

Selected Chronology of the Mexican Wolf with a Focus on Arizona

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Late Miocene Epoch (ca. 25 million years before present [MYBP]). The genus Canis (wolves, coyotes and dogs) evolves in Eurasia.

Upper Pliocene Epoch (ca. 3.0 MYBP). Earliest Canis fossil records in Arizona.

Upper Pliocene/Early Pleistocene Epochs (ca. 1.9 MYBP). The species Canis latrans (coyote) evolves in North America, probably from a different branch of ancestral Canis than those which produced either the red or gray wolves.

Early Pleistocene Epoch (between 1.9 and 0.7 MYBP). The species Canis lupus (gray or timber wolf) evolves in Eurasia, probably from a branch of ancestral Canis very similar to, if not the same as, that branch which produced the red wolf in North America, but different from the branch which produced the coyote.

Middle Pleistocene Epoch (ca. 0.7 MYBP, during Yarmouthian Interglacial). Gray wolf thought to have crossed the Bering Strait from Asia into North America.

Late Pleistocene Epoch (ca. 0.4 MYBP, during Illinoian Glacial). Earliest gray wolf fossil records in North America.

Late Pleistocene Epoch (ca. 0.2 MYBP, during Sangamon Interglacial or Wisconsin Glacial). The species Canis rufus (red wolf) evolves in North America, probably from a branch of ancestral Canis very similar to, if not the same as, the branch which produced the gray wolf but different from the branch that produced the coyote.

1630 A.D. First wolf bounty in New World established. Massachusetts Bay Colony authorizes one penny per wolf.

Late 1600s. Livestock introduced to the Southwest.

1694. An estimated 100,000 head of livestock reported for northern Sonora by J.J. Wagoner, Arizona historian.

1697. Livestock introduced into Arizona by Spanish at San Xavier del Bac in southern Arizona.

Mid 1700s. High point of Spanish livestock raising in Southwest.

1758. First scientific description of the genus Canis which includes all wolves, coyotes, and domestic dogs. Author was Linnaeus, Swedish botanist and father of scientific classification. He used the domestic dog as the type specimen and the basis of the description for the genus.

1758. First scientific description of the gray wolf species, Canis lupus. Author is also Linnaeus. This description is based on wolves from Sweden.

1763. Believed to be first report of wolves in Southwest. Juan Nentvig, a Jesuit priest, reports wolves in northern Sonora.

Late 1700s. Livestock raising declines in southeastern Arizona due to hostile relations with Indians.

1775. First scientific description, by Shreber, of a North American subspecies of gray wolf, the eastern or eastern timber wolf (Canis lupus lycaon).

Early 1800s. Livestock raising increases in southern Arizona following improved relations with Indians.

1830s. Livestock raising virtually eliminated in southern Arizona due to hostile relations with Indians.

1846. Wolves reported on the upper Gila in New Mexico by Lieutenant William H. Emory, an engineer in charge of a map making unit with Colonel Kearny's California Column.

1851. First records of wolves in Arizona.

John R. Bartlett, leader of the 1849-1851 international boundary survey, reports them as abundant in southeastern Arizona, southern New Mexico, and northern Mexico.

Dr. Samuel A. Woodhouse, physician and naturalist with Captain Lorenzo Sitgreaves' military exploration expedition, reports them as common west of San Francisco Mountain.

Earliest reported use in Southwest of strychnine in attempts by Mexican ranchers to poison livestock killing wolves and coyotes. Reported by Bartlett.

1853. Wolves reported in east-central Arizona by C.B.R. Kennerly, naturalist and physician with a Lieutenant A.W. Whipple's survey for a railroad route.
- 1853-54. Wolves reported from the Rio Grande River west to Santa Cruz, Sonora by Kennerly, this time with Emory's expedition to survey the international border after the Gadsen Purchase.
- 1864-65. Wolves reported as common around Fort Whipple in central Arizona by Elliot Coues, an Army surgeon posted at the fort and author of the first attempt to catalog the mammals of Arizona.
- Late 1870s. Anglo cattle ranches begin establishing in the Southwest.
- 1880s. Wolves considered a significant threat to free-ranging livestock and the economic interests of the rapidly growing livestock industry in the Southwest.
- 1890s. Wolves considered by some to be more abundant and widespread in Southwest than at any other time, possibly related to more numerous and more widely distributed livestock than ever before.
1893. First official measure against wolves in Arizona and New Mexico: Territorial Bounty Act passed by Arizona-New Mexico Territorial legislature. This allowed counties to pay bounties for dead wolves.
1907. Publication by U.S. Department of Agriculture of "Wolves In Relation To Stock, Game, And The National Forest Reserves" by Vernon Bailey, senior biologist with the U.S. Biological Survey. It consisted of detailed instructions for methods and techniques of destruction of wolves.
1914. Predatory Animal and Rodent Control (PARC) established by act of Congress as a branch of the U.S. Biological Survey with official responsibility for eliminating wolves, prairie dogs, and other pests injurious to agriculture and animal husbandry in the Southwest. This action was in response to the requests of livestock growers, sportsman, and conservationists.
- 1915-18. 263 wolves reported destroyed by PARC in Arizona and New Mexico together.
- 1916-24. "Old Aguila", a whitish female wolf ranging western Maricopa County, gains fame as a livestock killer and eluder of trappers. \$500 bounty paid on her death.
- 1918-27. 336 wolves reported destroyed by PARC in Arizona.

Mid 1920s. Last wolves trapped on Kaibab Plateau.

Wolves essentially eliminated in New Mexico.

The wolf no longer considered a significant predator in the Southwest. From this period on, individual wolves ranging north out of Mexico are considered to be a greater problem than resident animals.

1928. Last wolf killed on Paria Plateau.

1928-37. 97 wolves reported destroyed by PARC in Arizona.

1929. First scientific description of the Mexican gray wolf or lobo, a subspecies (Canis lupus baileyi) of gray wolf occupying the southern part of the Southwest and central Mexico. Authors were Dr. Edward Nelson, zoologist, and Major Edward A. Goldman, mammalogist, both with the U.S. Biological Survey.

1931. One of earliest publications with extensive biological treatment of wolves of the Southwest: "Mammals of New Mexico" by Vernon Bailey.

1937. First scientific description of the intermountain or southern Rocky Mountain wolf, a subspecies (Canis lupus youngi) of gray wolf occupying the Great Basin, southern Rocky Mountains and northern part of the Southwest. Author was Major E.A. Goldman.

First scientific description of the Mogollon mountain wolf, another subspecies (Canis lupus mogollonensis) of the gray wolf occupying the area in central Arizona and New Mexico between the ranges of the Intermountain and Mexican gray wolves. Author was Major E.A. Goldman. In light of recent studies, most biologists no longer consider this a valid subspecies.

1938-47. 49 wolves reported destroyed by PARC in Arizona.

1940s. "Coyote-getter" or cyanide gun believed to have been introduced into the Southwest during this period.

Wolf control increases in northern Mexico as settlement, development, road-building, farming, logging, and ranching increase.

1942. Last wolf from northern Arizona (north of the Mogollon Rim) trapped about 40 miles southwest of Winslow, Arizona.

Last known wolves born in the wild in the Southwest (southeastern Arizona, Huachuca Mountains). This family group subsequently killed.

1943. Last wolves trapped in Baboquivari Mountains of southern Arizona.

1944. First definitive work on North American wolves published: "The Wolves of North America" by Stanley P. Young (senior biologist with the U.S. Biological Survey) and Edward A. Goldman (eminent mammalogist with the U.S. Biological Survey).

1947. Arizona Legislature passes revision of 1893 Bounty Law authorizing \$50 (later increased to \$75) bounty on wolves. Payment activated in 1948. Still on the books in 1989.

1948-57. 10 wolves reported destroyed by PARC in Arizona.

Early 1950s. 1080 introduced in Southwest and Mexico for predator control.

1958-67. 10 wolves reported destroyed or captured by PARC in Arizona.

1959. Beginning of the first of 3 lineages of captive wolves that were thought, at least initially, to be Mexican wolves; that were bred and produced young; and that were maintained in U.S. zoo facilities. Two of the lineages were eventually rejected by USFWS for inclusion in the Mexican wolf captive propagation program due to their uncertain ancestry and questions about the nature and genetics of dog-like characteristics. Subsequently, breeding was curtailed in these 2 lineages.

The wolf obtained this year, a male trapped near Tumacacori, Arizona, together with a female obtained in 1961, founded the lineage that came to be called the Arizona-Sonora Desert Museum/Ghost Ranch (ASDM/GR) lineage. Concern about the genetics of the male stems from undocumented reports that it was actually a dog/wolf hybrid.

1961. Female wolf donated to ASDM by a tourist. This wolf is the other founder of the ASDM/GR lineage. Concern about the genetics of this animal stems from an inability to document where she came from. She was reported to have been captured near Yecora, Sonora, Mexico.

1965. Beginning of a second allegedly Mexican wolf lineage named after the facility where the wolves were housed, the Wild Canid Survival and Research Center (WCSRC). This lineage founded by a pair of wolves obtained from an animal dealer. Concerns about their genetics stem from conflicting stories of their origin, none of which could be documented.

1970s. Last confirmed Mexican wolves killed in Texas, New Mexico and Arizona.

1972. Captive propagation program initiated by agreement between U.S. and Mexican wildlife authorities with the contracting of Roy T. McBride, a biologist/trapper with experience in Mexico, to search for and live-trap Mexican wolves.

First certified Mexican wolf for purpose of establishing an official Mexican wolf captive propagation program trapped in Durango, Mexico, by McBride. This male wolf did not make any genetic contribution to the lineage before it died in 1979.

1080 use canceled in U.S. by Environmental Protection Agency.

1973. Mexican wolf in Arizona protected by elimination of open hunting season by Arizona Game and Fish Department (AGFD).

Status in southeastern Arizona reviewed in "Unique Birds and Mammals of the Coronado National Forest" an unpublished report for the Coronado by Gale Monson, a wildlife biologist for the USFWS in Arizona for over 30 years.

Mexican wolf designated as a threatened subspecies by U.S. Bureau of Sport Fisheries and Wildlife (later U.S. Fish and Wildlife Service).

1976. Gray wolf (Canis lupus) listed as Endangered by U. S. Fish and Wildlife Service (USFWS).

Mexican wolf protected in New Mexico by State regulations.

1977. Capture of 2 male Mexican wolves in Mexico by McBride for the certified captive breeding program. Both moved to the U.S. where 1, from Durango, eventually makes genetic contributions to the program. The other, from Chihuahua, dies in 1978 before making any genetic contribution.

Mexican wolf protected in Texas by State regulations.

Late 1970s. ASDM/GR and WCSRC lineages removed from certified Mexican wolf captive propagation program due to uncertain genetic heritage.

1978. Fourth Mexican wolf, first and only female, trapped in Durango, Mexico, by McBride. This female, pregnant when captured, is moved to the U.S. and becomes the cornerstone of the certified captive propagation program. It has also been speculated that this female might be the mother of the young male captured in the same area in Durango in 1977.

Fifth Mexican wolf, a male, trapped in Durango by McBride. This male, sometimes speculated to have been the female's mate and thus possibly the father of litter she was pregnant with when captured, moved to the U.S. and while in captivity made no genetic contributions before dying in 1981.

"An Historical Look At The Mexican Gray Wolf (Canis lupus baileyi) In Early Arizona Territory And Since Statehood" written by Dan M. Gish and published by USFWS.

1979. Mexican Gray Wolf Workshop sponsored by the Arizona- Sonora Desert Museum and USFWS in Tucson Arizona. First such gathering to focus on Mexican wolf.

Mexican Wolf Recovery Team appointed by USFWS. Team includes Mexican and U.S. biologists.

1980. Sixth and last Mexican wolf, a male, captured from the wild for USFWS captive propagation program by McBride in Chihuahua. After movement to U.S. produces a litter with wild caught female to become the third genetic contributor in the certified captive propagation program.

"The Mexican Wolf (Canis lupus baileyi): A Historical Review And Observations On Its Status And Distribution" written by McBride and published by USFWS.

About 50 Mexican wolves estimated by McBride to remain in the wild, primarily in at least 4 areas in northern Mexico with possibly a few in southwestern U.S.

Mexican government wildlife officials express interest in placing trapped Mexican wolves in large enclosures in Mexico.

1981. Perhaps 30 wolves in wild in Mexico estimated by Jose Trevino, Mexican biologist and member of Mexican Wolf Recovery Team.

1982. Mexican wolf listed by AGFD as extirpated from Arizona.

Mexican Wolf Recovery Plan completed.

1983. Efforts to live-trap Mexican wolves in Mexico for certified breeding program cease due to lack of verifiable wolf reports and administrative and regulatory difficulties.

Publication of "The Wolf in the Southwest: The Making of an Endangered Species" edited by David E. Brown, an AGFD wildlife biologist for over 20 years.

"Systematic Relationships Of Gray Wolves (Canis lupus) In Southwestern North America" by M.A. Bogan and P. Melhop completed and published under contract with New Mexico Department of Fish and Game (NMDFG).

Publication in Mexico of a paper on reproductive behavior of captive Mexican wolves by Jorge Servin, biologist with the San Juan de Aragon zoological park in Mexico.

1984. Publication in Mexico of a paper on aggressive interactions within a pack of captive Mexican wolves in Mexico by J. Servin.

"Recommendations Pertinent To Releases Of Mexican Wolves" prepared by the Mexican Wolf Recovery Team.

1985. Mexican Wolf Captive Management Committee established by USFWS to direct and oversee certified Mexican wolf captive propagation program.

Publication in Mexico of a report on the present distribution of Mexican wolves in Mexico by L. Hernandez, A. Lafon, and S. Gallina.

1986. Exploration of Mexican wolf reintroduction initiated by USFWS with letters of inquiry to the wildlife agencies of the States of Texas, New Mexico, and Arizona.

Mexican Wolf Coalition of New Mexico founded as a private Conservation organization.

Arizona Game and Fish Department (AGFD) expresses interest in further exploration of wolf reintroduction and associated issues. Also develops a list of 15 sites from which individual sites could be chosen for later rigorous evaluation because of their potential for supporting Mexican wolves.

Texas indicates no interest in reintroduction at this time and declines all suggested release sites.

White Sands Missile Range identified by NMDFG as the only possibly acceptable site among potential New Mexico reintroduction sites proposed by USFWS.

Symposium On The Mexican Wolf, sponsored by 5 private, academic, and governmental organizations in Mexico takes place in Saltillo, Mexico.

1987. White Sands Missile Range approves with reservations evaluation of the Range for a possible site for the reestablishment of the Mexican wolf. Evaluation begins.

AGFD puts discussion of reintroduction of Mexican wolf in Arizona on "back burner" due to increasingly controversial nature and indicated that the wolf could never be successfully reintroduced in Arizona without strong public support. Proposes instead, development of educational program with USFWS.

AGF Commission adopts "Procedures for Nongame Wildlife and Endangered Species Re-establishment Projects in Arizona."

Numbers of Mexican wolves in captivity in Mexico. 25 held at zoos and the Michilia Biosphere Reserve, Durango.

Numbers of Mexican wolves in USFWS captive breeding program.

26 held at 4 zoos in the U.S

6 delivered to 3 zoos (1 pair each) in Mexico.

31 Mexican wolves in captivity.

"Genetic Assessment of the Current Captive Breeding Program for the Mexican Wolf (*Canis lupus baileyi*)" by W. Shield, A. Templeton, and S. Davis completed under contract with NMDFG. Provided captive breeding strategy and suggested the inclusion in the certified captive breeding program of the ASDM/GR lineage on the basis of molecular genetic analyses which showed it to be closely related to the certified lineage.

USFWS establishes the following elements of its wolf reintroduction policy:

1. States and land managers may refuse to authorize reintroduction.
2. The public from around reintroduction sites will be part of decision-making process through hearings and procedures of the Endangered Species Act (ESA).
3. Any wolves released will be under the experimental, nonessential classification of the ESA which removes most of the protective regulations.
4. The final decision will be made by the Director of the USFWS.

Reintroduction of the Mexican wolf into the White Sands Missile Range rejected by its Commanding General before completion of site evaluation as "not in the best interest of the range" .

1988. Mexican Wolf listed by AGFD as an Endangered Species.

"An Evaluation Of The Ecological Potential Of White Sands Missile Range To Support A Reintroduced Population Of Mexican Wolves" completed for USFWS by J. Bednarz, University of New Mexico.

"The Mexican Wolf: Biology, History, And Prospects For Re-establishment in New Mexico" by J. Bednarz published by USFWS.

A two-phase survey of public attitudes in Arizona toward wolves and reintroduction issues initiated by AGFD. Phase 1, telephone interviews, completed. 71% were unaware that Mexican wolves once resided in the State. 61% approved concept of reintroduction. 18% disapproved of the idea. 21% had no opinion. Part II, a mailout questionnaire postponed.

A survey of public attitudes in New Mexico toward wolves and reintroduction completed by NMDFG.

Preserve Arizona's Wolves (P.A.W.S.) founded as a private conservation organization.

USFWS decides not to include ASDM/GR lineage of wolves in certified Mexican wolf breeding program because of the lack of evidence of inbreeding problems in the certified lineage, lack of any means of ascertaining the ancestry of males in the ASDM/GR lineage, and thus lack of advantage in crossing the 2 lineages.

Numbers of Mexican wolves in USFWS captive breeding program.

25 Mexican wolves held at 4 facilities in the U.S.

6 wolves (1 pair each) held at 3 facilities in Mexico.

2 wolves (1 pair) sent to a fourth facility in Mexico.

33 Mexican wolves in captivity.

1989. 2 new U.S facilities approved by the MWCMC for participation in the Mexican wolf captive breeding program.

Educational slide/audio program on biology, history and status of Mexican wolf completed by Carol Cochran of Arizona-Sonora Desert Museum. Funded by USFWS, this initial component of a Mexican wolf educational program has adult and children's versions and a children's activity package for classroom use.

Numbers of Mexican wolves in USFWS captive breeding program.

29 Mexican wolves held at 6 facilities in the U.S.

8 wolves held at 4 facilities in Mexico.

37 Mexican wolves in captivity.

1990. Phase 2, mailout questionnaire, of AGFD survey of public attitudes towards wolves completed. Five interest groups surveyed: Arizona hunters, Arizona members of

Defenders of Wildlife, AGFD employees, rural state residents and metropolitan state residents. Arizona Cattle Growers' Association declined to participate.

(MAR) Arizona Wolf Symposium '90 held in Tempe, Arizona. Sponsors are P.A.W.S. and the Arizona Chapter of The Wildlife Society.

(APR) Department of the Army reopens consideration of White Sands Missile Range as a possible reintroduction site by indicating the need for further study to determine the full range of reintroduction effects on the military mission.

(APR 23) Arizona Governor Rose Mofford signs AGFD supported lion and bear depredation bill that includes repeal of section authorizing predator bounties including the wolf bounty of \$100.

(AUG 4) AGF Commission Meeting. AGFD public opinion survey reviewed and Department authorized to seek outside funding for evaluation of potential release sites and field surveys in Arizona and Mexico.

(OCT) Tentative date for Mexican Wolf Population Viability Assessment and Conservation Plan Workshop at Fossil Rim Ranch in Texas sponsored by Captive Breeding Specialist Group of the International Union for the Conservation of Nature.

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