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Gray Wolves in California: Their Presence and Absence

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GRAY WOLVES IN CALIFORNIA: THEIR PRESENCE AND ABSENCE

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Gray wolves, *Canis lupus*, probably occurred in the Central Valley, the western slope of the Sierra Nevada foothills and mountains, and in the Coast Ranges of California until the early 1800s, although their population size is unknown and may have been small. Fossil records and early recorded observations attest to the presence of gray wolves in these areas. In addition, the proximity of other wolf populations east of the Sierra Nevada and north of California, the extensive historical range of gray wolves world-wide, and the presence of large ungulates as potential prey provide indirect evidence that wolves inhabited this region. If gray wolves were more abundant and widely distributed 300 years ago, it is possible that there were fewer coyotes, *C. latrans*, than at present. Community-level dynamics between canids (including the San Joaquin kit fox, *Vulpes macrotis*) may have been much different than they are today.

There is some question about the abundance and distribution of gray wolves in the recent past in California. Hall (1981:932) and Mech (1970:31) considered most of North America as historical range of gray wolves, excluding only the southeastern part of the United States and most of California. Paradiso and Nowak (1982:461) concurred, stating “There are no precise records for most of the state of California; the wolf may have been there, but was eliminated at an early time... .” Grinnell (1936:114) speculated that wolves “...occurred far and wide through northern and eastern portions of [California]; no available evidence indicates presence within historic times in west-central California or in southern California west of deserts.” Ingles (1965:342) stated “It seems likely that a few wolves remain in the high central Sierra Nevada... .”

Gray wolves, *C. l. furlongi*, were native to California prior to human colonization (Nowak 1979). Fossils have been discovered in Shasta, Kern, Los Angeles, and San Bernardino Counties. Specimens collected from Rancho La Brea in Los Angeles County date 10,000 + years before present (C. A. Shaw, George C. Page Museum, pers. comm.).

There are at least two important reasons for discovering the recent distribution of gray wolves in California. Periodically, there is discussion about the reintroduction of wolves into the state. The expansion of gray wolves into northern Washington in

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1990 (Anon. 1990) may increase interest in this controversy. Whether or not this is ever acceptable or practical, a first step would be to determine if wolves ever occurred at a particular location. Second, if wolves were present in historic times and were relatively or locally abundant, they may have had significant impacts on community structure of ecosystems where they occurred. The absence of wolves may assist in explaining patterns of abundance and distribution in species present today.

METHODS

I searched through the writings of early explorers, naturalists, and others that may have come across gray wolves in California. Although my search was not exhaustive, I did go through >50 accounts of life in early California (Schmidt 1987). Sightings of gray wolves were assumed valid when either the writer was a trained naturalist or when the writer specifically distinguished between gray wolves, coyotes, and foxes. The latter rule was deemed important because coyotes in the mountains attained a larger size than lowland coyotes and often were mistaken as “wolves.” As an example, explorer F. W. Beechey (1941:65) wrote of his travels from 1826-1827 in the Monterey Bay area that “... wolves and foxes are numerous, and the cuiotas, or jackals, range about the plains at night... .” I considered this a probable sighting of gray wolves.

RESULTS

1750 -1850 Records

Clear records exist from the middle 1750s to the middle 1850s. Pedro Fages (Priestly 1937) explored the Coastal Range from San Diego to San Francisco in 1769 and made numerous references to wolves, coyotes, and foxes. For example, in 1769 while traveling through the San Diego area, Fages noted that “In this territory there are to be seen, besides a number of other land animals, deer, antelope, conies, hares without number, wildcats, wolves, some bears, coyotes, and squirrels of three kinds” (Priestley 1937:12). Russian explorer Von Kotzebue (1830) described two species of “wolves” as he explored the San Francisco Bay into the Sacramento-San Joaquin Valley. From his descriptions, these were most likely gray wolves and coyotes. Additional sightings by other early explorers were made in the Monterey Bay area (1826), near the San Gabriel Mission in southern California (1827), and in Humboldt County (1828) (Schmidt 1987). The pattern of these sightings (Fig. 1) is indicative of the pattern of settlement in California, with sightings predominant in the coastal areas being settled.

1851 -1900 Records

From 1851 through 1900, the distribution of sightings changed significantly. Wolves were reported in northern Shasta County and in the central Sierra Nevada
Figure 1. California counties where records indicated the presence of gray wolves in the periods 1750-1850, 1851-1900, and 1901-present.
Table 1. Specimens of gray wolves, *Canis lupus*, from California at the Museum of Vertebrate Zoology, University of California, Berkeley.

<table>
<thead>
<tr>
<th>Identification</th>
<th>MVZ No.</th>
<th>Sex</th>
<th>Collection Date</th>
<th>Collector</th>
<th>Collection locality</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Canis lupus youngi</em></td>
<td>33389</td>
<td>male</td>
<td>ca. 14 December 1922</td>
<td>Mr. Watson and A. B. Montgomery</td>
<td>San Bernardino County, Old Barnett Mine, 12 miles west of Lanfair in the Providence Mts.</td>
<td>skull only.</td>
</tr>
<tr>
<td><em>Canis lupus fuscus</em></td>
<td>34228</td>
<td>male</td>
<td>12 June 1924</td>
<td>F. Kaehler</td>
<td>Lassen County, near Litchfield</td>
<td>skull missing, leg bones available.</td>
</tr>
<tr>
<td><em>Canis lupus</em></td>
<td>129254</td>
<td>male</td>
<td>22 March 1962</td>
<td>David Boas</td>
<td>Tulare County, 1 mile east of Woodlake</td>
<td>complete skeleton available; identified by McCullough (1967) as an introduced Asiatic wolf, possibly <em>C. l. chanco</em>.</td>
</tr>
</tbody>
</table>

(Fig. 1). These observations included wolves sighted by naturalists accompanying railway survey crews and reports by explorer/trappers (Schmidt 1987). Newberry (1857:37) reported that “Though much less common than the coyote”, the large grey wolf is found in all the uninhabited parts of California and Oregon. ... All the large wolves seen by any of our party were grey, and all the skins which I saw in the possession of Indians or whites were also grey, and it is probable that the white and black varieties are never found in California.” Price (1894) noted the observations of a trapper named Dent who reported seeing grey wolves in the central Sierra Nevada above 6,000 feet in elevation.

1901 - Present Records

During this period, naturalists began requiring more than visual sighting records for confirmation of the presence of species (Fig. 1). The only museum specimens of recent wolves in California were collected during this period (Table 1). A wolf, *C. l. youngi*, was trapped in the Providence Mountains (San Bernardino County) in 1922, and another specimen, *C. l. fuscus*, was trapped in Lassen County in 1924 (Grinnell et al. 1937:527). Grinnell et al. (1937:530) were convinced of additional sightings in Modoc County. Young (1964:55) reprinted U. S. Forest Service estimates of gray wolf numbers in six National Forests for 1939. These estimates were: Lassen (16), Tahoe (4), Eldorado (12), Stanislaus (6), Angeles (5), and Rogue River (5). However, he concluded that it was questionable whether any wolves still survived in California.
DISCUSSION

When these sightings are combined, it appears that gray wolves originally occurred throughout California. For this survey, a single sighting of a wolf in a diary has the same weight as a sighting of a large pack of wolves. Thus, the distribution picture is rather coarse-grained. It is significant that as the settlement of California progressed inward from the coast, sightings ceased from the settlement and livestock production areas and were reported only in more remote locations.

Gray wolves probably occurred in the Central Valley, Coast Ranges, and the Sierra Nevada until the early 1800s. Elk, pronghorn, and deer (Cervus, Antilocapra, and Odocoileus spp.) were abundant in early California (McCullough 1969), providing a potential prey base for wolves. Grizzly bears, Ursus arctos, also were abundant (Hicks 1983), and may have competed with wolves for available prey.

Historical gray wolf densities are unknown. I suspect the early livestock industry, using guns, traps, and poisons, was very effective in eliminating both the grizzly and the wolf. There is evidence that intensive predator control was responsible for the temporary extirpation of coyotes, a much more resilient species, from selected areas in the western United States in the early 1900s (Schmidt 1986). Gray wolves, Canis lupus, probably were extirpated in California in the mid-1920s (Williams 1979). The few wolves collected since then apparently have been released captive animals (for example, McCullough 1967, Anon. 1989).

The impact of the extirpation of the wolf on the community structure of California’s wildlife can be speculative at best. However, there are indications that the impact may not have been minor. Elsewhere I have indicated (Schmidt 1986) that strong interspecific interactions occur between canids occupying similar habitat. These interactions are strong enough that the addition or removal of one canid species often has been recommended as a management technique to impact another canid species (Schmidt 1985, 1986). For example, coyote introductions have been proposed to reduce populations of red foxes, Vulpes vulpes, in areas where foxes are having an impact on endangered bird populations. It is reasonable to assume that, if wolves were present historically in California, their removal allowed coyotes to move into new areas or to reach higher population densities. This may explain the high mortality rate (up to 50% of marked animals) of San Joaquin kit fox, Vulpes macrotis mutica, caused by predators, chiefly coyotes (O’Farrell 1984; also noted for V. m. arsips by O’Farrell and Gilbertson 1986). Thus, O’Farrell’s (1984:208) statement that coyote predation on kit foxes “...appears to be a natural risk” may not be the case. Such interactions obviously are complicated by the extirpation of the grizzly, the alteration of California’s flora (especially the introduction of alien annual grasses), the interruption of historical wildfire cycles, and past and present human impacts. Predator-prey dynamics, competitive interactions, and other community-level phenomena 200 years ago certainly would have been different with gray wolves as part of the biota.

Additional research would be useful in refining the known distribution of gray wolves in California. This research could include additional reviews of historical
literature and early mission records, analysis of Native American artifacts (including dating when possible), and additional paleontological searches. With this information, the role, impact, and place of gray wolves in California's landscape can continue to be evaluated.

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