July 1985 Vol. X No. 7

ENDANGERED SPECIES

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

Final Action Taken on Eight Species

Two fishes, a mollusk, a plant, and three mouse subspecies were added recently to the U.S. List of Endangered and Threatened Wildlife and Plants. The legal status of another species, the American alligator, was changed for those occurring in Florida.

Modoc Sucker

Final action has been taken on protecting the Modoc sucker *(Catostomus microps)*, listing this fish as an Endangered species and designating its Critical Habitat (F.R. 6/11/85). A victim of habitat loss and the effects of non-native fishes, the Modoc sucker has declined dramatically in both numbers and range.

Historically, the Modoc sucker occurred in small tributaries of the upper Pit River in Lassen and Modoc Counties, California. Its preferred habitat consists of small streams with shallow pools, cover, soft sediments, and clear water. During its spring spawning runs, the Modoc sucker ascends creeks that may be dry during summer months.

Overgrazing and other land uses that cause erosion and siltation have seriously degraded water quality in Modoc sucker habitat. The destruction of natural instream barriers (such as waterfalls) due to erosion and channelization has allowed another species, the Sacramento sucker *(C. occidentalis)*, to invade much of the Modoc sucker's habitat. Hybridization between the two species has eliminated genetically pure Modoc suckers from many streams. Another fish, the brown trout *(Salmo trutta)*, was introduced to the area for sport fishing and has reduced Modoc sucker numbers by predation.

These factors have combined to bring the Modoc sucker to the brink of extinction. As recently as 1978, a California Department of Fish and Game survey found the species to be in decline but still present in eight creeks; by 1980, however, it survived in only three creeks, and its numbers had been reduced to about 1,300. The State of California reclassified the Modoc sucker in 1980 as endangered, and the Fish and Wildlife Service (FWS) proposed a Federal listing as Endangered on January 31, 1984. (See story in BULLETIN Vol. IX No. 2.)

The June 11, 1985, final listing rule brings the Modoc sucker under the full protection of the Endangered Species Act, reinforcing the prohibition contained in California law against take of the species and adding needed habitat protection. Included in the final rule was a designation of Critical Habitat for a total of approximately 26 miles (32 kilometers) of the following streams and a 50-foot (15.2 meter) riparian zone on either side of the channel: Turner Creek; Rush Creek; Washington Creek; Hulbert Creek; and Johnson Creek. Maps of these areas are published in the June 11, 1985, *Federal Register*.

Since approximately 50 percent of the land containing the Modoc sucker's current range is managed by the U.S. Forest Service (USFS), it is anticipated that the USFS will be consulting with the FWS under Section 7 of the Act on logging plans and grazing leases along streams that are designated as Critical Habitat. Before the listing rule became final, the USFS voluntarily eliminated grazing in some riparian areas and modified timber sales along Hulbert and Cedar Creeks. If plans for a Bureau of Reclamation dam on the Pit River are reactivated, that agency also will be required to consult in order to avoid adverse modification of the Modoc sucker's habitat.

A cooperative effort by the FWS, USFS, and California Department of Fish and Game to reestablish the species in parts of its historical range has been initiated. In fact, it has already been reestablished in Turner Creek. It is possible that this program of habitat rehabilitation and reintroduction could become a higher funding priority as a result of the Endangered classification.

Niangua Darter

The Niangua darter is a small, slender fish with eight dark crossbars on its back. Known only from a few tributaries of the Osage River in west-central Missouri, the species inhabits clear, medium-sized streams with shallow pools and silt-free gravelly or rocky bottoms. In 1978, Dr. William L. Pflieger of the Missouri Department of Conservation reported eight populations of the Niangua darter along 128 miles (206 km) of streams in the Osage River basin. Within this region, the species is rare and localized in occurrence.

One of the eight populations known in 1978 has already been extirpated due to inundation of its free-flowing habitat by Truman Reservoir on the Little Pomme de Terre River. The impoundment also acts as a barrier to the movement of darters between habitable streams, thereby isolating some of the remaining populations and making them more vulnerable. Further, artificial reservoir habitat is ideal for the spread of some non-native sport fishes, including already introduced species that are potential predators on the Niangua darter.

A continuing threat to the species' habitat is stream channelization, a practice often associated with flood-control projects and highway or bridge construction. The widening and straightening of stream channels seriously disrupts stream ecosystems by eliminating pools, altering natural flow patterns, disturbing substrates, removing cover, and causing increased siltation.

Based primarily on data submitted by the Missouri Department of Conservation, the FWS proposed on April 17, 1984, to list the Niangua darter as a Threatened species and to designate its Critical Habitat (see BULLETIN Vol. IX No. 5). The June 12, 1985, final rule gives this fish protection under the Endangered Species Act. A total of about 90 miles (145 km) of currently occupied streams, in segments within seven Missouri counties, was determined to be the best remaining habitat and was designated as Critical Habitat. A 50-foot (15.2 meter) riparian zone along each side was included to help maintain water quality. (See maps in final rule.) There are no known current or planned Federal activities that may affect the species.

The final rule also includes a provision allowing take of the species for conservation purposes if a State collecting permit is first obtained and all other State laws and regulations are followed.

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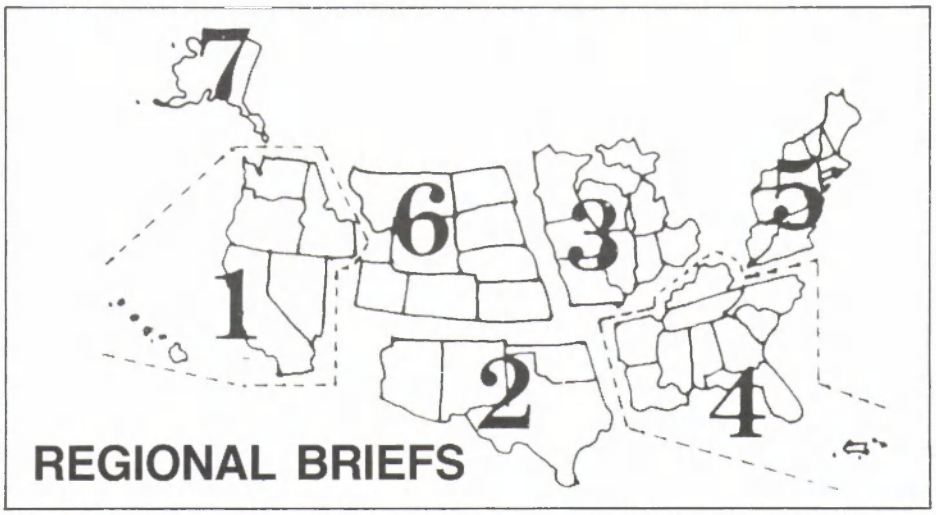

Endangered Species Program regional staffers have reported the following activities for the month of June:

Region 1—A drastic decline in the California condor *(Gymnogyps californianus)* population occurred during the winter of 1984–85 and spring 1985. Fifteen condors were confirmed in the wild in October 1984, but only nine could be accounted for this spring. Only one of the missing six birds has been recovered; an autopsy revealed that it died of lead poisoning. Also, while five pairs bred in 1984, only one pair bred in 1985. This pair laid three eggs which were taken from the nest. Two successfully hatched and one died early in incubation.

The captive population currently numbers 19—7 males, 10 females, and 2 undetermined. In response to this catastrophic decline, the Fish and Wildlife Service (FWS) is planning to trap additional free-flying birds to bolster the captive flock. Concurrently, an artificial feeding program will be maintained year-round to provide a clean food source for wild condors, and all remaining wild condors will be radioed.

* * *

The FWS Sacramento Endangered Species Office (SESO) staff met with developer representatives who have proposed to construct a golf course/residential complex in Newark, California. Pickleweed-dominated wetlands are interspersed throughout the 125-acre project site. At the request of SESO, the developer sponsored a trapping study and caught over 40 salt marsh harvest mice *(Reithrodontomys raviventris)*, an astounding number as compared to the typically poor trapping success in other areas throughout the range of this species.

* * *

SESO has also been working closely with the city and county of Sacramento to protect valley elderberry longhorn beetle *(Desmocerus californicus dimorphus)* habitat within the American River Parkway. Management of the California Exposition parcel, a major habitat area within the parkway, was recently turned over to the county of Sacramento for management. This increases the chances for restoring the beetle's habitat along the American River.

Four suspected specimens of the valley elderberry longhorn beetle were recently collected from along the upper Sacramento River between Colusa and Red Bluff. This collection extends the known range of the beetle to more than 100 miles north of any previous sites. The specimens have been sent to taxonomic experts for subspecies verification.

* * *

The FWS and the California Department of Fish and Game (CDFG) jointly completed the Spring 1985 sea otter *(Enhydra lutris nereis)* count with the following results (1984 results included for comparison):

	Independents	Pups	Total
June 1984	1181	123	1304
May 1985	1125	236	1361

The Governor of California signed legislation on May 24, 1985, that prohibits the use of gill and trammel net fishing within the sea otter range. Prompted by the

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Two Southwestern Fishes Proposed for Listing

During June, the Fish and Wildlife Service (FWS) took steps to conserve two rare fish species. The spikedace and the loach minnow were proposed for listing as Threatened because of the threats to their survival posed by habitat loss and the impacts of non-native species.

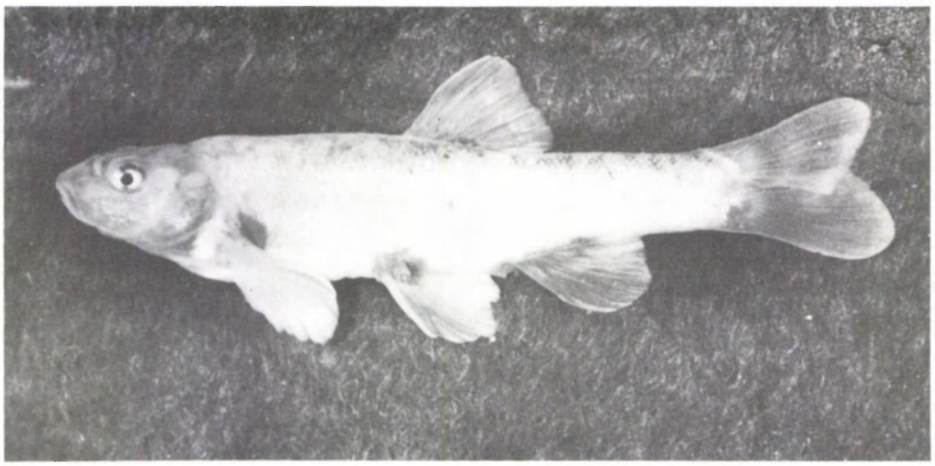

Photo by J.E. Johnson

Tiaroga cobitis *(loach minnow)*

Spikedace

The spikedace *(Meda fulgida)* is a small, silvery fish endemic to parts of the greater Gila River drainage in Arizona and New Mexico. Within this region, it was once common throughout much of the Verde, Agua Fria, Salt, San Pedro, San Francisco, and Gila (upstream of Phoenix) Rivers, occupying suitable habitat in both the mainstreams and their perennial tributaries.

For the spikedace, suitable habitat consists of shallow riffle areas over gravel/rubble substrates with moderate to swift currents, and pools with swiftly flowing water over sand or gravel substrates. Due to widespread habitat alteration and the harmful effects of introduced fishes, the spikedace has been eliminated from approximately 94 percent of its former range. Continuing threats to most of the remaining remnant habitats led the FWS to propose listing the spikedace as Threatened (F.R. 6/18/85).

The San Pedro River, once a perennial stream, is now severely downcut and has only intermittent flow. Historically, the spikedace's range on the San Pedro River reached into northern Sonora, Mexico. This stretch of the upper river is now dry. Both the lower Salt and Verde Rivers have a very limited flow or no flow during portions of the year, due to agricultural diversion and upstream impoundments, and both rivers have several impoundments in their middle reaches. After leaving the Mogollon Mountains in New Mexico, the Gila River is affected by agricultural and industrial water diversion, impoundment, and channelization. It also has been subjected to use of chemicals for fish management from the Arizona border downstream to San Carlos Reservoir. The San Francisco River has suffered from erosion and extensive water diversion and now has an undependable water supply throughout much of its length.

Due in large part to these habitat losses, the spikedace currently survives only in approximately 24 kilometers (15 miles) of Aravaipa Creek, Graham and Pinal Counties, AZ; 57 km (35.5 miles) of the Verde River below Sullivan Lake in Yavapai County, AZ; and 73 km (45 miles) of the upper Gila River in Grant and Catron Counties, NM. The 154 km (95.5 miles) of currently occupied range represent only 6 percent of the species' historical range, and even these habitat remnants are threatened.

Ownership of the lands containing the remaining spikedace streams is mixed. Some areas belong to private individuals, conservation organizations, and the States of Arizona and New Mexico, while others are administered by two Federal agencies, the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM). Two other Federal agencies, the Bureau of Reclamation (BR) and the Army Corps of Engineers (COE), are considering water development projects that could have an impact on current spikedace habitat. In addition to the loss of habitat by inundation and the changes in natural streamflow patterns that would result from the construction of other impoundments, disturbances in the upper watershed could lead to siltation and other water quality problems downstream.

Even the sections of spikedace habitat currently being managed for the fish's survival are vulnerable to outside presures. For example, Aravaipa Creek flows through a BLM wilderness area and a preserve owned by Defenders of Wildlife, but the habitat could be degraded by any practices in the upper watershed that might pollute or deplete the streamflow. Similar problems could face protected spikedace habitat along the Gila River, including sections in the USFS Gila Wilderness and the small stretch of river (upstream from the town of Gila) owned by The Nature Conservancy. In fact, spikedace in the Gila River system appear to be in particular trouble; a 1983-84 study by the New Mexico Department of Fish and Game documented a 40 percent loss of range in the Gila just since 1978.

The spikedace's chances for survival in the Gila River depend on the proposed Upper Gila Water Supply Study, part of the Central Arizona Project. Currently, the BR, which is responsible for the project, is studying four water management approaches, all of which appear to pose direct and indirect threats to the species' habitat. Spikedace survival in the Verde River may depend on other Central Anzona Project water development activities. The BR is presently studying plans for water diversion in the upper Verde River to eight potential user groups.

In addition to habitat loss, the spikedace faces serious problems relating to non-native fishes. A number of exotic species are believed to be preying on and competing with the spikedace. Many of these species were introduced for sport fishing and have thrived under altered habitat conditions. The problem could be exacerbated by construction of new reservoirs; not only do dams eliminate free-flowing habitat and favor the spread of some non-native species, but they control the recurring floods that help spikedace maintain a competitive edge over the invading exotics.

If the FWS proposal to list the spikedace as a Threatened species is made final, this fish and its habitat will receive protection through the Endangered Species Act. The conservation measures authorized under the Act generally include controls on taking, possessing, and interstate or international trafficking in listed species without a Federal permit. The FWS is required to develop and implement a recovery plan for listed species, and Federal funding for State-sponsored conservation programs could become available if the State has an approved Endangered Species Cooperative Agreement with the FWS. (Currently, New Mexico has such an agreement for listed animals). These measures would supplement the protection already provided to the spikedace by Arizona and New Mexico under their own State endangered species laws.

Habitat conservation would probably be the main benefit of a listing. Under Section 7 of the 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 Habi-

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Two Fishes

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tat. The proposed Critical Habitat for the spikedace totals approximately 155.5 km (96.5 miles) along stretches of Aravaipa Creek, Verde River, Sycamore Creek, and the upper Gila River. (See maps in the June 18, 1985, *Federal Register.*)

On USFS and BLM-administered lands, listing the spikedace is expected to have few if any effects on current management. The BR and COE, however, are considering actions on the Gila and Verde Rivers which may adversely affect the spikedace. All Federal agencies would be required to consult with the FWS on ways to avoid any adverse effects from their activities that may affect this fish.

Since habitat loss and the effects of non-native fishes are the only serious threats to the spikedace, the proposed listing rule included an exception to the general prohibitions on the take of listed species. Taking of spikedace would be allowed in accordance with State wildlife laws and regulations if limited to scientific, educational, and other conservation purposes that are consistent with the Endangered Species Act. Both Arizona and New Mexico already regulate take of the spikedace through the requirement for State collecting permits, and a separate Federal permit would not be required for this species. The proposed rule also recognizes that sport fishing is not a threat to the species; therefore, incidental take of a spikedace by State-licensed anglers would not constitute a violation of the Act if the fish is immediately returned to the water.

Comments on the proposal to list the spikedace as a Threatened species and to designate its Critical Habitat are welcome from all interested agencies, organizations, and individuals, and should be sent to the Regional Director, Region 2 (address on page 2 of the BULLETIN) by August 19, 1985.

Loach Minnow

Many of the threats to the spikedace also face another fish native to the Gila River drainage of Arizona and New Mexico, the loach minnow *(Tiaroga cobitis)*. In fact, both species occupy some of the same habitat.

The loach minnow inhabits shallow, turbulent riffle areas with cobble substrates, swift currents, and growths of filamentous algae. It also needs periodic flooding of its habitat, not only to control invasions of exoitic fishes, but to keep the substrate free of embedding sediments. Once locally common throughout much of the Verde, Salt, San Francisco, San Pedro (including the upper stretch in Sonora, Mexico), and Gila (upstream from Phoenix) Rivers and their perennial tributaries, the loach minnow occupied about 2,600 km (1,615 miles) of stream habitat. Due to habitat degradation and exotic fishes, however, it now is restricted to 380 km (236 miles), or about 15 percent, of its former range. The factors that led to this decline continue to jeopardize the loach minnow, and the FWS has proposed listing it as Threatened (F.R. 6/18/85).

Many parts of the loach minnow's former habitat have been eliminated by reservoir construction, excess groundwater pumping, siltation, and other water quality problems. Much of what remains has been contaminated by invasions of exotic fishes. Currently, the loach minnow is known to survive only in approximately 24 km (15 miles) of Aravaipa Creek in Graham and Pinal Counties, AZ; 93 km (58 miles) of the upper Gila River in Grant and Catron Counties, NM; 167 km (104 miles) of the San Francisco and Tularosa Rivers, also in Catron County; the lower 1.5 km (.9 mile) of Whitewater Creek, again in Catron County; and 95 km (59 miles) of the Blue River in Greenlee County, AZ. Land ownership within the loach minnow's range is mixed and includes lands administered by the USFS and BLM.

Past water management projects have already eliminated the loach minnow from much of its historical range. The BR's Upper Gila Water Supply Study alternatives pose the same threats to the loach minnow that they do to the spikedace. Habitat modifications could further reduce free-flowing stream habitat and facilitate the spread of harmful exotic species.

Included in the proposal to list the loach minnow as Threatened were proposed designations of Critical Habitat for stream segments totalling approximately 257 km (160 miles). (See maps in the June 18, 1985, *Federal Register.*) These locations contain the best remaining habitat and provide the loach minnow with its greatest opportunities for survival and eventual recovery. Under Section 7 of the Act, any Federal agency whose activities may affect a listed species or its habitat are required to consult with the FWS.

If the listing proposal becomes final, the loach minnow will receive Endangered Species Act protection similar to that proposed for the spikedace, including the exception for State-regulated take. Both Arizona and New Mexico consider the loach minnow a threatened or endangered species under their own conservation laws.

Comments on the proposal to list the loach minnow as a Threatened species and to designate its Critical Habitat are welcome, and should be sent to the Regional Director, Region 2, by August 19, 1985.

Review of Three Mammals in Nepal

In a June 14, 1985, *Federal Register* notice, the Fish and Wildlife Service (FWS) initiated a review of the status, within the country of Nepal only, of three large mammals: the leopard *(Panthera pardus)*, goral *(Nemorhaedus goral)*, and serow *(Capricornis sumatraensis)*. This review is based on information submitted by the Government of Nepal, which suggests that reclassifying the animals from Endangered to Threatened and issuing regulations allowing limited importation into the U.S. of trophies taken in Nepal by hunters may be warranted.

The leopard is the world's most widely distributed large cat, occurring in most of Africa and Asia. Currently, it is listed as Threatened in parts of sub-Saharan Africa and as Endangered everywhere else. Both the goral and the serow, distant relatives of the sheep and goat, are found in eastern Asia and are listed as Endangered. Recent letters from Nepal's Department of National Parks and Wildlife Conservation indicate that: 1) all three species are widely distributed in Nepal; 2) they are not in immediate danger of extirpation due to habitat loss or poaching; 3) hunting and exportation of these species is carefully regulated; 4) the number of trophies to be taken each year (6 leopard, 12 goral, and 12 serow) will have no adverse effect on overall populations; and 5) sport hunting is indirectly beneficial to the species by bringing in revenues that can be applied to wildlife conservation. The Department also indicated, however, that it has not carried out extensive studies or surveys on the three species.

If the status of the three animals under the Endangered Species Act is changed to Threatened, special regulations could be published allowing the importation of trophies from Nepal, if it can be demonstrated that such importation would be necessary and advisable for conservation of the species.

The FWS welcomes all interested parties to submit any information, comments, or opinions relevant to these matters. Comments should be addressed to the Associate Director-Federal Assistance (OES), U.S. Fish and Wildlife Service, Washington, D.C. 20240. All responses received by December 11, 1985, will be considered in arriving at a decision on whether or not the FWS should propose a reclassification and import regulations. If such proposals are made, there will be at least an additional 60 days for public comment.

Paiute Cutthroat Trout Recovery Plan

A rare, distinctive member of the cutthroat trout complex, the Paiute cutthroat trout *(Salmo clarki seleniris)* is native to a short section of Silver King Creek (and its accessible tributaries) on the eastern slope of the Sierra Nevada range within Toiyabe National Forest, Alpine County, California. This Threatened fish evolved in isolation from other fishes in this headwater tributary of the Lahontan Basin, and has developed traits that render its prospects for coexisting with potential competitors highly unfavorable.

In the early 1900's, the Paiute cutthroat was eliminated from its presumed historical habitat through introgressive hybridization with another Threatened fish, the Lahontan cutthroat trout *(Salmo clarki henshawi)*, and with the introduced rainbow trout *(Salmo gairdneri)*, both of which gained access into the Paiute cutthroat's native habitat. Fortunately, before this happened, the range of the Paiute cutthroat was extended into the upper reaches of Silver King Creek and its headwater tributaries by one or more 'unofficial" translocations over an impassable barrier, Llewellyn Falls.

Before the main population above Llewellyn Falls itself was contaminated by the introduction of other trout taxa, progeny of the translocated Paiute cutthroat were placed into a number of other creeks and lakes in east-central California. However, most of these fish have failed to produce self-sustaining populations of Paiute cutthroat trout. Stable, genetically pure populations are known to survive only in three headwater tributaries within the Silver King Creek drainage and three streams outside the native watershed.

Hybridization and competition with other trout taxa probably will always be a threat to the Paiute cutthroat. The installation of fish barriers is of some value, but they can be circumvented by uninformed or unconcerned people seeking to stock their preferred fish species. Because the Paiute cutthroat trout is an extremely unwary fish, the small surviving populations are vulnerable to depletion from angling.

Habitat alteration is another problem. Beavers have been introduced along Silver King Creek and these rodents, which are not native to the area, seriously modify and degrade stream habitat. Beavers are primarily responsible for the 10-fold decline in Paiute cutthroat trout in Four Mile Canyon Creek. Stream siltation may be increased by livestock grazing in two allotments in the Silver King Creek basin. Grazing and trampling in the riparian zone can also result in the loss of instream cover, increases in water temperature, loss of spawning habitat, and reduced food supplies. Development of small hydroelectric facilities is another potential threat; the downstream segments of affected streams could become dry, reducing the available habitat.

Photo by Ed Lorentzen

Native Paiute cutthroat trout habitat at upper Silver King Creek, California

Previous Conservation Efforts

Early transplants of the Paiute cutthroat trout into waters outside its known native habitat forestalled the extinction of this fish, although they have not ensured its long-term survival. Past management efforts to protect the species involved primarily 1) mechanical or chemical stream treatments to remove competing or hybridized fish; 2) translocations of Paiute cutthroat to other waters; 3) land exchanges to secure essential habitat; and 4) fishing closures.

Except for one small inholding in the Silver King basin, the major Paiute cutthroat habitats are now publicly owned and are located primarily on lands administered by the U.S. Forest Service (USFS). Personnel with the Toiyabe, Inyo, and Sierra National Forests are cooperating with California Department of Fish and Game representatives to rehabilitate and properly manage these streams for the species' recovery. The success of the recovery program depends on the continuing participation and cooperation of these agencies.

Recovery Actions

The *Paiute Cutthroat Trout Recovery Plan,* approved in January 1985, outlines the steps that should be taken in order to restore this fish to a secure status. Its specific goals are to 1) reestablish a self-sustaining population in the mainstem of Silver King Creek, and 2) secure and maintain the integrity of the habitats in Silver King, Cottonwood, and Stairway Creeks over a 5-year period with stable or increasing overwintering populations of 500 or more adult fish in each drainage.

The first phase of the recovery plan is to secure those populations of the Paiute cutthroat that still survive. Since the small tributary populations within the Silver King Creek basin are the only ones within the fish's native drainage, protecting these fish and their habitats is the highest recovery priority. The existing fish barrier on one of the creek's headwater tributaries may be breached during times of high water flows, and it will have to be reinforced to keep out non-native fishes. Stream reaches along Silver King Creek and its tributaries that contain introgressed fish will need to be treated chemically to remove all fish and then be restocked with genetically pure Paiute cutthroat trout.

Within other streams, electrophoretic studies can be conducted on populations of questionable genetic purity to detect their biochemical characteristics before eliminating them because of hybridization

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Trout Recovery

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or managing them as Paiute cutthroats. The recovery plan also calls for annual monitoring to document population levels, detect the presence of non-native fishes, and identify suitable but unoccupied habitats. All fish barriers also should be inspected periodically.

Rehabilitation of degraded habitat will be necessary to ensure the success of reintroduction effects. For Paiute cutthroat trout, the most favorable habitat consists of clear streams, clean gravel substrates for spawning, and undercut or overhanging banks with abundant riparian vegetation. Much of the species' historical habitat was damaged when beavers became established in the area. These nonnative rodents cut willows and aspen that anchor stream banks. In addition, large amounts of silt are released when old dams collapse. The recovery plan calls for the removal of beavers from the Paiute cutthroat trout's range.

Riparian vegetation could be further conserved by fencing sensitive areas from livestock grazing in order to control erosion. Willow plantings may be needed in some of the more seriously degraded stretches to speed stream bank recovery. Some former habitat could benefit from the placement of anchored logs or other structures in eroded stream channels to restore stream-bank stability, stream channel gradient velocity, natural stream depths, and pool quality.

Because Paiute cutthroat trout are so vulnerable to angling, the recovery plan recommends that fishing in the portions of the Silver King Creek drainage that are targeted for restoration of Paiute cutthroat trout remain closed until the habitats have been rehabilitated and populations are close to carrying capacity. The Paiute cutthroat has always been restricted in range—a total of only 15 km (9.3 miles) of stream habitat within a single watershed—so any fishing closures would not affect large areas.

Kemp's Ridley Turtle Conference

The National Marine Fisheries Service's Southeast Fisheries Center—Galveston Laboratory and Texas A&M University—Mitchell Campus will be cosponsoring an international symposium on "Kemp's Ridley Sea Turtle Biology, Conservation and Management" during October 1–4. 1985. For information on attending this symposium, contact Charles W. Caillouet (NMFS SEFC Galveston Laboratory, 4700 Avenue U, Galveston, Texas 77550) or Andre M. Landry (Texas A&M University, Department of Marine Biology, Pelican Island, Galveston, Texas 77553).

Eight Species

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Tar River Spiny Mussel

A unique species of freshwater mussel, the Tar River spiny mussel *(Elliptio (Canthyria) steinstansana)*, has been listed by the FWS as Endangered (6/27/85). This rare invertebrate is known only from a 12-mile (19-km) stretch of habitat in Edgecombe County, North Carolina, and is thought to number only 100–500 individuals. Although it may have always been uncommon, records indicate that this mussel once had a significantly wider range along the Tar River.

The species' narrow distribution and extremely small population size make it vulnerable to extinction from a single catastrophic event, such as a tanker-truck accident involving a toxic chemical spill. A number of other potential threats to the spiny mussel's survival have been identified. One of these is a proposed hydroelectric project for an existing upstream dam. Depending on project design and operation, this project could impact the species. In addition, the Army Corps of Engineers (COE) has been requested to study the feasibility of modifying the river channel to enhance flood control and navigation, work that could have a severe impact on the mussel. Another Federal agency, the Soil Conservation Service (SCS), alerted the FWS to the possibility of siltation from a project that is designed to remove obstructions in tributaries of the Tar River for the passage of small boats.

The Tar River spiny mussel was proposed for listing as Endangered on September 17, 1984 (see story in BULLETIN Vol. IX No. 10). With approval of the final rule, this mussel now receives full Endangered Species Act protection from taking and the effects of Federal activities. Under Section 7, the Federal Energy Regulatory Commission, which must approve licenses for hydroelectric facilities, will need to consult with the FWS on ways to avoid jeopardizing the mussel if the hydroelectric project proposal is pursued. The COE, in its comments supporting the listing action, requested FWS assistance in evaluating potential impacts of the proposed flood control and navigation project. FWS assistance also will be provided to the SCS for studying any effects of its tributary clearing work.

It is now illegal to collect the spiny mussel without a Federal permit. Because its rarity could make it attractive to collectors, a Critical Habitat designation was judged not to be in the mussel's interests. However, it will still receive the habitat protection described above.

Mancos Milk-vetch

A perennial member of the pea family, the Mancos milk-vetch *(Astragalus humillimus)* grows in low, tufted mats about 31–45 centimeters (12–18 inches) in diameter. Its compound leaves are composed of many oval, light green leaflets only 0.7–2.0 millimeters (0.02–0.08 inches) in length. The small lavender and white flowers have a sweet, pungent aroma.

A. humillimus is known only from four populations along a ridge west of Waterflow, New Mexico. Approximately 7,000 individuals remain. The largest population, consisting of about 5,000 plants, is scattered over about 21 acres (8.5 hectares), on the Navajo Indian Reservation. It lies within an active oil field, and the entire area is dissected by pipelines and an unorganized assemblage of roads associated with energy development. Although the Navajo Tribe owns the land and surface rights, the leasable mineral rights are privately owned.

Two of the other populations are also on the Navajo Indian Reservation, and one of them, made up of approximately 1,000 plants, is bisected by electrical transmission lines. The land directly beneath the powerline towers was extensively disturbed in 1962–1963 during construction, and *A. humillimus,* which does not tolerate disturbance well, has not repopulated the habitat. A scheduled upgrading of the transmission line will lead to more construction activity along the entire corridor. The Bureau of Land Management (BLM) grants rights-of-way for transmission lines and leases for the development of oil, gas, and other minerals in the area.

Because of the threats to the habitat, the FWS proposed listing *A. humillimus* as an Endangered species on June 28, 1984 (see BULLETIN Vol. IX No. 7). Last month's subsequent final rule (F.R. 6/27/85) gives this plant Endangered Species Act protection. Under Section 9 of the Act, it is illegal to remove and reduce to possession Endangered plants from areas under Federal jurisdiction without a Federal permit. This will apply to all four populations, including the three on the Navajo Indian Reservation (administered through the Bureau of Indian Affairs) as well as the fourth, which is on a BLM site. Both agencies also have responsibilities under Section 7, which protects listed species from adverse effects of Federal activities, and will have to take the presence of the plant into account during their management planning. Section 7 applies even though it was judged imprudent to publicize the species' population sites with a Critical Habitat designation.

Three Gulf Coast Beach Mice

Three beach mice, endemic to the Gulf Coast of southern Alabama and northwestern Florida, have also been g

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Eight Species

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Endangered Species Act protection. A final rule, published in the June 6, 1985, *Federal Register,* classifies the Alabama beach mouse *(Peromyscus polionotus ammobates),* the Perdido Key beach mouse *(P. p. trissyllepsis),* and the Choctawhatchee beach mouse *(P. p. allophrys)* as Endangered.

Beach mice average approximately 5 inches (12.7 cm) in total length and are characterized by small bodies, haired tails, relatively large ears, and protuberant eyes. Their coloration, ranging from pale gray and white to orange- or yellow-brown and white, blends well with the soils and vegetation of their sand dune habitat. The Alabama, Perdido Key, and Choctawhatchee beach mice historically ranged along approximately 166 km (103 mi.) of coastal sand dunes in Baldwin County, Alabama, and Escambia, Okaloosa, Walton, and Bay Counties, Florida. However, based on observations as recent as January 1985, the three beach mice are currently found on approximately 35 km (22 mi.) of the Gulf Coast dunes, a reduction in range to about one-fifth of the original range.

Optimal beach mouse habitat is characterized by high coastal sand dunes, close proximity of forests, sparse cover of ground vegetation with a moderate number of plants, and a relatively low cover of sea oats. These conditions of topography and vegetation provide the necessary food and cover for populations of beach mice and allow attainment of reproductive potential.

Human and natural alterations of the coastal ecosystems have caused the severe decline of beach mice and their habitat. Most of the suitable habitat has been lost because of residential and commercial development, recreational activity, beach erosion, and vegetational succession. Competition for food and cover from introduced house mice *(Mus musculus)* and predation by domestic cats *(Felis catus)* also may be jeopardizing the survival of beach mice, as well as the constant threat of tropical storms, which have already destroyed large areas of habitat for all three subspecies. Tropical storms also cause the mice to drown or force them to concentrate on high scrub dunes where they are exposed to predators.

On June 7, 1984, the FWS proposed to list the Alabama, Perdido Key, and Choctawhatchee beach mice as Endangered along with a formal designation of Critical Habitat. (See story in BULLETIN Vol. IX No. 7.) The proposal generated an unusual amount of interest. During the month comment period following publication of the proposed rule (initial comment period was extended, then reopened for review of two papers), 183 comments were received. A public hearing, held on August 28, 1984, at Gulf State Park Resort in Baldwin County, Alabama, was attended by 180 individuals, 27 of whom made oral statements. Support for the proposal was voiced by 16 environmental organizations, as well as Federal and State agencies, landowners, members of the academic community, and interested citizens. Several Federal agencies, which reacted favorably to the FWS' proposal, indicated that they would experience no economic impacts, that their activities would not impact the beach mice or their Critical Habitat, and that they would ensure protection of the species and their habitat. Several State agencies, also in support of the listing proposal, indicated that they were willing to work with the FWS to protect the beach mice, would consider the species' fragile sand dune habitat in the planning of future projects, and would fully support FWS' recovery efforts. Opposition was received from certain developers and landowners, and attorneys and consultants for development interests.

Photo by Dr. Julian L. Dusi

Beach mice are characterized by small bodies, haired tails, relatively large ears, and protuberant eyes.

As part of this final rule, Critical Habitat has been designated for the Alabama, Perdido Key, and Choctawhatchee beach mice to include 53.2 km (33 mi.) of coastline along the Gulf of Mexico in Baldwin County, Alabama, and Escambia, Walton, and Bay Counties, Florida, and is divided into 10 separate parts. The protection of several separate areas of habitat is essential for the conservation of the beach mice. Should a subspecies of beach mouse exist in only one small stretch of suitable habitat, it would be much more vulnerable to extinction through the effects of tropical storms and other injurious factors.

Of the total Critical Habitat, only 35.1 km (21.8 mi.) is actually now inhabited by the beach mice. A substantial decline of available beach mouse habitat, through destruction or adverse impact by development, has taken place just since data were collected for the June 7, 1984, proposed rule, resulting in a loss of 8.5 km (5.3 mi.) for the 3 subspecies.

There are several activities in the coastal parts of Alabama and Florida that may be affected by the Critical Habitat designation. Federal agencies involved with such activities include the Federal Emergency Management Agency (flood insurance), National Oceanic and Atmospheric Administration (coastal zone management planning), Rural Electrification Administration, and the Environmental Protection Agency. FWS involvement in the Critical Habitat area includes further management and development at the Bon Secour National Wildlife Refuge in Alabama, as well as acquisition of additional land for the refuge. The proposed acquisition boundary includes approximately 6.0 km (3.7 mi.) of Alabama beach mouse habitat, of which 4.3 km (2.7 mi.) already have been purchased by the FWS.

American Alligator in Florida

The American alligator *(Alligator mississippiensis),* a large wetland species

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of significant commercial and scientific value, occurs in varying densities throughout the southeastern United States, including all or parts of the States of Alabama, Arkansas, Georgia, Florida, Louisiana, Mississippi, Oklahoma, North Carolina, South Carolina, and Texas. First classified as Endangered throughout its range in 1967 due to a concern over poorly regulated harvests, the American alligator recovered rapidly in many parts of its range as a result of Federal and State protection. Subsequently, the FWS was able to reclassify the species to Threatened in all of Florida and in certain coastal areas of South Carolina and Georgia, and Threatened due to Similarity of Appearance in Louisiana and Texas.

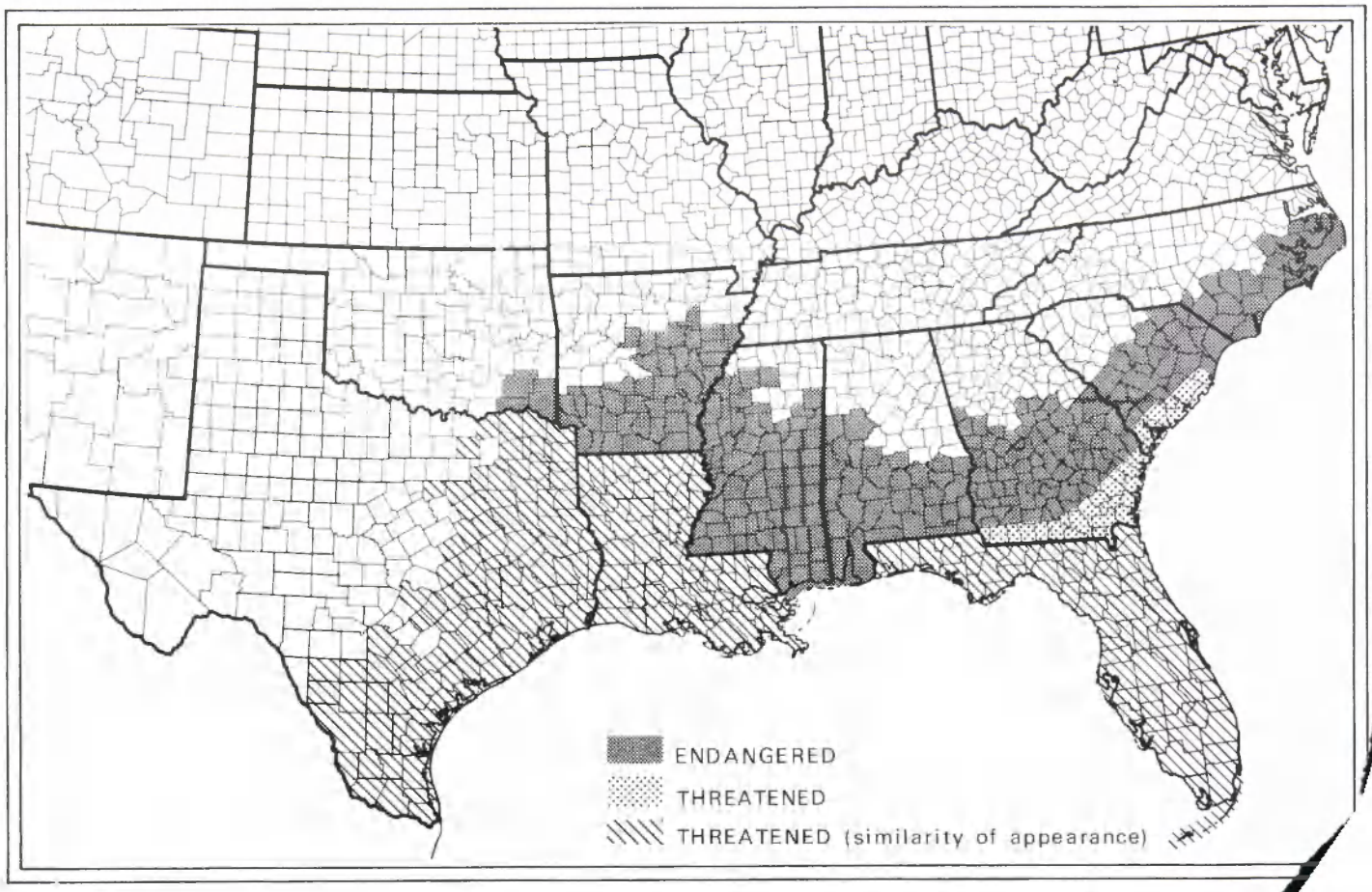
Recent data from status assessments conducted by the FWS on the alligator in Florida reflect a biological recovery of the species in that State, which indicates that its current designation as Threatened should be changed. However, because of the alligator's similarity of appearance to other Endangered crocodilians, and because the animal's parts may be subject to trade, the FWS believes that it is necessary to maintain controls on commercial activities involving American alligators in Florida. To help ensure the conservation of other alligator populations, as well as similar crocodilians, that are currently Threatened or Endangered, the FWS has reclassified the American alligator in Florida to Threatened due to Similarity of Appearance (F.R. 6/20/85).

Florida alligators occupy an estimated 6.7 million acres (2.7 million hectares) of habitat. Although some habitat loss is occurring, particularly in southern Florida, this loss will not threaten the species' existence within the foreseeable future. As an added protective measure, additional State habitat acquisition for these animals of key wetland areas in the southern part of Florida has been authorized, and new Federal acquisitions are being considered.

The State of Florida also has adopted an alligator management plan and is conducting an extensive research program designed to ensure against overharvest of the species and to maintain continued healthy alligator populations in the State. Since uncontrolled harvesting was the main threat to alligators in some areas of the State, and sustainable yields from harvested populations are biologically limited, Florida officials are now committed to strictly limited harvests. The only exception to this would be in extremely localized areas where potentially serious conflicts exist between humans and alligators. In this situation, intentional overharvests may occasionally be authorized to remove any threat to human safety and promote overall public tolerance of the species.

This final rule, which is authorized under Section 4 of the Endangered Species Act, is a formal recognition by the FWS that the American alligator in Florida is biologically secure in a part of its range. The rule also removes Federal agency responsibilities under Section 7 of the Act and makes available to the State of Florida the option of expanding alligator harvests. If the State elects to expand its harvests, these harvests could be expected to increase at a level commensurate with development and implementation of the State's research and management program. However, all taking and commerce in alligators and their parts and products are to be regulated by the FWS' special rule on American alligators (50 CFR 17.42), as well as all other applicable controls. In addition, by listing this species under the Similarity of Appearance provisions of the Act, the FWS believes that enforcement problems can be minimized while simultaneously ensuring the conservation of listed populations of the American alligator and other crocodilians. These provisions have already proven effective in the State of Louisiana, where various populations of the species have been listed as Threatened by Similarity of Appearance since 1975.

FEDERAL STATUS OF THE AMERICAN ALLIGATOR THROUGHOUT ITS HISTORICAL RANGE



Forest Management—Key to Red-cockaded Woodpecker Survival

by Warren Parker
Endangered Species Field Supervisor
Asheville, North Carolina

Once widely distributed throughout the coastal plains and Piedmont region of the southeastern United States, the Endangered red-cockaded woodpecker *(Picoides borealis)* is a classic example of a species whose decline is being based solely on habitat loss. It is the only woodpecker that excavates nest cavities in live pine trees, and this trait, in turn, is apparently dependent on the occurrence of a heart-rot fungus in pines called "red heart." This fungus attacks living heart wood of many southern pines and makes excavation of cavities much easier. The red-cockaded woodpecker exhibits a highly organized social structure, and the birds live in clans of two to six members. Only one pair in each clan nests during a particular year, with the other members of the clan serving as helpers. The female usually lays two to four eggs in the breeding male's roost cavity.

Wildlife Service photo

red-cockaded woodpecker, boldy marked in black and white, is named for the d feathers on each side of the male bird's head.

Extensive logging of mature southern pines over the past 75 years has led to the dramatic decline of this species. Best estimates indicate that about 10,000 birds remain in scattered, disjunct populations from Virginia to Texas, mostly on national forest lands and military reservations. Since the birds prefer trees at least 60-years old, with trees 80 to 100 years and older predominating, their fate on private and commercial forest lands is very much in doubt. These lands are being actively managed for harvest on increasingly shorter rotations.

Over the past 8 years, numerous consultations under Section 7 of the Endangered Species Act have been conducted on forest management practices at various national forests and on certain training activities at military bases. Research and survey work on the red-cockaded woodpecker over the past few years has underscored the need for longer rotations, as well as acreage requirements, for foraging habitat. To the credit of the U.S. Forest Service, much of this research and survey work has emanated from their research field stations.

Major military reservations having populations of this woodpecker are now striving to implement approved conservation measures. However, the dilemma facing many of those bases hosting training missions is lack of space. Major new range construction projects, for example, lead to inevitable conflicts with the species, and the Section 7 process goes on and on. On the other side of the coin, a recently completed major Section 7 consultation with the Forest Service has resulted in the incorporation of new research findings on the red-cockaded woodpecker in the Forest Service management handbook. With these firm management guidelines in place and with assurances from Forest Service administrators, it appears that the welfare of the species is promising on these Federal lands.

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CDFG assessment of significant mortality associated with this method of harvesting bottom fish, the legislation specifically prohibits the use of gill and trammel nets with mesh size greater than 3½ inches within the 15 fathom (150 feet) depth contour between Waddell Creek and Franklin Point in San Mateo County. The Director of the CDFG may allow the use of gill and trammel nets between Point San Luis (San Luis Obispo County) and the Santa Maria River (about 20 miles of coast) for a specified period if it is determined that the use of the nets will not result in any accidental take of sea otters.

* * *

The magnitude of this year's cui-ui spawning run up the Truckee River from Pyramid Lake was well below that anticipated. A record run had been forecasted for May because of the size of the April run, adequacy of river flows, and a dominant year-class of sexually-prime spawners. Instead, the run dropped off rapidly after the first week of May. Althogether, Great Basin Complex personnel passed nearly 9,500 cui-ui upstream from the Marble Bluff Fish Facility in 4 weeks. This compared favorably, however, with the first year's run of 11,000 and the 1983 run of 6,000.

Cui-ui larvae began emigrating to the lake during the first week of May with peak movement occurring around May 22. Great Basin personnel estimated that during the peak over 10 million larvae left the river daily. Emigration ended around the first week of June. The excellent production of larvae was probably due to Stampede Reservoir releases that maintain near constant river flows and adequate water temperatures in the lower river during egg incubation and larvae development.

The size of this year's cui-ui run, larvae production, and the number of tag recoveries indicate that there is still much to be learned about the behavior and population dynamics of this fish. These data also indicate that some of the assumptions that helped formulate management strategies and procedures may need reevaluation.

* * *

The transfer of juvenile Pahranagat roundtail chubs *(Gila robusta jordani)* from the Pahranagat Valley in Nevada to Dexter National Fish Hatchery (NFH) in New Mexico has been completed. Earlier attempts had been unsuccessful in trapping fish for transfer to Dexter in order to establish a captive breeding population as identified in the recovery plan for this species. Success of the entire operation in May 1985 was due to information provided by and cooperation among many individuals and agencies.

The recovery operation was made possible when the Nevada Department of Wildlife was notified that the water supply to an irrigation ditch that possibly contained chubs was no longer being diverted, and the ditch was rapidly drying out. Great Basin Complex personnel and Nevada Department of Wildlife personnel captured 50 juvenile chubs from the ditch using seines and dip nets. The fish were held overnight in a live trap in the stream, then placed in a small amount of stream water in oxygen-filled plastic bags inside styrofoam coolers and driven to Las Vegas. The coolers were immediately flown to Roswell, New Mexico, where they were picked up by Dexter NFH personnel. Forty-six chubs survived the transfer and appear to be doing well in their new home. Future transfers may be required to reduce the possibility of extinction for the single remaining natural population, estimated to be as few as 40 adult individuals.

* * *

Region 2—On June 19–20, Region 2 Endangered Species staff members met with individuals of the Southwest Bureau of Indian Affairs area offices and tribal members from three States to assess and coordinate endangered species needs on native American lands, including over 50 Indian reservations. Information was exchanged and further coordination was made that will assist in the recovery of over 25 Threatened and Endangered species occurring on these lands.

* * *

Spring 1985 brought nearly a 50-percent increase in bald eagle *(Haliaeetus leucocephalus)* nesting success in the Southwest. Twenty-two chicks fledged from 13 nests located in Arizona.

A bald eagle chick was hatched this spring at the Rio Grande Zoological Park in Albuquerque, New Mexico. Parents of this chick are long-time, adult residents of the zoo and were allowed to raise the chick until it was 8 weeks old. At that time, the chick was sent by air to St. Louis, Missouri, where it was picked up by personnel of the Tennessee Valley Authority and transported to Land-Between-The-Lakes (LBL) at the Kentucky/Tennessee border. Here it was placed in a hack tower along with two wild bald eagle chicks from Wisconsin. All three birds appear to be in excellent health and are scheduled to be released from the tower at 11 to 12 weeks of age. Past hacking efforts at the LBL site have already established one nesting pair.

Six bald eagle chicks (originating from Florida eggs) were hacked at the Sequoyah National Wildlife Refuge (NWR) in eastern Oklahoma. This project is a cooperative effort among the George Miksch Sutton Avian Research Center (GMSARC), the University of Florida at Gainesville, the States of Oklahoma and Florida, and the FWS. The chicks were 13 weeks old when the door to the hack box was opened. One bird left the area within a day, two left after remaining in the area for 1 week, and at the time of this writing, the remaining two chicks are still on the refuge near the release site, successfully foraging on their own. The sixth fledgling received a leg injury soon after release and is currently being rehabilitated at GMSARC. It is anticipated that this chick will be ready for release again in July. The project is going well and cooperators plan to continue the effort next year. There appears to be no loss of productivity at the Florida nests from which egg clutches were removed.

* * *

Of the 28 whooping crane *(Grus americana)* nest sites in Canada's Wood Buffalo National Park, a minimum of 20 chicks have hatched. Several older whooping crane pairs in Canada have produced infertile eggs over the last few years. The cause of the infertility is unknown, but it may be that members of the pairs have exceeded the age of sexual fertility.

During the egg pickup in Canada this year, eggs were candled to check for fertility, and eggs in three nests appeared to contain infertile eggs. All eggs were removed from these three nests and Dr. Ernie Kuyt, Canadian Wildlife Service, substituted one good egg in each of the three nests. The substitute eggs were obtained from nearby whooping crane nests containing two eggs. This egg transfer at Wood Buffalo National Park is the first concerted effort of this kind in Canada and is intended to utilize the experienced but infertile parents to bolster the Wood Buffalo population.

Twenty-three whooping crane eggs were transferred from Canada to Grays Lake NWR in late May. Although three of the eggs were believed to be infertile (see above), they were placed in nests of foster sandhill crane (*Grus canadensis*) parent pairs as a test; however, those eggs did not hatch. There was no nest predation this year, so the remaining 20 eggs hatched. One chick died at the nest site of unknown causes; other losses are unknown.

Water conditions are marginal at Grays Lake and without good spring rainfalls, the potential for chick mortality is greater. Excluding these young birds, approximately 30 whooping cranes presently comprise the Grays Lake/Bosque del Apache whooping crane "flock."

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Last year, Dexter NFH spawned Endangered Colorado squawfish *(Ptychocheilus lucius)* in anticipation of their reintroduction into central Arizona streams under the new experimental regulations. Due to delays in the experim

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tal listing process, the squawfish could not be stocked last autumn and were held for a stocking effort in 1985.

An estimated 85,000 2- to 3-inch squawfish were placed in the ponds at Dexter NFH last autumn. When those ponds were drained this spring, that number had dropped to 220 4- to 5-inch fish. Colorado squawfish become fish-eating when they grow to about 3 inches, and a significant decline in their numbers due to cannibalism was anticipated, but no one had estimated a 99.75-percent loss. The remaining 220 squawfish were taken into the hatch house at Dexter and supplied with small goldfish as a food source. As of June 18, their numbers had continued to drop and are now down to 80 very healthy fish. It is not unusual to see several 5-inch squawfish swimming around the tanks with 4-inch squawfish tails sticking out of their mouths!

* * *

Two thousand Kemp's ridley sea turtle *(Lepidochelys kempii)* eggs were transferred from Playa de Rancho Nuevo, Mexico, to the National Park Service (NPS) at Padre Island National Seashore in Texas. The eggs will be imprinted at Padre Island and then sent to the National Marine Fisheries Service (NMFS) laboratory in Galveston, Texas, for headstarting. This is the eighth year of the 10-year cooperative project conducted by the Gladys Porter Zoo, Mexican Department of Fisheries, Texas Parks and Wildlife Department, NMFS, NPS, and FWS.

* * *

Region 4—An 8,700-acre wilderness area on the Kisatchie National Forest, located south of Natchitoches, Louisiana, is the site of a rampant outbreak of Southern pine beetles. These beetles infect trees and often kill them by girdling their cambium layer. Colonies of the Endangered red-cockaded woodpecker *(Picoides borealis)* occur in older timber which seems to be inordinately susceptible to bettle infestations. However, it has also been observed that once beetle populations are well established at a site, they seem to spread even to the newer trees.

Several active red-cockaded woodpecker colony sites have already been lost to the beetles and others are threatened by them. Beetle control in the wilderness area has consisted only of cutting the infested trees, but other more effective options are being considered, such as fell and salvage and fell and chemical spray. Because of the wilderness designation of the area, the U.S. Forest Service (USFS) has not permitted commercial salvage operations to attempt to solve this problem.

* * *

Due to a catastrophic drought, many of south Florida's wetlands have dried-up and populations of the Endangered snail kite *(Rostrhamus sociabilis plumbeus)* have abandoned these areas and dispersed across the State. The Loxahatchee NWR in Boynton Beach, Florida, is the clearinghouse for the Snail Kite Sighting Program. This program, initiated during the severe 1981 drought, was set up to collect and evaluate reports of snail kite sightings from the public and other agencies. The sightings assist in monitoring the kite populations and help in identifying the areas into which the snail kite disperses when its preferred wetland habitat becomes too dry to support its main food source, the apple snail. While many kites are unsuccessful in locating alternate feeding areas during droughts and consequently do not survive, many appear in areas where they are not normally found. These marginal areas include urban and agricultural canals, flooded farm fields, or very small marshes.

It appears that the 1985 nesting season has been seriously disrupted by the drought. While some kites may attempt to nest in the marginal areas, reproductive success in those areas is generally low. The 1984 snail kite population was estimated to include 668 individuals, a record high for the last 15 years. However, it is expected that once again the kite population will significantly decline, due to the adverse impacts of this 1985 drought.

* * *

Region 5—On June 21, Richard Dyer, Endangered Species biologist with the regional office, and Jack Swedberg from the Massachusetts Department of Fisheries and Wildlife brought eight bald eagles from Canada to Massachusetts that were graciously donated by the Province of Nova Scotia. This donation is part of a long-term effort between the State of Massachusetts, the Province of Nova Scotia, and the FWS to restore the bald eagle as a breeding species in Massachusetts. The Canadian hosts are to be commended for their excellent hospitality and expert assistance.

During the week of June 23, Paul Nickerson, Region 5's Endangered Species Specialist, accompanied a crew from the Pennsylvania Game Commission to La Ronge, Saskatchewan, Canada, where 12 bald eagles were collected (all in one day). These birds were brought back to Pennsylvania for release sometime in August. The cooperation and assistance provided by the Provincial officials there is also to be commended.

* * *

A listing proposal package for Jesup's milk-vetch (*Astragalus robbinsii* var. *jesupi*) was recently submitted to the Washington Office for review. This plant has a very limited distribution along the Connecticut River in New Hampshire and Vermont and is being threatened by potential hydroelectric development.

* * *

The New Jersey Department of Environmental Conservation recently signed a limited authority plant Cooperative Agreement with the FWS as authorized by Section 6 of the Endangered Species Act. Funds have been made available through this agreement for activities to aid in the recovery of the small whorled pogonia *(Isotria medeoloides)* in the State of New Jersey.

* * *

Region 6—On May 28, 1985, the Bureau of Land Management, FWS, NPS, and USFS jointly published Interagency Guidelines on Management of Grizzly Bears in the *Federal Register* (50 FR 21696). The above agencies, as members of the Interagency Grizzly Bear Committee, are seeking public comments on these guidelines which may affect grizzly bear management in Idaho, Montana, Washington, and Wyoming. These guidelines, formulated in response to direction from the Department of the Interior and the Related Agencies Appropriation Act of 1985, attempt to integrate recreational and utilitarian activities within grizzly bear habitat to the extent that these activities are compatible with the recovery goals of the bear.

* * *

Yellowstone National Park is currently exhibiting "Wolves and Humans: Coexistence, Competition, and Conflict," an exhibit focusing on human attitudes about wolves. It opened on June 15, 1985, at the Grant Village visitor facility and will run until September 2, 1985. "Wolves and Humans" is a traveling interpretive exhibit created by the Science Museum of Minnesota which explores scientific and humanistic perspectives to show the complex relationships between wolves and humans. From 1985 to 1988, the exhibit will be on tour at some of this country's most renowned museums, including the Museum of Natural History in New York; the National Geographic Museum in Washington, D.C.; and the Science Museum of Boston.

Opening symposia were held in connection with the exhibit in Cody and Jackson, Wyoming, on May 31 and June 1, respectively. The symposia presented information on the historical and contemporary range of attitudes, values, and opinions held about wolves. Support for the exhibit and opening symposia was provided by grants from the National Endowment for Humanities, Wyoming Council for the Humanities, Defenders of Wildlife, and the FWS.

* * *

On June 12, 1985, the Colorado River Coordinating Committee steering sub-

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Recovery Plan Update

On June 27, 1985, a recovery plan for the Santa Barbara Island live-forever, an Endangered California plant, 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.

BOX SCORE OF LISTINGS/RECOVERY PLANS

Category	ENDANGERED U.S. Only	ENDANGERED U.S. & Foreign	ENDANGERED Foreign Only	THREATENED U.S. Only	THREATENED U.S. & Foreign	THREATENED Foreign Only	SPECIES* TOTAL	SPECIES HAVING PLANS
Mammals	23	19	234	4	0	22	302	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	18
Crustaceans	3	0	0	1	0	0	4	1
Insects	8	0	0	5	0	0	13	9
Plants	72	5	1	19	2	2	101	42
TOTAL	236	47	461	66	10	37	857	213**

*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: 179
Number of species currently proposed for listing: 25 animals
32 plants

Number of Species with Critical Habitats determined: 84
Number of Cooperative Agreements signed with States: 42 fish & wildlife
17 plants

June 30, 1985

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group met to develop a draft task group work plan. This plan will be used to direct a coordinated interagency approach to resolving controversy between water developers/users, the needs of Endangered fish, and Endangered Species Act requirements. The draft work plan outlines the committee's tasks to review recovery objectives, to evaluate means of implementation, to develop recommended implementation, and to define the relationship between recovery and Section 7.

* * *

Region 7—Family groups of wild Aleutian Canada geese *(Branta canadensis leucopareia)* have been transplanted to Agattu from Buldir Island since 1980, and it appears that this effort has succeeded in reestablishing a breeding population there. Alaska Maritime NWR personnel have recently confirmed that at least 12 pairs of Aleutian geese are nesting on Agattu Island this year, with as many as 60 birds observed in flight.

* * *

In anticipation of arctic fox *(Alopex lagopus)* eradication work on Kiska Island, FWS biologists are undertaking a comprehensive survey of the breeding birds and marine mammals of this remote, 69,500-acre island. This information will be extremely valuable in future years if fox removal efforts succeed and native bird species (including Aleutian geese) recolonize the island.

* * *

In interior Alaska and along the north slope of the Brooks Range, Endangered Species biologists, FWS contractors, and Bureau of Land Management cooperators are conducting surveys for nesting peregrine falcons *(Falco peregrinus)* and are banding young. Recently completed work on the Arctic NWR revealed that only 2 of about 15 historic peregrine nest sites are currently occupied. Recovery of peregrine populations in most other regions within Alaska is more encouraging.

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Refuge botanists Steve Talbot and Nancy Felix are conducting field work to assess the status of candidate plants on the Aleutian Islands NWR and Arctic NWR, respectively.

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