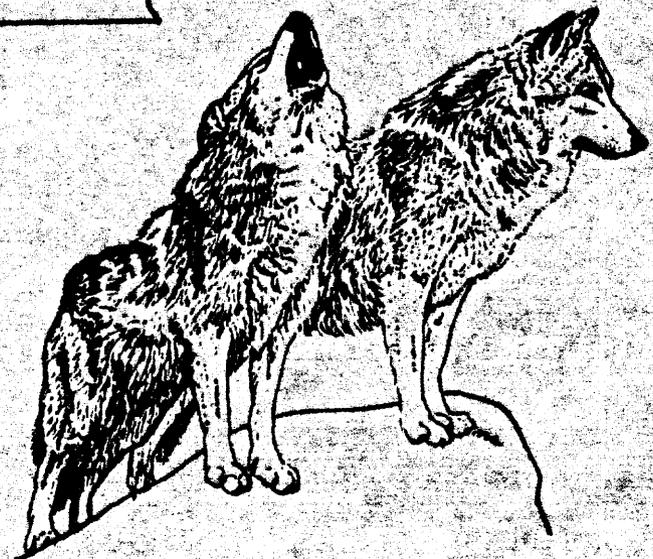


# Endangered and Threatened Species of Arizona and New Mexico 1987

(WITH 1988 ADDENDUM)



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## PREFACE

The Endangered Species Act was passed in 1973 to check the precipitous decline of native wildlife and plants in the United States. The U.S. Fish and Wildlife Service is charged with determining those species that face extinction through man's alteration of their habitat, protecting them from further decline and providing for their continued survival. All Federal agencies are charged with using their authorities by carrying out programs for the conservation of endangered and threatened species and must insure that any action authorized, funded, or carried out by them does not jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of critical habitat of such species.

This summary of federally listed endangered and threatened species in Arizona and New Mexico has been compiled by the Albuquerque Office of the U.S. Fish and Wildlife Service. The information provided is for general knowledge only; specific data can be obtained from:

U.S. Fish and Wildlife Service  
Office of Endangered Species  
P.O. Box 1306  
Albuquerque, New Mexico 87103  
(505) 766-3972

Additional information is also available from the U.S. Fish and Wildlife Service Field Offices in Arizona and New Mexico at the following addresses:

Ecological Services Field Office  
U.S. Fish and Wildlife Service  
3530 Pan American Hwy, Ste. C  
Albuquerque, New Mexico 87107  
(505) 883-7877

Ecological Services Field Office  
U.S. Fish and Wildlife Service  
3616 W. Thomas Road, Suite 6  
Phoenix, Arizona 85019  
(602) 241-4720

Only those plants and animals that have been listed as endangered or threatened species in the Federal Register have been included in this summary. In addition to these federally listed species, both Arizona and New Mexico provide protection for rare species within their boundaries. Information about State-listed species can be obtained from:

New Mexico Department of Game & Fish  
Villagra Building  
Santa Fe, NM 87503  
(505) 841-8881

Arizona Department of Game & Fish  
2222 West Greenway Rd.  
Phoenix, AZ 85023  
(602) 942-3000

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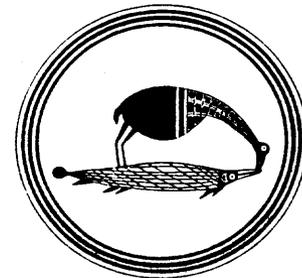


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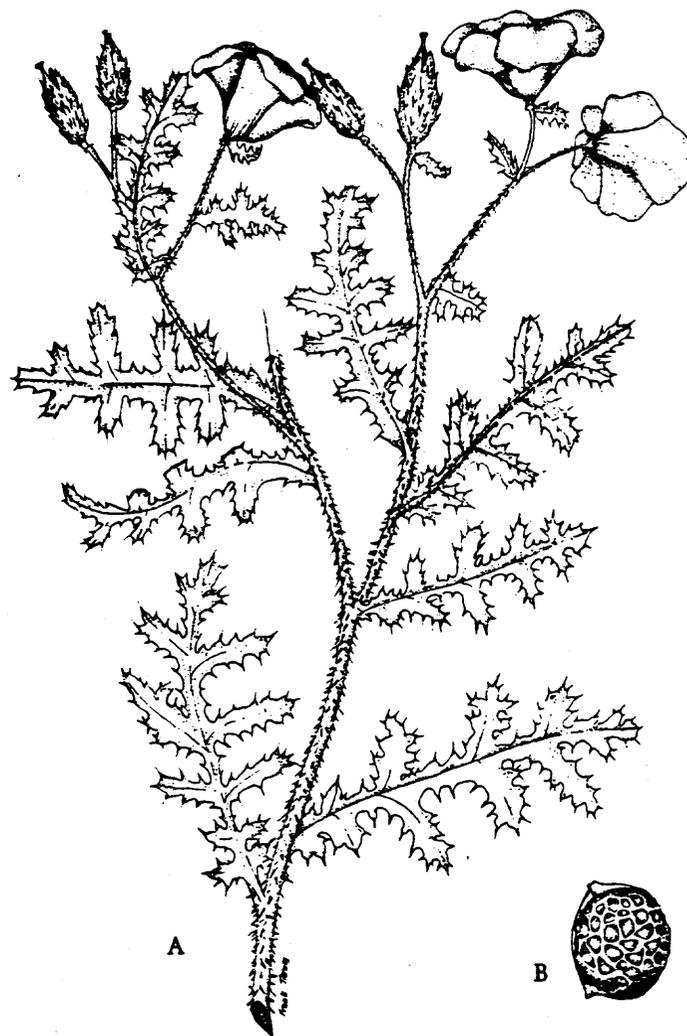
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Sacramento prickly poppy

*Argemone pleiacantha* ssp. *pinnatisecta*  
 A. upper stem and flower; B. seed

BLACK-FOOTED FERRET.....Mustela nigripes

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STATUS: Endangered (32 FR 4001, March 11, 1967) without critical habitat.

SPECIES DESCRIPTION: A weasel-like mammal that has yellow-buff coloration with black feet, tail tip, and eye mask; blunt, light colored nose. Body length 15-18 inches, tail length 5-6 inches.

HABITAT: Grassland plains and surrounding mountain basins to 10,500 feet elevation. Usually found in association with prairie dogs, which are their primary food source and which provide the ferrets with abandoned burrows.

DISTRIBUTION:

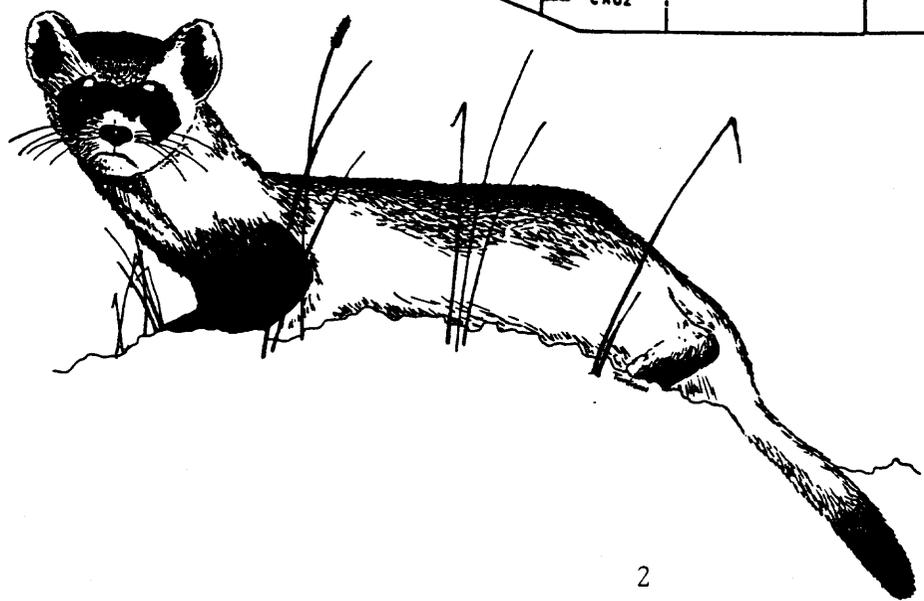
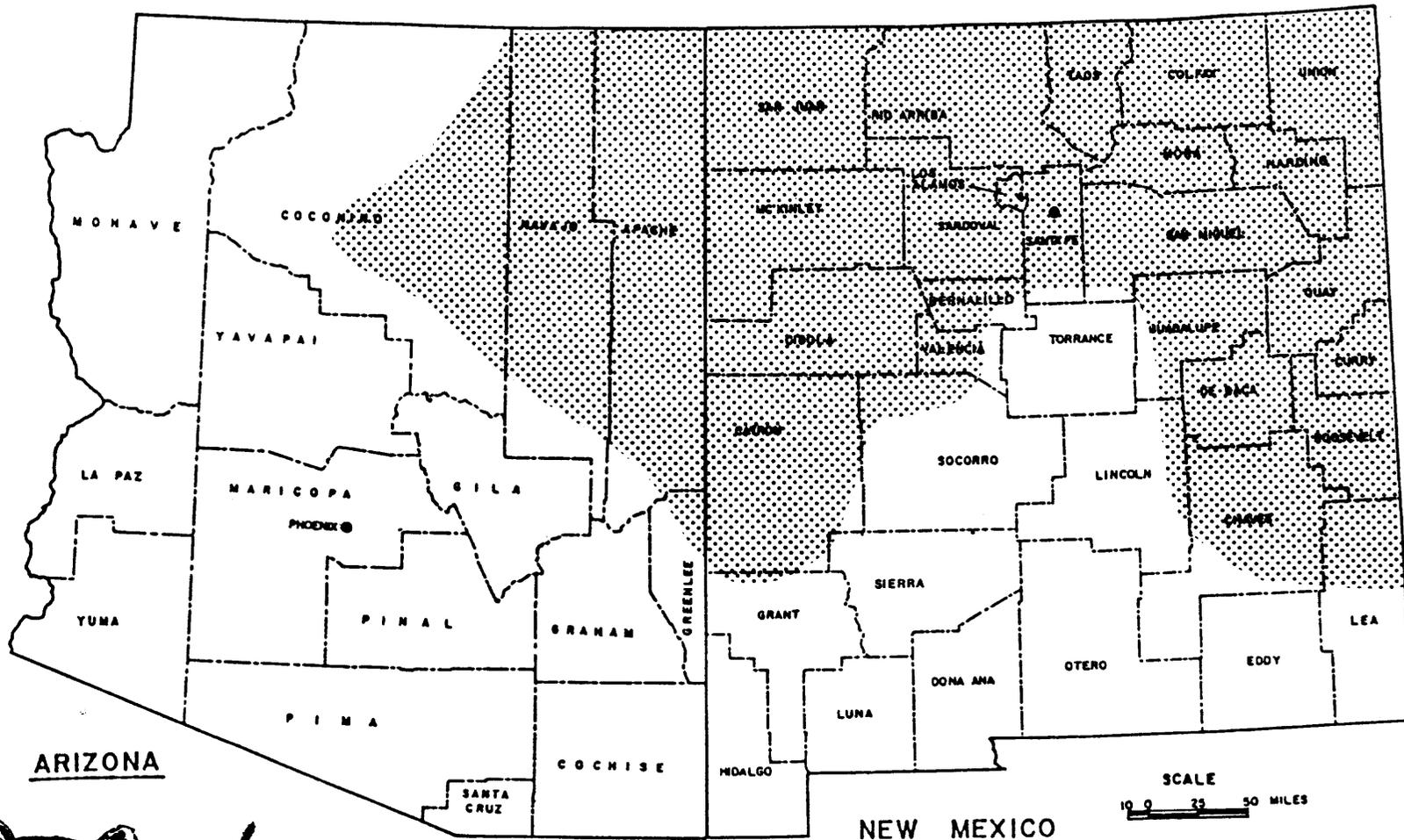
Historic: All or portions of the States of Colorado, Arizona, Utah, New Mexico, Kansas, Montana, Nebraska, Oklahoma, Texas, Wyoming, North Dakota, and South Dakota, and the Provinces of Alberta and Saskatchewan, Canada.

Present: New Mexico: no recent (post 1960) verified sightings. May still exist in McKinley, Rio Arriba, and San Juan Counties, New Mexico. A population was recently discovered in Wyoming and may still be present in other states. The best possibility in New Mexico appears to be in the four corners area.

REASONS FOR DECLINE: Loss of habitat due to destruction of original grasslands and prairie dog control programs that have eliminated the ferret's main food source and shelter. Canine distemper may have also been a factor in their decline.

OTHER INFORMATION: Recovery team appointed; recovery plan completed in 1978 and being implemented; Recovery plan being revised. Listed as endangered by Arizona and New Mexico. A captive breeding program is underway in Wyoming.

REFERENCES: Bailey 1931, Cockrum 1960, Findley et al. 1975, Hubbard et al. 1978, USFWS 1978a.



NEW MEXICO

SCALE  
0 25 50 MILES

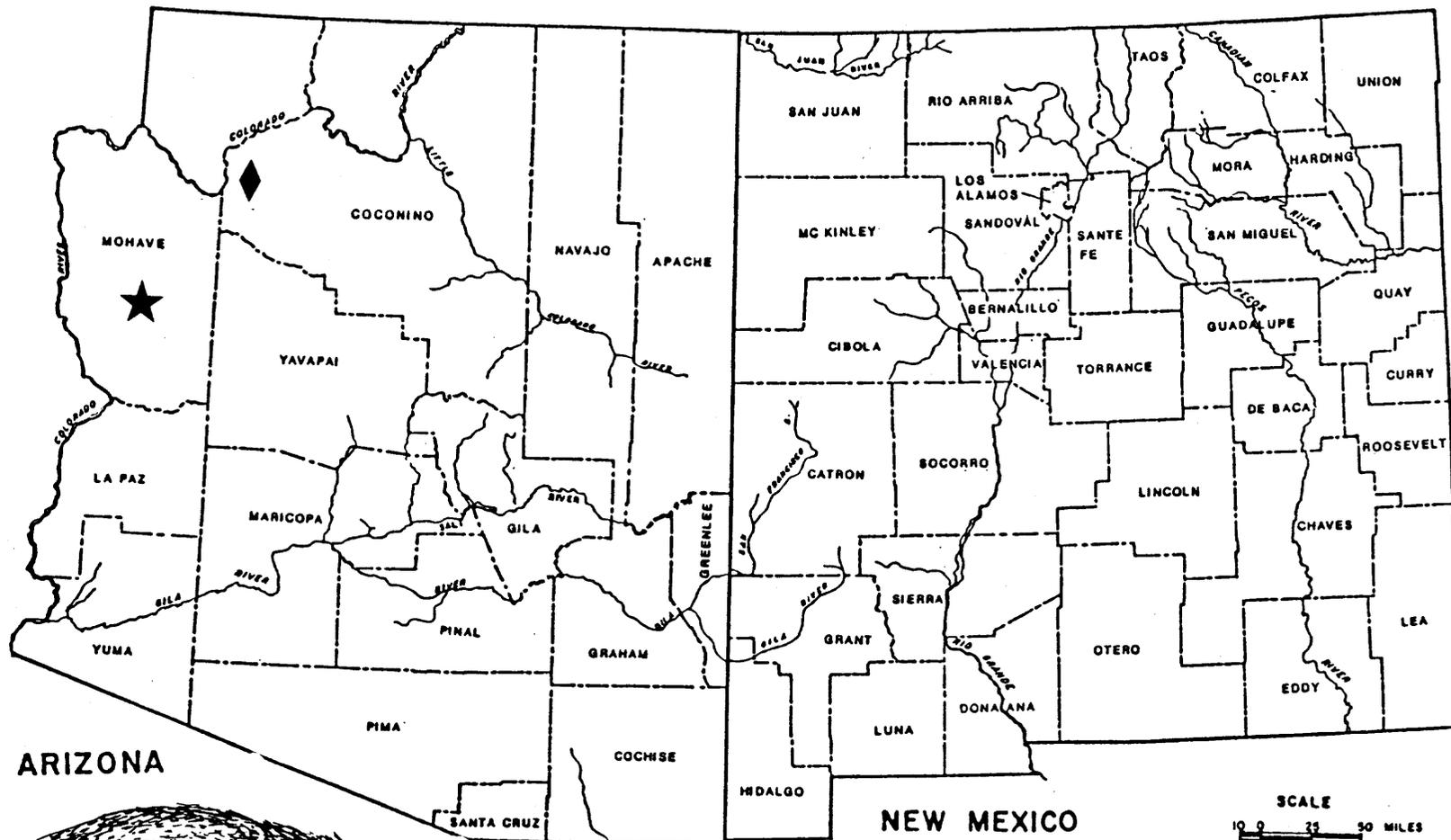
- LEGEND
- STATE CAPITAL
  - ▒ Historic range

**BLACK-FOOTED FERRET**

HUALAPAI VOLE.....Microtus mexicanus hualpaiensis

---

- STATUS: Endangered (52 FR 36776, October 1, 1987) without critical habitat.
- SPECIES DESCRIPTION: A small, cinnamon-brown, mouse-size mammal with a short tail and long fur that nearly covers its small, round ears.
- HABITAT: Primarily associated with dry grass/forb habitats in ponderosa pine dominated forest. The Hualapai vole is now found only in moist, grass/sedge along permanent or semipermanent waters (such as springs and seeps), but may be capable of occupying drier areas when grass/forbs habitats are available.
- DISTRIBUTION:
- Historic: Hualapai Mountains, Mohave County, Arizona. Additionally, two vole specimens that were collected in Prospect Valley, Coconino County, Arizona in 1913 have recently (Hoffmeister 1986) been reclassified from a different subspecies to the hualpaiensis subspecies. No other vole records exist from that locality.
- Present: Known from between 1770 and 2760m elevation in the Hualapai Mountains, Mohave County, Arizona. In 1981, four voles, that may be Hualapai voles, were collected in the Music Mountains., Mohave County, Arizona. These voles have not yet been subjected to a taxonomic analysis so their taxonomic status remains unknown.
- REASONS FOR DECLINE: Habitat loss due to livestock grazing, human recreation, and other problems.
- REFERENCES: Spicer et al. 1985, Hoffmeister 1986.



LEGEND

- ★ Present and Historic Range
- ◆ Historic Range

HUALAPAI VOLE

MEXICAN GRAY WOLF.....Canis lupus baileyi

---

STATUS: Endangered (32 FR 4001, March 11, 1967; 43 FR 1912, March 9, 1978) without critical habitat.

SPECIES DESCRIPTION: A large, dog-like carnivore; color varying, but usually some shade of gray. Distinct white lip line around mouth. Adults weigh between 60-90 pounds.

HABITAT: Normally upper Sonoran zone, but will range from 3,000 to 12,000 feet elevation. Vegetation types from chaparral desert scrub to spruce-fir belt. Will cross desert areas, but will not remain there.

DISTRIBUTION: Although five subspecies of gray wolf historically occurred in the Arizona-New Mexico area, the Mexican wolf is the last subspecies known to exist. The last specimen was collected in New Mexico-Arizona in 1970.

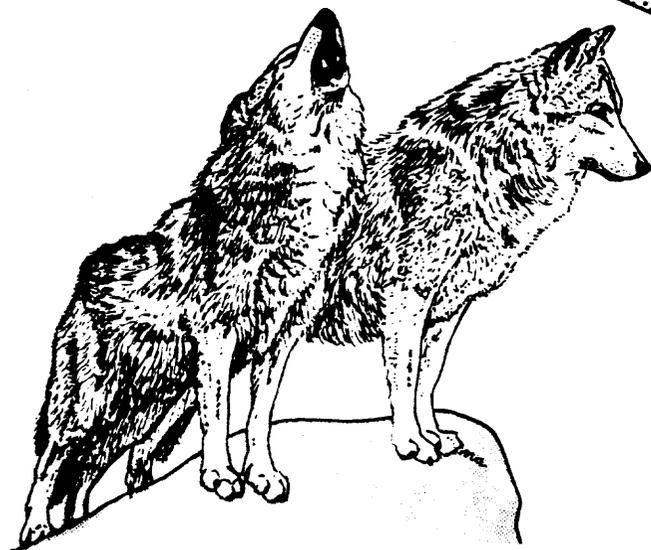
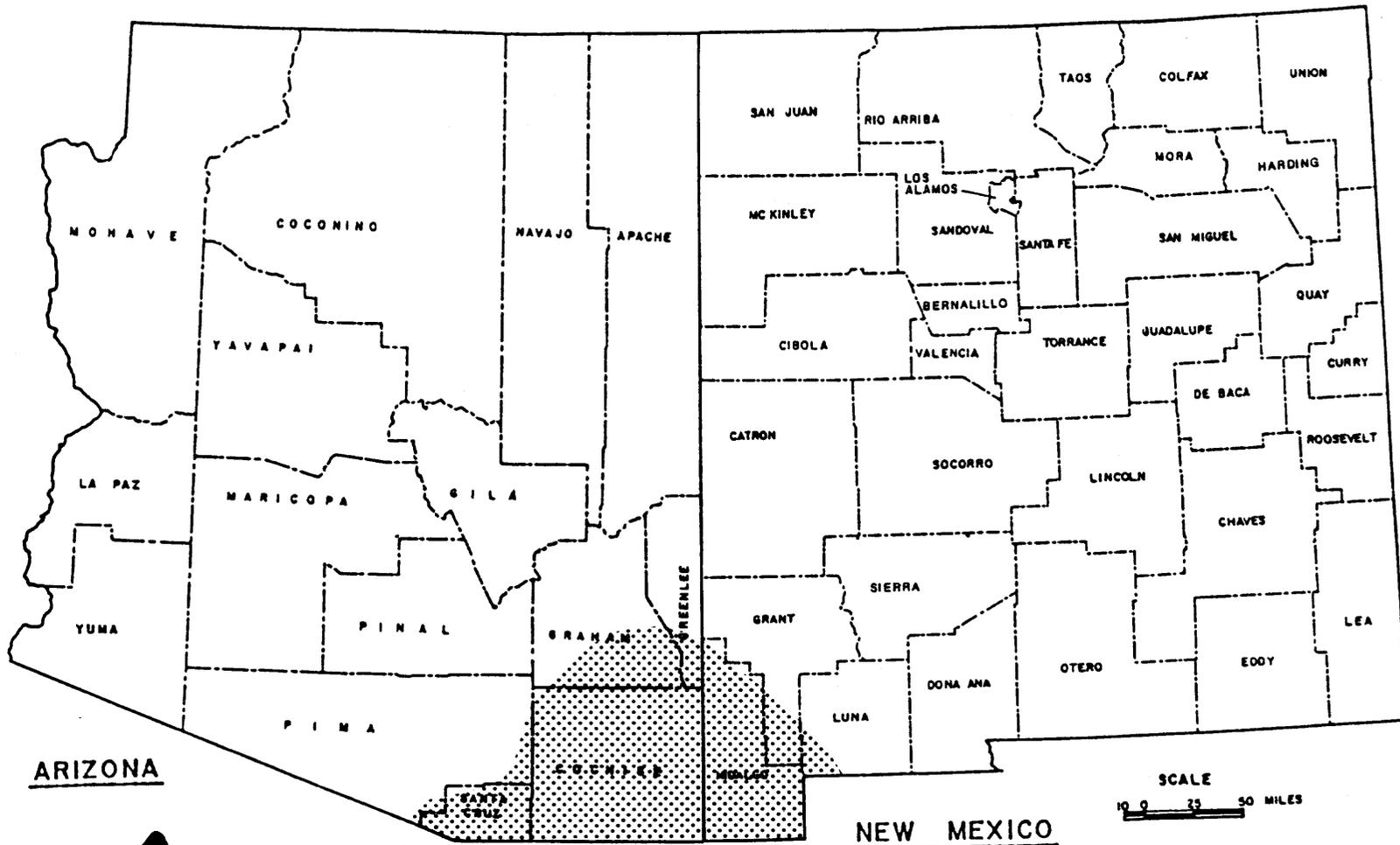
Historic: The southeast corner of Arizona, southwest New Mexico, and the Trans-Pecos region of Texas southward through the Sierra Madre and western tablelands to the Valley of Mexico in Mexico.

Present: Extirpated from the U.S. An estimated 50 wolves remained in Durango and Chihuahua, Mexico in 1980. Wild populations probably no longer exist. Undocumented reports still continue from Arizona, New Mexico, Chihuahua, and Durango.

REASONS FOR DECLINE: Federal, State, and private predator control programs eliminated wolves from Arizona, Texas, and New Mexico by the 1920's, except for stragglers from Mexico. The same programs may have eliminated the wolf in Mexico in the 1980's.

OTHER INFORMATION: Recovery team appointed; recovery plan signed in 1982 and being implemented. Captive-breeding program underway; 30 animals now in 4 U.S. zoos. Reestablishment in the wild is being investigated and a search is underway for suitable sites.

REFERENCES: Bailey 1931, Young and Goldman 1944, Hoffmeister and Goodpaster 1954, Hall and Kelson 1959, Cockrum 1960, Mech 1970, Hubbard et al. 1978, USFWS 1982a, Brown 1984.

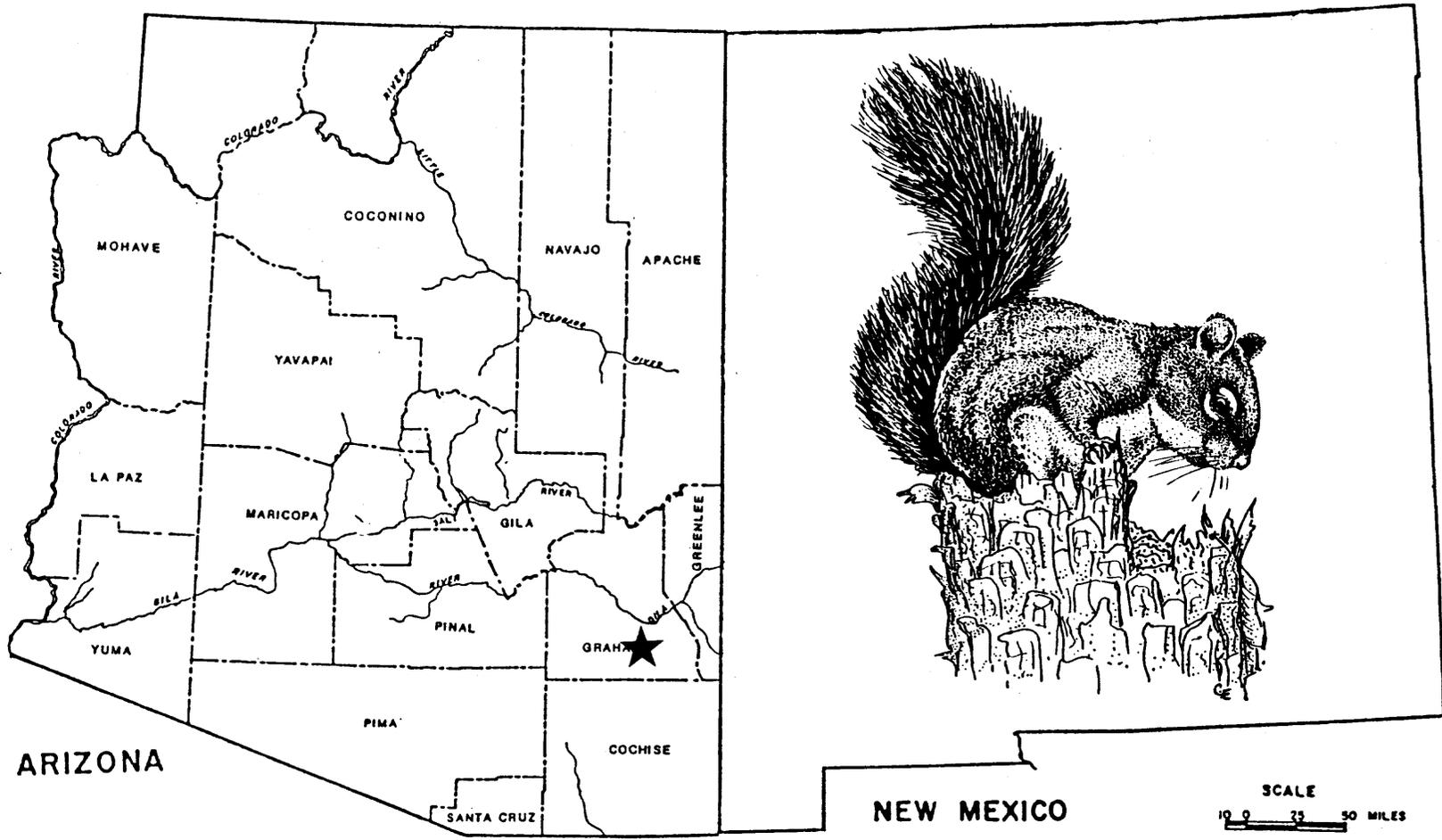


MEXICAN GRAY WOLF

MT. GRAHAM RED SQUIRREL.....Tamiasciurus hudsonicus grahamensis

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- STATUS: Endangered (June 3, 1987, 52 FR 20994); critical habitat proposed (May 21, 1986, 51 FR 18650)
- SPECIES DESCRIPTION: An arboreal (tree-living) squirrel that is grayish brown, tinged with rusty or yellowish along the back. In summer, a dark lateral line separates the light colored underparts from the grayer or browner sides. The ears are slightly tufted in the winter, and the tail is bushy. Diet consists largely of conifer seeds.
- HABITAT: Highest densities in spruce-fir forests but may also be found in Douglas fir/white fir forests. During the winter, this species depends on seed-bearing cones that it has stored at certain sites known as middens. These caches, usually associated with logs, snags, stumps, or a large live tree, are the focal points of individual territories. Number of middens offers an estimate of the number of resident squirrels in an area.
- DISTRIBUTION:
- Historic: Once common above 8,500 feet in the Pinaleno Mountains, southeastern Arizona.
- Present: Fewer than 300 squirrels are now estimated to exist, and these occur primarily above 9,400 feet in the Pinaleno Mountains.
- REASONS FOR DECLINE: Logging and possible competition with the introduced tassel-eared squirrel.
- OTHER INFORMATION: Proposed critical habitat includes mature spruce-fir stands on areas within the Hawk Peak-Mt. Graham area, the Heliograph Peak area, and the Webb Peak area.
- REFERENCES: Hall 1981, Hoffmeister 1986, Spicer et al. 1985.



**LEGEND**

★ Present and historic range

**MOUNT GRAHAM RED SQUIRREL**

SONORAN PRONGHORN.....Antilocapra americana sonoriensis

---

STATUS: Endangered (32 FR 4001, March 11, 1967) without critical habitat.

SPECIES DESCRIPTION: Buff-and-white, hoofed mammal with slightly curved horns having a single prong. Smallest and palest of the pronghorn subspecies.

HABITAT: Wide alluvial basins with desert grassland vegetation in the Sonoran Desert climatic zone.

DISTRIBUTION:

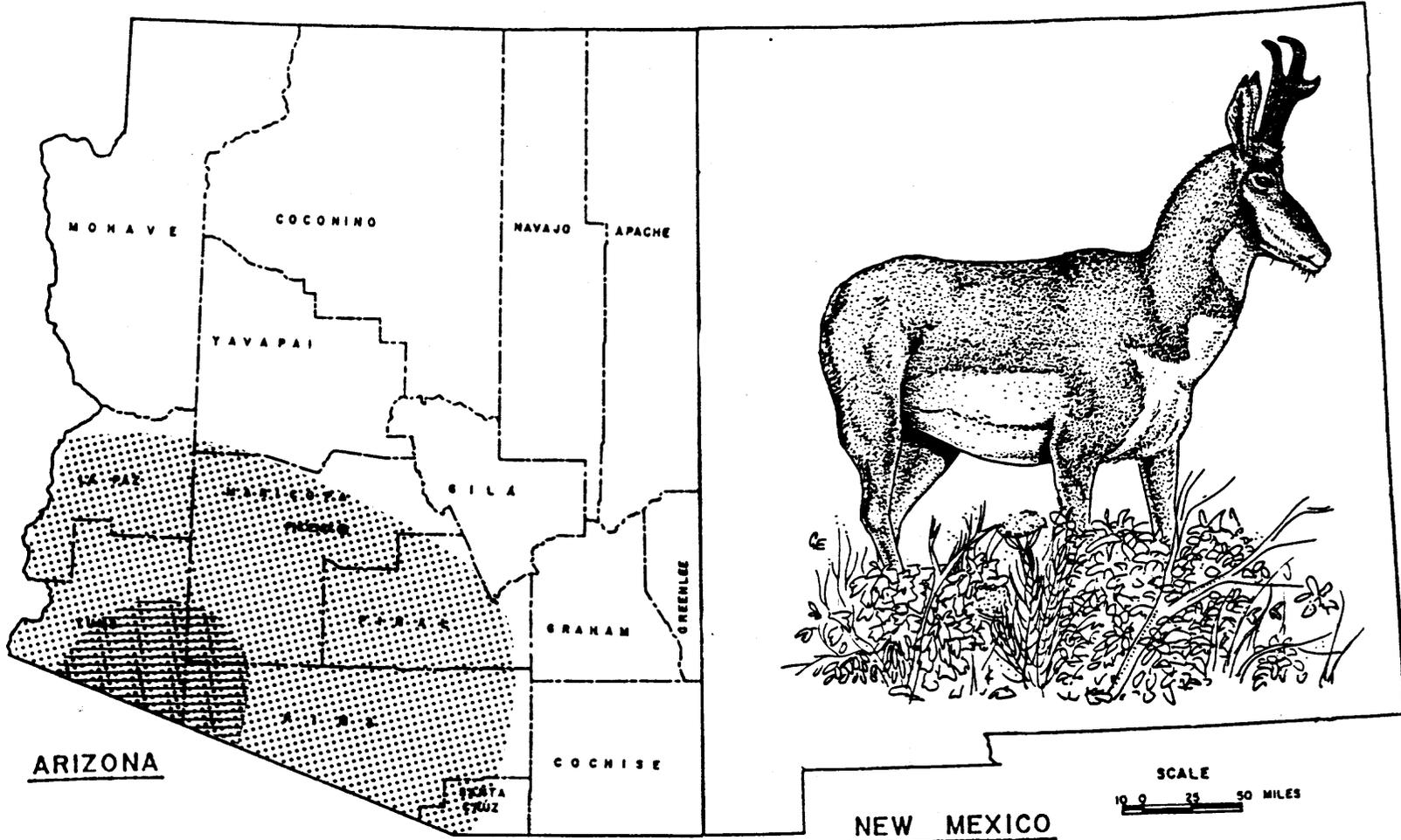
Historic: Southwest Arizona, south of the Bill Williams River and east to the Santa Cruz River. One specimen from Crittenden (formerly Ft. Buchanan) is considered to be a Sonoran pronghorn. In Mexico, the northern part of the State of Sonora.

Present: The Cabeza Prieta National Wildlife Refuge, Barry M. Goldwater Gunnery Range, and Organ Pipe Cactus National Monument (all in southwest Arizona). Some still found in northern Sonora and along the U.S.-Mexican border.

REASONS FOR DECLINE: Destruction of desert grasslands, riparian areas, and competition with introduced livestock.

OTHER INFORMATION: Recovery Team appointed; Recovery Plan signed in 1982 and being implemented. Also protected by Arizona.

REFERENCES: Carr 1969-1977, 1972; USFWS 1982c.



# SONORAN PRONGHORN

AMERICAN PEREGRINE FALCON.....Falco peregrinus anatum

---

- STATUS: Endangered (35 FR 16047, October 13, 1970; 35 FR 8495, June 2, 1970) without critical habitat.
- SPECIES DESCRIPTION: A reclusive, crow-sized falcon; slatey blue-gray above, whitish below. Black head with vertical "bandit's mask" pattern over eyes. Long, pointed wings. Loud wailing call during breeding.
- HABITAT: Areas with rocky, steep cliffs, preferably near water where bird (primary prey) concentrations are high. In Arizona and New Mexico, it prefers the transition life zone from 6,500 to 8,500 feet elevation, but may be found from 3,500 to 9,000 feet.
- DISTRIBUTION: (no map)
- Historic: Breeding range from Canada and Alaska south into Baja California, central Mexican highlands, and northwest Mexico, including continental U.S. except southeast quarter of the country. Most birds probably spend the winter in Mexico and Central and South America. In Arizona and New Mexico, birds were found over the entirety of both states and included both resident and migrant birds.
- Present: Most breeding populations confined to the mountainous areas of the western U.S. and Canada.
- REASONS FOR DECLINE: Reproductive failure due to organochlorine pesticides.
- OTHER INFORMATION: Recovery Team appointed; Recovery Plan revised in 1984 and being implemented. Greatest number of breeding pairs in contiguous U.S. is in the Southwest. Fair numbers occur in Mexico also. Protected by Arizona and New Mexico. Pesticide problem still severe in some areas.
- REFERENCES: Bailey 1928, Bond 1946, Ligon 1961, Phillips et al. 1964, Enderson 1965, Hubbard et al. 1978, USFWS 1984a.

ARCTIC PEREGRINE FALCON.....Falco peregrinus tundrius

---

STATUS: Threatened (49 FR 10520, March 20, 1984) without critical habitat.

SPECIES DESCRIPTION: Slightly smaller and paler than the American peregrine.

HABITAT: Nests in arctic tundra, winters in Central and South America, especially along coastlines and in mountains.

DISTRIBUTION: (no map)

This subspecies does not nest in either Arizona or New Mexico, but may occasionally pass through either state on migrations to and from wintering grounds.

REASONS FOR DECLINE: Reproductive failure due to organochlorine pesticides.

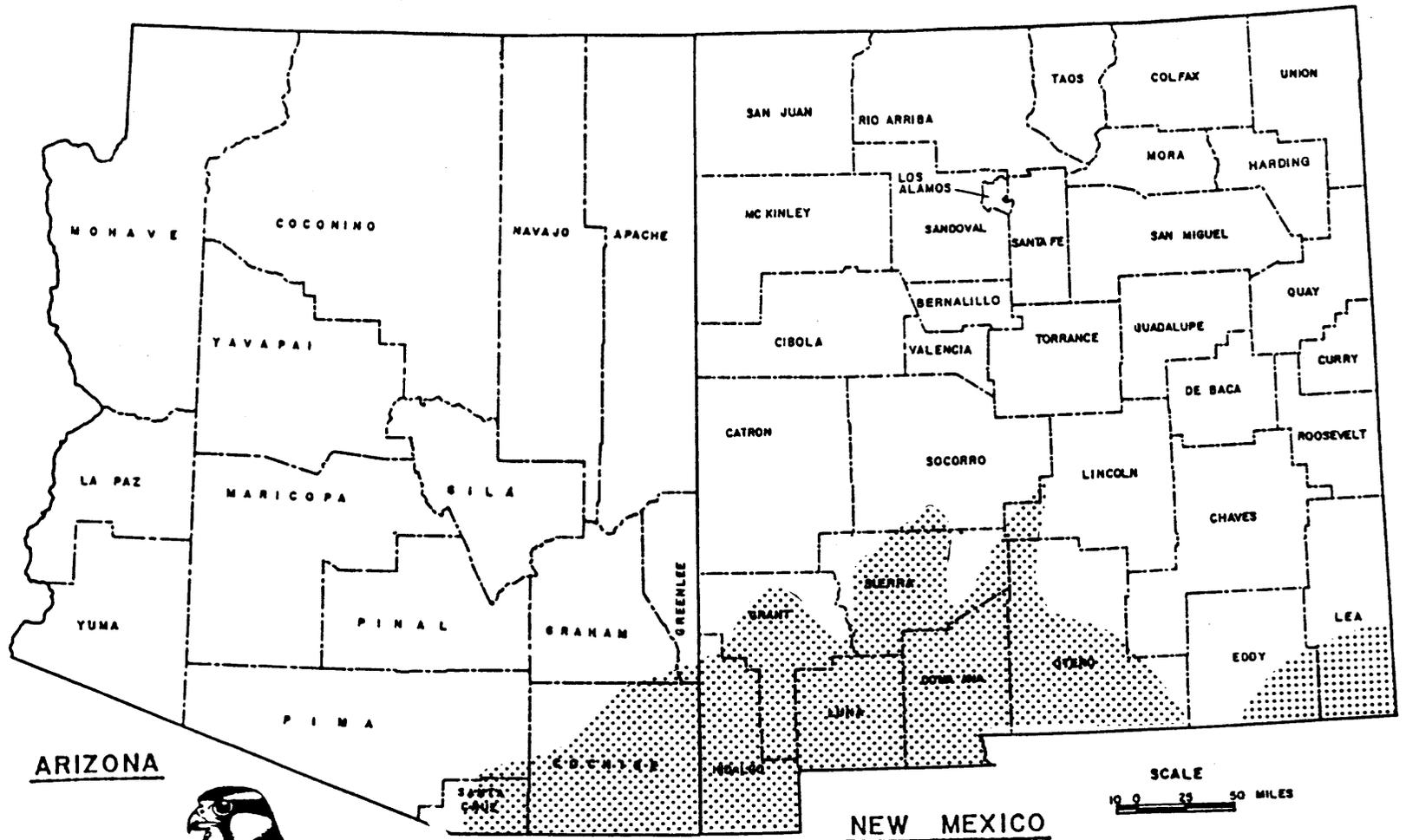
OTHER INFORMATION: Recent population increases due to reduced contaminant levels resulted in the recent downlisting to threatened status. Recovery Team appointed; Recovery Plan approved and being implemented.

REFERENCES: Oberholser 1974.

APLOMADO FALCON.....Falco femoralis septentrionalis

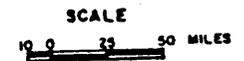
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- STATUS:** Endangered (51 FR 6686; January 25, 1986) without critical habitat.
- SPECIES DESCRIPTION:** Adults characterized by rufous (rust) underparts, a gray back, a long and banded tail, and a distinctive black and white facial pattern. Aplomado falcons are smaller than peregrine falcons and larger than kestrels. Birds compose the bulk of their food; these are supplemented by insects, small snakes, lizards, and rodents. They lay their eggs between the months of March and June.
- HABITAT:** Open terrain with scattered trees, relatively low ground cover, an abundance of small- to medium-sized birds, and a supply of suitable nesting platforms, particularly yuccas and mesquite.
- DISTRIBUTION:**
- Historic: In the United States, southeastern Arizona, southern New Mexico, and southern Texas. In Mexico, the States of Tamaulipas, Chiapas, Campeche, Tabasco, Chihuahua, Coahuila, Sinaloa, Jalisco, Guerrero, Veracruz, Yucatan, and San Luis Potosi. Also, the western coast of Guatemala.
- Present: No nests have been verified in the United States since 1952, when a nest was reported from near Deming, New Mexico. A few migrant birds may still pass through the U.S. Now known to nest only in the Mexican States of Veracruz, Chiapas, Campeche, and Tobasco.
- REASONS FOR DECLINE:** Habitat degradation due to brush encroachment, overcollecting, and reproductive failure caused by organochlorine pesticides.
- OTHER INFORMATION:** Listed as extirpated by the Arizona Game and Fish Commission (1982); protected as a nongame species by the State of Texas. The Service is working with The Peregrine Fund to obtain nestlings from Mexico to increase the captive population for breeding and reintroduction efforts in the United States. Surveys are being undertaken in Mexico. Recovery plan drafted 1987.
- REFERENCES:** Kiff et al. 1978; Hector 1981, 1983, 1985; USFWS 1986a.



ARIZONA

NEW MEXICO



LEGEND

 Historic range

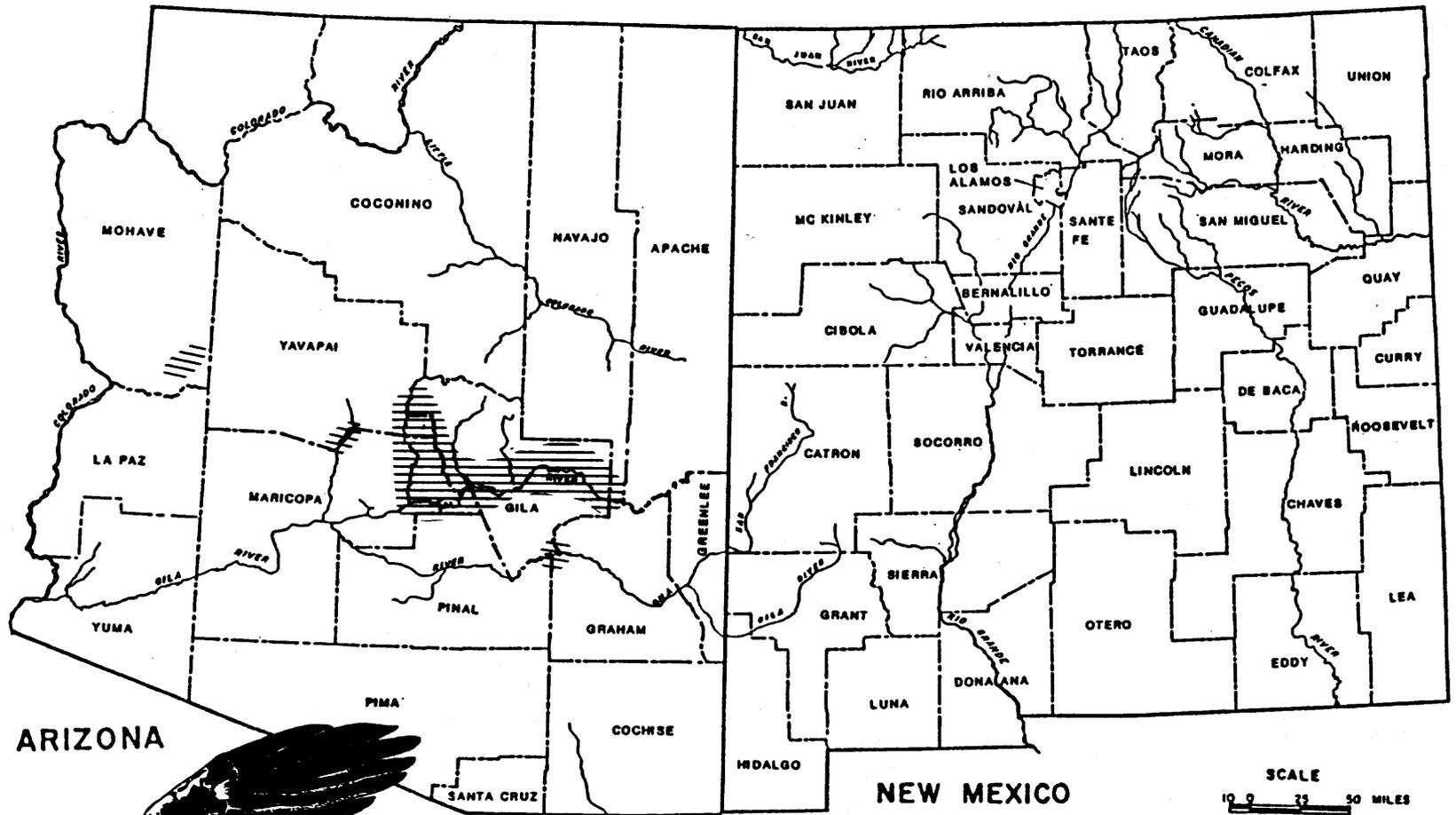


**APLOMADO FALCON**

BALD EAGLE.....Haliaeetus leucocephalus

---

- STATUS: Endangered (32 FR 4001, 3/11/67; 43 FR 6233, 2/14/78) without critical habitat
- SPECIES DESCRIPTION: Large eagle with white head and tail in the adult; immatures are dark or mottled. Feet are bare of feathers.
- HABITAT: Bald eagles require large trees or cliffs near water with abundant fish for nesting. They spend the winters along major rivers, reservoirs, or in areas where fish and/or carrion is available. For nesting eagles, fish are the primary food source. Waterfowl, rabbits, and carrion are important food items for transient and wintering eagles.
- DISTRIBUTION:
- Historic: Found throughout the U.S., Canada, and northern Mexico. Resident eagles occur in Arizona and there are wintering populations in both New Mexico and Arizona.
- Present: Wintering eagles are found along rivers and major reservoirs in both states. A small resident population nests primarily along the Salt and Verde Rivers in Arizona. New nest sites along the Gila, Bill Williams, and Agua Fria drainages indicate that the population in Arizona is expanding. Other resident and migrant populations are found nationwide, but are much reduced from former numbers. May be locally abundant at certain times. No bald eagles presently nest in New Mexico.
- REASONS FOR DECLINE: Degradation and loss of riparian habitat, pesticide-induced reproductive failure, shooting, and human disturbance.
- OTHER INFORMATION: Recovery Plan approved in 1982. Protected by the States of Arizona and New Mexico. Currently there are 20 known breeding territories in Arizona. An average of 16 young have fledged each year for the past six years (1981-1986). The Bureau of Reclamation has recently contracted a 4-year study to investigate the limiting factors, movements, and foraging ecology of bald eagles nesting in Arizona.
- REFERENCES: USFWS 1975, Rubink and Podborny 1976, Ohmart and Sell 1980, USFWS 1982d, Haywood and Ohmart 1983, Busch in press (1987), Johnson in press (1987).



ARIZONA

NEW MEXICO

SCALE  
10 25 50 MILES

LEGEND

≡≡≡ Range of Resident Populations



BALD EAGLE

CALIFORNIA BROWN PELICAN.....Pelecanus occidentalis californicus

---

STATUS: Endangered (35 FR 16047, October 13, 1970; 35 FR 18320, December 2, 1970) without critical habitat

SPECIES DESCRIPTION: Large, dark gray-brown water bird with a pouch underneath a long bill and with webbed feet. Adults have a white head and neck, a brownish black breast and belly, and silver grayish upper parts.

HABITAT: This subspecies lives in coastal areas and nests on islands.

DISTRIBUTION:

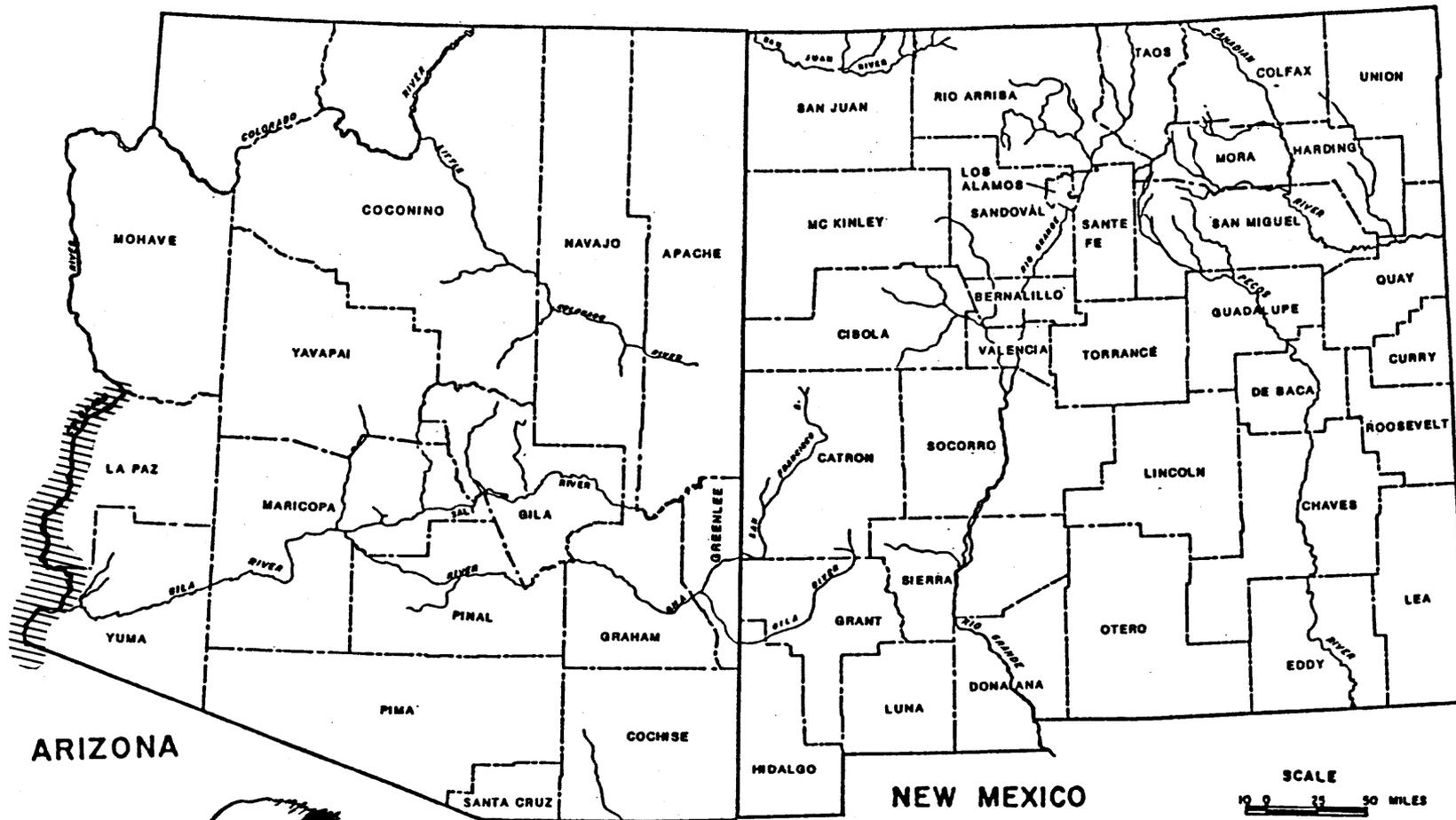
Historic: Pacific Coast from Canada through Mexico. Lower Colorado River as transients. Breeds only as far north as central California.

Present: Still found as transients in Arizona along the lower Colorado River and are occasionally blown into central Arizona by storms. Populations exist along the California and Mexico coasts.

REASONS FOR DECLINE: Reproductive failure due to pesticides.

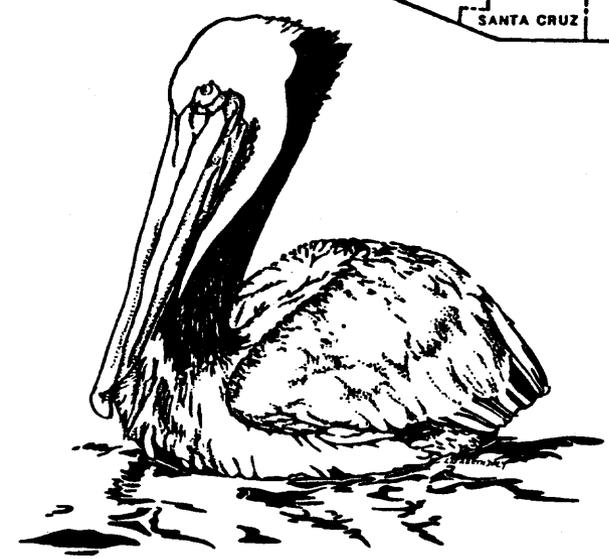
OTHER INFORMATION: Recovery Team appointed; Recovery Plan completed 1983.

REFERENCES: Phillips et al. 1964, USFWS 1983b.



LEGEND

≡ Present range



CALIFORNIA BROWN PELICAN

INTERIOR LEAST TERN (Interior population).....Sterna antillarum

---

- STATUS:** Threatened (50 FR 21784; May 28, 1985) without critical habitat
- SPECIES DESCRIPTION:** Least terns are small birds with a 20 inch wingspread. Sexes are alike, characterized in the breeding plumage by a black crown, white forehead, grayish back and dorsal wing surfaces, snowy white undersurfaces, orange legs, and a black-tipped yellow bill. Breeding colonies contain from about 5 to 75 nests.
- HABITAT:** Important characteristics of its breeding habitat include: (1) The presence of bare or nearly bare ground on alluvial islands or sandbars for nesting; (2) the availability of food (primarily small fish); and (3) the existence of favorable water levels during the nesting season (so nests remain above water).
- DISTRIBUTION:**
- Historic: Sand bars on the Colorado (in Texas), Red, Rio Grande, Arkansas, Missouri, Ohio and Mississippi River systems; braided rivers of southwest Kansas, northwest Oklahoma; salt flats in northwest Oklahoma (Great Salt Plains NWR); and playa lakes in southeast New Mexico (Bitter Lake NWR).
- Present: Terns presently occur as small remnant colonies within their historic distribution.
- REASONS FOR DECLINE:** Many nesting areas have been permanently inundated or destroyed by reservoirs and channelization projects. Alteration of natural river or lake dynamics has caused unfavorable vegetational succession on many remaining islands, curtailing their use as nesting sites by terns. Recreational use of sandbars, release of reservoir water, and annual spring floods often inundate nests.
- OTHER INFORMATION:** Recovery plan drafted 1986. The Service is working with the States of New Mexico, Texas, Oklahoma, and the Bureau of Reclamation to monitor tern populations.
- REFERENCES:** Downing 1980, Ducey 1981, Faanes 1983, USFWS 1986d.



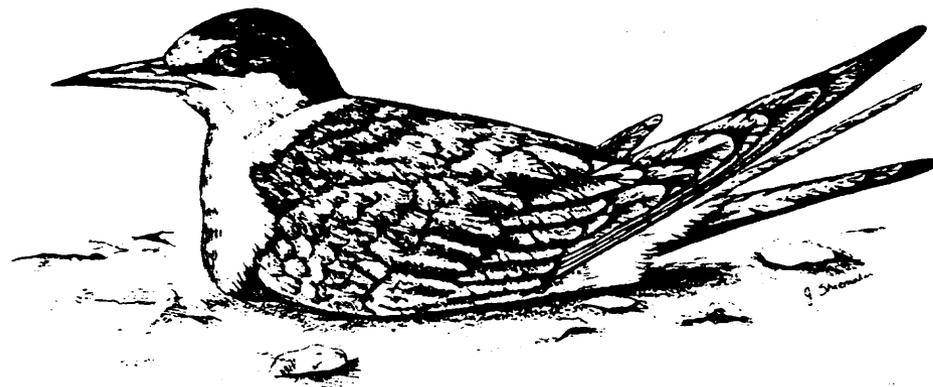
ARIZONA

NEW MEXICO

SCALE  
0 25 50 MILES

LEGEND

≡ Present range

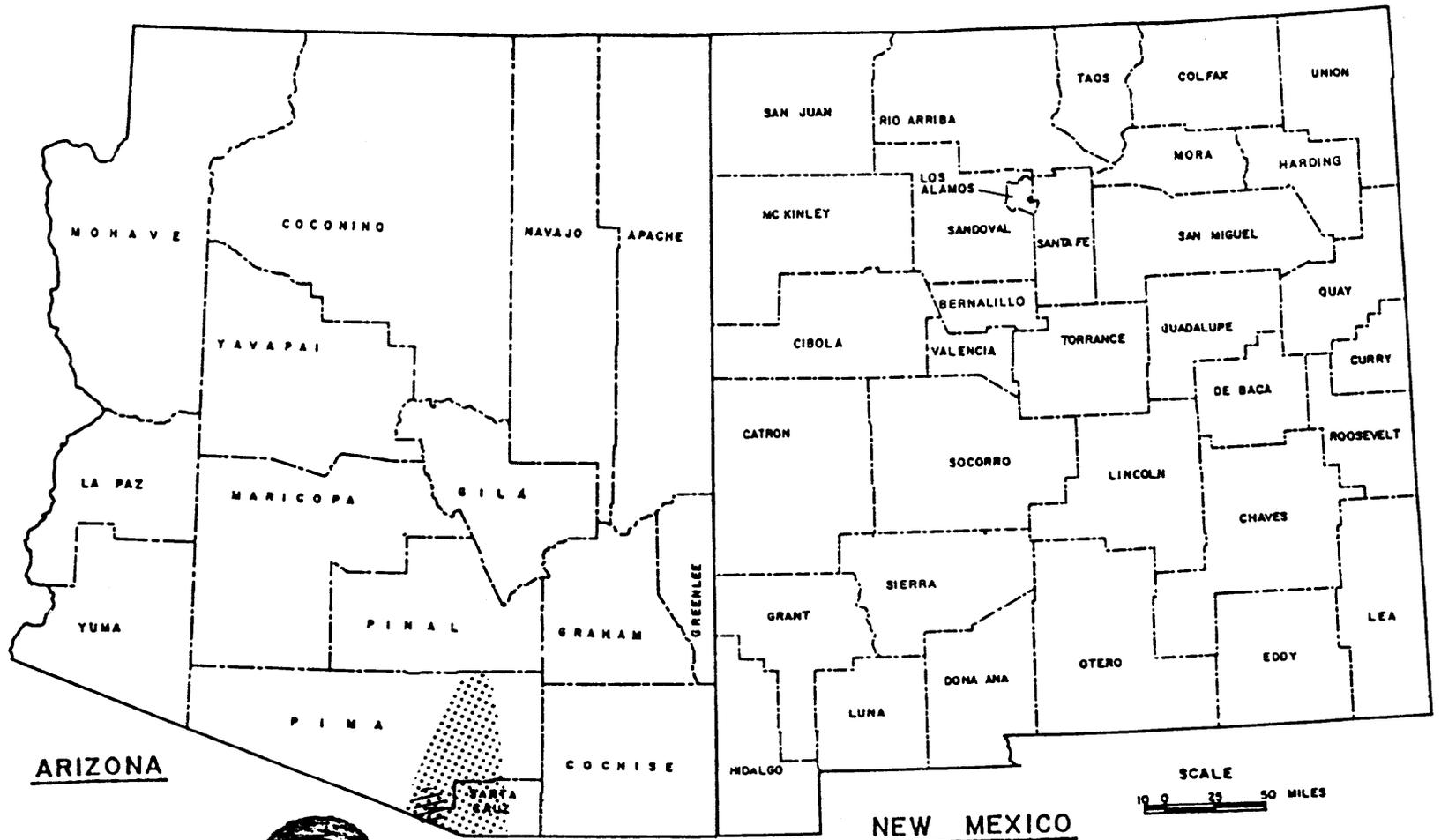


INTERIOR LEAST TERN

MASKED BOBWHITE.....Colinus virginianus ridgewayi

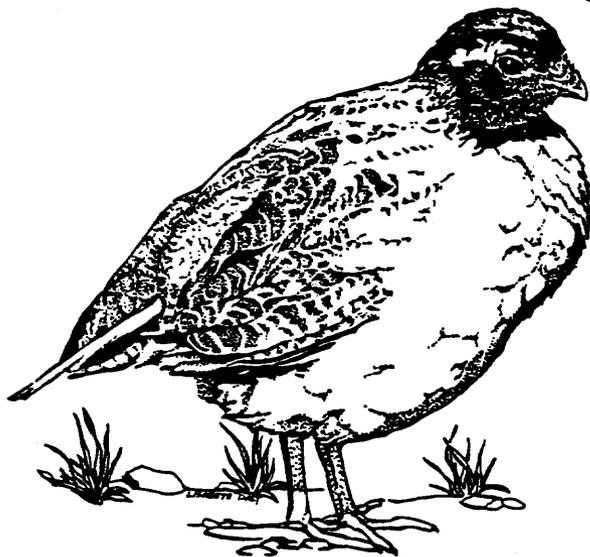
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- STATUS: Endangered (35 FR 4001, March 11, 1967; 35 FR 8495, June 2, 1970) without critical habitat
- SPECIES DESCRIPTION: Males are characterized by a brick-red breast and a black head and throat. Females closely resemble other races of the species and are essentially indistinguishable from the Texas bobwhite, Colinus virginianus texanum.
- HABITAT: Desert grasslands at 1,000-4,000 feet elevation with a high diversity of grasses and forbs and adequate brush cover.
- DISTRIBUTION:
- Historic: Grasslands throughout most of Sonora, Mexico, and the Altar and Santa Cruz Valleys south of Tucson, Arizona.
- Present: One remaining population in central Sonora, Mexico. Extremely rare; there are at most a few hundred birds remaining. Reintroduced into the Buenos Aires National Wildlife Refuge in Pima County, Arizona. Reproduction is occurring in the refuge population. Additional releases on the Refuge are planned through 1988.
- REASONS FOR DECLINE: Loss and deterioration of habitat due to overgrazing.
- OTHER INFORMATION: Recovery plan completed in 1977 and updated in 1984. Intensive restoration, management, and research efforts are underway on the newly acquired Buenos Aires National Wildlife Refuge in the southern Altar Valley. Captive-breeding program is continuing at Patuxent Wildlife Research Center. Protected by the State of Arizona.
- REFERENCES: Tomlinson 1972a, 1972b; USFWS 1984f; Johnson and Hoffman 1985; Stromberg et al. 1986.



LEGEND

- ⋯ Historic range
- ≡ Present range

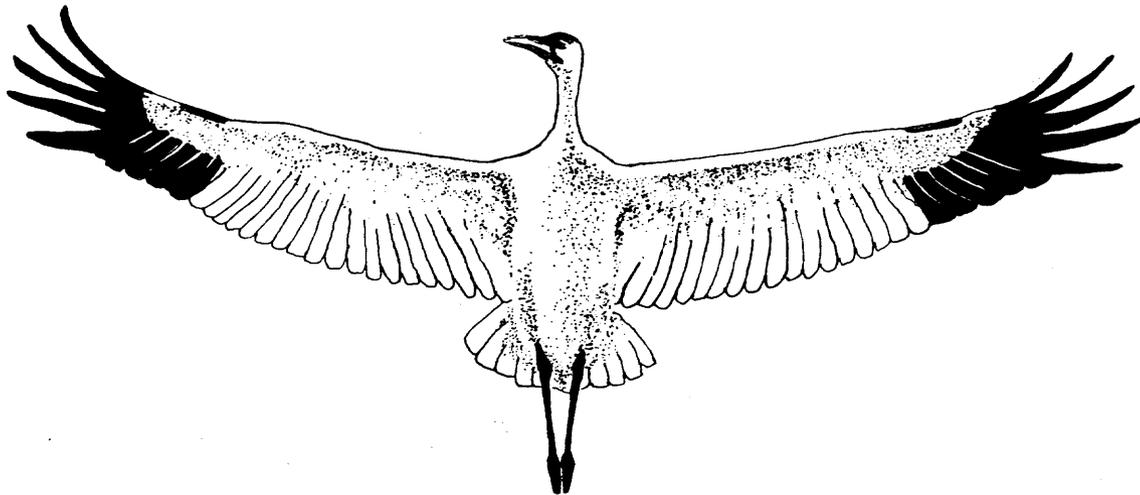
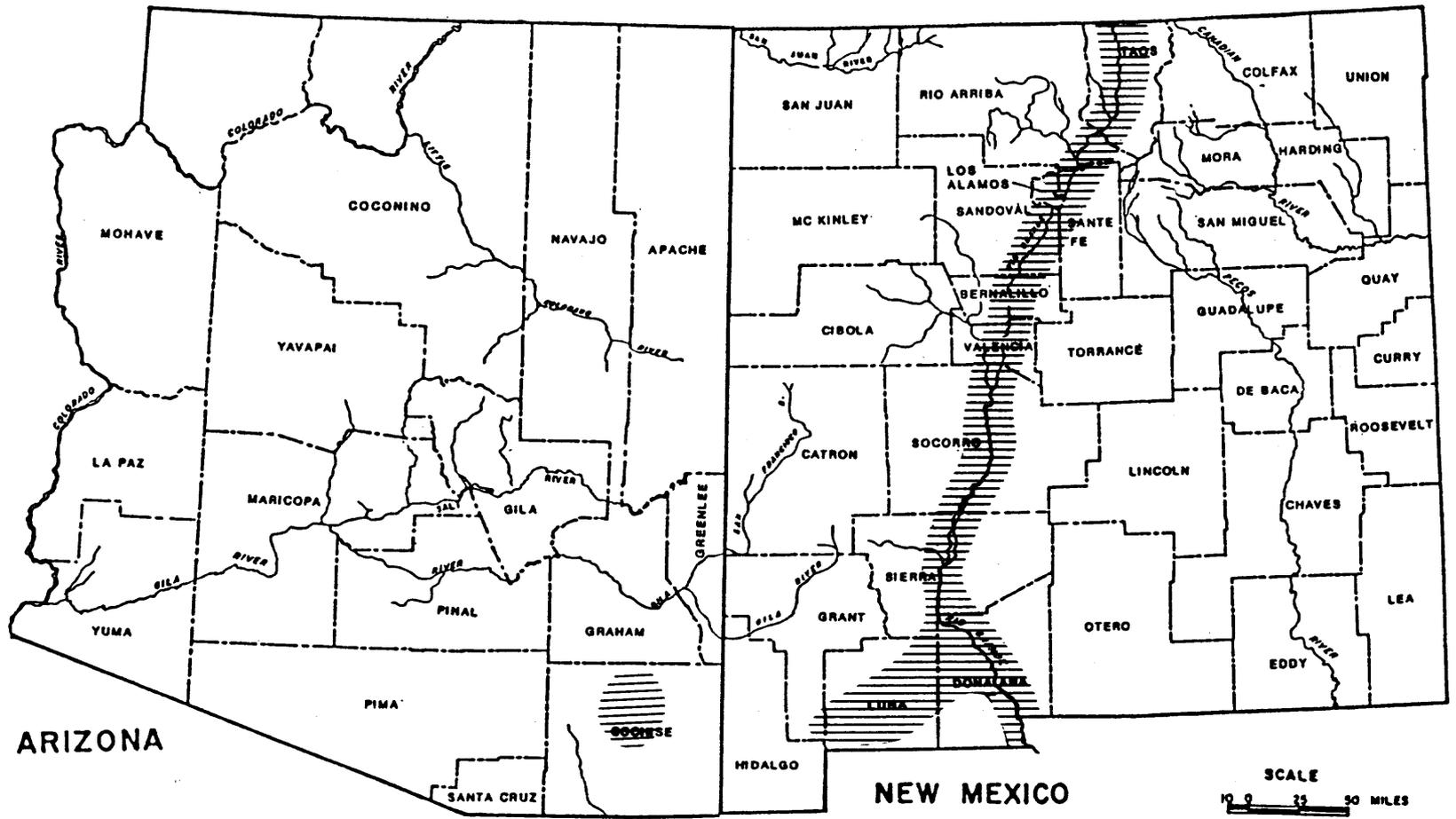


**MASKED BOBWHITE**

WHOOPING CRANE (Rocky Mountain population)....Grus americana

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- STATUS:** Endangered (32 FR 4001, March 11, 1967; 35 FR 8495, June 2, 1970) with critical habitat (43 FR 20938, May 15, 1978).
- SPECIES DESCRIPTION:** The tallest American bird; males approach 5 feet tall. A large, snowy white, long-necked bird with long legs that normally trail behind in flight, black primary feathers, a red crown, and a wedge-shaped patch of black feathers behind the eye.
- HABITAT:** Marshes, river bottoms, potholes, prairies, cropland. Whooping cranes feed on small grains (corn, wheat, sorghum, barley) in agricultural fields, green forage (alfalfa, winter wheat), aquatic plants (tubers and leaves), insects, crustaceans, and small vertebrate animals.
- DISTRIBUTION:**
- Historic: This bird once ranged over most of North America but probably never occurred in large numbers. By the 19th Century, only a few thousand survived. Until the experimental reintroduction which began in 1975, whooping cranes were not sighted in New Mexico after 1938. Historically, birds that summered in the northern Rocky Mountain states and western Canada probably passed through New Mexico en route to and from their wintering areas in the Mexico highlands.
- Present: The middle Rio Grande Valley, New Mexico is the wintering area for the experimental Rocky Mountain population which numbered 25 birds in the fall of 1986. The only wild, self sustaining crane population breeds in Wood Buffalo National Park, Northwest Territory, Canada, and winters along the south Texas coast adjacent to and including Aransas National Wildlife Refuge and Matagorda Island. The Wood Buffalo/Aransas population contained 110 whooping cranes in the winter of 1986-87.
- REASONS FOR DECLINE:** Destruction of wintering and breeding habitat, hunting, collisions with powerlines and fences, specimen collecting, and human disturbance.
- OTHER INFORMATION:** The Recovery Team appointed in 1976 and the first Recovery Plan published in 1980. The Recovery Plan was revised in 1986. Protected by Canada and New Mexico. Intensive captive-breeding program conducted by the U.S. Fish and Wildlife Service and the Canadian Wildlife Service.
- REFERENCES:** Allen 1952, Hubbard et al. 1978, USFWS 1986m.



**LEGEND**

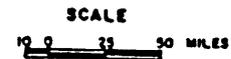
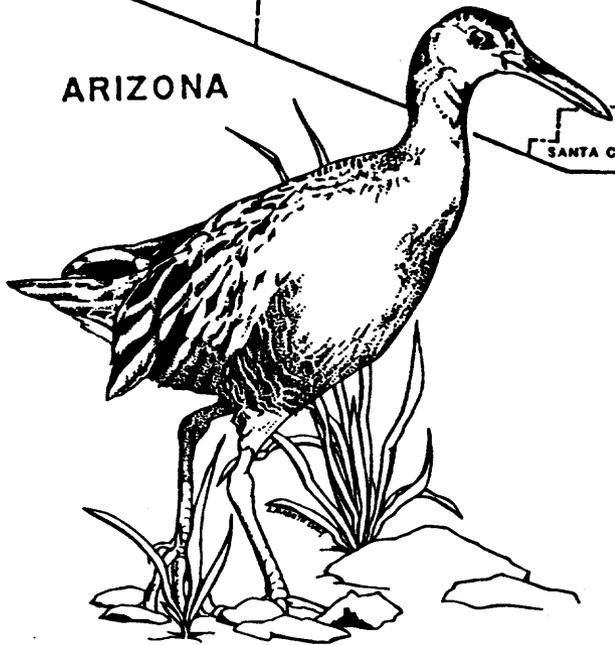
Present winter range

**WHOOPING CRANE**

YUMA CLAPPER RAIL.....Rallus longirostris yumanensis

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- STATUS: Endangered (32 FR 4001; March 11, 1967) without critical habitat
- SPECIES DESCRIPTION: A small, hen-sized water bird with long legs and long, slender, decurved (downward curved) bill. Tawny-gray with barred feathers, and a short tail.
- HABITAT: Fresh or brackish water with tule and cattail, or salt cedar marshes with shallow water, mud flats, and stands of dense vegetation.
- DISTRIBUTION:
- Historic: Marshes of the lower Colorado River and its tributaries in Mexico and the U.S.
- Present: In Arizona, this species has expanded north along the Colorado River as marsh habitat has formed behind dams. It now breeds as far north as Topock Marsh on the Havasu National Wildlife Refuge. It is also occasionally found in the Salt River marshes north of Phoenix and Picacho Reservoir in Pinal County. Populations also exist on the Colorado River delta in Mexico and the Salton Sea in California.
- REASONS FOR DECLINE: Floods and destruction of habitat.
- OTHER INFORMATION: Recovery Plan approved 1983. Protected by the States of Arizona and California. The Service has contracted to conduct a study on the ecology of the species; the study should be completed in 1988.
- REFERENCES: Ohmart and Smith 1973, Ohmart and Tomlinson 1977, USFWS 1983d.



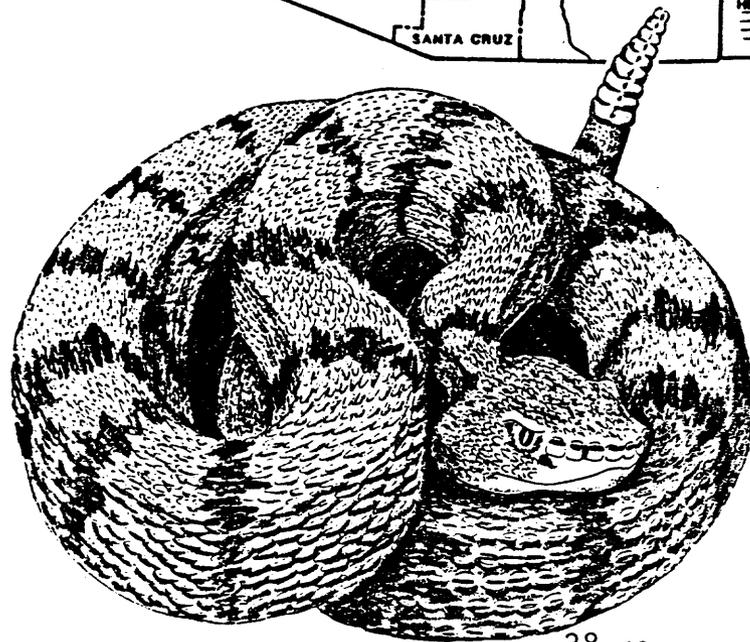
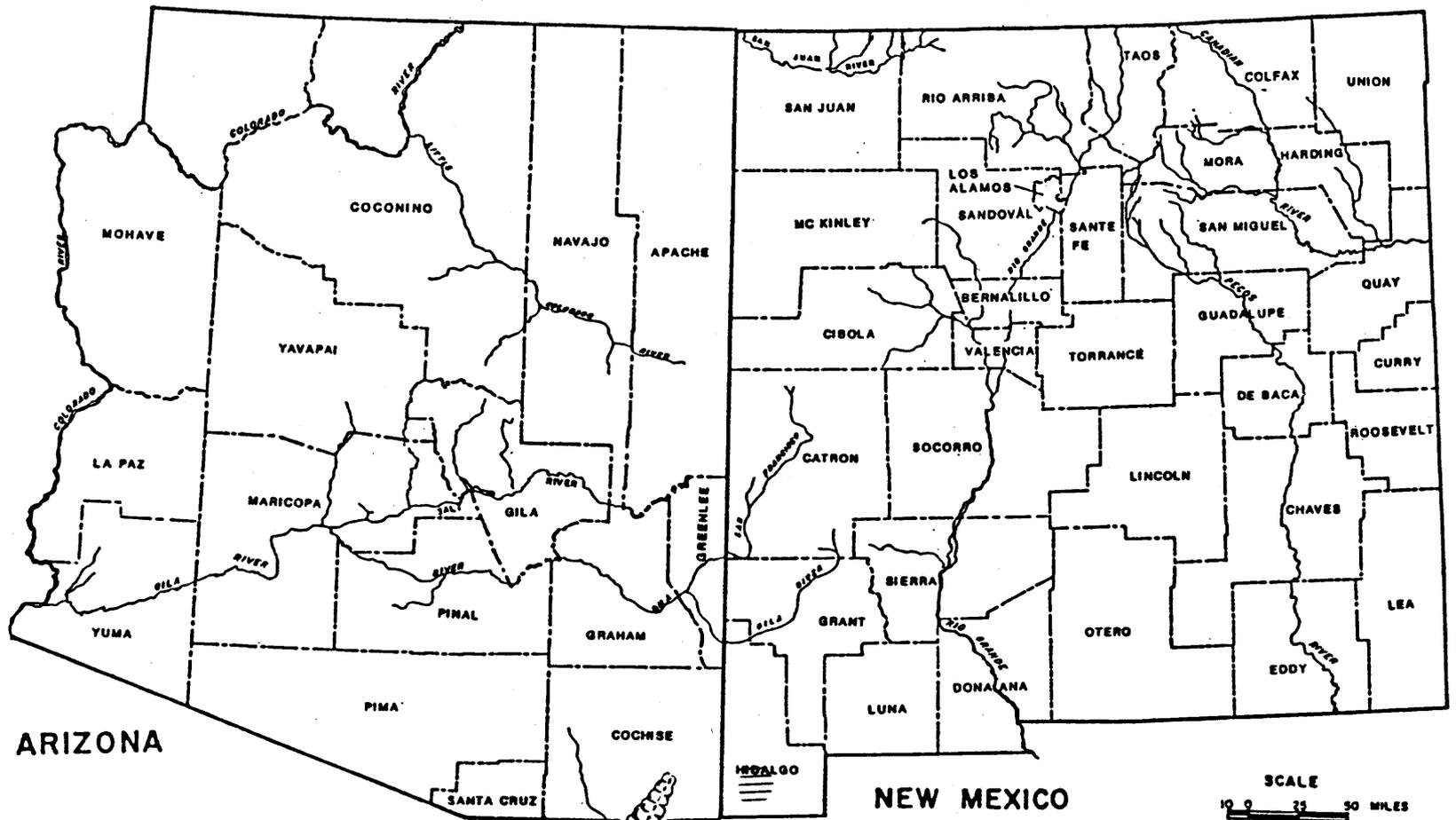
**LEGEND**  
 Present range/sites

**YUMA CLAPPER RAIL**

NEW MEXICAN RIDGE-NOSED RATTLESNAKE.....Crotalus willardi obscurus

---

- STATUS: Threatened (43 FR 34479, August 4, 1978) with critical habitat.
- SPECIES DESCRIPTION: Small (12-24 inches), secretive grayish-brown rattlesnake with a distinct ridge on the end of the snout. The upper surface has obscure, irregularly spaced white cross bars edged with brown (not a bold pattern).
- HABITAT: High mountain canyons in the pine-oak and pine-fir belts at elevations between 5,600 and 9,000 feet.
- DISTRIBUTION:
- Historic: Limited areas in northern Mexico and extreme southwestern New Mexico.
- Present: In New Mexico, Animas Mountains, Hidalgo County above 6,200 feet. Populations also exist in the Sierra de San Luis in northwestern Chihuahua, Mexico.
- REASONS FOR DECLINE: Over-exploitation by collectors; habitat alteration. Species was never common.
- OTHER INFORMATION: Listed as endangered by New Mexico. Recovery plan completed in 1985.
- REFERENCES: Harris and Simmons 1975, New Mexico Dept. of Game and Fish 1985d, USFWS (no date).



NEW MEXICAN  
RIDGE-NOSED RATTLESNAKE

APACHE (ARIZONA) TROUT.....Salmo apache

---

STATUS: Threatened (40 FR 29864, July 19, 1975) without critical habitat.

SPECIES DESCRIPTION: A yellow or yellow-olive cutthroat-like trout with large dark spots on body. Dorsal, anal, and caudal fins edged with white. No red lateral band.

HABITAT: Clear, cool water of high mountain streams.

DISTRIBUTION:

Historic: Headwater streams of the Black, White, San Francisco, and Little Colorado Rivers in the White Mountains of eastern Arizona.

Present: (1) Pure populations remain in a few streams on the Fort Apache Indian Reservation and Apache-Sitgreaves National Forest as follows: Boggy Creek (Reservation), Crooked Creek (Reservation), South Fork Diamond Creek (Reservation), East Fork White River (Reservation), Centerfire Creek (National Forest), and Soldier Creek (National Forest).

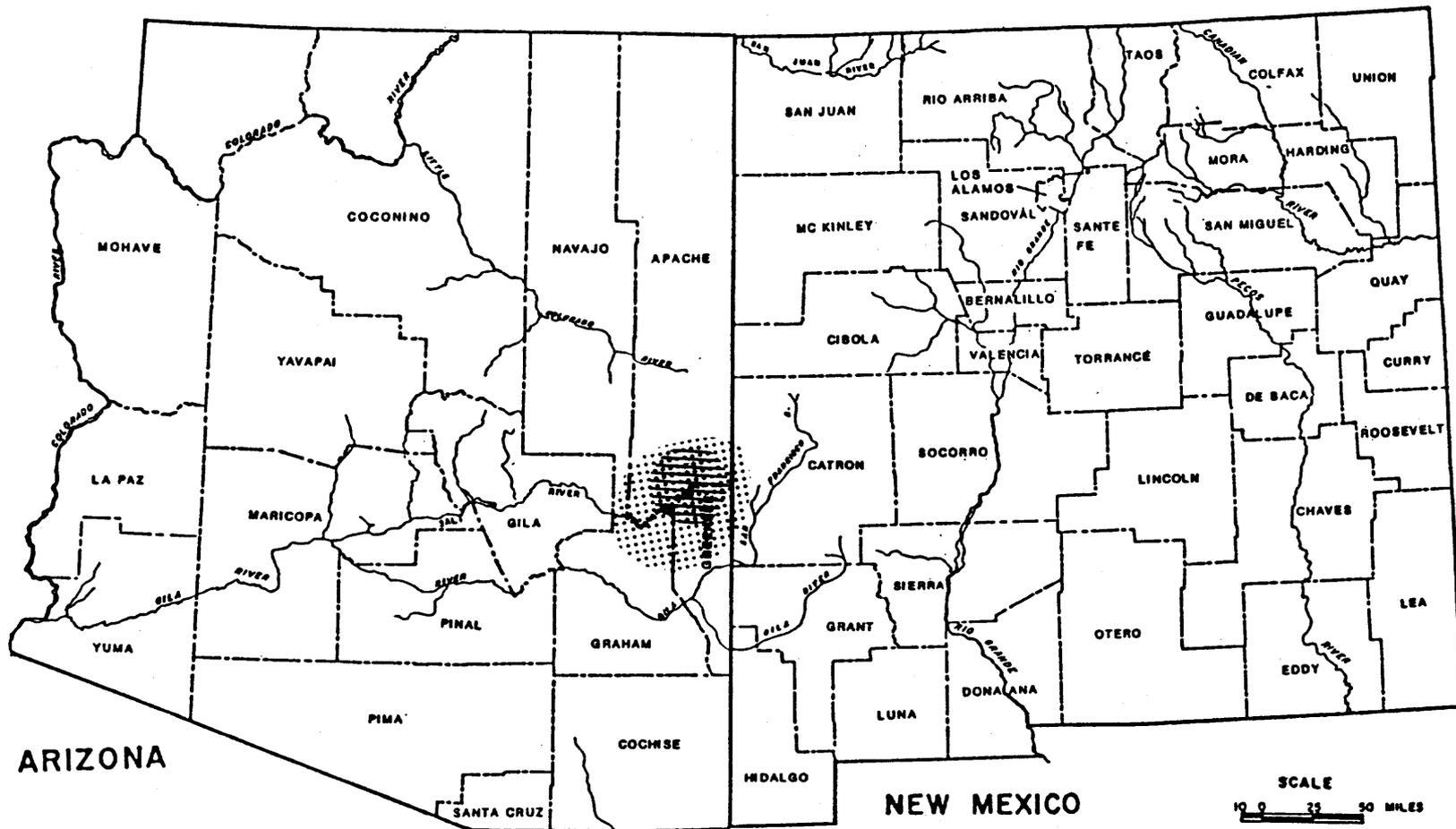
(2) Eight natural populations that fit most of the criteria for purity include six populations on the Reservation and two populations on the Apache-Sitgreaves NF.

(3) Introduced populations occur on the Apache-Sitgreaves, Coronado, and Kaibab National Forests, and the Fort Apache Indian Reservation.

REASONS FOR DECLINE: Hybridization with introduced rainbow trout and habitat degradation.

OTHER INFORMATION: Reclassified from endangered to threatened on July 19, 1975. Recovery team appointed in 1975; Recovery plan revised in 1983. Recovery actions initiated. Special regulations allow Arizona to manage this species as a sport fish. Breeding stock maintained at Williams Creek National Fish Hatchery.

REFERENCES: Miller 1972; Minckley 1973; Behnke and Zarn 1976; Rinne 1978; USFWS 1979a, 1983a; Johnson and Rinne 1982.



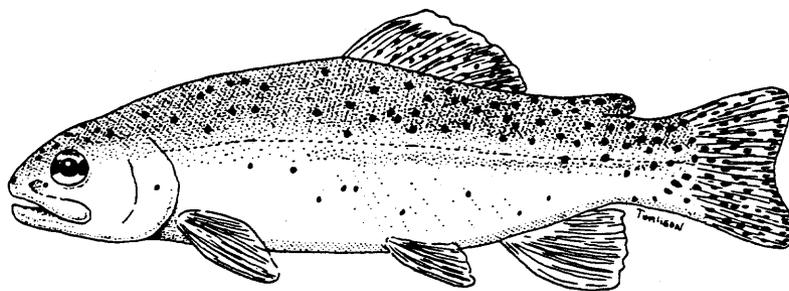
ARIZONA

NEW MEXICO

SCALE  
10 0 25 50 MILES

LEGEND

-  Historic range
-  Present range



APACHE TROUT

BEAUTIFUL SHINER.....Notropis formosus (Girard)

---

STATUS: Threatened (49 FR 34490, August 31, 1984) with critical habitat.

SPECIES DESCRIPTION: A small (2.5 inches) shiny minnow, very similar to the common red shiner in appearance. Males are very colorful when exhibiting breeding color (yellow-orange or orange on caudal and lower fins, and bluish body).

HABITAT: Mainly small to medium streams with sand, gravel, and rock bottom. Also found in man-made ponds.

DISTRIBUTION:

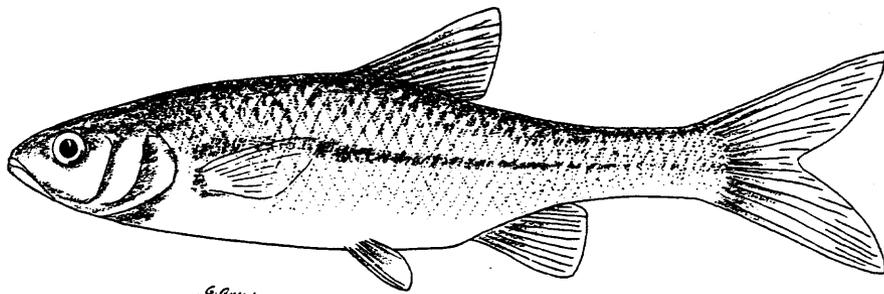
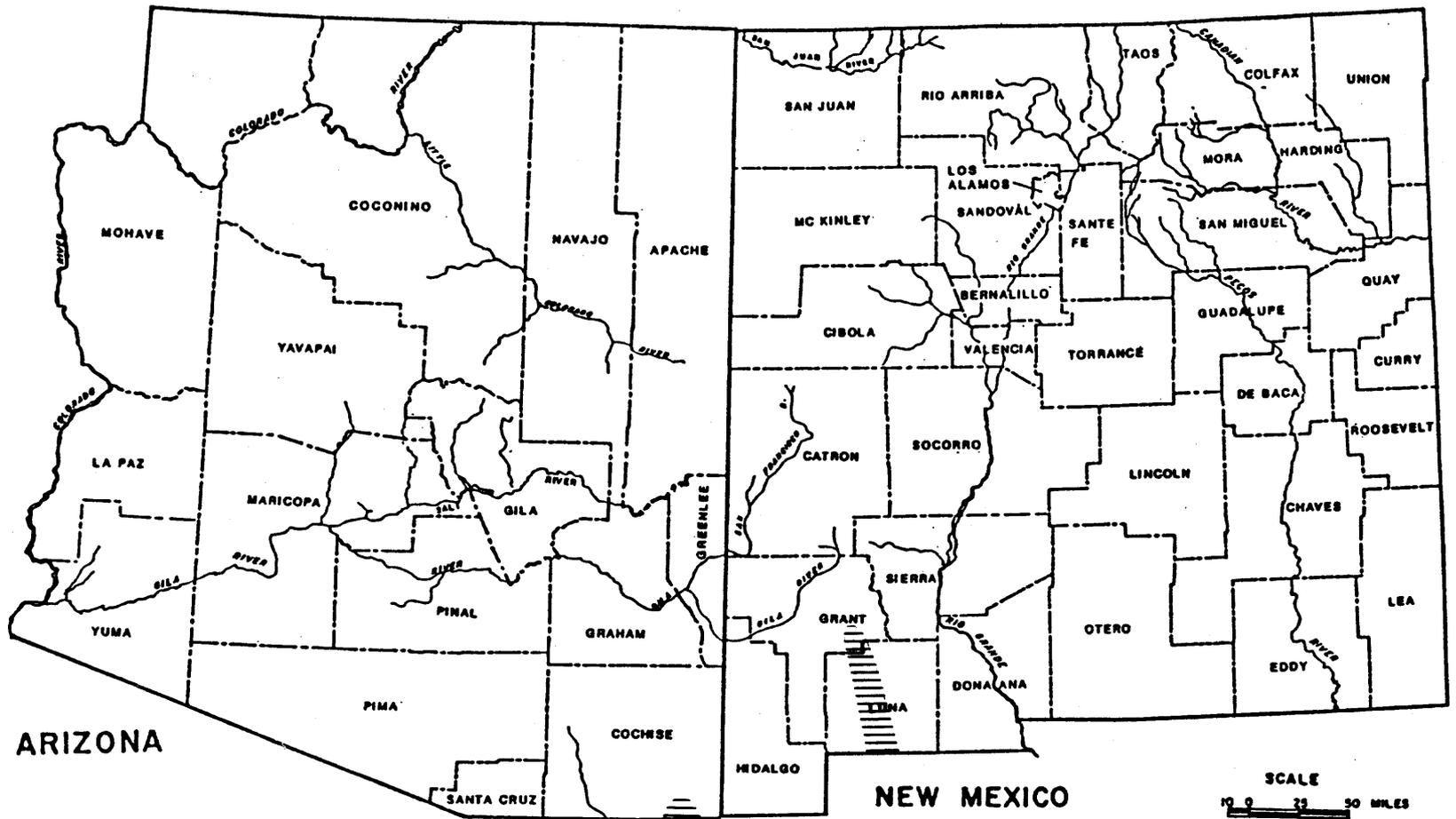
Historic: Rios Yaqui, Casas Grandes, Santa Maria and Carmen drainages in northern Mexico; Rio Yaqui (San Bernardino Creek) in Arizona; Mimbres River in New Mexico.

Present: Extirpated from the U.S. in 1968, still found in Mexico.

REASONS FOR DECLINE: Habitat destruction and modification.

OTHER INFORMATION: Protected by Arizona. Attempts will be made to obtain new brood stock from Mexico for rearing at Dexter National Fish Hatchery and restocking offspring in the wild.

REFERENCES: Minckley 1973, 1980.

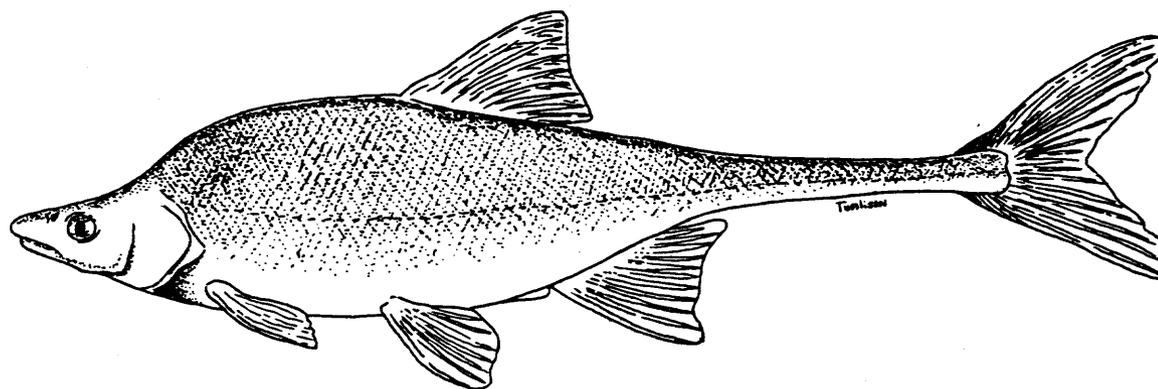
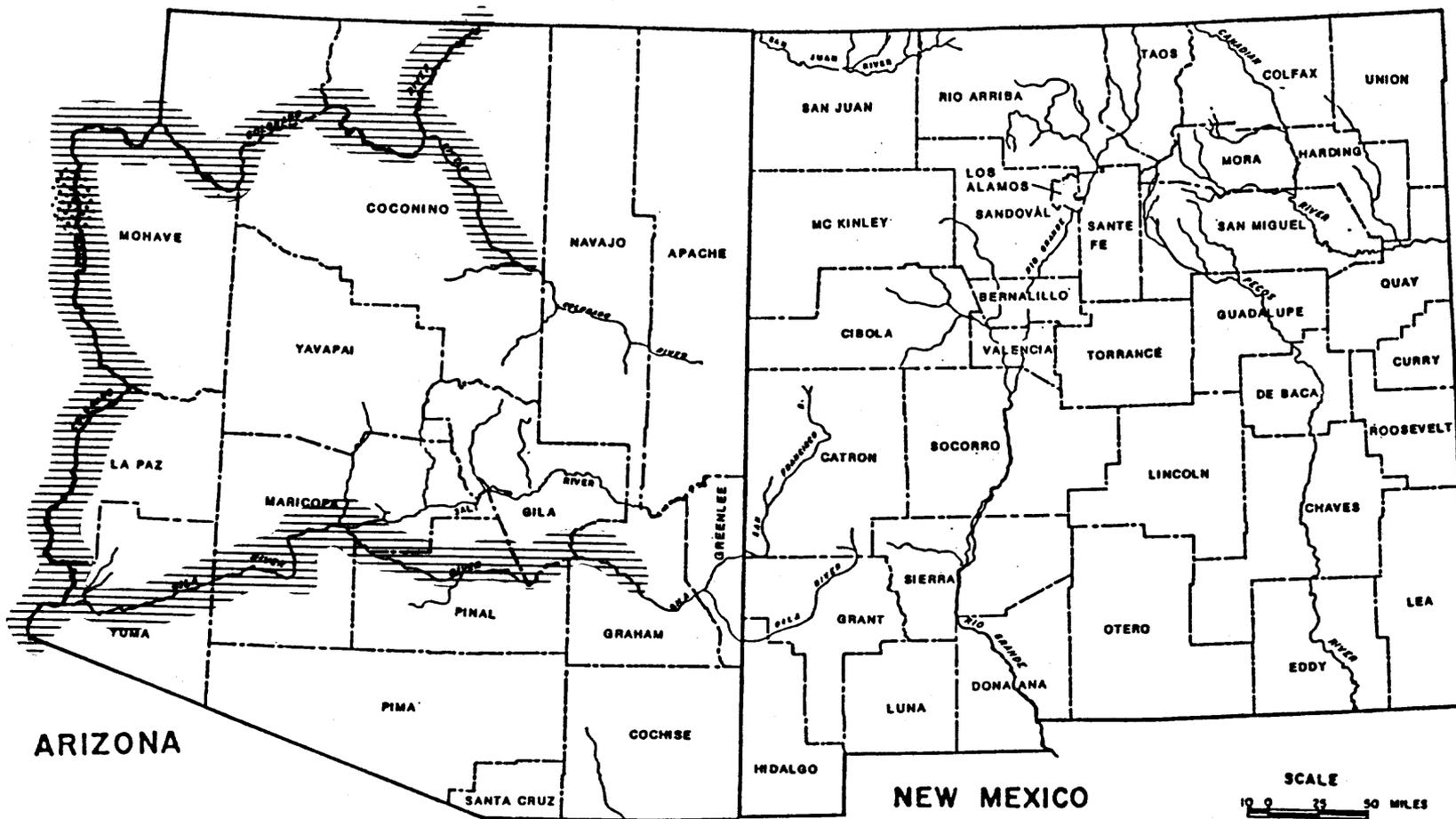


BEAUTIFUL SHINER

BONYTAIL CHUB.....Gila elegans

---

- STATUS: Endangered (45 FR 27710, April 23, 1980) without critical habitat.
- SPECIES DESCRIPTION: A large (up to 24 inches) minnow characterized by a small head, large fins, humped back, and extremely thin caudal peduncle.
- HABITAT: Warm, swift, turbid rivers; usually found in eddies and pools. Seldom in swift current.
- DISTRIBUTION:
- Historic: Throughout the mainstream Colorado River.
- Present: Rarest of the Colorado River fishes - close to extinction. In Arizona a few very old (40 yrs+) specimens have recently been taken from Lake Mohave (Mohave County), but there is no known reproduction in the wild. Populations may exist in Desolation Canyon on the Green River and the mouth of the Yampa River in Utah. Eighty thousand fingerlings from Dexter National Fish Hatchery were stocked in Lake Mohave in 1981 (Johnson and Rinne 1982).
- REASONS FOR DECLINE: Modification of original river conditions by dam construction. (Individuals may persist in reservoirs for several years but can not spawn successfully.)
- OTHER INFORMATION: There is much confusion about the taxonomy of the three Gila species (and possibly hybrids in the upper basin. Protected by Arizona. Presently adults from Lake Mojave are being held at Dexter National Fish Hatchery. Recovery Plan approved May 16, 1984. Restocked into Lake Mohave in 1985 and 1986.
- REFERENCES: Vanicek et al. 1970, Minckley 1973, Holden and Stalnaker 1975, USFWS 1984b.



**LEGEND**

 Present range  
 Historic range

**BONYTAIL CHUB**

CHIHUAHUA CHUB.....Gila nigrescens

---

STATUS: Threatened (48 FR 197, October 11, 1983) without critical habitat.

SPECIES DESCRIPTION: A member of the minnow family, averaging 5-6 inches in length at maturity with a maximum length of 12 inches. Dusky brown above, whitish below. During breeding season chubs develop a deep shiny black color with blue and orange fins and males exhibit two horizontal black stripes.

HABITAT: Deep, vegetated pools in the Mimbres River. Requires heavy cover of undercut banks, debris piles, or aquatic vegetation.

DISTRIBUTION:

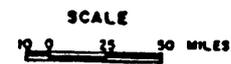
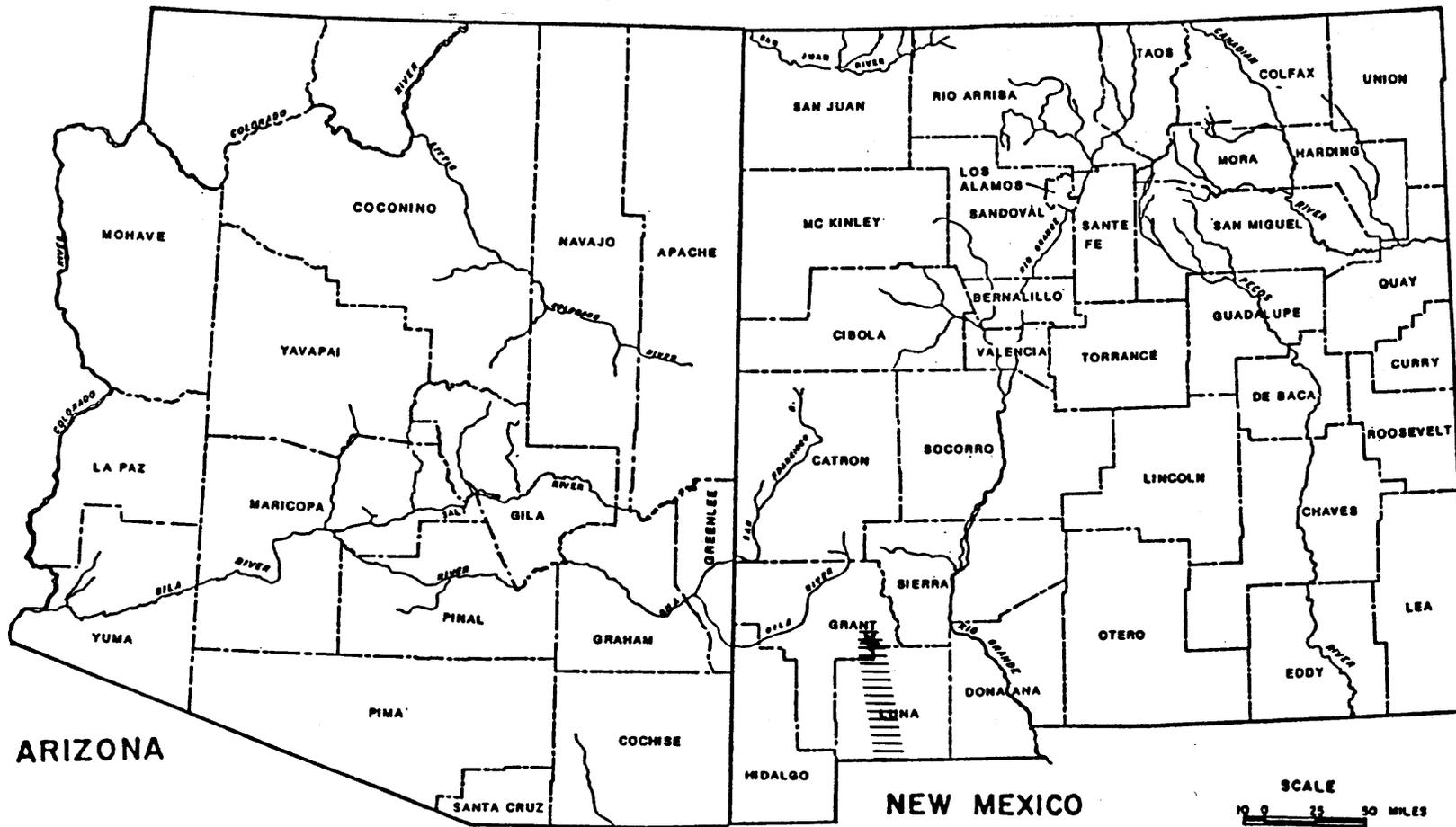
Historic: Guzman Basin streams in Mexico and New Mexico. In the Mimbres River in New Mexico from above Mimbres to below Deming.

Present: About 3 miles of the Mimbres River above the town of Mimbres (from Allie to Sheppard Canyons).

REASONS FOR DECLINE: Loss of habitat due to dewatering for irrigation.

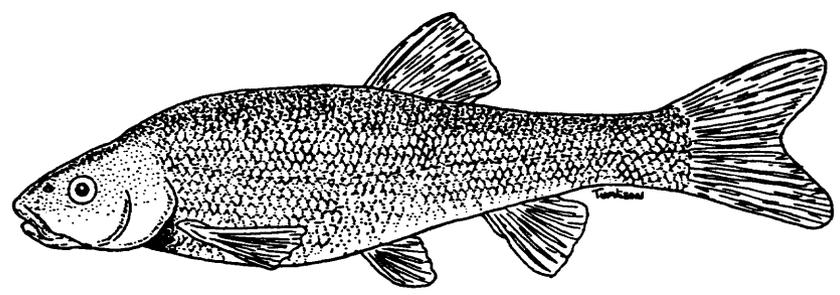
OTHER INFORMATION: Population in Mexico also declining. Being reared successfully at Dexter National Fish Hatchery. Habitat appears in jeopardy due to upstream channelization. Recovery Plan approved April 1986.

REFERENCES: Hubbard et al. 1978, Hatch and Hubbard 1980, Stuart and Johnson 1981.



LEGEND

- ★ Present site
- ≡ Historic range



CHIHUAHUA CHUB

COLORADO SQUAWFISH.....Ptychocheilus lucius

---

- STATUS: Endangered (32 FR 4001, March 11, 1967) without critical habitat.
- SPECIES DESCRIPTION: The largest American minnow (up to 6 feet long). Dusky-greenish, slender body with gold flecks on the dorsal (upper) surface. Head is long and slender. Mouth is large.
- HABITAT: Colorado River endemic; within that drainage it occurs in big rivers with warm, swift, turbid waters. Adults inhabit pools and eddies just outside main current. Young found in backwater areas.
- DISTRIBUTION:
- Historic: Once found throughout the Colorado River and major tributaries in Arizona, New Mexico, Utah, Colorado, and Wyoming.
- Present: Extirpated from the lower basin. A single individual was found in the San Juan River in Utah in 1978 and three fish were taken in New Mexico in 1987. Populations also exist in the Colorado, Green, Yampa, and Gunnison Rivers of Utah and Colorado.
- REASONS FOR DECLINE: Alteration of river conditions caused by dam construction; introduction of exotic species.
- OTHER INFORMATION: Recovery Team appointed; 1978 Recovery Plan being revised. Recovery actions underway. Population maintained in Dexter National Fish Hatchery. Protected by Arizona and New Mexico. Presently being reintroduced into the Salt and Verde Rivers of Arizona. Reintroduced populations listed as nonessential experimental were stocked in 1985 and 1986.
- REFERENCES: Vanicek et al. 1970, Minckley 1973, Holden and Stalnaker 1975, USFWS 1978b, Johnson and Rinne 1982.



DESERT PUPFISH.....Cyprinodon macularius

---

STATUS: Endangered (51 FR 10842, March 31, 1986) with critical habitat.

SPECIES DESCRIPTION: A small fish (2 inches long) with a smoothly rounded body shape and with narrow, vertical, dark bars on the sides. Breeding males are colored with blue on the top of their head and sides and with yellow on the caudal fin and the end part of the caudal peduncle. Females and juveniles have tan to olive colored backs and silvery sides.

HABITAT: Shallow water of desert springs and marshes.

DISTRIBUTION:

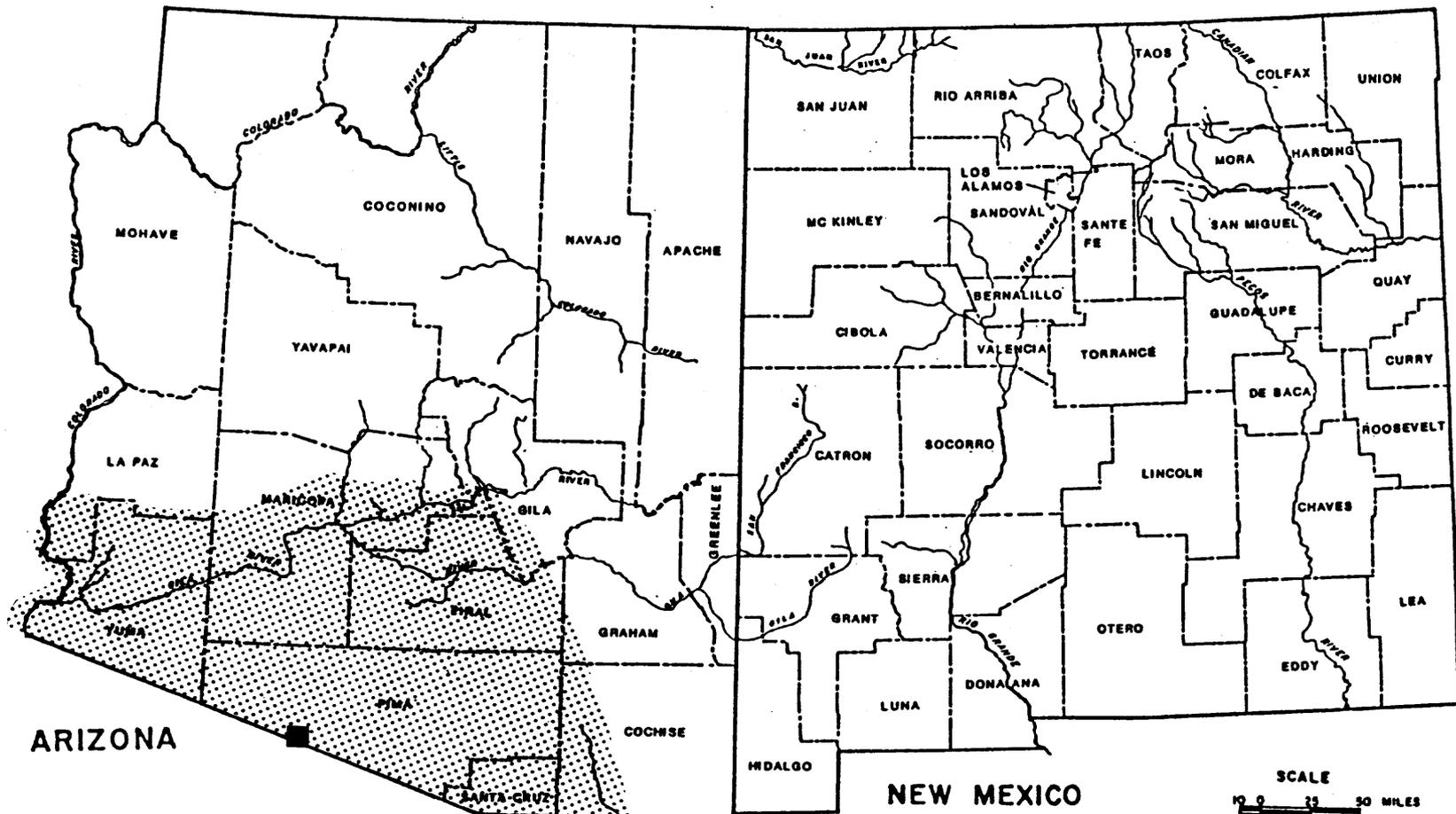
Historic: Once common in desert springs, marshes and tributaries of the lower Gila and Colorado River drainages in Arizona, California, and Mexico. Also formerly occurred in slow-moving reaches of some large rivers including the Colorado, Gila, San Pedro and Santa Cruz.

Present: Two natural populations remain in the U.S.: one in the tributaries of the Salton Sea in Imperial and Riverside Counties, California, and the other at Quitobaquito Springs, Pima County, Arizona. Other populations have been introduced in numerous localities (see 51 FR 10842 for details). There are several large populations along the lower Colorado River in Mexico.

REASONS FOR DECLINE: Introduction and spread of exotic predatory and competitive fishes, agricultural pesticide drift, water pollution, ground-water pumping, stream channelization and habitat modification associated with flooding in Colorado River delta in 1983 and 1984.

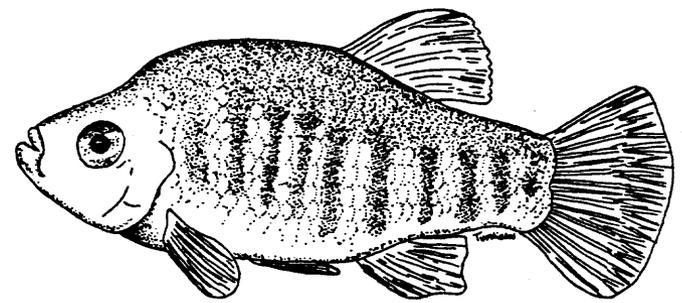
OTHER INFORMATION: Critical habitat includes the areas surrounding the following: Quitobaquito county, California. For specific descriptions and localities of critical habitat, see 51 FR 10850. Presently being raised at Dexter National Fish Hatchery for eventual release. Some reintroductions have been made on BLM lands. Recovery Team appointed.

REFERENCES: Black 1980, Kynard 1981, McMahon and Miller 1985.



**LEGEND**

- Present site
- ▨ Historic range



**DESERT PUPFISH**

GILA TOPMINNOW.....Poeciliopsis occidentalis occidentalis

---

STATUS: Endangered (32 FR 4001, March 11, 1967) without critical habitat.

SPECIES DESCRIPTION: Both subspecies are small (2 inches) guppy-like, livebearing fish, lacking dark spots on fins. Breeding males are jet black with yellow fins.

HABITAT: Streams and springs, concentrating in shallow areas with aquatic vegetation or debris.

DISTRIBUTION:

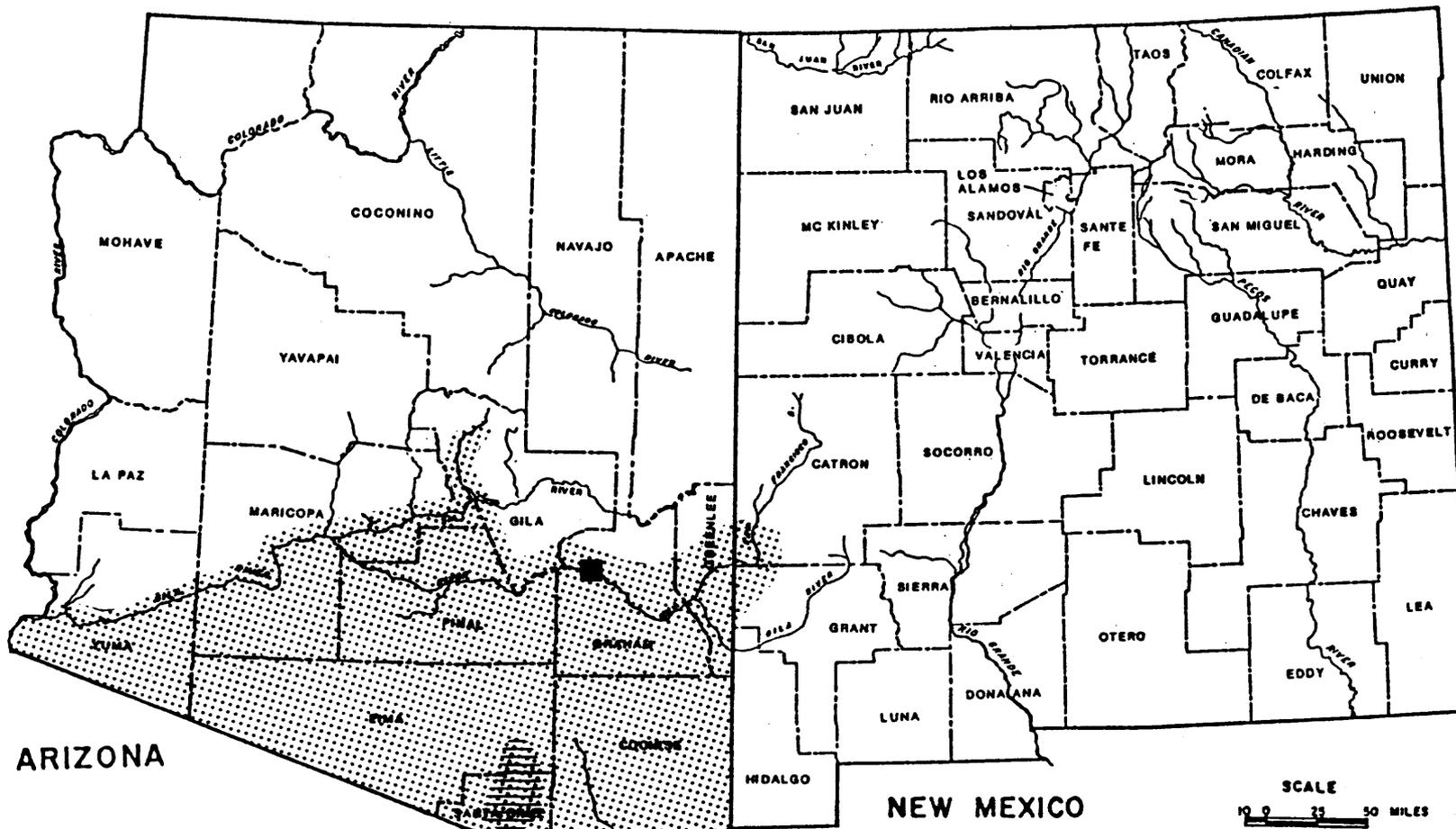
Historic: Once the most common fish throughout the Gila River drainage below 4,500 feet in Arizona. Also extended into Mexico and New Mexico.

Present: P. o. occidentalis occurs only in Arizona and Mexico. Locations in Arizona: Graham County - springs near Bylas; Pima County - Cienega Creek; and Santa Cruz County - Sonoita Creek, Monkey Springs, Cottonwood Spring, Santa Cruz River, Sheehy, and Sharp Springs.

REASONS FOR DECLINE: Loss of springs, river backwaters, and small stream habitat; competition with introduced mosquitofish (Gambusia affinis) in remaining habitats is also a major factor.

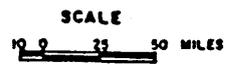
OTHER INFORMATION: Protected by Arizona and New Mexico. Both subspecies being reared at Dexter National Fish Hatchery. Intensive reintroduction program is occurring on National Forest Service lands in Arizona, with over 100 areas stocked; survival rate about 50%. Recovery Plan completed 1984.

REFERENCES: Koster 1957, Minckley et al. 1977, Johnson and Rinne 1982, USFWS 1984j.



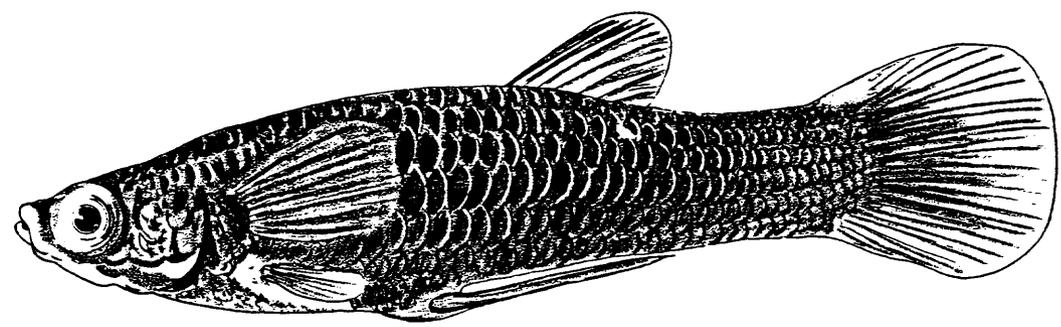
ARIZONA

NEW MEXICO



**LEGEND**

- Present site
- ≡ Present range
- ⋯ Historic range



**GILA TOPMINNOW**

GILA TROUT.....Salmo gilae

---

STATUS: Endangered (32 FR 4001, March 11, 1967) without critical habitat.

SPECIES DESCRIPTION: A deep-bodied trout with fine, profuse spotting on body, dorsal, and adipose fins. Dorsal, anal, and pelvic fins edged in white.

HABITAT: Small, high mountain streams.

DISTRIBUTION:

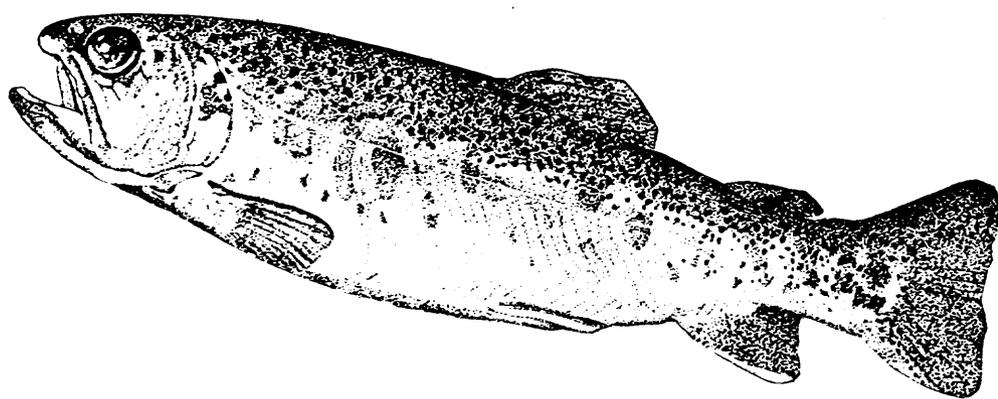
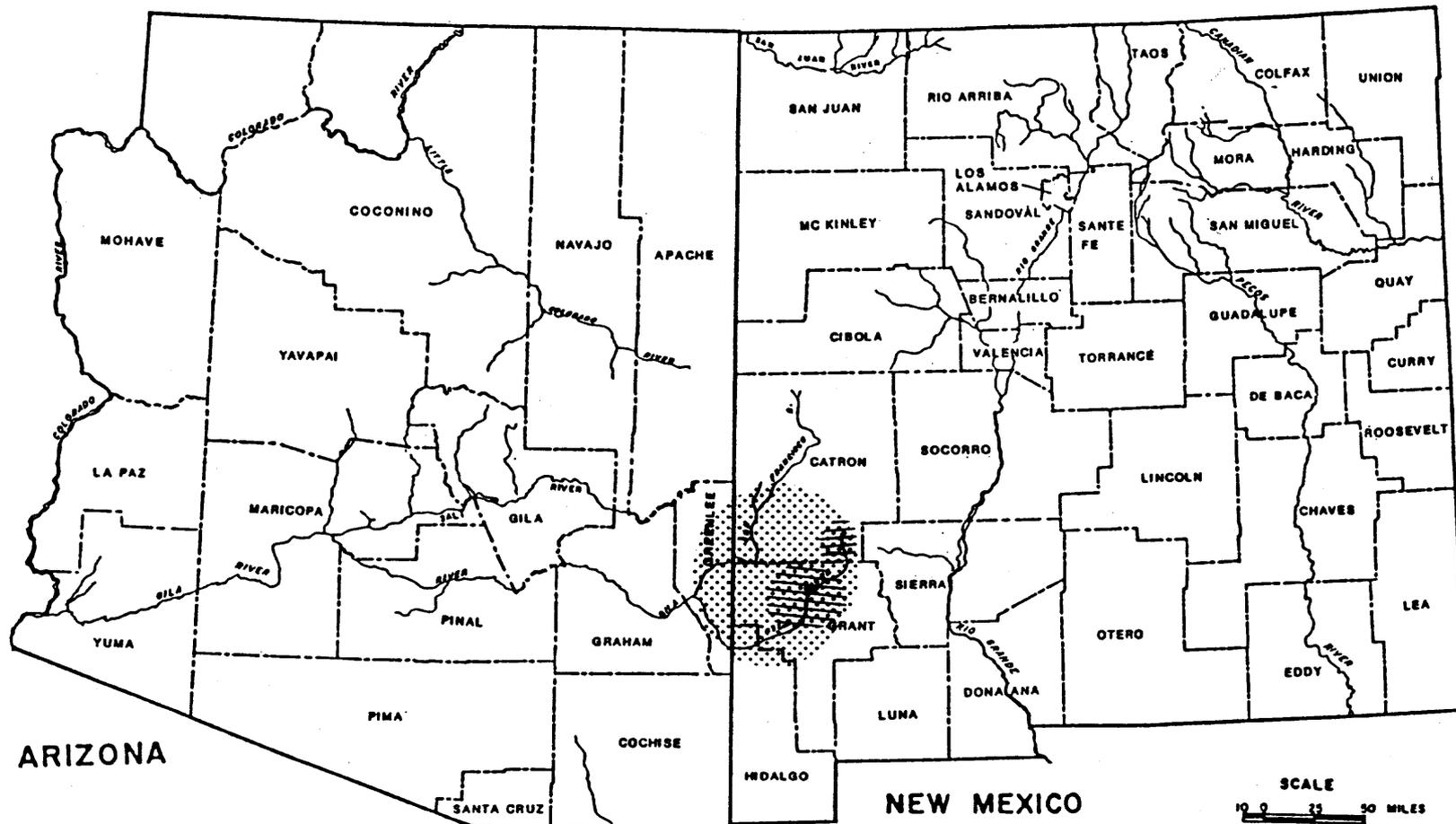
Historic: Verde River and its tributaries in Arizona, headwater streams of the Gila and San Francisco Rivers in New Mexico.

Present: Arizona: Prescott National Forest - Gap Creek (introduced).  
New Mexico: Gila National Forest - Iron, Main Diamond, South Diamond, McKenna, and Spruce Creeks. Introduced into McKnight, Little, Trail Canyon, Big and Sheep Corral Creeks.

REASONS FOR DECLINE: Loss of habitat, hybridization with introduced rainbow trout and competition with exotic brown trout.

OTHER INFORMATION: Recovery team appointed; 1979 recovery plan revised in 1984. Recovery actions initiated. Protected by New Mexico and Arizona. Iron Creek (1981) and Little Creek (1982) barriers constructed and streams renovated above barriers. Dry Creek renovated 1984. Trail Canyon Creek renovated 1986. Candidate for downlisting to threatened in 1987.

REFERENCES: Miller 1950, Koster 1957, Regan 1966, Minckley 1973, Hubbard et al. 1978, Johnson and Rinne 1982, USFWS 1984c, 1979b.



**LEGEND**

-  Present range
-  Historic range

**GILA TROUT**

HUMPBACK CHUB.....Gila cypha

---

STATUS: Endangered (32 FR 4001, March 11, 1967) without critical habitat.

SPECIES DESCRIPTION: A fairly large (18 inches) minnow characterized by a small head, large fins, and a very large hump between the head and the dorsal fin.

HABITAT: Large, warm, highly turbid rivers, especially canyon areas with deep fast water.

DISTRIBUTION:

Historic: Colorado River Basin from below Lake Mead to Flaming Gorge on the Green River, Wyoming.

Present: In Arizona this species occurs at the confluence of the Colorado River and Little Colorado River, in the Little Colorado River upstream to Blue Spring, and in the Colorado River in Grand and Marble Canyons (Coconino County). Populations are also found in Desolation Canyon on the Green River in Utah; in Black Rocks on the Colorado River on the Utah-Colorado border; and DeBeque Canyon, Colorado River above Grand Junction, Colorado.

REASONS FOR DECLINE: Alteration of river habitat caused by dam construction.

OTHER INFORMATION: Recovery Team appointed; 1979 Recovery Plan revised in 1984. Protected by Arizona.

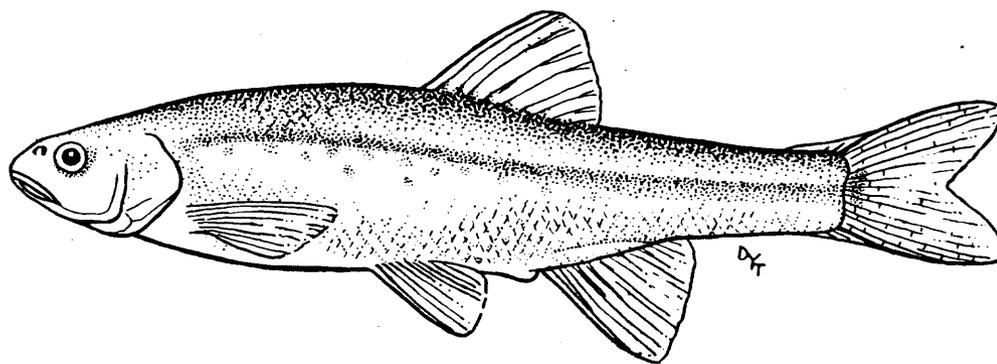
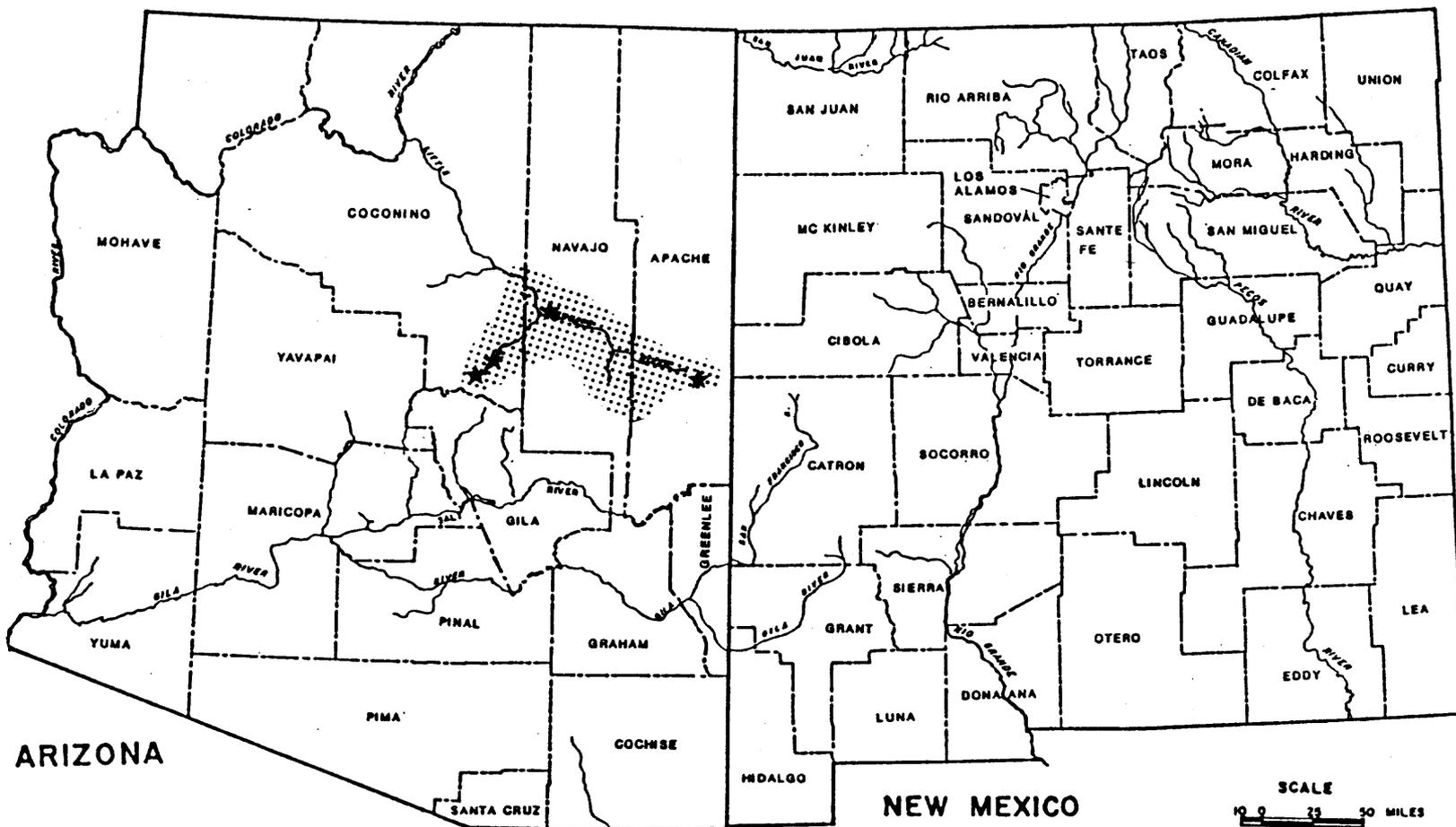
REFERENCES: Holden and Stalnaker 1970, Vanicek et al. 1970, Minckley 1973, Johnson and Rinne 1982, USFWS 1984e.



LITTLE COLORADO SPINEDACE.....Lepidomeda vittata

---

- STATUS: Threatened (52 FR 35034, September 16, 1987) with critical habitat.
- SPECIES DESCRIPTION: A small (less than four inches long) silvery minnow; darker on the back than the belly. Feeds on aquatic invertebrates.
- HABITAT: Inhabits moderate to small streams and is characteristically found in pools with water flowing over fine gravel and silt-mud substrates. Many of the streams are seasonally intermittent at which times the Little Colorado spinedace persists in the deep pools and spring areas which retain water. During flooding the spinedace redistributes itself throughout the stream. Spawning primarily occurs in early summer, but some spawning continues until early fall.
- DISTRIBUTION:
- Historic: Endemic to the upper portions of the Little Colorado river and its north-flowing permanent tributaries on the Mogollon Rim and northern slopes of the White Mountains in eastern Arizona.
- Present: Portions of east Clear Creek and its tributaries, Coconino County; Chevelon Creek and Silver Creek, Navajo County; Little Colorado River and Nutrioso Creek, Apache County, Arizona.
- REASONS FOR DECLINE: Habitat destruction from impoundment, dewatering, riparian destruction, and other watershed disturbances; use of fish toxicants; and the introduction and spread of exotic predatory and competitive fish species.
- OTHER INFORMATION: Protected by the State of Arizona. Covered by the Desert Fishes Recovery Team. Critical habitat includes 18 miles of East Clear Creek, Coconino County; eight miles of Chevelon Creek, Navajo County; and five miles of Nutrioso Creek, Apache County.
- REFERENCES: Miller 1963, Minckley and Carufel 1967, Minckley 1973.



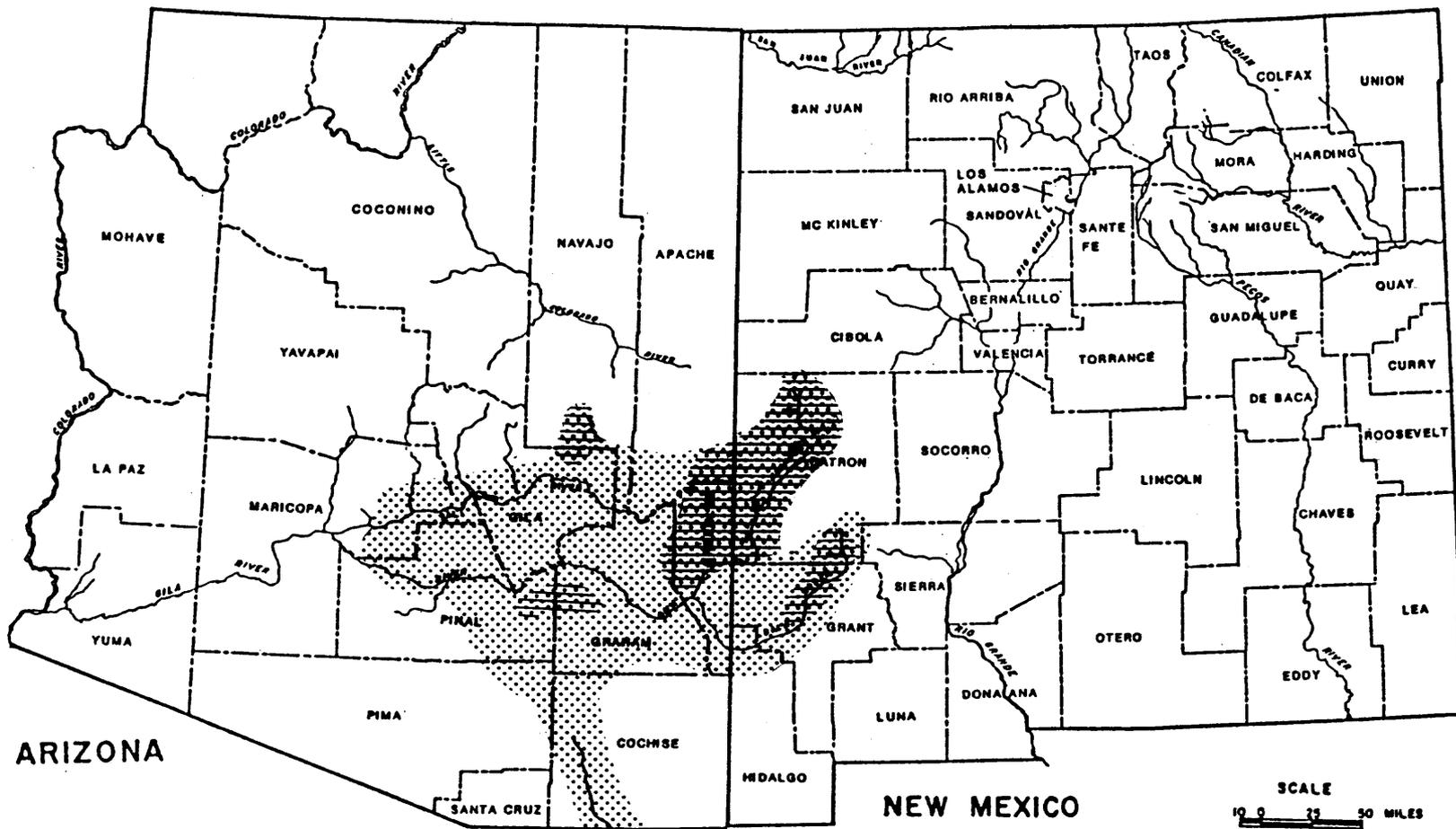
- LEGEND**
- ★ Present Range
  - ▨ Historic Range

LITTLE COLORADO SPINEDACE

LOACH MINNOW.....Tiaroga cobitis

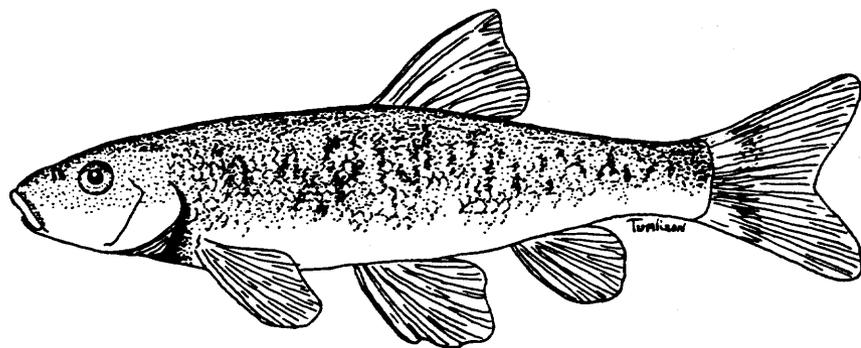
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- STATUS: Threatened (50 FR 25380; June 18, 1985). Critical habitat proposed June 18, 1985 and under review.
- SPECIES DESCRIPTION: The loach minnow is a small (less than 3 inches), slender, elongated fish, olive colored with dirty white spots at the base of the dorsal and caudal fins. Breeding males develop vivid red-orange markings.
- HABITAT: Bottom dweller of small to large perennial creeks and rivers, typically on shallow turbulent riffles with cobble substrate, swift currents and filamentous algae. Recurrent flooding is instrumental in maintenance of quality habitat.
- DISTRIBUTION:
- Historic: Once common throughout much of the Gila River system above Phoenix, including the Verde, Salt, San Pedro, and San Francisco Rivers in Arizona and New Mexico.
- Present: Aravaipa Creek, Graham and Pinal Counties, Arizona; upper Gila River, Grant and Catron Counties, New Mexico; San Francisco and Tularosa Rivers, Catron County, New Mexico; and Blue River, Greenlee County, Arizona.
- REASONS FOR DECLINE: Habitat destruction due to impoundment, channel downcutting, substrate sedimentation, water diversion, ground water pumping, and the spread of exotic predatory and competitive fishes.
- OTHER INFORMATION: See 50 FR 25386 for detailed locations of critical habitat. The Service, BLM, New Mexico Game and Fish, The Nature Conservancy, Defenders of Wildlife, and Arizona Game and Fish are participating in the management of the loach minnow.
- REFERENCES: Barber and Minckley 1966, Anderson 1978, U.S Forest Service 1979, Britt 1982, Propst 1986a.



**LEGEND**

- ≡ Present range
- Historic range



**LOACH MINNOW**

PECOS BLUNTNOSE SHINER.....Notropis simus pecosensis

---

STATUS: Threatened (February 20, 1987, 52 FR 5295) with critical habitat

SPECIES DESCRIPTION: A moderately large shiner (up to 3-1/4 inches) of the family Cyprinidae. It has a deep, spindle-shaped, silvery body, and a fairly large mouth that is overhung by a bluntly rounded snout.

HABITAT: Generally found in the main stream channel, over sandy substrate with low velocity flow, and depths between 17 and 41 centimeters. Backwaters, pools, and riffles were used by subadults. Natural springs have also been found to contain some individuals.

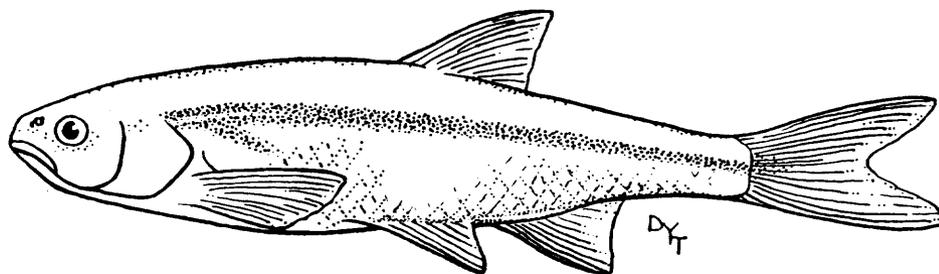
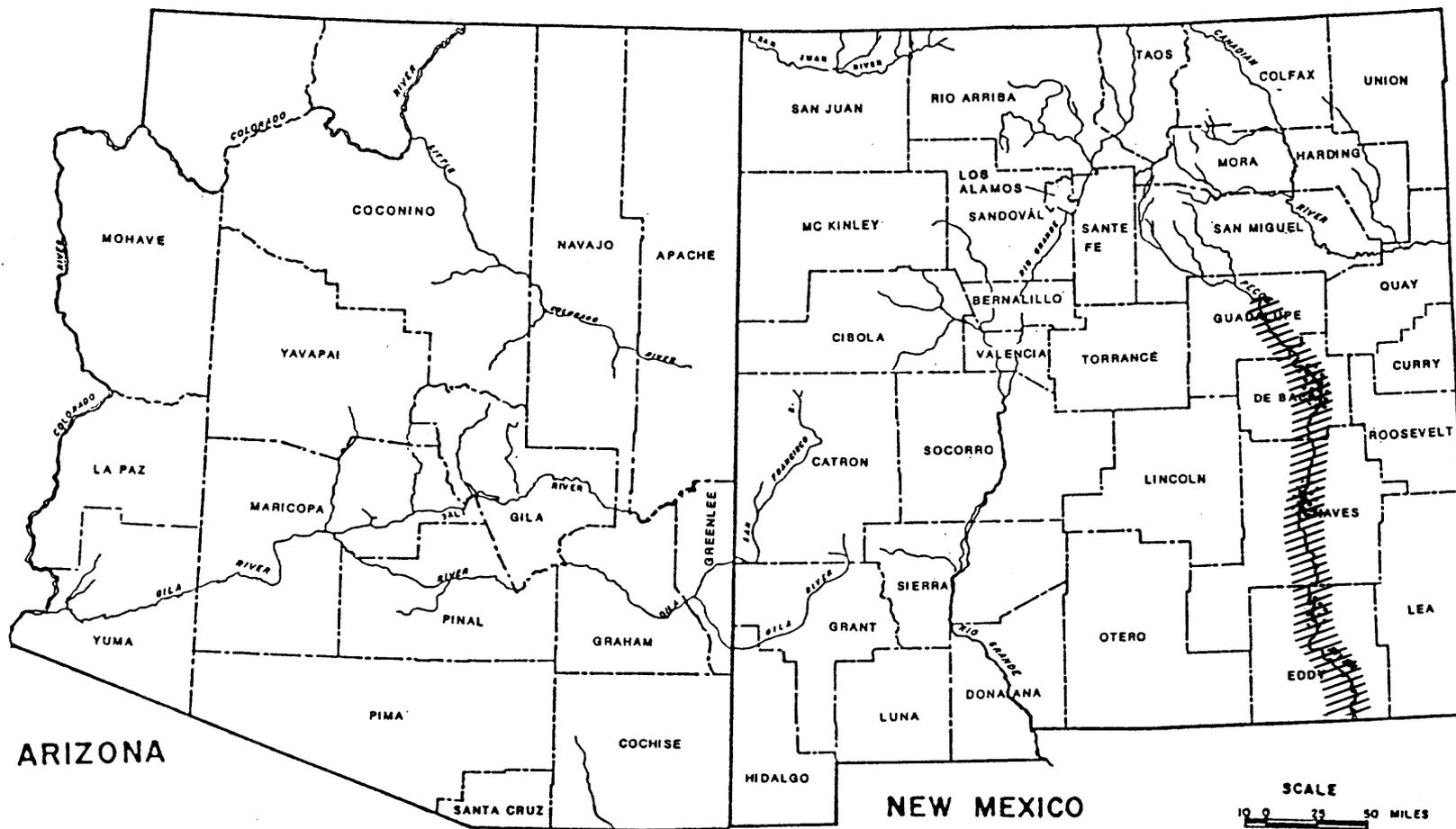
DISTRIBUTION:

Historic: Pecos River from just north of Santa Rosa, New Mexico, downstream to Carlsbad, New Mexico.

Present: Mainstream Pecos River from near Fort Sumner, New Mexico, downstream to Artesia, New Mexico. Numbers within present range are greatly reduced.

REASONS FOR DECLINE: Habitat alteration due to restricted flow from reservoirs, water diversions for irrigation, siltation, and pollution from agricultural activities along the river.

REFERENCES: Cope and Yarrow 1875, Koster 1957, Chernoff et al. 1982, Molles 1982.



**LEGEND**

 Present range  
 Historic range

**PECOS BLUNTNOSE SHINER**

PECOS GAMBUSIA.....Gambusia nobilis

---

STATUS: Endangered (35 FR 16047, October 13, 1970) without critical habitat.

SPECIES DESCRIPTION: A small (2 inches), guppy-like, live-bearing fish with a dark lateral stripe.

HABITAT: Small, shallow streams and springs with abundant aquatic vegetation.

DISTRIBUTION:

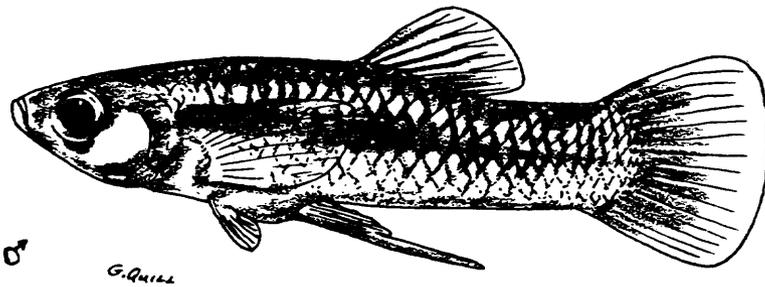
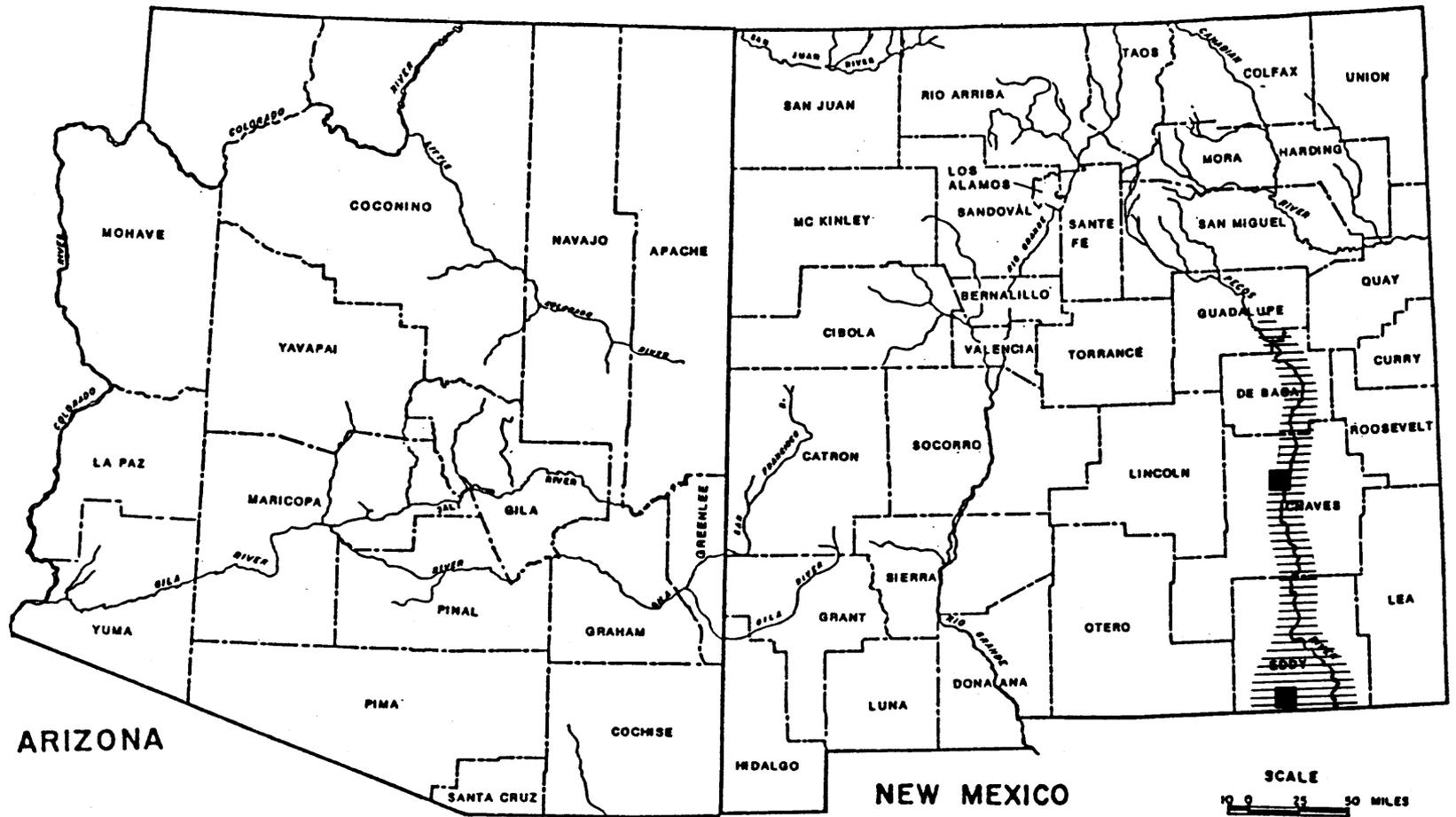
Historic: Springs and tributaries of the Pecos River drainage of New Mexico and Texas.

Present: In New Mexico, Bitter Lakes National Wildlife Refuge (Chavez County) and Blue Spring (Eddy County). In southwest Texas populations occur in San Solomon, Phantom, and Diamond Y Springs.

REASONS FOR DECLINE: Competition with introduced fish species, especially mosquitofish (Gambusia affinis) and elimination of suitable habitat.

OTHER INFORMATION: Recovery team appointed; recovery plan completed in 1983. Protected by New Mexico and Texas State Law.

REFERENCES: Hubbard et al. 1978, USFWS 1983c.



**LEGEND**

■ Present range  
 ≡ Historic range

**PECOS GAMBUSIA**

SONORA CHUB.....Gila ditaenia

---

STATUS: Threatened (51 FR 16042; April 30, 1986) with critical habitat

SPECIES DESCRIPTION: This member of the minnow family (Cyprinidae) is less than 5 inches long. It is a moderately chubby, dark-colored fish, with two prominent black lateral bands on the sides and a dark oval spot at the base of the tail. Breeding males have red lower fins and a somewhat orange belly. Feeds on insects and algae.

HABITAT: Prefers pools near cliffs, boulders, or other cover in a stream channel, and also headsprings and seeps.

DISTRIBUTION:

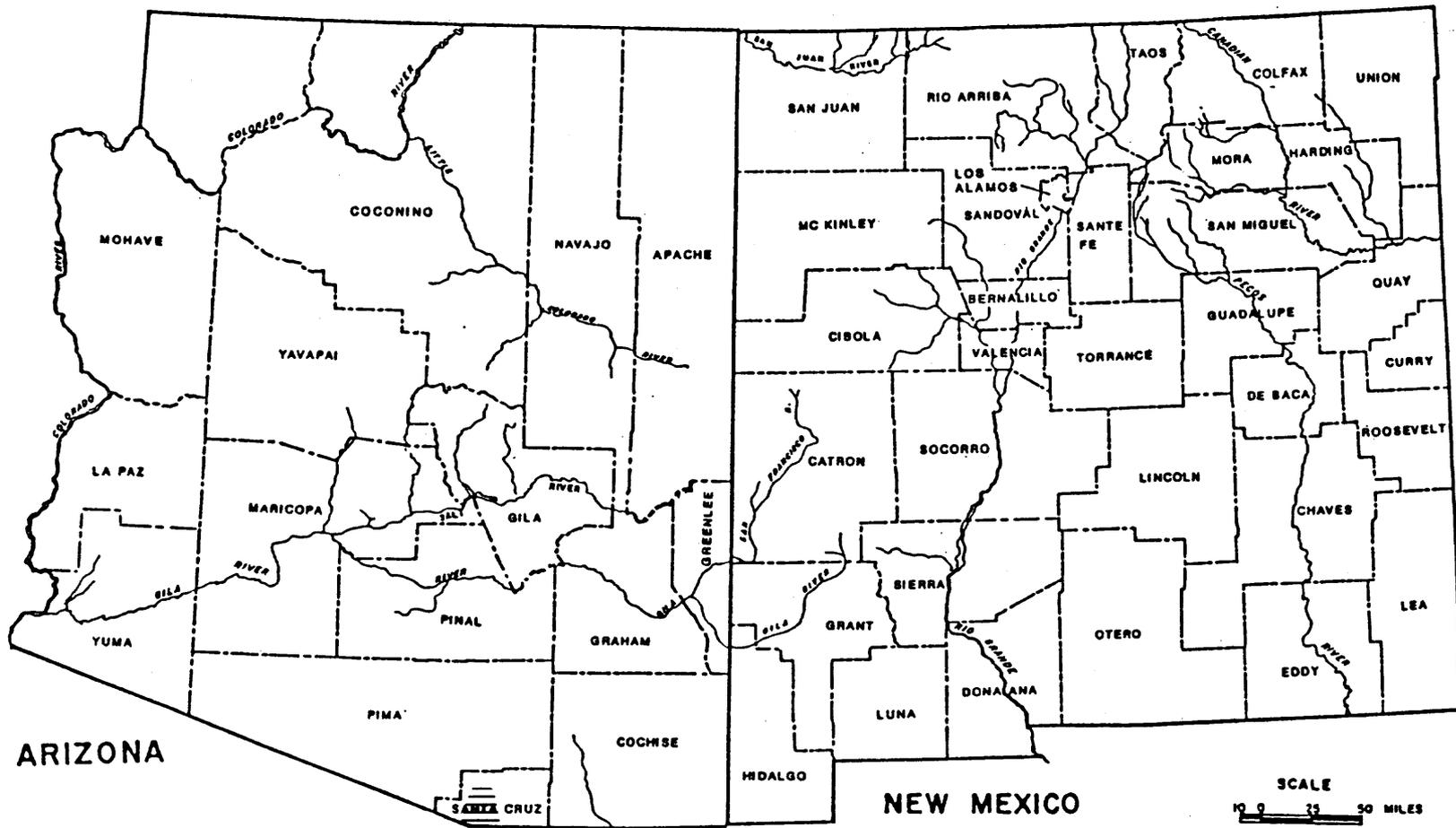
Historic: Same as present.

Present: Sycamore Creek in Sycamore Canyon, Santa Cruz County, Arizona, and the Rios Altar and Magdalena near La Casita, Sonora, Mexico.

REASONS FOR DECLINE: Loss and modification of habitat, and introduction and spread of exotic predatory and competitive fish species.

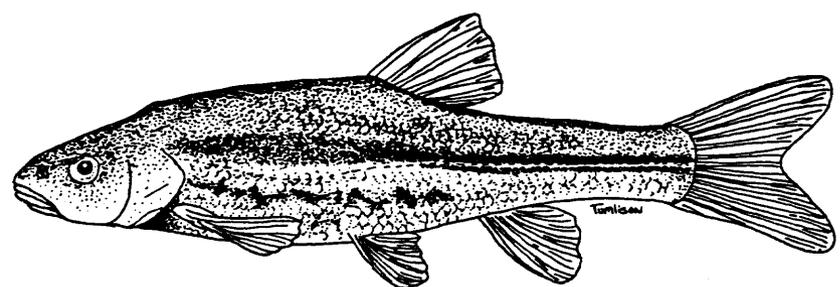
OTHER INFORMATION: Critical habitat includes areas in Santa Cruz County, Arizona, surrounding the following: Sycamore Creek including Yank's Spring and downstream, Penasco Creek, and an unnamed tributary to Sycamore Creek (see 51 FR 16047 for details). The Forest Service has designated an area encompassing the critical habitat as a Natural Area. Also protected by the State of Arizona. Technical/agency draft of the recovery plan written 1986. Recovery Team appointed.

REFERENCES: Miller 1949, Minckley 1983, Bell 1984.



**LEGEND**

≡ Historic range

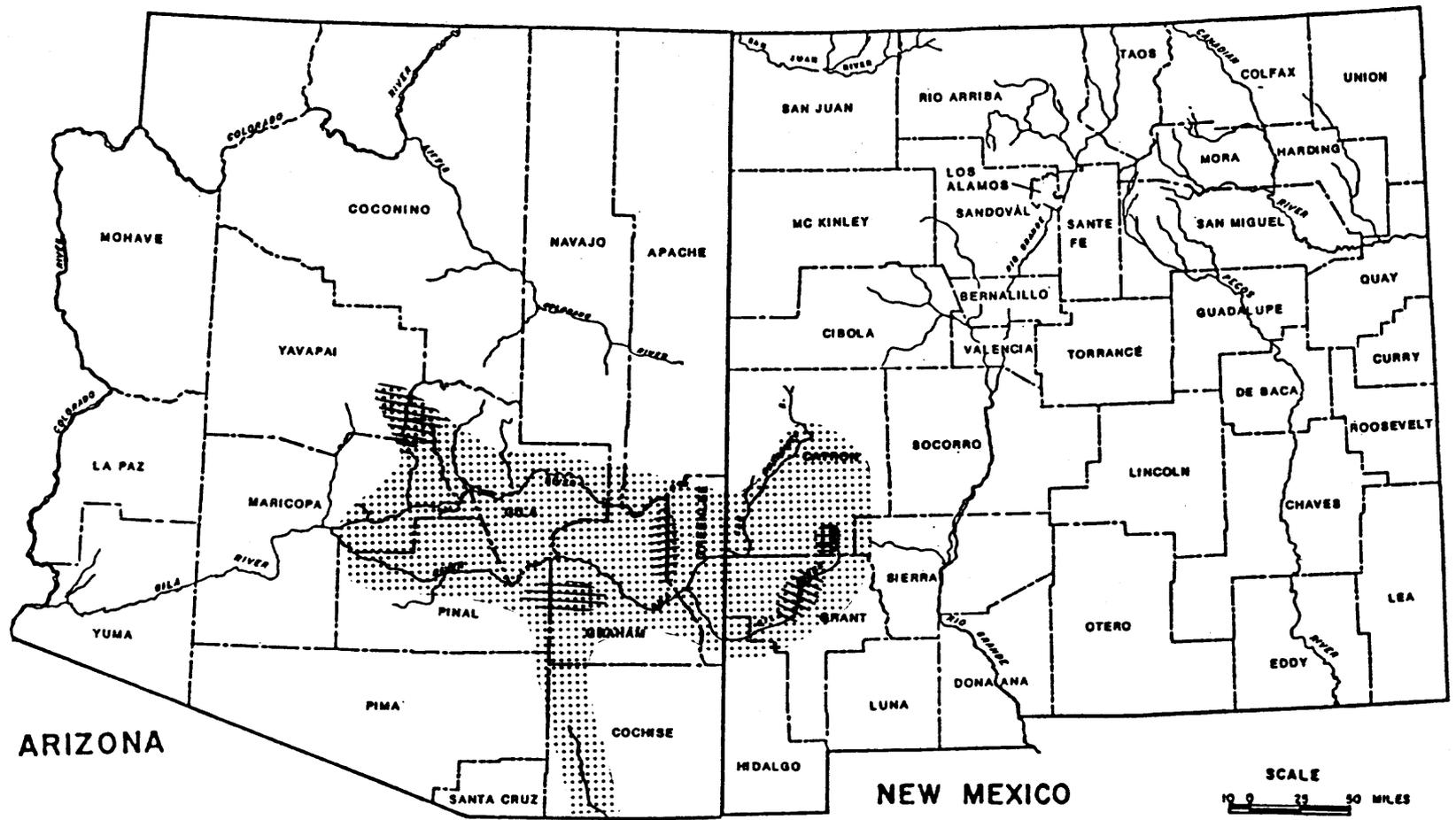


**SONORA CHUB**

SPIKEDACE.....Meda fulgida

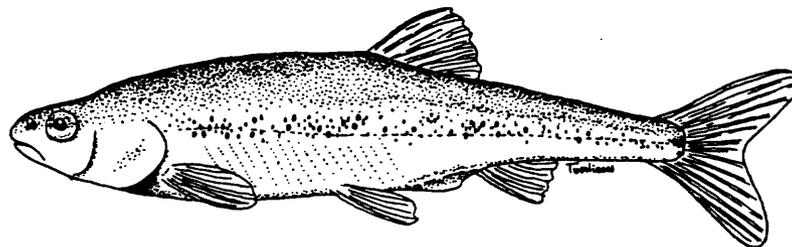
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- STATUS:** Threatened (51 FR 23769, July 1, 1986). Critical habitat proposed June 18, 1985, and under review.
- SPECIES DESCRIPTION:** A small (adults less than 3 inches), slim fish with very silvery sides and with a "spine" on the dorsal fin. Breeding males are a brassy golden color. The spikedace is the only species in the genus Meda.
- HABITAT:** Moderate to large perennial streams, where it inhabits shallow riffles with gravel and rubble substrates, and moderate to swift currents and swift pools over sand or gravel substrates. Recurrent flooding is very important in the life history of the spikedace and helps to maintain its competitive edge over invading exotic fish species in its remaining habitat.
- DISTRIBUTION:**
- Historic: Once common throughout much of the Gila River drainage above Phoenix, including the Verde, Agua Fria, Salt, San Pedro, and San Francisco Rivers in Arizona.
- Present: Aravaipa Creek, Graham and Pinal Counties, Arizona; the upper Gila River, Grant and Catron Counties, New Mexico; the Verde River, Yavapai County, Arizona; and a very short section of Eagle Creek, Greenlee County, Arizona.
- REASONS FOR DECLINE:** Habitat destruction due to damming, channel alteration, riparian destruction, channel downcutting, water diversion and groundwater pumping. Also, introduction and spread of exotic predatory and competitive fish species.
- OTHER INFORMATION:** Protected by Arizona and New Mexico. Recovery Team appointed. Proposed critical habitat includes all of the present distribution (see above) except Eagle Creek.
- REFERENCES:** Barber et al. 1970, Anderson 1978, Propst 1986b.



**LEGEND**

- ≡ Present range
- Historic range



**SPIKEDACE**

WOUNDFIN.....Plagopterus argentissimus

---

STATUS: Endangered (35 FR 16047, October 13, 1970) without critical habitat.

SPECIES DESCRIPTION: A small (4 inches), silver minnow with fairly large fins and a sharp dorsal fin spine.

HABITAT: Shallow, warm, turbid, fast-flowing water.

DISTRIBUTION:

Historic: Found in the lower Colorado River basin below the Grand Canyon; the Virgin River of Utah, Arizona, and Nevada, and in the lower Gila River drainage and the lower Colorado River in Arizona.

Present: In the Virgin River between La Verkin Springs, Utah, and Lake Mead, Nevada.

REASONS FOR DECLINE: Habitat destruction and modification; interactions with introduced fish species, and parasites.

OTHER INFORMATION: Recovery team appointed; 1979 recovery plan revised in 1984 and being implemented. Protected by Arizona, Nevada, and Utah State Law. Reared in Dexter National Fish Hatchery.

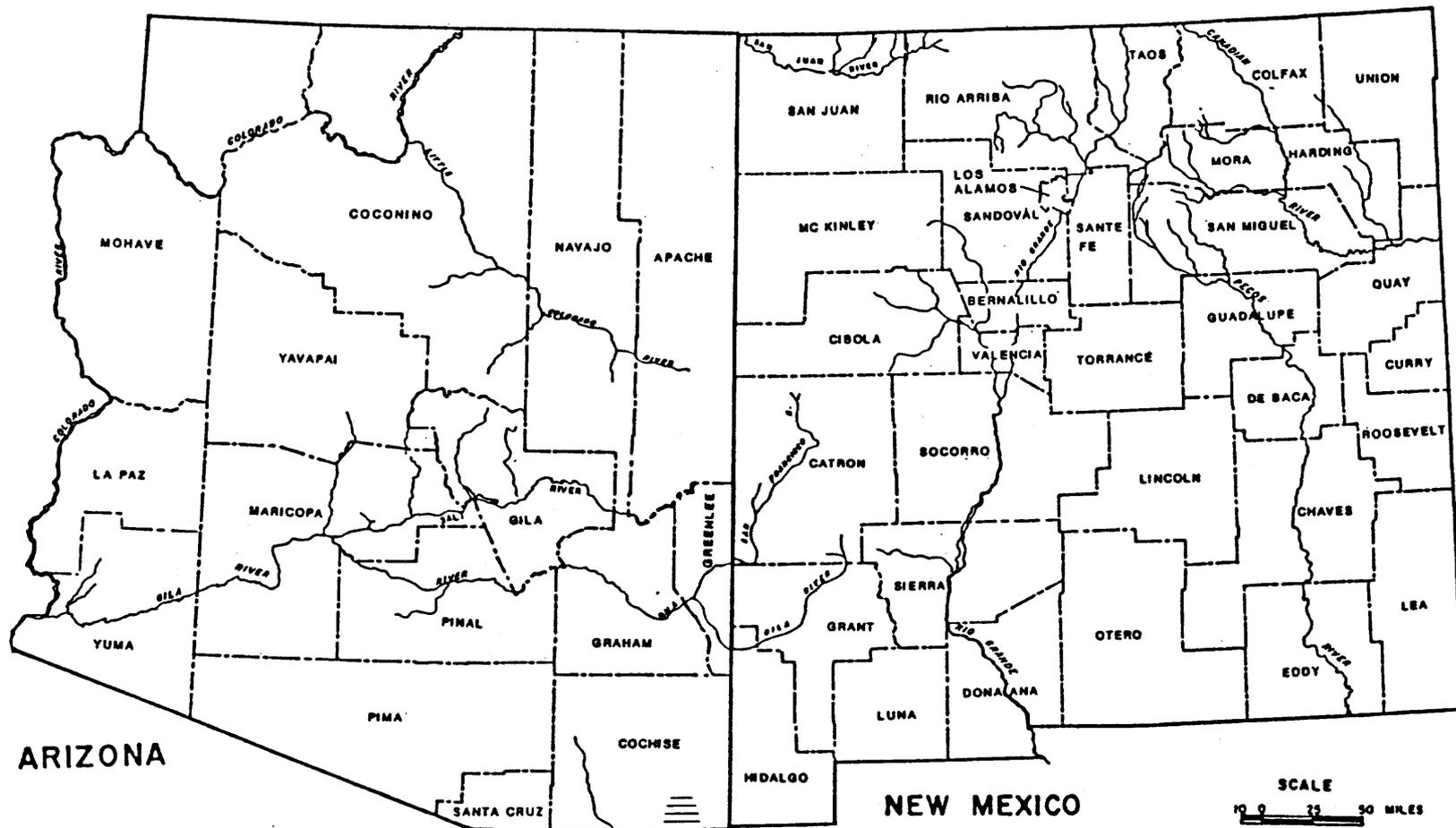
REFERENCES: Minckley 1973, Williams 1977, Johnson and Rinne 1982, USFWS 1984i.



YAQUI CATFISH.....Ictalurus pricei

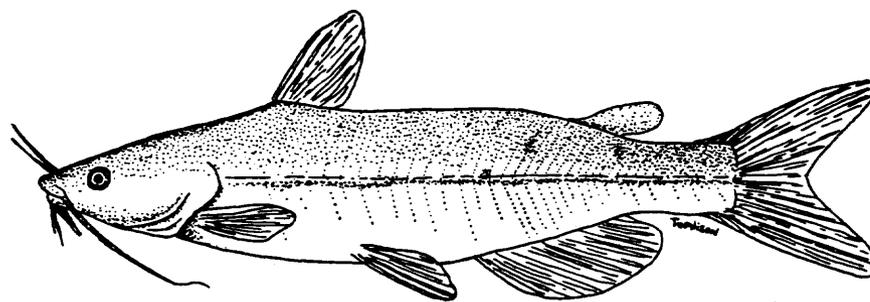
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- STATUS: Threatened (49 FR 34490, August 31, 1984) without critical habitat.
- SPECIES DESCRIPTION: Very similar to the channel catfish (Ictalurus punctatus) in appearance except anal fin base is shorter, and distal margin of anal fin broadly rounded with 23 to 25 soft-rays. Body usually profusely speckled.
- HABITAT: Moderate to large streams in the Rio Yaqui Drainage, Mexico and formerly in San Bernardino Creek in extreme southeast Arizona. Areas of medium to slow current over sand/rock bottom.
- DISTRIBUTION:
- Historic: Rio Yaqui Drainage including San Bernardino Creek in Arizona.
- Present: Rio Yaqui Drainage of Mexico. Extirpated from the U.S.
- REASONS FOR DECLINE: Habitat destruction and modification.
- OTHER INFORMATION: Protected by Arizona. Rearing efforts will be conducted at Dexter National Fish Hatchery once a brood stock is obtained from Mexico.
- REFERENCES: Minckley 1973, 1980.



LEGEND

≡ Historic range



YAQUI CATFISH

YAQUI CHUB.....Gila purpurea

---

STATUS: Endangered (49 FR 34490, August 31, 1984) without critical habitat.

SPECIES DESCRIPTION: A medium size minnow (adults rarely exceed 6 inches) darkly colored, but usually lighter below. Most pronounced feature is a dark, triangular, caudal spot.

HABITAT: Deeper pools of small streams near undercut banks and debris, also found in pools associated with springheads.

DISTRIBUTION:

Historic: Once found throughout the Rio Yaqui Drainage of extreme southeastern Arizona, including San Bernardino Creek, Whitewater Creek, Black Wash (Astin Wash), and the Morse Canyon portion of Wilcox Playa.

Present: San Bernardino National Wildlife Refuge and Leslie Creek in the Swisshelm Mountains, Arizona (introduced population). Also found in the smaller streams of Rios Matape, Sonora and Yaqui systems, Sonora, Mexico.

REASONS FOR DECLINE: Habitat destruction and modification; interactions with introduced fish species.

OTHER INFORMATION: Protected by Arizona. Reared at Dexter National Fish Hatchery. Reintroduced into Turkey Creek and Rucker Canyon Creek, Coronado National Forest, Arizona.

REFERENCES: Minckely 1973, Hendrickson et al. 1980.



YAQUI TOPMINNOW.....Poeciliopsis occidentalis sonoriensis

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STATUS: Endangered (32 FR 4001, March 11, 1967) without critical habitat.

SPECIES DESCRIPTION: Both subspecies are small (2 inches) guppy-like, live-bearing fish, lacking dark spots on fins. Breeding males are jet black with yellow fins.

HABITAT: Streams and springs, concentrating in shallow areas with aquatic vegetation or debris.

DISTRIBUTION:

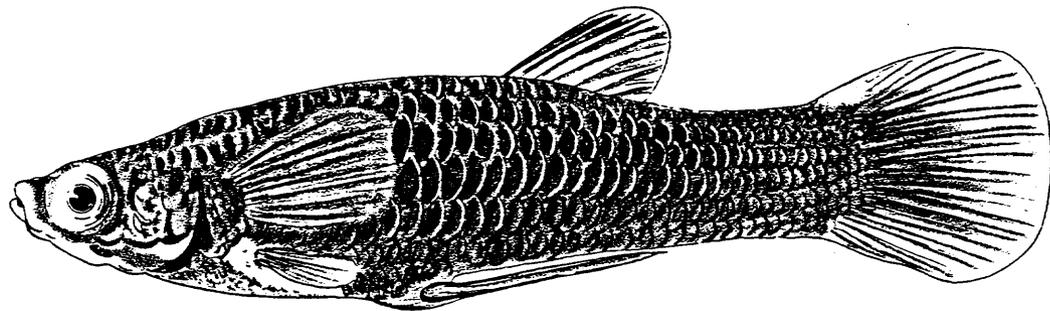
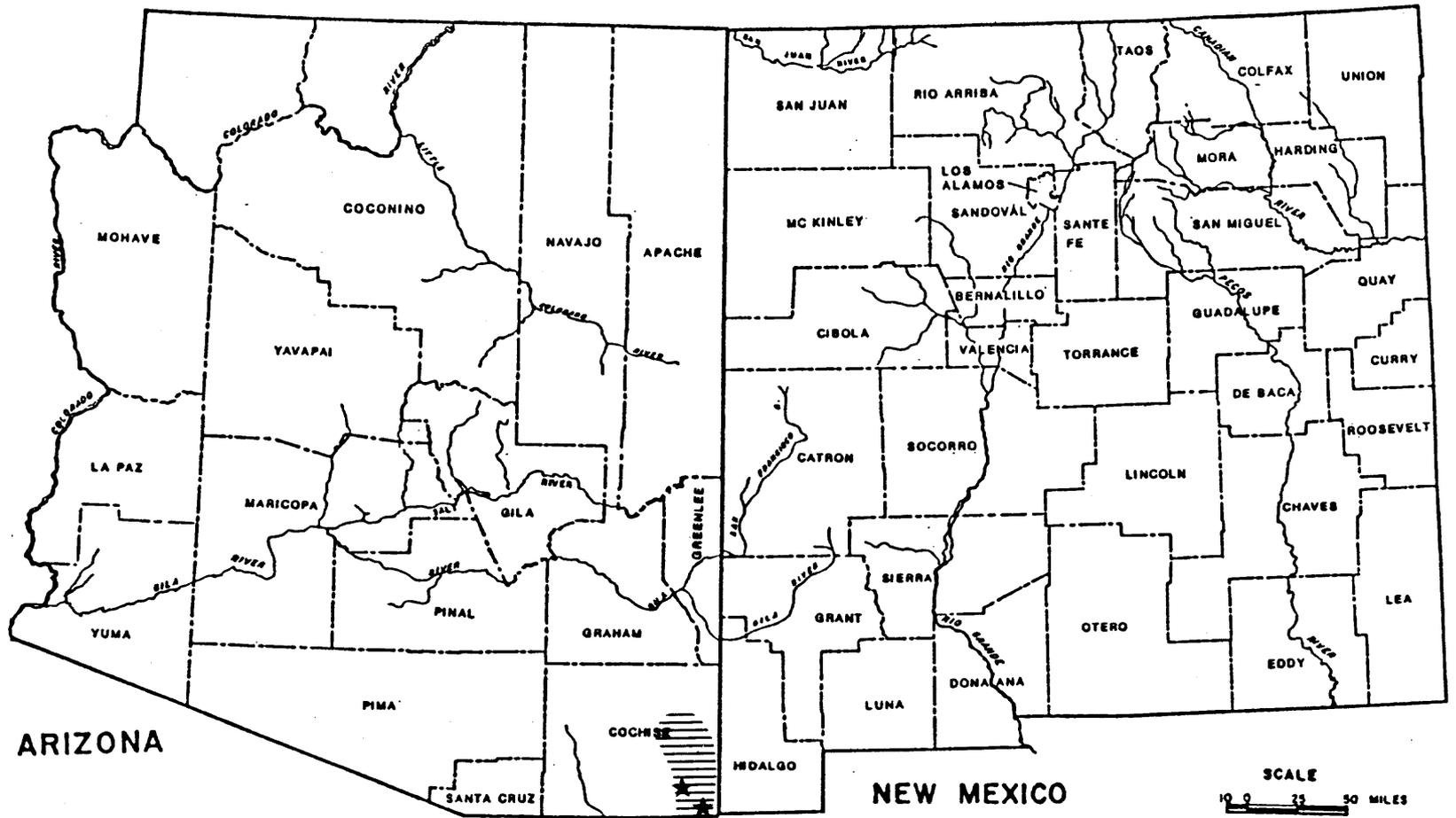
Historic: Once the most common fish throughout the Yaqui River drainage below 4,500 feet in Arizona. Also extends into Mexico.

Present: P. o. sonoriensis, only in Leslie Canyon and springs on San Bernardino National Wildlife Refuge, Cochise County, Arizona.

REASONS FOR DECLINE: Loss of springs, river backwaters, and small stream habitat; competition with introduced mosquitofish (Gambusia affinis) in remaining habitats is also a major factor.

OTHER INFORMATION: Protected by Arizona. The subspecies is being reared at Dexter National Fish Hatchery. Recovery plan completed 1984.

REFERENCES: Koster 1957, Minckley et al. 1977, Johnson and Rinne 1982, USFWS 1984j.



G. S. Gann

YAQUI TOPMINNOW

SOCORRO ISOPOD.....Thermosphaeroma (=Exosphaeroma) thermophilus

---

STATUS: Endangered (43 FR 12691, March 27, 1978) without critical habitat.

SPECIES DESCRIPTION: A small, aquatic crustacean, similar to the terrestrial "pillbug". One of only seven freshwater species in its family in North America, all of which occur in warm springs.

HABITAT: Thermal springs.

DISTRIBUTION:

Historic: Sedillo, Socorro, and Cook Springs in the Socorro thermal area in New Mexico.

Present: Less than 100 feet of drainpipe from Sedillo Spring to an abandoned bathhouse.

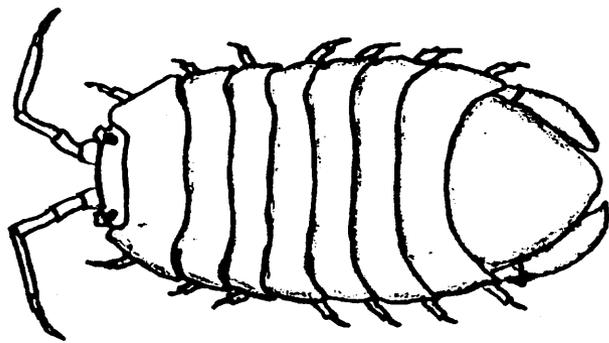
REASONS FOR DECLINE: Habitat destruction due to capping and diverting of spring waters.

OTHER INFORMATION: Protected by New Mexico. Population estimated at less than 2,500. Recovery Plan completed in 1982. Captive population at the University of New Mexico.

REFERENCES: Hubbard et al. 1978, USFWS 1982b.



- LEGEND**
- ★ Present site
  - ≡ Historic range

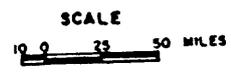
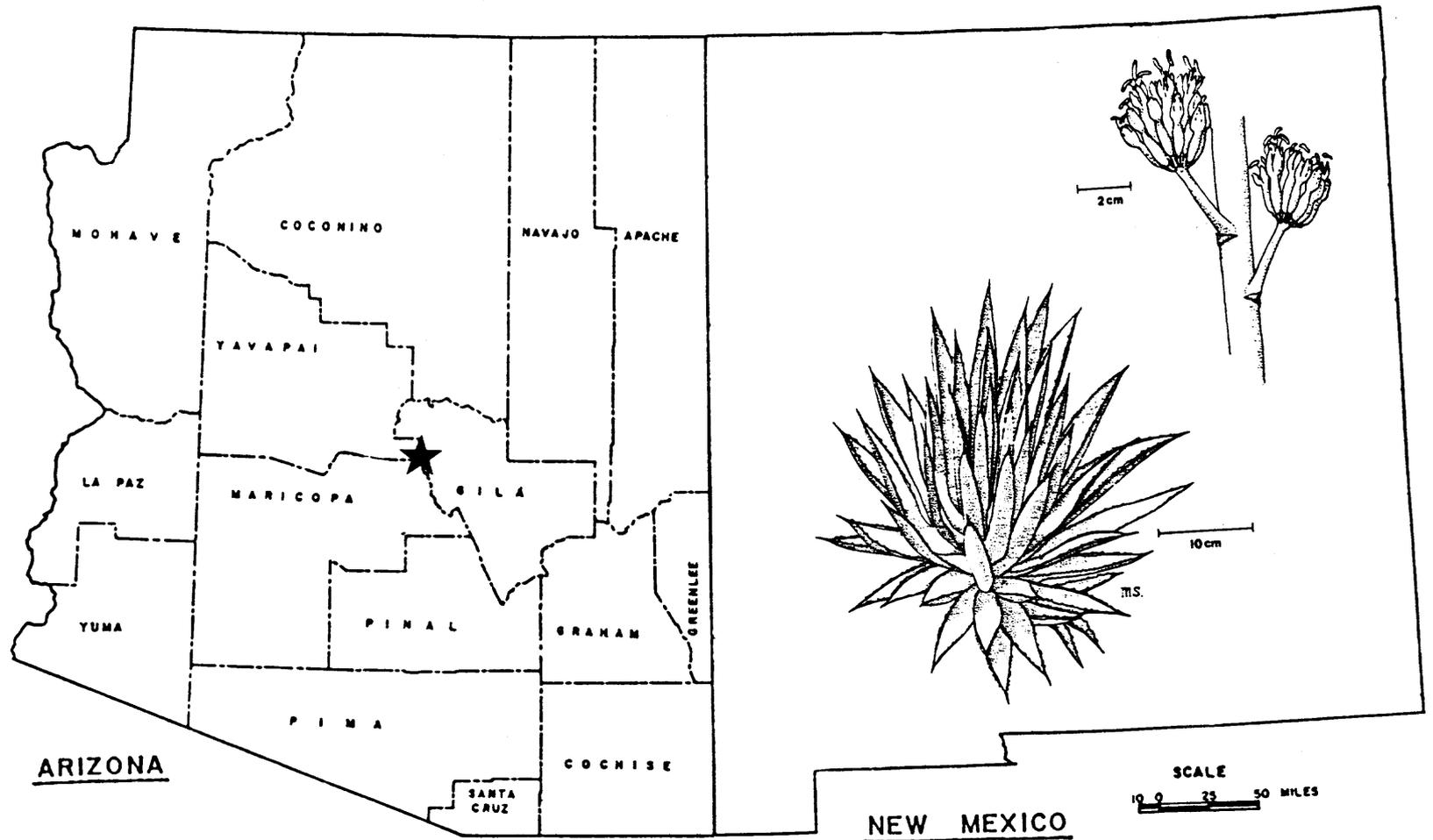


**SOCORRO ISOPOD**

ARIZONA AGAVE.....Agave arizonica

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- STATUS: Endangered (49 FR 21055; May 18, 1984) without critical habitat
- SPECIES DESCRIPTION: A member of the agave family. The blue-green, succulent leaves form a rosette about 12 inches high and 16 inches wide. The slender, branching, flowering stalk is 8.8-11.8 feet tall. Flowers are small, pale yellow, and jar-shaped.
- HABITAT: Creek bottoms and granite hills at an elevation of 3,000-6,000 feet in elevation. Soil is mixed gravelly loam derived from Mazatzal quartzite. Surrounding vegetation is a chaparral association between oak-juniper woodland and mountain mahogany-oak scrub.
- DISTRIBUTION:
- Historic: Unknown.
- Present: Scattered individuals occur on a limited area of the Tonto National Forest, Gila, Maricopa, and Yavapai Counties, Arizona.
- REASONS FOR DECLINE: Cattle and deer browsing, overcollection. Cattle and deer ingest the succulent and sweet flower stalk and flowers, intercepting successful reproduction.
- OTHER INFORMATION: Protected by the State of Arizona.
- REFERENCES: Gentry 1970, Fletcher 1978c, Phillips and Brian 1980.



LEGEND

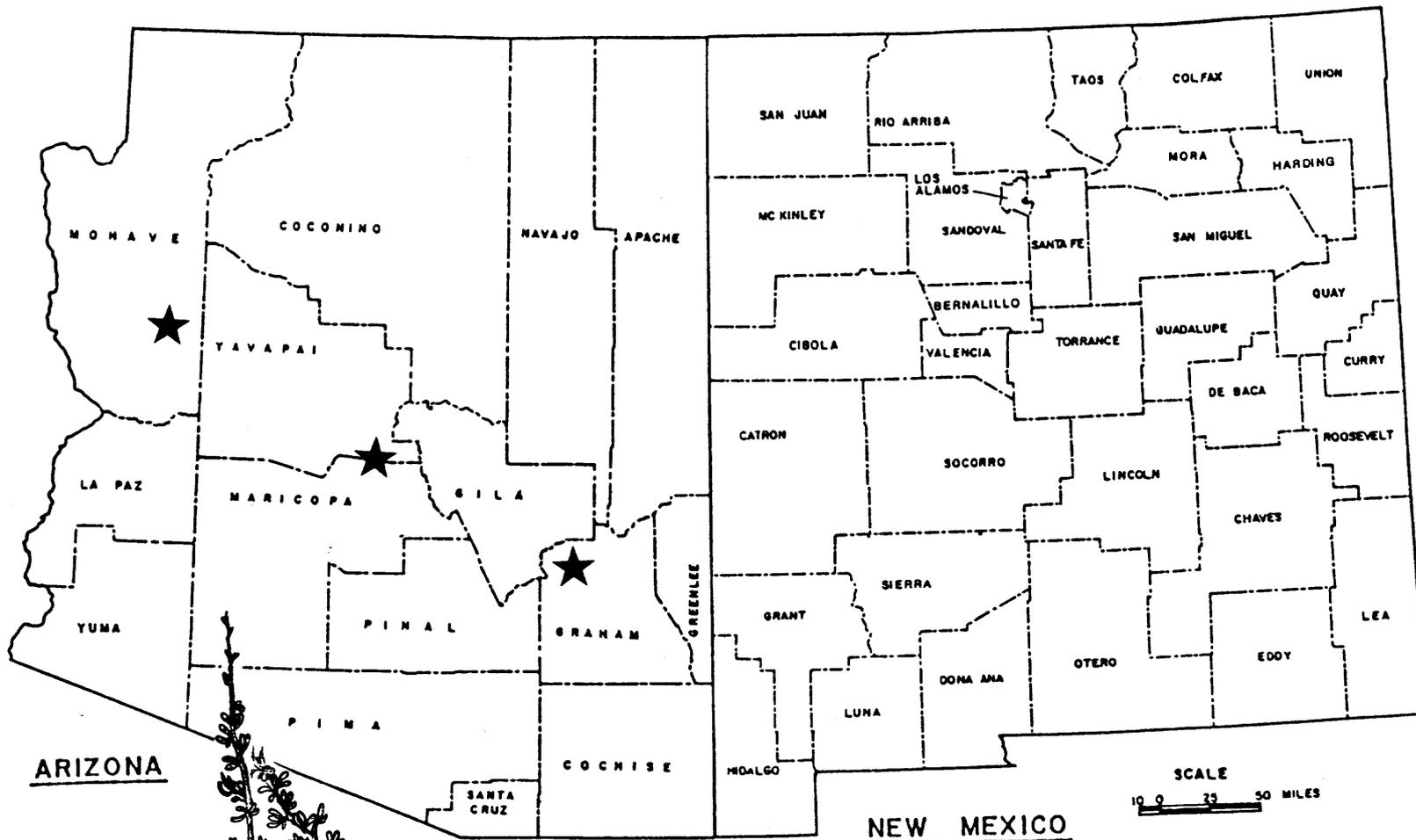
★ Present range

ARIZONA AGAVE

ARIZONA CLIFFROSE.....Cowania subintegra

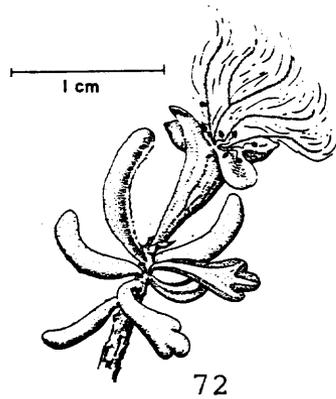
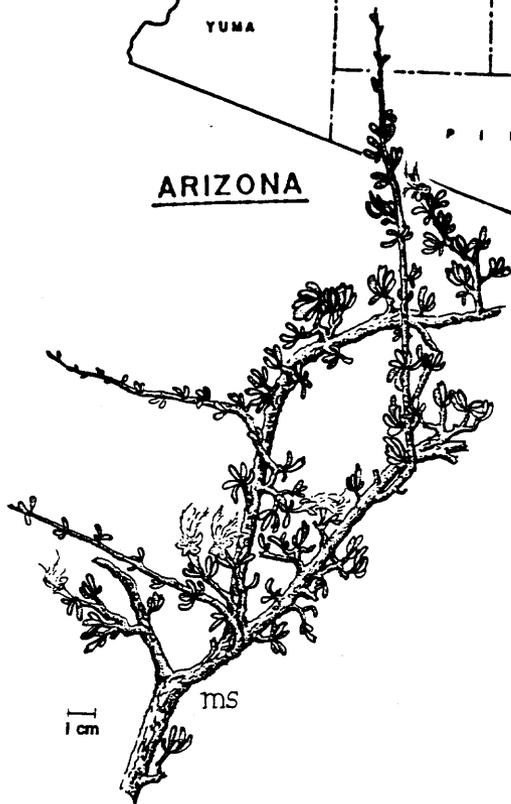
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- STATUS: Endangered (49 FR 22326; May 29, 1984) without critical habitat
- SPECIES DESCRIPTION: This member of the rose family is an evergreen shrub that reaches 30 inches in height. Bark is pale gray and shreddy. Leaves, twigs, and flowers are covered with dense, soft, white hairs. Leaves are simple or 3-lobed and have entire (smooth) margins. Flowers have 5 white or yellow petals about 0.4 inch long.
- HABITAT: Occurs within the Creosote bush-Crucifixion thorn series of the Arizona Upland Subdivision of the Sonoran Desert Scrub. On gravelly clay loam soils over limestone on low rolling hills between 2,050-3,660 feet in elevation.
- DISTRIBUTION:
- Historic: Unknown.
- Present: Mohave, Graham, Yavapai, and Maricopa Counties, below the Mogollon Rim, Arizona.
- REASONS FOR DECLINE: Habitat destruction due to overgrazing, road construction, widening and maintenance, mining, inundation, and off-road vehicle damage.
- OTHER INFORMATION: Recovery plan to be completed in 1988. Protected by the State of Arizona.
- REFERENCES: Butterwick 1979, Phillips et al. 1980, Van Devender 1980, USFWS 1986b.



LEGEND

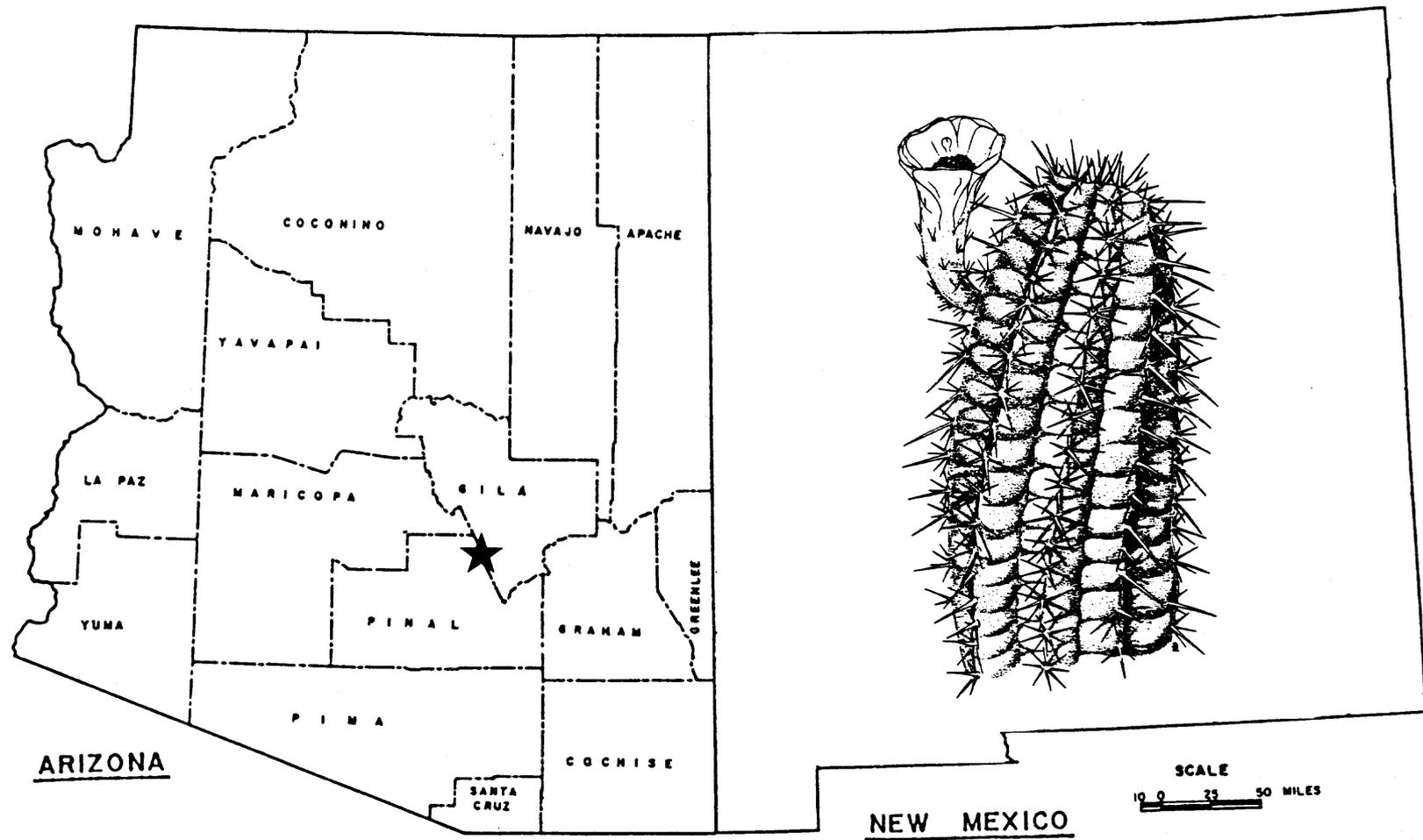
★ Present range



ARIZONA HEDGEHOG CACTUS.....Echinocereus triglochidiatus var. arizonicus

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- STATUS: Endangered (44 FR 61556; October 15, 1979) without critical habitat
- SPECIES DESCRIPTION: Cactus with a dark green cylindroid stem, 2.5-12 inches tall and 2-10 inches in diameter. Stems occur singly or (usually) in clusters. There are 1-3 gray or pinkish central spines, the largest deflexed, and 5-11 shorter radial spines. Flowers are brilliant red, are produced along the side of the stem, and appear in late April to mid-May.
- HABITAT: Restricted to granitic boulder outcrops associated with shrub live oak and manzanita. Elevation ranges from about 3,800-5,200 feet.
- DISTRIBUTION:
- Historic: Pinal and Gila Counties, Arizona
- Present: Same counties but reduced distribution.
- REASONS FOR DECLINE: Limited distribution, habitat destruction from road construction and mining, over-collection.
- OTHER INFORMATION: Protected by the State of Arizona.
- REFERENCES: Benson 1969, 1982; Phillips et al. 1979b.



SCALE  
 10 0 25 50 MILES

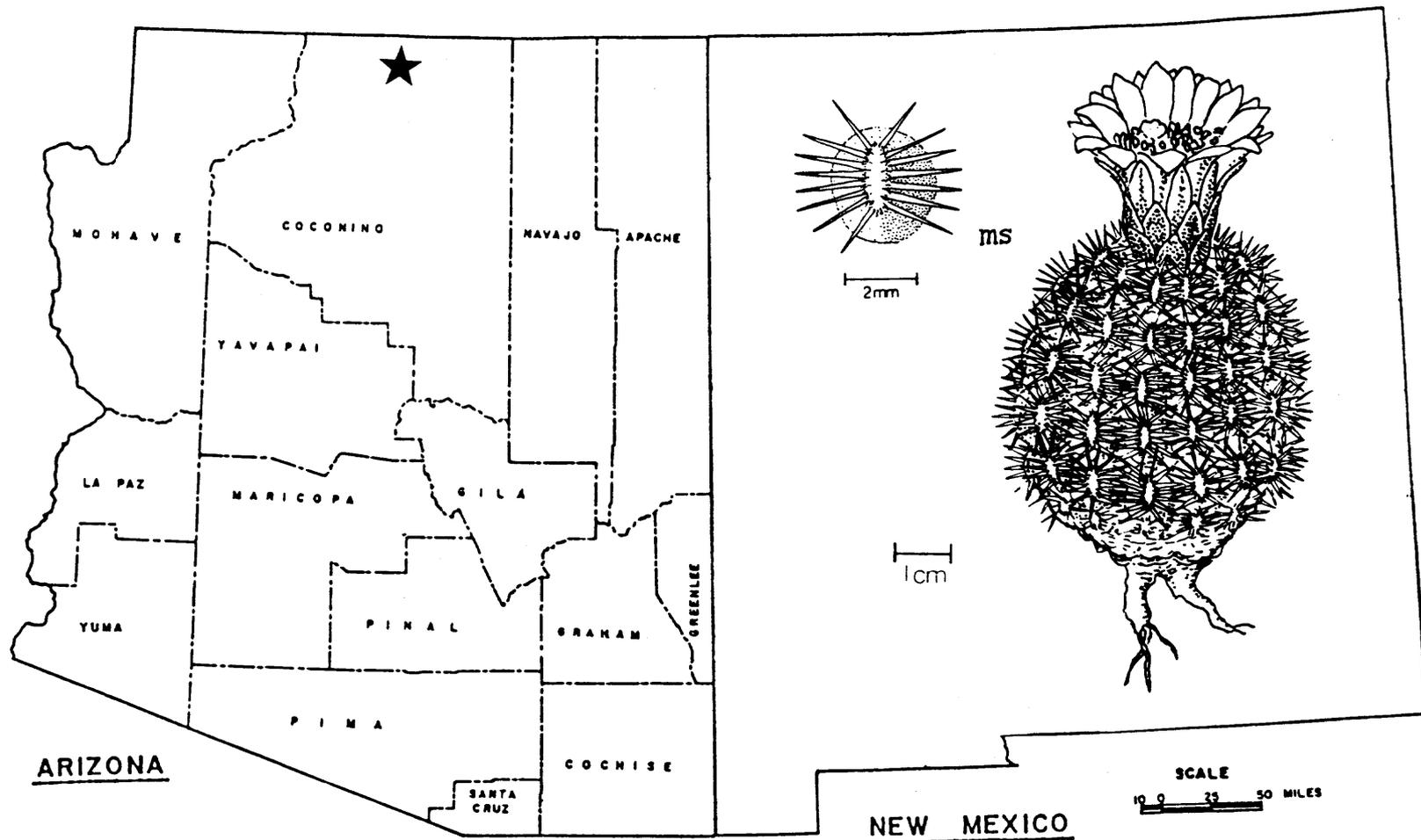
LEGEND

★ Present range

BRADY PINCUSHION CACTUS.....Pediocactus bradyi

---

- STATUS: Endangered (44 FR 61784; October 26, 1979) without critical habitat
- SPECIES DESCRIPTION: A small, nearly spherical (slightly elongated) cactus usually with a single stem up to 2.5 inches tall and about 1 inch in diameter. Spines are white or yellowish-tan. There are 1-2 central spines per areole (spine cluster), and 14-15 spreading radial spines. Flowers are straw-yellow, are produced at the top of the stem, and appear in the spring.
- HABITAT: Occurs in the Navajoan Desert plant community on the Colorado Plateau, characterized by scattered low shrubs, and a few perennial grasses and annuals (in season). Restricted to Kaibab limestone chips overlying soil developed from Moenkopi shale at 3860-4490 feet in elevation.
- DISTRIBUTION:
- Historic: Northern Coconino County, Arizona.
- Present: Same county as above but reduced distribution and numbers.
- REASONS FOR DECLINE: Small number and limited distribution, overcollection of plants and seeds, and habitat destruction due to mining, off-road vehicle use and overgrazing.
- OTHER INFORMATION: Protected by the State of Arizona. Recovery Plan approved 1986. Monitoring transects were established by the BLM in 1980, and examined again in 1984. A decline in plant numbers was noted.
- REFERENCES: Benson 1969, 1982; Fletcher 1979b; Phillips et al. 1979c; USFWS 1986c.



LEGEND

★ Present range

BRADY PINCUSHION CACTUS

COCHISE PINCUSHION CACTUS.....Coryphantha robbinsorum

---

STATUS: Threatened (51 FR 952; January 9, 1986) without critical habitat

SPECIES DESCRIPTION: A small, unbranched cactus with no central spines and 11-17 radial spines. The areoles (spine clusters) are born on the ends of tubercles (protrusions). The bell-shaped flowers are pale yellow-green with a slight bronze cast. Fruits are orange-red when ripe, but quickly turn dull red.

HABITAT: Occurs in semi-desert grassland on limestone hills at an elevation of 4200 feet.

DISTRIBUTION:

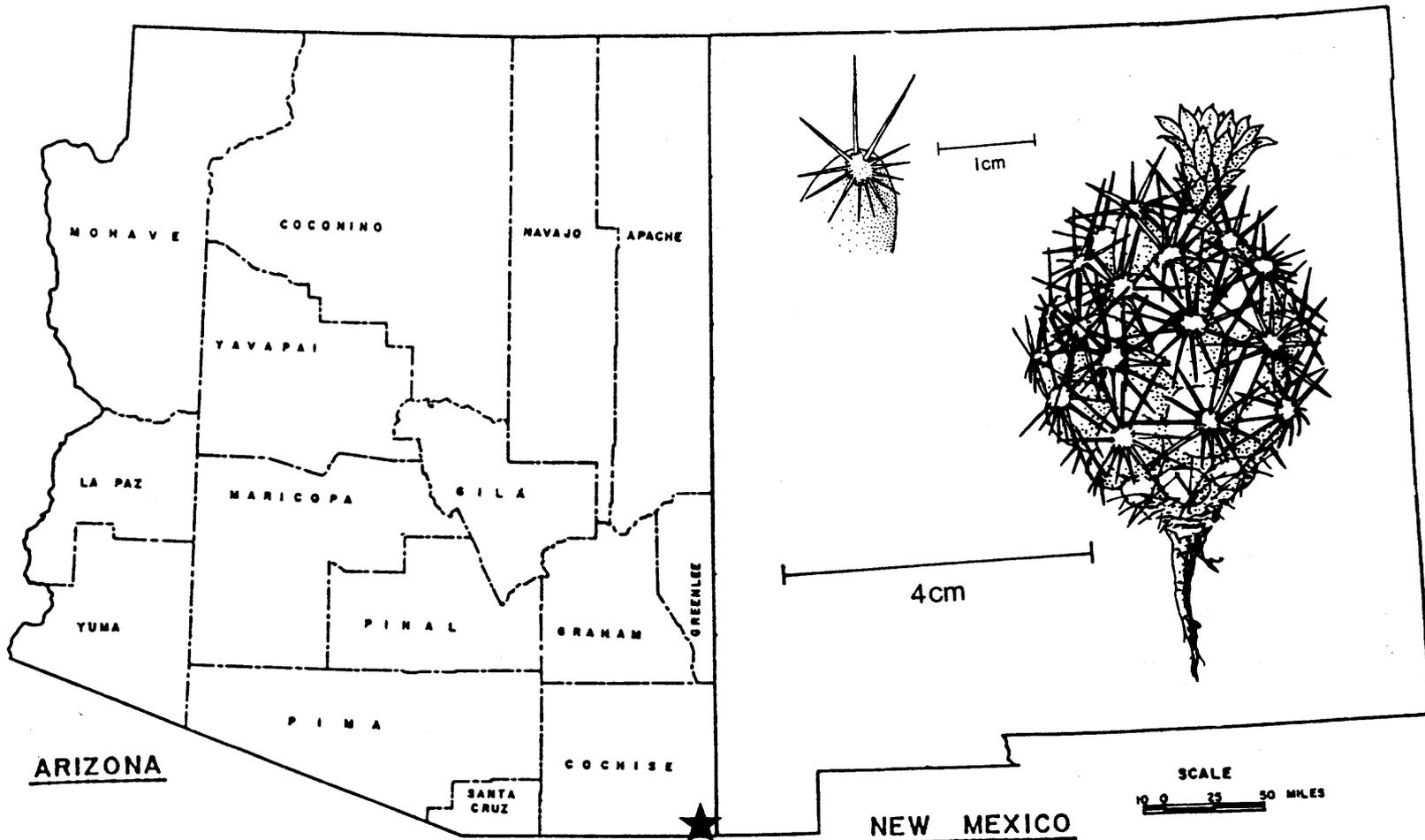
Historic: Unknown.

Present: One verified locality in Cochise County, Arizona, and a possible population in the adjacent State of Sonora, Mexico. At the Arizona locality, the plants occupy about 100 acres.

REASONS FOR DECLINE: Habitat destruction from overgrazing, exploration and potential drilling for oil, and overcollection.

OTHER INFORMATION: Recovery Plan to be completed in 1988.

REFERENCES: Benson 1982, Phillips and Brian 1982.



SCALE  
0 25 50 MILES

LEGEND

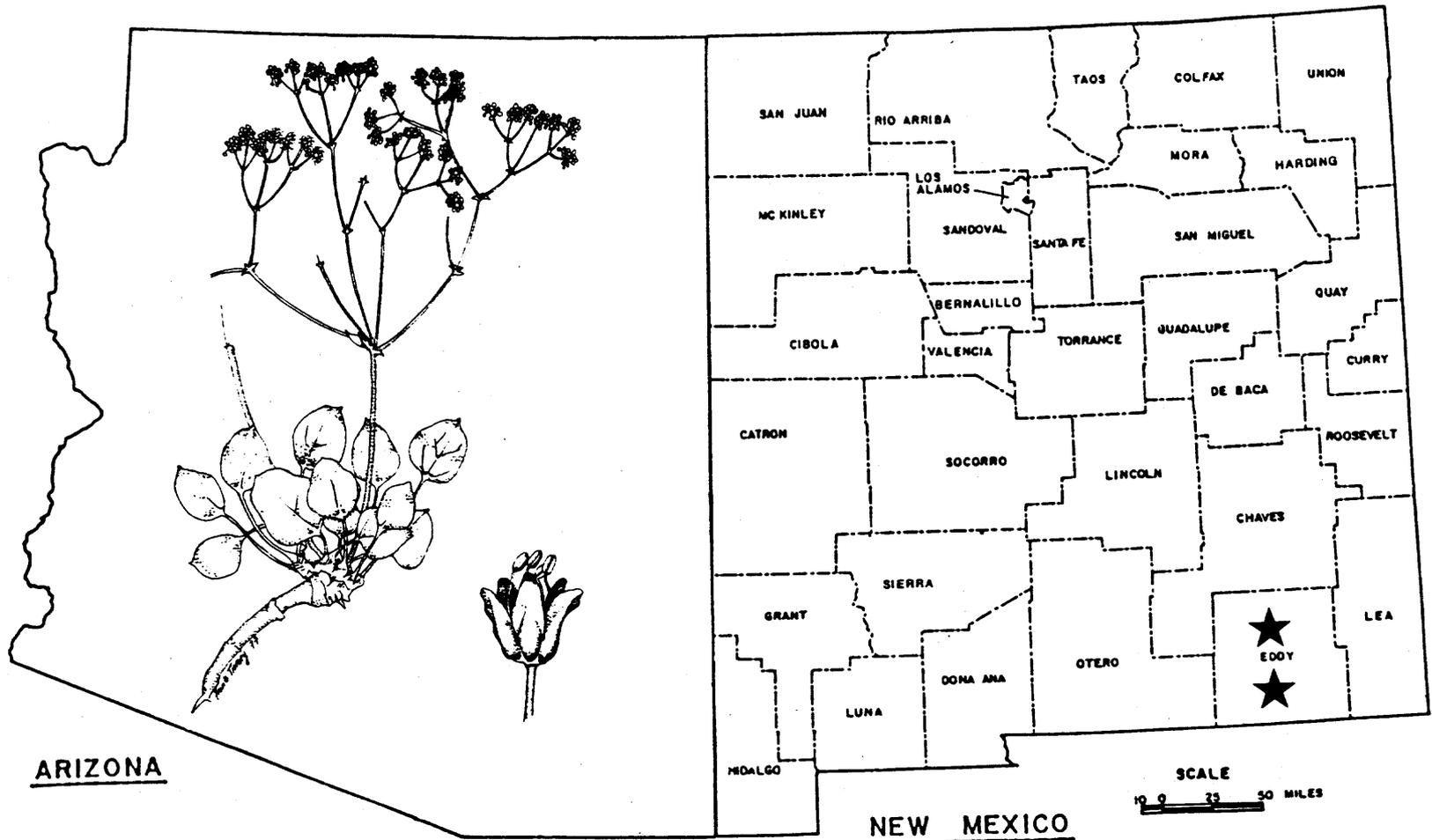
★ Present range

# COCHISE PINCUSHION CACTUS

GYPSUM WILD BUCKWHEAT.....Eriogonum gypsophilum

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- STATUS: Threatened (46 FR 5730; January 19, 1981) with critical habitat
- SPECIES DESCRIPTION: A member of the knotweed family (Polygonaceae). A small erect perennial about 8 inches high growing from a thickened woody root. The thick ovate leaves occur only at the base of the plant. Bright yellow flowers are born on the ends of a many-branched flower stalk.
- HABITAT: Semi-desert areas within the Chihuahuan Desert on gypsum soils between 3,000-3,500 feet in elevation.
- DISTRIBUTION:
- Historic: Unknown.
- Present: Seven River Hills and south of Carlsbad, Eddy County, New Mexico.
- REASONS FOR DECLINE: Highway construction, off-road vehicles. Possible impacts could result from increased grazing and the Brantley Dam Project.
- OTHER INFORMATION: Critical habitat includes nearly 1 square mile of habitat. Protected by the State of New Mexico. Recovery plan approved in 1984.
- REFERENCES: Wooton and Standley 1913, Reveal 1976, Spellenberg 1977, USFWS 1984d.

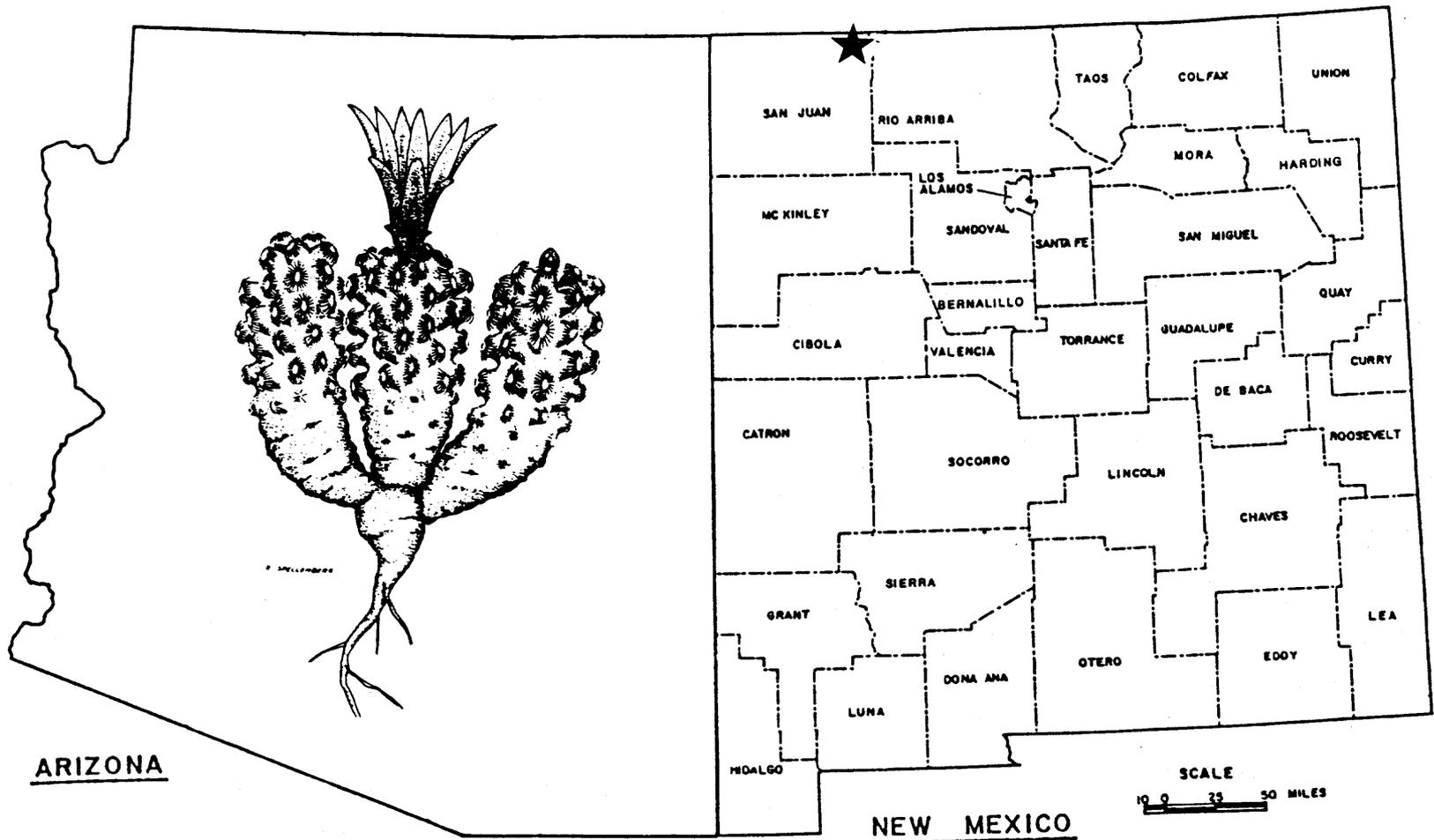


GYPSUM WILD BUCKWHEAT

KNOWLTON CACTUS.....Pediocactus knowltonii

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- STATUS: Endangered (44 FR 62244; October 19, 1979) without critical habitat
- SPECIES DESCRIPTION: Small, nearly globose cactus with single to clustered stems up to 1.5 inches tall and 1 inch in diameter. There are about 18-23 radial spines per areole (spine cluster); central spines are absent. The pink flowers are about 0.75 inch in diameter, and bloom in April and May.
- HABITAT: Gravelly, sagebrush-pinyon pine dominated slopes at 6,000-6,500 feet along the Los Pinos River, northern New Mexico.
- DISTRIBUTION:
- Historic: Northeastern San Juan County, New Mexico.
- Present: A single natural population remains in San Juan County. A reintroduced population was established in fall 1985.
- REASONS FOR DECLINE: Overcollecting, destruction of habitat, limited distribution.
- OTHER INFORMATION: Protected by the State of New Mexico. Recovery plan approved 1985. Monitoring plots were established at the type locality in spring 1986.
- REFERENCES: Benson 1961, 1982; Weniger 1970; Sabo and Wagner 1977c; USFWS 1985a; Olwell et al. 1987.

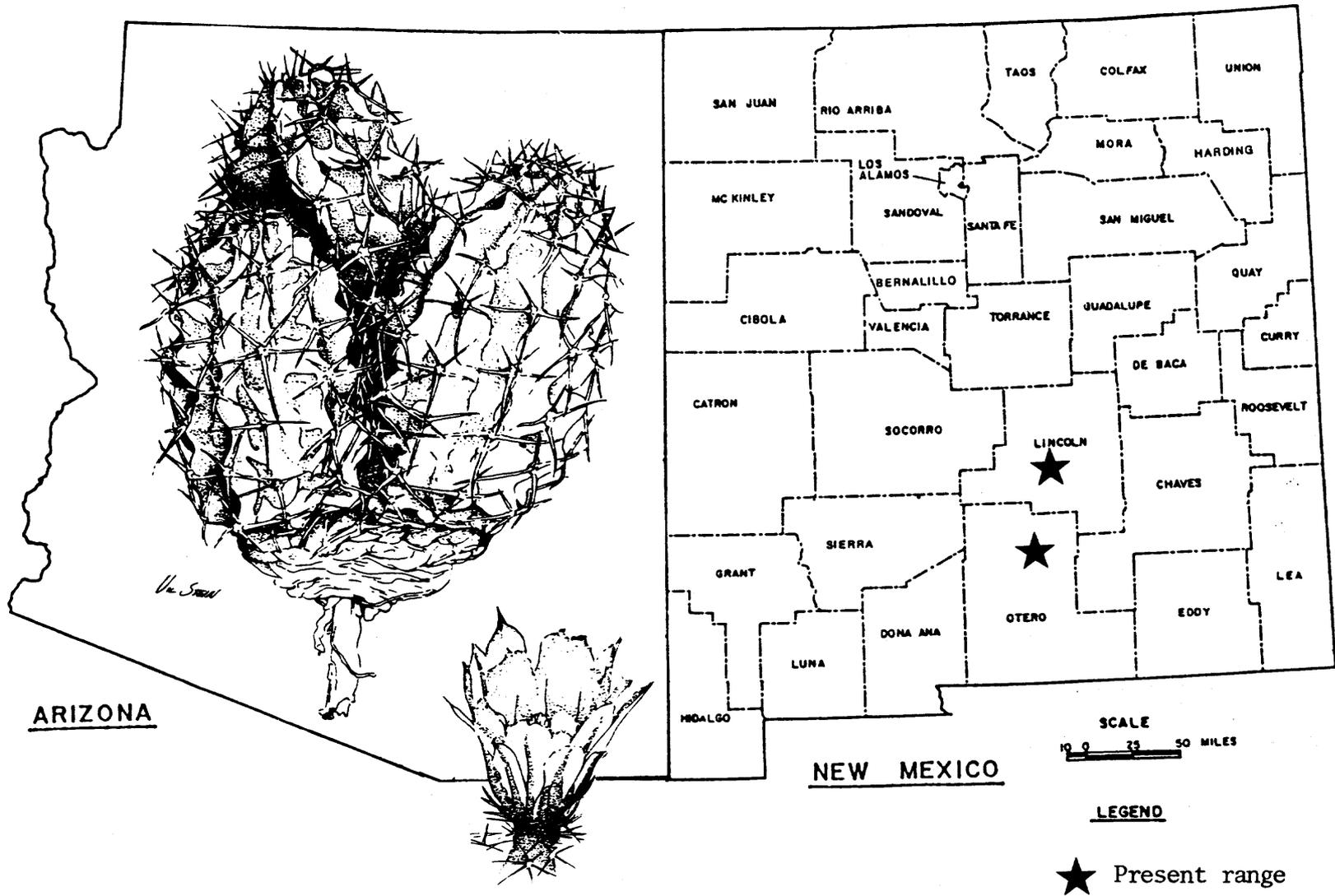


KNOWLTON CACTUS

KUENZLER HEDGEHOG CACTUS.....Echinocereus fendleri var. kuenzleri

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- STATUS: Endangered (44 FR 61924; October 26, 1979) without critical habitat
- SPECIES DESCRIPTION: The stems are dark green, simple or branched (1-4), conical to short-cylindric, and up to 10 inches tall. Central spines are absent or rare; the 5-7 radial spines are white or straw colored and recurved (bent back towards the stem). When the bright magenta flowers appear in the spring, this cactus is easily seen at a distance. Flowers are 2.25-4 inches in length and diameter.
- HABITAT: Grows between rocks on gently sloping limestone outcrops in Pinyon-Juniper woodlands and grasslands at about 5,800-6,200 feet in elevation.
- DISTRIBUTION:
- Historic: Northeastern Otero and adjacent Chaves and Lincoln Counties, New Mexico.
- Present: Same counties as above, but reduced distribution.
- REASONS FOR DECLINE: Over-collecting, habitat destruction. Over-collecting is the single most important reason for the dramatic decline of this cactus.
- OTHER INFORMATION: Recovery Plan approved 1985. Protected by the State of New Mexico.
- REFERENCES: Castetter et al. 1976, Sabo and Wagner 1977b, Benson 1982, USFWS 1985b.



KUENZLER HEDGEHOG CACTUS

LEE PINCUSHION CACTUS.....Coryphantha sneedii var. leei

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STATUS: Threatened (44 FR 61554; October 26, 1979) without critical habitat

SPECIES DESCRIPTION: Stems are spherical to club-shaped, and are many-branched, forming low, spreading clumps up to 12 inches across. Each stem is 0.6-1.25 inches tall and 0.4-0.75 inch in diameter. Stems are densely covered with white spines, giving each plant the appearance of a cluster of small white-spined balls. Flowers are brownish-pink and appear in the spring.

HABITAT: Occurs within the semi-desert grassland of the Chihuahuan Desert between 4,000-6,000 feet in elevation. Grows mostly within the cracks of rocks on north-facing slopes near the top of limestone ridges.

DISTRIBUTION:

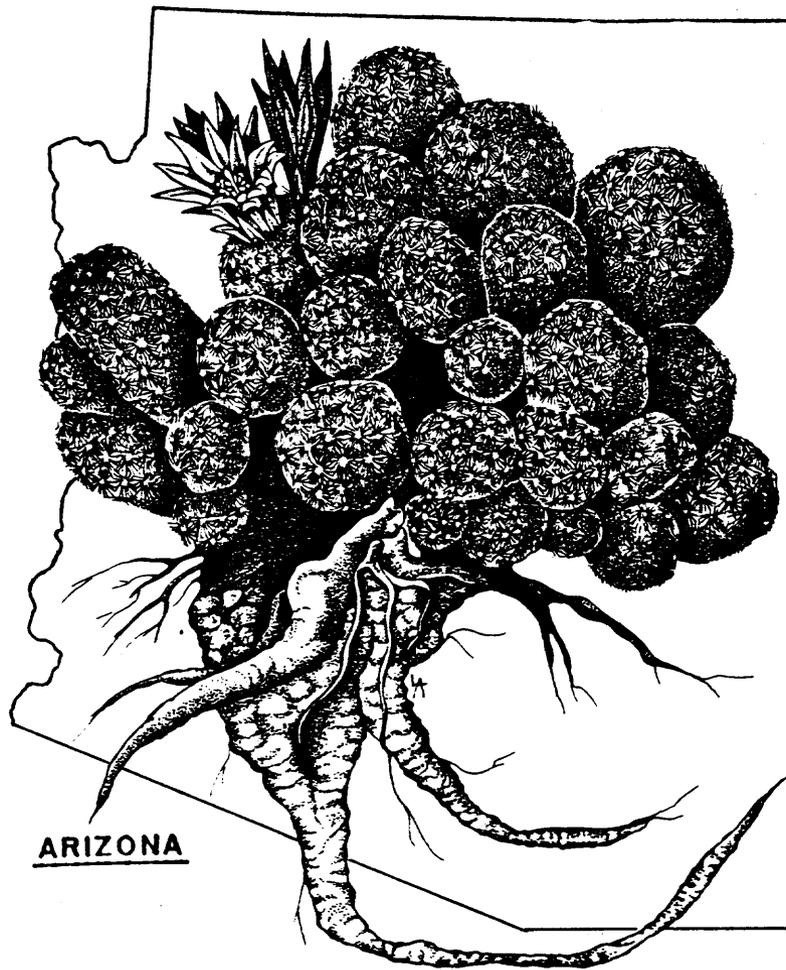
Historic: Eddy County, New Mexico.

Present: Same county as above, but reduced distribution.

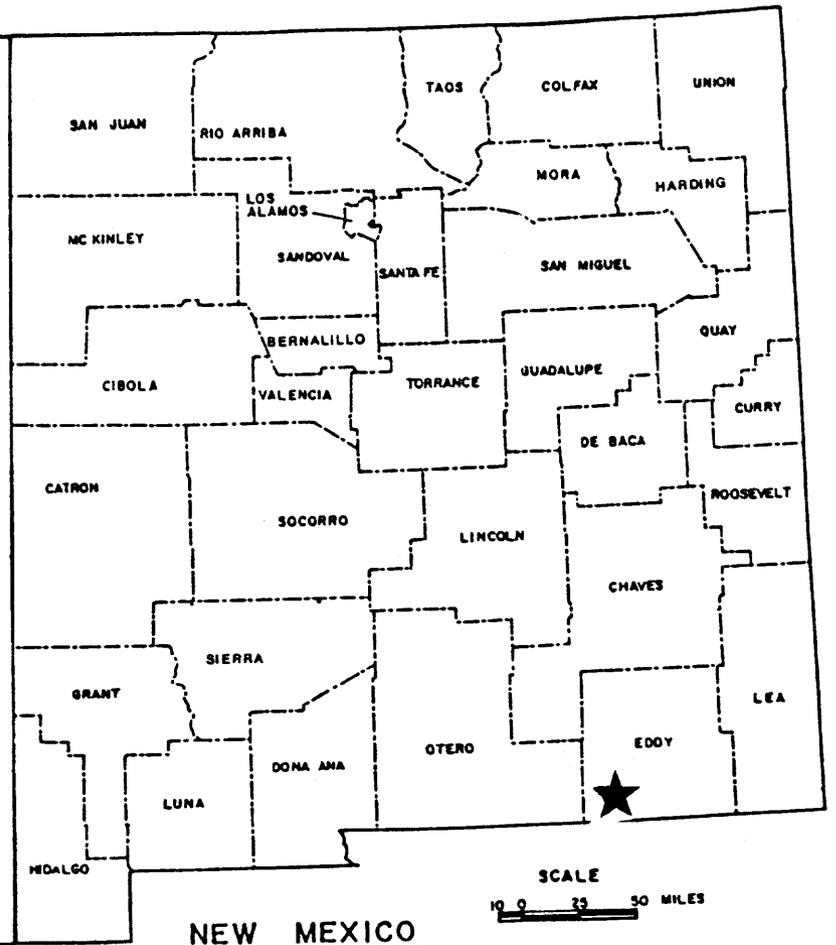
REASONS FOR DECLINE: Over-collection, limited distribution, habitat destruction.

OTHER INFORMATION: Protected by the State of New Mexico. Recovery Plan approved 1986.

REFERENCES: Castetter and Pierce 1966, Weniger 1970, Sabo and Wagner 1977a, Benson 1982, USFWS 1986e.



ARIZONA



NEW MEXICO

LEGEND

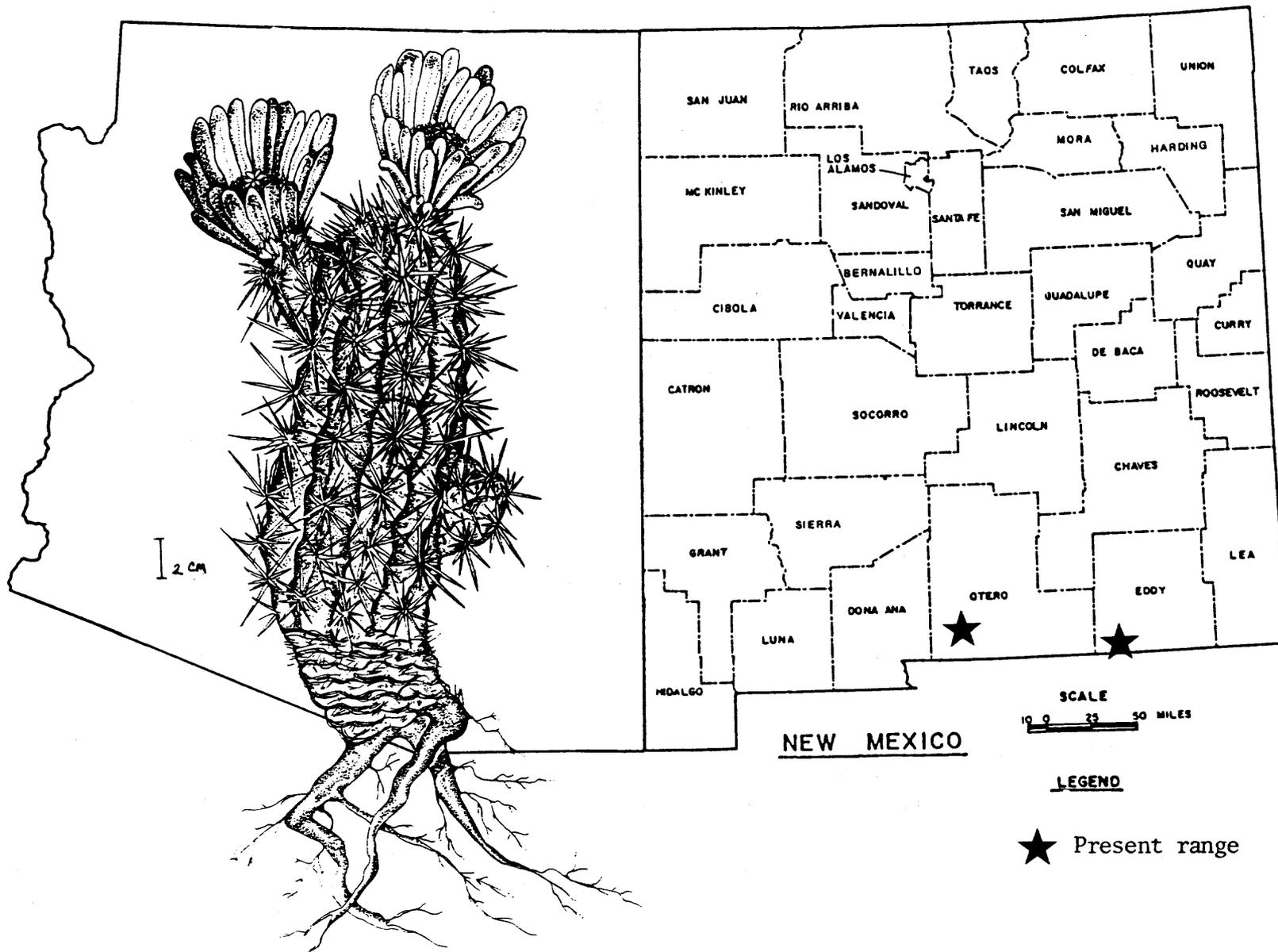
★ Present range

# LEE PINCUSHION CACTUS

LLOYD'S HEDGEHOG CACTUS.....Echinocereus lloydii

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- STATUS: Endangered (44 FR 61916; October 16, 1979) without critical habitat
- SPECIES DESCRIPTION: Lloyd's hedgehog cactus is a columnar-shaped cactus that reaches 12 inches in height and 4.5 inches in diameter. Stems sometimes occur singly, but usually occur as clumps. There are 4-8 red to reddish-grey central spines, and 14-17 radial spines colored like the centrals. The flowers are scarlet to coral pink and the ripe fruits are greenish-orange.
- HABITAT: Occurs in the Chihuahuan Desert Scrubland on the middle-elevation slopes of mountain ranges. The rocky soils are primarily derived from weathered metamorphic rock. The species is found at an elevation range of 4600-5000 feet.
- DISTRIBUTION:
- Historic: Unknown.
- Present: Pecos, Culberson, and Brewster Counties, Texas. Otero and Eddy Counties, New Mexico.
- REASONS FOR DECLINE: Overcollecting, habitat loss due to road widening and mining, habitat degradation due to overgrazing.
- OTHER INFORMATION: Taxonomic and population studies are being done by the Chihuahuan Desert Research Institute.
- REFERENCES: Sabo and Wagner, undated; Fletcher 1978a; Weniger 1979; Heil and Brack 1985a, 1985b.

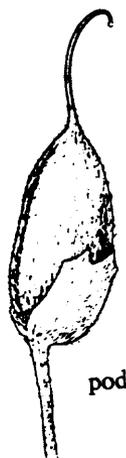
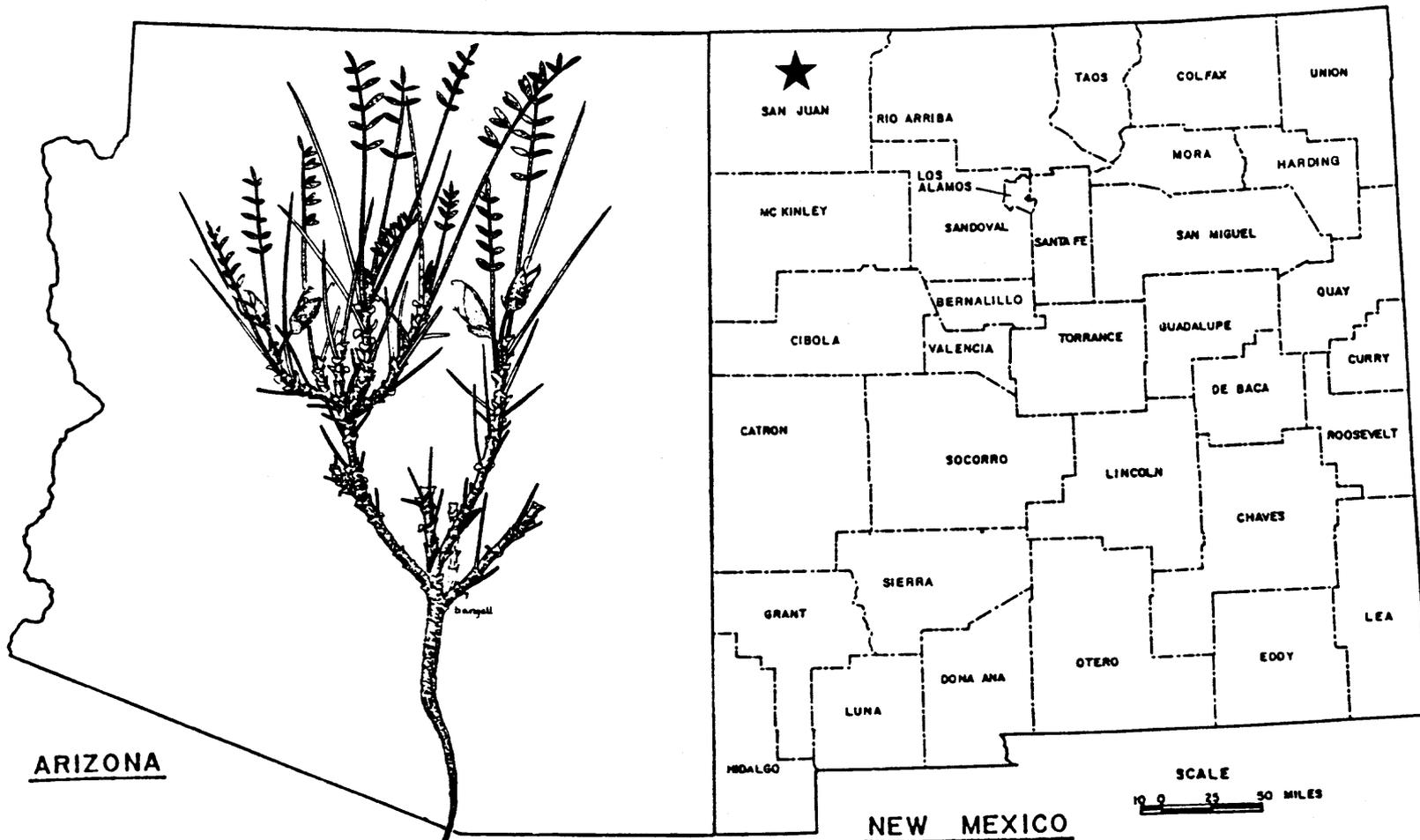


LLOYD'S HEDGEHOG CACTUS

MANCOS MILKVETCH.....Astragalus humillimus

---

- STATUS: Endangered (50 FR 26568; June 27, 1985) without critical habitat
- SPECIES DESCRIPTION: Mancos milkvetch plants form low, tufted mats 12-18 inches in diameter and less than one inch high. This member of the pea family (Fabaceae) has compound leaves with pubescent, light green leaflets. The small, pea-like flowers are lavender with white veins, and appear in late April to early May. During the flowering period, painted lady butterflies (Vanessa cardui) often cover the plants while they pollinate the flowers.
- HABITAT: Mancos milkvetch occurs only on Point Lookout and Cliff House sandstones. Plants grow in shallow bowl-like depressions in the bedrock where some soil accumulation has occurred, and where moisture settles.
- DISTRIBUTION:
- Historic: Unknown.
- Present: Five populations are known from San Juan County, New Mexico, and Montezuma County, Colorado.
- REASONS FOR DECLINE: Habitat destruction due to maintenance and construction of utility corridors, drilling pads, oil wells, pipelines and roads. Taking is currently a minor problem.
- OTHER INFORMATION: Recovery plan to be completed in 1988. Land ownership includes Navajo Indian Reservation, Bureau of Land Management, Ute Mountain Indian Reservation, and the State of New Mexico.
- REFERENCES: Barneby 1964, Knight 1981, USFWS 1986f.



**LEGEND**

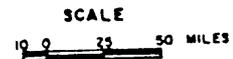
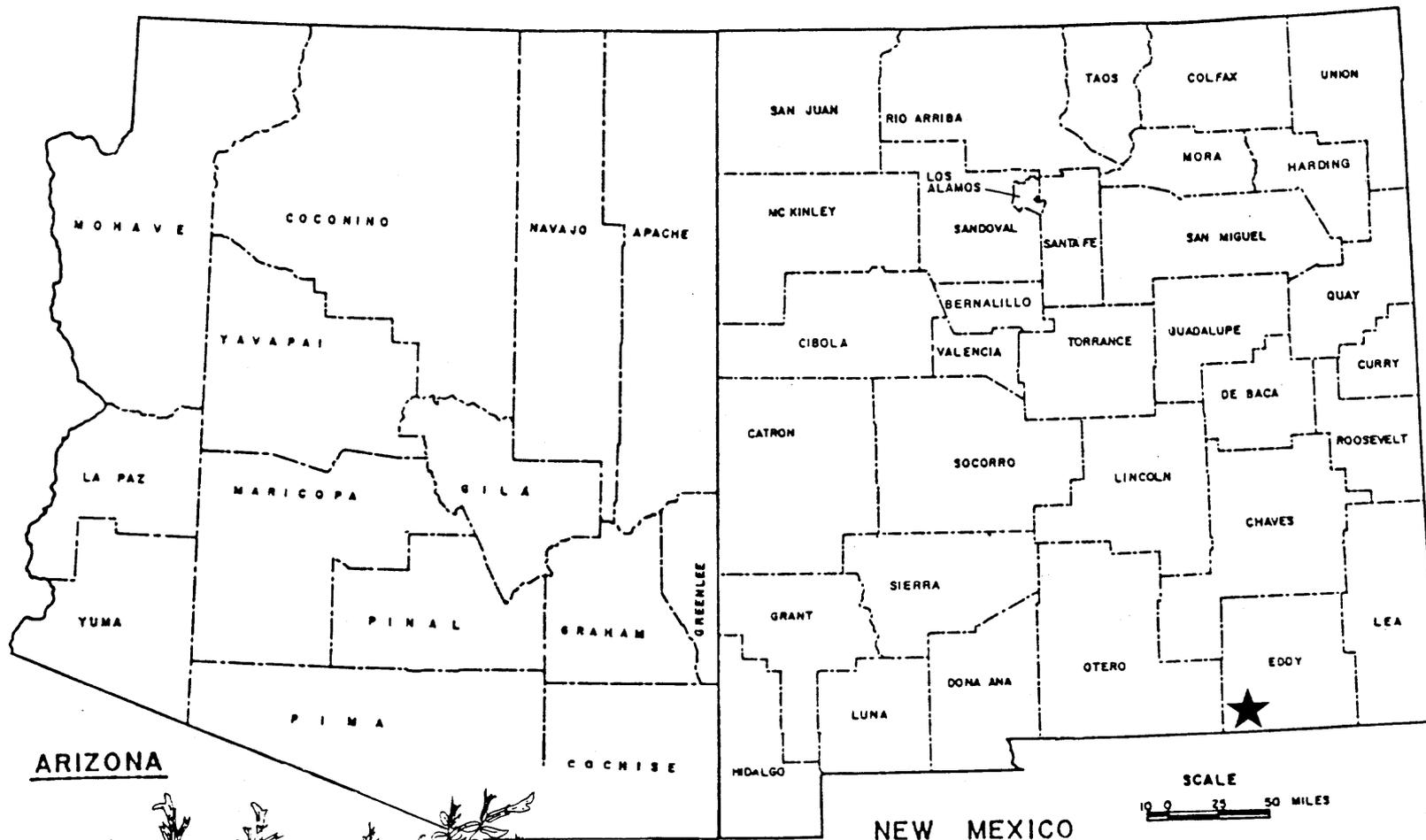
★ Present range

**MANCOS MILKVETCH**

McKITTRICK PENNYROYAL.....Hedeoma apiculatum

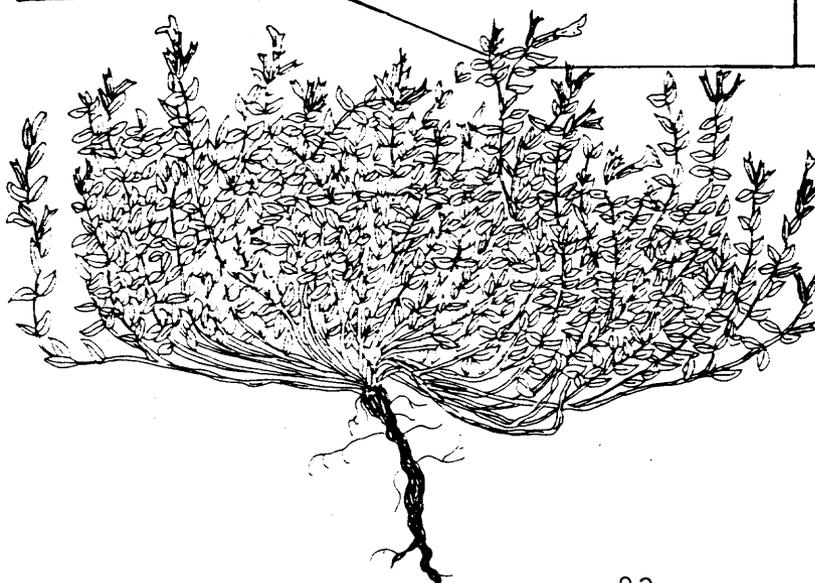
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- STATUS: Threatened (47 FR 30440, July 13, 1982) with critical habitat
- SPECIES DESCRIPTION: This member of the mint family is a long-lived perennial herb that forms dense, spreading tufts from woody rootstocks. The small leaves are thick and lance-shaped (0.3-0.6 inch long and 0.1-0.2 inch wide), and are oppositely arranged on the stem.
- HABITAT: Restricted to open limestone rock surfaces, large boulders, and ledges of canyons within the Madrean Evergreen Woodland at about 5,500-8,000 feet elevation.
- DISTRIBUTION:
- Historic: The Guadalupe Mountains in Culberson County, Texas, and Eddy County, New Mexico.
- Present: Same as above.
- REASONS FOR DECLINE: Trail construction, habitat disturbance from increasing visitor use, trampling by humans.
- OTHER INFORMATION: The major populations of this species occur on lands administered by the National Park Service. The Park Service recognizes the fragile nature of this plant and has implemented protective management strategies. Critical habitat includes three areas in the Guadalupe Mountains. Protected by the States of New Mexico and Texas. Recovery Plan approved 1985.
- REFERENCES: Irving 1980a, USFWS 1985c.



LEGEND

★ Present range

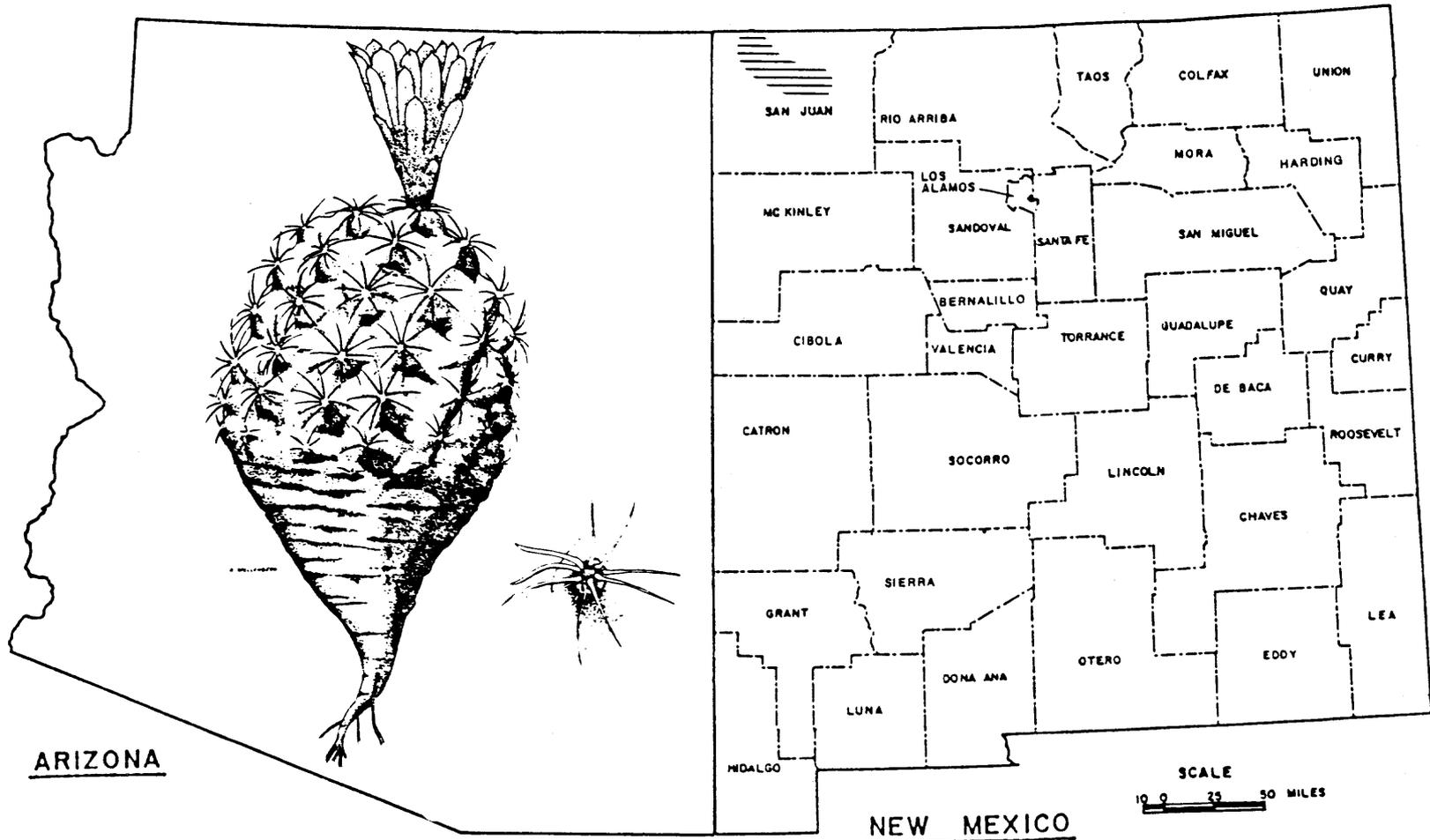


McKITTRICK PENNYROYAL

MESA VERDE CACTUS.....Sclerocactus mesae-verdae

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- STATUS: Threatened (44 FR 62471; October 30, 1979) without critical habitat
- SPECIES DESCRIPTION: The spherical stems grow alone or in clusters, and are about 2.3 inches tall. There are about 8-10 tannish or straw-colored radial spines per areole (spine cluster), and no central spines. The color of the spines allow the plants to blend in well with the fine soil on which they grow. Flowers are yellow to greenish-white, and appear in the spring.
- HABITAT: Restricted to dry clay soils along drainage ways on the eastern edge of the Navajoan Desert. Associated with Atriplex spp. at 4,000-6,000 feet in elevation.
- DISTRIBUTION:
- Historic: San Juan County, New Mexico, and Montezuma County, Colorado. (Possibly Montrose County, Colorado).
- Present: Same counties as above, but reduced distribution and numbers.
- REASONS FOR DECLINE: Limited distribution, overcollecting, habitat degradation due to overgrazing, and habitat destruction due to mining, oil and gas exploration and drilling, commercial and residential development, off-road vehicle use, road building and maintenance, construction of powerlines and pipelines, and pesticide use.
- OTHER INFORMATION: Recovery plan approved 1984. Protected by the State of New Mexico.
- REFERENCES: Benson 1966, 1969, 1982; Weniger 1970; Sabo and Wagner 1977d; USFWS 1984g.



ARIZONA

NEW MEXICO

SCALE  
0 25 50 MILES

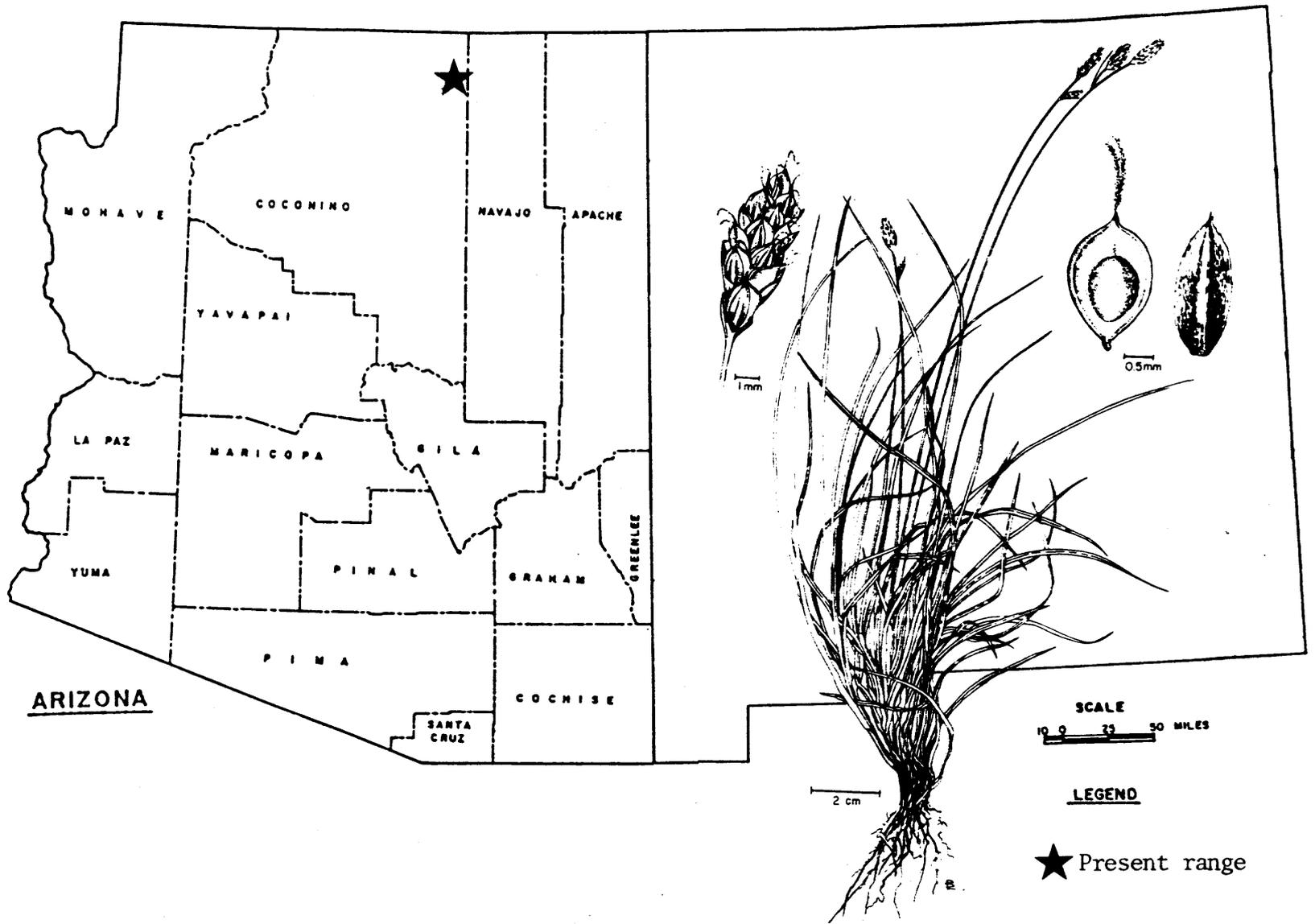
LEGEND

Present range

NAVAJO SEDGE.....Carex specuicola

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- STATUS:** Threatened (50 FR 19370; May 8, 1985) with critical habitat
- SPECIES DESCRIPTION:** A member of the sedge family (Cyperaceae), this grass-like plant reaches a height of 10-16 inches. Numerous stems grow from a rhizome (underground stem), giving each plant a clumped form. Each plant has both male and female flowers, the male flowers occurring only on the ends of stems and the female flowers occurring below the male flowers or in spikes on the sides of stems.
- HABITAT:** Shaded seep-springs on sandstone bedrock. Surrounding vegetation is in pinyon-juniper woodland. The Navajo sedge occurs at elevations of 5700-6000 feet where it receives about 7.6 inches of rainfall per year.
- DISTRIBUTION:**
- Historic: Little is known about the historic distribution of the Navajo sedge. Navajo Indians living in the area recall the presence of the Navajo sedge in areas where it is not found today. However, due to its specialized habitat requirements, this species was probably never common outside its present distribution.
- Present: Three groups of seep-springs near Inscription House, Coconino County, Arizona.
- REASONS FOR DECLINE:** Habitat degradation and loss due to water development and livestock grazing and trampling.
- OTHER INFORMATION:** Recovery plan approved 1987. Critical habitat is on the Navajo Indian Reservation in Coconino County, Arizona, and contains three groups of springs near Inscription House Ruins (see 50 FR 19370 for details).
- REFERENCES:** Howell 1949, Phillips et al. 1981, USFWS 1986g.

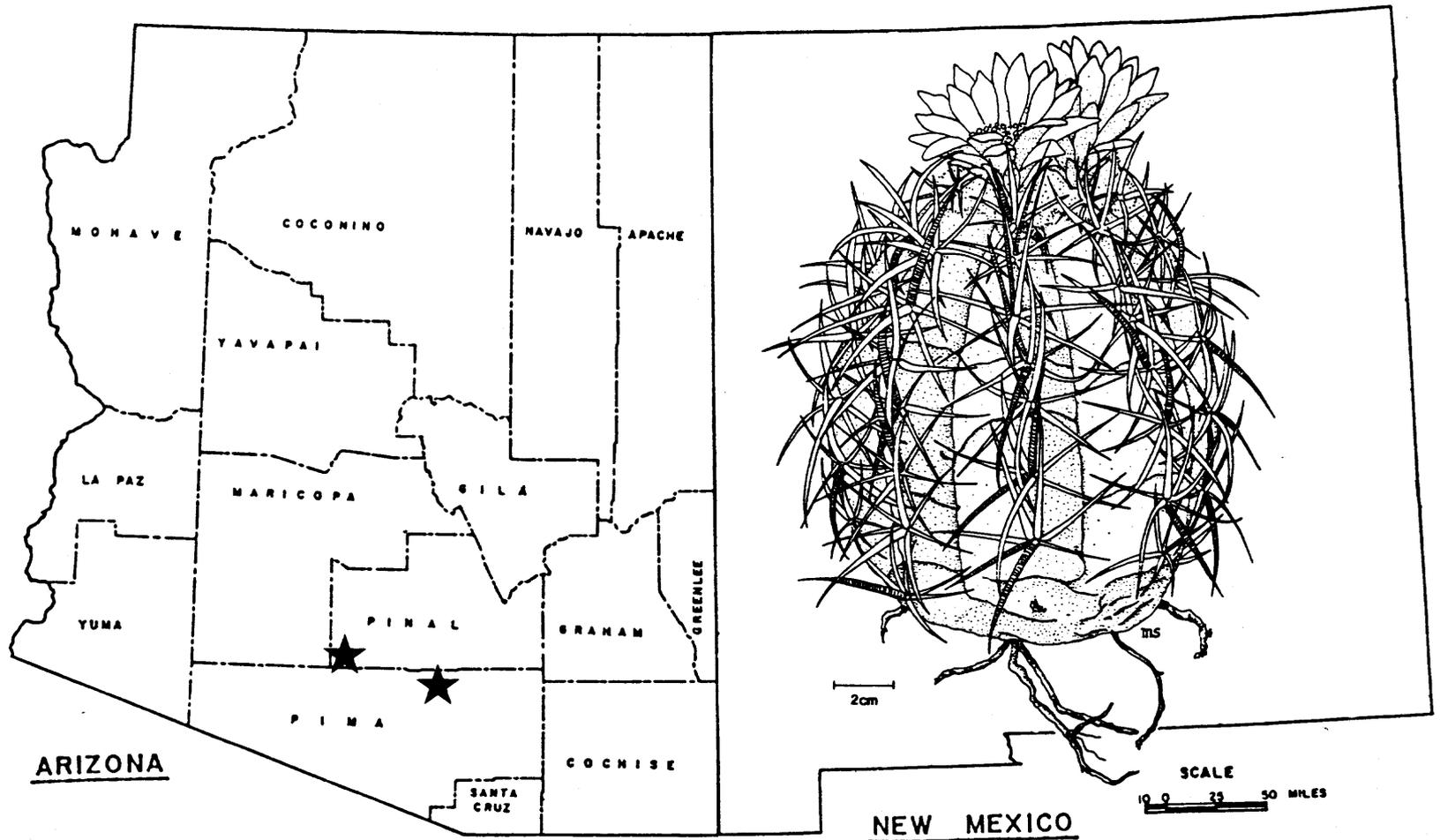


NAVAJO SEDGE

NICHOL'S TURK'S HEAD CACTUS.....Echinocactus horizontalonius var. nicholii

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- STATUS:** Endangered (44 FR 61927; October 26, 1979) without critical habitat
- SPECIES DESCRIPTION:** Stems are blue-green to yellowish-green, columnar, usually single, and about 18 inches tall and 8 inches in diameter. Spines are born on vertical, spiralling ridges along the stem. There are 3 central spines per areole; one curves downward and is much shorter than the others, and the other 2 are red or basally pale gray and curve upward. There are 5 radial spines per areole (spine cluster). Flowers are pink, and bloom from April to mid-May. Fruits are covered with woolly, white hairs.
- HABITAT:** Occurs in the Arizona Upland Subdivision of the Sonoran Desertscrub on limestone talus areas characterized by scattered trees and low shrubs. Elevation ranges from 3,300-3,800 feet.
- DISTRIBUTION:**
- Historic: Southwestern Pinal and northcentral Pima Counties, Arizona.
- Present: Same counties as above, but reduced distribution and numbers.
- REASONS FOR DECLINE:** Habitat destruction due to mining, urban development, off-road vehicle use, and seed imprinting, limited distribution.
- OTHER INFORMATION:** Protected by the State of Arizona. Recovery Plan approved 1986. Nichol's Turk's Head Cactus Habitat Management Plan drafted by the Bureau of Land Management.
- REFERENCES:** Benson 1969, 1982; Phillips et al. 1979a; USFWS 1986h.



LEGEND

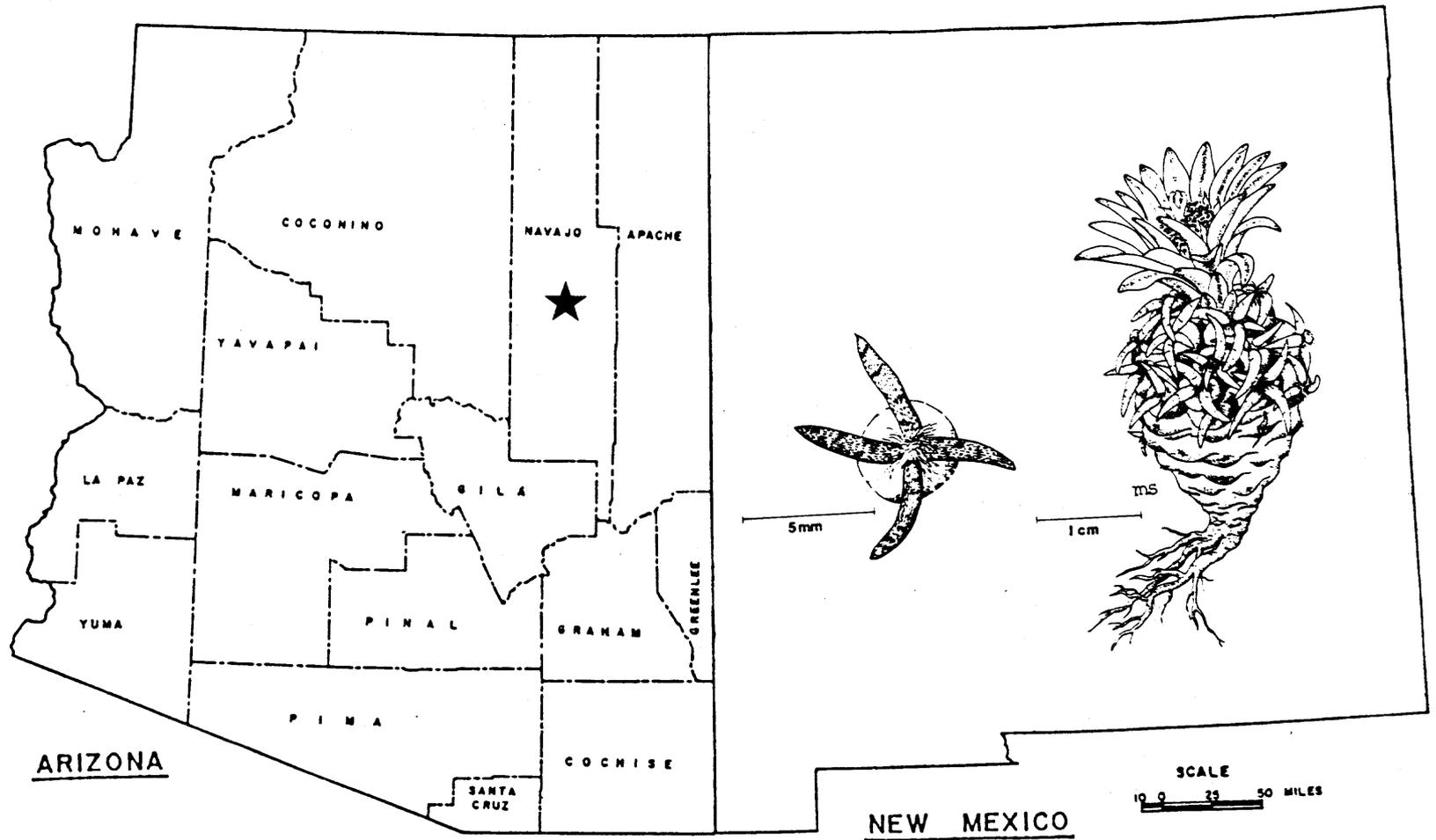
★ Present range

NICHOL'S TURK'S HEAD CACTUS

PEEBLES NAVAJO CACTUS.....Pediocactus peeblesianus var. peeblesianus

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- STATUS:** Endangered (44 FR 61922; October 26, 1979) without critical habitat
- SPECIES DESCRIPTION:** This cactus is difficult to find because often only the very top of the stem protrudes above ground level; during dry weather it is retracted into the soil. Stems are small, solitary or rarely clustered, globose, and up to 1 inch tall and about 0.75 inch in diameter. The four (3-5) radial spines are arranged in a twisted cross; central spines are absent. Flowers are yellow to yellow-green, are up to 1 inch in diameter, and appear in the spring.
- HABITAT:** Occurs on gravelly soils of the Shinarump conglomerate of the Chinle Formation at elevations ranging from 5,400-5,600 feet. Associated species are sparsely scattered, low shrubs and grasses of the Navajoan Desert.
- DISTRIBUTION:**
- Historic: Central Navajo County, Arizona.
- Present: Same county as above, but reduced distribution.
- REASONS FOR DECLINE:** Habitat destruction by mining, development, road construction, and off-road vehicle use, over-collecting, and trampling by cattle.
- OTHER INFORMATION:** Protected by the State of Arizona. Recovery Plan approved 1984. Peebles Navajo Cactus Habitat Management Plan drafted by Bureau of Land Management. Monitoring plots established in 1980 and examined annually since then.
- REFERENCES:** Benson 1969, 1982; Phillips et al. 1979; USFWS 1984h.



ARIZONA

NEW MEXICO

SCALE  
0 25 50 MILES

LEGEND

★ Present range

PEEBLES NAVAJO CACTUS

RHIZOME FLEABANE.....Erigeron rhizomatus

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STATUS: Threatened (49 FR 17548; April 24, 1984) without critical habitat

SPECIES DESCRIPTION: A member of the aster family (Asteraceae), this perennial herb grows from a horizontal stem, or rhizome. The narrow, dark green leaves are up to 0.4 inches long. The white flowers are tinged with blue, occur in heads (clusters) 0.5-0.6 inches wide, and appear in May to June. The stems are in clumps 10-18 inches high and 12 inches across.

HABITAT: Occurs in a zone of Chinle shale and associated soils in the pinyon-juniper association at 7200-7900 feet in elevation.

DISTRIBUTION:

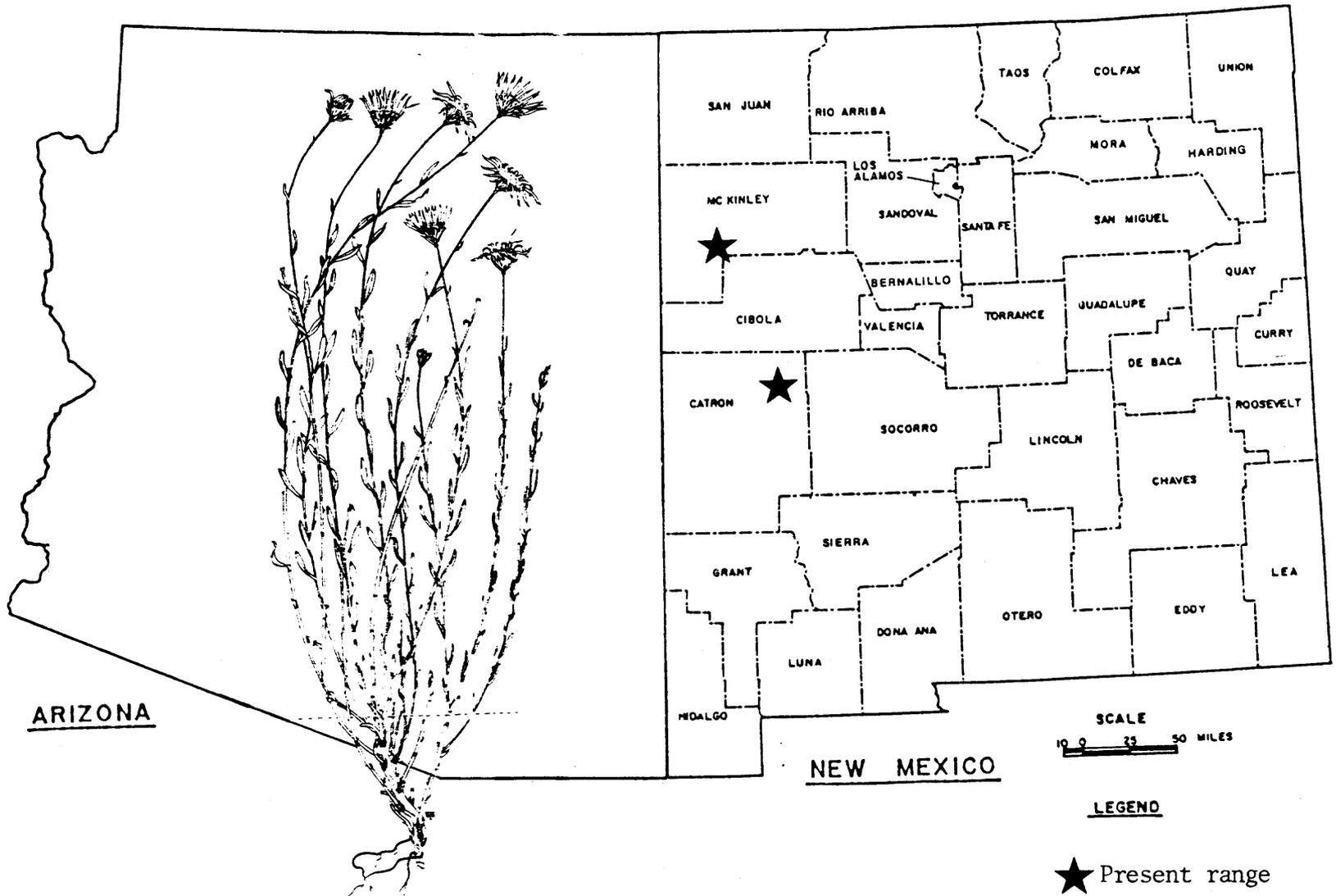
Historic: Unknown.

Present: Cibola National Forest near Fort Wingate in McKinley County, and on Cibola National Forest and BLM lands northwest of Datil in Catron County, New Mexico.

REASONS FOR DECLINE: Uranium mining, road construction, trampling by livestock, and recreation.

OTHER INFORMATION: Recovery Plan to be completed in 1988.

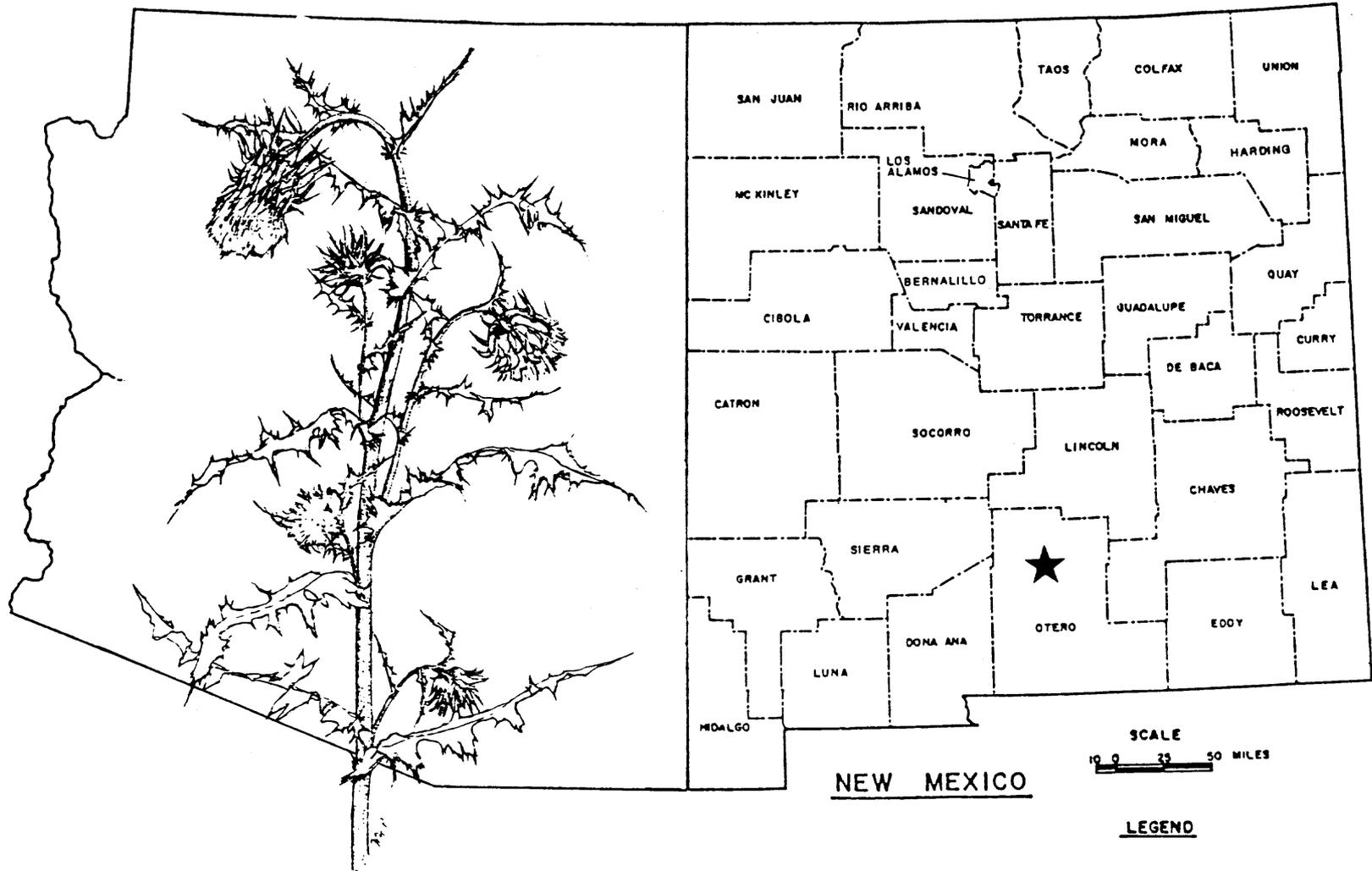
REFERENCES: Fletcher 1978e, Sabo 1981, USFWS 1986i.



SACRAMENTO MOUNTAINS THISTLE.....Cirsium vinaceum

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- STATUS: Threatened (June 16, 1987, 52 FR 22933) without critical habitat
- SPECIES DESCRIPTION: A perennial thistle 3.3-6.6 feet tall. The stems are purple and highly branched. The flowers are small, purple, and clustered together in a nodding head. Flowering occurs in July, August, and possibly into September.
- HABITAT: Some of the populations now occur only on steep calcium carbonate deposits immediately adjacent to flowing springs. The steep deposits provide adequate moisture and some protection from livestock to these plants. One population is known from the moist banks of a stream and adjacent wet meadows, and livestock trampling is a problem there. This thistle is found at elevations of 7,860 to 8,820 feet with Ponderosa pine, Douglas fir, New Mexico locust, and Gambel's oak.
- DISTRIBUTION:
- Historic: Streams, springs, and seeps at middle elevations in the Sacramento Mountains, Lincoln National Forest and Mescalero Apache Indian Reservation, Otero County, New Mexico.
- Present: Twenty known populations occur within the historic range (described above).
- REASONS FOR DECLINE: Habitat destruction by livestock and water development, competition with introduced plant species, road construction, logging, and recreational activities.
- OTHER INFORMATION: The Forest Service has fenced several areas to exclude livestock.
- REFERENCES: Fletcher 1978d, 1979.



NEW MEXICO

SCALE  
0 10 20 50 MILES

LEGEND

★ Present range

SACRAMENTO MOUNTAINS THISTLE

SAN FRANCISCO PEAKS GROUNDSEL..... Senecio franciscanus

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STATUS: Threatened (48 FR 52743; November 22, 1983) with critical habitat

SPECIES DESCRIPTION: This member of the sunflower family is a dwarf alpine species 1.2-4.0 inches tall. Leaves deeply lobed, with upper leaves smaller than lower leaves. Flower heads (clusters) are 0.35-0.50 inches wide, and are composed of 1-6 yellow flowers.

HABITAT: Alpine tundra areas of southwestern spruce-fir forests on talus slopes between 10,991-12,303 feet in elevation.

DISTRIBUTION:

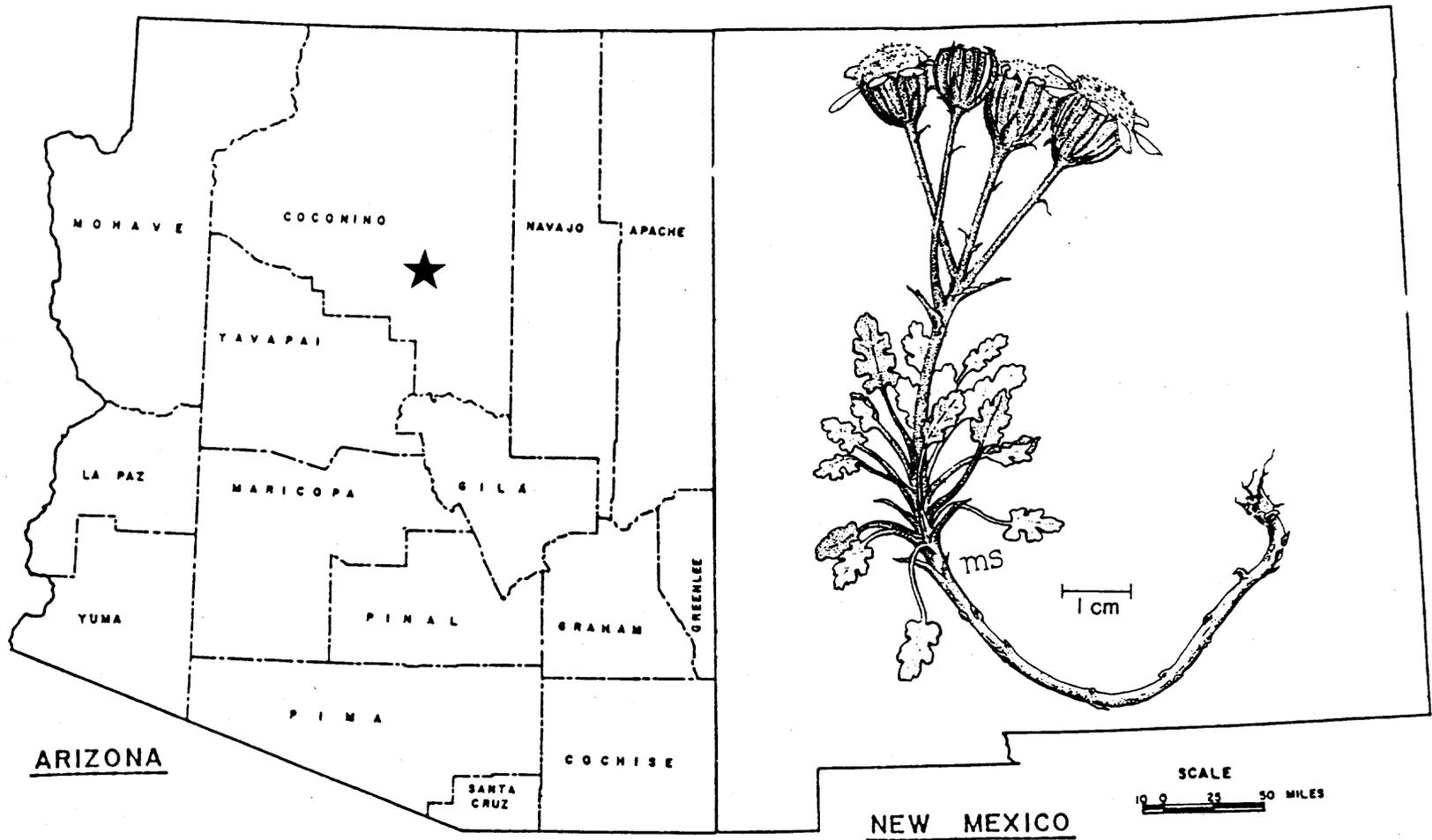
Historic: Same as present.

Present: San Francisco Peaks, Coconino County, Arizona.

REASONS FOR DECLINE: Trampling by hikers.

OTHER INFORMATION: Protected by the State of Arizona. Critical habitat includes three alpine areas of Coconino National Forest. Recovery plan drafted 1986. Forest Service personnel have conducted searches and have established monitoring plots. The management of this groundsel has been addressed in the following planning documents: Alpine Tundra Management Plan (Holden et al. 1984), Monitoring Plan for Senecio franciscanus (Boucher 1984), and in the Proposed Coconino National Forest Plan (U.S. Forest Service 1985).

REFERENCES: Fletcher 1978b, Phillips and Peterson 1980, USFWS 1986j.



SCALE  
0 25 50 MILES

LEGEND

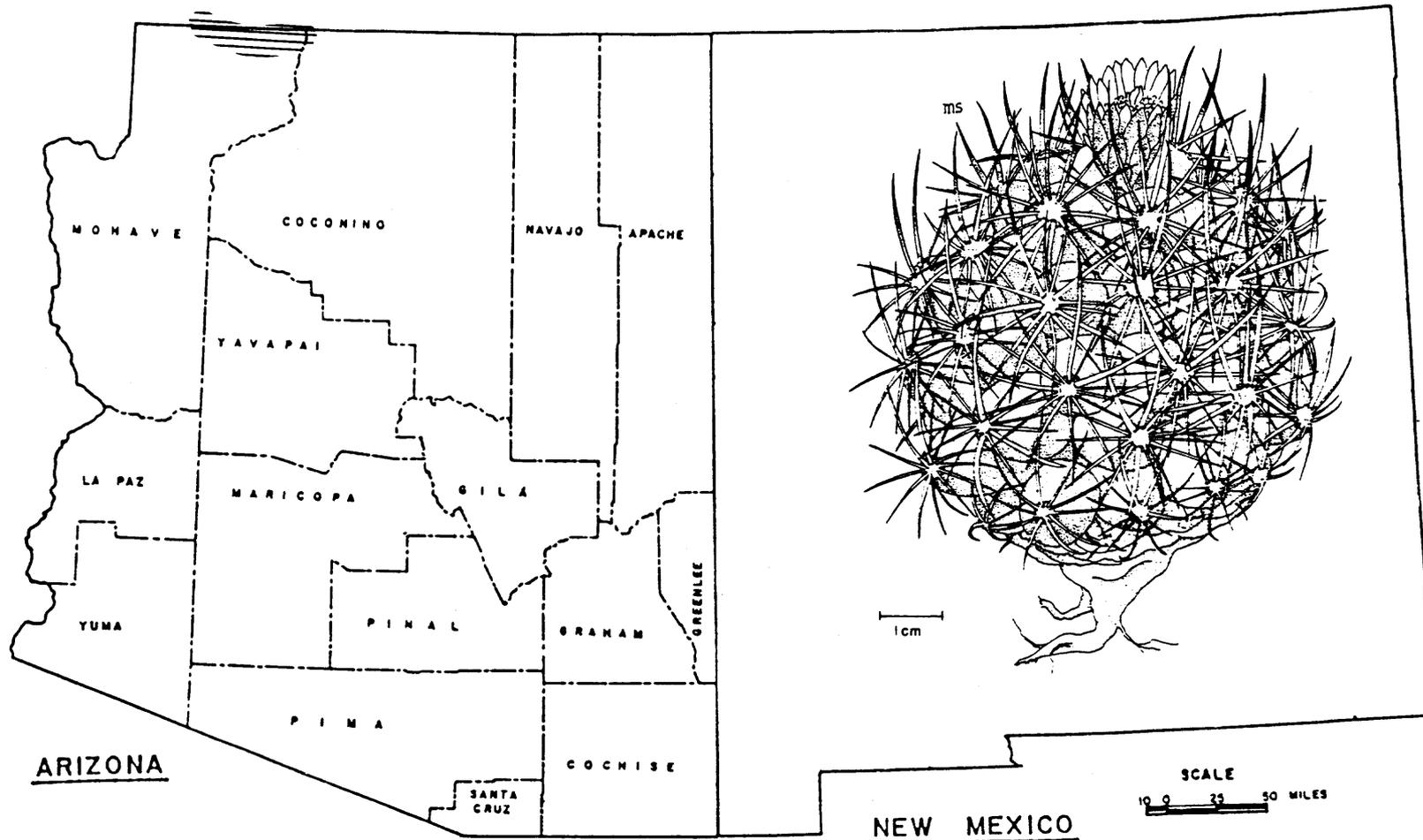
★ Present range

106 SAN FRANCISCO PEAKS GROUNDSEL

SILER PINCUSHION CACTUS.....Pediocactus sileri

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- STATUS: Endangered (44 FR 61786; October 26, 1979) without critical habitat
- SPECIES DESCRIPTION: Inconspicuous globose stems, solitary or clustered, about 5 inches tall and 3-4 inches in diameter (occasionally larger). Spines are brownish-black, becoming gray to white with age. Flowers are yellowish with maroon veins, 0.75-1 inch in diameter, and bloom in the spring.
- HABITAT: Grows on gypsiferous clay and sandy soils of the Moenkopi Formation. Habitat is characterized by desert scrub vegetation, in transitional areas between the Navajoan Desert, the Sagebrush Desert and the Mohavean Desert. Found at elevations between 2,800 to 5,400 feet.
- DISTRIBUTION:
- Historic: Mohave and Coconino Counties, Arizona, and Washington and Kane counties, Utah.
- Present: Same counties as above, but with reduced distribution and numbers.
- REASONS FOR DECLINE: Habitat disturbance due to overgrazing and off-road vehicle use, and over-collecting. Potential mining activities remain a threat.
- OTHER INFORMATION: Protected by the State of Arizona. Recovery Plan approved 1986.
- REFERENCES: Benson 1969, 1982; Phillips et al. 1979d; Gierisch 1980; USFWS 1986k.



SCALE  
10 25 50 MILES

LEGEND

Present range

SILER PINCUSHION CACTUS

SNEED PINCUSHION CACTUS.....Coryphantha sneedii var. sneedii

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STATUS: Endangered (44 FR 64734; November 7, 1979) without critical habitat

SPECIES DESCRIPTION: This small cactus is superficially similar to Lee pincushion cactus and grows in the same areas. The two varieties can be distinguished by the arrangement of the spines. Variety sneedii has spines that are spread parallel to the stem surface, and are not deflexed (turned downward), while spines of var. leei are deflexed and drooping toward the stem. The cylindrical stems branch profusely and cluster to form masses of as many as 100 heads on an old plant. Flowers are pink to pale rose, and bloom in the spring.

HABITAT: Limestone ledges in the Chihuahuan desert and grassland at 4,300 to 5,400 feet in elevation.

DISTRIBUTION:

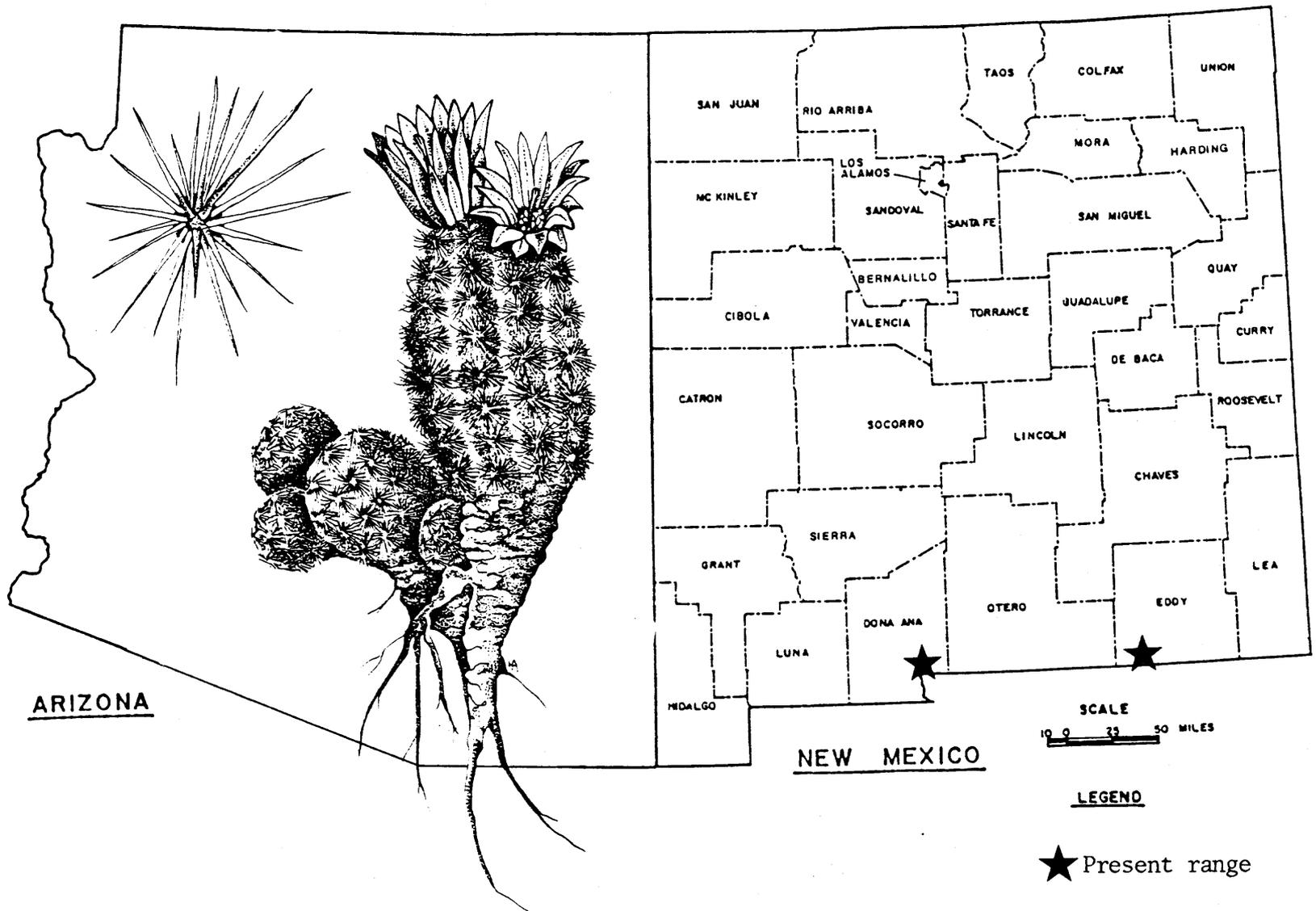
Historic: Franklin Mountains of Texas and New Mexico.

Present: Franklin Mountains of El Paso County, Texas, and Dona Ana County New Mexico, Guadalupe Mountains of Hudspeth and Culberson Counties, Texas, and Carlsbad Caverns National Park, Eddy County, New Mexico.

REASONS FOR DECLINE: Over-collecting, highway construction.

OTHER INFORMATION: Recovery Plan approved 1986. Protected by the States of New Mexico and Texas.

REFERENCES: Britton and Rose 1922, Weniger 1970, Saustrup and Johnston 1977, Benson 1982, USFWS 19861.



ARIZONA

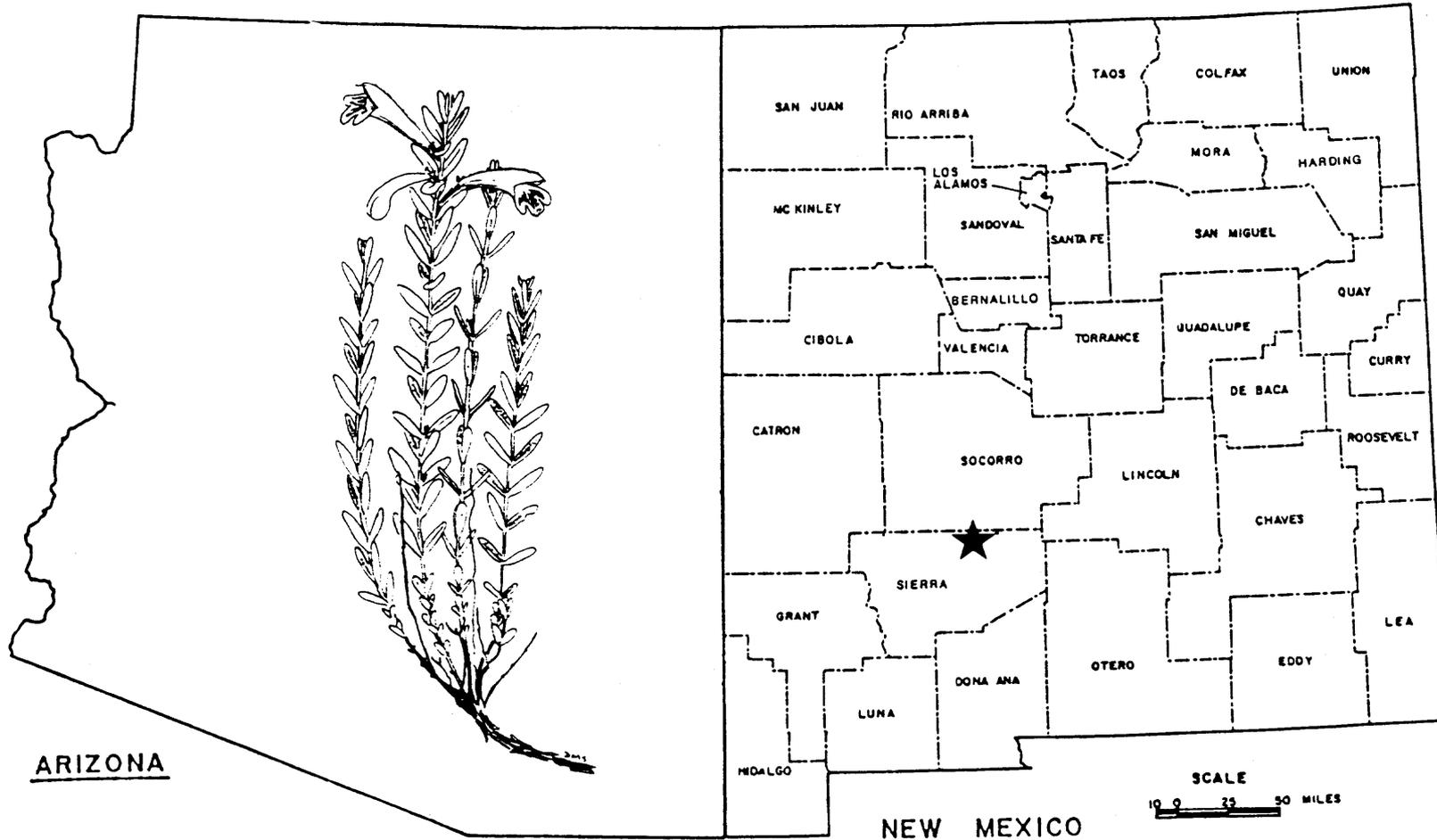
NEW MEXICO

**SNEED PINCUSHION CACTUS**

TODSEN'S PENNYROYAL.....Hedeoma todsenii

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- STATUS: Endangered (46 FR 5730; January 9, 1981) with critical habitat
- SPECIES DESCRIPTION: This member of the mint family is a perennial herb 4-8 inches tall, with small, opposite leaves. Flowers are orange-red, 1.5 inches long, and occur singly along the stem.
- HABITAT: Steep, north-facing slopes of loose, gravelly, gypseous-limestone at elevations between 6,230-6,640 feet. Associated species include one-seeded juniper, pinyon pine, and Muhly grass.
- DISTRIBUTION:
- Historic: Unknown.
- Present: Eastern Sierra County, San Andres Mountains, New Mexico.
- REASONS FOR DECLINE: Construction of buildings, roads, and utility corridors; trampling, grazing, and soil erosion.
- OTHER INFORMATION: Fewer than 750 plants remain. Recovery plan approved 1985. Critical habitat includes two areas in San Andres Mountains, White Sands Missile Range.
- REFERENCES: Irving 1979, 1980b; USFWS 1985e.



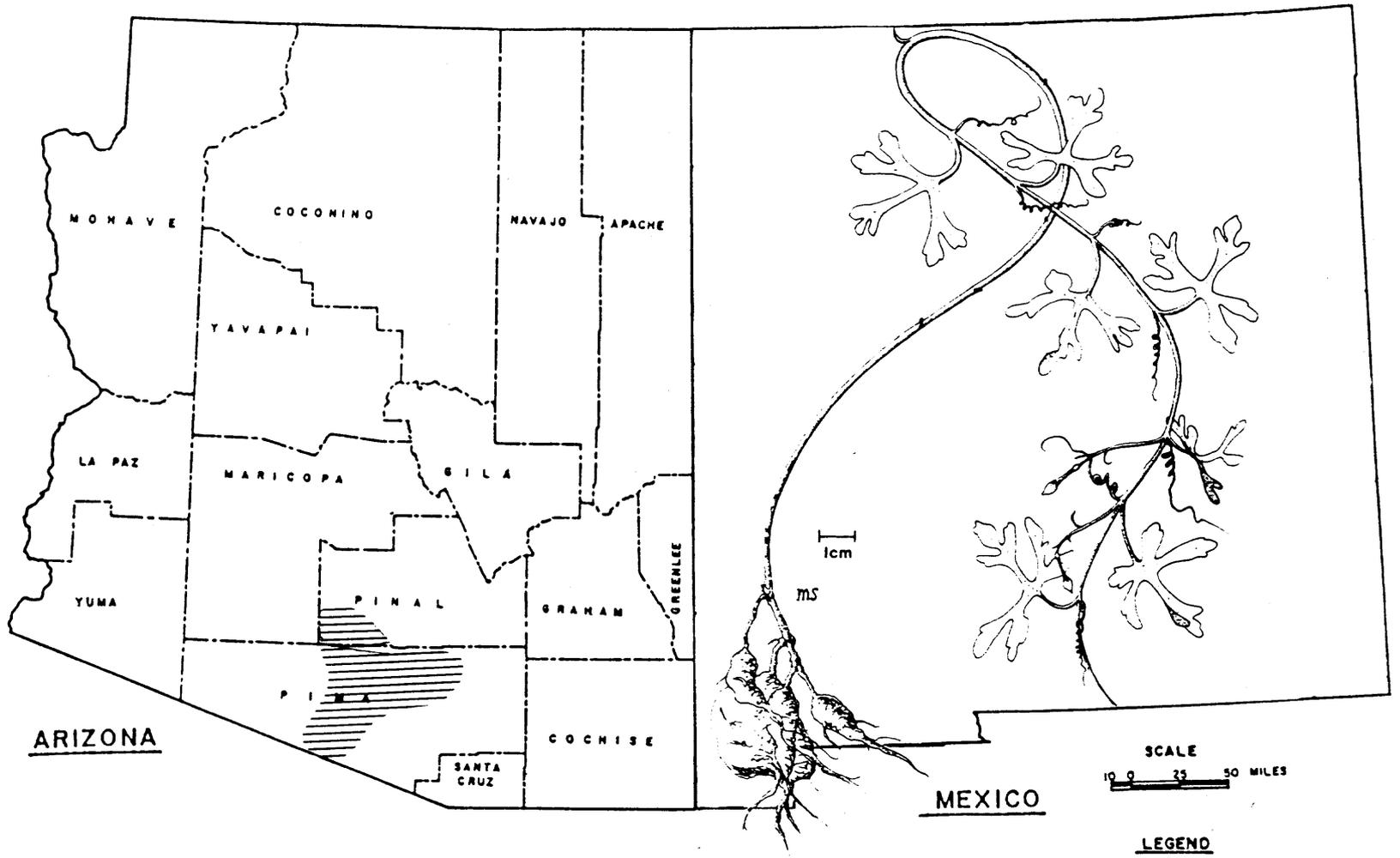
**LEGEND**  
 ★ Present range

**TODSEN'S PENNYROYAL**

TUMAMOC GLOBEBERRY.....Tumamoca macdougalii

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- STATUS: Endangered (51 FR 15906; April 29, 1986) without critical habitat
- SPECIES DESCRIPTION: This species is a delicate perennial vine in the gourd family (Cucurbitaceae). It grows from a tuberous root and has slender herbaceous stems. The thin leaves have three main lobes, each divided into narrow segments. The plant bears small, yellow, male and female flowers and produces small, red, watermelon-like fruits. Male flowers open before the summer rains, while female flowers open after the onset of summer rains. Fruits ripen in August and September.
- HABITAT: Occurs in the Arizona Upland Subdivision of the Desert Scrub Formation at elevations of 1500-2600 feet. The surrounding vegetation is paloverde/cactus scrub and creosote bush/bursage desert scrub. The globeberry is usually found under trees and shrubs (nurse plants) that provide shade and protection, as well as support for the vine.
- DISTRIBUTION:
- Historic: 120 miles west of Tucson to Gunsight, Pima County, Arizona, south approximately 300 miles to Guaymas, Sonora, Mexico.
- Present: Pinal and Pima Counties, Arizona, and Sonora, Mexico.
- REASONS FOR DECLINE: Habitat destruction from increased agricultural development, urbanization, the Central Arizona Project (CAP) canal/aqueduct, and grazing, and collecting.
- OTHER INFORMATION: Ongoing studies include a population and pollination study in the Avra Valley, Pima County, AZ. Recovery Plan to be completed in 1988.
- REFERENCES: Kearney and Peebles 1960; Toolin 1982; Reichenbacher 1985, 1987.



TUMAMOC GLOBEBERRY

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PROPOSED ENDANGERED AND THREATENED SPECIES OF ARIZONA AND NEW MEXICO

Kearney's blue star (Amsonia kearneyana): Proposed endangered July 10, 1987 (52 FR 26164). Kearney's blue star is a herbaceous perennial that is endemic to a single west-drained canyon in the Baboquivari Mountains, southern Pima County, Arizona. The species grows in the riparian vegetation zone lining a dry, rocky wash.

Sacramento prickly poppy (Argemone pleiacantha ssp. pinnatisecta): Proposed endangered July 6, 1987 (52 FR 25275). This subspecies occurs in several canyons on the west side of the Sacramento Mountains of Otero County, south-central New Mexico. This robust (20-60 inches) perennial has prickly stems and leaves, and has attractive, large white flowers.

Sanborn's long-nosed bat (Leptonycteris sanborni): Proposed endangered July 6, 1987 (52 FR 25271): This bat differs strikingly from most other bat species that occur in the U.S. in having an elongated muzzle with a small nose leaf at the tip. The most useful external identification character is the shorter, denser pelage of this species compared with other species. These bats depend largely on the flowers of agave and cacti for food. In the U.S., one known colony exist in Santa Cruz County, Arizona and two other colonies are thought to survive in or near Cochise County. In Mexico, live individuals were found in three places.

Virgin River chub (Gila robusta seminuda): Proposed endangered June 24, 1986 (51 FR 22949). This species is a very silvery medium size minnow that averages 6 inches in total length. This subspecies is endemic to the Virgin River in southwest Utah, northwest Arizona, and southwest Nevada.

# EXTIRPATED SPECIES

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The following species were once found in Arizona and/or New Mexico  
but are no longer believed to be present in either state.

RIO GRANDE BLUNTNOSE SHINER

MONKEY SPRINGS PUFFISH

MEXICAN GRAY WOLF

BEAUTIFUL SHINER

PALOMAS PUFFISH

YAQUI CATFISH

YAQUI SUCKER

JAGUARUNDI

JAGUAR

OCELOT