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Perspective

# Perils of recovering the Mexican wolf outside of its historical range

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ABSTRACT

The Mexican wolf (*Canis lupus baileyi*) was included in the 1973 Endangered Species Act listing of the gray wolf (*C. lupus*), but then listed separately as a subspecies in 2015. Early accounts of its range included the Sierra Madre Occidental of Mexico, southeastern Arizona, southwestern New Mexico, and sometimes western Texas, supported by ecological, biogeographic, and morphological data. There have been multiple unsuccessful attempts to revise the original 1982 recovery plan and identify areas suitable for Mexican wolf reintroduction. Despite the fact that 90% of its historical range is in Mexico and widespread suitable habitat exists there, previous draft recovery plans recommended recovery mostly outside of Mexico and well north of the subspecies' historical range. Planning recovery outside historical range of this subspecies is fraught with problems that may compromise, thwart, or impede successful recovery. Dispersal of Mexican wolves northward and continued movements southward by Northwestern wolves (*C. l. occidentalis*), along with allowing establishment of Mexican wolves north of their historical range before they are recovered, may lead to premature and detrimental intraspecific hybridization. Interbreeding of Northwestern wolves from Canadian sources and Mexican wolves does not represent the historical cline of body size and genetic diversity in the Southwest. If Northwestern wolves come to occupy Mexican wolf recovery areas, these physically larger wolves are likely to dominate smaller Mexican wolves and quickly occupy breeding positions, as will their hybrid offspring. Hybrid population(s) thus derived will not contribute towards recovery because they will significantly threaten integrity of the listed entity. Directing Mexican wolf recovery northward outside historical range threatens the genetic integrity and recovery of the subspecies, is inconsistent with the current 10(j) regulations under the ESA, is unnecessary because large tracts of suitable habitat exist within historical range, is inconsistent with the concepts of restoration ecology, and disregards unique characteristics for which the Mexican wolf remains listed.

## 1. Mexican wolf recovery efforts

Federal efforts to prevent the extinction of the Mexican wolf (*Canis lupus baileyi*) began with the passage of the Endangered Species Act (ESA) in 1973 when this subspecies was included in the listing of *Canis lupus* at the species level. Wolf taxonomy has undergone review through time, including a substantial revision through which the number of recognized subspecies of the gray wolf in North America was reduced from 24 to 5 (Nowak, 1995). Throughout these revisions, however, the Mexican wolf subspecies has always been recognized as the most morphologically and genetically unique of all North American *C. lupus* subspecies (Vilá et al., 1999; Nowak, 1995, 2003; vonHoldt et al., 2011, 2016).

In 2015, the United States Fish and Wildlife Service (USFWS) amended the status of the subspecies *C. l. baileyi* by individually listing it as an endangered subspecies, and importantly, as a separate entity from all other *C. lupus* (U. S. Fish and Wildlife Service, 2015a). By listing the Mexican wolf subspecies separately, the USFWS clearly intended to protect, conserve, and recover the unique characteristics of this subspecies and the habitats upon which it relies.

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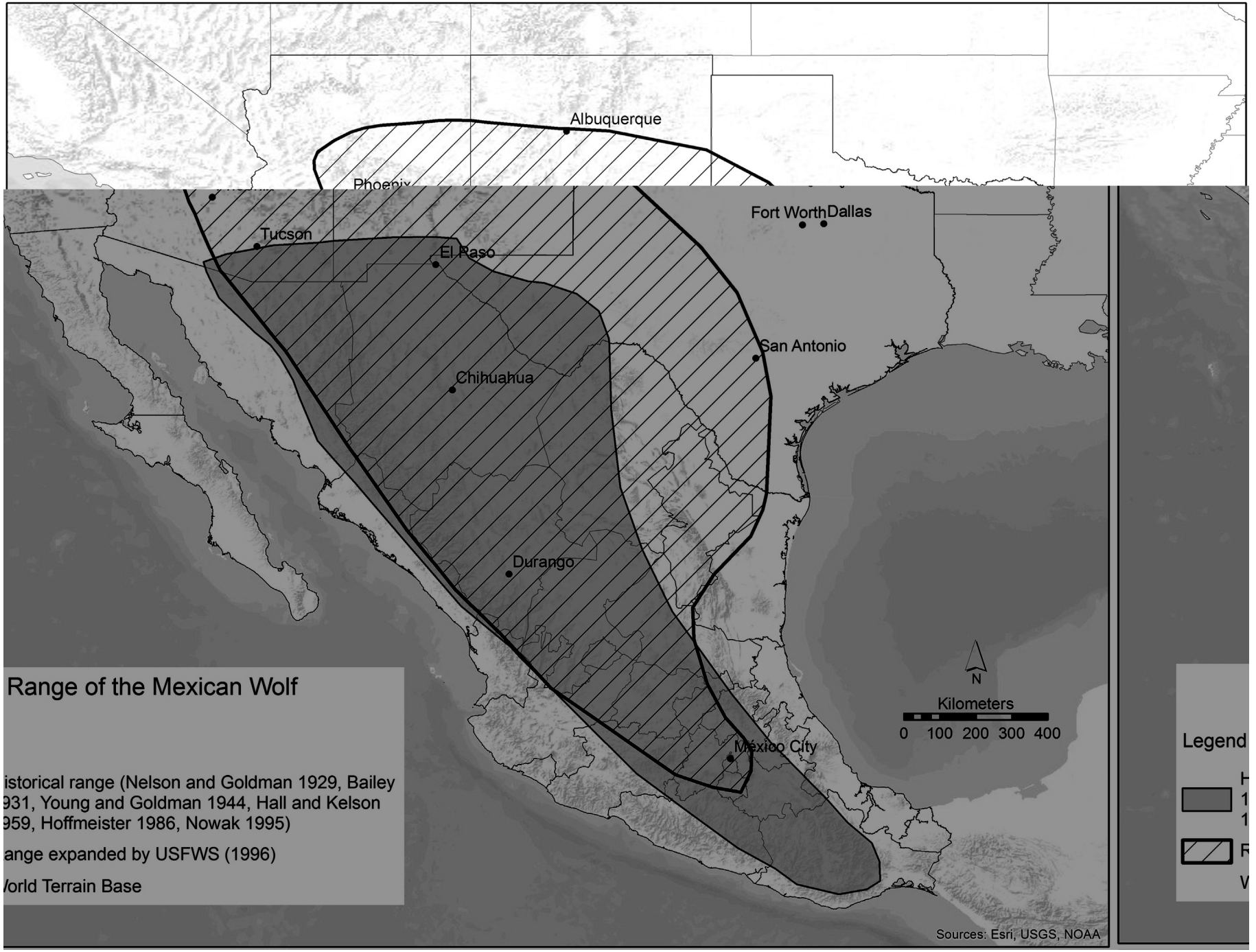


**Fig. 1.** Range of the Mexican wolf (*Canis lupus baileyi*). Depicted are both the historical range defined by most authorities compared with the range expanded by Parsons (1996) and adopted by USFWS (1996) as "probable historic range."