

ENDANGERED SPECIES

Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

Endangered Status Given to Texas Plant

Styrax texana (Texas snowbells), a plant endemic to Edwards, Real, Kimble, and possibly Val Verde Counties in Texas, has been classified as Endangered (F.R. 10/12/84). The principal known threats to this species are its very low numbers and lack of reproductive success. It will now receive all the protection authorized under the Endangered Species Act of 1973, as amended.

First discovered in 1940 by V. L. Cory, *Styrax texana* is a shrub growing up to 3 meters high with smooth bark and rounded leaves. The attractive white flowers are arranged in clusters of three to five. Flowering occurs in April and May. There is great concern that no seedlings or samplings of *Styrax texana* can be found, which indicates that the species is not reproducing. It has been suggested that the absence of young plants may be due to browsing cattle or deer, but there currently are no data to support this suggestion. More studies are needed. What is clear, though, is that the lack of reproduction may ultimately lead to the plant's extinction.

Only 25 individuals of this species are currently known to exist. This very small



Photo by Chester Rowell

The attractive foliage and flowers of Styrax texana make it vulnerable to collecting for horticultural purposes.

number makes *Styrax texana* vulnerable to a variety of natural and human-related factors, particularly adverse effects on its habitat. A major threat to the habitat of *Styrax texana* is caused by erosion. Most of the sites where the plants occur are privately owned, but

one site is located at a State roadside park. Current maintenance activities at the park are not harming the plants there, but no protection is enforced for the species at this site. Some of the private landowners are amenable to protecting the Texas snowbells located on page 12

Revised Listing Procedures Adopted

Final rules were published in the October 1, 1984, *Federal Register* to incorporate changes made by the Endangered Species Act Amendments of 1982 in the way the Service lists, delists, or reclassifies Endangered and Threatened species and designates or revises Critical Habitat. The regulations governing the listing process were adopted cooperatively by the Fish and Wildlife Service (Department of the Interior) and the National Marine Fisheries Service (Department of Commerce), which share listing responsibilities under the Endangered Species Act.

Procedures for listing Endangered species are codified in Title 50 of the Code of Federal Regulations as Part 424 (cited as 50 CFR 424). The revision of Part 424 was proposed on August 8, 1983 (F.R. 8/28/83). While preserving the overall framework of the listing process, the 1982 amendments introduced several significant changes that required regulatory revision.

Basis For Determination

Only biological information may now be considered in deciding whether spe-

cies should be listed as Endangered or Threatened. Previously, all proposed listings had been subjected to examination under Executive Order 12291 (which is designed to minimize costs associated with regulations), the Regulatory Reform act, and the Paperwork Reduction Act. In passing the amendments, Congress held that considerations of costs were irrelevant to the scientific determination of whether a species is Endangered or Threatened.

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Regional Briefs

Endangered Species Program regional staffers have reported the following activities for the month of October:

Region 1—The Fish and Wildlife Service recently contracted for a 3-year study of riparian habitat along the

Sacramento River for the presence of the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). This Threatened beetle has not been documented from along the Sacramento River, but some suitable habitat is there. Larval stages of the beetle feed on elderberry, a plant that occurs in the

riparian zone along larger rivers in the Central Valley of California. Riparian habitat along the Sacramento River has been rapidly disappearing as a result of agricultural expansion and river channelization.

Funds for the survey were provided by the U.S. Army Corps of Engineers as part of a Section 7 consultation with the Sacramento Endangered Species Office.

The status of the bald eagle (*Haliaeetus leucocephalus*) in California appears to be improving. There were 68 occupied nesting territories in 1984 that fledged 69 young for an average of 1.04 young per occupied site. Twenty-one sites (31 percent) failed to fledge young. There has been a small decline in average production of this population, but it still is slightly above the national average of about 1.0 young per occupied site. There is good evidence that the population is increasing since 19 of the 68 sites were previously unrecorded.

A California condor (*Gymnogyps californianus*) chick was removed from the wild in September for captive breeding and to increase production by allowing the parents to breed again next year. This brings the captive population to 16 individuals, but three of these birds are scheduled to be released into the wild in 1985.

Results of the San Clemente loggerhead shrike (*Lanius ludovicianus mearnsi*) breeding and ecology study on San Clemente Island are available. During 1984, nine active pairs were documented. The breeding success of seven of these was 0.86 young per pair. The total population of this Endangered bird is estimated at between 22 and 30. Feral goat grazing has limited nesting habitat, and predation by feral animals (cats and black rats) appears to be seriously impacting nesting success.

Region 2—The American Association of Zoological Parks and Aquariums (AAZPA) recently accepted the red wolf (*Canis rufus*) for development of a Species Survival Plan (SSP). This action will allow for coordinated management of the captive populations in the participating institutions, which include the Wild Canid Survival and Research Center (St. Louis, Missouri), the Point Defiance Zoo (Tacoma, Washington), and the Texas Zoo (Beaumont, Texas). The entire captive population will be treated as one genetic population, and procedures will be developed to reduce inbreeding and to increase genetic di-

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Leatherback Turtle Nesting Beach Becomes Wildlife Refuge

A beach area of about 327 acres at Sandy Point on the island of St. Croix, U.S. Virgin Islands, was purchased in September by the Service for protection as a national wildlife refuge. This site is one of the most important nesting beaches known within U.S. territory for the leatherback turtle (*Dermochelys coriacea*), an Endangered species. During the 1984 season, 28 leatherbacks nested at Sandy Point a total of 141 times. The area also is used for nesting by two other listed sea turtles, the Threatened green (*Chelonia mydas*) and the Endangered hawksbill (*Eretmochelys imbricata*).

Both Sandy Point, which is on the southwestern tip of St. Croix, and the adjacent waters are designated as Critical Habitat for the leatherback. Until recently, Sandy Point was zoned for various kinds of development. If hotels, houses, and shops had been constructed at the site, sea turtle nesting would have been disrupted by lights, structures, and vehicles on the beach, and by people and their pets. As a result, the leatherback population using the nesting beach could have been extirpated. Destruction of turtle nests and killing of adult turtles also has been a problem in the past. As part of the new Sandy Point National Wildlife Refuge, the beach can be better protected during the vital nesting season. For the past 3 years, volunteers from the organization

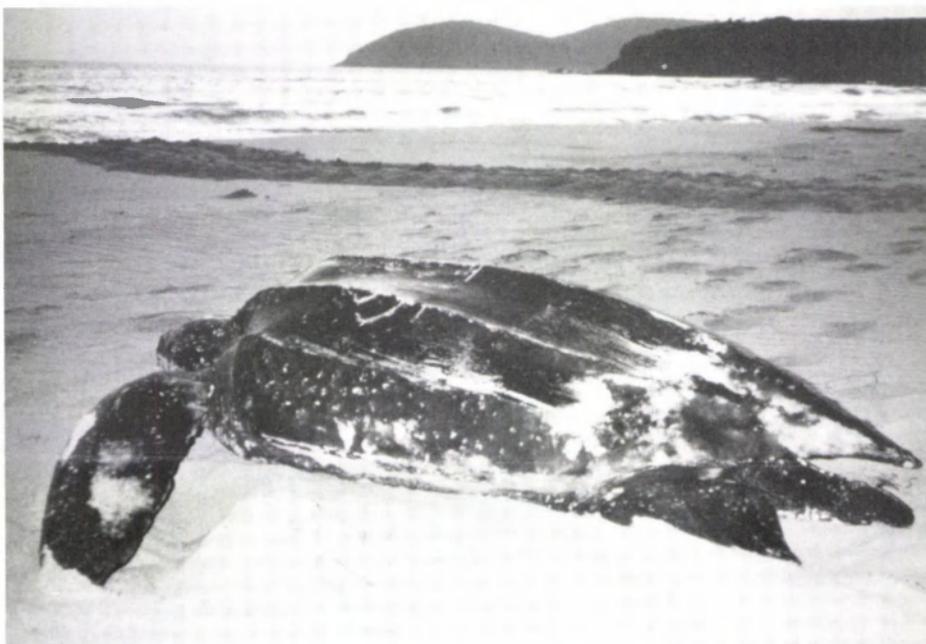


Photo by Tony Tucker.

The leatherback turtle (Dermochelys coriacea) is the largest of the sea turtles; individuals can weigh up to 1300 pounds and reach lengths of 6 feet. Leatherbacks can be easily distinguished from other species by the seven prominent longitudinal keels that divide their backs into six sections. Female leatherbacks nest about six times per season, but usually 2 or 3 years will elapse before individuals return to nest again.

Earthwatch have been active in sea turtle research and in patrolling the beaches.

The commercially valuable Sandy Point property was purchased from a

willing seller for \$2.5 million, which was appropriated by Congress from the Land and Water Conservation Fund. continued on page 11

Kentucky Plant Proposed As Endangered

A plant endemic to a few sites in Kentucky, *Solidago shortii* (Short's goldenrod), is being threatened by development of its habitat, natural and human-related habitat alterations, and potential recreational activities. Only five populations of this plant remain, all in limited portions of Robertson, Nicholas, and Flemming Counties, Kentucky. Due to its precarious status, the Service has proposed to list Short's goldenrod as an Endangered species (F.R. 10/11/84).

Solidago shortii grows in cedar glades and openings in oak and hickory forests, in pastures, and along roadside areas. This member of the Aster family is approximately one meter tall. It bears yellow flowers between mid-August and early November, and light brown fruits mature several weeks after the flowers wither. Short's goldenrod was first col-

lected by C. W. Short, for whom the plant is named, in Jefferson County, Kentucky. The original collection site, adjacent to the Falls of the Ohio on the Ohio River, was inundated by dam construction. This is the only known population that occurred in Jefferson County and the species is considered to be extirpated there.

One of the largest existing populations (50 to 60 percent of the plants) is located within Blue Licks Battlefield State Park in Robertson County, and all four of the other populations are within 1.5 miles of the park. In 1970, a major segment of this population was destroyed during construction of a campground. A large portion of the remaining plants are within a 1.5-acre area that has been declared a nature preserve where the plants have a good chance for survival. However, proper management techniques for maintenance of the species still need to be determined, and additional protection from accidental trampling or destruction also is necessary.

The other four sites where *Solidago shortii* survive are located on private property or within State highway rights-

of-way. There are no plans to develop these sites at the present time, but construction activities in the future could have a detrimental effect on the species. Any changes in land use, such as intensive agricultural activities, could further rescue or altogether eliminate *Solidago shortii* from these locations. Fires originating along the roadsides adjacent to the sites also threaten the goldenrod's survival.

The small number of surviving individuals (2,000 to 4,000 plants) makes Short's goldenrod vulnerable to overcollecting. The Blue Licks Battlefield State Park Nature Preserve populations of *Solidago shortii* are afforded protection from unauthorized taking by regulations enforced by the Kentucky Nature Preserves Commission and the Department of Parks. However, this prohibition is difficult to enforce. Taking of these plants is authorized through a permit system administered by the Department of Parks and the Nature Preserves Commission, but they are only issued for valid scientific purposes. There are currently no other forms of protection afforded the species.

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Kentucky Plant

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The Service has determined that a designation of Critical Habitat is not prudent for *Solidago shortii* at this time. Curiosity seekers could inadvertently trample the habitat or even collect plants if the exact location of this extremely rare species is pinpointed by Critical Habitat maps. The Kentucky Department of Parks and the Kentucky Nature Preserves Commission also believe that any further publicity about the preserve and this rare species may hinder its preservation. Since the Commonwealth of Kentucky, the Department of Parks, and private landowners on whose property the other populations of *Solidago shortii* occur are all aware of

the species and the importance of conserving it, the Service feels that no additional benefits would result from a formal designation of Critical Habitat.

Effects of the Listing if Approved

If the proposal to list this plant is made final, Short's goldenrod will receive all of the protection authorized under the Endangered Species Act of 1973, as amended. These conservation measures include recognition of the species' vulnerable status, development of plans for its recovery, requirements for Federal protection, and prohibitions against certain practices. Interstate and international trafficking in *Solidago shortii* without a permit will be prohib-

ited, with certain exceptions, if it is listed.

Under Section 7 of the Act, Federal agencies would be required to consult with the Fish and Wildlife Service to ensure that any actions they fund, authorize, or carry out are not likely to jeopardize the survival of listed species or degrade their habitat. Until a final decision on this listing proposal is reached, Federal agencies are required only to "confer" with the Service, a non-binding procedure.

Comments concerning this proposal are due by December 10, 1984, and should be sent to Mr. Warren T. Parker, Field Supervisor, Endangered Species Field Station, U.S. Fish and Wildlife Service, 100 Otis Street, Asheville, North Carolina 28801.

Smoky Madtom Given Endangered Classification

A small, rare species of catfish native to eastern Tennessee, the smoky madtom (*Noturus baileyi*), has been listed by the Service as Endangered (F.R. 10/26/84). Currently, the only known population is limited to about 6.5 miles of Citico Creek, most of which is within the Cherokee National Forest in Monroe County. With such a restricted range, the smoky madtom is vulnerable enough that a single catastrophic event (such as chemical contamination) could render it extinct.

The species was discovered in 1957 in Abrams Creek, a tributary of the Little Tennessee River within the Great Smoky Mountains National Park. Members of a Fish and Wildlife Service crew encountered the smoky madtom as they were treating the creek with a fish toxicant. (At the time, it was a standard practice to remove "unwanted" fishes before trying to establish a trout fishery.) It was presumed extinct until its 1980 rediscovery in Citico Creek, another Little Tennessee River tributary. Extensive sampling throughout the region failed to locate any additional populations.

Potential threats to the sole remaining population and its habitat include certain logging activities, road and bridge construction, mining, and any other major projects that could degrade the watershed. In addition to the soil erosion and siltation associated with land disturbances, water pollution could be a serious problem. The Citico Creek watershed contains formations of anakeesta shale, an acid-bearing rock that, if exposed, could seriously degrade water quality. Acid leaching from disturbed anakeesta formations can in-

crease the concentration of sulfides and heavy metals downstream. When this happened at nearby Grassy Branch in 1978, it apparently killed all aquatic life.

Recognizing these threats, the Service published in 1982 a notice of review on the status of the fish (F.R. 6/22/82). After receiving support and information from involved State and Federal agencies, the Service proposed listing the smoky madtom as Endangered (see F.R. 11/21/83 or BULLETIN Vol. VIII No. 12 for details). This proposal was endorsed by the Tennessee Wildlife Resources Agency, U.S. Forest Service, U.S. Army Corps of Engineers, and Tennessee Valley Authority. No opposing comments were received. The National Park Service, which also supports the listing, hopes to reintroduce the fish into its historical habitat within Great Smoky Mountains National Park.

Tennessee State law already prohibited the taking of the smoky madtom without a permit and encouraged conservation of its habitat. This protection is now supplemented by the smoky madtom's classification of Endangered under the Federal Endangered Species Act. Section 7 of the Act requires all Federal agencies to ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the survival of a listed species or adversely modify its Critical Habitat. (No such actions are pending.) The area designated as Critical Habitat extends from the confluence of Citico Creek with Barkcamp Branch downstream for about 6.5 miles (see *Federal Register* for map).

Among the other benefits to the smoky madtom from its Endangered classification are: the increased awareness of its vulnerable status; the requirement for the Service to develop a recovery plan; possible Federal aid for State conservation projects; and prohibitions on taking, possessing, and interstate/international trafficking without a permit.

Regional Briefs

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iversity. It is hoped that implementation of the SSP will ensure the species' survival. The Service has requested acceptance of the Mexican wolf (*Canis lupus baileyi*) by the AAZPA for an SSP; however, the association is in the process of reviewing internal policy regarding the treatment of subspecies and will make a final decision based on this review at a later date.

Biologists conducting an ongoing peregrine falcon (*Falco peregrinus*) study funded by the Department of the Army on north Padre Island, Texas, have released the results of this season's efforts (September 21–October 21). Two hundred and eight individual peregrines were captured. Eight of the birds had been previously banded. Two of the eight retrapped birds were from Padre Island, and one was from the Colville River, Alaska (having been banded on July 23, 1984). The retrap rate of 3.9 percent compares to the 18 percent of last year. Results from last fall were significantly higher, with 286 individual captures. This year's efforts were hampered by heavy rainfall during the study period, which reduced the amount of trapping time on north Padre Island to 7 days instead of the usual 20–25 days.

In addition, 46 blood samples were taken from the peregrines for electrophoretic analysis by Dr. Don Morizot, University of Texas Systems Cancer Center, to determine the birds' breeding origins. Additional statistics from this study included the trapping of 48 male peregrines, 22 adults, and six injured birds (possibly from powerline collisions).

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Hawaiian Gardenia Proposed for Endangered Listing

One of Hawaii's rarest endemic plants, the *na'u* or Hawaiian gardenia (*Gardenia brighamii*), has been proposed by the Service for listing as an Endangered species (F.R. 10/12/84). This once common tree has been reduced severely in both range and numbers, and the few surviving specimens are vulnerable to a variety of serious threats.

The Hawaiian gardenia is a distinctive element of the State's remaining native dryland forests. Mature trees reach up to 20-30 feet in height with a spreading canopy of shiny dark-green leaves. Their attractive white to cream-colored flowers are 1-2 inches long, with spreading lobes, and very fragrant.

Historically, the Hawaiian gardenia grew on five of the Hawaiian Islands, but it is now believed to be extinct on Maui and Hawaii. Only 13 plants are known to survive—10 on Lana'i, 2 on Moloka'i, and one on O'ahu. Extensive habitat loss has been the principal reason for the species' decline. Modification of the dry forest habitat began with the arrival of the first Polynesian settlers and intensified after the arrival of Captain Cook in 1778. Most of the islands' dryland forests have been replaced by pineapple fields (on Lana'i and Moloka'i), sugar cane fields (on O'ahu and Maui), and pastures (on O'ahu,



Photo by C. Lamoureux

Only 13 individuals of the Hawaiian gardenia are known to survive.

Maui, and Hawaii). Browsing by introduced livestock (both domestic and feral), the spread of aggressive exotic plants, and rapid urbanization also severely degraded native ecosystems, and continue to threaten the remnants of dryland forests.

In addition to habitat damage, the plants themselves face serious threats. Since the Hawaiian gardenia grows on

the dry sections of the islands, there is always the possibility of fire destroying the few surviving trees. The black tree borer (*Xylosandrus compactus*), an accidentally introduced insect, attacks the gardenia's terminal shoots and has severely affected the sole remaining tree on O'ahu. Exotic rats (probably *Rattus rattus*) appear to gnaw the gardenia's
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Regional Briefs

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Results of the helicopter surveys for nesting peregrine falcons conducted in west Texas last spring were recently released. No peregrines were seen during the survey. These results are consistent with the poor reproductive success experienced by the peregrine in Big Bend and Guadalupe National Parks during the last 2 years. Of 15 occupied territories in 1983 and 1984, only four young have fledged. These surveys were funded by the National Park Service and conducted by Frid Fridriksson, an independent researcher formerly associated with the Chihuahuan Desert Research Institute in Alpine, Texas.

Two trout streams previously reclaimed in order to stock pure native trout have been found to still be contaminated with non-native trout. In 1977, Ord Creek on the Fort Apache Indian Reservation in Arizona was treated in order to eliminate exotic brook trout

(*Salvelinus fontinalis*), rainbow trout (*Salmo gairdneri*), and Apache trout/rainbow trout hybrids. The next year, brook trout were still present in Ord Creek, so a second treatment was prescribed. In 1980, no fish were found and pure Apache trout (*Salmo apache*) from a nearby stream were introduced. While the native Apache trout seemed to be doing well in Ord Creek for several years, a recent sample has again turned up brook trout. It is unlikely that brook and Apache trout will hybridize, the former being an autumn spawner and Apache trout a spring spawner, but the non-native will surely compete with the native. No action is planned for Ord Creek until the extent of the contamination is determined.

The second trout stream that still has problems with non-native fishes is Dry Creek on the Gila National Forest in New Mexico. In June 1984, Dry Creek was renovated in order to eliminate brown trout (*Salmo trutta*) and hybrid Gila trout/rainbow trout. The stream was sampled in October, prior to reintroducing native Gila trout (*Salmo gilae*), and found to still contain hybrid fish. Rein-

roduction plans were scrapped (for the present) and another renovation is being planned.

Reports from the whooping crane (*Grus americana*) summer grounds at Wood Buffalo National Park (Canada) and Gray's Lake National Wildlife Refuge (Idaho) are encouraging. Twenty-two Wood Buffalo eggs and ten eggs from the Patuxent Wildlife Research Center were transported to Grays Lake this year. Four of the Patuxent eggs proved to be infertile, but two Patuxent birds and 11 Wood Buffalo Park birds were reared to fledging by sandhill crane (*Grus canadensis*) foster parents. (One of the young birds died of congenital heart failure.) Along with the adult whoopers, the Grays Lake flock may total 35-37 birds migrating to the New Mexico wintering grounds. The wood Buffalo flock set a new record for recent history this year when 28 nesting pairs fledged an estimated 15-17 young. Seventy-five adult whoopers left Aransas NWR in Texas last spring; con-

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Enforcement News

Reptile Dealers Sentenced

Two dealers in reptile skins were fined October 15 for illegally peddling the hides of more than 2,500 black caimans (*Melanosuchus niger*), an Endangered crocodylian native to the Amazon River Basin of South America. Brothers Jacques and David Klapisch, along with their wholesale leather company, were fined a total of \$76,000 for multiple violations of the Endangered Species Act. Each man also received a 1-year suspended prison term and 3 years of probation.

Both men were found guilty last May 31 in a Federal district court (New Jersey) on all charges of a 14-count indictment. Jacques Klapisch, the ringleader, was fined \$23,000 and sentenced to 3 years of supervised probation, during which he is not allowed to deal in any reptile skins. [This was not his first conviction for illegal trade in Endangered reptiles; he was convicted twice during the 1970s for trading in the hides of American alligators (*Alligator mississippiensis*) and sentenced to 4 months in jail the second time.] Also fined on October 15 was David Klapisch (\$18,000) and the Meg Import Company (\$35,000).

The maximum sentence possible in the black caiman case would have been \$280,000 and 14 years in prison for each man, and another \$280,000 in fines for Meg Import. Considering the potential penalties, the complexity and duration of the case, and the background of Jacques Klapisch, sources close to the investigation were surprised that the sentences were not greater.

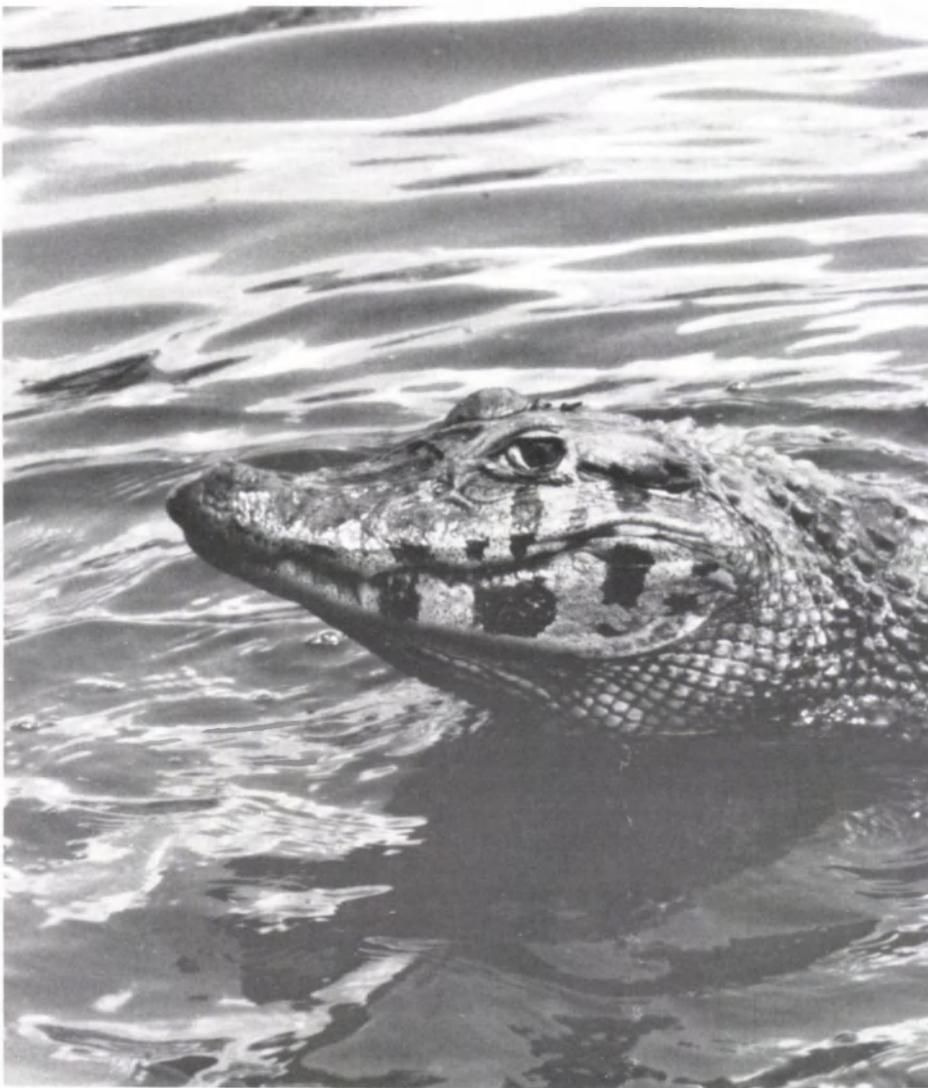


Photo by Louise Emmons
Courtesy of World Wildlife Fund-U.S.

The black caiman is the largest species of New world crocodylian; individuals have been known to exceed 6 meters in length. According to the IUCN Amphibia-Reptilia Red Data Book, hide hunters have so heavily exploited this caiman that it "is now severely depleted virtually throughout its range, and is locally extinct or on the verge of extinction."

Virus Blamed for Whooping Crane Deaths

An extensive investigation into the recent deaths of seven whooping cranes (*Grus americana*) at the Service's Patuxent Wildlife Research Center in Laurel, Maryland, has revealed that the birds fell victim to a virus, eastern equine encephalitis. The virus was transmitted to the birds by *Culiseta melanura*, a mosquito that is not known to bite humans. Biologists do not know what brought this mosquito into contact with the whooping cranes, which are kept outdoors, but the onset of cold weather will kill any remaining mosquitoes this season. By late November, all

of the remaining whoopers appeared to be well. As a precaution, biologists are experimenting with a vaccine on similar, but non-endangered, birds.

The seven birds (five females, two males) that died were part of a captive flock maintained at the research center for breeding. Offspring from the Patuxent flock, which now numbers 32 birds, have been "cross-fostered" with sandhill cranes (*Grus americana*) in an attempt to establish a second wild whooping crane flock migrating between the Bosque del Apache (New Mexico) and Grays Lake (Idaho) National Wildlife Refuges. Only one of the seven Patuxent birds had produced offspring.

The virus was identified jointly by Patuxent, the Service's National Wildlife Health Laboratory in Madison, Wisconsin, the

Center for Disease Control in Atlanta, the U.S. Army's Fort Detrick in Maryland, the Maryland Department of Agriculture, the University of Maryland, and the Department of Agriculture's National Veterinary Services Laboratory in Ames, Iowa.

Reference Note

All Service notices, along with final and proposed rulemakings, are published in full detail in the *Federal Register*. The parenthetical references given in the BULLETIN—for example, (F.R. 8/20/84)—identify the date that the notice or rulemaking action appeared in the *Federal Register*.

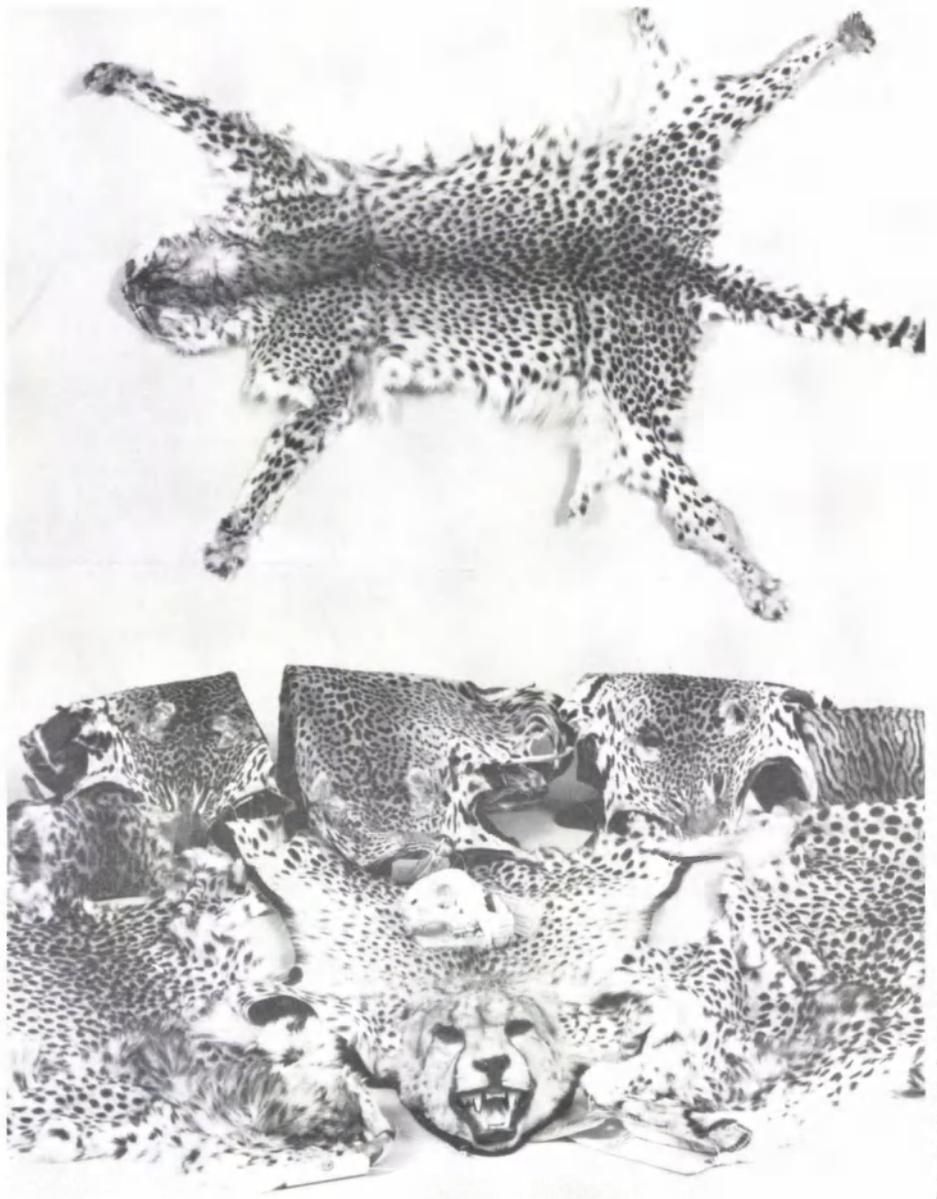
The "exotic" leather trade is very lucrative; a purse fashioned from black caiman skin can bring \$2,500 and an attaché case up to \$10,000.

34 Charged With Violating Wildlife Laws

On October 4, the Service announced that 34 people from 9 States have been charged with violating State and Federal wildlife conservation laws, including the Endangered Species Act. The arrests concluded a widely-ranging, 3-year undercover investigation (code named "Operation Trophykill") of illegal wildlife poaching and trophy smuggling operations.

Fish and Wildlife Service agents covertly ran a tanning and taxidermy business in Colorado, where they detected smuggling of Endangered wildlife skins into the United States and illegal trade in protected species of big game and rare birds. Further charges involve illegal guided hunts around Yellowstone National Park and in Mexico. Some indictments allege illicit trade to the Orient of wildlife parts and products supposed by some people to have medicinal or aphrodisiacal properties.

The Endangered Species Act charges include smuggling skins of the cheetah (*Acinonyx jubatus*), tiger (*Panthera tigris*), jaguar (*Panthera onca*), leopard (*Panthera pardus*), ocelot (*Felis pardalis*), margay (*Felis wiedii*), and American crocodile (*Crocodylus acutus*). Each of these species is in danger of extinction, primarily because of exploitation for their attractive hides. Violations of a number of other Federal laws—the Lacey Act, Eagle Protection Act, Migratory Bird Treaty Act, and conspiracy statutes—also were uncovered during the investigation.



Spotted cat pelts confiscated during Operation Trophykill

Fish and Wildlife Service photo

Hawaiian Gardenia

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fruit while it is still on the tree, severely reducing the chances of successful regeneration. The impact on young trees of trampling by livestock is another factor that needs further study.

Available Conservation Measures

If the proposed listing rule is made final, the Hawaiian gardenia will receive protection as an Endangered species. Potential benefits to the plant of such a listing include the requirement for the Service to develop a recovery plan, possible Federal funding of State conservation efforts, increased recognition of its extremely vulnerable status, and

prohibitions against interstate or international trafficking (as spelled out in 50 CFR 17.61). Since the Hawaiian gardenia does not grow on Federal lands, there are no Federal prohibitions against taking of the plant. However, under Hawai'i's own endangered species legislation, a Federal listing would automatically invoke listing by the State, which does prohibit picking or otherwise damaging listed plants.

Included in the listing proposal is a designation of Critical Habitat for about 685 acres of privately owned land on the Island of Lana'i (see map in the October 12, 1984, *Federal Register*). This area contains a remnant native dryland forest that, although affected by the presence of exotic vegetation and herbivores, is believed to be the best remaining site for long-term survival and

possible augmentation of the only potentially viable Hawaiian gardenia population (10 plants). Conservation of the gardenia will require cooperation among the landowners (Castle and Cook, Inc.), the State of Hawai'i, the County of Maui (which includes Lana'i), and the U.S. Fish and Wildlife Service.

Under Section 7 of the Endangered Species Act, Federal agencies are required to ensure that any actions they fund, authorize, or carry out are not likely to jeopardize the survival of a listed species or adversely modify its Critical Habitat. No such Federal activities are foreseen that may adversely affect the Hawaiian gardenia. Comments on the listing and Critical Habitat proposals are welcome, and should be sent to the Region 1 Director (address on page 2) by December 11, 1984.

Recovery Plans Approved

This month's BULLETIN resumes its summarization of various recovery plans that have been approved during the past year. The January 1985 edition (Vol. X No. 1) will contain a list of all recovery plans approved through the end of calendar year 1984.

Copies of recovery plans are generally available for purchase by the public about 6 months after final approval. Requests should be addressed to the Fish and Wildlife Reference Service, 1776 E. Jefferson Street, Suite 470S, Rockville, Maryland 20852, or call toll-free 800-582-3421.

Spotfin Chub

Known only from parts of the Tennessee River drainage, the spotfin chub (*Hybopsis monacha*) historically

conduct surveys throughout the species' historical range in the Tennessee River drainage. If additional populations are found, habitat protection may be the primary management and recovery tool; however, if no other populations are found, reintroductions into suitable habitat within the species' historical range will be necessary. Reintroducing additional spotfin chubs into one of the tributaries already inhabited by the species also may be useful in accelerating expansion of a population to a self-sustaining level. It may be necessary to rear the species in a hatchery to produce fish for use in reintroductions.

Prior to establishing new spotfin chub populations, the ecological conditions required by the species will need further study. Specific components of the chub's habitat may be missing, and their absence may limit the potential expansion and/or reintroduction of the species. Habitat rehabilitation may be helpful in alleviating these limiting factors. Other threats to the habitat are

quality, the recovery effort will be doomed." With their help, though, the spotfin chub may still recover.

Red Hills Salamander

One of southern Alabama's rarer inhabitants is the Red Hills salamander (*Phaeognathus hubrichti*). This fairly large amphibian (maximum total length about 225 mm) is a rather uniform dark-gray to dark-brownish in color, and takes its common name from its range in the Red Hills section of the Gulf Coastal Plain. Because of threats to the salamander's habitat from certain forestry practices, the species was listed in 1976 as Threatened.

Currently, the Red Hills salamander is found in a narrow band of habitat that crosses parts of Monroe, Conecuh, Butler, Covington, and Crenshaw Counties in south-central Alabama. The best habitat consists of northerly-facing ravine slopes and bluffs that have 1) outcroppings or layers of siltstone, 2)

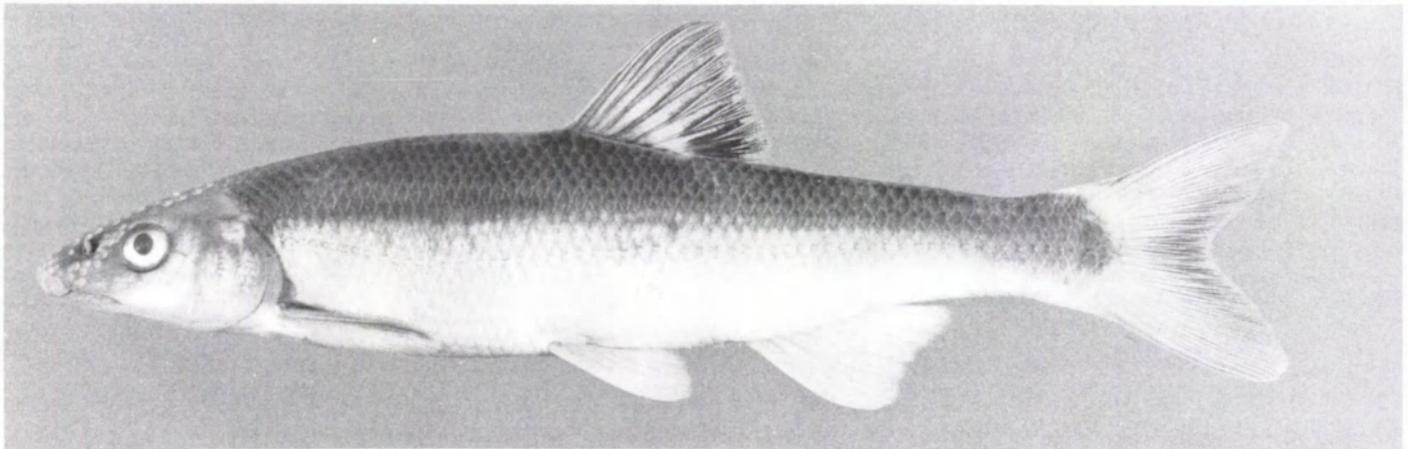


Photo by Noel Burkhead

Spotfin chub

occurred widely in 12 of the river's tributary systems flowing through 5 States. Currently, however, it survives only in four tributary systems: the Little Tennessee River in North Carolina, the Duck and Emory Rivers in Tennessee, and the North Fork of the Holston River in Tennessee and Virginia. The principal cause for the spotfin chub's reduced status is thought to be habitat degradation resulting from impoundments, channelization, pollution, turbidity, and temperature changes. Overcollecting and competition with other fishes also may have played a role in the decline. In 1977, the spotfin chub was listed as a Threatened species.

The *Spotfin Chub Recovery Plan* (approved in November 1983) begins with maintaining viable populations in the four tributary systems where the species is already known to occur. It also calls for protection of any newly discovered or reestablished populations in other rivers. Another important task is to

known but still need further investigation. For example, excess sediment resulting from certain farming and mining practices is causing a major water and substrate quality problem in the upper Little Tennessee River. In the past, pollution from the town in Saltville, Virginia, had a negative impact on the Holston River populations. (The State of Virginia is actively attempting to minimize this problem.) Strict enforcement of existing State and Federal water quality regulations should go a long way toward protecting the remaining habitat.

The Service is working with local, State, and other Federal agencies, and is requesting them to use their conservation authorities. Service representatives also will meet with local industry interests in a direct attempt to persuade those responsible for habitat degradation to take corrective action. To quote the recovery plan, "Without a commitment from the people in these river valleys who have an influence on habitat

mature hardwood tree cover, 3) mesic moisture conditions, 4) abundant forest-floor arthropods (a possible food source), and 5) loamy topsoils. Several of these elements seem to be particularly critical. For example, the salamander's burrows invariably extend into siltstone, a material that retains moisture and enables the salamanders to survive droughts.

The available evidence indicates that the Red Hills salamander is highly specialized, dependent on specific habitat conditions, sensitive to habitat alteration, and low in reproductive and dispersal potential. Major habitat disturbance, including the clearing of forests, severe select-cutting for timber, mechanical site preparation, and conversion of hardwood forests to pine forests, constitute the most serious threat to the species. The ability of the Red Hills salamander to survive forestry operations depends on such factors as the extent

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of canopy removal, the direction of the slope, and the extent of substrate disturbance. *Limited* selective cutting on north-facing slopes is substantially less harmful to the salamander and apparently permits most populations to survive.

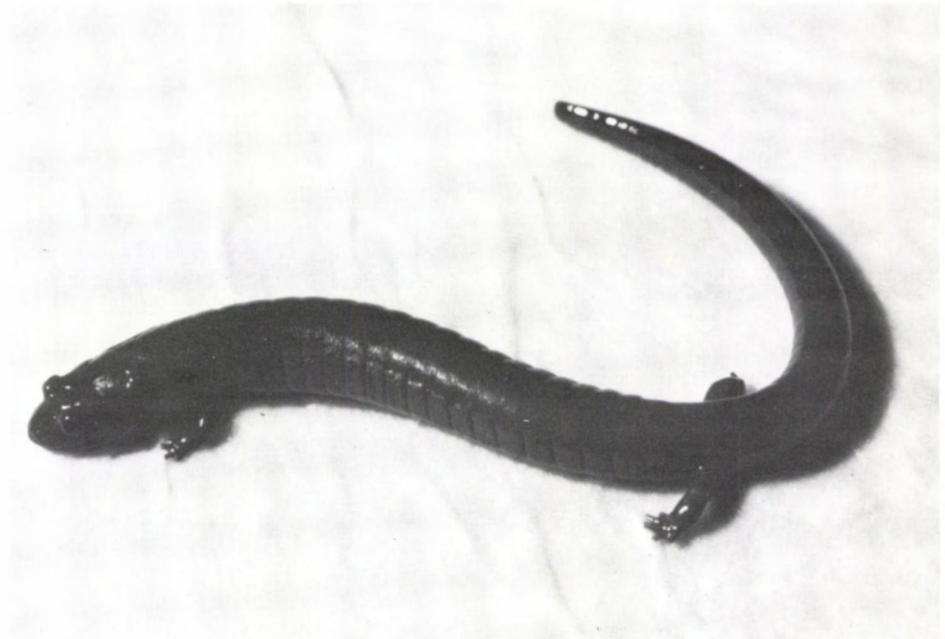
According to the *Red Hills Salamander Recovery Plan* (prepared by Dr. Robert H. Mount and approved by the Service in November 1983), returning the species to a completely secure status may not be attainable within the foreseeable future because of habitat vulnerability and other factors. The plan offers, as an interim objective, the goal of preventing the species' further decline to an Endangered status. Since the population structure and dynamics of the salamander are poorly known, even this objective cannot be quantified in terms of numbers of individuals. In terms of land area, however, maintenance of 16,000 hectares (about 39,520 acres) of good-to-optimal habitat, divided into a number of tracts, may be a reasonable goal.

In considering the concept of setting aside conservation management areas or refugia for the Red Hills salamander, the plan emphasizes that the habitat may also be used by local residents for a variety of other purposes. Hunting and fishing for example, would be compatible, as would certain other forms of light recreational use. The extent and type of forestry operations on these lands could

be tailored to the characteristics of the specific site.

Mapping and categorizing suitable habitat is necessary before conservation measures can be proposed. In categorizing habitat for the Red Hills salamander, the dynamic aspects of forest ecology will be kept in mind. It is possible, for example, that some lands

degraded by forestry operations could ultimately regain their supportive potential for the species. Factors such as land ownership and land-use plans also will be studied. Under the recovery plan, the habitat and resident salamander populations will be monitored at 3-year intervals (if possible).



Red Hills salamander

Photo by C. Kenneth Dodd, Jr.

Listing Procedures

continued from page 1

The Act does continue to require consideration of economic and other impacts in designation or revision of *Critical Habitat*, but prohibits the economic examination of an associated Critical Habitat designation from affecting or delaying the *listing* of a species. In order to avoid such an influence or delay when a listing and Critical Habitat designation are proposed concurrently, the revised regulations place the provisions governing impact analysis in a section of the regulations (424.19) separate from those governing listing. In addition, they specify that any consideration of impacts take place only after proposal of a rule, when a deadline for final action has already been established.

Deadlines

Final action on a rule dealing with listing or a Critical Habitat designation must now be taken within 1 year of pro-

posal. The Act previously had required withdrawal of any proposal not made final within 2 years of proposal. A proposal may now only be withdrawn for substantial biological reasons. Exceptions to the 1-year deadline allow a 6-month extension on a proposal when there is substantial disagreement among knowledgeable scientists regarding the sufficiency or accuracy of the data upon which it is based, and a 1-year extension on a proposal to designate Critical Habitat when the Critical Habitat is judged not to be determinable within the original time period.

Petitions

The amendments and the new regulations require specific and timely responses to petitions that seek to list, delist, or reclassify species, or to revise Critical Habitat. A preliminary finding must be made within 90 days of receipt as to whether or not a petition presents substantial information indicating that the petitioned action *may be* warranted.

If the 90-day finding is positive, an additional finding must be made within 1 year of receipt as to whether or not the action *is* warranted. If a determination regarding the status of a species is involved, a positive 1-year finding requires prompt publication in the *Federal Register* of a proposal to carry out the petitioned action. If a revision of Critical Habitat is involved, a positive 1-year finding requires only publication of the Service's intended course of action.

Exceptions to the requirement to promptly publish a listing proposal are allowed if such publication is precluded by other listing proposals and if expeditious progress is being made in listing, delisting, and reclassifying other species.

Readers that require more detailed information on the revised listing procedures or that want to examine the Service's responses to comments on the proposed listing regulations should refer to the final published rule; copies are available from the Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

Regional Briefs

continued from page 5

sequently, 80–90 whoopers should be returning this fall—a new high for this population.

Editor's Note: Unfortunately, some recent whooping crane news from the Patuxent Wildlife Research Center is not as good. See story on page 6.

Region 3—Efforts are underway to trap and radio-tag bald eagles on the Apostle Islands National Lakeshore (Lake Superior) to determine migration routes and wintering habitat of the eagles that nest there. The National Park Service, in cooperation with the Wisconsin Department of Natural Resources and the U.S. Fish and Wildlife Service, initiated this study to determine the causes of low productivity in the eagles nesting in close proximity to the Great Lakes.

On October 10, 1984, the Circuit Court for the Eighth Circuit held hearings on the Service's regulations pertaining to management of the gray wolf (*Canis lupus*) in Minnesota. The Service published the regulations on August 10, 1983, and on January 5, 1984, the district court prohibited the Service from implementing them. The regulations allow a controlled take of wolves in certain areas of Minnesota, and the plaintiffs argued that this is in violation of the Endangered Species Act. The circuit court's decision is expected within several months.

A peregrine falcon that was released in Toronto (Ontario, Canada) last spring was shot in Michigan and is being treated at the University of Minnesota's Raptor Rehabilitation Center. The bird has about a 50 percent chance of total recovery. It is one of six peregrines received at the center during October. Four injured birds were found in Minnesota and one was found in Illinois. Aside from the falcon that came from Canada, the Illinois bird is the only one that has a fairly good chance of being returned to the wild. The injuries to the five falcons are thought to have been caused by collisions with cars or stationary objects such as powerlines.

Region 4—The U.S. Forest Service has applied for an FWS permit to transplant approximately 100 *Harperocallis flava* (Harper's beauty) plants from the roadside along Highway 65 in the Apalachicola National Forest in Franklin and Liberty Counties, Florida, to three less vulnerable natural bog sites in the forest.

The Endangered Species Field Office in Jackson, Mississippi, recently completed two habitat enhancement projects intended to assist in the recovery of the watercress darter (*Etheostoma nuchale*). One project involved construction of a small pond located downstream from an existing spring pond at the Watercress Darter National Wildlife Refuge in Bessemer, Alabama. The second project involved construction of three small sandstone dams at Glenn Springs. Both projects were intended to create more of the spring pond habitat preferred by this Endangered fish.

Under the direction of Galen Rathbun of the Service's Sirenia Lab in Gainesville, Florida, approximately 20 people from the Jacksonville Endangered Species Field Station, wildlife refuges, the Sirenia Lab, and Sea World relocated two adult captive manatees (*Trichechus manatus*) within Homasassa Springs Park on September 27. Rosie, a 1200-pound animal and Beauregard, a 960-pound rehabilitated animal from the Service's injured manatee rescue program, were relocated to a head springs site that provides for improved captive conditions. They joined Sunrise and Savannah, two captive-bred juvenile manatees being temporarily held at this site prior to their experimental release in the spring.

Preliminary findings from an early summer survey of the Schaus swallowtail butterfly (*Papilio aristodemus ponceanus*) habitat on Key Largo, Florida, indicate that the butterfly populations appear to be stable. These butterflies were also found at two sites not previously recorded. At this stage in the survey, it can be expected that Schaus swallowtails appear in low numbers in any hammocks on Key Largo.

Three additions have been made recently to the staff at the Jacksonville, Florida, Endangered Species Field Station. Earl Possardt, previously with the Endangered Species Office in Washington, D.C., will be responsible for coordinating actions on manatee management and research. He will also be responsible for sea turtle coordination in the southeast. John Paradiso, also formerly with the Washington Office endangered species staff, will be handling the listing of vertebrate species located in Florida and Georgia, and will be working on special projects concerning foreign species. David Martin has joined the staff as regional botanist. He will be responsible for work relating to Endangered and Threatened plants in Florida, Georgia, and other areas of the southeast.

Region 5—Five additional populations of the Virginia round-leaf birch (*Betula uber*) planted last spring are doing well, with a survival rate of about 90 percent. Protective wire cages have been placed around each tree to prevent damage by browsing deer. The Virginia Department of Agriculture and Consumer Services provided considerable assistance in constructing the cages.

A meeting of the Peregrine Falcon Recovery Team and State peregrine falcon release coordinators was held October 10–11 at Acadia National Park, Maine. Items on the agenda included State release plans for 1985, 1984 breeding results, future funding for recovery activities, movement of the captive breeding effort to Idaho, and a very enjoyable visit to the peregrine hawk site at the park.

Work was initiated last summer to establish additional populations of the Furbish lousewort (*Pedicularis furbishiae*) along the upper St. John River in northern Maine. The "deauthorization" of the proposed Dickey Dam project and the State's recent declaration protecting about 100 miles of the upper river have brightened the future of this Endangered plant. State and Federal biologists involved in the recovery effort are optimistic about establishing new populations due to the success of the preliminary efforts.

Region 7—In the late 19th and early 20th centuries, naturalists such as Merriam, Elliot, and Allen voyaged to Alaska eager to find and describe new life forms—and they did. Hundreds of islands were visited and scores of new subspecies were described in scientific journals. Endemic to islands or restricted to peninsula habitats, many of these bird and mammal populations are vulnerable to changes in their environment, and are, therefore, potential candidates for listing. Determining the status of these birds and mammals is proving to be a formidable task, as most occur in remote parts of Alaska and have not been studied since their original descriptions in the literature.

We Need Your Help

To make this *your* BULLETIN, as well as ours, we need your help. Please send the Editor any comments for improving the format, ideas for articles, photographs, and reports on current research and management activities.

Notice of Review on Eight Foreign Turtles

The Service has begun reviewing the status of eight species of foreign turtles to determine if they should be proposed for listing under the Endangered Species Act. Among the threats to these species are habitat alteration, exploitation for food, and collection for the pet trade. In the October 5, 1984 *Federal Register*, the Service published a notice requesting further information on the status of the following turtles and their habitat:

- **painted batagur (*Callagur borneoensis*)**—This large estuarine turtle inhabits coastal regions of Thailand, west Malaysia, and the islands of Borneo and Sumatra. The main threat to this species is the overcollection of its eggs for human consumption, a factor which is compounded by the turtle's low reproductive potential.
- **Celebes tortoise (*Geochelone forsteni*)**—Restricted to Celebes, Indonesia, this tortoise is very rare and localized in distribution. There has been only one recent sighting of the Celebes tortoise, despite searches by biologists in the area.
- **Kavalai forest or cane turtle (*Heosemys silvatica*)**—Surveys have located only one small viable population of this species, which occurs within a hilly rain forest in southwestern India. The turtles are used as food (at least occasionally) by local people, and the species is further threatened by habitat modification.
- **Brazilian sideneck turtle (*Phrynops hoguei*)**—This turtle is apparently very rare and confined to two river systems, the Rios Paraiba and Itapemirim. Habitat along the Rio Paraiba is reportedly experiencing damage from pollution and siltation, and some of the tributaries have become dry.
- **Chaco sideneck turtle (*Platemys pallidipectoris*)**—Little is known about this turtle, whose range is centered in Argentina and Paraguay. Only 10 specimens are known to have been collected, although some of these turtles have appeared in the pet trade. Its apparent rarity and vulnerability from commercial exploitation are thought to threaten its survival.
- **South American red-lined turtle (*Pseudemys scripta callirostris*)**—Once abundant, this turtle is now depleted throughout its range, which consists of the lower Magdalena and Sinu drainages of northern Columbia and northwest Venezuela. Some local populations are considered to be extirpated. Turtles and their eggs are heavily used for food, hatchlings are gathered in large numbers to be made into trinkets for tourists, and habitat may be locally destroyed by fire. Mass commercial exploitation of the species may now have ceased, but large numbers reportedly are still available in Europe.
- **Inagua Island turtle (*Pseudemys malonei*)**—This species is known only from great Inagua Island and on New Providence Island (where it has been introduced), both in the Bahama Islands. About 200–500 turtles are thought to exist. Inadequate rainfall could be a natural factor affecting mortality, and occasionally turtles may be taken for pets or by predatory feral animals.
- **Cat Island turtle (*Pseudemys felis*)**—Another native of the Bahamas, this freshwater turtle is confined to small (2.5 km²) Cat Island. It, too, depends on adequate rainfall for reproductive success. Threats to the species include exploitation for food, collection as pets, and potential habitat destruction due to development.

The Service requests that any additional information, reports, and published literature on these species be sent to the Associate Director—Federal Assistance (OES), U.S. Fish and Wildlife Service, Washington, D.C. 20240 by January 3, 1985. Scientific references for the information cited in the Notice of Review are listed in the October 5, 1984, *Federal Register*.

Leatherback Turtle

continued from page 3

Acquisition of the area for conservation purposes was supported by the Virgin Islands Department of Conservation and Public Affairs.

The only other known site of concentrated leatherback turtle nesting within U.S. territory is at a beach on Culebra, a small island near Puerto Rico. In 1984, 25 leatherbacks nested a total of 155 times at this site. Earthwatch also has a major project on Culebra. The Culebra nesting beach is on property owned by the Commonwealth of Puerto Rico and managed in cooperation with the Fish and Wildlife Service.



by Dennis Hubbard

Sandy Point National Wildlife Refuge

Texas Plant

continued from page 1

their property, but plans for its protection at these sites have not yet been determined.

On October 11, 1983, the Service proposed to list *Styrax texana* as an Endangered species (see BULLETIN Vol. VIII No. 10). Seven responses to the proposal were received and they are all summarized in the October 12, 1984, final rule.

Critical Habitat is not being designated for *Styrax texana* at this time. Such a designation, with the required publication of maps and detailed descriptions of the sites, could encourage collection of the plants, especially since it has very attractive foliage and flowers. Nevertheless, even without a formal designation of Critical Habitat, *Styrax texana* will receive the full protection authorized by Section 7 of the Endangered Species Act which requires Federal agencies to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the survival of any listed species or adversely effect its habitat.

Other conservation measures that will now be available for *Styrax texana* include recognition of its precarious status and development of plans for its recovery. Additionally, Section 9 of the Act prohibits interstate or international trafficking in Endangered plants. Permits for these otherwise prohibited activities are available, under certain circumstances, for approved scientific or conservation purposes.

New Publication

A new trade law report is available from the World Wildlife Fund-U.S. *Latin American Wildlife Trade Laws*, by

BOX SCORE OF LISTINGS/RECOVERY PLANS

Category	ENDANGERED			THREATENED			SPECIES* TOTAL	SPECIES HAVING PLANS
	U.S. Only	U.S. & Foreign	Foreign Only	U.S. Only	U.S. & Foreign	Foreign Only		
Mammals	18	19	233	4	0	22	296	21
Birds	59	13	144	3	1	0	220	50
Reptiles	8	6	60	8	4	13	99	10
Amphibians	5	0	8	3	0	0	16	5
Fishes	30	4	11	13	3	0	61	34
Snails	3	0	1	5	0	0	9	7
Clams	22	0	2	0	0	0	24	13
Crustaceans	3	0	0	1	0	0	4	1
Insects	8	0	0	4	0	0	12	6
Plants	65	5	1	9	2	2	84	31
TOTAL	221	47	460	50	10	37	825	178**

* Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, Olive ridley sea turtle, and leopard.

** More than one species may be covered by some plans, and a few species have more than one plan covering different parts of their ranges.

Number of Recovery Plans approved: 157

Number of species currently proposed for listing: 30 animals
31 plants

Number of Species with Critical Habitats determined: 64

Number of Cooperative Agreements signed with States: 41 fish & wildlife
14 plants

October 31, 1984

Kathryn S. Fuller and Byron Swift, is a country-by-country analysis of the laws that govern wildlife trade in Central and South America. It provides current information about domestic wildlife restrictions in the entire region, and a list of protected and regulated species is included for each country. The 354-page report is designed for use by wildlife importers and exporters, government officials charged with monitoring wildlife imports into their countries, conservationists, and anyone else concerned with trade in Latin American species. Its text is in both English and Spanish. The

report is available for \$11.50 (U.S.) each. Make checks payable to World Wildlife Fund-Trade Law and mail them to TRAFFIC (U.S.A.), 1601 Connecticut Avenue, N.W., Washington, D.C. 20009, U.S.A.

Plans are already underway to expand the report's scope to include other regions of the world, notably Asia, Africa, Oceania, and the Caribbean. Regular updates of the report will include new developments in Latin American wildlife trade laws and expanded coverage of plant trade laws and regulations.

November 1984

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ENDANGERED SPECIES

Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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