

# ENDANGERED SPECIES

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

## Endangered Classification Proposed for Four Plants

Four species of plants were proposed by the Fish and Wildlife Service (FWS) on July 16, 1985, for listing as Endangered species (see details in *Federal Register*). Three of them occur in the Hawaiian Islands, where their habitat faces threats from grazing, urban and agricultural development, and certain other land uses. Similar problems are being encountered by the fourth species, which occurs in parts of central California.

### Three Hawaiian Plants

*Scaevola coriacea* (dwarf *naupaka*) is a sparsely branched, prostrate shrub. An individual plant can sprawl over an area up to 108 square feet (10 square meters) in size, with most of its vegetation at or near ground level. Found only near the ocean, *S. coriacea* grows on low, consolidated sand dunes.

Historically, populations of *S. coriacea* occurred on all of the major Hawaiian Islands, with Maui probably supporting the highest numbers. Currently, however, only four small populations of the species survive, all on Maui and two nearby islets. A total of only about 350 plants remain in their natural habitat, and 300 of them are concentrated on four sand dunes at Waiehu Point. Part of this site is on the periphery of county land used as a golf



Photo by Derral Herbst

*The cream-colored flower of Scaevola coriacea has a corolla split down the upper side so that it resembles half of a radially symmetrical flower.*

course, but about two-thirds is privately owned property scheduled for development in the near future. Loss of this habitat would have a significant impact on the species' chances for survival. Fortunately,

*S. coriacea* has a degree of protection on the islets, which are designated as State bird sanctuaries; a permit is needed to land on them.

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## Listings Become Final for Two Animals and Seven Plants

During July 1985, final rules were published in the *Federal Register* recognizing the precarious status of the following two animals and seven plants, and placing them under the protection of the Endangered Species Act:

### Flying Squirrels

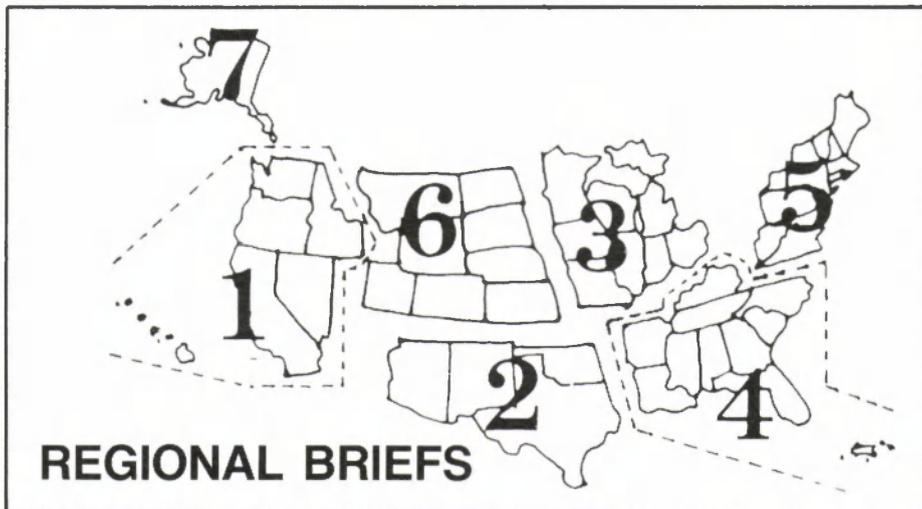
*Glaucomys sabrinus fuscus* and *Glaucomys sabrinus coloratus*, two subspecies of the northern flying squirrel, were proposed for listing as Endangered on November 21, 1984. (See feature story in BULLETIN Vol. IX No. 12.) Al-

though never common, both subspecies have declined considerably over recent decades. A few survive in relictual habitat on a few high peaks in the southern Appalachian Mountains. Their remaining habitat faces continuing pressure from logging and recreational development (e.g., ski resorts). The animals themselves are threatened by the spread of the more common and adaptable southern flying squirrel (*Glaucomys volans*), a competing species that also carries a parasitic nematode lethal to *G. sabrinus*.

The rule listing *G. s. fuscus* and *G. s. coloratus* became final on July 1, 1985.

Because flying squirrels in general are popular as pets, the Fish and Wildlife Service (FWS) believes it would be imprudent to publicize the locations of the last individuals with a designation of Critical Habitat; however, all habitat conservation provisions of the Act will apply. The remaining sites that may be occupied are in Virginia, West Virginia, North Carolina, and Tennessee, some of them on National Forest land. The U.S. Forest Service may be required to consult with the FWS on future actions such as timber sales, spraying of insecticides, or estab-

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

**Region 1**—The Sacramento Endangered Species Office (SESO) staff recently applied a foliar fertilizer to the two remaining Endangered Truckee barberry

(*Mahonia* (= *Berberis sonnei*) plants. It is hoped that this action will enhance the vigor of the remaining barberries and improve the chance for successful vegetative propagation of the species by a nursery contractor, Cornflower Farms. The overall poor condition of the plants and

their habitat, the ongoing construction of homes along the Truckee River, and other urban-associated disturbances (i.e., trash dumping, gardening) have increased the need for propagating and eventually outplanting barberries in protected suitable habitat.

The SESO staff met with representatives of the Hayward Area Recreation District and California Department of Fish and Game to discuss compensation ideas for a proposed nature interpretive center that would eliminate approximately 5 acres of Endangered salt marsh harvest mouse (*Reithrodontomys raviventris*) habitat. An agreement was reached to enhance and create habitat on adjoining property by constructing small "islands" and other topographic relief that would improve habitat diversity and high tide escape cover. Installation of tide gates to enhance pickleweed and shorebird values was also agreed upon.

The captive breeding program for the Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*) now has 17 animals, including one adult male captured in May from the Buckskin, California, area. Prior to this capture, no adult males had been trapped. The only males available were those born in captivity (4) and one runt male that was captured in 1984. Consequently, no breeding has yet been attempted. It is expected that, with the adult male now available, some breeding may begin this summer when females begin estrus. Captive born males should be in breeding condition by late summer.

Six bald eagle (*Haliaeetus leucocephalus*) nestlings were removed from nests in northern California and transported to Santa Catalina Island for release. Unfortunately, one of the nestlings died during transport. The remaining birds are doing fine and will be released soon from hack sites.

Smith's blue butterflies (*Euphilotes enoptes smithi*) were recently collected from the Lone Star Olympia Quarry (Santa Cruz County) during a follow-up survey of this site conducted by Larry Seeman Associates. The survey was undertaken in response to SESO comments on a 1984 survey report concluding that Smith's blue butterflies were not present on this property. The 1985 collections were made from the part of the quarry that is next in line for surface disturbance and sand mining operations.

During June 1985, five individuals of the Threatened southern sea otter (*Enhydra lutris nereis*) were found dead, and one died shortly after it was found in a semi-comatose condition suffering from a collapsed lung and face and foot

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## Regional Briefs

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wounds. Three of the otters found were shot, another drowned in a commercial fishing net, and one died of gastrointestinal tract ulcerations and infections.

To date, a total of 22 dead otters were found in 1985. Five of them were shot this year, three just in the month of June. Last year by the end of June, 87 otters had been reported dead.

From May 31 to June 2, 1985, a group of volunteers from Catlin Gabel High School in Portland, Oregon, hand-weeded cheatgrass from an 8-acre area on which there were previously known concentrations of the Endangered Malheur wire-lettuce (*Stephanomeria malheurensis*). Cheatgrass, an introduced species, is thought to be competing with this plant and possibly threatening its existence. The weeding effort was coordinated through a Bureau of Land Management (BLM) botanist from the Burns District.

For the first time in 13 years, peregrine falcons (*Falco peregrinus*) have established an eyrie in Idaho and hatched two young. Both adults were produced and hatched out by The Peregrine Fund. Cooperation among the U.S. Fish and Wildlife Service (FWS), U.S. Forest Service (USFS), BLM, Idaho Department of Fish and Game, and the Simplot Corporation made this landmark event possible.

The Peregrine Fund-West, located in Boise, Idaho, has had the most successful year ever in producing peregrine falcons for restocking in the Rocky Mountains. Last year, 131 peregrines were produced at the Ft. Collins, Colorado, facility. After moving to new breeding barns in Boise, Idaho, 162 peregrine falcons were produced in 1985. Dr. Bill Burnham, Director of the Rocky Mountain Program, expects a total of 150 of these birds to be hatched out or placed in active nests this summer.

FWS field station personnel in Reno, Nevada, estimated that approximately 50 million cui-ui (*Chasmistes cujus*) larvae

were recruited to Pyramid Lake. Cui-ui larval emigration, which peaked about May 24, was completed by June 7. Three hundred adults from Marble Bluff Fish Facility were transported to the Pyramid Lake Indian Tribal Enterprises cui-ui hatchery where 9 million eggs were taken. Most offspring from these eggs were released as larvae, with approximately 1 million being held for extended rearing to yearling size.

Experiments to evaluate the effects of the 12-meter high Marble Bluff Dam on cui-ui larval emigration have been completed. Three groups of hatchery-reared larvae were released at the top of the dam, then recaptured just below the dam. The recaptured larvae were held in an aquarium for 48 hours, after which live and dead larvae were counted. Mortality associated with the dam ranged from 9 to 13 percent.

Construction work was done on a channel adding 400 feet of stream habitat to the Moapa National Wildlife Refuge

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## Proposed Threatened Classification for Dismal Swamp Shrew

The Dismal Swamp southeastern shrew (*Sorex longirostris fisheri*) is a small, long-tailed mammal with a brown back, slightly paler underparts, buffy feet, and a relatively short, broad nose. This shrew is restricted to the Great Dismal Swamp National Wildlife Refuge (NWR) and adjacent portions of the swamp in southeastern Virginia and in North Carolina. It is found in a variety of habitats ranging from lowland old fields to mature pine and deciduous forest areas, but the subspecies is most abundant in mesic successional habitats, such as cane stands, regenerating clearcuts, and 10- to 15-year old forested plots.

*S. l. fisheri* is now in danger of extinction due to its very limited distribution and to recent human-induced habitat changes in the swamp. In addition to causing direct adverse effects on the shrew, these changes may be allowing a neighboring upland subspecies of southeastern shrew, *Sorex longirostris longirostris*, to invade the swamp. Because of the threats to the Dismal Swamp southeastern shrew's survival from habitat changes and hybridization with *S. l. longirostris*, the Fish and Wildlife Service (FWS) has proposed to list *S. l. fisheri* as Threatened (F.R. 7/16/85).

Around the turn of the century, the Dismal Swamp covered approximately 2,000 square miles (5,181 square kilometers), and even then, its size had been reduced by clearing and draining for agriculture. Today, only about 328 square miles (850 square kilometers) of the original swamp

remain intact, a reduction in size of close to 85 percent. Ditching has lowered the water table within the remaining swamp, and other activities, such as burning, grazing, and logging, which once maintained portions of the swamp in various stages of succession, were curtailed or eliminated when the Great Dismal Swamp NWR was established in 1973. As a consequence, the former heterogeneous blend of large tracts of bald cypress, Atlantic white cedar, and cane has been replaced by a more homogeneous, mesic swamp dominated by a rapidly maturing red maple and black gum forest. This progression toward homogeneous, mature forests had very likely been detrimental to the Dismal Swamp southeastern shrew. Of all habitat types evaluated in the swamp, densities of the genus *Sorex* were lowest in mature forests. The habitat types where the shrew is most abundant are now rare within the swamp and will essentially disappear if present trends continue.

In addition, it is probable that the continued interbreeding of the two subspecies, *S. l. fisheri* and *S. l. longirostris*, will eventually result in the loss of the Dismal Swamp southeastern shrew as a taxonomically distinct subspecies. This hybridization process is the primary threat to *S. l. fisheri*, and is comparable to that which nearly destroyed another Endangered mammal, the red wolf (*Canis rufus*).

The FWS has determined that a formal designation of Critical Habitat is not prudent for this subspecies. Nearly all of its

known habitat lies within the Great Dismal Swamp NWR, and refuge managers are already aware of the shrew's occupied range and the importance of protecting it. In addition, if the Dismal Swamp southeastern shrew is listed as Threatened, this action would be followed by continued development of refuge management strategies that will be designed to benefit the subspecies. Thus, no direct benefits would accrue from a Critical Habitat designation at this time.

If the proposal to list *S. l. fisheri* is approved, it will receive protection through the Endangered Species Act. Conservation measures provided to species listed under the Act include controls on taking, possessing, and interstate or international trafficking without a permit. The FWS would also be required to develop and implement a recovery plan for the species.

Under Section 7 of the Act, Federal agencies would be required to ensure that any actions they fund, authorize, or carry out are not likely to jeopardize the survival of a listed species. An overall management plan is currently being developed for the Great Dismal Swamp NWR and it is being designed, in part, to consider the needs of *S. l. fisheri*.

Comments on this proposed listing are invited and should be sent to the Endangered Species Field Office, U.S. Fish and Wildlife Service, 1825 Virginia Street, Annapolis, Maryland 21401, by September 16, 1985.

## Four Plants

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Only 10 individuals of *Hibiscadelphus distans*, or the Kaua'i *hau kuahiwi*, are known to exist. This rare tree occurs at one site within the Pu'u Ka Pele Forest Reserve at Waimea Canyon, Island of Kaua'i. Although it likely was once more abundant and widely distributed, the current range of *H. distans* totals about 2,000 square feet (0.018 hectares) on a single rock bluff.

The habitat of *H. distans* is subject to disturbance from several sources, the most serious of which is the presence of feral goats. Large herds of these non-native animals are being maintained within Waimea Canyon as game for hunting. Their browsing has destroyed much of the area's native vegetation, increasing erosion and favoring the spread of competing exotic plants. Although goats are not known to browse on *H. distans* at this time, they are probably responsible for the species' original decline and they could destroy the remaining trees in the future. Another threat to the habitat comes from hikers; a trail passes below the ledge where *H. distans* is found, and hikers straying off the path can erode the fragile soil. The presence of a trailside shelter with a fire pot near the lone population adds the potential threat of destruction by fire during the area's dry season.

*Abutilon menziesii*, a shrub also known as *ko'oloa 'ula*, formerly occurred on the Islands of Hawai'i, Maui, and Lana'i. Due to the effects of grazing, erosion, and the conversion of habitat to cropland, however, *A. menziesii* has declined dramatically in both numbers and range. It is now extirpated on Hawai'i, and only two small remnant colonies are known on Maui. The principal remaining population is on Lana'i, where the former sites have been reduced in number from

six to one. (A single plant on O'ahu is probably an escape from cultivation.) Almost all of the plants occur on privately owned lands.

Much of the habitat where *A. menziesii* once grew was cleared for use in cultivation (pineapple and sugar cane) and pastures, lands that often were abandoned in later years. A continuing threat to the species' habitat is erosion, which is being aggravated by overgrazing. Introduced animals are not only damaging the soils where the last *A. menziesii* individuals are found, but they are consuming the species directly. Browsing by cattle has been the major problem, and evidently is responsible for the disappearance of *A. menziesii* from the Island of Hawai'i, while axis deer and feral goats pose the major threat to the species on Lana'i. An introduced herbivore of another kind, the Chinese rose beetle (*Adoretus sinicus*), also has been documented to defoliate the plants.

The FWS believes it would be imprudent to propose designations of Critical Habitat for the three Hawaiian plants because publicizing the locations of these extremely rare species could make them more vulnerable to vandalism or illegal collecting. Nevertheless, if the listing proposals become final, all three plants will receive protection under Section 7 of the Endangered Species Act from any adverse effects of Federal actions.

Other benefits of a listing would include the possibility of Federal aid to State conservation programs for the species, the requirement for the FWS to develop and implement recovery programs, and a prohibition on interstate or international trafficking in listed species without a permit. Further, if the three plants are placed on the Federal list, they will automatically receive State protection under Hawaii's own endangered species legislation, which prohibits take and encourages conservation efforts by State agencies.

## *Cordylanthus palmatus*

A rare plant native to central California, *Cordylanthus palmatus* (palmate-bracted bird's-beak) is an annual herb in the snapdragon family. Like other members of the genus and related genera in the family, *C. palmatus* is hemiparasitic on the roots of various seed plants. It grows from 4 to 12 inches (10.0 to 30.5 centimeter) tall and has grayish-green stems and leaves. The small, pale white flowers, 0.5 to 1.0 inches (1.3 to 2.5 cm) long, are arranged in dense spikes, and each flower is surrounded by a small lobed floral bract.

Little is known about the species' ecology aside from its occurrence in, and possible confinement to, a saline-alkali soil type of limited distribution on central California's lowland flats and plains. Over the years, specimens of *C. palmatus* have been collected from eight sites in six California counties. Only two of these locations, and one site where a transplanted colony was established, still support the species. Its range was reduced as a result of the conversion of land for agricultural uses, intensive livestock grazing, urban development, and other activities that damaged the habitat and altered native plant communities inhabited by *C. palmatus*. The State of California already considers *C. palmatus* to be endangered, but State law does not provide for adequate habitat conservation.

The largest surviving population of *C. palmatus* is near the city of Livermore in Alameda County. From 2,000 to 5,000 plants are scattered over about 180 to 200 acres (73 to 81 ha) of privately owned land that is scheduled for residential and/or agricultural development. In January 1983, about 20 percent of the area was bulldozed and a portion of the associated wetlands illegally filled. A much smaller population occurs near Woodland in Yolo County. Originally, the Woodland colony occupied approximately 10 acres (4.0 ha), but about 8 acres (3.2 ha) were plowed under in recent years. Now only 100 to 200 plants remain, all growing on City of Woodland property along a drainage ditch and in an open field that is being considered for development of a sewage treatment facility.

At the transplant site, located on the Mendota State Wildlife Management Area in Fresno County, so few individuals are present that any disturbance of the habitat could extirpate the entire colony. In 1983, only 20 to 30 plants were seen. Damage from off-road vehicles has been a serious problem at the Mendota site in the past, but the current refuge manager is aware of the problem and is attempting to protect the habitat.

If the proposal to list *C. palmatus* under the Federal Endangered Species Act is made final, this plant and its habitat will receive protection from any adverse ef-

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Photo by Derral Herbst

*Hibiscadelphus distans* has green heart-shaped leaves and small greenish-yellow flowers that turn dark red with age.

# Four Plants

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fects of Federal activities even though the FWS deemed it imprudent to officially designate Critical Habitat. Currently, the FWS is not aware of any Federal activities that may affect the species; however, the U.S. Army Corps of Engineers has permit jurisdiction over some wetlands where the species occurs, and any developments proposed for these areas may be subject to the Federal agency consultation requirements of the Endangered Species Act.

## Final Listings

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lishment of recreational facilities to ensure that they do not jeopardize the squirrels; however, no such specific actions in the subspecies' range are anticipated.

### Ruth's Golden Aster

Ruth's golden aster (*Pityopsis ruthii*) is a fibrous-rooted perennial with very short stems and long narrow leaves covered with silvery hairs. Its yellow flower heads appear in late August and September, and fruits develop within a few weeks after the flowers fade. Named for Albert Ruth, a Knoxville, Tennessee, botanist, *Pityopsis ruthii* is known to occur only along short reaches of the Ocoee and Hiwassee Rivers in Polk County, Tennessee. The two known remaining populations of this species are in danger of extinction due to severe threats caused by water quality degradation, toxic chemical spills, and water level and flow regime alterations. Recreational use of the Hiwassee and Ocoee Rivers may also pose a threat to the aster's existence, if current levels of activity should increase in the future.

On November 20, 1984, the FWS published a proposal in the *Federal Register* to list Ruth's golden aster as an Endangered species (see story in BULLETIN Vol. IX No. 12). All comments received were in favor of an Endangered Species Act listing. After a thorough review of all available information, the Service published the final rule (F.R. 7/18/85). In addition to the protection given to this species by the Endangered Species Act, the State of Tennessee recently passed the Tennessee Rare Plant Protection Act of 1985, which will also provide protection for *P. ruthii* once rules and regulations are developed.

The U.S. Forest Service and the Tennessee Valley Authority have jurisdiction over both populations of *Pityopsis ruthii*, which occur in the Cherokee National Forest. There are currently Federal activities under way or in the planning stages that could have an impact on this

Other benefits of a Federal listing would include the requirement for the FWS to develop and implement a recovery program for *C. palmatus*, the possibility of Federal aid to State conservation programs, and the prohibitions on interstate or international trafficking in the species without a permit.

Comments on the proposals to list any of the four plants are welcome from all interested agencies, organizations, and individuals, and should be sent to the Regional Director, Region 1 (address on page 2 of the BULLETIN) by September 16, 1985.

species' survival, including management of flow regimes and water levels on the Ocoee and Hiwassee Rivers, timber harvesting, road and bridge construction, and recreational development. Both Federal agencies, however, are aware of the exact locations of *P. ruthii* and the importance of protecting it.

### Miccosukee Gooseberry

Known from only two locations, the Miccosukee gooseberry (*Ribes echinellum*) is a unique shrub that reaches one meter (3.3 feet) tall and forms patches that often measure several meters in diameter. This plant has spiny stems with three-lobed leaves, small, greenish-white flowers, and spiny, round fruits. First discovered in 1924 along the shore of Lake Miccosukee in Jefferson County, Florida, *R. echinellum* was known only from this population for over 30 years, until a second population was located in 1957 in McCormick County, South Carolina. In 1984, an additional segment of the Florida population was discovered approximately 0.6 kilometers (1 mile) from the previously known plants. Populations in both States are threatened by potential recreational activities. The Florida plants are threatened also by development pressures and logging of their lakeshore habitat, while the South Carolina population is further threatened by competition from an introduced vine, Japanese honeysuckle (*Lonicera japonica*).

The South Carolina population occurs on land managed as a nature preserve by the South Carolina Wildlife and Marine Resources Department, and the risk to this population from accidental trampling or other destruction could become greater if public visitation to the area increases. In Florida, the population is on privately owned lands and has a high potential for lakeside development. Logging has occurred near part of this site and has already caused some detrimental effects to the plants. The threats posed by such activities prompted the Service to propose a listing as Threatened on August 31, 1984 (see BULLETIN Vol. IX No. 9), and sub-

sequently to publish the final rule (F.R. 7/18/85).

The Miccosukee gooseberry is afforded limited protection under Florida State law, which includes prohibitions concerning taking, transport, and sale of plants listed under the law, but does not directly protect the habitat. South Carolina does not have any State laws to protect threatened and endangered plants, but *R. echinellum* is indirectly protected against unauthorized taking under the natural area prohibitions that are enforced at the nature preserve. The Endangered Species Act will now offer additional protection for the plant and its habitat.

## Florida Rockland Plants

In a final rule published in the July 18, 1985, *Federal Register*, five Florida pine rockland plants were added to the List of Endangered and Threatened Plants. Their survival is threatened by habitat destruction. These plants, located in Dade and Monroe Counties, have been extirpated throughout most of their historic range as a result of the continuing residential and commercial development that has been occurring in the pinelands at an accelerating rate since 1930. Four of these plants, *Euphorbia deltoidea* ssp. *deltoidea* (spurge), *Galactia smallii* (Small's milkpea), *Polygala smallii* (tiny polygala), and *Amorpha crenulata* (crenulate lead-plant) were listed as Endangered. *Euphorbia garberi*, commonly known as Garber's spurge, was listed as a Threatened species.

Pine rockland plants formerly were widely distributed along the south Florida limestone ridge, an area about 105 kilometers (65 miles) long extending from southeastern Broward County to Long Pine Key in Everglades National Park. The ridge reaches 3-5 meters (10-16 feet) in elevation and provides a markedly different habitat for plants and animals than the marshes and wet prairies that dominate the surrounding areas. It is estimated that close to 98 percent of the Dade County pinelands, exclusive of Everglades National Park, have been destroyed by development.

Two of these five Florida rockland plants may be affected by Federal activities. *Euphorbia deltoidea* ssp. *deltoidea* occurs on lands under the jurisdiction of the U.S. Army, and the Army has conferred with the FWS regarding the development of Army Reserve facilities on the site. *Euphorbia garberi* occurs in Everglades National Park, where park management includes prescribed burning of pinelands in areas where the species is located. This habitat management technique is aimed at maintaining the pinelands by preventing vegetational succession, and current burning schedules should benefit the species. No monitoring of *E. garberi* has been done in the

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# Final Listings

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past, but this final listing rule will focus increased attention on its status to help prevent any detrimental effects from the fires.

## Effects of the Listings

Under the Endangered and Threatened classifications, all nine species will now receive the protection authorized under

## Notices of Review

During July 1985, the Fish and Wildlife Service (FWS) published three notices of review in the *Federal Register*. The first two initiated reviews on the status of animals that are candidates for future listing, and the third solicited information on the status of some animals and plants that already are listed as Endangered or Threatened.

1. On July 5, the FWS announced a review on the Samoan fruit bat (*Pteropus samoensis samoensis*), a large bat that may be threatened by habitat modification and hunting for human consumption. In the same notice, the FWS asked for data on the status of the Caribbean coot (*Fulica caribaea*) and the

the Endangered Species Act. Among the conservation measures provided to listed species are recognition of their precarious status, recovery actions, possible Federal funding, and prohibitions against certain practices. For the flying squirrels, prohibitions against take without a permit are now in effect. Under the Act, however, the rules for listed plants are different. It is unlawful to remove Endangered plants from only those lands that are under Federal jurisdiction. This protection, authorized by Section 9 of the Act, will be extended to Threatened plants once implementing regulations are completed.

West Indian ruddy duck (*Oxyura jamaicensis jamaicensis*), two birds thought to be jeopardized by habitat loss and introduced animals.

2. On July 18, the FWS initiated a review on six cave-adapted invertebrates: *Microcreagris texana*, *Leptoneta myopica*, *Texella reddelli*, *Rhadine persephone*, *Texamaurops reddelli*, and an undescribed species of *Cylindropsis*. These animals are known from a limited group of caves in Travis and Williamson Counties, Texas, that are in or near an area proposed for development.

Information on the status of the species in either of the above notices, and comments on whether or not they should be listed, may be submitted until further notice, and should be addressed to the As-

In addition, interstate and international trafficking in these species without a permit is prohibited. For *Euphorbia garberi*, which is listed as Threatened, properly documented seeds of cultivated specimens are exempt from this prohibition. Section 7 of the Act requires Federal agencies to consult with the FWS to ensure that any actions they fund, authorize, or carry out will not jeopardize the survival of any listed species or adversely affect its habitat. Although a formal designation of Critical Habitat was not part of any of these final listing rules, Section 7 regulations will still apply.

sociate Director-Federal Assistance (OES), U.S. Fish and Wildlife Service, Washington, D.C. 20240.

3. On July 22, the FWS published a notice on species that were listed prior to 1976 and those that were listed in 1979-1980. Under the Endangered Species Act, the FWS is required to conduct a review of all animals and plants listed as Endangered or Threatened at least every 5 years to determine whether their classifications are still appropriate. A table of those species now under review is printed in the *Federal Register* notice. To be considered during this review, comments must be received by November 19, 1985. The various addresses to which they should be sent also are printed in the July 22 notice.

## Regional Briefs

(continued from page 3)

(NWR). The habitat is being created to increase the refuge's carrying capacity for the Endangered Moapa dace (*Moapa coriacea*). The channel was excavated and partially lined with cement and cobble in June. When lining is completed, substrate will be added to the 2.5- to 5-foot deep and 9- to 14-foot wide channel, and a riparian corridor will be planted.

**Region 2**—A total of 1,000 Endangered Gila topminnows (*Poeciliopsis occidentalis*) were stocked in five sites on BLM lands in Arizona. This project is a cooperative effort among the BLM, Arizona Game and Fish Department, and FWS to reestablish the Gila topminnow, which was once the most plentiful fish in Arizona.

Dexter National Fish Hatchery personnel recently seined for razorback suckers (*Xyrauchen texanus*) in Carrizo and Cedar Creeks on the Fort Apache Indian Reservation in Arizona, where the fish had been reintroduced in April as small fry. These fry had since grown to 3-4 inches long, and were the first evidence of reintroduced razorback suckers surviving in the wild.

The final report of bald eagle nesting success in Arizona indicates that of 20 known nesting territories, 18 nests were occupied, 17 nests were active, and 13 nests fledged 22 young (7 young higher than in any previous year). Also, two additional nests were discovered this year. One, on the Gila River, is believed to be a new nest and contained two unhatched eggs. The second nest was discovered on the Big Sandy River in west-central Arizona. This nest, believed to be 1-2 years old, fledged two young.

The FWS officially took possession of the Buenos Aires Ranch as a National Wildlife Refuge on August 1, 1985. Reintroductions of masked bobwhite chicks (*Colinus virginianus ridgwayi*) will begin in mid-August and continue into early October. Recent unconfirmed reports indicate that there may be wild masked bobwhites surviving on the refuge as a result of reintroduction attempts made by the FWS in the mid-1970's. It is not yet known how many of these wild birds may be there.

Seven peregrine falcon eyries have been identified in Big Bend National Park as part of a cooperative study funded by the National Park Service, Texas Parks and Wildlife Department, and the FWS. Ten young peregrines fledged from six

sites, the best ever reported for this species in the park. This year's production was up from three young fledged in 1984, and one young fledged in 1983. As part of this study, peregrine falcon eggshell fragments were collected to determine the level of eggshell thinning. Examination of the fragments revealed that thinning was at 15 percent, the level at which reproduction is negatively affected. DDT contamination is the suspected cause of this thinning.

There has been a severe drop in the number of least terns (*Sterna antillarum*) of the listed interior population found on the Bitter Lake NWR in New Mexico this year. This species was listed as Endangered in May 1985 (see BULLETIN Vol. X No. 6). In previous years, up to 15 adult birds had been observed on the refuge, but this year, only two adults have been observed and only four pairs fledged young in 1984. The FWS has not yet discovered the reason for the sharp decline.

**Region 4**—A dramatic increase in nuisance alligator complaints in eastern North Carolina has been noted recently. Practically all of the complaints are originating in the Wilmington vicinity near lower Cape Fear River. The FWS has a contract with an expert alligator trapper to

(continued on next page)

assist the North Carolina Wildlife Resources Commission in capturing and relocating large nuisance alligators. The reasons for the increase in alligator-human contacts is not readily apparent, but continued expansion of residential and second-home construction in once prime alligator habitat is considered to be a primary cause.

The first recorded brown pelican (*Pelecanus occidentalis*) nesting in Alabama occurred in 1983 on Gaillard Island, a man-made island created 4 years ago by the U.S. Army Corps of Engineers to contain dredged material from an adjacent ship channel. This initial nesting consisted of 4 nests containing a total of 10 eggs. From these eggs, two young pelicans fledged. In 1984, pelicans again nested on Gaillard Island. A total of 10 nests and 19 eggs were observed, and 11 pelicans fledged.

Surveys conducted during the current nesting season have recorded a dramatic increase in brown pelican nesting on Gaillard Island. A total of 115 nests in various stages of construction were observed in May 1985. Twenty-two of these nests contained a total of 29 eggs. It is anticipated that a scheduled July survey will document additional egg-laying activity at the colony site.

The Jacksonville, Florida, Endangered Species Field Station is preparing a recovery plan for the Florida torreyia (*Torreya taxifolia*), an Endangered yew-like conifer endemic to a very limited area along the Apalachicola River in northwest Florida and adjacent Georgia. Most of the torreyia's habitat is now protected in The Nature Conservancy's Apalachicola Bluffs and Ravines Preserve, which totals 4,382 acres. Unfortunately, the Florida torreyia is affected by a variety of fungus infections that cause root rot, basal stem rot, and twig blight. The infections appear to be caused by a variety of native fungi that are able to attack the trees because they are stressed by drought or by some other presently unknown factor. O. Gary Brock of the Florida Department of Natural Resources reports that the native populations are in poor condition, with only a few of the largest stems producing pollen cones; no seed cones have been seen. Cultivated specimens are now established at sites in the Southeast and on the Pacific Coast. These specimens probably offer the best opportunity to understand the environmental requirements and diseases of the Florida torreyia, and may also provide the only source of seed for the foreseeable future.

A task force has been established between the FWS and the Jacksonville District of the Army Corps of Engineers to address Endangered Species Act Section 7 concerns as they relate to the manatee (*Trichechus manatus*) and marina permit applications. As a result of the first meet-

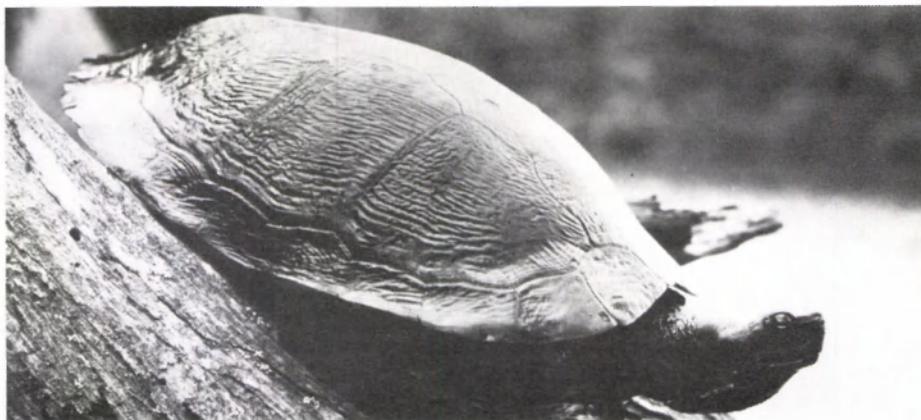


Photo by Terry Graham

*Plymouth red-bellied turtle*

ing, a letter will be sent to marina owners requesting information on essential manatee resources, such as grass beds, fresh water outflow, and warm water. It is the intent of the task force to improve the Corps' review of permit applications to avoid possible impacts to the manatees.

**Region 5**—Last November, 10 hatchling Plymouth red-bellied turtles (*Pseudemys rubriventris bangsi*) were collected from the Plymouth-Carver, Massachusetts, area for headstarting in the New England Aquarium. On July 7, 1985, the turtles, weighing approximately 10 times their capture weight, were released in Crooked Pond, a part of the Massasoit NWR. Because of the success of this year's project, an additional 20 hatchlings will be collected for headstarting this fall.

Ten young bald eagles were collected during July 5–11 from Manitoba and transported to a New Jersey hack site on July 12, as part of the third year of a FWS/Canadian Wildlife Service cooperative translocation project. This year's climbers and FWS biologists operated with float planes from an island base camp approximately 8 hours northwest of Winnipeg.

**Region 6**—On June 13, 1985, a fourth population of pure greenback cutthroat trout (*Salmo clarki stomias*) was discovered during stream surveys within Rocky Mountain National Park. This fourth population was found in Hunters Creek within the North St. Vrain drainage. All lakes and most streams within this drainage in the park have now been surveyed. Thunder Lake and Hutcheson Lake have been identified in the Greenback Cutthroat Trout Recovery Plan as future greenback restoration areas.

Due to the growing success of The Peregrine Fund's Rocky Mountain Program, the nucleus of peregrine falcon pairs in Colorado continues to climb from a low of 4 egg-laying pairs in 1979 to 15 known pairs in 1985.

**Region 7**—When the Aleutian Canada Goose Recovery Team met last December, they recommended that after a total

of 50 birds or 15 breeding pairs were reestablished on Agattu Island, recovery efforts could shift to Amchitka Island. A spring 1985 survey confirmed that this goal has been reached on Agattu, and during August, Amchitka Island will be the release site for wild family groups of Aleutian Canada geese (*Branta canadensis leucopareia*) captured on Buldir Island. Amchitka has been free of Arctic foxes (*Alopex lagopus*) since the mid 1960's.

In anticipation of a major fox eradication effort on Kiska Island, the Aleutian Islands NWR staff recently combatted persistently inclement weather to complete an inventory of the island's bird and marine mammal population. Introduced Arctic foxes are numerous on the island, particularly in and adjacent to the Sirius Point auklet colony, one of the largest assemblages of birds in North America (containing an estimated 1.4 million birds). Other birds, such as song sparrows, which are common on many Aleutian Islands, were completely absent. If the fox removal effort succeeds, comparison with these data in future years will be extremely interesting.

A cooperative FWS/NPS study on the home range and movements of peregrine falcons is proceeding in the upper Yukon River area. Preliminary data from four radio-tagged birds indicates that nesting peregrines may range 8–9 miles from their eyries and that overlap among hunting territories of nesting female peregrines occurs with some regularity.

## Recovery Plan Update

On July 2, 1985, a recovery plan for the Endangered Alabama lamp pearly mussel (*Lampsilis viriscens*) was approved. Copies of recovery plans become available for purchase about 6 months from their date of approval. Requests should be made to the Fish and Wildlife Reference Service, 6011 Executive Boulevard, Rockville, Maryland 20852; telephone 800/582-3421.

# New Publications

*Ohio Endangered and Threatened Vascular Plants: Abstracts of State-listed Taxa* is a 635-page volume containing one- to three-page abstracts on 367 species. It provides information on a number of topics, including biology and phenology, global and State range, and Federal and State legal status. Appendices contain the Ohio Endangered Plant Law and Administrative Rules, information on State plant collecting permits, and other relevant material. The price is \$17.25 (including postage) for a single book; Ohio residents should add \$0.83 State sales tax. Send a check or money order to Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224.

Proceedings on the symposium "Air Pollutants Effects on Forest Ecosystems" are available for sale. The 440-page book contains papers and posters dealing with the symptoms, causes, and potential effects of air pollutants on high-and low-elevation forests in North America and Europe, as presented at an international conference held last May in St. Paul, Minnesota. The symposium sponsors included agencies of the National Acid Precipitation Assessment Program (U.S. Forest Service, U.S. Environmental Protection Agency, U.S. Department of Interior, U.S. Department of Energy, and the National Oceanic and Atmospheric Administration); the German Marshall Fund of the United States; and Environment Canada. Copies of the proceedings may be ordered from The Acid Rain Foundation, 1630 Blackhawk Hills, St. Paul, Minnesota 55122. The cost in the U.S. is \$39.00, plus \$6.00 postage; for international orders, postage is \$16.00.

*Proceedings-Workshop on Management of Nongame Species and Ecolog-*

## 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	25	19	234	4	0	22	304	23
Birds	60	13	144	3	1	0	221	54
Reptiles	8	6	60	8	4	13	99	16
Amphibians	5	0	8	3	0	0	16	6
Fishes	31	4	11	18	3	0	67	37
Snails	3	0	1	5	0	0	9	7
Clams	23	0	2	0	0	0	25	19
Crustaceans	3	0	0	1	0	0	4	1
Insects	8	0	0	5	0	0	13	9
Plants	77	5	1	21	2	2	108	42
TOTAL	243	47	461	68	10	37	866	214**

\* 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: 180

Number of species currently proposed for listing: 23 animals  
29 plants

Number of Species with Critical Habitats determined: 84

Number of Cooperative Agreements signed with States: 42 fish & wildlife  
17 plants

July 31, 1985

*ical Communities* is a 404-page volume containing papers presented at a June 11-12, 1984, conference in Lexington, Kentucky, that was sponsored by the University of Kentucky. Topics covered at the workshop included "The Role of Nongame Management in Federal, State, and Private Agencies"; "Nongame Inventory Systems"; "Management Strategies for Nongame Communities"; "Nongame Management and the Nongame Wildlife User"; and "Coordination of Nongame Management With other Land Uses." Copies are available for \$5.00 (postpaid) from the Department of Forestry, Univer-

sity of Kentucky, Lexington, Kentucky 40546.

Copies of *A Bald Eagle Management Plan for the Greater Yellowstone Ecosystem*, a popular November 1983 publication prepared by the GYE Bald Eagle Working Team, are available for \$10.00 (postpaid) from the Wyoming Game and Fish Department, Publications-BE, Cheyenne, Wyoming 82002. The book identifies specific threats to bald eagles in the area, and discusses in detail methods to protect and expand the population.

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# ENDANGERED SPECIES

## Technical Bulletin

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