

ENDANGERED SPECIES

Technical Bulletin

Department of Interior, Fish and Wildlife Service
Washington, D. C. 20240

Five Species Proposed During August 1990 for Listing Protection

Four species of plants and one mussel species were proposed by the U.S. Fish and Wildlife Service during August 1990 for listing as Endangered or Threatened. If the listings are made final, Endangered Species Act protection will be extended to the following:

Three Hawaiian Plants

The changes in the natural environment of the Hawaiian Islands that began with the arrival of the earliest explorers accelerated dramatically after westerners brought their livestock to the archipelago. Feral goats, pigs, and cattle, along with mouflon sheep that were introduced for sport hunting purposes, had devastating effects on the native flora, which had never evolved defenses against herbivores. Grazing and associated impacts from these animals are largely responsible for the high number of rare and extinct plants in Hawaii. As part of an effort to give greater attention to Hawaiian listing candidates, the Service has proposed Endangered classification for the following:

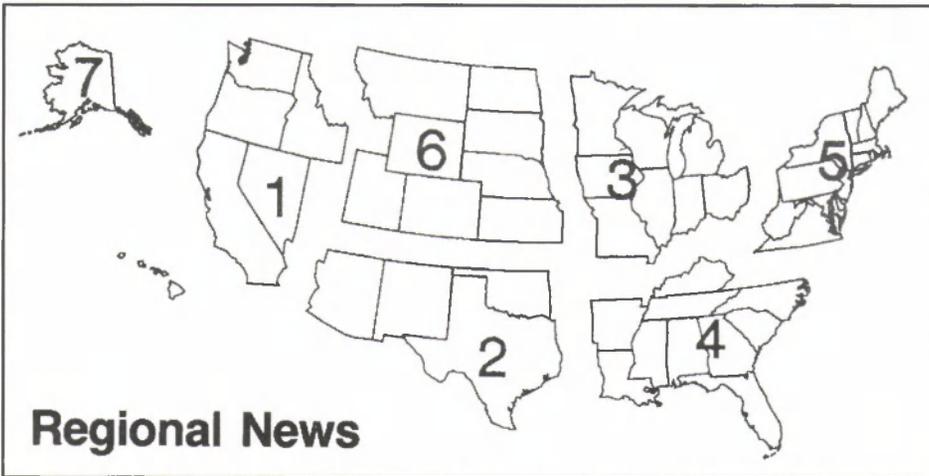
- **Ka'u silversword** (*Argyroxiphium kauense*) — This unusual plant, a rosette shrub of silvery, sword-shaped leaves, is endemic to the island of Hawai'i ("the Big Island"), where it currently is found in the Ka'u and South Hilo Districts. The species' former range is thought to have extended in a band around the southern and eastern flanks of Mauna Loa. (It may also have occurred around Hualalai, one of the island's other volcanoes.) Only 3 small populations, totalling about 400 plants, are known to remain. Although two of these populations are at least partially within forest reserves, most of the plants are threatened by feral livestock. When rooting, pigs disrupt silverword seedlings and uproot or knock

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The Ka'u silversword is a rosette shrub in the aster family (Asteraceae). Its leaves, which grow up to 16 inches (40 centimeters) long, are narrowly sword-shaped and nearly covered with silvery-gray hairs. This species blooms once in its lifetime, producing a single, highly branched inflorescence up to 8 feet (2.5 meters) in height with numerous white or yellow to wine-red flowers. Cross-pollination with another plant is necessary for this species to produce seed. Therefore, if the few remaining mature plants do not flower at the same time, or if the plants are spaced too widely apart for pollination, the plants will not reproduce. Standing next to this specimen in a 1974 photograph is the late Otto Degener, a noted botanist who, with his wife Isa, elevated the Ka'u silversword to species rank.

photo by Kaoru Sunada



Regional News

Regional endangered species staffers have reported the following news:

Region 1 - The spring 1990 count of southern sea otters (*Enhydra lutris nereis*)

along the California coast was 1,678, 10 percent lower than the spring 1989 count (1,864). It has been expected that the population would increase by 7 percent, which was the average annual increase between 1983

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and 1989. The significance of this apparent decline in sea otter numbers is uncertain. The fall 1990 and spring 1991 counts should help clarify the status of the population.

* * *

In cooperation with the Wolf Recovery Foundation, Inc., the U.S. Fish and Wildlife Service organized volunteers in August to survey two locations in central Idaho where there have been numerous reports of gray wolves (*Canis lupus*) by the public. Approximately 30 trained volunteers participated in surveying the Bear Valley area of the Boise National Forest and the Red River-Dixie area of the Nez Perce National Forest. In response to the volunteers' calls, wolf howls were heard in the Red River and Lowman Ranger Districts. These are the first confirmations of wolves in Idaho since the early 1980's.

* * *

All six Andean condors (*Vultur gryphus*) released early in 1990 in southern California have continued to expand their range to the west and northwest. They travel as far as the San Marcos Pass and Cachuma Lake to the west and toward Figueroa Mountain to the northwest. This experimental release group appears to be less attracted to human activity than the two groups that were released in 1988 and 1989 (see BULLETIN Vol. XV, No. 3). All of the condors routinely return to the Sespe Condor Sanctuary release site for feeding and occasional roosting.

* * *

The Service's Sacramento, California, Field Station reports that an adult female Kern primrose sphinx moth (*Euproserpinus euterpe*) was observed this spring in eastern Kern County, California. This Threatened species has not been observed in the wild for several years. A male may also have been present, but the entomologist was not able to get close enough to make a positive identification.

* * *

Region 2 - The 22 sub-adult and adult whooping cranes (*Grus americana*) that were moved from the Service's Patuxent Wildlife Research Center in Laurel, Maryland, to the International Crane Foundation in Baraboo, Wisconsin, in November and December of 1989 produced no eggs this year. Although the flock included two experienced breeding pairs, apparently the females were not yet at ease with their new territory and the artificial insemination crew. A similar breeding delay was experienced when whooping cranes were moved to new pens at Patuxent.

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Five Species Proposed

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over larger plants. Heavy browsing of Ka'u silverswords by pigs, goats, and sheep also has been documented. In addition, lava flows and the wildfires they ignite pose a serious threat. The Ka'u silversword was proposed in the August 6 *Federal Register* for listing as Endangered.

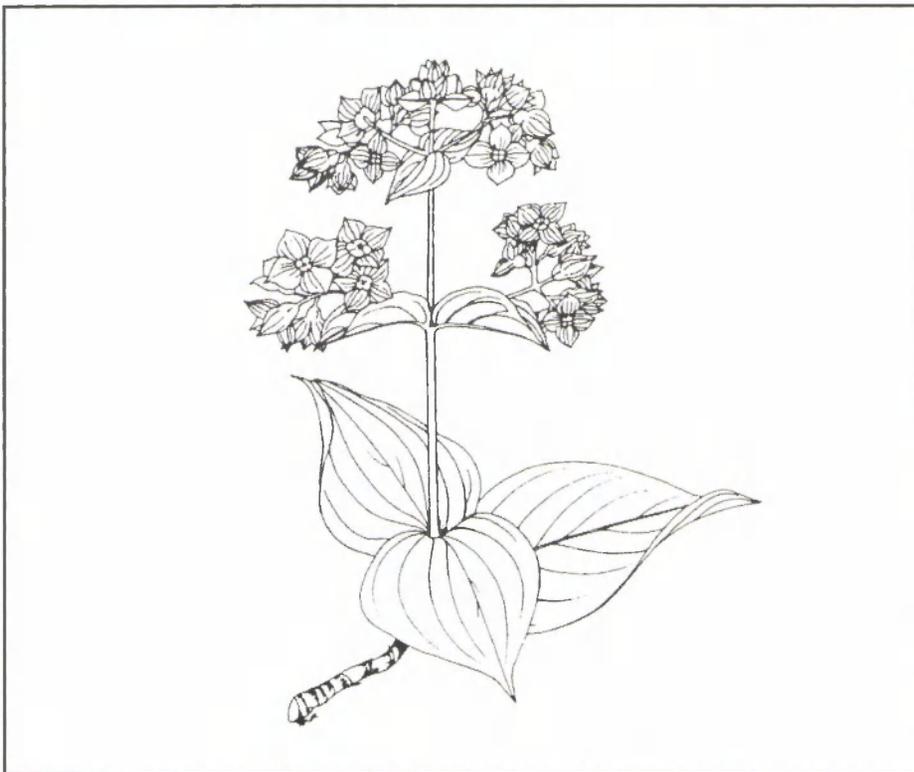
Two other Hawaiian plants from the island of Kaua'i were proposed for the same status on August 3. Both are found only along the Na Pali coast, a rugged area of high cliffs and narrow valleys on the island's northwest side.

- **Na Pali beach hedyotis (*Hedyotis st.-johnii*)** — Since this species was first collected in 1947, it has been seen only along a 4.5-mile (7-kilometer) stretch of Na Pali Coast State Park. The vegetation of this area has been heavily browsed by feral goats that are managed as game for hunting. Almost all of the remaining Na Pali beach hedyotis (about 250 individuals as of 1989) are found growing only in crevices and on outcrops that are inaccessible to the goats, leading botanists to believe that *H. st.-johnii* may once have occurred over a wider area. Competition from aggressive introduced plants is now the main threat to the species' survival.

- **ma'oli'oli (*Schiedea apokremnos*)** — This plant has oblong, somewhat fleshy leaves that are arranged oppositely along the stems. Its small flowers, which lack petals, are borne in clusters with green (and often purple-tinged) bracts and sepals. Like the Na Pali beach hedyotis, *S. apokremnos* grows along near-vertical cliff faces, but it also grows in a few places that remain vulnerable to feral goats. In addition to browsing the plants, goats erode the fragile soil layer, thus reducing habitat, disrupting seedlings, and creating openings for the invasion of exotic shrubs. A total of only about 100 individuals of ma'oli'oli (the species' Hawaiian name) have been seen.

Fire is another threat to both species. All populations of *H. st.-johnii* and all but one population of *S. apokremnos* occur within Na Pali State Park. Although it is illegal to remove or destroy any plants in State parks and reserve lands, the growing popularity of Na Pali State Park could increase the likelihood of accidental fires during dry seasons.

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Hedyotis st.-johnii is named for botanist Harold St. John, a student of the Hawaiian flora for the past 60 years, who was one of several people who first collected the species in 1947. This plant, also known as the Na Pali beach hedyotis, is a succulent perennial herb in the coffee family (Rubiaceae). The woody, slightly trailing main stems grow up to 1 foot (30 cm) long. Separate flowering stems reach up to 6 inches (15 cm) in length and produce clusters of small green flowers.



Schiedea apokremnos, a low, branching shrub in the pink family (Caryophyllaceae), grows to a height of about 20 inches (50 cm). This plant has oblong, somewhat fleshy leaves that are arranged oppositely along the stems. Its small flowers, which lack petals, are borne in clusters with green (and often purple-tinged) bracts and sepals.

photo by David Lorence

drawing by Yvonn Wilson-Ramsey, reprinted from *Manual of the Flowering Plants of Hawaii*, courtesy of University of Hawaii Press

Five Species Proposed

(continued from page 3)

Knieskern's beaked-rush (*Rhynchospora knieskernii*)

An annual plant in the sedge family (Cyperaceae), this species grows to about 23 inches (60 cm) high, has short, narrow leaves, and produces clusters of small brown flowers along the length of its stem. It is believed to be endemic to the Pinelands area of southern New Jersey, where it grows in open or early successional wetland habitat. Historically, *R. knieskernii* was known from 38 sites, but now it can be found at only 22 sites in Atlantic, Burlington, Ocean, and Monmouth Counties. The species apparently is extirpated in Camden County. Because of continuing threats to the habitat, the Service has proposed to list *R. knieskernii* as Threatened (F.R. 8/8/90).

The New Jersey Pinelands are a region of predominately oak/pitch pine forest stands. Because it requires open habitat, Knieskern's beaked-rush is restricted to clearings and disturbed areas. Most of the wildfires that once maintained these openings are now suppressed. As a result, vegetational succession threatens many *R. knieskernii* sites. Some human activities in the Pinelands have created openings that support small populations of the beaked-rush, but disturbances of the wrong kind (e.g., hydrological changes) or frequency can eliminate the species from a given site. Other threats include urbanization, water pollution, trash dumping, off-road vehicles, and sand and gravel mining.

Most of the remaining *R. knieskernii* sites are on private property, but eight are on State lands and two are federally managed. One of these sites, a Federal Aviation Administration tract in Ocean and Burlington Counties, has been proposed as a location for new aircraft communications facility. Another Federal agency whose activities could affect the species' habitat is the Army Corps of Engineers, which is responsible for regulating wetlands under Section 404 of the Clean Water Act. If *R. knieskernii* is listed as Threatened, these and all other Federal agencies will be required to ensure that none of their actions are likely to jeopardize the plant's survival.

Conservation and recovery of Knieskern's beaked-rush will probably involve not only site protection but also habitat manipulation to maintain early successional vegetation.

Winged Mapleleaf Freshwater Mussel (*Quadrula fragosa*)

The rich freshwater mussel fauna of North America has declined significantly in numbers, range, and composition over the past century as its riverine habitat has been altered and degraded. In the United States alone, 38 species of mussels are now listed as Endangered or Threatened, and others are being considered for listing action. On August 6, 1990, the Service proposed to classify another species, the winged mapleleaf freshwater mussel, as Endangered. This mollusk is similar in general appearance to the mapleleaf mussel (*Quadrula quadrula*), which is still widespread, but there are differences in the shape of the shells. The two species also can be distinguished by their habitat needs; while *Q. fragosa* seems to prefer clean riffle areas, *Q. quadrula* can exploit impoundments and a muddy substrate.

The winged mapleleaf historically occurred throughout the Mississippi, Ohio, Tennessee, and Cumberland River drainages in at least 12 States (Minnesota, Wisconsin, Iowa, Illinois, Missouri, Kentucky, Tennessee, Nebraska, Kansas, Oklahoma, Indiana, and Ohio). Approximately 99 percent of its habitat has been lost, however, due to impoundments, channelization, pollution, and sedimentation resulting from soil erosion. The single known remaining population occurs along fewer than 5 miles (8 km) of the St. Croix River on the Minnesota/Wisconsin border. This population's small size and restricted range makes the population vulnerable to extinction from any additional habitat degradation, including a single, catastrophic chemical spill or other accident. Threats of a more indirect nature could include problems with the species of host fish (so far unknown) the winged mapleleaf needs to parasitize during its larval stage.

An apparent lack of reproduction in the winged mapleleaf population is a major concern. During surveys in 1988 and 1989, no gravid females were located, and no individuals younger than 4 years of age could be found. Other mussel species in the same area did not show such reproductive failures.

* * *

Available Conservation Measures

Among the conservation benefits authorized for Threatened and Endangered plants and animals under the Endangered Species Act are: protection from adverse effects of Fed-

eral activities; restrictions on take and trafficking; the requirement for the Service to develop and carry out recovery plans; the authorization to seek land purchases or exchanges for important habitat; and Federal aid to State and Commonwealth conservation departments that have approved cooperative agreements with the Service. Listing also lends greater recognition to a species' precarious status, which encourages other conservation efforts by State and local agencies, independent organizations, and concerned individuals.

Section 7 of the Act directs Federal agencies to use their legal authorities to further the purposes of the Act by carrying out conservation programs for listed species. It also requires these agencies to ensure that any actions they fund, authorize, or carry out are not likely to jeopardize the survival of any Endangered or Threatened species. If an agency finds that one of its activities may affect a listed species, it is required to consult with the Service on ways to avoid jeopardy. For species that are proposed for listing and for which jeopardy is found, Federal agencies are required to "confer" with the Service, although the results of such a conference are not legally binding.

Additional protection is authorized by Section 9 of the Act, which makes it illegal to take, possess, transport, or engage in interstate or international trafficking in listed animals except by permit for certain conservation purposes. For plants, the rules regarding "take" are different. It is unlawful to collect or maliciously damage any Endangered plant on lands under Federal jurisdiction. Removing or damaging listed plants on State and private lands in knowing violation of State law or in the course of violating a State criminal trespass law also is illegal under the Act. In addition, some States have more restrictive laws of their own specifically against the take of State or federally listed plants and animals.

Desert Tortoise Conservation Center Begins Work

The Desert Tortoise Conservation Center near Las Vegas, Nevada, opened June 16, 1990. The 240-acre (97-hectare) Center was established as a provision of the settlement of a court suit that was filed over the emergency listing of the Mojave population of the desert tortoise (*Gopherus agassizii*) (see BULLETIN Vol. XIV, Nos. 9-10). It is the first large-scale research facility established to receive tortoises salvaged from private lands under development. The Bureau of Land Management (BLM), which is in charge of the Center, has contracted the Tort Group of Las Vegas to feed and care for tortoises at the Center. (The Tort Group has long been active in caring for desert tortoises.) There is also a part-time veterinarian on the Center's staff. Although the Center is not open to the public, an adjacent interpretive center and educational facility may be built in the future.

Under the terms of the settlement, tortoises from 11 different tracts of private land under development in Las Vegas Valley, totaling 7,200 acres (2,900 ha), could be transferred to the Center. The Fish and Wildlife Service issued the BLM, the Nevada Department of Wildlife, and The Nature Conservancy (which provided funds for the transfer) a scientific collection permit for this purpose under Section 10(a) of the Endangered Species Act. Under the terms of the permit, up to 871 tortoises can be moved from the private lands, with an incidental loss of 10 tortoises allowed.

Progress has been slow in the tortoise roundup, which is being conducted by contractors under the Nevada Department of Wildlife's supervision, because of the time required for processing each tortoise (i.e., weighing, measuring, taking blood samples)

and the high ambient temperatures in Las Vegas. These high temperatures, combined with the handling, increase stress to the animals. The first tortoise roundup occurred in early June on 500 acres (200 ha) in the western part of the valley. The State set a minimum standard of three sweeps of each property to ensure that the maximum number of tortoises were found; additional sweeps can be required if necessary. As of October 3, 667 tortoises had been transferred to the Center from 4,360 acres (1,760 ha) of private land. Although many tortoises have been handled in the roundup and in the construction of the Center, there have been only three tortoise deaths (as of October 3).

The transplanted tortoises are first kept isolated on the Center's grounds for a mini-

um of 30 days to determine if they carry the upper respiratory disease syndrome, which is a major threat to the species. The Center has 200 quarantine pens for this purpose. As of October 3, 94 tortoises, or about 14 percent of those captured, have displayed signs of the syndrome. Several will be sent to universities for study of the disease. Healthy tortoises are transferred from the quarantine pens to 10- to 20-acre (4- to 8-ha) fenced areas where they will take part in nutrition, reproduction, physiological, and behavioral studies. The studies are expected to begin at the Desert Tortoise Conservation Center in the spring of 1991 under the supervision of the Nevada Department of Wildlife.



photo by Mike Donahue

Captured tortoises are kept in quarantine pens for at least 30 days to assure that they do not carry upper respiratory disease syndrome to the captive population.

Regional News

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The Service weighed the risk of skipping one breeding season against the risk of disease when it was considering whether or not to split up the Patuxent flock last fall (see BULLETIN Vol. XIV, Nos. 9-10). The birds are expected to be in a normal breeding cycle by the spring of 1991. Meanwhile, the 11 fertile eggs that were shipped this spring from Wood Buffalo National Park, Canada, to Baraboo hatched and eight chicks fledged (see BUL-

LETIN Vol. XV, No. 7). These birds will be kept to increase the captive breeding population. The Baraboo whooping crane flock now stands at 30 birds.

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All 13 surviving birds of the Grays Lake whooping crane flock were confirmed in the San Luis Valley of Colorado in April. In an effort to promote pairing, several attempts were made to capture some individuals in Colorado. It was hoped that if individual birds could be brought together in a controlled situation, they would form pair bonds,

but the efforts to capture the birds were unsuccessful.

One wild 4-year-old whooper female was later captured in Idaho and released near wild males on their territories. However, she moved to the north end of Grays Lake National Wildlife Refuge where she remained distant from the other whooping cranes.

Another wild female and a male were captured in Idaho and confined in a pen. They were compatible and began acting like a pair, but no breeding activities were noted.

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Final Listing Rules Approved for Four Species

During August of 1990, final listing rules were published for two tiger beetles and two Caribbean plant species. Endangered Species Act protection is now available to the following:

Pelos del Diablo (*Aristida portoricensis*)

This tufted grass, a member of the family Poaceae, grows up to 20 inches (50 centimeters) high. It is endemic to serpentine slopes and red clay soils in southwestern Puerto Rico. Urbanization, land clearing, and the introduction of competing grasses for cattle grazing have altered or destroyed most former *A. portoricensis* habitat. Today, *A. portoricensis* is known to occur only in two privately owned areas. Residential development has eliminated most of the plants at one of the sites and threatens the plants in the other area. In addition, the larger population is potentially threatened by proposed copper and gold mining. The Fish and Wildlife Service proposed *A. portoricensis* for listing as an Endangered species in the October 10, 1989, *Federal Register* (see BULLETIN Vol. XIV, Nos. 11-12), and the final rule was published August 7, 1990.

Higo Chumbo (*Harrisia portoricensis*)

Another plant endemic to the Caribbean, the higo chumbo is a slender, columnar species in the family Cactaceae. This cactus grows up to 6 feet (2 meters) high and has

greenish-white, funnel-shaped flowers that open at night. Historically, the higo chumbo was known to grow in one area of Puerto Rico and on the nearby islands of Mona, Monito, and Desecheo. Urban development and agriculture have eliminated the Puerto Rico population. The populations on Mona Island (which has most of the cactus' remaining habitat) are threatened by potential development projects and by feral goats and pigs. The pigs uproot the cactus while searching for edible roots, while the goats are believed to be changing the island's vegetational composition. Feral goats also threaten the Desecheo population. The Service proposed the higo chumbo for listing as a Threatened species on October 18, 1989 (see BULLETIN Vol. XIV, Nos. 11-12), and the final rule was published August 8, 1990.

Two Tiger Beetles

The **northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*)** and **Puritan tiger beetle (*Cicindela puritana*)** are two small predatory insects that occur on beach habitats in the northeastern United States. The northeastern beach tiger beetle was once common along coastal beaches from the southern coast of Massachusetts to central New Jersey and along the central and southern shorelines of Chesapeake Bay. Today, the beetle is known to occur at 1 site in Massachusetts, 4 sites on the Maryland coast of Chesapeake Bay, and 40 sites on Virginia's Chesapeake Bay shoreline. The Puritan tiger beetle historically occurred along the Con-

necticut River in Vermont, New Hampshire, Massachusetts, and Connecticut, and along the Chesapeake Bay in Maryland. The beetle is now known to occur at 2 sites along the Connecticut River, and at 11 sites (only 6 of which have sizeable populations) on Maryland's Chesapeake Bay coastline.

Both tiger beetles are threatened by increasing development and alteration of the beaches they occupy. The northeastern beach tiger beetle is threatened by pedestrian and recreational vehicular traffic on the intertidal beaches, which damage the beetles' larval habitat, and potentially by oil spills and other pollutants. The Puritan tiger beetle is also threatened by pedestrian and recreational vehicular traffic and by cliff stabilization activities. Populations of both species potentially could be affected by collectors of rare insects, many of whom prize tiger beetles very highly.

On October 2, 1989, the Service proposed to list the northeastern beach tiger beetle as Endangered and the Puritan tiger beetle as Threatened (see BULLETIN Vol. XIV, Nos. 11-12). However, the Service has obtained new information since the proposed rule was published that indicates the northeastern beach tiger beetle is somewhat more abundant along Virginia's Chesapeake Bay shoreline than previously believed. The Service therefore concluded that this beetle should be listed as Threatened instead of Endangered. The final rule for both tiger beetles was published August 8, 1990.

Regional News

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In an effort to strengthen the pair bond and promote breeding next spring, a sandhill crane (*Grus canadensis*) chick was placed in the pen. Chick adoption has been successfully used in captive breeding situations to strengthen whooping crane pair bonds. Although the female seemed to develop a parental-type bond with the chick, the chick apparently died of exposure. Another sandhill crane chick was placed in the pen but was killed by a predator. A third chick was introduced, and again the female whooping crane showed evidence of bonding with the chick. The family unit was then released at Grays Lake Refuge. At last observation, the whooping crane pair was still together but

the fledged sandhill crane chick seemed to be alone.

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Region 4 - The Alabama cave shrimp (*Palaemonias alabamiae*) is a small, nearly transparent freshwater crustacean that is restricted to two sites, Bobcat Cave and Shelta Cave, in north Alabama. The Service listed the shrimp as Endangered in 1988 because of its limited distribution and the threat of water quality degradation in the caves' aquifers (see BULLETIN Vol. XIII, Nos. 9-10). No cave shrimp have been observed in Shelta Cave, the type locality, since the mid-1970's. A water quality analysis, conducted prior to listing, indicated that the Shelta Cave aquifer had become contaminated by pesticides and cadmium.

Only three Alabama cave shrimp have been observed in Bobcat Cave during the past decade. Although no detectable levels of pesticides and only traces of cadmium have been detected in Bobcat Cave, the viability of the Bobcat Cave population was questionable until recently because so few cave shrimp had been observed in its waters. On July 25, however, a biologist with the Service's Jackson, Mississippi, Field Office found 22 cave shrimp in just a small portion of Bobcat Cave's waters near the entrance. This indicates that a viable population may exist in the aquifer, and it increases the species' recovery potential.

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Regional News

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Region 5 - Since 1985, the Chatham Police Department in Massachusetts has played an important role in the recovery of the Atlantic Coast population of the piping plover (*Charadrius melodus*). Each summer, the officers have volunteered to post the birds' nesting areas at Harding Beach on Cape Cod. This beach has been the most consistently productive piping plover nesting area on the East Coast. Thirty-nine chicks have been fledged from this site since 1985. This August, in recognition of the officers' time and effort, the Fish and Wildlife Service's New England Field Office in Concord, New Hampshire, presented the police department with Certificates of Appreciation.

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Seabeach amaranth (*Amaranthus pumilus*), a Category 2 candidate for listing, has been rediscovered on the south coast of Long Island, New York. This plant is found on overwash flats at the accreting ends of barrier islands and on the lower foredunes of non-eroding beaches. Its historic range was from Massachusetts to South Carolina, but until now it was believed extirpated north of Virginia. The last known record of the plant occurring in New York was in 1955. Biologists conducted extensive searches for seabeach amaranth in the State from 1984 to 1987 but failed to find the plant. The newly located population consists of approximately 100 plants on three beaches.

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The Endangered dwarf wedge mussel (*Alasmidonta heterodon*) was thought to be extirpated from all but 10 sites in New Hampshire, Vermont, Maryland, and North Carolina until this summer. Biologists from the New York and Virginia Natural Heritage Programs rediscovered the mussel on two sites. Like most of the other 10 sites known to support the species, the New York and Virginia sites appear to have small, relict populations.

* * *

Region 6 - The female gray wolf from the Marion Pack that had moved into an area northwest of Missoula, Montana, about 40 miles (64 kilometers) east of the Idaho border had a litter of pups this spring (see BULLETIN Vol. XV, No. 3). Unfortunately, the female was killed, probably illegally, in early June. While fishing, a woman found the wolf's smashed radio-collar in a stream and

turned it in to the Service's Helena, Montana, Field Office. Service biologists monitored the den area and, through howling calls and sightings, were able to ascertain that the adult male wolf and six pups were still present. Then, on September 1, the adult male was struck and killed by a car on Interstate 90, leaving the pups orphaned. The Service is working closely with the private landowners on whose property the wolves are staying, and is temporarily feeding the pups road-killed deer until they can survive on their own.

* * *

The third annual census of Wyoming toads (*Bufo hemiophrys baxteri*) has been completed in the 2 square miles (5 square km) of its known range by Fish and Wildlife Service, Wyoming Game and Fish Department, Wyoming Cooperative Fish and Wildlife Research Unit, and Nature Conservancy biologists. (See BULLETIN Vol. XIV, Nos. 9-10 for information on the previous census.) Two surveys were conducted in early and late summer. These surveys incorporated new mark-recapture techniques that identify individual toads by photographing coloration patterns on the animals' backs. The late summer survey recorded 50 adult toads and 100 young-of-the-year, down from 300 young-of-the-year in the first survey. Researchers hypothesize that the decline is due to dispersal of the young. The number of toads observed this year was probably influenced by the very heavy grass cover and high temperatures. Biologists believe that the Wyoming toad population is about 33 percent larger than what was actually counted during the surveys, bringing the total number to about 465.

* * *

The first Colorado squawfish (*Ptychocheilus lucius*) reported from Wyoming in nearly 30 years was captured, identified, and released unharmed in August by a zoology professor from Arizona State University. The adult squawfish was found in the Little Snake River a few miles north of the Colorado-Wyoming border. Although this report is significant and is likely to prompt new sampling in the Wyoming section of the Upper Colorado River Basin, biologists are cautious about drawing premature conclusions. Adult squawfish have been known to migrate long distances during spawning periods. This fish could be a member of an unknown Wyoming population, but it also could have been far upstream from its normal range.

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Region 8 - Dr. Paul Opler from the Service's Office of Information Transfer in Fort Collins, Colorado, led a combination field trip and recovery meeting in August to review the status of the Threatened Oregon silverspot butterfly (*Speyeria zerene hippolyta*). Butterfly numbers have dropped to dangerously low levels on Oregon's Clatsop Plains due to development pressures, the introduction of exotic plants, and plant succession. Near Crescent City, California, the team found a healthy population in the Lake Earl area, which is managed by the California Department of Fish and Game and Parks.

The recovery team also inspected management efforts at four other sites. Populations at Mount Hebo, Rock Creek, and Cascade Head, Oregon, continue to improve under the management of the U.S. Forest Service and The Nature Conservancy. An Oregon silverspot population historically occurred in the Long Beach, Washington, area but it was extirpated due to vegetational succession. Plans are being made by the Washington Department of Wildlife to improve habitat for the butterfly in this area.

* * *

The Patuxent Wildlife Research Center's captive whooping crane flock now stands at 35 birds. This spring, three experienced breeders produced 10 eggs and a new breeder laid 4 eggs. Six of the 14 eggs were fertile, and four of them hatched. Two of these chicks survive.

The flock's younger, inexperienced female cranes are being used in an experiment in natural breeding. These birds are not being artificially inseminated, and consequently are expected to have lower fertility.

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Dr. David Ellis from the Service's Patuxent Wildlife Research Center and Dr. George Archibald from the International Crane Foundation worked with a team of Soviet scientists in Siberia to place radio transmitters on three common cranes (*Grus grus*). The project is designed to learn more about the migration routes of the common crane and to test satellite tracking techniques that can be used on the Endangered Siberian white crane (*Grus leucogeranus*).

* * *

Patuxent's Captive Propagation Research Group and Animal Husbandry Section report the highest egg production on record (86) for captive Mississippi sandhill cranes (*Grus canadensis pulla*). Fifty chicks are now

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Regional News

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being reared at Patuxent, Maryland. It is anticipated that the number of chicks released into the wild this winter will surpass the record 29 that were released in 1989.

Half of the Mississippi sandhill crane chicks that die at hatching have a severe skin disease. Research conducted at the Service's National Wildlife Health Research Center in Madison, Wisconsin, indicates that bacteria are the agent responsible for this disease, although viruses have not been eliminated as possible cause.

Mortality of adult California least terns (*Sterna antillarum browni*) increased precipitously in 1990 at the Camp Pendleton Marine Corp Base in California. Camp Pendleton is one of the major nesting areas for the tern. Necropsies conducted by the National Wildlife Health Research Center indicate that the terns died from a variety of causes.

Region 9 - The two newest Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) are Brunei Darussalam (effective August 2) and Guinea-Bissau (effective August 14). This brings the total number of CITES Parties up to 108.

The Fish and Wildlife Service participated in an emergency meeting of the CITES Standing Committee (which oversees the treaty) on August 8-11 in Nairobi, Kenya. The main topics of the meeting were coordination of the search for a new Secretary General for CITES (the position will be vacant as of November 1) and other staffing issues.

The CITES Secretariat has several publi-

cations available to the public, including a subscription to the Notifications to the Parties, CITES Directory, and proceedings of the first six meetings of the Conference of the

Parties. To obtain a price list and order form, contact the Office of Management Authority, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

BOX SCORE LISTINGS AND RECOVERY PLANS

Category	ENDANGERED		THREATENED		LISTED SPECIES TOTAL	SPECIES WITH PLANS
	U.S.	Foreign Only	U.S.	Foreign Only		
Mammals	53	248	8	22	331	29
Birds	74	153	11	0	238	69
Reptiles	16	58	17	14	105	25
Amphibians	6	8	5	0	19	6
Fishes	53	11	33	0	97	44
Snails	3	1	6	0	10	7
Clams	37	2	2	0	41	29
Crustaceans	8	0	2	0	10	5
Insects	11	1	9	0	21	12
Arachnids	3	0	0	0	3	0
Plants	179	1	60	2	242	120
TOTAL	443	483	153	38	1117*	351**
Total U.S. Endangered	443		(264 animals, 179 plants)			
Total U.S. Threatened	153		(93 animals, 60 plants)			
Total U.S. Listed	596		(357 animals, 239 plants)			

* Separate populations of a species that are listed both as Endangered and Threatened are tallied twice. Those species are the leopard, gray wolf, grizzly bear, bald eagle, piping plover, roseate tern, Nile crocodile, green sea turtle, and olive ridley sea turtle. For the purposes of the Endangered Species Act, the term "species" can mean a species, subspecies, or distinct vertebrate population. Several entries also represent entire genera or even families.

** There are 276 approved recovery plans. Some recovery plans cover more than one species, and a few species have separate plans covering different parts of their ranges. Recovery plans are drawn up only for listed species that occur in the United States.

Number of Cooperative Agreements signed with States and Territories: 53 fish & wildlife
39 plants

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