000 Federal Junior Duck Stamp.
Photo by LaVonda Walton.

The Junior Duck Stamp Design Contest is part of an innovative educational curriculum that teaches youngsters in grades K-12 about wetlands and waterfowl conservation.

The top three Junior Duck Stamp Contest winners receive a free trip to Washington, D.C., along with their art teachers and one of their parents, the following November to be honored at the Federal Duck Stamp Contest. The first place winner also receives a \$2,500 scholarship.



Service Inks Agreement With National Association of Conservation Districts



The Service and the National Association of Conservation Districts signed a Memorandum of Understanding in February to encourage cooperation in promoting and applying sound fish and wildlife management practices on private and Service-owned lands.

This MOU replaces an existing Cooperative Agreement that focused on starting the North American Waterfowl Management Plan. That agreement expires in December 1999.

The National Association of Conservation Districts is a private, nonprofit organization that serves as the voice for the nation's 3,000 conservation districts. The group's mission is to empower local conservation districts to facilitate appropriate use of natural resources.

Nationally, the association promotes sound natural resource management and land stewardship. Locally, members have a strong influence on conservation issues, particularly those facing rural and agricultural communities.

The Service already enjoys an excellent working relationship with local conservation districts in many parts of the country. This is particularly true for the Partners for Fish and Wildlife program.

"The Service often relies on conservation districts to locate landowners interested in voluntarily restoring fish and wildlife habitats on their property," said Rick Dornfeld, the Partners for Fish and Wildlife coordinator for Region 6.

Many conservation districts help the Service to design projects, locate contractors to complete the restoration work and monitor the final product.

"In 1993, at least 480 conservation districts were working with the Service to help landowners restore wetlands and other important wildlife habitat on their farms and ranches," said National Association of Conservation Districts President Rudy Rice, a dairy farmer from DuQuoin, Illinois.

"We hope this MOU will cultivate similar relationships in all 3,000 conservation districts. Restoring fish and wildlife habitats, in ways compatible with sound soil and water conservation practices, just makes good sense for those folks living on the land."

Another case of cooperation. *The Service and the National Association of Conservation Districts met in Washington, DC, to discuss implementing the MOU. Pictured, left to right, William Horvath, director of the NACD Policy Center; Brad Knudsen, a biologist with Ecological Services; Gene Williams, chair of the NACD Environment and Resource Policy Committee; Service Deputy Director John Rogers; NACD President Rudy Rice; and Steve Funderburk, deputy director of the North American Waterfowl and Wetlands Office. Photo by LaVonda Walton.*

Other Service programs involved in carrying out this agreement include the Coastal Program, the National Wildlife Refuge System, Partners in Flight, and the Division of Fish and Wildlife Management Assistance.

"The broadened scope of the MOU will allow both parties flexibility to utilize new programs and seek new partnerships to address resource issues of mutual concern," said Steve Funderburk, deputy director of the North American Waterfowl and Wetlands Office. "We also envision developing stepped-down versions of the MOU at the local and state levels to further focus on those resource issues facing a particular community or watershed."

NACD and the Service, represented by Southwest Regional Director Nancy Kaufman, unveiled the MOU during opening ceremonies at the association's national conference in San Diego on February 1. Deputy Director John Rogers met with NACD President Rudy Rice in March to discuss the agreement.

Brad Knudsen, Division of Habitat Conservation, Arlington, Virginia

Fishway Provides Alternate Route for Imperiled Shad



Safer for shad. A fishway at Boshier Dam in Richmond opens another 138 miles of the James River to the American shad, once Virginia's most bountiful fish. "Our best times are ahead," said Virginia Lt. Gov. John Hager at the April 21 dedication. Photo by Ken Burton.

Riverboat and barge commerce once thrived on southern Virginia's James River, moving through canals made possible by an extensive series of dams. Commerce changed when the railroads came along in the 1800s, but the dams remained. Only their function changed: instead of moving barges and riverboats, the dams began to supply power for the fledgling industrial revolution.

Many of those dams—among them the Boshier, located on the James at Richmond—remain today, and over the years, they unintentionally prevented many fish, including the American shad, from reaching their spawning grounds. The shad, prized as much for its roe as its meat, was once so plentiful that it was found in abundance all the way to Lynchburg, 138 miles upriver.

By about 1970, shad had all but disappeared from the James. Biologists believe that loss of access to spawning habitat caused by dams probably played a major role.

On April 21, the Service and nearly two dozen other federal, state and municipal agencies as well as a handful of foundations, private conservation organizations and other civic entities took one more step to help the fish return—they dedicated a new \$1.5 million fish passage for the American shad.

"Virginia once needed the power and the routes of commerce that the James provided," John P. Woodley Jr., Virginia's Secretary of Natural Resources, told a crowd of about 100 during a ceremony at Boshier Dam, "but times change. Today, we no longer need those things from this river. And we can begin to return her to her original purpose."

Thanks to the Boshier Dam fishway, and other similar habitat improvements up and down the James, shad are now able to again swim to Lynchburg. And, said Woodley, "we look forward to opening other passages in the future."

Similar improvements are targeted on the Susquehanna, Appomattox and Potomac rivers, among others.

There has been no shad fishing in Virginia since 1993 or in Maryland since 1984. Even the shad at Virginia's benchmark political picnic, the annual Shad Planking, have had to be imported the past several years, a development that Lt. Gov. John Hager said he hoped might be changed.

Shad need a pool and weir arrangement, as opposed to a fish ladder used by salmon, because shad are not aggressive swimmers and can be discouraged even by marginal obstacles. Where an aggressive salmon will simply jump—and jump and jump—shad will stop. The terraced pools of the fishway at Boshier Dam are nearly made to their order.

The Service has worked with the Virginia Department of Game and Inland Fisheries since the state began a shad restoration program in 1994. Harrison Lake NFH near Richmond produces 3 million shad eggs each year, 1 million of which go into the James as fry near Boshier Dam. Since 1994, the Service has released more than 23 million American shad fry in the James just above the dam.

The Service contributed engineering support and helped to write the fishway feasibility study for the Boshier Dam project. Jaime Geiger, assistant regional director for Fisheries in Region 5, lauded the project as a model partnership effort.

"The completion of Boshier Dam represents leadership, partnership and cooperation at its finest," he said. "From local, state, federal and private sectors—everyone stepped forward, accepted the challenge, and made this project a reality. This project rightly serves as a model for the rest of the country on how watershed restoration projects should work, and the biological, recreational, and economic benefits that can result."

The James is Virginia's largest river, and drains close to 10,000 square miles of forest and farm fields, city pavement, parks and riverfront estates. Today's population of 2 million people in this vast drainage basin places a huge strain on the river, which still supplies water for domestic and industrial use.

Ken Burton, Public Affairs, Washington, DC

This list of cooperators appears on a brass plaque affixed to one wall of the Boshier Dam fishway:

U.S. Fish & Wildlife Service
Episcopal Diocese of Virginia
Virginia Department of Game and Inland Fisheries
CRX Railroad
City of Richmond
James River Association
Environmental Protection Agency
Chesapeake Bay Foundation
Virginia Marine Resources Commission
Virginia Institute of Marine Science
Virginia Commonwealth University
National Fish and Wildlife Foundation

The plaque also acknowledges "hundreds of private donors" who contributed to the \$1.5 million project.

Ken Burton

Law Enforcement Outreach Takes Off at Airport



Are you getting this? *Wildlife inspector Catherine Cockey shows confiscated wildlife items to a television news crew. Photo by LaVonda Walton.*

Travelers who use Baltimore/Washington International Airport now learn about enjoying and protecting wildlife from a colorful new exhibit, thanks to a partnership between the Maryland Aviation Authority and three Service offices—Patuxent Research Refuge, Chesapeake Bay Field Office and the Baltimore law enforcement office.

The exhibit spotlights the National Wildlife Refuge System and the illegal wildlife trade. Service Director Jamie Rappaport Clark dedicated the display at a February ceremony at the airport along with Kirk Wineland, deputy administrator of the Maryland Aviation Authority.

“The airport’s loan of this exhibit space is a very special gift,” said Clark at the ceremony. “We are truly grateful to the Maryland Aviation Authority for giving the Service the opportunity to tell people about refuges and wildlife.”



A word to the wise. *Service Director Jamie Rappaport Clark spoke about the importance of being “wildlife-wise” when traveling. To her right is a table of confiscated wildlife products. Photo by LaVonda Walton.*

The exhibit invites the public to visit the nation’s more than 500 national wildlife refuges to learn about and experience wild things and wild places. Those visiting or returning to the Baltimore/Washington, DC, area are reminded that Patuxent Research Refuge, a 13,000-acre tract of forests and wetlands with several hiking trails, is an easy drive from both cities.

The display also urges travelers to be “wildlife-wise” consumers when they travel overseas. Unwary tourists can become inadvertent participants in the illegal wildlife trade when they buy wildlife products abroad.

Wildlife inspectors stationed at the airport helped Clark drive home this point. Following the formal dedication ceremony, reporters and audience members examined a table full of illegal wildlife souvenirs.

Many of these products, which ranged from a stuffed hawksbill sea turtle and ivory jewelry to Asian medicinals and a dwarf crocodile handbag, had been taken from passengers returning from overseas via the Baltimore/Washington airport.

After the ceremony, Clark took media representatives on a behind-the-scenes look at an actual wildlife inspection in one of the airport’s cargo facilities. Assisted by wildlife inspectors Catherine Cockey and Richard Potvin, Clark examined a shipment of baby pythons being exported that day.

Working with the traveling public is only a small part of the duties of Service wildlife inspectors. The pair stationed at the Baltimore airport process some 2,400 commercial wildlife shipments each year, monitoring part of a national trade worth more than \$1 billion.

Reporters learned about Service licensing and permit requirements and about the priority put on inspecting shipments of live wildlife. As she held one of the pythons, Clark stressed that the Service wildlife inspection program is the nation’s frontline defense against illegal wildlife trade—a threat to animals worldwide.

Sandy Cleva, Division of Law Enforcement, Arlington, Virginia

Service, Partners Laud Volunteers and Conservation Professionals



Recognizing some jewels of the refuge system. *Left to right: Bill Ashe of the National Wildlife Refuge Association; Refuge Manager of the Year Dean Rundle; Refuge Volunteer of the Year Elaine Wilmers; Service Director Jamie Rappaport Clark; Volunteers of the Year Bill Milling and Susan Nugent; Employee of the Year Matthew Magoffin; and Evan Hirsche of the National Audubon Society. Photo by Tami Heilemann.*

Professional wildlife managers, a wildlife law enforcement officer, and volunteers received nationwide recognition from the Service and its conservation partners during a March 27 ceremony at the North American Wildlife and Natural Resources Conference in Burlingame, California.

“Thousands of Americans dedicate their lives to ensuring that our nation’s wildlife heritage thrives for all of us to enjoy now and in the future,” said Service Director Jamie Rappaport Clark. “This awards ceremony offers the Service a way to recognize the lasting contributions made by seasoned professionals and experienced volunteers to our conservation heritage.”

Migratory Bird Hunting Law Expert Honored
Service Special Agent Joseph Oliveros, who works in the law enforcement office in Jacksonville, Florida, received the National Fish and Wildlife Foundation’s 1999 Guy Bradley Award for his contributions to the protection of wildlife resources. The award, named after the first wildlife law enforcement officer killed in the line of duty, was presented to Oliveros by Whitney Tilt, the Foundation’s director of conservation programs.

“Joe and his fellow wildlife law enforcement officers represent the ‘thin green line’ dedicated to conserving this nation’s fish,

wildlife and plant resources for future generations,” noted Tilt. “Successful wildlife conservation cannot occur without effective law enforcement.”

Oliveros, a 24-year Service employee, is recognized as one of the agency’s experts on enforcement issues involving migratory game bird hunting.

Each year, the National Wildlife Refuge Association and National Audubon Society sponsor awards for the Refuge Manager of the Year, Employee of the Year, and Volunteer of the Year, and the Foundation joins these organizations in sponsoring a Friends Group of the Year Award.

Rundle Named Manager of the Year
Dean Rundle, manager of San Diego NWR Complex in California, was chosen Refuge Manager of the Year. Under Rundle’s leadership during the last 3 years, this group of five refuges in the heart of a major metropolitan area has tripled in size to more than 8,000 acres.

In addition to managing dwindling habitats in one of the most developed parts of the country, Rundle’s challenges include fostering public understanding and support for endangered species conservation, the complexities of urban refuge planning, and

coordinating with diverse interest groups and government entities. Most recently, Rundle led negotiations among the Port of San Diego, five surrounding cities, and the business community to acquire 1,300 acres of prime wetlands for which the environmental community had advocated protection for decades.

San Bernardino Officer is Employee of the Year
Matthew Magoffin, a welder and collateral-duty refuge law enforcement officer at San Bernardino NWR in Douglas, Arizona, was given the Refuge Employee of the Year Award. In addition to his welding and especially challenging law enforcement responsibilities on this 5,000-acre refuge on the Arizona-Mexico border, Magoffin also finds time to enlist community support for efforts to protect the rare Chiricahua leopard frog and endangered desert fisheries.

He jump-started a program with local special education students to care for the frogs from egg-stage to adult in outdoor classroom rearing ponds at the high school. With Magoffin’s help, these students have expanded the program to several other schools, where they have created lesson plans and outdoor classrooms for both the frog and endangered fisheries. Raised frogs have been reintroduced on the refuge as well as local ranches, including Magoffin’s own.

Four Share Volunteer Award
Bill Milling, Harold and Susan Nugent, and Elaine Wilmers, volunteers at the 8,300-acre National Key Deer Refuge and three other Florida Keys refuges, each received the Refuge Volunteer of the Year Award.

Milling leads public education programs at a popular visitor site where he has earned respect for his extensive knowledge of the cultural and ecological history of the Florida Keys. When the site’s main attraction—a pair of alligators—fell victim to poachers, Milling raised \$3,000 in reward money for information about the crime.

The Nugents’ volunteer service is distinguished by their extraordinary public education efforts, including guided tours of unique and fragile habitats of the Keys and organizing special events to showcase these special refuges.

Six More Endangered Condors Released in California

Wilmers has been instrumental in improving conservation efforts for the endangered Key deer, several endangered sea turtles, and migratory birds. She is best known for her efforts to survey Key deer and care for deer injured by automobiles, and her sea turtle surveys and research, which have helped improve conservation programs and earned her wide acclaim.

“Ding” Darling Wildlife Society Honored

The 1,000-member J.N. “Ding” Darling Wildlife Society, which supports the J.N. “Ding” Darling NWR on Florida’s West Coast, received the Friends Group of the Year award for outstanding community service. Since its founding in 1982, the society has donated more than \$250,000 to this paradisiacal refuge to support the volunteer program and a wide variety of projects, including habitat restoration, birdwatching and other visitor programs, and a new education center.

Refuges Division Receives Award

Another refuge system-related award presented at the conference was the Wildlife Management Institute’s first-ever Presidents’ Award, given to the Service’s Division of Refuges in Washington, DC. The award honors a North American federal, state, or provincial agency’s exceptional creativity and tenacity in affecting a particular program. Rick Coleman, former chief of the Division of Refuges, accepted the award.

Migratory Bird Conservation Efforts Recognized

Seven individuals and two groups whose contributions help conserve migratory birds received Partners In Flight Awards at the March 27 ceremony.

Partners in Flight is a consortium of hundreds of organizations, natural resource agencies, businesses, industry associations, private landowners, foundations, universities, and individual citizens dedicated to maintaining healthy bird populations in the United States and throughout the Western Hemisphere. Award recipients included a professor who received an Investigations Award for his groundbreaking work in bird migration; a Saskatchewan conservation corporation that has entered into partnerships to conserve some 70,000 acres; and Ronnie Shell, manager of the Piedmont NWR in Georgia, who received a Stewardship Award for his efforts to integrate the needs of vulnerable nongame birds and traditional management.

On March 24, biologists from Hopper Mountain National Wildlife Refuge Complex, headquarters for the Service’s California Condor Recovery Program, released six juvenile condors to the wild at Lion Canyon, in the Los Padres National Forest in southern California.

These six condors will join sixteen others already flying free in the mountains of southern California.

The newly-released birds wasted no time stepping out of their holding facility and stretching their wings. Within 5 minutes all had made short test flights as eight of the older condors watched from a nearby rock ledge.

A few days later, the young condors fed with the older birds at carcasses put out by biologists. All of the young birds made significant flights over the canyon during the first week, biologists reported.

This was the eighteenth release since the Service initiated condor reintroduction efforts in 1992, and the sixth at Lion Canyon. The Ventana Wilderness Society set free seven condors on January 30 near Big Sur, California, and The Peregrine Fund released eight birds atop the Hurricane Cliffs in Arizona in November 1998.

The March release brings to 56 the number of condors flying free in the wild; 91 remain in captivity.

Three of the six juvenile condors released in March hatched at the San Diego Wild Animal Park; the other three hatched at the Los Angeles Zoo’s captive breeding facility. The six birds are about a year old and spent the six months before their release practicing their flight skills in a pen at Los Angeles Zoo.

To give the young birds a better chance of surviving in the wild, biologists gave them power pole aversion training. Staff from the refuge complex also delivered stillborn calf carcasses to the Los Angeles Zoo to help the young birds develop carcass feeding skills.



Free at last. Y92, a newly-released juvenile condor, in flight over Lion Canyon. Photo by David Clendenen.

In addition, biologists placed three older condors in the flight pen with the six young birds to give them experience competing with older birds for food.

Recovery biologists took the young birds to a holding facility at Lion Canyon shortly before release to allow them to acclimate to their new surroundings.

The goal of the California Condor Recovery Plan is to establish two geographically separate populations of 150 birds—one in California and one in Arizona—with at least 15 breeding pairs. Eleven of the sixteen California condors currently in the wild in southern California should be capable of breeding by spring 2000. Service biologists recently observed courtship displays among several of these older birds.

Bronwyn Davey, Hopper Mountain NWR Complex, Ventura, California

Chopping Trees to Save Squirrels



Listen carefully. *Biologist Gary Turner demonstrates the fine art of squirrel telemetry. Photo by Eric Eckl.*

The pickup truck bounced like a baby on its grandpa's knee as it crept along a freshly bulldozed logging road towards a harvest site deep in the forest.

"This part of Maryland is the last real stronghold for the Delmarva fox squirrel," said driver Greg Turner, a biological technician with U.S. Geological Survey's Biological Resources Division. Turner is participating in a project to develop best management practices for forestry on Maryland's Eastern Shore, home to the endangered fox squirrel.

"Forestry is one of the county's most important sources of income, and if the timber industry is going to continue harvesting trees as it has done for centuries, there's a real need to know how the squirrels are affected by harvest and management," he added.

The Delmarva fox squirrel resembles its suburban gray cousin but is much larger and requires mature forest habitat. This fox squirrel was never widespread, and forest clearing for development and agriculture have reduced its range to the Eastern Shore—a rural peninsula embracing the Chesapeake Bay, an hour from Baltimore and Washington, D.C.

The forestry project is a model of public-private cooperation. Partners include the Service, the Geological Survey, The Conservation Fund, the Chesapeake Bay Foundation, the Maryland Department of Natural Resources, the Maryland Forest



Sign of the times. *Travelers to forest areas on Maryland's Eastern Shore may be greeted by one of these signs. Photo by Eric Eckl.*

Service, and two local forest product firms—Spicer Incorporated and Chesapeake Forest Products Company.

"The Service's interest is twofold," explained Glenn Carowan, refuge manager at Blackwater NWR in the heart of squirrel country and the Service's lead representative on the project. "First, we have an obligation to help recover the squirrel, and second, we have to manage a lot of forest ourselves where the squirrels are found."

Blackwater refuge, which already harbors a substantial squirrel population, has nearly doubled in size over the past ten years and continues to grow.

The Conservation Fund helped to purchase many of the acres for the refuge and owns the adjoining Chesapeake Bay Demonstration Forest being used in the project. Aside from being the primary landowner, the Fund also ensures that logging is conducted responsibly, and reinvests proceeds from the harvest on its land in area conservation projects.

"The idea was to protect the squirrel not just by buying its habitat, but also by learning more about the species' needs and improving management," said Evan Smith, who manages the project for the Fund.

"The project started three years ago, and has been designed to include all of the currently applied best management practices," Carowan added.



Looking for a home. *Forest clearing has reduced Delmarva fox squirrel habitat. Photo by Bob Kavetsky.*

Balancing forestry with endangered species conservation is not simple, according to biologist Turner.

"First we trap the squirrels in the area and fit them with collars. We then monitor their normal behavior prior to any disturbance. The loggers then go in and do the cuts. Each cut is a little different," Turner said. "During and after the cut, we monitor the squirrels' behavior using telemetry equipment and see how the squirrels respond."

The effort, however, is paying off.

Already, the partners are getting a picture of the population dynamics in the area. By fall, participants hope to understand the impacts of various harvest techniques on the squirrel and be on their way to prescribing best management practices for logging in areas where the squirrels are found.

"Partnership efforts like this are very rewarding. We can bring some money and some flexibility to government agencies that they might not be able to take advantage of otherwise," added Smith.

*Eric Eckl, Public Affairs,
Washington, DC*

Realty Specialists: Getting the Job Done

The Service acquires land for the National Wildlife Refuge System by purchasing it from willing sellers, or through donation, transfer of surplus military lands, management agreements with other agencies, and withdrawals or land trades from public domain lands in the West.

Land acquisition takes hard work by staff in many Service programs areas. The Service's realty specialists are key players in this process.

Typically land acquisition has many stages and spans several years. First, biologists and Service realty specialists conduct a field review to survey and assess biological values, look for possible contaminant problems and make other observations to decide if a tract is a good acquisition candidate. Following Service criteria—endangered species use, importance to migratory birds, presence of nationally important fish and/or wildlife habitat, and biodiversity values—biologists write an ascertainment report identifying the significant biological features and assigning the tract a rank.

This ranking establishes the tract's purchase priority relative to all other Service land acquisition proposals and is entered into the Land Acquisition Priority System. If the LAPS score warrants continued realty attention, Service biologists and realty specialists write a preliminary planning proposal and a land protection plan; this is often written as a brochure, to inform the public and other agencies of the possible acquisition.

Finally, biologists write an environmental assessment or impact statement to address the project's effects, solicit public and agency comments, and announce a decision on whether to proceed with the land acquisition.

Lands are most often purchased with funds from the Land and Water Conservation Fund or the Migratory Bird Conservation Fund.

Land and Water Conservation Fund monies are derived from federal off-shore oil leases, motor boat fuel taxes and sales of excess government property. Congress appropriates funds to purchase land in specific project areas—such as national wildlife refuges and waterfowl production areas—with LWCF monies.

Migratory Bird Conservation Fund monies come from the mandatory purchase of Migratory Bird Hunting and Conservation Stamps by migratory bird hunters 16 years of age or older. Many non-hunters—stamp lovers, art lovers and other conservationists—also purchase a \$15 Duck Stamp each year.

Purchasing land with Duck Stamp funds occurs only after the Migratory Bird Conservation Commission approves proposed acquisition boundaries and the price. The commission is composed of the secretaries of Interior and Agriculture, the administrator of the Environmental Protection Agency, and two members each from the U.S. Senate and House of Representatives.

The acquisition process typically follows a standard procedure. The Migratory Bird Conservation Commission meets several times per year to review proposals. Once the commission approves the purchase price, the national realty office allocates the funds. Usually the realty specialist who made the initial inspections during ascertainment presents the seller with a check or, in this computer age, an electronic funds transfer to complete the purchase.

After authorization, realty specialists come up with a fair market purchase offer for the land based on recent sales information on comparable property. After inspecting the property and talking with the landowner, the appraiser prepares a report identifying the fair market value and submits it for regional review.



A national treasure. *Enhancing our National Wildlife Refuge System is one of the Director's four top priorities for the coming two years. One of the more than 500 refuges nationwide, John Heinz at Tinicum, in Philadelphia, is also one of the several located in or adjacent to a large city. Photo by Karen Hollingsworth.*

After a regional review appraiser approves the offer, a field realty specialist presents the offer to the landowner, answers questions and works out details. Arrangements such as when and how a farmer will end farming or grazing on the land often are made at this stage. The landowner signs a purchase agreement with the Service.

The refuge manager initiates protection, inventory and enhancement efforts on the newly acquired land. Continuing to work behind the scenes, the realty specialist files the deed with the county, enters the tract into Service lands records data bases and completes paperwork.

Realty specialists working across the country and in many U.S. territories are vital in carrying out the Service's mission; without them we would not be able to acquire lands to restore, protect and enhance for future generations to enjoy.

Dave Potter, Audubon NWR Complex, Coleharbor, North Dakota

...And Leave the Driving to Us

In 1986, the Service and the Chinese Ministry of Forestry signed a protocol on cooperation in the area of conservation. Federal agencies in both countries participate in activities which have included exchanges of specialists in wetland and river estuary protection; training workshops on identifying endangered species and their parts; sturgeon and shad monitoring in China's Yangtze River; and creating shared wildlife computer databases.

The two nations meet every other year in alternating capitals to review recently completed projects and agree on exchanges for the next two years. A six-member U.S. delegation led by Service Deputy Director John Rogers visited Beijing and Yunnan Province in southwest China in March. The group spent two days in XiShuangBanNa Nature Reserve at the border where China, Laos and Burma come together.

The area's beauty, remoteness and species diversity are unequal anywhere else in China, as the delegation discovered once they arrived. Getting there, however, was a different matter....

by John G. Rogers, Deputy Director

As we started up the long steep hill, our little bus gave a shudder and came to a stop in the middle of our lane on the 1½ lane, rough paved road. After we stared at each other with quizzical expressions for a few minutes, the driver told us through our interpreter that we might as well get off since we wouldn't be going anywhere soon.

Aside from myself, our delegation consisted of Sam Hamilton, regional director for Region 4; Hannibal Bolton, chief of Fish and Wildlife Management Assistance; Jon Andrew, chief of the Office of Migratory Bird Management; Steve Kohl, Russia/China Program manager in the Office of International Affairs; and Richard Johnson with the Biological Resources Division of the U.S. Geological Survey.

Meanwhile back at the bus... It was mid-afternoon but we barely worried as the driver seemed to know what the problem was. He headed directly for his tool kit (three wrenches and a hammer) and went right to work on the engine.

During our wait we learned a cultural lesson—when a Chinese vehicle is in trouble no one stops to offer assistance. We were in rural China, and the only notice given to us by passing traffic was stares and blasts on the horn. The horn blasts were less in annoyance than in warning to get out of the way because the driver's intention was not to stop, but only to slow enough to see who would win the game of chicken in the effort to get past us.

One of our escorts had been making and receiving calls on his cell phone all day, and we convinced him that it might be wise to call ahead and warn our hosts that we might be a bit late, or even need some help. He soon discovered that we were in the one place in China where a cellular call will not go through. He finally despaired and flagged down a vehicle to take him to where he might have more luck. We did not see him again for 24 hours.

As the sun began to dip behind the mountain, we convinced Steve Kohl to be a bit more aggressive with our hosts and try to get them to secure us some transportation—the driver was obviously having no luck with his repairs. Finally we convinced a fairly good-sized bus to stop and Steve and our principal escort negotiated with the driver. They struck a deal and we were told to immediately board with only minimal possessions (most of our luggage would remain on our broken down bus).

With implicit faith we followed orders. As we stepped on the bus we were surprised to find that there were no seats. Not that there were no empty seats, but no seats.... of any kind.... at all. The interior was lined with shelves down each side and across the back. Obviously the least desirable were those in the rear as they were the only ones unoccupied by the prone passengers.

No one on the bus had ever seen an American, it seemed, and they watched wide-eyed as we worked our way to the rear over the baggage dropped by other passengers and climbed onto the upper platform, where we lay like sweaty sticks of cordwood. Headroom was minimal, but it was not too uncomfortable for what we hoped would be a short stretch. At least we were again moving instead of watching futile repair attempts, but we had no idea where we were going, nor how long it would take.

The driver took off without ceremony and demonstrated that his sole concern was for his schedule. He drove with a cigarette dangling from his mouth, one hand on the wheel, the other on the horn and his foot mashed down on the gas pedal.

Sam Hamilton stayed at the front of the bus next to the driver, hanging on white-knuckled as the bus barreled along the steep switchbacks. There was a 1,000-foot drop on the side and no guard rail.

"That guy never hit the brakes," Sam reported. "People in the road had to jump out of his way. I was so glad to get to the bottom of that hill."

At last after about an hour, the bus stopped and we were told to disembark with all speed so that the driver could continue in his manic pursuit of the schedule. As we wandered into the little town that was our destination for the evening, we wondered at the union of masochism and sadism represented in the combination of driver and passenger on that bus.

It was an experience none of us will ever forget and one of those wonderful (in hindsight) experiences of traveling in another country and another culture.

Partnership Effort Helps Native Trout

Memorable Cuisine

Among other items, Deputy Director Rogers and his traveling companions in China sampled such native delights as:

Pig's ear

Turtle

Squirreelfish (and their eyes)

Beef tongue

Jellyfish

Boiled duck feet

Duck brains

Fish eyes

Fried chicken skin

Pig stomach

Duck brains

Ferns and grass-like native plants

Hannibal Bolton, it was reported, developed a reputation as the most adventurous of the diners, but Sam Hamilton attempted the boiled duck feet, which, he said "popped loudly" when he bit into them, startling John Rogers.

"They looked pretty," Hamilton reported, "but the web was gooey."

(List compiled by Sam Hamilton)

Rio Grande cutthroat trout once swam throughout much of the upper Rio Grande basin in New Mexico and southern Colorado. Competition with non-native trout and habitat loss limits the imperiled Rio Grande to less than 10 percent of its original range. Native cutthroat trout habitat is back on the increase, however, thanks to a multi-agency partnership.

In 1995, the Jicarilla Apache Tribe acquired the Running Elk Ranch in northern New Mexico, part of the tribe's traditional homeland. Two streams on the ranch, Willow and Poso creeks, historically supported Rio Grande cutthroat trout but had been stocked with non-native trouts. Committed to enhancing native fauna, the tribe sought to restore Rio Grande cutthroat trout to the two creeks.

Funded by a grant from the National Fish and Wildlife Foundation, three agencies—the Jicarilla Game and Fish Department, the New Mexico Department of Game and Fish, and the Service's New Mexico Fishery Resources Office—work jointly to restore the native fish populations on the Running Elk Ranch.

The agencies readied the streams for the cutthroats by performing habitat assessments, building fish barriers and removing non-native trout. This spring, biologists planted 210 Rio Grande cutthroat trout in five miles of Willow Creek. The New Mexico Department of Game and Fish supplied the trout, which will be ready to spawn this year and are on their way to becoming an established population. Biologists will release cutthroats into Poso Creek this fall.

Jim White, fisheries biologist for Jicarilla Game and Fish, applauded the success in reintroducing cutthroats on the ranch.

"This was a unique opportunity to work cooperatively with the other agencies," said White. "The Jicarilla Tribe is quite enthused about re-establishing a native trout on Native American lands."



Slowly returning. *The Jicarilla Apache Tribe is working with Service and state biologists to return Rio Grande cutthroat trout to two New Mexico streams. USFWS photo.*

Barry Wiley, of the New Mexico Fishery Resources Office, commended the conservation efforts, as well.

"This one stocking effectively increased the range of genetically pure Rio Grande cutthroats by about five percent," said Wiley. "But this is a value-added project. Thanks to our partnership, these new populations should go a long way in expanding the range of this fish."

The project does not end with the stocking. The agencies will monitor the abundance of the new populations and watch for disease outbreaks.

People and wildlife will benefit from this partnership for years to come. By formal agreement among partners, the new populations will serve as a source of eggs and young fish to further expand their range and increase recreational fishing opportunities.

Craig L. Springer, Division of Fisheries, Albuquerque, New Mexico

Hunting for "Bugs" in Wild Fish

In recent years, fishery resource managers have become more aware of the importance of fish health information because of the potential for diseases to curtail fish populations.

The discovery of deadly whirling disease in blue ribbon trout fisheries in Colorado and Montana refocused attention on the importance of understanding complex relationships between the host fish, the pathogen and the environment.

The demand on the nation's waters and the potential for fish disease outbreaks will increase as human populations continue to grow. However, said Frank Panek of the Division of Fish Hatcheries in the Washington Office, the National Wild Fish Health Survey provides the Service and its partners with the scientific knowledge to manage diseases.

Central to the survey program was the development of standardized protocol that allows each of the Service's nine fish health centers to gather fish health information in a consistent and comparable format. Fish health centers are equipped with some of the latest hardware and staff have received specialized training in advanced immunological and molecular diagnostic techniques.

Begun in 1997, the survey has now taken the next step forward. By September, the National Wild Fish Health Survey Database will be accessible for public viewing via the World Wide Web.

"Anyone interested will be able to query the database by selecting a geographical area, species of fish, fish pathogen and date or dates of interest," Panek said. "A graphic interface will allow the user to see summary data on maps."

When complete, the database, developed through a cooperative agreement with Montana State University, will allow users to link fish health information to other data, including environmental conditions.

The survey has already proved to be an excellent tool for fisheries resource managers responsible for monitoring and evaluating populations of wild fish.

"The fish health information comes at a minimal cost to partners who need it and may only include the cost of shipping samples or providing assistance in fish collections," Panek said.

In 1998, fish health centers worked side-by-side with a variety of partners to collect and analyze more than 13,000 fish from 422 sites in 38 states. The number of requests from potential partners to participate in the survey continues to increase.

Highlights of 1998 survey accomplishments include:

- Staff from Bozeman Fish Health Center in Montana discovered the causative agent of whirling disease in cutthroat trout from Yellowstone Lake in Yellowstone National Park, and used the survey to assess potential risks associated with the passage of threatened bull trout over Cabinet Gorge Dam on the Clark Fork River in Montana.

- While sampling brook trout in Virginia's Shenandoah National Park, biologists from Pennsylvania's Lamar Fish Health Center isolated infectious pancreatic necrosis virus and *Yersinia ruckeri*, bacterial agent of enteric redmouth disease.

- Arizona's Pinetop Fish Health Center documented Asian tapeworm infections in the San Juan River in New Mexico and the Little Colorado River in Arizona. Survey partners assisted Pinetop staff in collecting fish in extremely remote areas of the Southwest by providing various means of transportation including helicopters, horses, mules and rafts.



Looking for answers. John Coll of the Lamar Fish Health Center collects fish health samples in Virginia's Shenandoah National Park. USFWS photo.

- Staff from Warm Springs Fish Health Center in Georgia detected *R. salmoninarum* in rainbow and brook trout, as well as Alabama hogsuckers and channel catfish, from Arkansas, Georgia, South Carolina, Tennessee and Kentucky.

A number of factors have contributed to the survey's success.

"First, we have been able to develop partnerships with numerous fisheries resource agencies including Native American tribes, states, universities and other federal agencies. Because these folks already manage fisheries resources in the field, our fish health centers can focus their efforts on research and testing," Panek said.

"Success is also a result of outstanding program support in the Washington and regional offices," he continued. "Through cooperative partnerships like the survey, the Service will continue to be a leader in maintenance, restoration and recovery of the nation's fisheries for the enjoyment of its people."

K. Kenneth Peters, Bozeman Fish Health Center, Bozeman, Montana

Operation Dinosaur Bags Poachers in National Monument



Scene of the crime. *A hunting guide led several illegal trophy game hunts through the National Park Service's Dinosaur National Monument in Colorado. Photo by Richard Frears/National Park Service.*

A 2-year undercover investigation conducted by the Service and the Colorado Division of Wildlife infiltrated a lucrative poaching business and recently resulted in a prison sentence for an outfitter/guide charged with leading illegal hunts in northwest Colorado. Some of the crimes occurred within the boundaries of Dinosaur National Monument, a well-known winter refuge for big-game animals.

In addition to the outfitter, a plastic surgeon, a wealthy businessman and a dairy farmer were convicted. An eighth man pled guilty and, pursuant to a plea agreement, is expected to receive 4 months of home detention.

Operation Dinosaur was a cooperative effort between the Service's Mountain-Prairie region, the state of Colorado and the National Park Service. More than 40 game wardens from Texas, Kansas, Wisconsin, North Carolina and Florida assisted. The Department of Justice prosecuted the case in federal district court.

The outfitter ran an exclusive hunting club for wealthy clients seeking trophy animals. He often earned up to \$10,000 per client per hunt by orchestrating illegal killing of elk, deer and antelope within monument boundaries and on private land. He frequently operated from a hunting camp adjacent to the monument.

Agents conducted the investigation into the outfitter's activities over two hunting seasons in 1995 and 1996. The covert phase lasted 7 months as special agents penetrated his business by posing as big-game hunting clients and witnessed several illegal hunts.

Operation Dinosaur was sparked by Colorado Division of Wildlife intelligence pointing to a decade of suspected poaching in northwest Colorado. Residents often saw lights at night and discovered headless remains of deer, elk, antelope and mountain lions.

In an agreement negotiated by the U.S. Attorney's Office in Denver, the outfitter pled guilty to four federal felonies. He was sentenced in December 1998 to 12 months and one day imprisonment, 3 years of supervised release, a fine of \$10,000, and forfeiture of two vehicles used during the crimes.

Additionally, the state of Colorado is considering a lifetime revocation of the outfitter's hunting license there, which would also apply in the eight other western states that participate in the Wildlife Violator Compact—Arizona, Idaho, Montana, Nevada, Oregon, Utah, Wyoming and Washington.

To date, this landmark case has also resulted in more than \$84,000 paid in fines and restitution. Of this amount, \$29,000 will be used for Operation Game Thief, a statewide poaching hotline, and \$22,500 will go to Dinosaur National Monument's law enforcement programs.

The defendants also forfeited weapons and vehicles used during the hunts, as well as mounted heads and antlers. Four of the defendants had hunting privileges revoked—two for life, and two for 5 years each.

"Hopefully, these sentences will be a deterrent for those unsportsmanlike hunters who would steal the biggest and best of the gene pool, our national treasures," said senior resident agent Roger Gephart of the Denver office.

Karen Miranda Gleason, External Affairs, Denver, Colorado

New Demands Push Training Envelope



Virtual reality. Students in the Refuge Officer Basics School simulate real-life situations to prepare them for their law enforcement duties. USFWS photo.

Squeaking shoes and “Down, down, down!” commands echoed through the National Conservation Training Center gym as participants in the Refuge Officer Basics School grabbed their classmates by the thumb and twisted their arms behind their backs, pushing them towards the mat. Once the “suspects” lay prone, the “arresting officers” snapped on the cuffs.

For most Service employees, restraining resisting suspects is not part of their routine, but it is a situation that refuge law enforcement officers encounter more often these days.

“The face of refuge law enforcement has changed tremendously in the past 15 years,” said Steve Wunderley, national coordinator for refuge law enforcement at the training center. “These men and women are protecting and serving a much broader spectrum of the public now.”

As the nation’s population expands, pushing urban woes into once rural areas, refuge law enforcement increasingly resembles an episode of “Cops” more than the Mark Trail strip in the Sunday comics. Recent crime statistics for one year revealed that national wildlife refuges were the scene of seven homicides, 26 assaults, two rapes, 200 burglaries and more than 4,000 acts of vandalism. In 1998, law enforcement officials seized 25 tons of marijuana and two tons of cocaine on Service lands.

Fulfilling the Promise, the refuge system’s vision for the future, calls for national wildlife refuges where visitors feel welcome—and safe. This means a greater need for refuge staff prepared to deter crime and respond to medical and other emergencies.

Currently, approximately 600 certified law enforcement officers patrol refuges, but only about 60 of them are full time. The other 540 “collateral duty” officers continue in their primary role as refuge managers, biologists, fire management specialists and outdoor recreation planners, among others, rising to the occasion when their special skills are needed.

All new officers must complete the rigorous training program in police work and land management law at the Federal Law Enforcement Training Center in Glynco, Georgia, and the Refuge Officer Basics School at NCTC. It is a testament to the value of this training that no officer has been killed or seriously injured in the course of law enforcement duties since the program began in the late 1970s.

Refuge officers deal with the public more than most other staff. According to Robert Jess, deputy refuge manager at ACE Basin NWR in South Carolina, they face both headaches and joys.

“We run a mobility impaired hunting program at ACE Basin,” Jess said. “Last season, the family of a quadriplegic hunter stopped by to thank me personally for the successful hunt their son had on the refuge... That makes up for the days when you deal with nothing but irate hunters during compliance checks.”

Refuge law enforcement presents challenges urban police can hardly imagine. Not only do refuge officers encounter many more armed individuals, backup units are non-existent and state and local colleagues are a long way away.

The result, Wunderley said, is the strongest esprit de corps in the Service.

Jerry Kuykendall, Federal Law Enforcement Training Center, Glynco, Georgia

Eric Eckl, Public Affairs, Washington, DC

Ambassadors to Their Communities



Practicing diplomacy. Refuge Manager Larry Ditto leads a tour on Santa Ana NWR. As Refuge Ambassadors, refuge employees in the Southwest are focusing on reaching out to the communities surrounding their stations. USFWS photo.

One day a year and a half ago, Joe D’Arrigo, a heavy equipment operator at Santa Ana NWR in Texas, found out that he would be participating in the Refuge Ambassador Program—an outreach effort aimed at increasing awareness of and support for the National Wildlife Refuge System at the local level.

“Why do they need me?” D’Arrigo thought to himself. “I’m an equipment operator. I sit on a machine all day.”

D’Arrigo soon discovered that the greatest hope for conserving wild places like Santa Ana rests with all refuge employees—from managers to biologists to mechanics—and their ability to generate support at a grassroots level.

This is what the Southwest region’s Ambassador Program is all about.

“Our goal,” said Dom Ciccone, Southwest assistant regional director for refuges, “is to increase knowledge of the refuge system and motivate the staff who live and breathe the ideals of the mission. Those employees then become refuge champions—ambassadors, if you will—within their own communities.”

As part of this program, staff at five pilot sites—Tishomingo, Anahuac, Santa Ana/Lower Rio Grande Valley, Bitter Lake and Havasu refuges—participated in on-site customer service, outreach and media training.

Technology Center Helps Endangered Darter

Following the initial seminar, Joe D'Arrigo and his colleagues at the five refuges developed action plans for three key areas:

- Enriching the refuge experience for visitors by, for example, improving orientation, providing enhanced customer service and better maintaining facilities
- Becoming more active in the community through activities such as joining community organizations, providing native plantings in the area and mentoring school children
- Better involving local communities by partnering with a local high school to volunteer opportunities

Ambassadors developed radio public service announcements featuring refuge staff—including office assistants, maintenance workers, biologists, law enforcement officers, managers and volunteers—discussing what they do, the refuge system's significance and how their refuge is an important part of the community.

Dave Blankinship of Santa Ana NWR recalled that after the public service announcements began playing, the number of people interested in becoming tract stewards in the Lower Rio Grande Valley increased dramatically.

The Refuge Ambassador Program has shown so much promise that Southwest Regional Director Nancy Kaufman partnered with the National Conservation Training Center to expand the program by another 10 refuges in 1999. All Southwest refuges will participate by 2003, the 100th anniversary of the National Wildlife Refuge System.

Joe D'Arrigo feels the program has improved the refuge's visibility and involvement in the community. He recently reaped personal satisfaction working with other refuge staff to raise funds and gather donations for local flood victims.

"Walking into the church... for the drop-off made me feel proud to wear my uniform," he said.

Ben Ikenson, Student Conservation Associate, Albuquerque, New Mexico



Searching for clues. Service researchers took the lead to determine how a parasite affects the fountain darter. USFWS photo.

The Comal River in central Texas begins rather abruptly, gushing forth clear, 74°F-water from fissures at several thousand gallons per second. This stream is unique in many ways, but perhaps its most intriguing endowment is the fountain darter, a fish now in danger of extinction.

The historic large volume and steady flow of the Comal creates habitat for the rare fish—and unfortunately, habitat for a non-native snail, the red-rimmed melinia, and its accompanying parasitic trematode (flatworm).

The trematode parasitizes the fountain darter, manifesting itself as cysts in the gills. This may sound like bad news, but since biologists only recently discovered the trematode, they are unsure of how it may harm the fountain darter.

Taking no chances, aquatic biologists at the national fish hatchery and technology center in San Marcos, Texas, are staying atop the learning curve with respect to fountain darter conservation.

"Fountain darters live in the Comal and San Marcos rivers. Right now only Comal fish seem to be affected by the trematode," said Dr. Tom Brandt, the center's acting director. "Luckily, the parasite has only turned up in two San Marcos River darters. But what the parasite means for the security of the species, we just don't know yet. It's certainly something we're very concerned about."

So concerned in fact, that the center directs scientific inquiries into this very question. Collaborating with Melissa Salmon of Southwest Texas State University and Drew Mitchell of U.S. Department of Agriculture-Stuttgart National Aquaculture Research Center in Stuttgart, Arkansas, the Service may soon understand the impact of the trematode infestation.

Though studies are in preliminary stages, university researchers use the center's expertise and facilities to investigate how the fountain darter, encysted with trematodes, reacts to reduced oxygen levels in the water.

Meanwhile, the center maintains a refugium population of fountain darters on site. Should the worst happen in the wild—a chemical spill or drying of the springs that serve as darter habitat—the station holds more than 500 adult darters at any given time for future restocking.

Holding darters in captivity has been a blessing in disguise. Keeping the refugium population under the watchful eye of biologists has led to ancillary benefits. These adults produced more than 10,000 young fish last year, which biologists used for several studies.

"The longer we have darters on station," said Brandt, "the more we learn about their biology. In the end, we're better equipped to deal with threats that may arise with darters in the wild."

Some very serious threats challenge the fountain darter, but with the capable help of university, state, and federal biologists this native fish may someday swim off the endangered species list.

Craig L. Springer, Division of Fisheries, Albuquerque, New Mexico

Think Globally, Act Locally to Link Communities, Birds, Wetlands

What does Bear River Migratory Bird Refuge in Utah have in common with the bread basket of Canada and the sun soaked beaches of Mexico's Pacific coast?

Shorebirds, that's what.

Bear River provides habitat for millions of migratory birds that stop at the 73,000-acre refuge to rest and refuel during migration between their breeding grounds in Canada and wintering habitat in Mexico. However, protecting migratory bird habitat at Bear River Refuge is a wasted effort if breeding or wintering habitat on either end of the migration route is depleted.

Using conservation partnerships to connect sites used by the same groups of birds, a new program called "Linking Communities, Migratory Birds and Wetlands" aims to ensure that no stop on the migration route becomes inhospitable to birds. Program participants include local and national government agencies; community organizations such as tourism boards; and research institutions throughout the Western Hemisphere.

Sponsored by Wetlands International and the Western Hemisphere Shorebird Reserve Network, the project is funded by a grant through the North American Free Trade Agreement. Participants chose three important Western Hemisphere sites for the pilot project: breeding habitat at Chaplin Lakes in Saskatchewan; stopover habitat at the Great Salt Lake, including Bear River refuge; and wintering habitat at Marismas Nacionales in Nayarit, Mexico.

Participants identified shorebird management issues at each site and local groups in each community developed needs assessment documents. Members of the Great Salt Lake group include such diverse organizations as Davis County Tourism, Kennecott Corp., the Service, the Utah Division of Wildlife Resources, the Bureau of Land Management, and The Nature Conservancy.



Key links. "Linking Communities, Migratory Birds and Wetlands" focuses on conserving all of the habitat used by migratory birds such as avocets. Photo by Mike Boylan.

Project participants are learning that supporting sustainable local ecotourism ventures may be one way to provide economic incentives to preserve bird resources.

Many farmers in the Chaplin Lakes area, for example, have begun ecotourism businesses such as birding tours by horse-drawn wagon, bed and breakfast lodging, and birding festivals. In most cases the success of these businesses depends on conserving native prairie and wetland habitat for migratory birds. These small communities have seen how preserving wildlife can help preserve their rural way of life.

The communities near Marismas Nacionales are similar to the rural farm areas in Canada in that both depend on local resources to sustain their way of life. The Mexican people rely heavily on shrimp fishing for food and income but a recent influx of large, commercial shrimp farms has displaced local shrimp fisherman and destroyed vast expanses of critical mangrove habitat.

Project partners met this winter in Canada and Mexico to discuss site-specific conservation and economic issues. A third such meeting is planned for 2001 at the Great Salt Lake.

Other program accomplishments include creating a long-term funding partnership to support projects in Latin America through the TransAmerica Pipeline Fund in Canada. Partners are also developing a project to link schools at each site, and a test group of tourists will travel to Marismas Nacionales to help set up specialized birding tours in small communities.

In addition, Canadian partners have produced a bilingual shorebird field guide and at the Great Salt Lake, Davis County residents are developing a Great Salt Lake Birding Festival and a shorebird management plan. Preparation of a how-to guidebook is underway to help other sites with shared resources link with each other.

Most importantly, the relationships established through this partnership above all else will aid in expanding the concept of managing birds locally on an international and global scale.

Vickie Roy, Bear River Migratory Bird Refuge, Brigham City, Utah

An Unassuming Treasure Enters the Limelight



Making a point. Service Director Jamie Rappaport Clark and Cache River Refuge Manager Dennis Widner display a map of White River and Cache River refuges as White River Refuge Manager Larry Mallard explains a host of management challenges during the DU-sponsored tour. Photo by Janet Tennyson.

For more than 60 years, Arkansas's White River NWR has been a haven for waterfowl, quietly proclaiming its value as the mallard capital of the world. The refuge is a crown jewel in the Lower Mississippi River Valley, which includes more than 45 refuges totaling about 300,000 acres.

White River refuge gradually gained notoriety over the years as the vast stands of southern bottomland hardwoods in the valley slowly disappeared, making the refuge one of the largest remaining tracts of this important migratory bird habitat. Its birds and fish have made it a sportsmen's mecca.

But it took recent threats to bring this unassuming treasure into the limelight.

The Service and other conservation organizations are concerned about several management challenges, especially two proposed Corps of Engineers projects that would threaten the refuge.

To build awareness of the Lower Mississippi Valley's special wildlife and habitat resources and efforts to protect them, Ducks Unlimited sponsored a briefing in February at the group's national headquarters in Memphis, followed by a tour of White River and adjacent Cache River refuge.

About 60 people attended the briefing and tour, including Service Director Jamie Rappaport Clark; Southeast Regional Director Sam Hamilton; representatives of Ducks Unlimited, the Arkansas Game and Fish Commission, environmental and sportsmen's groups, and the Corps of Engineers; and concerned community members.

Tour participants learned that big rivers often bring big conservation challenges, including water level changes, aquatic habitat degradation, erosion and sedimentation, forest fragmentation, agricultural water supply, hydroelectric power generation and reservoir releases, and navigation. Staff at White River and the other refuges in the Lower Mississippi River Valley face these same challenges. However, the proposed Corps projects would have the biggest impacts on future protection of these refuges.

White River NWR at a glance:

- Established in 1935
- 157,000 acres (245 square miles)
- Includes 90 river miles and 350 lakes
- Hosts 150,000 visitors each year
- Popular hunting and fishing programs
- Largest mallard stopover in North America
- Hosts only native black bear population in Arkansas

In a recent letter to the Mississippi Valley Division Engineer for the Corps, Southeast Regional Director Sam Hamilton expressed concern over the potential effects of the White River Navigation Project and interest in working with the Corps to accomplish mutual objectives in the region.

Conservation groups on a local and national level also have taken an interest in the projects' effects on habitat.

"The White River bottomland hardwood forest represents one of the last fully intact ecosystems of its kind in the United States," said Evan Hirsche, director of National Audubon Society's Wildlife Refuge Campaign. "For the sake of our country's natural heritage, it's incumbent upon us to work together for its long-term protection."

Audubon is not the only high profile conservation group concerned about the refuge.

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An Unassuming Treasure Enters the Limelight (continued)

“The National Wildlife Refuge Association is concerned about several issues that threaten White River National Wildlife Refuge,” said David Tobin, association president and CEO. “Building a lock and dam, dredging channels, and rerouting water for irrigation projects outside the refuge are indicative of the larger issue of increased demand for resources and the potential threat this imposes not only on White River, but the whole refuge system. It is critical to forge strong partnerships to resolve these issues.”

Fortunately, good things are happening at White River, too. On the tour, Ducks Unlimited representatives discussed their success in restoring tracts of privately-owned lands in partnership with the Natural Resources Conservation Service under the Wetlands Reserve Program.

The Service also is doing its part through the Partners for Fish and Wildlife program and cooperative ventures with Arkansas Game and Fish, including black bear research and a proposed visitor contact station for White River refuge that would serve as a premier environmental education center.

The tour left most participants paradoxically concerned and uplifted; they were concerned about the vulnerability of the Lower Mississippi River Valley, yet uplifted by the remarkable cooperative effort already dedicated to protecting our special refuges there.

*Janet Tennyson, Division of Refuges,
Arlington, Virginia*

Refuge Employee Celebrates Half a Century



Children of the refuge.
The youngster on the left is Edwin “Drum” Drummond, who recently celebrated 50 years of work with the National Wildlife Refuge System. Can you guess who his playmate is? (Hint: he went on the become Director of the Fish & Wildlife Service). USFWS photo.

Maintenance foreman Edwin “Drum” Drummond reached a milestone in his career as he celebrated 50 years of government service in March. It’s not surprising that he marked this occasion at Oklahoma’s Wichita Mountains Wildlife Refuge—Drummond was born at the refuge, where his father, Earl, was a ranger.

Edwin Drummond grew up at Wichita Mountains amid the sprawling prairie and oak forests of southwestern Oklahoma. As a boy, he played with Lynn Greenwalt, future Director of the Service, whose father managed the refuge from the 1930s to 1950s.

For his first job on the refuge, Drummond earned a whopping 45 cents an hour.

“Drum” Drummond has seen many things at the 59,000-acre Wichita Mountains refuge, one of the busiest units in the National Wildlife Refuge System. From his memory stream countless tales of raging wildfires and bootleggers distilling their spirits in the backwoods, and a host of strange and wonderful anecdotes about refuge visitors.

When he begins a conversation by exclaiming, “I thought I’d seen everything...” listeners can rest assured Drummond HAS seen just about everything in his 50 years—certainly more than the twelve current refuge employees.

One day, for example, he completed that exclamation with, “. . .but you CAN roller skate through a buffalo herd. I just saw a fella on rollerblades turn a corner and weave right through a herd of buffalo standing in the road!”

Drummond reports that his favorite task is heavy equipment operation, which has kept him busy for years on the granite rich Wichita Mountains refuge.

“I’ve moved every rock on this place at least three times,” he says of his decades operating a bulldozer, road grader, backhoe and dump truck. One day after toiling to break up an especially worrisome piece of old cement left over from the Civilian Conservation Corps days, Drummond was asked why that cement was so hard compared with today’s grades.

With all seriousness he answered, “It’s the amount of sweat in it.”

Many in the Service suspect that “Drum” Drummond will be at Wichita Mountains Wildlife Refuge for another 50 years, moving rocks and sharing stories.

Dennis E. Prichard, Wichita Mountains Wildlife Refuge, Indianola, Oklahoma

Once Feared, Fire is Now an Invaluable Tool

Fire has long been a natural process in restoring and maintaining prairie grasslands and wetlands. Intermittent fire is nature's way of reducing hazardous build-up of flammable vegetation while promoting healthy growth of grasslands. Grassland fire on national wildlife refuges and other public lands improves habitat for a variety of species.

Prior to European settlement of the native prairie, which encompassed the middle third of the United States, periodic lightning-caused fires helped maintain healthy prairie ecosystems. However, the breakup of the open prairie by agriculture and urban development, along with more than a century of active fire suppression, dramatically restricted the spread of natural fire and had a negative effect on wildlife habitat.

Reintegrating fire into the prairie ecosystem has maintained native grasses and the network of animals that depend on this habitat. Today, scheduled burns on prairie refuges mimic natural fires, improving nesting habitat for grassland birds, waterfowl and other prairie species.

The Service has long been a leader in the use of prescribed fire to restore and maintain wildlife habitat. In 1998, the Mountain-Prairie region set new benchmarks for prescribed burning, treating 31,362 acres—more than in any previous year.

Service personnel conducted more than 300 prescribed burns on refuges in the region in 1998, primarily to restore wildlife habitat. Most of the burning occurred on the prairie of North Dakota; more than 500 prescribed fires were planned for 1999 in North and South Dakota alone.



The crew got the blaze going in thick dry grass.



Assistant Refuge Manager Tom Kerr sprinted up the road with a drip torch.



Jill Torres used a rubber flapper to keep matters in check.



A custom ATV provided mobile support.

Burning Season on the High Plains: A Photo Essay

Staff from Minnesota Valley NWR conducted a prescribed burn in April on the Perbiax Waterfowl Production Area, improving conditions for native prairie vegetation and enhancing waterfowl habitat. All photos by Eric Eckl, Public Affairs, Washington, DC

In the last half of the 1990s, the U.S. Forest Service, National Park Service, Bureau of Land Management and Bureau of Indian Affairs, as well as state natural resources agencies, have joined the Service, combining resources and stepping up prescribed burning on the lands they manage. During recent burning operations at the Alamosa and Monte Vista refuges, for example, the Service worked hand-in-hand with the Bureau of Land Management, Forest Service and the State of Colorado to treat 1,300 acres of wetland habitat.

In 1995, the departments of Agriculture and Interior jointly implemented a new fire management policy incorporating both natural and management-ignited fire for resource management. That new policy is used to improve the health of the prairie, as well as other ecosystems, conserving habitat for native species.

Karen Miranda Gleason, External Affairs, Denver, Colorado

Controlling Pesky Invasives Takes Ingenuity

Whether you call them invasive species or weeds, non-native plant and animal species are an increasing threat to natural landscapes and biological diversity across the nation. In recognition of this problem, Service Director Jamie Rappaport Clark has made invasive species control one of her top priorities.

No single “magic bullet” approach controls invasive species; land managers and biologists instead look to a broad based offensive using as many attack strategies as possible. The best solutions are often found in multi-pronged approaches using different techniques at different times of the year.

Termed “integrated pest management,” this broad approach has had some success on national wildlife refuges across the nation. Land managers in North Dakota, for example, have used integrated pest management successfully in several cases to reduce or eradicate invasives.

Managers at North Dakota refuges have their share of invasive species challenges: carp spoil wetlands, crested wheatgrass invades native prairie, leafy spurge degrades agricultural and native grasslands.

Where once a spray truck was nearly the only weapon and herbicides the only control agent, biologists have developed other methods that have achieved positive results using prescribed burning and grazing, releasing insects and planting alternative crops.

For example, staff at Kulm Wetland Management District in southern North Dakota first noticed that a hot fire significantly reduces absinth wormwood, a major pest plant on the state’s noxious weed list. To test this theory, biologists established 14 monitoring transects of up to 82 plants each in central North Dakota’s Audubon Wetland Management District.

After hot fires in the spring of 1996, wormwood stem counts declined sharply on every transect. Counts made in 1998 showed a maximum of only 16 plants in each transect.

At nearby Audubon NWR, the prescribed burn crew achieves a hot fire by mowing the field in the fall and leaving the material as fuel for the following spring’s burn.



New methods. *Service biologists nationwide are discovering new, non-chemical methods of fighting destructive non-native species, such as using weevils to eradicate invasive Canada thistle. Photo by Dick Sjostrum.*

“We ignite a slowly moving, back-burn type fire when the wormwood plants are about 6 inches tall,” said refuge biologist Craig Hultberg. “There’s no need to burn into organic soil, so soil moisture can be relatively high.”

The Service also uses cow, goat and sheep grazing to control several species of non-native weeds. Because they prefer more brushy plants to grasses, sheep and goats help control another invasive species, leafy spurge.

In late spring, cattle readily eat, and often trample, the noxious weed sow thistle from wetland edges where it invades.

Another promising technique, according to Hultberg, is releasing insects that eat specific species of invasive plants or invade them, for example, by laying eggs. Five species of leafy spurge flea beetles have helped biologists in North Dakota successfully control leafy spurge on refuges and private lands.

At least one county weed board has drastically reduced herbicide spraying in favor of insect colonies. At Audubon refuge, Hultberg said, biologists use four insect species to help control Canada thistle, though results are inconclusive to date.

Grasshoppers often erupt in dry years and seriously damage crops and non-native grasslands over large parts of the western

United States. In North Dakota, traditional insecticide spraying is giving way to using a naturally occurring protozoa, *Nosema locustae*, which biologists place on bran flakes and scatter in grass beside rural roads and along field edges.

“Grasshoppers eat the bran and the protozoa kills them,” Hultberg said. “Healthy grasshoppers cannibalize the infected grasshoppers, increasing mortality exponentially.”

Another tool in the integrated pest management war chest is suppression. For decades, according to Hultberg, Audubon refuge sprayed, mowed, burned and cultivated in an effort to get rid of Canada thistle—and achieved minimal success. Finally, Hultberg developed the idea of replacing annual crops with perennial stands of alfalfa in Canada thistle-infested farm fields.

“The vigorous alfalfa plants compete very well against the thistle,” Hultberg said. “After about 5 years, annual hay mowing has allowed alfalfa to take satisfactory control of all fields.”

The thistle suppression has been good for more than just the alfalfa. “Neighboring farmers are glad to cut the hay on shares,” he said. “Deer, geese, sharp-tailed grouse and other wildlife avidly feed on the succulent regrowth until the first frost. Only half of any one field is hayed in a given year, so the uncut, thick tangle of vegetation provides ideal nesting cover for ducks and other birds. No herbicide or fertilizer is used because cutting the alfalfa every other year keeps the plants growing vigorously and effectively suppresses the Canada thistle.”

These and other small battles have been won through integrated pest management, Hultberg said, but there are no easy final answers.

“The war has not been won yet,” he said, “but the Service continues to fight with every weapon in its arsenal.”

Dave Potter, Audubon NWR Complex, Coleharbor, North Dakota

Quick Cooperation Saves Imperiled Bird Nesting Habitat

Service biologist Dennis Giardina has a way with birds. Specifically, Puerto Rican parrots.

One of the most critically endangered species, more than a million Puerto Rican parrots once lived in Puerto Rico. By the early 1970s only about 17 clung to existence on the island's Caribbean National Forest.

Today, with Endangered Species Act protection, a captive flock of about 100 parrots and a wild flock of between 25 and 50 individuals exists.

When Hurricane Georges decimated Puerto Rican parrot nesting habitat in Caribbean National Forest last summer, reducing the wild flock to around 30, Forest Service biologist Ernesto Garcia knew who to call to quickly repair and replace nests, blinds and platforms before the critical breeding season in December.

Garcia called on Giardina, who currently works at Florida Panther NWR but had previously worked for Garcia.

"I needed someone who was already familiar with the project and who could do a complicated and dangerous job expeditiously," Garcia explained.

The right person had to be bilingual to train new crew members in Spanish and English, physically fit to carry heavy equipment in the mountains, skilled in tree climbing, willing to work long hours in remote areas under extremely wet and difficult conditions, and able to remove Africanized honey bee hives from parrot nest cavities.

Giardina fit the bill. He began his biological career in the Caribbean National Forest in 1989 and he has worked at Florida Panther NWR since 1996. He has worked with Garcia, his crew and the crew of the Fish & Wildlife Service's Puerto Rican Parrot Field Office to provide alternative natural nesting cavities for parrots, who have a strong attachment to their nest cavities, returning to them year after year.

The combined Fish & Wildlife Service and Forest Service crew replaced three active nests, repaired damaged nests, rebuilt several observation blinds and platforms, and removed Africanized bee hives from nest cavities. Bees are aggressive cavity nesters, Giardina said, and must be managed to ensure that they do not rob parrots of nesting space.

"It's hard to tell exactly what attracts a parrot to nest in a certain cavity," said Giardina. "Once we improved some cavities in an area that we felt sure the parrots would use, only to have them ignore our efforts and attempt to nest in a cavity that we thought wasn't nearly as nice as the ones we had made."

Giardina said he is encouraged by the commitment of Florida Panther Refuge Manager Jim Krakowski to endangered species recovery beyond the borders of his own refuge.

"I imagine that it would be easy for a refuge manager to lose sight of the big picture and focus only on the endangered species that his station is responsible to protect and recover," Giardina said.

Ernesto Garcia echoed Giardina's thoughts. He said that he would reciprocate and lend some of his staff to Florida Panther refuge in a similar situation,

"Ultimately we're all in this together," said Garcia. "When the Florida panther or the Puerto Rican parrot moves one step closer to recovery, we all benefit."

Marilyn Roman, Florida Department of Environmental Protection



Critical mission. Dennis Giardina hauls PVC structure to a Puerto Rican parrot nest site during a visit to the Caribbean National Forest in 1995. Photo by Jesus Corcoran.

Rachel Carson Comes “Home” to NCTC

Rachel Carson came to the National Conservation Training Center, the home of the Fish & Wildlife Service, more than three decades after her death in 1964.

As portrayed by stage and television actress Kaiulani Lee, Carson ruminates on her life, her writing and the natural world in “A Sense of Wonder,” a two-act, one-woman play Lee wrote and has performed in front of audiences worldwide since 1992.

Lee brought her version of Carson, former Service writer-editor and author of *The Edge of the Sea*, *A Sense of Wonder*, and the controversial and influential *Silent Spring*, to NCTC for one performance in April. Lee acknowledged the significance of performing at the training center, which houses the Service’s growing archives and other historical materials, including a number of Carson artifacts on display in the NCTC museum.

“I feel as if I’m bringing Miss Carson to a home,” she said, smiling, as she sat down at a desk on the small stage in Robert C. Byrd auditorium and transformed herself into Rachel Carson for the next hour.

Lee based the play on Rachel Carson’s journals, letters, articles and speeches, as well as on interviews with people who knew Carson. Dressed in comfortable pants and a cardigan, with her long hair tucked up in a gray-brown wig, Lee effectively played her role as the soft-spoken yet determined author and biologist.

The play’s first act takes place in Rachel Carson’s coastal Maine summer cottage as the author prepares to depart with her nephew—and adopted son—Roger Christie for her home in Silver Spring, Maryland. It is one year after the publication of *Silent Spring* and Carson clearly still has not adjusted to the throb of publicity that followed.

“This cottage is her home,” Lee said as she slowly made the transition between actor and role. “It is her dream... It provides her with solitude far away from the public clamor.”

A few minutes later, fully transformed into Rachel Carson, she said thoughtfully, “If I had influence, I should ask that a gift to each child would be an indestructible sense of wonder.”

In Act Two, Rachel Carson, sipping tea in the study of her Maryland home two months later, spoke about the origins of *Silent Spring*, which took 4½ years to complete and generated a flood of controversy for years after its publication.

“Writing *Silent Spring*,” she said, “was like putting together the pieces of an enormous jigsaw puzzle.”

As played by Lee, Rachel Carson spoke passionately about the implications of *Silent Spring*, and also about the cancer that ravaged her body and to which she succumbed just a few months later. Carson chose not to make her cancer public because she wanted people—supporters and critics alike—to focus not on her illness but on her words.

After her performance, Lee answered questions from the audience. A native of Maine, Lee said she has read all of Rachel Carson’s books and that creating her one-woman show took about four years. She was spurred into action by her fear that her children’s generation “wouldn’t get to know the natural world.”

“I was horrified that my parents’ generation hadn’t done anything [like this] on Rachel Carson,” Lee said. “Then I realized that I was a parent and it was up to me” to ensure the next generation learns about Carson and her work, and the implications of man’s destruction of the natural world.

Lee interviewed many people who knew Rachel Carson and helped the writer with her work. The more people she spoke to, Lee said, the more she realized what an extraordinary person Rachel Carson was.

“She was a very brave woman,” Lee said.

Lee said she has performed “A Sense of Wonder” hundreds of times in front of diverse audiences, including employees of the Monsanto company, which invited her to perform. Following her performance at NCTC, she appeared in the Main Interior Building in Washington, DC.

Rachel F. Levin, Public Affairs, Washington, DC

“Little Latitudes,” Big Problems

National wildlife refuges come in all shapes and sizes, and in every state. Most people are familiar with large refuges such as Bosque del Apache and San Francisco Bay, but fewer may be aware of the small refuges just south of Miami—those in the Florida Keys, Puerto Rico and the U.S. Virgin Islands.

Their size neither lessens these refuges’ importance to resource conservation nor reduces the pressures their managers face each day. The little-known southeastern refuges, in “little latitudes” on a map, are crucial to many threatened and endangered species.

My first look at the refuges in the Florida Keys was from the window of a DC-3 as it sputtered across Florida Bay on approach to the Key West airport. From the air, the Service lands looked tranquil and pristine—like the images of the Keys seen in tourist brochures. A closer look showed that all was not paradise.

Feral monkeys had overrun an island on Great White Heron refuge; frigatebirds were fighting a losing battle with boaters on an island in Key West NWR; and everyone had an opinion about the little key deer on Big Pine Key refuge.

Several years later, I returned to our southernmost refuges; this time my plane darted between two mountains and deposited me on Culebra, an island just east of Puerto Rico. A range of hills just east of the runway was covered in forest that looked as it might have in Columbus’ time—raw, wild and untouched. Below the hills rested a town poised to become yet another tourist mecca.

The Service manages most of the habitat in those hills as Culebra NWR. Wintering warblers and lizards abound.

At the southwest corner of Puerto Rico, the salt ponds of Cabo Rojo NWR support thousands of migrating and wintering shorebirds and terns. Troupials hunt for insects along the entrance road to the lighthouse. Yellow-shouldered blackbirds hang on in the mangroves.

Still, development is all around these tropical oases and does not appear to be slowing down.

The Office that Recycles Together...



Trouble in paradise. At Key Deer Refuge in Florida, wildlife often competes with humans for space to live. USFWS photo.

To the east of Puerto Rico, in the U.S. Virgin Islands, Buck Island NWR sits off bustling Charlotte Amalie Harbor on St. Thomas. More cruise ships enter here than any other port in the Caribbean. Each day a converted submarine takes visitors on short excursions through extremely fragile reefs that are part of the refuge.

Further out in the islands, Sandy Point NWR sits unobtrusively at the southwest corner of St. Croix, supporting one of only two stable or increasing populations of endangered hawksbill sea turtles in the world. Endangered roseate terns stop to rest here on their way to winter habitats farther south.

Humans also use Sandy Point's beaches and their activities often conflict with those of endangered species. A hurricane blew away the refuge entrance sign featuring a list of "do's and do not's" for refuge visitors to avoid harming sensitive habitat. A lack of funds precludes erecting another sign so visitors enter the refuge not knowing which of their actions might harm rare species.

These and other struggles are played out each day on our national wildlife refuges but were it not for the refuge system, the turtles, lizards, deer and other island species would no doubt face even greater peril.

Craig Faames, Division of Habitat Conservation, Arlington, Virginia

Although President Clinton last fall issued an executive order affirming his commitment to recycling in federal offices, the Oregon, State ecological services field office took on the recycling challenge several years ago and has not slowed down, practicing one of the most extensive recycling programs in the Service.

"Our decision to commit to recycling started six years ago when two of the major environmental issues facing us were the northern spotted owl listing and elevated levels of dioxin in the Columbia River affecting bald eagle productivity," explained Deputy Supervisor Carol Schuler of the Portland, Oregon, office. "It seemed hypocritical to be using reams of pure white paper while we encouraged reduction of timber harvest to protect spotted owls and reduced discharges of dioxin from pulp and paper mills to improve water quality."

So Schuler's staff began using unbleached, recycled paper for all office documents. But paper is not the only item they regularly recycle.

"We have containers in our lunchroom for plastic bottles, plastic bags, paper bags, tin cans, aluminum and glass," Schuler said. "We collect used batteries to turn in when there is a local battery return and we collect Styrofoam and packing peanuts for the occasional company that will recycle them."

"We've also expanded our efforts into the other two 'R's,' reduce and reuse," she continued. "Many people in the office print or copy documents on both sides of a piece of paper, and we reuse paper that has been printed on one side for document drafts and in the fax machine."

Staff reserves some paper printed on one side for a local children's group to use as coloring paper. They also ensure that undamaged, large mailing envelopes are used at least twice.

And one enterprising individual, after he noticed numerous duplicate items in the daily mail, reduced the amount of mail coming into the office by asking companies to send only one copy of their mailings.

"This program is a success in large part because of individual efforts," Schuler said. "Ted Buerger, for example, prepared guidance for the many who are 'recycling challenged' and is endearingly called 'Recycling Man.' Steve Wille takes in aluminum cans and saves the money for an office potluck and Roxanne Anderson finds a source for our unbleached paper."

"We also have folks like Nancy Pollot, who identified and implemented many of the office's reduce and reuse programs; Eileen Stone and Kathy Barry, who handle the used battery program; Judy Jacobs, who collects used paper for school kids; and Elizabeth Materna, Jeremy Buck, Kathy Larson and Elaine Sproul, who ensure our yogurt containers and soup cans get recycled."

Schuler also applauds the many others who diligently sort paper, look for ways to reduce what they use and let everyone else know when they've made a recycling blunder.

"I am very proud of what our office has accomplished in recycling and our recognition of the importance of these efforts to the health of our environment and the Service's mission," she said. "I challenge other offices to take on a similar program and to have the resounding chorus we often hear in our office: 'Hey... that's recyclable!'"

Carol Schuler, Oregon State Office, Portland, Oregon

Rachel F. Levin, Public Affairs, Washington, DC

Service Archive Growing by the Day Under New Caretaker

By *Topper Sherwood*
Special to Fish & Wildlife News

Service historian Mark Madison stepped through heavy security doors into the burgeoning Service archive at the National Conservation Training Center. Climate-controlled, white and cavernous, the room was also strangely empty.

A few birds and animal pelts lay about. A distant table held boxes and stacks of papers and books waiting for Madison's assessment. On another table, a gigantic confiscated moose head stared at the high ceiling.

"As you can see, we have kind of a mish-mash here now," said Madison, who had been on the job for only a few weeks. "We're still in the collecting stage."

As the Service's first historian, Madison is the man who interprets the agency's treasure-filled "attic," helping the Service understand its history. That history, he said, is fascinating.

While NCTC museum specialist Jeanne Harold establishes the physical parameters of the archive, Madison collects and organizes historical data. He is busy gathering material from field offices, as well as developing and teaching courses in environmental history at the training center. Eventually, he will prepare books, videos, oral histories and other works for use as history lessons at the center and at Service field stations.

Madison and Harold are communicating with employees in the field and the Washington Office to build a body of historical information. The oral history project shows great potential, according to Madison, and he is excited about the information that interviews with current and former Service employees will elicit.

"Learning about the history of the Service is a way of reminding ourselves that we're part of something much bigger than what we see around us every day," Madison said. "People working in the field often share a sense of isolation. This is natural, because your first allegiance is to your site. History gives us a sense of common identity, a sense of pride in the agency."

Madison said he's eager to create a body of information with support from the regional representatives who supervise field research.

"It's way too much for a couple of people to do, because the Service is so spread out," he said, adding that more available organized data about the agency will mean more attention from other researchers.

One way or another, though, Madison is determined to unlock the Service's heritage. He is confident that persistence will pay off, as it has for him in previous jobs. He came to the training center from the University of Melbourne, Australia, where he lectured on history and the environment, a strange experience for a Midwesterner.

Not to be deterred, though, Madison immediately set about scanning for similarities between the two countries, settling on the concept of the "frontier." He discovered that both North America and Australia experienced a continental dust bowl, hitting their prairie-turned-farming regions during the 1930s.

"The difference is in the way the Australians dealt with it," said Madison, whose enthusiasm for this subject has not waned since leaving Australia for West Virginia. "In the United States, a massive research and conservation effort resulted. [The Service] got a big boost during this time. But the Australians' reaction was very muted, compared to ours. They hired one single British ecologist to study their dust bowl."

Madison, who grew up in Wisconsin and vacationed each summer in the north woods of the state near where Aldo Leopold studied nature in the 1930s and 1940s, said he was always interested in the history of science. In school, fascinated with evolution, he naturally drifted to the historical sciences—geology, anthropology, evolution and biogeography—that defy exacting rigors of experimentation in favor of sparse evidence, interpretation and the power of good narrative.



Service Historian Mark Madison.
USFWS photo.

After college, Madison joined the Peace Corps. His mission involved teaching Filipino farmers a more sustainable agriculture practice than burning large areas of rain forest for a few years' worth of bananas and yams. It was not an easy task, he learned.

"You can't just pick up [one] science and apply it in a different culture. Science is dependent on the culture in which it's created," he said.

Later, Madison carried these lessons to his doctoral research at Harvard University, where he explored ecology's historical ties to the American farmer and examined relationships between environmental and agricultural concerns.

Today, Madison is settling into his role as Service historian and his life in Shepherdstown with his wife and daughter. He is also teaching courses at the training center on the history of conservation and the Service.

Topper Sherwood is a freelance writer and editor in Martinsburg, West Virginia.

The Heritage Committee Needs Your Help

As the Heritage Committee compiles a written and oral history of the Service, a subcommittee has been established to formally recognize those employees who died in the line of duty. A temporary memorial plaque on the Director's corridor in the Main Interior Building will be replaced by a permanent memorial at the National Conservation Training Center.

The subcommittee would like to ensure that it has a complete list of those who lost their lives in their capacities as Service employees. Please take the time to review the following list. If you know of anyone who should be added or corrections which need to be made, please contact Ron Anglin by e-mail (ron_anglin@fws.gov) or phone (503/231 2077).

In memory of those killed in the line of duty while working for the U.S. Fish & Wildlife Service

Date of fatality	Employee name	Duty station
August 17, 1922	Edgar Albert Lindgren	Law Enforcement, LA
December 10, 1934	Edward Bradford Whitehead	Law Enforcement, GA
June 2, 1945	Andrew Bryant Crews	Okefenokee NWR, GA
June 2, 1945	Joe Daniel Martin	Okefenokee NWR, GA
August 21, 1958	Clarence J. Rhode	Regional Office, AK
	Stanley Fredericksen	Regional Office, AK
	J. Donald Smith	Management and Enforcement, Washington, D.C.
May 12, 1967	Robert A. Uppgren	Wildlife Services, MN
May 12, 1967	William B. Arnold	Yellowstone Fisheries Office, WY
July 2, 1967	Donald M. Brooks	Holla Bend NWR, AR
June 13, 1968	Theodore Brock	Entiat NFH, WA
May 19, 1969	William R. Edwards	Law Enforcement, MS
May 24, 1969	Paul Martin	Forestry Sciences Laboratory (DWRC), WA
August 6, 1969	Jerry Fisher	Alaska Area Office
July 27, 1970	Arnold Fryer	District Field Office, MT
April 27, 1970	Encarnacio Munoz	Aransas NWR, TX
June 12, 1970	Kenneth Wilson	Animal Damage Control, ID
February 20, 1971	Ivan L. Morfitt	Klamath Basin NWR, CA
March 9, 1971	Wesley Goetz	National Elk Refuge, WY
February 5, 1973	Dr. Robert D. Bergman	Alaska Area Office
September 30, 1974	Leonard A. Boughton	Alaska Area Office
September 30, 1974	J. Larry Haddock	Alaska Area Office
August 25, 1975	James M. Cox	MBMO, Patuxent, MD
January 19, 1976	Elwood E. Scheel	White River NWR, AR
May 26, 1977	Jack L. Shannon	Abernathy SCDC, WA
January 30, 1978	James Byrne	Great Swamp NWR, NJ
February 28, 1979	Richard S. Bolt Jr.	Okefenokee NWR, GA
August 15, 1979	Gary L. Lambert	Animal Damage Control, NM
August 15, 1979	Robert E. Evans	Animal Damage Control, TX
December 17, 1980	Grant Wheeler	Turnbull NWR
August 26, 1980	Elmer H. Simpson	Desert NWR, NV
December 17, 1980	George G. Wheeler	Turnbull NWR, WA
June 8, 1981	Scott Jay Maness	Merritt Island NWR, FL
June 9, 1981	Beau W. Sauselein	Merritt Island NWR, FL
May 6, 1982	Corlin C. Cook	Kansas City ES Office, MO
April 21, 1984	Roy Lee Felder	Orangeburg NFH, SC
September 26, 1984	Lawrence H. Schumacher	Sequoyah NWR, OK
May 21, 1986	Alice Nichols	Ecological Services, NJ
August 8, 1986	Fortunato R. Barcelona	Yukon Flats NWR, AK
August 10, 1987	Edward Lee Doggett	Eastern Shore of Virginia NWR, VA
January 28, 1990	Douglas J. Morris	Law Enforcement, TX
January 30, 1990	John T. Cantu	Aleutian Island Unit, Alaska Maritime NWR, AK
January 30, 1990	Karen L. Norton	Aleutian Island Unit, Alaska Maritime NWR, AK
July 16, 1990	Suzanne Sterling	Protection Island NWR, WA
October 11, 1990	George E. Menkins Jr.	Alaska Fish & Wildlife Research Center
October 11, 1990	John S. Bevins	Alaska Fish & Wildlife Research Center
November 12, 1992	Stephen J. Young	Yukon Flats NWR, AK
July 12, 1994	Valerie A. Chabot	Endangered Species, AK
September 23, 1994	Gary Steinbach	Marquette, MI, Biological Station
July 3, 1997	Joshua B. Nove	Alaska Peninsula NWR, AK
November 6, 1998	Kathleen Cheap	Mid-Columbia River NWR, OR
November 6, 1998	James M. Callow	Mid-Columbia River NWR, OR

Great Lakes Ecosystem Team Tallies Successes

The Great Lakes Basin Ecosystem Team is on a roll.

This spring, the team celebrated the debut of the lake sturgeon research Internet homepage, <http://www.fws.gov/r3pao/sturgeon>, which provides background information, calendars, contact numbers and extensive links, serving as a nexus for organizations working to conserve this prehistoric fish.

This followed another major team accomplishment: in late 1998, Congress reauthorized the Great Lakes Fish and Wildlife Restoration Act, which will accelerate the recovery of lake trout and other fish and wildlife species in the Great Lakes.

“The big lesson here is that ecosystem approach can work, if we work together and focus on the resource,” said Jerry McClain, project leader at the Alpena Fishery Resources Office in Michigan.

He noted, however, that success did not come immediately.

“There was some sense early on that the ecosystem approach might be a ‘here today, gone tomorrow’ sort of thing and buy-in was less than 100 percent,” he said.

The Great Lakes Basin Ecosystem Team straddles one of the largest and most diverse ecosystems in the United States. The basin extends more than 1,000 miles from east to west and includes the largest body of freshwater in the world, Lake Superior. The team, which comprises members from regions 3 and 5, shares responsibilities with eight states and eight Native American tribes, as well as Canadian federal and provincial officials.

A few potholes made the road to cooperation bumpy, said Bob Krska, an ecosystem coordinator for Region 3. The first pothole, he said, was budget. Some members viewed the team as an opportunity to expand their station or program budgets—or a threat to decrease them, Krska said. Team planning became unwieldy as members produced huge documents to justify expenditures by the various programs and field stations in the basin.

“As stations realized that funding would continue to be allocated through the programs, people were able to more objectively discuss their role in basin-wide priorities,” Krska said.

Around 1996 the team started to come together. A lengthy discussion of geographic focus areas began to pay off in productive dialogue about fish and wildlife issues. The team identified focus areas where multiple Service programs and external partners were active on the ground. The team also identified basin-wide priority areas affecting all programs, and field stations chipped in to create a \$24,000 “kitty” to support ecosystem priorities.

Eventually, the team formed several standing committees on high priority issues such as lake sturgeon conservation and handling Congressional inquiries during the reauthorization of the Great Lakes Fish and Wildlife Restoration Act.

State and tribal partners increasingly are engaged in team activities, according to Krska, and meetings now rotate among the eight states, with officials from the host state invited to make presentations. The team is reaching out to private conservation and sporting organizations such as Trout Unlimited, Ducks Unlimited and Pheasants Forever by offering display space at a proposed Great Lakes Visitor Center.

The center would provide “one-stop shopping” for natural resource and outdoor recreation information along a busy stretch of I-75 near Bridgeport Township in central Michigan.

“The most important thing has been to focus on resource issues, and not get bogged down in budget and bureaucracy,” said McClain. “That’s the glue that holds us and our partners together.”

Good relations with outside partners will be indispensable as the team gears up for its next big task – addressing growing public concern about cormorant predation on game fish. This issue came to a head in July 1998, when more than 800 cormorants were illegally killed on Little Galloo Island in Lake Ontario.

This challenge—finding common ground among the overlapping interests of wildlife managers, anglers, birders and the general public—is exactly what the ecosystem approach is all about.

Doug Spencer, Shiawassee NWR, Saginaw, Michigan

Tom Busiahn, Ashland Fishery Resources Office, Ashland, Wisconsin

Eric Eckl, Public Affairs, Washington, DC

Fish & Wildlife... In Brief

Record Deer Nets Award, Then Arrest

Thanks to determined investigation by refuge law enforcement officers at Yazoo NWR, coupled with advanced DNA testing capabilities, a hunter is no longer celebrating the Mississippi state record for the largest deer taken by bow and arrow. In January 1996, the exciting news of the man's record 10-point buck spread quickly. So did rumors about the integrity of the hunt, which took place on Yazoo refuge. Following up on tips that the trophy deer was taken in an area closed to hunting, refuge law enforcement officers discovered evidence at the site that they eventually matched to the deer through DNA testing. Recently presented with this evidence, the hunter pled guilty to two counts associated with hunting in a closed area and possession of the illegally taken deer. Among other penalties, he was put on probation for three years and prohibited from hunting worldwide for two years.

Report Explores Hunting Access, Hunter-Landowner Relations

As development and urban sprawl increasingly consume private lands available for hunting, a strong relationship with landowners becomes even more important for hunters seeking continued access to remaining lands, according to a report published by the Izaak Walton League of America. The Hunting Ethics/Land-Access Project report, published in January by the league, found that the loss of rural and agricultural lands to sprawl is putting even greater pressures on lands that remain, both public and private. The project was funded by the Service. The report is based on focus group discussions with hunters and landowners, as well as mail surveys to corporate landowners and state agencies. To order a copy of the report, call 1/800 IKE LINE, ext. 218, or write to Izaak Walton League of America, Outdoor Ethics Program, 707 Conservation Lane, Gaithersburg, MD 20878-2983.



Future Service employees?... *Kitty Esco presented Service awards to (left to right) Amelia Anne Marie Beaver, John Thomas Kowalchuk, Rhett Nicholson Willis and Whitaker Lee Dawson for their outstanding science projects. USFWS photo.*

Service Partners with Nation's Largest Outdoor Retailer

Service personnel from Region 3 met some 50,000 shoppers during the first ever Cabela's Spring Expo, held in March at the sporting goods retailer's new store in Owatonna, Minnesota. Although known to many as a catalog retailer, Cabela's recently opened two state-of-the-art retail stores. Complete with its own indoor mountain and hundreds of animal mounts, the 150,000-square foot Owatonna store is the largest retail facility of its kind and attracts outdoor enthusiasts from across the Midwest. Staff from Region 3 delivered the Service message to shoppers perusing fishing and camping gear, outdoor clothing, and marine supplies. Shoppers learned about the Federal Aid Sport Fish and Wildlife Restoration program, local national wildlife refuges and waterfowl production areas, and Service private lands programs. Educators, children and families enthusiastically snapped up free posters, national wildlife refuge visitor guides and Federal Aid information offered at the Service booth.

Region 4 Honors Budding Scientists

For many years the Service's Southeast region has sponsored four awards at the Georgia Science and Engineering Fair to recognize exceptional projects in the fields of environmental science and zoology. The University of Georgia has for the past 51 years served as the playing field for this scientific Olympics where more than 600 students vie for 180 sponsored awards. Three Service employees, Frank Bowers, Richard Coon and Jim Brown, have long served as judges at the fair. At the 1999 Georgia Science and Engineering Fair, the Service awarded prizes to projects on underwater pollution; the impact of industry on local marshes; water temperature effects on hermit crab habitat; and the effects on forest development and care on the hairy rattler.

Fishing for the Great Outdoors

When my career brought me to Washington, D.C., one of the first things my husband and I had to do was go fishing... for a home. We settled near Leesburg, Virginia, in a community which was exactly what we wanted: a mere 50 homes with plenty of wide open space. But in short order, the road that led to our house became a highway, and the open fields, along with the woods beyond, gave way to hundreds of new homes.

This experience has made me increasingly concerned about the future we are leaving our children. In our cities and suburbs, today's young people are being shut away from the great outdoors, turning instead to television, movies and video games for the one thing that fills a child's world with magic—fun.

I strongly believe that these children would enthusiastically put down their Gameboys in favor of, say, a rod and reel. I grow more convinced of this each year when National Fishing Week rolls around. This June 5th through 13th, tens of thousands of young Americans came out to events across the nation and tried their hands at angling.

Children participating in National Fishing Week events learn not only how to knot a line and bait a hook, but also about the angler's code and what it means to be a responsible angler. Those of us striving to safeguard the health of our nation's waters, and the life they harbor, should encourage such youthful interest in a pastime with a long stewardship tradition.

Recreational anglers have historically been on the front lines of aquatic conservation. They typically have a deep connection to the waters they cast in and to the fish they catch. They understand the web of life and the need for sound regulations regarding take. And they have witnessed first hand the effects of environmental degradation—pollution, invasive species, sedimentation caused by development—and the resulting havoc it plays on fish habitat. All of these elements make the 35 million Americans who enjoy fishing a tremendous force for conservation.

National Fishing Week is a wonderful vehicle for introducing the sport to the next generation. And that is something all conservationists should support. Presently, 40 percent of our rivers are unsafe for swimming and fishing. We need to do more to heal our wounded waterways. And anglers are helping us do it. Over the years, they have been a reliable source of grass-roots support, becoming involved in the hands-on work of restoring and enhancing riparian habitats.

As the 50th anniversary of the Sport Fish Restoration Program approaches, we have a unique opportunity to capitalize on growing momentum for aquatic conservation. Already, we are seeing some favorable developments. The American Sportfishing Association is leading an effort to introduce the Fishable Waters Act, a bill that would empower the grass-roots groups that have emerged out of concern for the health of their communities' watersheds.

Together with the Sport Fishing and Boating Partnership Council, we are carrying out President Clinton's executive order to monitor federal activities that affect aquatic systems and the fisheries they support. And, through an agreement with the new Recreational Boating and Fishing Foundation, we are about to launch a first-of-its-kind, 5-year, \$36 million outreach campaign to promote fishing, boating, and the conservation ethic both pastimes inspire.

Once again this year, hundreds of eager, young aspiring anglers cast lines into the lake at Constitution Gardens, just a block from the Department of the Interior, to kick off National Fishing Week. They learned about fishing and about fish, and about the importance of protecting our nation's waterways. But perhaps most importantly, right in our capital city, on the National Mall—our nation's backyard—we gave these children a bit of an outdoor experience... and a whole lot of fun.



Jamie Rappaport Clark

Fish & Wildlife News

Executive Editor: Megan Durham
Editor: Rachel F. Levin

Submit articles, photographs and letters to the editor to:

Rachel F. Levin
U.S. Fish & Wildlife Service
Room 3024
1849 C Street, NW
Washington, DC 20240
202/208 5631
Fax: 202/219-9463
E-mail: rachel_levin@fws.gov

Deadline for September issue:

August 1, 1999

Deadline for November issue:

October 1, 1999