

ENDANGERED SPECIES

Technical Bulletin

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

Rare Hawaiian Tree Listed as Endangered

An attractive but rare Hawaiian tree, *Kokia drynarioides* (Hawai'i tree cotton, *koki'o*, or *hau-hele'ula*), has been listed by the Service as Endangered (12/4/84), and it is now eligible for the protection authorized under the Endangered Species Act. Due to the effects of livestock grazing, destruction of seeds by exotic rodents, competitive introduced plants, and fire, this species is on the verge of extinction. One small population, which consists of only about 15 trees, is all that is known to survive.

Kokia drynarioides is a small tree, growing up to about 25 feet in height, and has palmately lobed leaves, large red flowers, and three large bracts at the base of the flower and fruit. It is endemic to the Island of Hawai'i, and the remaining individuals currently are scattered within or near the Ka'upulehu Forest Reserve and the adjoining Pu'uwa'awa'a Ranch.

Habitat within the species' historical range has been greatly modified by many years of management as rangeland for livestock, and the plants them-

selves apparently are extremely palatable to cattle and feral herbivores. Cattle browse on the mature trees and graze any seedlings that may occur. Accidentally introduced rodents, particularly the roof rat (*Rattus rattus*), eat many of the seeds. The recent invasion of the habitat by an exotic plant, fountain grass (*Pennisetum setaceum*), further inhibits regeneration and threatens the adult trees by increasing the probability, extent, and intensity of wildfires.

On September 12, 1983, the Service proposed to list *Kokia drynarioides* as an Endangered species, and to designate its Critical Habitat. (See story in BULLETIN Vol. VIII No. 10.) Comments supporting the proposal were received from the Hawaii Department of Land and Natural Resources; the Office of the Mayor, Hawaii County; and several individuals.

With publication of a final rule, *Kokia drynarioides* is now listed as an Endangered species. Among the benefits it receives under the Endangered Species Act are protection from interstate/international trafficking in the species, a re-

quirement for the Service to develop a recovery plan, possible Federal funding for State conservation efforts, and Section 7 protection from certain Federal activities.

Under Section 7 of the Act, Federal agencies now are required to ensure that any actions they fund, authorize, or carry out are not likely to jeopardize the survival of *Kokia drynarioides* or adversely modify its Critical Habitat. The designated Critical Habitat includes three areas in the North Kona District, Island of Hawai'i, totalling about 3.86 square miles of private and State-owned lands that are primarily used for cattle grazing. Since there is no Federal involvement in this use of the land, no economic impacts of the Critical Habitat designation are anticipated.

Although the Federal Endangered Species Act does not authorize the Service to prohibit the taking of Endangered plants that are not on Federal lands, the State of Hawaii's own legislation does, and this protection now applies to *Kokia drynarioides*.

Recovery Plans for Four Southwest U.S. Cacti

Among the species for which recovery plans have been approved within the past year are four Endangered or Threatened cacti native to the southwestern United States. All four are facing serious threats from a variety of human activities, particularly habitat modification and overcollecting. The recovery plans, when funded and carried out, may help to restore the following cacti to a more secure status:

Mesa Verde cactus (*Sclerocactus mesae-verdae*)

Named for the Mesa Verde area of southwestern Colorado, this cactus occurs only in parts of Montezuma County, Colorado, and San Juan County, New Mexico. After experiencing a dramatic decline, the Mesa Verde cactus was listed by the Service on Oc-

continued on page 7



The Mesa Verde cactus (*Sclerocactus mesae-verdae*) can reach up to about 6.5 cm in height. Cracks in the clay soil, where the seeds fall and may germinate, apparently are an important part of the plant's microhabitat.

Photo by Kenneth D. Heil



Regional Briefs

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

Region 1—Twelve Guam rails (*Rallus owstoni*) and nine Micronesian king-

fishers (*Halcyon cinnamomina cinnamomina*) that were sent by the government of Guam to the Philadelphia Zoo last November have been translocated to the National Zoological Park in Front Royal, Virginia, and the

Bronx Zoo in New York City. It is hoped that the birds will breed successfully there.

In 1982, a study was begun to investigate the status of gray wolves (*Canis lupus*) in central Idaho and the availability of key habitats. This study was completed in 1984, and the results are reported in a document entitled "Wolves of Central Idaho." Information on the geographical relationship of key wolf habitats and existing or proposed land uses should benefit resource agencies and land managers in their ability to manage for wolves, multiple land use, and the integrated needs of both. This information also can be a useful step toward the recovery of gray wolves in Idaho. Limited copies of the publication are available from the Endangered Species Field Office, U.S. Fish and Wildlife Service, 4696 Overland Road, Room 566, Boise, Idaho 83705.

U.S. Fish and Wildlife Service Washington, D.C. 20240

Robert A. Jantzen, *Director*
(202-343-4717)

Robert E. Gilmore

Associate Director and

Endangered Species Program Manager
(202-343-4646)

John L. Spinks, *Chief,*
Office of Endangered Species
(703-235-2771)

Thomas J. Parisot, *Chief,*
Federal Wildlife Permit Office
(703-235-1937)

Clark R. Bavin, *Chief,*
Division of Law Enforcement
(202-343-9242)

TECHNICAL BULLETIN STAFF

Michael Bender, *Editor*
Denise Henne, *Assistant Editor*
(703-235-2407)

Regional Offices

Region 1, Suite 1692, Lloyd 500 Bldg.,
500 N.E. Multnomah St. Portland, OR
97232 (503-231-6118); Richard J. My-
shak, *Regional Director*; William F.
Shake, *Assistant Regional Director*;
Wayne S. White, *Endangered Species*
Specialist.

Region 2, P.O. Box 1306, Albuquerque,
NM 87103 (505-766-2321); Michael J.
Spear, *Regional Director*; Conrad A.
Fjetland, *Assistant Regional Director*;

James Johnson, *Endangered Species*
Specialist.

Region 3, Federal Bldg., Fort Snelling,
Twin Cities, MN 55111 (612-725-3500);
Harvey Nelson, *Regional Director*;
John S. Popowski, *Assistant Regional*
Director; James M. Engel, *Endangered*
Species Specialist.

Region 4, Richard B. Russell Federal
Bldg., 75 Spring St., S.W., Atlanta, GA
30303 (404-221-3583); James W. Pulliam,
Regional Director; John I. Christian,
Assistant Regional Director; Alex B.
Montgomery, *Endangered Species*
Specialist.

Region 5, Suite 700, One Gateway Center,
Newton Corner, MA 02158 (617-965-
5100); Howard Larsen, *Regional Direc-*
tor; Stephen W. Parry, *Assistant Regional*
Director; Paul Nickerson, *Endangered*
Species Specialist.

Region 6, P.O. Box 25486, Denver Federal
Center, Denver, CO 80225 (303-234-
2209); Galen Buterbaugh, *Regional*
Director; John D. Green, *Assistant*
Regional Director; Barry S. Mulder, *Endan-*
gered Species Specialist.

Region 7, 1101 E. Tudor Rd., Anchorage,
AK 99503 (907-786-3542); Robert E.
Putz, *Regional Director*; Jon Nelson,
Assistant Regional Director; Dennis
Money, *Endangered Species*
Specialist.

U.S. Fish and Wildlife Service Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska

THE ENDANGERED SPECIES TECHNICAL BULLETIN is published monthly by the U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Region 2—The National Audubon Society and the Arizona Game and Fish Department sponsored a December meeting of biologists in Tucson, Arizona, to discuss the biology of the masked bobwhite (*Colinus virginianus ridgwayi*). Habitat requirements, potential reintroduction sites, and status of the species in Mexico were a few of the items discussed.

Plans have been approved to release captive-reared bald eagles (*Haliaeetus leucocephalus*) in Sequoyah National Wildlife Refuge in Oklahoma this spring. Chicks for this release will be obtained from eggs removed from wild nests in Florida (a total of 18 eggs from 9 nests). It is believed that the Florida birds will recycle and that productivity of the Florida population should not be adversely affected. In addition, there are plans to study the three known wild bald eagle nests in Oklahoma to determine the reasons for poor reproductive performance during the last several years. This work is being conducted cooperatively by the George Miksch Sutton Avian Research Center, the States of Oklahoma and Florida, and the Service (Regions 2 and 4).

A record number (14) of young whooping cranes (*Grus americana*) was observed at Aransas National Wildlife Refuge in Texas this month; the previous high number was the 12 young observed in 1976. Also, 69 adult cranes are on the refuge, bringing the total number of cranes to 83—another new record. New Mexico boasts 30 whooping cranes wintering there this year,

continued on page 10

List of Approved Recovery Plans

Restoring Endangered or Threatened animals and plants to the point where they are again secure, self-sustaining members of their ecosystems is one of the main goals of the Endangered Species Program. To help guide the recovery effort, the Fish and Wildlife Service is working to develop plans for all listed species native to the United States. As of December 31, 1984, 144 recovery plans for 195 species have been completed and approved. Many others are in various stages of development. Recovery plans also may be revised, if and when appropriate.

The amount of available funding and personnel resources affects the speed at which recovery plans can be implemented. Guidelines for setting priorities in preparing and carrying-out recovery plans were published in the September 21, 1983, *Federal Register* (see story in BULLETIN Vol. VIII No. 10.)

Copies of recovery plans are available for purchase from the Fish and Wildlife Reference Service about 6 months after they are approved. Inquiries should be addressed to the Fish and Wildlife Reference Service, 1776 E. Jefferson Street, Suite 470 S, Rockville, Maryland 20852, or call toll-free 800/ 582-3421.

Endangered and Threatened Species Having Recovery Plans

Common Name	Scientific Name	Date Plan Approved
MAMMALS 21 species		
Big-eared bats		05/08/84
Ozark big-eared bat	<i>Plecotus townsendii ingens</i>	
Virginia big-eared bat	<i>Plecotus townsendii virginianus</i>	
Black-footed ferret	<i>Mustela nigripes</i>	06/25/78
Columbian white-tailed deer	<i>Odocoileus virginianus leucurus</i>	10/21/76
Delmarva Peninsula fox squirrel	<i>Sciurus niger cinereus</i>	11/06/79
Eastern cougar	<i>Felis concolor cougar</i>	08/02/82
Eastern timber wolf	<i>Canis lupus lycaon</i>	06/05/78
Florida panther	<i>Felis concolor coryi</i>	12/16/81
Gray bat	<i>Myotis grisescens</i>	07/08/82
Grizzly bear	<i>Ursus arctos horribilis</i>	01/29/82
Hawaiian monk seal	<i>Monachus schauinslandi</i>	04/01/83
Indiana bat	<i>Myotis sodalis</i>	06/01/76
Key deer	<i>Odocoileus virginianus clavium</i>	06/10/80
Mexican wolf	<i>Canis lupus baileyi</i>	08/09/82
Morro Bay kangaroo rat	<i>Dipodomys heermanni morroensis</i>	08/18/82
Northern Rocky Mountain wolf	<i>Canis lupus irremotus</i>	05/28/80
Red wolf	<i>Canis rufus</i>	07/12/82
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	01/31/83
Sonoran pronghorn	<i>Antilocapra americana sonoriensis</i>	12/30/82
Southern sea otter	<i>Enhydra lutris nereis</i>	02/03/82
West Indian manatee	<i>Trichechus manatus</i>	04/15/80
BIRDS 53 species		
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	03/07/79
Attwater's greater prairie chicken	<i>Tympanuchus cupido attwateri</i>	12/16/83
Bald eagle	<i>Haliaeetus leucocephalus</i>	
Chesapeake Bay Region Plan		05/19/82
Southwestern Population Plan		09/08/82
Northern States Plan		07/29/83
Southeastern States Plan		08/03/84
California brown pelican	<i>Pelecanus occidentalis californicus</i>	02/03/83
California condor	<i>Gymnogyps californianus</i>	04/09/75
California least tern	<i>Sterna antillarum browni</i>	04/02/80
Cape Sable seaside sparrow	<i>Ammospiza maritima mirabilis</i>	04/06/83
Channel Islands species		01/26/84
San Clemente loggerhead shrike	<i>Lanius ludovicianus mearnsi</i>	
San Clemente sage sparrow	<i>Amphispiza belli clementeae</i>	
Dusky seaside sparrow	<i>Ammospiza maritima nigrescens</i>	04/26/79
Eastern brown pelican	<i>Pelecanus occidentalis carolinensis</i>	07/19/79
Everglade kite	<i>Rostrhamus sociabilis plumbeus</i>	03/11/83
Four Hawai'i forest birds		02/03/83
'Akiapola'au	<i>Hemignathus munroi</i>	
Hawai'i 'akepa	<i>Loxops coccineus coccineus</i>	
Hawai'i creeper	<i>Oreomystis mana</i>	
'O'u	<i>Psittirostra psittacea</i>	
Hawaiian crow or 'alala	<i>Corvus hawaiiensis</i>	10/28/82
Hawaiian hawk	<i>Buteo solitarius</i>	05/09/84
Hawaiian seabirds		04/25/83
Hawaiian dark-rumped petrel	<i>Pterodroma phaeopygia sandwichensis</i>	
Newell's Manx shearwater	<i>Puffinus auricularis newelli</i>	

continued on page 4

Endangered and Threatened Species Having Recovery Plans

Common Name	Scientific Name	Date Plan Approved
Hawaiian waterbirds		06/19/78
Hawaiian coot	<i>Fulica americana alai</i>	
Hawaiian duck or koloa	<i>Anas wyvilliana</i>	
Hawaiian gallinule	<i>Gallinula chloropus sandvicensis</i>	
Hawaiian stilt	<i>Himantopus himantopus knudseni</i>	
Kaua'i forest birds		07/29/83
Kaua'i 'aki'aki	<i>Hemignathus procerus</i>	
Kaua'i 'o'o	<i>Moho braccatus</i>	
Large Kaua'i thrush	<i>Phaeornis obscurus myadestina</i>	
Nukupu'u	<i>Hemignathus lucidus</i>	
'O'u	<i>Psittirostra psittacea</i>	
Small Kaua'i thrush	<i>Phaeornis palmeri</i>	
Kirtland's warbler	<i>Dendroica kirtlandii</i>	10/22/76
Laysan duck	<i>Anas laysanensis</i>	12/17/82
Light-footed clapper rail	<i>Rallus longirostris levipes</i>	07/03/79
Masked bobwhite	<i>Colinus virginianus ridgwayi</i>	02/15/78
Maui-Moloka'i forest birds		05/30/84
Crested honeycreeper	<i>Palmeria dolei</i>	
Maui 'akepa	<i>Loxops coccineus ochraceus</i>	
Maui parrotbill	<i>Pseudonestor xanthophrys</i>	
Moloka'i creeper	<i>Oreomystis flammea</i>	
Moloka'i thrush	<i>Phaeornis obscurus rutha</i>	
Nukupu'u	<i>Hemignathus lucidus</i>	
Po'ouli	<i>Melamprosops phaeosoma</i>	
Mississippi sandhill crane	<i>Grus canadensis pulla</i>	10/24/79
Nene or Hawaiian goose	<i>Nesochen sandvicensis</i>	02/14/83
Northwestern Hawaiian Islands		10/04/84
Passerine birds		
Laysan finch	<i>Telespyza cantans</i>	
Nihoa finch	<i>Telespyza ultima</i>	
Nihoa millerbird	<i>Acrocephalus familiaris kingi</i>	
Palila	<i>Loxioides bailleui</i>	01/23/78
Peregrine falcon	<i>Falco peregrinus</i>	
Rocky Mountain/Southwest Plan		08/03/77
Eastern Plan		08/20/79
Alaska Population Plan		10/04/82
Pacific Plan		10/12/82
Puerto Rican plain pigeon	<i>Columba inornata wetmorei</i>	10/14/82
Puerto Rican parrot	<i>Amazona vittata</i>	11/30/82
Puerto Rican whip-poor-will	<i>Caprimulgus noctitherus</i>	04/19/84
Red-cockaded woodpecker	<i>Picoides borealis</i>	08/24/79
Whooping crane	<i>Grus americana</i>	01/23/83
Yellow-shouldered blackbird	<i>Agelaius xanthomus</i>	05/25/83
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	02/04/83
REPTILES 15 species		
American crocodile	<i>Crocodylus acutus</i>	02/13/79
Blunt-nosed leopard lizard	<i>Gambelia silus</i>	04/18/80
Culebra Island giant anole	<i>Anolis roosevelti</i>	01/28/83
Eastern indigo snake	<i>Drymarchon corais couperi</i>	04/22/82
Island night lizard (Channel Islands Plan)	<i>Xantusia riversiana</i>	01/26/84
Leatherback sea turtle	<i>Dermochelys coriacea</i>	10/23/81
Marine turtles		09/19/84
Green sea turtle	<i>Chelonia mydas</i>	
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	
Leatherback sea turtle (revised)	<i>Dermochelys coriacea</i>	
Loggerhead sea turtle	<i>Caretta caretta</i>	
Olive Ridley sea turtle	<i>Lepidochelys olivacea</i>	
Mona boa	<i>Epicrates monensis monensis</i>	04/19/84
Mona ground iguana	<i>Cyclura stejnegeri</i>	04/19/84
Plymouth red-bellied turtle	<i>Pseudemys rubriventris bangsi</i>	03/26/81
St. Croix ground lizard	<i>Ameiva polops</i>	03/29/84
AMPHIBIANS 6 species		
Desert slender salamander	<i>Batrachoseps aridus</i>	08/12/82
Golden coqui	<i>Eleutherodactylus jasperii</i>	04/19/84

Endangered and Threatened Species Having Recovery Plans

Common Name	Scientific Name	Date Plan Approved
Houston toad	<i>Bufo houstonensis</i>	09/17/84
Red Hills salamander	<i>Phaeognathus hubrichti</i>	11/23/83
San Marcos salamander (San Marcos River Plan)	<i>Eurycea nana</i>	12/03/84
Santa Cruz long-toed salamander	<i>Ambystoma macrodactylum croceum</i>	09/28/77
FISHES 36 species		
Alabama cavefish	<i>Speoplatyrhinus poulsoni</i>	09/17/82
Arizona trout	<i>Salmo apache</i>	08/20/79
Bayou darter	<i>Etheostoma rubrum</i>	09/08/83
Big Bend gambusia	<i>Gambusia gaigei</i>	09/19/84
Blue pike*	<i>Stizostedion vitreum glaucum</i>	06/29/76
Bonytail chub	<i>Gila elegans</i>	05/16/84
Clear Creek gambusia	<i>Gambusia heterochir</i>	01/14/82
Colorado squawfish	<i>Ptychocheilus lucius</i>	03/16/78
Comanche Springs pupfish	<i>Cyprinodon elegans</i>	09/02/81
Cui-ui	<i>Chasmistes cujus</i>	01/23/78
Devils Hole pupfish	<i>Cyprinodon diabolis</i>	07/15/80
Gila trout	<i>Salmo gilae</i>	01/02/79
Greenback cutthroat trout	<i>Salmo clarki stomias</i>	11/11/77
Humpback chub	<i>Gila cypha</i>	08/22/79
Kendall Warm Springs dace	<i>Rhinichthys osculus thermalis</i>	07/12/82
Leopard darter	<i>Percina pantherina</i>	09/20/84
Maryland darter	<i>Etheostoma sellare</i>	02/02/82
Moapa dace	<i>Moapa coriacea</i>	02/14/83
Mohave tui chub	<i>Gila bicolor mohavensis</i>	09/12/84
Okaloosa darter	<i>Etheostoma okaloosae</i>	10/23/81
Owens River pupfish	<i>Cyprinodon radiosus</i>	09/17/84
Pahrump killifish	<i>Empetrichthys latos</i>	03/17/80
Pecos gambusia	<i>Gambusia nobilis</i>	05/09/83
San Marcos River Plan Fountain darter	<i>Etheostoma fonticola</i>	12/03/84
San Marcos gambusia	<i>Gambusia georgei</i>	
Slackwater darter	<i>Etheostoma boschungii</i>	03/08/84
Slender chub	<i>Hybopsis cahni</i>	07/29/83
Snail darter	<i>Percina tanasi</i>	05/05/83
Spotfin chub	<i>Hybopsis monacha</i>	11/21/83
Topminnows		03/15/84
Gila topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	
Yaqui topminnow	<i>Poeciliopsis occidentalis sonoriensis</i>	
Unarmored threespine stickleback	<i>Gasterosteus aculeatus williamsoni</i>	12/27/77
Warm Springs pupfish	<i>Cyprinodon nevadensis pectoralis</i>	11/10/76
Watercress darter	<i>Etheostoma nuchale</i>	06/25/80
Woundfin	<i>Plagopterus argentissimus</i>	07/09/79
Yellowfin madtom	<i>Noturus flavipinnis</i>	06/23/83
SNAILS 7 species		
Chittenango ovate amber snail	<i>Succinea chittenangoensis</i>	03/24/83
Flat-spined three-toothed snail	<i>Triodopsis platysayoides</i>	05/09/83
Iowa Pleistocene snail	<i>Discus macclintocki</i>	03/22/84
Noonday snail	<i>Mesodon clarki nantahala</i>	09/07/84
Painted snake coiled forest snail	<i>Anguispira picta</i>	10/14/82
Stock Island tree snail	<i>Orthalicus reses</i>	03/08/83
Virginia fringed mountain snail	<i>Polygyriscus virginianus</i>	05/09/83
CLAMS 14 species		
Appalachian moneyface pearly mussel	<i>Quadrula sparsa</i>	07/09/84
Birdwing pearly mussel	<i>Conradilla caelata</i>	07/09/84
Cumberland bean pearly mussel	<i>Villosa trabalis</i>	08/22/84
Cumberland monkeyface pearly mussel	<i>Quadrula intermedia</i>	07/09/84
Dromedary pearly mussel	<i>Dromus dromas</i>	07/09/84
Fine-rayed pigtoe pearly mussel	<i>Fusconaia cuneolus</i>	09/19/84
Green-blossom pearly mussel	<i>Epioblasma torulosa gubernaculum</i>	07/09/84
Higgins' eye pearly mussel	<i>Lampsilis higginsii</i>	07/29/83
Orange-footed pearly mussel	<i>Plethobasus cooperianus</i>	08/30/84
Pale lilliput pearly mussel	<i>Toxolasma cylindrella</i>	08/22/84

continued on page 6

Endangered and Threatened Species Having Recovery Plans

Common Name	Scientific Name	Date Plan Approved
Rough pigtoe pearly mussel	<i>Pleurobema plenum</i>	08/06/84
Shiny pigtoe pearly mussel	<i>Fusconaia edgariana</i>	07/09/84
Tan riffle shell mussel	<i>Epioblasma walkeri</i>	10/22/84
White wartyback pearly mussel	<i>Plethobasus cicatricosus</i>	09/19/84
CRUSTACEANS 1 species		
Socorro isopod	<i>Thermosphaeroma thermophilus</i>	02/17/82
INSECTS 9 species		
Two California butterflies		10/10/84
San Bruno elfin butterfly	<i>Callophrys mossii bayensis</i>	
Mission blue butterfly	<i>Icaricia icarioides missionensis</i>	
Kern primrose sphinx moth	<i>Euproserpinus euterpe</i>	02/08/84
Lange's metalmark butterfly (Antioch Dunes Plan)	<i>Apodemia mormo langei</i>	03/21/80
Oregon silverspot butterfly	<i>Speyeria zerene hippolyta</i>	09/22/82
Palos Verdes blue butterfly	<i>Glaucopsyche lygdamus palosverdesensis</i>	01/19/84
Schaus swallowtail butterfly	<i>Papilio aristodemus ponceanus</i>	11/17/82
Smith's blue butterfly	<i>Euphilotes enoptes smithi</i>	11/09/84
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	08/01/84
PLANTS 33 species		
Antioch Dunes Plan		03/21/80
Contra Costa wallflower	<i>Erysimum capitatum</i> var. <i>angustatum</i>	
Antioch Dunes evening primrose	<i>Oenothera deltooides</i> ssp. <i>howellii</i>	
Bunched arrowhead	<i>Sagittaria fasciculata</i>	09/08/82
Channel Islands Plan		01/26/84
San Clemente Island broom	<i>Lotus dendroideus</i> ssp. <i>traskiae</i>	
San Clemente Island bush-mallow	<i>Malacothamnus clementinus</i>	
San Clemente Island Indian paintbrush	<i>Castilleja grisea</i>	
San Clemente Island larkspur	<i>Delphinium kinkiense</i>	
Chapman's rhododendron	<i>Rhododendron chapmanii</i>	09/08/83
Clay phacelia	<i>Phacelia argillacea</i>	04/12/82
Davis' green pitaya	<i>Echinocereus viridiflorus</i> var. <i>davisii</i>	09/20/84
Eureka Valley Dunes plants		12/13/82
Eureka Valley dunegrass	<i>Swallenia alexandrae</i>	
Eureka Valley evening-primrose	<i>Oenothera avita</i> ssp. <i>eurekaensis</i>	
Furbish lousewort	<i>Pedicularis furbishiae</i>	06/30/83
Green pitcher plant	<i>Sarracenia oreophila</i>	05/11/83
Gypsum wild buckwheat	<i>Eriogonum gypsophilum</i>	03/30/84
Hairy rattlesnake	<i>Baptisia arachnifera</i>	03/19/84
Harper's beauty	<i>Harperocallis flava</i>	09/13/83
Hawaiian vetch	<i>Vicia menziesii</i>	05/18/84
McDonald's rock-cress	<i>Arabis mcdonaldiana</i>	02/28/84
Mesa Verde cactus	<i>Sclerocactus mesae-verdae</i>	03/30/84
Mountain golden heather	<i>Hudsonia montana</i>	09/14/83
Navasota ladies'-tresses	<i>Spiranthes parksii</i>	09/21/84
Nellie cory cactus	<i>Coryphantha minima</i>	09/20/84
Northern monkshood	<i>Aconitum noveboracense</i>	09/23/83
Pebbles Navajo cactus	<i>Pediocactus peeblesianus</i> var. <i>peeblesianus</i>	03/30/84
Persistent trillium	<i>Trillium persistens</i>	03/27/84
Raven's manzanita	<i>Arctostaphylos pungens</i> var. <i>ravenii</i>	07/10/84
Robbins' cinquefoil	<i>Potentilla robbinsiana</i>	07/22/83
San Diego mesa mint	<i>Pogogyne abramsii</i>	07/10/84
Tennessee purple coneflower	<i>Echinacea tennesseensis</i>	02/14/82
Texas wild-rice (San Marcos River Plan)	<i>Zizania texana</i>	12/03/84
Truckee barberry	<i>Mahonia sonnei</i>	06/20/84
Virginia round-leaf birch	<i>Betula uber</i>	03/03/82

*Recovery efforts did not come in time to save this fish; it was recognized by the Service as extinct on September 2, 1983.

Plans for Cacti

continued from page 1

October 30, 1979, as a Threatened species.

Energy development in the Four Corners region of the southwest has had a serious impact on the cactus and its habitat. In one case, a large coal-fired power plant was built on Mesa Verde cactus habitat in New Mexico. Powerlines running from this and other generating plants in the area already have been built through most of the species' populations in New Mexico. The potential for oil and gas drilling, along with pipeline construction, on Mesa Verde cactus habitat also is high. Given the emphasis on energy exploration and exploitation in the region, it is likely that increasing coal, oil, gas, and uranium development will make the conservation of endemic cacti even more difficult.

With the push for energy production, the human population in northwestern New Mexico is expected to increase and create additional impacts on the cactus. Residential and commercial development, road building and maintenance, and recreational use have already been observed in or near the species' habitat. In fact, the growing use of off-road vehicles (ORVs), particularly motorcycles and four-wheel drive units, is cited in the recovery plan as one of the greatest threats to the species' survival. Two populations of the cactus in northwestern New Mexico are already suffering high damage from ORVs, and vehicular recreation throughout much of the species' range is increasing rapidly.

Illegal collecting of *Sclerocactus mesae-verdae* plants and their seeds, either by hobbyists or by commercial dealers, also is affecting wild populations of the cactus, although the extent is hard to determine. Botanists have revisited some monitored populations and found them decimated. Very few have mature plants—another sign of collecting. Because the cacti grow so slowly and have such a low reproductive success rate, the occasional take of a few plants can deplete or even extirpate a population. Ironically, since the Mesa Verde cactus is difficult to grow in cultivation, as many as 90 percent of the plants taken from the wild may rot and die within a year.

Recovery Actions

The primary objective of the *Mesa Verde Cactus* (*Sclerocactus mesae-verdae*) *Recovery Plan* is to restore the species to a secure status by removing current and potential future threats to the five known populations and their habitat. Vigorous law enforcement and the full exercise of existing conservation authorities (see following story) may go

a long way toward securing the future of the Mesa Verde cactus.

Habitat conservation on federally-administered lands is required under Section 7 of the Endangered Species Act (ESA). At least 70 percent of the Mesa Verde cacti are on lands within the Navajo Indian Reservation, and another 20 percent are on the Ute Mountain Indian Reservation. Federal activities on both reservations are administered through the Bureau of Indian Affairs (BIA). The remaining plants are on Bureau of Land Management (BLM), State of New Mexico, or private lands. Any construction through BIA or BLM-managed land that is potential habitat for the Threatened cactus is subject to the approval of these Federal agencies and to the Section 7 consultation process.

Although development of new energy projects currently is not a major threat to the Mesa Verde cactus, careful monitoring of future activities will be needed. Prior to exploration for coal, oil, and gas, or construction of pipelines and powerlines, potential habitat should be surveyed and anticipated impacts evaluated. In many cases, it may be possible, through careful planning, to minimize or prevent most adverse impacts of energy production and distribution.

In addition to working with other Federal agencies, the Service plans to seek cooperative agreements with private landowners, as well as with the Navajo and Ute Mountain Tribes, for securing the cactus and its habitat from potentially harmful effects of construction, agriculture, and recreation. In particular, the Navajo Nation will be encouraged to regulate ORV use on known Mesa Verde cactus habitat within its reservation. It may be that ORV activity can be diverted to less sensitive areas.

The problems of collection and trade in the Mesa Verde cactus are addressed in several Federal laws. Regulations being developed to implement the 1982 Endangered Species Act Amendments will make it illegal to remove and reduce to possession any Threatened plant from federally administered lands without a permit. Interstate and international trade in this species is restricted, except under permit, by the ESA, the Lacey Act, and the Convention on International Trade In Endangered Species of Wild Fauna and Flora (CITES).

Along with the increased enforcement of existing conservation laws, the recovery plan calls for additional surveys of potential habitat within the Four Corners region to determine whether or not there are other populations of the cactus. Any newly discovered populations should be mapped and appropriate conservation measures initiated. Concur-

rent with the surveys, additional studies on the species' population biology and ecology should proceed. Research on insects that pollinate and, in other cases, attack the cacti is needed. Another factor deserving scrutiny is the plant's low reproductive success rate. It is estimated that fewer than one percent of *S. mesae-verdae* seeds germinate, and the number of young plants that survive to seed-bearing size is unknown. Data gained during these studies could help to increase the success of raising Mesa Verde cacti in cultivation as a possible means of relieving the collection pressure on wild populations.

Pediocactus peeblesianus var. *Peeblesianus* (Peebles Navajo cactus)

Many of the threats facing *Sclerocactus mesae-verdae* also jeopardize *Pediocactus peeblesianus* var. *peeblesianus*, a variety that is even fewer in number and more restricted in range. Only five small populations totaling approximately 1,000 Peebles Navajo cacti are known to occur, and they are restricted to an area about 7 miles long and about a mile wide near Holbrook, Arizona. It is possible, however, that surveys of potential habitat in the vicinity could locate more plants.

Gravel quarrying is destroying much of the habitat and constitutes the most immediate threat to the Peebles Navajo cactus. More than 70 percent of the potential habitat and three of the known population sites are on privately-owned land. An unknown portion of the presumed original habitat, perhaps 25 percent, has already been lost, and gravel pit operations in the area are continuing. Since some of the private land is owned by a realty company, the potential use of cactus habitat for housing construction is another serious threat. The town of Holbrook is expanding rapidly, and some of the areas where Peebles Navajo cacti grow are considered prime development property. As is the case with the Mesa Verde cactus, the Peebles Navajo cactus and its habitat also have suffered serious adverse effects from ORV use, cattle grazing, road construction, and illegal collecting. In recognition of these threats, and of the plant's continuing decline toward extinction, the Service listed *Pediocactus peeblesianus* var. *peeblesianus* on October 26, 1979, as Endangered.

Recovery Actions

According to the criteria established in the *Peebles Navajo Cactus* (*Pediocactus peeblesianus* var. *peeblesianus*)
continued on page 8

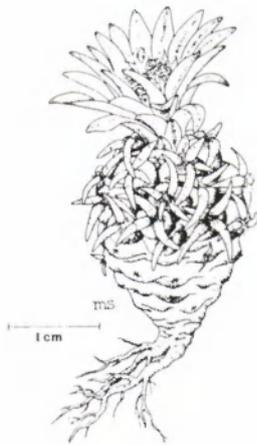


Photo by Kenneth D. Heil



Often only the very tops of Peebles Navajo cacti (*Pediocactus peeblesianus* var. *peeblesianus*) protrude above ground level, and they may retract completely into the soil during dry weather. It is during periods of wetter weather, when the plant tips are emergent, that they are most vulnerable.

Plans for Cacti

continued from page 7

Recovery Plan, the cactus may be considered secure when all existing populations are given long-term protection, the number of known plants reaches 10,000, and the collecting of wild plants is curtailed.

About 30 percent of the potential Peebles Navajo cactus habitat is administered by BLM and the Arizona State Land Department. In fact, two of the five known populations are on BLM land. The recovery plan calls for BLM to develop regulations permanently closing known and potential habitat it manages to ORV use. It also recommends that all Peebles Navajo cactus habitat on Federal lands be removed from all forms of mineral activity, including gravel and sand quarrying. Grazing livestock can harm cactus populations by trampling emergent plants during wet seasons, and BLM has developed a habitat management plan that addresses this problem. An important part of the plan will be an "exclosure area" for the largest concentration of the cactus on BLM land. Cattle will be fenced out of this critical area, and it is hoped that the fence will control ORV use as well. BLM also is writing an environmental impact statement on grazing in this area.

A powerline access road across the populations on BLM land, which currently provides access for collectors and ORV enthusiasts, also is recommended for closure to all but official use.

Since about 70 percent of the known and potential Peebles Navajo cactus habitat is on private property, where Federal and State agencies lack the au-

thority they have on public lands, it is vital to receive landowner cooperation. With the assistance of The Nature Conservancy or State agencies, it may be possible to negotiate agreements for cooperative management of important cactus habitat. Once some type of agreement is reached, a habitat management plan should be developed for each population.

The kind of habitat conservation and management needed to sustain healthy, vigorous populations of the Peebles Navajo cactus requires an in-depth knowledge of its ecological requirements. For example, there is the question of why the cactus is known to occur on only 15 to 20 percent of its apparently suitable habitat. (One possibility is that additional searches for the plant on unsurveyed land, a task recommended in the plan, could locate more of the cacti.) Another area for study is the impact of various biotic factors, such as pollinators and herbivores. Population biology research could determine minimum and optimum numbers of plants needed to maintain healthy populations.

If effective propagation techniques can be developed, and ecological requirements determined, the Service will consider reintroducing nursery-grown stock into depleted natural habitat. Data gained on propagation of the Peebles Navajo cactus could be provided to growers as a means of satisfying the demand for this plant.

Regular monitoring is necessary not only to identify and manage threats to the habitat but to measure population trends and to quantify losses. Collecting the Peebles Navajo cactus without a permit is prohibited by the Arizona Native Plant Law and, on Federal lands, by the ESA. Trade controls are authorized

under the ESA, Lacey Act, and CITES. Better enforcement of these laws is advocated in the plan.

Nellie cory cactus (*Coryphantha minima*) and Davis' green pitaya (*Echinocereus viridiflorus* var. *davisii*)

Probably the two most vulnerable cacti in the U.S. are the Nellie cory cactus and Davis' green pitaya. Each is known only from one site, a mineral outcropping near the town of Marathon in Brewster County, Texas. The threat to the survival of the cactus is overcollection from the wild.

Davis' green pitaya apparently is restricted to a single novaculite ridge, and the population is scattered over an area that measures only about 50 meters by 4 kilometers. The Nellie cory cactus also is in a vulnerable position; two populations of this species are distributed unevenly over several low ridges in an area measuring only about 50 meters by 11 kilometers. All of the cacti are on ranchland owned by two individuals. Although this part of the northern Chihuahua Desert consists of dry grasslands used for grazing, livestock seldom wanders onto the ridges and trampling is not a major threat to either cactus.

But overcollecting is. For many hobbyists who specialize in rare cacti, having a Davis' green pitaya and Nellie cory cactus is considered a "must." The plants are not unusually showy, but they are prized for their rarity. Many European, Japanese, and American collectors know the exact location of the single population, and the site was heavily collected by some California growers about 20 years ago. Because the Nellie cory cactus and Davis' green pitaya are found together, commercial collectors were able to exploit both at the same time. It is not known whether the plants are now being taken in significant numbers, but they remain vulnerable. Federal laws do not prohibit the take of Endangered plants on private lands.

Recovery Actions

Separate recovery plans were developed for each cactus but, because they are on the same or adjacent habitat, implementation will be nearly identical. The criteria for knowing when the two cacti have in fact recovered have not yet been determined, but they should become clearer after research called for in the recovery plans is conducted. In the meantime, several important tasks have been identified.

continued on page 9

Plans for Cacti

continued from page 8

First, existing trade regulations authorized under ESA, CITES, and the Lacey Act should be enforced as thoroughly as possible. This would probably require a major study of all listed cacti that are in trade in order to determine the extent and impact of commercialization. The establishment of monitoring sites on the habitat could quantify any continuing losses to collectors.

Without the support of the two private landowners, recovery of the Nellie cory cactus and Davis' green pitaya will be impossible. Once the Service gains the cooperation and good will of both individuals, it will seek to negotiate management agreements for the protection of the cacti and their habitat. Such an agreement should allow designated re-

searchers access to the habitat for monitoring the known populations and for surveying nearby potential habitat. (The property is already fenced, and one part of the recovery plan calls for adding "no trespassing" signs, putting them far enough along the fenceline to avoid pinpointing the populations.) If possible, and if found to be appropriate, the agreement should also allow for some management to enhance existing habitat.

Any habitat management authorized by the landowners will occur only after sufficient research on the population biology and ecology of the cacti. More needs to be known about microhabitat characteristics, pollination vectors, overall reproductive potential, and natural population limiting factors. Such information could be helpful not only in conserving the existing populations, but possibly also in facilitating commercial propagation.



Photo by Del Weniger

Another miniature, the Nellie cory cactus (*Coryphantha minima*), reaches only up to 2.5 cm in stem height, and is distinguished by its thick, non-tapering spines.

Controlling the Take of Rare Cacti

Whether for their beauty, their unique appearance, or their rarity, the demand for many native cacti has been increasing rapidly. Under the Endangered Species Act, it is illegal to "remove and reduce to possession" Endangered and Threatened cacti and other plants from lands under Federal jurisdiction. Some States also have their own laws restricting the take of native plants. It is difficult, however, to adequately enforce these measures, particularly in remote areas. Controlling commercial trade, then, is necessary to help reduce the drain on wild populations.

The Endangered Species Act prohibits interstate and international sale or export of Endangered and Threatened plants, except under permit. Endangered species permits can be obtained only for scientific research or for purposes that will enhance the propagation or survival of the species in the wild. Threatened species permits can be obtained for the same purposes and for the purpose of education. Seeds and cuttings of Endangered plants are included under the ban, but trade in seeds of commercially propagated Threatened species is allowed. Nursery owners must obtain permits from the Federal Wildlife Permit Office in order to sell propagated stocks of listed species.

Another law, the Lacey Act, gives Federal support to State conservation regulations. Since 1981, it has prohibited interstate trade or export of native wild plants collected or possessed in violation of laws of the State of origin. In

the case of cacti, this provision applies to Arizona, New Mexico, Texas, California, and Nevada, all of which have laws that regulate cactus collecting. The Lacey Act's heaviest penalties are for commercial dealers who intentionally violate State laws, but individual hobbyists must also comply. Propagators approved by the States are not affected.

All four of the cacti discussed in this month's recovery plan summary (along with 31 others) are on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), an international treaty that controls export and import of rare species. Under CITES, exports from the U.S. of Appendix I cacti are approved only when the importing country has issued an import permit and when the U.S. Fish and Wildlife Service finds that the export will not be detrimental to the species (and issues its own permit). Only trade for primarily non-commercial purposes is allowed.

As a precaution, all other members of the family Cactaceae are included on Appendix II of CITES. Appendix II includes species that are not necessarily threatened at present, but could become so if trade is not regulated. Commercial trade in Appendix II cacti is allowed, but only after the country of export has determined that it will not harm wild populations and issues a permit.

CITES seeks to promote legitimate nursery propagation of plants for sale to

collectors without harming wild populations. For this reason, CITES regulations for trading artificially propagated plants are more lenient. International trade in artificially propagated Appendix I species does not require previous issuance of a CITES import permit by the importing country, and artificially propagated Appendix II plants are freely traded under Certificates of Exemption granted by the Service.

When a species is listed under both the Endangered Species Act and CITES, the terms of both must be obeyed. Normally, the Act applies the more stringent controls.

Better enforcement of the conservation laws is advocated in each of the cactus recovery plans. Determining the current extent of trade, both legal and illegal, may involve monitoring sale catalogs, visiting nurseries, and possibly some undercover work. Such an effort should be national in scope and address all protected cacti.

Although some hobbyists may insist on field-collected plants, many others enjoy raising nursery-produced seeds and seedlings; therefore, an artificial propagation program may remove some of the collecting pressure. Service participation in such an effort, perhaps as part of a comprehensive cactus trade management plan, is under consideration. First, however, a number of economic, legal, and biological uncertainties need to be addressed in order to determine if properly regulated commercialization will significantly aid in the recovery of rare cacti.

Regional Briefs

continued from page 2

with 13 present on the Bosque del Apache National Wildlife Refuge.

Including the captive population of 35 cranes (32 at the Service's Patuxent Wildlife Research Center in Laurel, Maryland, 2 at the San Antonio Zoo in Texas, and 1 at the International Crane Foundation in Baraboo, Wisconsin), there were a total of 148 whooping cranes surviving at the end of 1984.

The 1985 Crane Workshop will be held in Grand Island, Nebraska, on March 26-29, 1985, where more than 60 papers will be presented regarding crane research and management. Participants will observe cranes along the Platte River and will also visit the Rainwater Basin to see crane habitat.

Ms. Heather Stout has joined Region 2's endangered species staff as a listing botanist. Ms. Stout was formerly with the Service's Sacramento Endangered Species Field Office in California.

Region 3—A Conservation Agreement for the Illinois mud turtle (*Kinosternon flavescens spooneri*) is being circulated for signatures. The agreement, which is among the States of Illinois, Iowa, and Missouri, the Fish and Wildlife Service (FWS), a chemical company, and an electric company, will endeavor to ensure the well-being of this turtle. The Service proposed it for listing in 1978, but later decided that it is a disjunct population of the yellow mud turtle and the proposal was withdrawn. The Illinois mud turtle is listed by the States of Illinois and Missouri as endangered, and listed as rare in Iowa.

Region 4—The body of a record 3,090-pound West Indian manatee (*Trichechus manatus*) was recovered near Lake Okeechobee, Florida, by Service researchers on November 20, 1984. The 12-foot, 4-inch female manatee, pregnant with a 39-inch fetus, was killed by a boat collision, as evidenced by 8 large, deep wounds on its lower dorsum. These wounds penetrated to the spine and shattered several vertebrae. The average size of adult manatees recovered by the Service's carcass salvage program is approximately 1000 pounds.

A female Florida panther (*Felis color coryi*) was killed by a tractor-trailer truck on State Road 84 in south Florida on November 18, 1984. This incident, the seventh known road kill since 1972, further endangered the small remaining panther population and highlighted the

ongoing controversy surrounding a proposal to upgrade State Road 84 to an interstate highway. The Jacksonville Endangered Species Field Office recently entered into formal Section 7 consultation with the Federal Highway Administration regarding the project. The highway, popularly known as Alligator Alley, extends from Fort Lauderdale on the Atlantic Coast across south Florida to Naples on the Gulf Coast. Other Endangered and Threatened species potentially impacted by this project include the American alligator (*Alligator mississippiensis*), wood stork (*Mycteria americana*), Everglade (snail) kite (*Rostrhamus sociabilis plumbeus*), bald eagle (*Haliaeetus leucocephalus*), Arctic peregrine falcon (*Falco peregrinus tundrius*), red-cockaded woodpecker (*Picoides borealis*), and eastern indigo snake (*Drymarchon corais couperi*).

The primary impacts that this project may have on the panther are habitat fragmentation and an increased potential for road kills. The principal structural feature that has been discussed in connection with upgrading the road to interstate status is a series of wildlife crossings placed at intervals across the western two-thirds of the highway. Locations for the wildlife crossings have been based principally on the occurrence of physical features on either side of the roadway that are most likely to facilitate panther movements and crossing areas documented by a 3-year radio-telemetry project.

On December 4, 1984, the Jacksonville Endangered Species Field Station botanist met with representatives from ITT-Rayonier and the Georgia Department of Natural Resources' Plant Protection Program to discuss ITT-Rayonier's timber management practices in the pinelands of southeastern Georgia.

The pinelands, predominantly slash pine (*Pinus elliotii*) with some long leaf pine (*P. palustris*), are the site of the Endangered *Baptisia arachnifera* (hairy rattleweed). Hairy rattleweed, a robust perennial legume, is scattered over a 125-square mile area, and is restricted to relatively dry, open pine-palmetto woods. Most of this habitat is currently pine plantation managed for pulpwood. ITT-Rayonier's site preparation includes chopping, bedding, and burning. It appears that ITT-Rayonier's techniques do not affect population densities and may even enhance growing conditions by preventing shrubs from invading and shading out the hairy rattleweed.

The Service has received a status survey report on the cave crayfish (*Cambaras zophonastes*), conducted

under contract by Arkansas Natural Heritage Commission biologists. This rare troglobite was found in only one cave out of more than 50 caves that contain similar habitat. The Service's Jackson, Mississippi, Field Station will conduct a status review to determine if this crayfish should be protected.

The Yale School of Forestry (YSF) inaugurated its Tropical Resources Institute in Puerto Rico in the summer of 1984 to provide research opportunities for YSF candidates for masters and doctoral degrees. Although most research projects involve forestry, some are wildlife oriented. Two projects conducted on Mona Island this summer are relevant to the Service's Endangered Species Program. Ms. Molly Olsen gathered comprehensive data on hawksbill turtle (*Eretmochelys imbricata*) nesting on Mona, and the Service is encouraging continuation of this project in coming years. Ms. Jennifer Hoaser studied goat populations on the island and their potential impacts on Mona ground iguana (*Cyclura stejnegeri*) populations. Her findings point the way for some future research and management efforts.

YSF is coordinating closely with the Commonwealth of Puerto Rico's Department of Natural Resources, the Service, and other Federal and Commonwealth agencies. Mr. John Hoffnagel, program director in Puerto Rico, met with the Caribbean Islands Field Supervisor for Endangered Species and Habitat Resources to discuss possible projects relating to Service programs. Potential projects include biological monitoring of the yellow-shouldered blackbird (*Agelaius xanthomus*), implementation of the Mona ground iguana recovery program, continued research on hawksbill turtles on Mona Island, and surveys of mangrove and *Podocarpus* forests.

An initial field survey of the recently designated Alligator River National Wildlife Refuge in North Carolina was conducted to determine the area's suitability for a possible red wolf (*Canis rufus*) introduction effort. Much more work needs to be done, but the area does hold promise from a biological standpoint. Small mammal and feral canid surveys will be conducted this winter.

Region 5—The Plymouth red-bellied turtle (*Pseudemys rubriventris bangsi*), placed on the Endangered species list in 1980, will now be protected on its very own national wildlife refuge under a cooperative agreement that was formally established on October 22, 1984, by the Fish and Wildlife Service, the

continued on page 11

Massachusetts Office of Environmental Affairs, and the Massachusetts Division of Fisheries and Wildlife. The agreement, authorized by the Endangered Species Act, permits joint management of the Massasoit National Wildlife Refuge (NWR) in Plymouth County, Massachusetts, but the Division of Fisheries and Wildlife will continue with its lead role in the protection and recovery of the turtle.

Massasoit NWR, established in September 1983, is among the newest in a network of over 400 refuges encompassing nearly 90 million acres across the country. The 182-acre refuge lies within Critical Habitat of the Plymouth red-bellied turtle and includes two of the 15 ponds that contain all of the 250 turtles that remain. The principal threats to the turtle are loss of habitat and habitat disturbance.

Region 6—The Wyoming Natural Area Needs Workshop was held at Central Wyoming College in Riverton on November 14 and 15. Nearly 100 scientists, planners, and managers from 10 States attended the workshop, which was sponsored by The Nature Conservancy, the Forest Service, the Bureau of Land Management, and the Fish and Wildlife Service. This was the first time that experts from so many disciplines met to discuss the conservation needs unique to Wyoming.

Region 7—One of the highlights of the recent Aleutian Canada Goose Recovery Team meeting was the identification of Amchitka Island as the next location to receive transplanted geese from Buldir. Last summer, it was confirmed that small numbers of Aleutian geese (*Branta canadensis leucopareia*) were nesting on Agattu Island, which has been the focus of transplant efforts since 1980.

Amchitka, once a pristine wilderness and important breeding site for the Aleutian Canada goose, has twice been disturbed by man: first, through the introduction of Arctic foxes for the fur trade in the 19th and early 20th centuries, and more recently by the Atomic Energy Commission, which conducted underground atomic weapons testing there in the 1960s and 1970s. The first event resulted in the extirpation of the Aleutian goose from this remote, 73,000-acre island. Now, man is again intervening on Amchitka. Arctic foxes have been removed and the island is once more safe for nesting waterfowl. If a spring survey on Agattu Island confirms that a viable population of geese has been reestablished there, recovery efforts will turn to Amchitka, where wild family groups of geese will be transplanted this summer from the main colony at Buldir.

CITES News

Service Announces Proposals for Changes in CITES Appendices

The Endangered Species Act of 1973, as amended in 1979, designates the Secretary of the Interior as both the Management Authority and the Scientific Authority of the United States, for the purposes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Management Authority responsibilities are delegated to the Associate Director—Federal Assistance; Scientific Authority responsibilities are delegated to the Associate Director—Research.

The Service's Wildlife Permit Office (WPO) functions as staff to the U.S. Management Authority for CITES, assuring that wildlife and plants are exported or imported in compliance with laws for their protection and issuing permits for legal trade of these species. The Service's Office of the Scientific Authority (OSA) functions as staff to the U.S. Scientific Authority for CITES. OSA reviews applications to export and import species protected under CITES, reviews the status of wild animals and plants impacted by trade, makes certain findings concerning housing and care of protected specimens, and advises on trade controls.

The Service has been evaluating biological and trade information on a number of animal and plant candidates for U.S. proposals to amend CITES Appendices I and II at the next biennial meeting of Party nations, now scheduled for April 1985 in Buenos Aires, Argentina. On September 7, 1984, the Service's Office of Scientific Authority published a *Federal Register* notice calling for information regarding possible CITES amendments. After evaluating the comments received on various candidates, the Service has decided (F.R. 12/14/84) to propose CITES amendments for the following species:

- northern elephant seal (*Mirounga angustirostris*)—The National Marine Fisheries Service (U.S. Department of Commerce) suggested that

this marine mammal be considered for removal from Appendix II on the grounds that it is no longer threatened or in trade. The Service agrees with this proposal.

- red-kneed tarantula (*Brachypelma smithi*)—This large ground-dwelling spider from arid western Mexico is collected for the U.S. and western Europe pet trade. The Environmental Defense Fund advocates including this tarantula on Appendix II, and the Service will make the proposal at the next CITES meeting.
- cycad plants (*Ceratozamia* spp.)—All cycad taxa are now on CITES Appendix I or II. TRAFFIC (U.S.A.), a program of the World Wildlife Fund-U.S., proposed transferring the cycad genus *Ceratozamia* from Appendix II to Appendix I. About eight species are recognized in this genus; all but one are confined to Mexico, the other is in Guatemala. TRAFFIC (U.S.A) quotes a Mexican authority as reporting that species of this commercially valuable genus are threatened with extinction due to collection and habitat destruction. The U.S. will propose the transfer.
- parts and derivatives of Appendix II plants—For plants on CITES Appendices II and III, only those parts and derivatives specified in the Appendices are subject to CITES regulation. A recent resolution by CITES Parties recommended that trade in all parts and derivatives of Appendix II or III plants be regulated unless particular ones are specifically exempted. After a review of subsequent comments, the Service agrees with proposing the inclusion of all readily recognizable parts and derivatives except for those specified in the December 14, 1984, *Federal Register*.

Call for Information on Endangered Species Impacts From Pesticides

Under contract to the President's Council on Environmental Quality, the Center for Environmental Education (CEE) is reviewing the Environmental Protection Agency's compliance with the Endangered Species Act, particularly with respect to its implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). As part of the review, CEE is seeking information

concerning the injury or death of Endangered or Threatened animals or plants in connection with the use of chemicals controlled by FIFRA. Individuals with information concerning such incidences, or who are otherwise interested in this review, are urged to write Roger E. McManus, Executive Director, Center for Environmental Education, 624 9th Street, N.W., Washington, D.C. 20001.

Status Review on Five Animals

The Service has announced (F.R. 12/18/84) that four recent petitions to list five animals as Endangered presented substantial information that such listings may be warranted; therefore, it has initiated status reviews on the following:

- woodland caribou (*Rangifer tarandus caribou*)—Douglas H. Chadwick provided evidence that this animal occurs, at least occasionally, in northwestern Montana, and that it is likely to be facing the same threats confronting the Endangered southern Selkirk Mountain herd that occurs to the west.
- Coeur d'Alene salamander (*Plethodon vandykei idahoensis*)—Data provided by Thomas P. Koenigs suggest a severe recent decline in the numbers and distribution of this amphibian, due primarily to human-related habitat disruption. The salamander occurs in parts of Idaho and Montana.
- gopher tortoise (*Gopherus polyphemus*)—Drs. Ren Lohofener and Lynn Lohmeier provided extensive evidence that tortoise populations are declining drastically because of killing and habitat destruction. Their petition recommended listing those gopher tortoise populations occurring west of the Tombigbee River in Alabama, Louisiana, and Mississippi as Endangered. A status review on this species throughout its entire range was already underway, however, as it was included in the Service's "Notice of Review of Vertebrate Wild-

BOX SCORE OF LISTINGS/RECOVERY PLANS

Category	ENDANGERED			THREATENED			SPECIES* TOTAL	SPECIES HAVING PLANS
	U.S. Only	U.S. & Foreign	Foreign Only	U.S. Only	U.S. & Foreign	Foreign Only		
Mammals	19	19	233	4	0	22	297	21
Birds	59	13	144	3	1	0	220	52
Reptiles	8	6	60	8	4	13	99	16
Amphibians	5	0	8	3	0	0	16	6
Fishes	29	4	11	14	3	0	62	36
Snails	3	0	1	5	0	0	9	7
Clams	22	0	2	0	0	0	24	14
Crustaceans	3	0	0	1	0	0	4	1
Insects	8	0	0	4	0	0	12	9
Plants	67	5	1	9	2	2	85	33
TOTAL	224	47	460	51	10	37	829	195**

* 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: 164

Number of species currently proposed for listing: 32 animals
36 plants

Number of Species with Critical Habitats determined: 67

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

December 31, 1984

life," published in the December 30, 1982, *Federal Register*.

- Barbara Anne's tiger beetle (*Cicindela politula barbaraannae*) and the Guadalupe Mountains tiger beetle (*C. p. ssp.*)—A petition from W.D. Sumlin III and Christopher D. Nagano furnished commercial trade information suggesting that overcollecting is jeopardizing both subspecies. Fanciers of rare insects seem willing to pay high prices for these colorful Texas beetles. More-

over, the apparently small natural distribution and numbers of these subspecies make them particularly vulnerable to extinction.

The Service requests any data on distribution, numbers, systematics, threats, and possible Critical Habitat regarding these species. Information may be submitted until further notice, and all data received will be evaluated before the Service decides whether or not to formally propose their listing as Endangered or Threatened.

January 1985

Vol. X No. 1

ENDANGERED SPECIES

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

FIRST CLASS
POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
PERMIT NO. G-77