

ENDANGERED *Species* BULLETIN

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*The support and involvement of local citizens are critical to the ultimate success of wildlife conservation. Through outreach to the public, the Fish and Wildlife Service is sharing information about the values of wildlife and the habitats we share, including benefits that may not be readily apparent. As a result, teachers, citizens' groups, land owners, businesses, and local officials are becoming more involved in protecting and enhancing their wildlife resources. Without the involvement of all sectors of the American public, recovery of endangered and threatened species will not be possible. This edition of the **Endangered Species Bulletin** highlights some examples of recent public outreach and involvement efforts and the important results they have achieved.*



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On the Cover and Left

An outdoor classroom gives a Fish and Wildlife Service biologist an opportunity to provide some firsthand environmental education.

John and Karen Hollingsworth/USFWS

Opposite Page

Desert tortoise habitat protected by a new Habitat Conservation Plan.

Todd C. Esque

The Endangered Species Bulletin welcomes manuscripts on a wide range of topics related to endangered species. We are particularly interested in news about recovery, interagency consultation, habitat conservation plans, and cooperative ventures. Please contact the Editor before preparing a manuscript. We cannot guarantee publication.

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Making the Connection



Peregrine falcon

Arthur A. & David Allen

*I*nclude a live bald eagle (*Haliaeetus leucocephalus*) as part of a presentation and watch people line up at the door. But would the same thing happen for a Karner blue butterfly (*Lycaeides melissa samuelis*)? Maybe. A dwarf wedge mussel (*Alasmidonta heterodon*) or a stem of an endangered plant like the Furbish lousewort (*Pedicularis furbishiae*)? Only a few. People are naturally more attracted to the “warm, fuzzy” endangered species, the charismatic critters that receive the most public attention. Yet, the truth is that the smaller, more innocuous plants and animals play a vital role in our environment.

In the northeast, as elsewhere, the media and public eagerly follow stories about banding eagles and peregrine falcons (*Falco peregrinus*). Even Nature’s collector-of-the-dead, the American burying beetle (*Nicrophorus americanus*), attracts a certain amount of attention due to its peculiar, grave-digging lifestyle. On the other hand, convincing the public why we need to protect the dwarf wedge mussel and Karner blue butterfly requires a bit of ingenuity. The key is finding ways to relate these less “glamorous” endangered species to their human neighbors.

The dwarf wedge mussel presented one opportunity. This unique mollusk was listed as endangered in 1990. A small population lives near Keene, New Hampshire, in a stretch of the Ashuelot River bordered by a golf course. The Fish and Wildlife Service’s (FWS) New England Field Office realized that recovery efforts would not succeed without the support of town officials

and citizens, and that the golf course could further threaten the mussel if turf chemicals degraded the Ashuelot’s water quality. What to do? We decided to introduce the people of Keene to their endangered neighbors.

A “Meet the Mussel” field day was organized, and we invited key town officials, school teachers, the media, and interested citizens to attend. Twenty folks came along with us to the Ashuelot, where we gave them a good look at the mussels and taught them about the species’ life history. We also informed them that although the mussels’ presence indicates that Keene’s water supply is still good, the dwindling numbers might mean that water quality is deteriorating. Protecting mussel habitat, we explained, could help to protect the city’s water quality.

They got the point. City officials understood the significance of the mussels as indicators of Keene’s water quality and worked with the FWS in

modifying a proposed golf course expansion. One dynamic high school teacher took initiative as well. At the Meet the Mussel field day, he saw an opportunity for science and biology projects right in his back yard. Within a year, Keene's high school students began studying the dwarf wedge mussel situation, and soon were designing and selling "Save the Dwarf Wedge" T shirts. Thus began a productive, rewarding relationship between the FWS and the citizens of Keene. To this day, our recovery efforts for the dwarf wedge mussel in the Ashuelot River continue to be an effective and cooperative partnership.

Making the connection between an endangered mussel and a town's water supply was not too difficult. But relating the Karner blue butterfly to Concord, New Hampshire, residents required a less-direct route. Small, beautifully-colored but rarely seen, the Karner blue survives in a remnant of pine barren habitat near Concord's airport. It is the only population left in New England; populations remain in New York and several midwestern States. The larvae of this butterfly eat only blue lupine (*Lupinus perennis*), a plant that needs open areas and sandy soil to grow. The pine barren habitat suits both species perfectly, but the site's well-drained soils and proximity to the airport also make it an ideal area for development. Therein lies the problem.

In 1991, a developer and city officials began working on a proposal for a new light industrial park adjacent to the city airport. The pine barren habitat targeted for the proposed development historically supported Karner blue butterflies, but the greatest concern to us was the habitat's location, which was between the last patch of Karner blue butterflies and the more extensive, protected pine barren areas within the airport fence.

The Nature Conservancy (TNC) had been monitoring the butterflies and

lupine in the general area, and had mustered some support from local citizens and businesses. But this new development proposal posed a definite threat to the survival and recovery of Concord's Karner blue population. What followed were several months of negotiations between the FWS, the Federal Aviation Administration, the developer, city planners, and TNC. A story of "jobs vs. butterflies" emerged in the media.

In response, the FWS New England Field Office and TNC began providing information that gave a complete portrayal of the issue. The message to the community and legislators was that both the butterfly and the pine barrens are unique to Concord, and are natural resources that contribute to the area's quality of life. As negotiations continued, the environmental agencies worked toward the goal of preserving part of the best remaining pine barren habitat for the Karner blue while allowing the industrial park project to proceed. The media began to take notice and to cover our efforts in a more positive light.

In 1992, an agreement was reached, setting aside about 28 acres (11.3 hectares) of pine barren habitat for the butterfly as part of the Great Bay National Wildlife Refuge, and establishing a management agreement with the city for 300 acres (120 ha) of habitat on airport grounds. Since then, TNC has continued its outreach efforts, which include television, print media, and radio interviews and annual field trips to see the Karner blues. Last year alone, TNC led 8 field trips, one of which had 60 participants. Most businesses bordering the pine barren habitat cooperate with the FWS and TNC in the continued effort to recover the Karner blue butterfly.

Linda Morse is an Outreach Specialist in the New England Field Office.



Geoffrey Miswander/courtesy of New Hampshire TNC

Karner blue butterfly

As part of our outreach program, we made a presentation to a local school teacher who had been using the Karner blue annually as a topic for her students. She led her students in writing to the city council about protection of the pine barrens, and played a role in encouraging Concord to adopt the Karner blue as the City Butterfly. Later, the New Hampshire Legislature made the Karner blue the official State Butterfly.

by Alice M. Hanley

Eagle Day at Sand Lake

“Is that a real eagle?” asked a young, wide-eyed visitor as she stared at Luke, a 15-year-old American bald eagle (*Haliaeetus leucocephalus*). Luke, along with a red-tailed hawk (*Buteo jamaicensis*) and a great horned owl (*Bubo virginianus*), greeted visitors as they arrived at the 6th annual Eagle Day Open House at Sand Lake National Wildlife Refuge near Columbia, South Dakota, on March 31.

Approximately 800 visitors braved muddy roads and cool temperatures to participate in Sand Lake’s open house activities. Lee Bass, Luke’s handler from the Raptor Center at the University of Minnesota, gave presentations on the birds and answered questions on how they came to the Raptor Center. “Luke was found with an injured wing and can no longer fly,” she explained. “He is now used to educate people about eagles and the dangers they face in the wild.” Luke wasn’t the only bald eagle

visitors were able to see that day. With over 50 eagles using the refuge, many saw our nation’s majestic symbol flying overhead or in trees overlooking Sand Lake.

Visitors also came to renew acquaintances with outdoor writer Bill Horine from Nevada, Iowa. This was Bill’s third Eagle Day giving slide presentations on eagles he has photographed in Alaska and sharing his adventures as an outdoor writer and photographer. At 80, Bill has become a fixture at Eagle Day.



USFWS photos

"It's really neat when people come up to me and I recognize them from past years," he remarked with pride.

Many visitors waded through the mud to visit the captive flock of giant Canada geese (*Branta canadensis*) and to hear Paul Mammenga, a biologist with the South Dakota Game, Fish and Parks Department, talk about this large, prairie-nesting goose.

Eagle Day began in 1991 as a special occasion for birdwatchers to come to the refuge and view eagles and waterfowl. It is scheduled at the end of March to coincide with the peak spring waterfowl and eagle migrations. In 1992, Raptor Center presentations with live birds were added, along with guided bus tours of the refuge. Bill Horine became a valued part of the festivities in 1994. Exhibits and displays emphasizing non-game wildlife have also become a part of Eagle Day, including John and Karen Hollingsworth's "Reflections of Nature" photo exhibit and the refuge's bird house and feeder exhibit.

In 1993, the refuge launched an Eagle Day Poster Art Contest as a way to encourage the participation of local elementary schools in Eagle Day. Students from the three local schools of Elm Valley, Groton, and Hecla are all invited to participate. This year's theme

was "What's Wild in My Backyard?" Over 400 students submitted 388 posters. First, second, and third places were chosen for each grade level, and all posters are displayed in the refuge office. Each winner will receive a certificate, and the classrooms will be given environmental educational materials for entering the contest. Many of the young participants bring their parents and grandparents to see their posters.

As the activities have expanded over the years, so has the public interest. Approximately 30 people attended the first Eagle Day in 1991. Since then, attendance has grown to the 800 visitors that participated this year. This interest has reaffirmed the staff's belief that people do support refuge activities and value what Sand Lake has to offer.

Eagle Day has become a tradition with the Sand Lake staff as well as the refuge's loyal supporters. It is not only a day to see eagles and waterfowl, but an opportunity to touch base with the public that enjoys them.

*Alice M. Hanley is an Assistant
Refuge Manager at Sand Lake National
Wildlife Refuge.*



Safari Sam

Safari Sam is the creation of recreational planners and a law enforcement officer at Malheur National Wildlife Refuge in eastern Oregon. In May of 1994, the refuge received a "Cargo for Conservation" kit from the National Wildlife Forensic Lab in Ashland, Oregon. The kit is comprised of illegal items from around the world seized by wildlife inspectors at U.S. airports and shipping yards. Since the warehouse at the lab was literally filled to the ceiling with contraband made from some of the world's rapidly disappearing critters, the lab began to loan the ill-gotten goods to schools, environmental education centers, and zoos. The thinking behind the idea was simple; instead of collecting dust on shelves, these products could be used as an intriguing way to educate people about the continuing threats posed by the billion-dollar illegal wildlife trade.

As the students walk into the room, they gaze suspiciously at the person dressed in a khaki safari outfit complete with a fedora and well-traveled suitcase.

The person identifies himself as "Safari Sam," and proudly states that his suitcase is full of souvenirs from recent expeditions around the world. After Sam opens the suitcase, the "ohs" and "ahs" become louder as Sam displays the fruits of his travels: cobra skin briefcases, sea turtle cowboy boots, python skin wallets, and intricate carvings from elephant tusks, just to name a few. When the kids are fully engaged and impressed with this unusual collection of global commerce, in walks a uniformed Fish and Wildlife Service employee. The show is interrupted—Sam's been busted! Now a dramatic moment exists to educate children about the international commercialization of endangered species.

After Sam is busted, educators describe the magnitude of the trade problem and explain how CITES (Convention on International Trade in Endangered Species), an international treaty to regulate commerce in wildlife, can help. Safari Sam illustrates difficult and remote concepts in a manner with which children can sympathize and identify. The students touch and feel tangible items in the immediacy of the

classroom, but leave with a broadened awareness of global wildlife issues.

Daniel J. Sheill is a National Wildlife Refuge Law Enforcement Officer at Malheur National Wildlife Refuge in Princeton, Oregon. (Editor's note: for information about the availability of the Cargo for Conservation kits, contact the appropriate FWS Regional Office.)



Doug Staller/USFWS

“Saving Endangered Species, Saving Ourselves?”

by Larry Dean

“*SAVING ENDANGERED SPECIES, SAVING OURSELVES?*”, a new exhibit developed jointly by the University of Minnesota’s Bell Museum of Natural History and Region 3 of the U.S. Fish and Wildlife Service (FWS), is now on tour throughout the upper Midwest.

The project began in 1992 with a cooperative agreement with the Bell Museum to develop travelling exhibits on endangered species and the ecosystems that support them within Region 3. Kate Winsor, the FWS Regional Endangered Species Information and Education Coordinator, and Joan Guilfoyle, the Deputy Assistant Regional Director for Public Affairs, joined the team of writers, exhibit designers, and graphics specialists from the Bell Museum to develop this interactive exhibit. It uses federally-listed species of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin as examples in exploring how endangered species often warn of environmental problems that pose danger to humans and other species.

The exhibit celebrates the stories of the bald eagle (*Haliaeetus leucocephalus*) and Kirtland’s warbler (*Dendroica kirtlandii*), which are both examples of successful protection efforts. A flip-book provides updated information about the region’s endangered and threatened species. For children, free-standing cartoon figures of

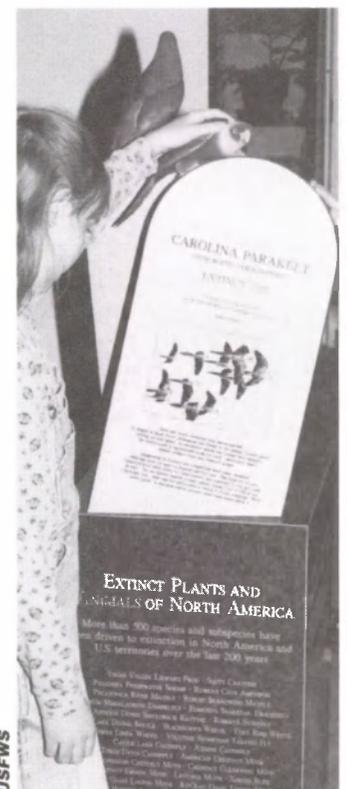
endangered species tell their own stories through pop-up picture books.

A figure of FWS Director Mollie Beattie answers typical visitor questions about the Endangered Species Act, and visitors are challenged through a display to explore their own reasons for saving species. The display also includes descriptions of ecosystem protection efforts that are being developed by partnerships among government agencies, private conservation groups, and local citizens. Visitors discover how they can help save species through proper land management and healthy lifestyles.

The exhibit is available from the Bell Museum for use at public events, State fairs, in visitor centers, and for other special events. For more information, call Curt Hadland at (612) 624-3849, or either Lansing Shepard or Don Luce at (612) 624-6346. Requests to Luce or Shepard can also be made via e-mail at <luce001@maroon.tc.umn.edu> or <shepa003@maroon.tc.umn.edu>.

Larry Dean is an outreach specialist in the FWS Region 3 Office.

Large photomurals invite visitors to experience some of the beauty and diversity of the region’s native ecosystems. Before-and-after maps show the original distribution of forests, prairies, and wetlands, and how little of these environments remain. A sense of loss is brought to the species level with an “extinction memorial” featuring the passenger pigeon and Carolina parakeet. Through photographs, specimens, models, and a variety of interactive displays, the primary causes of endangerment and the often-confusing legal and biological terminology are presented and clarified.



Outreach and Beyond!

The Fish and Wildlife Service's (FWS) Asheville, North Carolina, Field Office has taken a number of initiatives in recent years for public outreach and education. One project, launched in 1994, involved a partnership with the McDonald's Corporation to educate school-age children about endangered and threatened species in North and South Carolina. The intent was to teach children about a global problem, the loss of biological diversity, by focusing locally on endangered species of the Carolinas.

The Asheville Office and Ralph Costa, the FWS Red-Cockaded Woodpecker Recovery Coordinator, with assistance from the Branch of Public Use in the FWS Southeast Regional Office, developed a paper trayliner featuring the endangered red-cockaded woodpecker (*Picoides borealis*) for distribution at McDonald's restaurants in the Carolinas. The trayliner included background information on both the loss of wildlife in general and the featured endangered species. On the back were games and a sweepstakes offering for children to enter.

Each child that entered the sweepstakes received a coupon for a "Happy Meal." By a random drawing, one family won an all-expense-paid week at the National Wildlife Federation's Blue Ridge Conservation Summit in Black Mountain, North Carolina. The grand prize was donated by the National Fish and Wildlife Foundation.

A different kind of outreach opportunity developed over the past year. The Asheville Field Office began working with a professional ornithologist/naturalist who, for the past 4 years, has been doing a weekly commentary on

birds for a local public radio station, WNCW. Last fall, FWS staff offered to fill in for him if he needed a break or was out of town. The radio station also was interested. The big break came in January when the ornithologist went on sabbatical for 2 months and FWS biologists had the opportunity to do eight commentaries.

WNCW features eclectic and innovative programming that includes numerous local commentaries on a variety of subjects from books to politics. It has a listening audience of approximately 75,000 people in North Carolina, South Carolina, Tennessee, Virginia, and Kentucky. This station was one of six in the country nominated for the 1996 Gavin Award from The Gavin Report, which is one of the oldest and most respected trade publications in the radio industry.

Because most of the station's audience lives within the Southern Appalachian Mountains ecosystem, this was a good opportunity to increase the listeners' knowledge and appreciation of the incredible biological diversity of the region. The first show featured general information on the Southern

Appalachian Mountains ecosystem—what is it and why it is so biologically diverse. Subsequent commentaries focused on ecological communities within the Southern Appalachians and the rare species that inhabit them. The radio station allows for creativity with the commentaries, including bird calls and other sounds from nature. Each commentary describes why the community is unique, the rare species that live there, the threats to their survival, why we should care, recovery efforts, the partners involved, and what citizens can do to help. During the 8 weeks, a 3½-minute program was presented on each priority resource identified in the Southern Appalachian ecosystem plan, including the spruce-fir forest, high-elevation rock outcrops, mountain

balds, caves, free-flowing rivers, and mountain bogs. The presentations were so well received that after the first four had aired, WNCW asked the Asheville Field Office to continue its commentaries indefinitely!

It is a challenge to create a new show each week, but we believe it is well worth the effort. The continuing series—*Southern Appalachian Creature Features*—will now focus on the rare species of the Southern Appalachian ecosystem. With the cooperation of WNCW, Asheville hopes to increase its coverage in the region by approaching other radio stations about airing the commentaries.

Hilary Vinson is a wildlife biologist in the FWS Asheville Field Office.

The first trayliner was distributed to 170 McDonald's restaurants across the Carolinas from August through September of 1994. Their advertising company estimated that we potentially reached over 1 million people!

The FWS has expressed interest in working with the McDonald's Corporation to distribute trayliners nationwide featuring endangered species from throughout the United States.

Red-cockaded woodpeckers are endangered



McDonald's Earth Effort Starts Locally

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Believe it or not, buffalo once roamed the grasslands of the Carolinas during times of the early settlers. When our grandparents were young, Carolina parakeets added color to the swamps and lowlands, and flocks of passenger pigeons darkened the skies throughout the Carolinas. We will never see these animals again, they are gone forever. Today, many other animals and plants are on the brink of extinction and we might ask, "What will be left for our grandchildren?" McDonald's® cares about our children's heritage and would like to make you aware of the vanishing species of the Carolinas. Endangered means that there is still time.

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Red-cockaded woodpeckers are endangered

Red-cockaded Woodpecker

- This is the only American **woodpecker** that drills its nest cavity in a living pine tree. It takes one to three years to create its home.
- Tree climbing snakes are predators of **red-cockaded woodpeckers** and eat eggs and nestlings. The birds defend their home by chipping small holes in the tree's bark. The sap from these holes flows down the trunk which helps keep the snakes away.
- This **woodpecker** species lives in family groups of up to seven birds. Young male **woodpeckers** often stay with their parents to help raise next year's babies. Female young leave to start new families.
- It is estimated that 4500 **red-cockaded** family groups remain in thirteen southeastern states.
- The **red-cockaded** cavities provide homes for as many as 15 other bird species.

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VX 84277



New Friends for the Kirtland's Warbler

One of the first birds given protection as an endangered species was the Kirtland's warbler (*Dendroica kirtlandii*). This yellow-breasted, sparrow-sized songbird nests only in a nine-county area in the northern Lower Peninsula of Michigan and two counties in Michigan's Upper Peninsula. Since it was listed as endangered in 1967, recovery efforts have improved the warbler's status significantly, but continued success will require the support of its human neighbors.

Intensive land management on property administered by the U.S. Fish and Wildlife Service (FWS), U.S. Forest Service, and Michigan Department of Natural Resources (MDNR) is helping to meet the warblers' specific habitat needs: dense clumps of young jack pine (*Pinus banksiana*) trees 5 to 20 years of age with numerous small, grassy openings. Habitat management includes clearcutting jack pine stands at 50 years of age in blocks of at least 300 acres (120 hectares) each, prescribed burning, extensive replanting, preventing human disturbance of nesting habitat, and control of nest parasitism by cowbirds (*Molothrus ater*). Since the 1970's, an effective partnership has developed among the FWS, Forest Service, MDNR, and Michigan Audubon Society to ensure the warbler's future.

Habitat management has not taken place without controversy, including opposition to large clearcuts, concern about fire safety, potential economic impacts on local economies, and concern about the impact Kirtland's warbler management may have on game species. Although the Kirtland's warbler has been making an impressive recovery from an all-time low of 334 individuals in 1987 to a record high of 1,530 in 1995, it became obvious to resource managers that innovative outreach efforts were needed to increase the public's understanding of the bird. A communications specialist hired by the FWS and Forest Service in 1991 crafted an outreach plan that detailed various goals, target audiences, key messages, guidelines, and specific actions. The Kirtland's Warbler Recovery Team then formed an Interpretation and Education Committee consisting of interpretation specialists, biologists from various resource agencies, and private citizens to begin implementation of the outreach plan.

Until 1994, outreach efforts consisted of free daily tours offered to the public during May and June by the FWS and Forest Service. The tours begin with a brief presentation on the bird's status and life history, then proceed with a field trip to sites where singing male Kirtland's warblers can be seen from the roadside. These tours attract birders from all over the world, with more than 1,300 people participating annually. When the FWS started conducting its tours from the local Holiday Inn in 1993, a very beneficial partnership resulted. Half of the people who participate in



Bob Harrington /courtesy of Michigan DNR

the tours now stay at the Holiday Inn. Local businesses and residents in the area now see the bird as an asset rather than a liability.

Beginning in 1994, the FWS took a number of steps to expand the outreach effort. One of the most significant was a 48-mile (77-kilometer) self-guided "watchable-wildlife" auto tour with 11 interpretive sites. The auto tour, which has received national attention, is designed to educate the public about forest habitats and ecosystem management rather than just about Kirtland's warblers. A multitude of partners made the auto-tour possible, ranging from county road commissions, the local Chambers of Commerce, the Weyerhaeuser Corp., the National Fish and Wildlife Foundation, the Ruffed Grouse Society, local businesses, and State and Federal resource agencies.

Another effective public outreach strategy is a festival honoring the Kirtland's warbler. This year, the Third Annual Kirtland's Warbler Festival, organized by the Kirtland Community College, was held May 18th and 19th. The festival is an opportunity for avid birdwatchers and local communities to participate in educational activities and bring tourist dollars into the communities, which now have a well-established souvenir trade in warbler memorabilia. Approximately 40 partners, ranging from General Motors to local grocery stores, have contributed to the festival's success. As a result, people are beginning to understand that a unique species like the Kirtland's warbler can be an economic asset worth preserving.

Jean Richter was until recently a wildlife biologist in the FWS East Lansing, Michigan, Field Office, and is now a refuge biologist at Roanoke River National Wildlife Refuge in North Carolina.

Wolves, Outreach, and Rural Idaho

For the past 2 years, the U.S. Fish and Wildlife Service (FWS) has been reintroducing gray wolves (*Canis lupus*) to Yellowstone National Park and, with the assistance of the Nez Perce Tribe, to national forests in central Idaho. The progress being made in this recovery effort is due in part to an intensive outreach campaign in Idaho to work directly with many different segments of the public in addressing issues surrounding the reintroduction.

The media often reports about conflicts between residents in rural western communities and Federal natural resource managers. While it is true that problems sometime exist, most of our experiences working with people in rural areas have been positive.

One of the most important lessons we learned is that effective outreach goes beyond disseminating information. Most importantly, it involves listening and learning about local perspectives that may be important for implementing FWS programs. For example, Bob Loucks, the Lemhi County Agricultural Extension Agent, drove us around the county on one of our first visits. After having spent over two decades on the job, he shared with us all he had learned from local information, history, and lore about the last wolves that existed in Lemhi County early this century. This information has already been valuable in understanding potential wolf use in the area.

The core of our outreach approach was to be accessible, listen, and provide clear, honest answers to questions: *Do wild wolves kill people?* No. *Do wild wolves kill livestock?* Yes, but only occasionally, and the FWS is cooperating with the U.S.D.A. Animal Damage Control program to stop depredations when they occur. Also, a private organization, Defenders of Wildlife, is compensating ranchers for livestock taken by wolves. *Does the presence of wolves cause land use restrictions?* In the 10 years that wolf packs have been present in northwest Montana, the FWS has not restricted access by private citizens to any land specifically to protect wolves. In Idaho, the potential for restrictions of land use for wolves is even more remote.

Over the past 3 years, we learned that most people, including those in rural Idaho, find wolves interesting and exciting animals. Seventy-two percent of Idahoans said they supported wolf recovery in 1990. We also learned that rural Idahoans are more concerned about potential land use restrictions than about wolves, are strong wildlife advocates in general, and often have

much useful information for implementing species recovery programs.

The ultimate test of local cooperation came in April 1995, when a series of three livestock depredations occurred in Lemhi County that local ranchers believed may have been wolf-caused. Unfortunately, we were unable to follow up conclusively on the first two reported incidents because we did not learn about them until several days after they occurred. By that time, much of the information needed for an effective investigation was lost. We called a local county representative who is among the first to hear about depredation reports and asked for his help in involving the FWS more quickly in the future. The next week, he called and asked for our help investigating a depredation report. He sent an employee to the scene to prevent any disturbance of the evidence until FWS biologists arrived that afternoon. The landowner, a local veterinarian, and biologists evaluated the evidence together and agreed unanimously that a coyote (*Canis latrans*) had killed the livestock animal, not wolves. We could not have asked for better cooperation

from local officials in implementing one of the most difficult aspects of the wolf recovery program.

There is growing evidence of this spirit of cooperation among rural Idahoans, the FWS, and the Nez Perce Tribe involving wolf recovery work. Travis Bullock of Mile High Outfitters, which operates in the Frank Church-River of No Return Wilderness in central Idaho, recently wrote a letter to the Wolf Education and Research Center, a private wolf recovery group based in Idaho, about his feelings regarding the wolf recovery program.

When the idea [reintroducing wolves into central Idaho] first became known to local residents, two major fears struck me. First of all, I feared for the well-being of elk, deer, and [bighorn] sheep populations.... My second fear was that, if needed, the [FWS] could step in and close certain areas for wolves.... So far, neither instance has happened. After doing some

research, my feeling is that this is not likely to happen.

My hope is to be able to co-exist with the wolves and to be able to show outdoor enthusiasts what a group of dedicated people did to put wolves back into the Frank Church Wilderness Area of Idaho. All in all, I believe that education and an open mind on the parts of all individuals involved is key to making this work for the good of the wolves and the public.

The FWS wolf recovery team counts these and many other outreach activities among the most rewarding and important experiences of the project because of the quality of the people we have worked with, the work we have been able to accomplish together, and the improved service we are delivering to our customers.

Ted Koch is a wildlife biologist with the FWS Snake River Basin Office in Boise, Idaho.



John and Karen Hollingsworth/USFWS

Earth Stewards

EARTH STEWARDS is a pilot program designed to maximize the use of Fish and Wildlife Service (FWS) expertise in educating school children and communities about wildlife resources and local conservation problems. In 1994, the FWS New Jersey Field Office signed a partnership agreement with Smithville Elementary School, located in Galloway Township, Atlantic County, to launch its *Earth Stewards* project.

During the program's first year of implementation, New Jersey Field Office employees focused their efforts on endangered species awareness and conservation projects. With assistance from an environmental education consultant, the FWS completed a first-of-its-kind endangered species curriculum under the theme of "State and federally listed threatened and endangered species." Using the State's *Project Wild* curriculum, teachers from Smithville Elementary School were able to adapt classroom exercises and hands-on activities to core curricula: reading, writing, arithmetic, and art. The *Earth Stewards* curriculum was taught one hour per week during a six-week unit of study that complemented each grade's emphasis on science, wildlife, and nature.

Additionally, each grade selected a stewardship/awareness project to be implemented during a "Conservation Week." Parents, community members, and businesses were invited to participate and observe during a week-long open house. Activities included: a pine barrens tree frog "sing-along" with kindergarten students; an interactive presentation using diamondback terrapins (in which one of the terrapins laid an egg) with the first-grade

students; and the creation of door plaques representing every State and federally listed threatened and endangered species in New Jersey by fourth-grade students. Several grades decided to get their hands dirty; using native plants and shrubs, the second grade planted a hummingbird/butterfly garden, and sixth grade students painted a mural representing listed species and their habitats in New Jersey. This mural is now hanging in the foyer at the Galloway Township Municipal Complex. To reinforce the concepts the children were learning in the classroom, New Jersey Field Office biologists led several nature hikes at the Edwin B. Forsythe National Wildlife Refuge and focused their talks on the threatened and endangered species found there: the peregrine falcon (*Falco peregrinus*), bald eagle (*Haliaeetus leucocephalus*), and swamp pink (*Helonias bullata*). The *Earth Stewards* program, now in its second year, is currently restoring/enhancing a wetland on school property that will be used as an outdoor classroom.

The program's success was recognized by two recent awards: the selection of the FWS as "Governmental Advocate for Education of the Year" by the Galloway Township Education

Foundation, and Smithville Elementary School's receipt of Honorable Mention in the WILDest School Site contest (sponsored by the New Jersey Division of Fish, Game and Wildlife). The FWS also received a Certificate of Special Congressional Recognition from Congressman Frank LoBiondo; a Joint Legislative Resolution from the State of New Jersey's Senate and General Assembly; and letters of commendation from the Atlantic County Executive, Governor Christine Todd Whitman, State Department of Education, Superintendent of Galloway Township Public Schools, Mayor of Galloway Township, and New Jersey Education Association. Additionally, letters of recognition were received from the Regional Director and the FWS Acting Director. But the real rewards of the *Earth Stewards* program are in designing and implementing a successful conservation education program that teaches more than 800 students, in kindergarten through sixth grade, respect for the environment.

Critical to the program's success is the partnership among the FWS staff; students, parents, teachers, and administrators from Smithville Elementary; and

various local leaders. The conservation projects make a logical connection between what is taught in school and community-based efforts that apply classroom knowledge for the benefit of the resource.

The *Earth Stewards* program in New Jersey is sponsored by the FWS National Education and Training Center, National Fish and Wildlife Foundation, Geraldine R. Dodge Foundation, and local community and business leaders. The New Jersey Field Office is one of five stations in the Nation implementing the program. The other sites include: Anchorage, Alaska; Columbia, Missouri; Lafayette, Louisiana; and, Sacramento, California. *Earth Stewards* shows what can be accomplished when teachers and resource professionals are given the support, training, and adequate funding to develop cooperative programs for children and their communities.

Angela Graziano is a Communications Specialist in the FWS New Jersey Field Office.



USFWS

Left
Bucket by bucket, Smithville Elementary School students carried wood chips to pave a newly created nature trail. The trail will aid in the study of the natural area that is being restored.

The Story of Hou-Manatee

Citizens of Houston, Texas, and the surrounding area learned a lot about the endangered West Indian manatee (*Trichechus manatus*) when a wandering individual came to visit last November. Although manatees are sighted occasionally along the south Texas Gulf coastline, and rarely around the Galveston Bay complex, this was the first one ever seen so far inland. It swam up Buffalo Bayou and settled near a wastewater treatment plant just east of the downtown area. In the days that followed, crowds of onlookers gathered daily while the news media kept everyone else informed on the manatee's status.

U.S. Fish and Wildlife Service (FWS) biologists were hoping the manatee, affectionately named "Hou" by his fans, would find the site's extremely sparse aquatic vegetation unsatisfying and move out of the warm, comfortable water back down to better habitat in

Galveston Bay and along the coast. Although Hou was later sighted 10 miles (16 kilometers) downstream by a tow-boat captain, the manatee returned the next day much to the delight of his fans and the disappointment of biologists. Concerned about Hou's nutritional needs, FWS Clear Lake Field Office staff constructed a feeding ring and stocked it with a supply of water hyacinth, romaine lettuce, and carrots. Hou found his new "salad bar" delightful and packed away several hundred pounds of "veggies" over the next few days.

But winter was on the way, and manatees cannot survive for long in cold waters. Knowing that the water treatment outfall and Buffalo Bayou are not suitable manatee habitat and that supplemental feeding could not go on forever, the FWS teamed up with the Texas Parks and Wildlife Department to capture and relocate Hou. The logistics were difficult because of the location

With the Houston Police Department and its dive team standing by, rescuers netted Hou on their second try and—after a valiant struggle—secured him in a sling. He then was hoisted 25 feet (7.6 meters) up to the treatment plant parking lot and a waiting moving van provided by Gallery Furniture of Houston.

During an examination by a wildlife biologist and a FWS volunteer veterinarian, they discovered that the 10.5-foot (3.2-m) long, 1,250-pound (567 kilogram) manatee was actually a female. Although a few hundred pounds underweight, she was in relatively good physical condition.



and characteristics of the capture site, but various partners made the rescue effort possible. The Houston City Works Department shut down plant operations to stop swift currents caused by the discharge of treated effluent and an emergency notice issued by the U.S. Coast Guard temporarily closed the area to navigation.

The full story, however, was not just the mechanics of the rescue and relocation but also the impact this manatee made on the lives of people in the Houston area. People who may not have even heard of this animal before the visit now know how large it grows, what it eats, how it lives, and why it is endangered. Manatee facts were published in a student tabloid section of the Houston Chronicle. Teachers took their students on field trips to see Hou-manatee or had them write term papers on endangered manatees. There was no uproar when TV soap operas were interrupted for live broadcast of the capture. Some site visitors bought "Hou-manatee" neckties sold by a local entrepreneur.

Buffalo Bayou conservation groups were elated over the fact that an endangered manatee might find the

Bayou an attractive haven. They viewed it as a testimony to their successful efforts at cleaning up a waterway that, in the past, would occasionally catch fire due to petrochemical pollution.

Part of the story also lies in how well efforts were coordinated between wildlife biologists in Texas and manatee experts from St. Petersburg, Florida. The spirit of cooperation among Federal, State, county, and city agencies, along with the private sector, permeated each step of the rescue process. In recognition of their support, the various partners in the rescue were presented with "I Helped Save Hou-Manatee" T-shirts, plaques, or certificates by the FWS.

We will always remember when the manatee came to town but—for the sake of this gentle animal—we hope it doesn't happen again.

Mel Russel is a wildlife biologist in the FWS Clear Lake Field Office. (Editor's note: Unfortunately, not all manatees are as fortunate as Hou-manatee; see page 27.)

The manatee was gently loaded into the padded van, doused with water, and rushed off to Sea World of San Antonio for a little "R&R." Now called "Sweet Pea" by her handlers, they were amazed at how quickly she acclimated to her new environment. Tests indicated that she most likely came from the Florida population. On February 26, 1996,

3 months after she was first sighted in Buffalo Bayou, the Coast Guard flew Sweet Pea from San Antonio to suitable habitat at Homosassa Springs, Florida, bringing the story to a successful end.



USFWS photos

Public Supports Fish Recovery

*M*ost citizens living in the upper Colorado River basin would like to see their four species of endangered fish recovered, according to a Colorado State University (CSU) study conducted for the Colorado Division of Wildlife and U.S. Fish and Wildlife Service.

In the early 1900's, the Colorado squawfish, bonytail chub, humpback chub, and razorback sucker were still common in the upper Colorado River basin. The Colorado squawfish was the top predator among the four. Sometimes referred to as the "Colorado salmon," this species was known for migrating up to 200 miles (320 kilometers) to spawn. Squawfish are capable of growing to 6 feet (1.8 meters) in length and 80 pounds (36 kilograms) in weight, and once were highly regarded by anglers.

All four species declined as water development and other human activities altered their habitat. Dams and water diversion systems had major impacts by altering normal stream flows and restricting migration. Non-native fish species, such as catfish (*Ictalurus* spp.), northern pike (*Esox lucius*), red shiners (*Notropis lutrensis*), and fathead minnows (*Pimephales promelas*), were introduced to the rivers, where they turned to the eggs and young of native endangered fish for food.

Completed by the CSU's Human Dimensions in Natural Resources Unit, the survey found that 66 percent of the 897 respondents support efforts to protect the Colorado squawfish (*Ptychocheilus lucius*), bonytail chub (*Gila elegans*), razorback sucker (*Xyrauchen texanus*), and humpback chub (*Gila cypha*) from extinction. Another 21 percent oppose such efforts, while the final 13 percent had no opinion.

Without assistance to protect and restore their historic habitat, the native endangered fish could be lost forever.

According to the survey, the public does not want that to happen. Along with specifically supporting recovery efforts, 59 percent of those contacted voiced a "positive attitude" toward saving endangered fish. Twenty-five percent had no opinion, and 16 percent said their attitude was negative.

The research team collected the data last year via a telephone survey of residents of western Colorado and eastern Utah. Of the respondents, 168 were elected local officials, 300 were anglers, 125 were members of environmental groups, and 304 were members of the general public.

Eighty-one percent of those surveyed agreed with the statement that the Colorado squawfish, bonytail chub,

humpback chub, and razorback sucker should be saved because "recovering endangered fish is as important as recovering endangered birds and mammals." Seventy-three percent agreed that the fish should be recovered because they "help to maintain balance in nature," and 72 percent agreed that "endangered fish should be recovered whenever possible."

Seventy-five percent of the respondents thought stocking non-native fish in the river basin should be permitted only if it does not harm the endangered native fish.

Overwhelming majorities of elected officials, anglers, environmentalists, and representatives of the general public thought endangered fish have a right to live in the river basin if they can be recovered. That opinion was expressed by 98 percent of the environmentalists, 95 percent of both the anglers and general public, and 88 percent of elected officials.

Just 29 percent of those surveyed said the existence of endangered fish was not important to them, while 76 percent thought it was valuable to have self-sustaining populations of the fish.

John Hamill, a Fish and Wildlife Service biologist who directs the Recovery Program for Endangered Fish of the Upper Colorado River Basin,

views the survey's results as support for the environment in general as well as the fish. "Actions that we take to recover the fish have implications for water quality and water quantity," he said. "In the long-run, helping to recover endangered fish also will benefit other wildlife species as well as people."

Connie Young is the Information and Education Coordinator for the Upper Colorado River Recovery Program, a multi-agency program staffed by the FWS. The program is designed to recover endangered fish while providing for continued water development in the Upper Colorado Basin.



Left
Florence Barnes stands with a Colorado squawfish caught in the Yampa River during the early 1930's. Now endangered, this fish species exists in the Colorado River Basin and nowhere else on earth.

photo courtesy of Katharine Rinker®

Desert Tortoise HCP

“*T*here’s a monster!” exclaimed a biologist from the Utah Division of Wildlife Resources as a black-beaded, yellowish-orange Gila monster (*Heloderma suspectum*) crossed our path in Utah’s red-sand Mojave Desert on a sunny April day in 1994. Within 20 minutes, another Gila monster was spied between lava rock outcrops, and in a quick 2 hours, the small group of Federal and State wildlife biologists and managers spied 8 desert tortoises (*Gopherus agassizii*) of various ages and sizes feeding, walking, basking in the sun, and posing for photographs. Such diversity in wildlife and plants was encountered during the short field trip that one of the managers jokingly wondered aloud whether the biologists had “planted” the animals earlier that morning to ensure a showcase trip.

We had come to see the northeastern finger of the Mojave Desert, which extends into the very southwestern part of Utah, home to Washington County and the City of St. George. The Colorado Plateau and the Great Basin Desert meet the Mojave Desert in this region, forming a landscape unique in vegetative and topographic composition and rich in biodiversity. It is also a stronghold of the desert tortoise. The species’ population near St. George (the “Upper Virgin River Recovery Unit”), unlike those in some other areas of the Mojave Desert, shows high density and sound health. The human population of the St. George area is robust as well. Washington County is one of the fastest-growing and developing counties in the nation, with some projections predicting the human population will double by the year 2014.

In early 1991, Washington County began developing a Habitat Conservation Plan (HCP) in order to make

continued economic development consistent with protection of the desert tortoise. An HCP is needed in order to apply for an “incidental take” permit under section 10 of the Endangered Species Act (ESA). “Take” as defined in the ESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Take of threatened and endangered species is prohibited under the ESA without a permit.

After numerous meetings and detailed negotiations that moved at a pace often compared to that of a tortoise, Washington County submitted an HCP to the U.S. Fish and Wildlife Service (FWS) in June 1995. The FWS evaluated the plan and issued an incidental take permit to the county in February 1996. The permit allows Washington County to take up to 1,169 desert tortoises, over the 20-year life of the HCP, incidental to otherwise lawful activities (including, but not limited to,

grading or other earth-moving activities for construction and development projects). The permit and HCP specify that this take may occur only on non-Federal lands in the St. George area that are outside the boundaries of a habitat reserve to be established under the plan. The HCP includes a provision called "incremental implementation," which is designed to ensure that development in areas covered by the incidental take permit does not outpace the implementation of conservation measures specified in the plan.

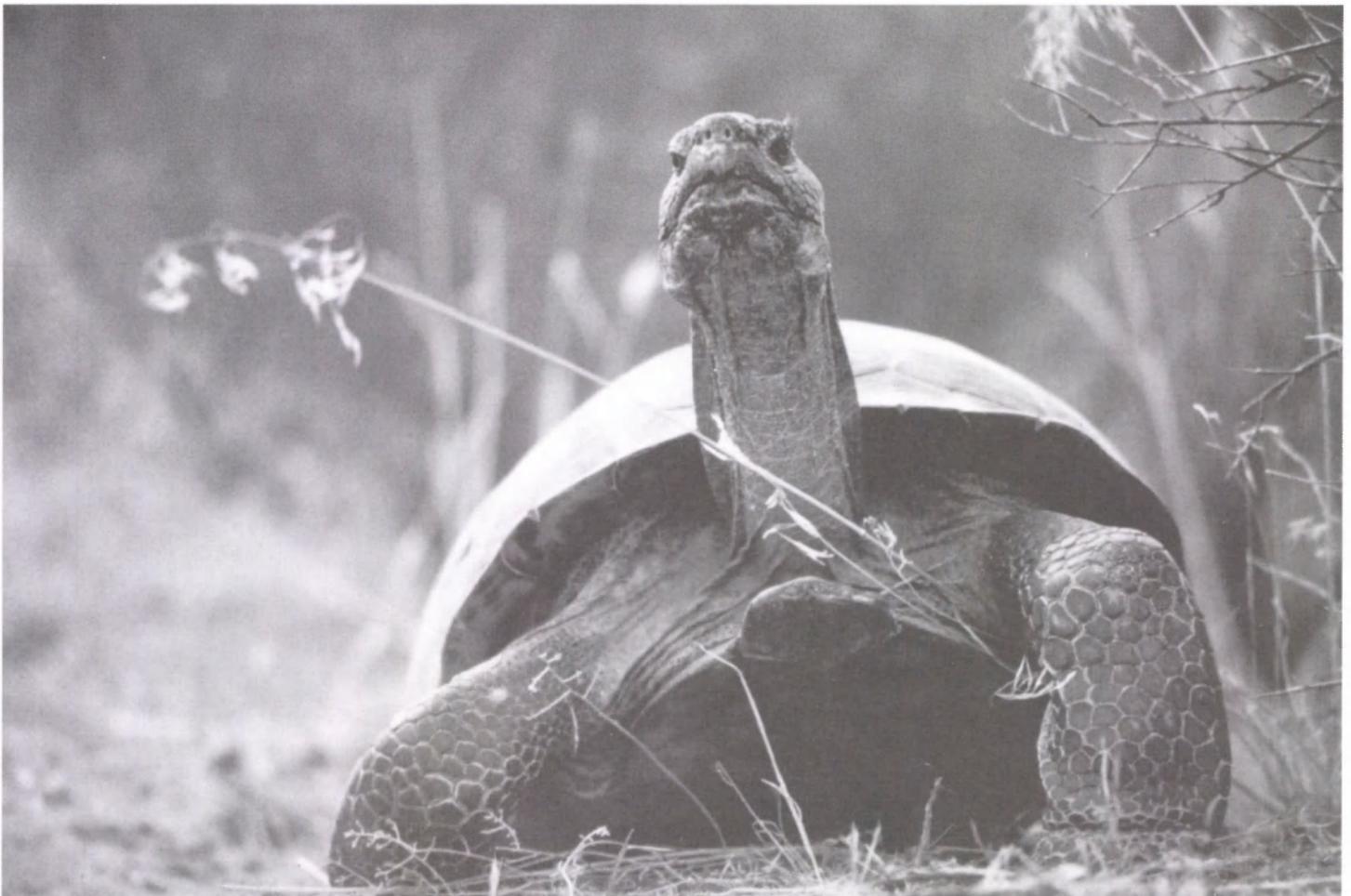
Washington County's HCP was prepared by a 15-member interdisciplinary steering committee representing a broad spectrum of local conservation and development interests. The HCP is intended not only to allow development to continue but also to further the goals of the Desert Tortoise (Mojave Population) Recovery Plan for the Upper Virgin River Recovery Unit. These goals will be achieved through formation and management of a desert

habitat reserve or Upper Virgin River Desert Wildlife Management Area, implementation of proposed conservation measures in the plan, and other specific actions.

As the HCP was developed, and a habitat reserve measure established, members of the Washington County HCP Steering Committee contacted all private landowners within the projected reserve boundaries, informed them of the HCP process, and gained their willingness to sell or exchange their property. BLM management of the reserve will include fencing reserve boundaries and other areas for endangered plant reserves; prohibiting specific activities in areas of high sensitivity; acquiring grazing privileges in reserve zones; and enforcing all applicable Federal, State, and local government regulations.

Washington County is responsible for conducting desert tortoise surveys in "incidental take areas" prior to develop-
(continued on page 24)

The Mojave population of the desert tortoise (those tortoises living north and west of the Colorado River) was listed as threatened in April 1990 due to a number of factors, including disease and habitat loss (see BULLETIN Vol. XX, No. 6).



Todd C. Esque®

By law, HCPs must include measures to minimize, mitigate, and monitor the incidental take and provide assurances that these measures will be funded. The core mitigation measure in the Washington County HCP is a habitat reserve to be managed primarily for the desert tortoise. Over 60 percent of the lands for the reserve are already administered by the Bureau of Land Management (BLM), and the remainder of non-Federal lands will be consolidated through purchase and land exchanges. The reserve encompasses 61,022 acres (24,695 hectares). Over half of this land is occupied desert tortoise habitat, and the remaining acreage will provide habitat for other vulnerable animals and plants.

(continuation from page 23)

ment. If found, tortoises will be translocated by the FWS to BLM lands with appropriate habitat during at least the first 5 years of the permit. In addition, an environmental education program and nature center will be created to help inform people about the function and value of ecosystems in the Washington County region.

Under the HCP, Washington County will have the authority to approve land development permits for otherwise lawful private projects during the 20-year period in which the Federal permit will be in effect. Sources of permanent funding for the HCP include county-wide fees assessed when building permits are issued. The fee is equal to 0.2 percent of total construction costs, and a second county-wide fee of \$250 per acre will be assessed to developers of subdivisions, condominiums, townhomes, or planned unit develop-

ments. Planners estimate that the total cost of implementing the HCP will be \$11.6 million. They expect that revenues from development fees will exceed \$9 million over the 20-year period of the permit and that the balance needed to implement the HCP will be addressed through cost-sharing agreements with various State and Federal agencies.

Although one may be tempted to view the issuance of this incidental take permit as the end of a relatively long race for all parties involved, in reality it is just the beginning—the beginning of an opportunity to carry out cooperative measures for desert tortoise recovery, and the beginning step to ensure that our children won't have to ask, "Where have all the tortoises gone?"

Marilet A. Zablan is a wildlife biologist with the FWS Utah Field Office in Salt Lake City.



Todd C. Esque

Scientist in the Schools

by Ben Harrison

For the past 3 years, a number of Fish and Wildlife Service (FWS) scientists have been going back to school as part of a cooperative education program. Through the initiative known as “Scientist In the Schools,” individual elementary and secondary schools “adopt” FWS employees who, in turn, provide education on fish and wildlife resources in the area. Students learn about our natural environment while developing an understanding that education is not isolated from the community or the environment, but is an integral part of it.

Since the program was established, FWS employees in Region 1 have been active in making it a success. Individuals from all program areas with a variety of job skills have visited the classrooms of students eager to learn about wildlife and other natural resources. The Scientist in the Schools program is working in tandem with other FWS outreach efforts. Very often, teachers attend events where the FWS has set up an environmental education booth and are delighted to learn of the services available through the program.

FWS representatives have offered programs on subjects such as fish and wildlife management, wetlands, endangered species, and basic ecological principles. Some have participated in school career days, helped with field trips, and provided support for nature and science clubs. FWS personnel also have been available to provide teachers with technical assistance, answer student questions, or—in the rare case where the Scientist in the Schools

program was unable to provide a particular service—help the school locate a source to fill the need.

The Scientist in the Schools program offers several advantages to the participating schools. It allows elementary and secondary school teachers to use the services available through the FWS to expand their opportunities in the area of wildlife and natural resource education. The program also gives students the chance to meet professionals in the fish and wildlife field and learn about their careers. Teachers and students alike have been very enthusiastic and grateful for the interest the FWS has shown in their educational goals. Entire classes have written “thank-you” letters or provided class artwork about what they had learned.

The Scientist in the Schools program also has advantages for the FWS. First, it puts employees directly in touch with local schools and communities. By providing wildlife-oriented education, the FWS also promotes positive values and attitudes toward natural resources. In these ways, community involvement on the part of FWS staff compliments Region 1 outreach goals.

For further information about the Scientist in the Schools program, contact Glenda Franich, FWS Regional Environmental Education Coordinator, at 503/872-2705.

Ben Harrison is a biologist with the Division of Habitat Conservation, Branch of Federal Activities, in the FWS Portland, Oregon, Office.

“What Can We Do?”

by LaRee Brosseau

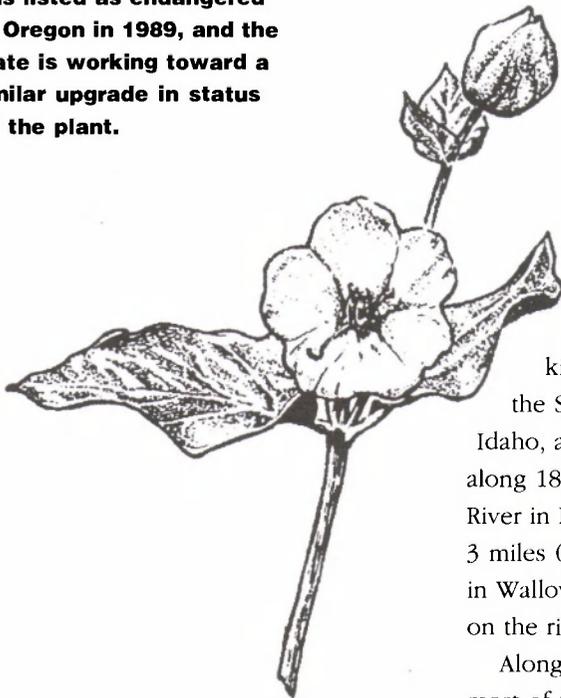
“What can we do to help save our wildlife?” Twenty-two eager hands in Jill Evans’ third grade class at Prescott Elementary School waved wildly towards the chalkboard. A husband and wife team from the Fish and Wildlife Service, Ben and Jean Harrison, stood grinning at the front of the room as the students answered. “Build bird houses, build bird feeders, don’t litter, recycle, reduce water and electrical waste, ride a bike, take a bus, build a bat house, get more greenspaces and parks.” Jill was not surprised by the range or passion of the response. “Kids care about our environment. This is their world and they definitely care about it.”

Joyce Johnson, a second grade teacher at Prescott Elementary, is equally enthusiastic about the program. “Ben and Jean Harrison are creative and energetic, and we have cooperatively come up with super presentations to add to my second grade ‘cycle’ frog unit. They are wonderful about coming up with resources to share, such as games, posters, and practical application exercises, and they have a great way with kids.”

LaRee Brosseau is a writer/editor for Ecological Services in the FWS Portland, Oregon, Office.

MacFarlane's Four-o'clock is Reclassified

MacFarlane's four-o'clock was named for Ed MacFarlane, a boatman on the Snake River, who pointed out the plant on the Oregon side of Hells Canyon to botanists in 1936. In 1947, the plant was discovered along the Salmon River in Idaho. Only 27 plants occupying 25 acres (10 hectares) in 2 locations were known at the time the plant was federally listed as endangered in 1979. Several botanists had actively searched for the plant without success, so it was considered extremely rare. MacFarlane's four-o'clock was listed as endangered by Oregon in 1989, and the State is working toward a similar upgrade in status for the plant.



Twelve years of recovery efforts for the MacFarlane's four-o'clock (*Mirabilis macfarlanei*), a large, showy plant with clusters of magenta flowers, have removed this species from the brink of extinction. As a result, the Fish and Wildlife Service (FWS) published a rule in the March 15, 1996, *Federal Register* reclassifying the plant from endangered to the less critical category of threatened.

Improved livestock grazing management, research, the discovery of additional plant locations on public lands, and the stable condition of existing populations led the FWS to conclude that the status of MacFarlane's four-o'clock has substantially improved.

The amount of occupied habitat located in Idaho and Oregon since the species' listing represents a three-fold increase due to new discoveries. Currently, almost 1,000 plants are known on about 163 acres (66 ha) in 18 locations.

MacFarlane's four-o'clock occurs along 6 miles (9.6 kilometers) of Hells Canyon of the Snake River in Idaho County, Idaho, and Wallowa County, Oregon; along 18 miles (29 km) of the Salmon River in Idaho County, Idaho; and along 3 miles (4.8 km) of the Imnaha River in Wallowa County, Oregon. It grows on the river banks and canyon slopes.

Along the Snake and Imnaha Rivers, most of the plants occur on Nez Perce and Wallowa/Whitman National Forest lands. Most of the plants along the Salmon River occur on public lands

administered by the Bureau of Land Management (BLM). The remaining plants are on private lands.

The BLM has reduced livestock grazing on its lands to a level that does not adversely affect the MacFarlane's four-o'clock, and the Forest Service has excluded the plant's habitat from its grazing allotments or is requiring that livestock be removed before the plant starts to grow in the spring. Both agencies also are monitoring and evaluating plant population trends on their lands, and are cooperating with private land owners to conserve MacFarlane's four-o'clock plants and habitat on private lands.

Although the plant has been reclassified as threatened, potential threats still remain, including lack of plant recruitment in some areas, insect predation, invasions of non-native plants, and the small size of some populations. MacFarlane's four-o'clock will continue to receive Endangered Species Act protection until full recovery has been achieved.

Susan Saul is a Public Affairs Specialist in the FWS Portland, Oregon, Regional Office.

Die-off Decimates Florida Manatee

by Robert Turner

Since January 1, 1996, more than 260 Florida manatees (*Trichechus manatus*), or about 10 percent of the known manatee population in the United States, have been found dead. Some 157 of these deaths occurred in southwest Florida since March 5, 1996. Recent analyses of blood and tissues are providing clues to this die-off but so far have failed to determine conclusively the cause.

Numerous Federal, State, and private agencies and organizations have been assisting Florida Marine Research Institute scientists with the ongoing investigation by testing the hypotheses most likely to explain the record-breaking number of manatee deaths. Efforts have focused on three possible factors: 1) a biological toxin, such as that produced by the dinoflagellates that cause a "red tide," 2) a disease caused by a virus or bacterium, or 3) a contaminant substance, such as a pesticide. It is also possible that a combination of factors was involved. Tissue samples collected from dead manatees have been sent to laboratories across the country with expertise in identifying biotoxins, infectious agents, and contaminants. As of early May, none of the results were conclusive.

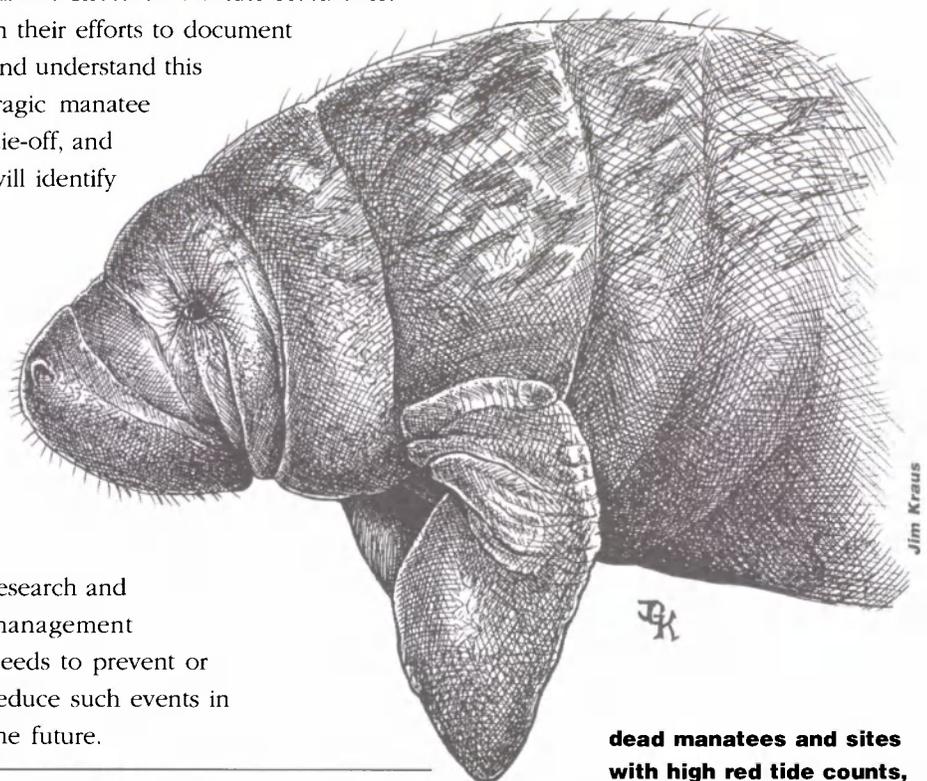
Live manatees exhibiting neuromuscular problems consistent with those previously described in manatees exposed to red tides have been rescued in southwestern Florida and taken to a rehabilitation facility at Lowry Park Zoo in Tampa. The recovery of three females took several days, during which they required assistance to stay afloat for breathing. A male manatee rescued recently by State biologists is expected to recover.

Scientists are hopeful that the die-off is over. As of May 10, no fresh manatee carcasses had been found since April 25, 1996. The U.S. Fish and Wildlife Service and National Biological Service will continue to assist Florida Marine Research Institute researchers in their efforts to document and understand this tragic manatee die-off, and will identify

research and management needs to prevent or reduce such events in the future.

Robert Turner, the FWS Manatee Coordinator, is located in the Jacksonville, Florida, Field Office.

The Florida Marine Research Institute has organized an effective team approach to document this record high mortality. Biologists collected information on dates and locations of dead manatees, and gathered environmental data on water temperatures, salinity, and counts of red tide organisms. The information has been entered into a geographic database so that clues to the manatee deaths can be identified and analyzed. A preliminary review has shown a clear correlation between the distribution of



dead manatees and sites with high red tide counts, but a definitive causal relationship between the red tide and the manatee deaths has yet to be firmly established.

by Jeff Underwood and
Nancy Finley



Piping plover

USFWS

Trustom Pond National Wildlife Refuge was established in 1974 through a private donation of land adjacent to the Rhode Island Audubon Society's Moonstone Waterfowl Refuge. With the acquisition of additional acreage, the Trustom Pond Refuge now consists of 641 acres (260 hectares). It offers resting, feeding, nesting, and wintering habitat for migratory birds, mainly waterfowl and shorebirds. Over 280 species of birds are found on the refuge, with 57 nesting on refuge property. It is also home to 41 species of mammals, 10 species of fish, and over 20 species of amphibians and reptiles. The refuge contains a diversity of habitat types, from barrier beaches to wooded swamps. Trustom Pond, a 160-acre (65-ha) salt pond, is the focal point of the refuge and Rhode Island's only completely protected coastal lagoon.

Oil Spill Fouls Wildlife Refuge

On the afternoon of January 19, 1996, the tug *Scandia* caught fire and lost power. Gale force winds of 60 miles per hour beached the tug, and its tow—the barge *North Cape*—grounded in the center of Moonstone Beach, Rhode Island, in the immediate vicinity of Trustom Pond National Wildlife Refuge.

The grounded barge released over 828,000 gallons (3.134 million liters) of number 2 fuel oil into coastal waters. This type of oil is a thin, toxic product that floats but mixes with water when agitated. Since the gale force winds generated high surf conditions, the oil readily mixed into the water column and dispersed quickly along the coast. The single-hulled *North Cape* was comprised of 14 holding compartments, 8 of which were punctured during the barge's uncontrolled drifting.

The discharged oil contaminated the beach and entered several coastal salt ponds along approximately 9 miles (14 kilometers) of the Rhode Island coast from Napatree Point to Point Judith. The oil also reached Block Island, located directly offshore from the grounded barge. All fishing was suspended in a 250-square-mile (648-square-km) area off Rhode Island. Trustom Pond Refuge provides habitat for several thousand migratory birds, including the threatened piping plover (*Charadrius melodus*), and is a nursery area for important finfish such as winter flounder (*Pseudopleuronectes americanus*) and striped bass (*Morone saxatilis*). A total of 396 birds are confirmed to have been killed as a result of the spill.

Potential long-term impacts of the spill on the piping plover, which is listed under the Endangered Species Act as threatened, are a major concern to the Fish and Wildlife Service (FWS). Piping plovers begin arriving along this section of the coast in mid-March to

early April. They establish pair bonds and construct nests on the beaches by mid-April. Moonstone Beach (the location of the beached tug and grounded barge) and Ninigret Beach on the south coast of Rhode Island have consistently provided nesting and brood habitat for the piping plover. In 1995, 13 pairs of piping plover nested on these beaches (8 pairs on Moonstone Beach and 5 on Ninigret Beach). For several years, the FWS has been attempting to protect and enhance plover populations in these areas.

In response to the oil spill, the FWS is conducting several studies to determine possible impacts on 1996 piping plover breeding success. Monitoring of the plovers and their habitat will include documentation of nesting territories, nest site selection and development, adult feeding behavior, productivity, predation, chick foraging behavior, fledgling success and the success of protective nest exclosures. Monitoring will detect any potential oil-related

impacts on breeding, and will be useful in developing strategies for enhanced recovery actions in 1997.

Plover feeding areas include intertidal portions of ocean beaches, washover areas, mudflats, sandflats, wracklines, and shorelines of coastal ponds, lagoons, and salt marshes, all of which were contaminated by oil. Biologists are concerned about the loss of the invertebrate community found in both the intertidal zone and local salt ponds, and will conduct surveys to determine the extent of the impacts. Invertebrates, particularly amphipods, are a vital prey source for the piping plover. A decline in this prey base along intertidal areas could harm plover survival and reproduction. During the initial days of the spill, mass mortality of amphipods occurred in the salt ponds and along the beach tideline. If local invertebrate communities are significantly reduced or eliminated, plovers may be forced to travel greater distances in search of food, thereby reducing feeding efficiency. Piping plover chicks spend a high proportion

of their time feeding, typically tripling their weight within the first 2 weeks of hatching. Failure to increase weight quickly greatly reduces the chances of chick survival. The amphipod mortality was only part of the impact from the oil spill; surf clams, quahog, starfish, and lobsters also suffered extensive losses.

The results from the studies investigating the potential damage to plover populations will be used to make decisions on managing the available nesting habitats between Napatree Point and Matunuck. If impacts from the spill are noted, there may be need for an increased effort to restore piping plovers and their habitat along the Rhode Island coast.

Jeff Underwood and Nancy Finley are wildlife biologists with the FWS Division of Environmental Contaminants. Mr. Underwood is located at the Washington, D.C., office, and Ms. Finley is stationed with the Environmental Protection Agency's Environmental Response Team in Edison, New Jersey.



The oil spill resulted in extensive losses of starfish, surf clams, lobsters, and other marine life.

Steve Mierzykowski/USFWS



During an oil spill, the Fish and Wildlife Service (FWS) is responsible for protecting and restoring wildlife threatened or injured by the event. Despite the agency's modest size and resources, its responsibility for responding to oil discharges spans the country from coastal areas to central/inland zones. When the FWS is notified of a discharge, staff from Ecological Services Field Offices, national wildlife refuges, and law enforcement stations may be called in for assistance. Activities conducted during a response include: identifying sensitive environmental areas that may be, or have been, affected; retrieving oiled wildlife; overseeing the wildlife cleaning activities; evaluating the need for emergency habitat restoration; and collecting time-sensitive information or ephemeral data. The FWS also conducts natural resource damage assessments, with the intention of restoring the public's injured natural resources and making the public whole for wildlife losses caused by the oil. Some FWS offices also are involved in contingency planning for responding to future oil and hazardous substance spills.

Getting a Jump on Listing

The California red-legged frog (*Rana aurora draytonii*), which may have been the original “celebrated jumping frog of Calaveras County,” leaped off the pages of Mark Twain’s short story and onto the list of threatened species on May 23, 1996. It was the first species listed in over 1 year.



Mark R. Jennings

This frog was fairly widespread in California when Twain wrote his famous story in 1865. Today, however, it has disappeared from 70 percent of its original range, and many of the remaining populations appear to be declining rapidly. The FWS is already working with State, county, and Federal officials and private landowners on cooperative approaches to conserve the frog.

This action became possible when the Congressionally imposed moratorium and funding restrictions on listing species as threatened or endangered under the Endangered Species Act were lifted by President Clinton’s waiver of an extension that was included in a recent omnibus appropriation law. A total of 242 species are awaiting final decisions on whether or not they should be added to the list of threatened and endangered plants and animals.

However, Congress appropriated only \$4 million for this purpose, half the amount requested by the administration.

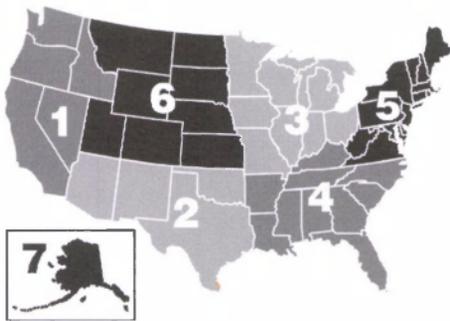
“After a year in mothballs, there is a lot of work to do to get the listing process for endangered species up and

running again, so the public should not expect to see a surge of new listings in the immediate future,” said Fish and Wildlife Service (FWS) Director Mollie Beattie. “The Fish and Wildlife Service has established an orderly and sensible process for dealing with the backlog of species awaiting protection. As always, we will ensure these decisions are based on sound science with full public involvement, and we will give highest priority to the species most in need of protection.”

The agency’s backlog includes the 242 species that await final listing decisions, 182 candidate species that await listing proposals, pending court orders to designate critical habitat for 7 species, and unresolved petitions to list or delist 57 species.

Under a system designed to deal with this large backlog, the FWS will give priority to listing actions in the following order:

- 1) emergency listings of species in imminent danger of extinction;
- 2) processing final decisions on species already proposed for listing, with highest priority given to species facing high-magnitude threats; and
- 3) all other listing actions, including new proposed listings, processing reclassifications and delistings, petition findings, and critical habitat designations.



Region 2

Mexican Gray Wolf (*Canis lupus baileyi*) The Fish and Wildlife Service (FWS) published a proposed rule in the May 1, 1996, *Federal Register* to establish a "non-essential, experimental" population of Mexican gray wolves in Arizona and New Mexico. Public comments are welcome, and are due to the Albuquerque Regional Office by July 1, 1996. For further information on the proposal, contact David Parsons at 505/248-6922.

The FWS also has completed an analysis of nearly 18,000 comments received on the draft environmental impact statement (EIS) for the planned wolf reintroduction project. Current plans call for release of the final EIS by mid-summer. Outreach continues to be a major part of this project, which seeks to recover the rarest subspecies of gray wolf by reintroducing it to segments of its former range in Arizona and/or New Mexico. Project staff mail periodic status reports to over 6,000 people, give presentations to a wide variety of interest groups, and participate in panel discussions and media programs. Other outreach activities/materials include: fact sheets, a "Mexican Wolf Education Trunk" for teachers, training for outreach specialists at zoos, training Americorps volunteers to provide classroom presentations, development of an interagency Mexican wolf educational poster and pamphlet, and one-on-one outreach in communities that may be affected by wolf recovery. For more information about these outreach activities, contact Wendy Brown at 505/248-6664.

Whooping Crane (*Grus americana*) Whooping cranes in the Aransas-Wood Buffalo population expe-

rienced record high production and low losses over the past 12 months. One hundred and thirty-three individuals migrated to the crane's breeding grounds at Wood Buffalo National Park, Canada, in spring 1995. Forty-seven pairs made 49 nesting attempts and brought 28 young to Aransas National Wildlife Refuge on the Texas coast in late fall. The previous high number of young brought to the wintering area since early this century was 25 in 1987-88. One hundred and thirty adults also returned to Texas in late fall, bringing the overwintering population to 158 birds. Survival has been excellent. Only three adults died between April 1995 and April 1996, and only one juvenile is known to have died during the winter.

Another 60 whooping cranes now exist in the nonmigratory population being established in Florida. The oldest pair, made up of 4-year-olds, is building a nest and chasing other cranes from the area.

Attwater's Greater Prairie-chicken (*Tympanuchus cupido attwateri*) Spring counts of Attwater's greater prairie-chickens indicate that only 42 survive in the wild within 3 widely separated Texas counties. This represents a 38 percent decline in population from 1995. The wild population has been declining since the early 1900's. Seventy-five birds, including 34 females, exist at 3 captive-breeding sites, a 40-bird increase over 1995. The expectation is that over 100 young will be produced in captivity this summer. Experimental releases of captive-bred birds to supplement wild populations on Attwater's Prairie Chicken National Wildlife Refuge in Colorado County and on the Texas Nature Conservancy's site in Galveston County are planned for late summer. In the meantime, the San Antonio Zoo will receive its first birds and eggs to establish the fourth captive-propagation site this spring.

Continuing efforts to protect and maintain native prairie habitat for the prairie chicken include brush removal, modified grazing, prescribed burning, predator control, and land acquisition. The FWS is providing funds to assist in the cooperative management of habitat on private tracts through the Partners for

Wildlife Program and section 6 of the Endangered Species Act.

Region 3

Mitchell's Satyr Butterfly (*Neonympha mitchellii mitchellii*) The Mitchell's satyr was listed temporarily as endangered on an emergency basis on June 25, 1991, due to an imminent threat posed by over-collection. The butterfly received long-term protection on May 20, 1992. Habitat loss is another factor in the decline of this butterfly. Of the more than 30 known historical populations, only 12 survive 11 in southwest Michigan and 1 in northern Indiana.

The technical/agency draft recovery plan for the Mitchell's satyr is now available for public comment. A copy can be obtained from the U.S. Fish and Wildlife Service, East Lansing Field Office, 2651 Coolidge Road, East Lansing, Michigan 48823-6316 (telephone 517/351-2555). Comments on the draft plan are welcome, and should be sent to the above address (in care of Mark Hodgkins) by May 28, 1996.

Region 4

Schaus Swallowtail Butterfly (*Heraclides aristodemus ponceanus*) In a cooperative effort between the FWS and the University of Florida at Gainesville, over 250 individuals of the endangered Schaus swallowtail butterfly were released May 13 on the 400-acre (160 hectare) Deering Estate at Cutler, south of Miami. Another 550 butterflies are expected to be released at the same location by mid-June. The Deering Estate includes the largest original tropical hardwood hammock and pine rockland ecosystem in the mainland United States. It is owned by the State of Florida and Dade County.

Items for Regional News and Recovery Updates are provided by endangered species contacts in FWS regional and field offices.

BOX SCORE

Listings and Recovery Plans as of April 30, 1996

GROUP	ENDANGERED		THREATENED		TOTAL LISTINGS	SPECIES W/ PLANS
	U.S.	FOREIGN	U.S.	FOREIGN		
 MAMMALS	55	252	9	19	335	40
 BIRDS	74	178	16	6	274	73
 REPTILES	14	65	19	14	112	31
 AMPHIBIANS	7	8	5	1	21	11
 FISHES	65	11	40	0	116	72
 SNAILS	15	1	7	0	23	18
 CLAMS	51	2	6	0	59	42
 CRUSTACEANS	14	0	3	0	17	4
 INSECTS	20	4	9	0	33	20
 ARACHNIDS	5	0	0	0	5	4
ANIMAL SUBTOTAL	320	521	114	40	995	315
 FLOWERING PLANTS	404	1	91	0	496	270
 CONIFERS	2	0	0	2	4	1
 FERNS AND OTHERS	26	0	2	0	28	15
PLANT SUBTOTAL	432	1	93	2	528	286
GRAND TOTAL	752	522	207	42	1,523*	601**

TOTAL U.S. ENDANGERED: 752 (320 animals, 432 plants)

TOTAL U.S. THREATENED: 207 (114 animals, 93 plants)

TOTAL U.S. LISTED: 959 (434 animals, 525 plants)***

*Separate populations of a species listed both as Endangered and Threatened, are tallied twice. Those species are the argali, leopard, gray wolf, piping plover, roseate tern, chimpanzee, green sea turtle, and olive ridley turtle. For the purposes of the Endangered Species Act, the term "species" can mean

a species, subspecies, or distinct vertebrate population. Several entries also represent entire genera or even families.

**There are 424 approved recovery plans. Some recovery plans cover more than one species, and a few species have separate plans covering different parts of their ranges. Recovery plans are drawn up only for listed species that occur in the United States.

***Four animals have dual status.

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Species

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*U.S. Department of the Interior
Fish and Wildlife Service
Washington, D.C. 20240*