

**California Wildlife Habitat Relationships System**  
**California Department of Fish and Wildlife**  
**California Interagency Wildlife Task Group**

---

KIT FOX

*Vulpes macrotis*

Family: CANIDAE  
M148

Order: CARNIVORA

Class: MAMMALIA

Written by: G. Ahlborn

Reviewed by: M. White

Edited by: M. White, G. Ahlborn

Updated by: CWHR Program Staff, May 2000

#### DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Uncommon to rare, permanent resident of arid regions of the southern half of the state (Grinnell et al. 1937, Wilson and Ruff 1999:150). May still occur in eastern Lassen County. Lives in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. The San Joaquin kit fox (*V. m. mutica*) is Federal Endangered and California Threatened.

#### SPECIFIC HABITAT REQUIREMENTS

**Feeding:** Kit foxes primarily are carnivorous. The principal foods are black-tailed jackrabbits and desert cottontails, rodents (especially kangaroo rats and ground squirrels), insects, reptiles, and some birds, bird eggs, and vegetation (Egoscue 1962, Laughrin 1970, Morrell 1971, 1972, Orloff et al. 1986). They hunt by searching, meandering, circling clumps of brush, and wandering back and forth between clumps of vegetation. They stealthily approach larger prey, or prey in the open, then make sudden, swift rushes. They pounce on smaller prey.

**Cover:** Cover provided by dens they dig in open, level areas with loose-textured, sandy and loamy soils (Laughrin 1970, Morrell 1972).

**Reproduction:** Pups born in dens excavated in open, level areas with loose-textured soils.

**Water:** May not require a source of drinking water. Sustains itself on moisture derived from prey (Thacker and Flinders 1999).

**Pattern:** Open, level areas with loose-textured soils supporting scattered, shrubby vegetation with little human disturbance represent suitable habitats for kit foxes. Some agricultural areas may support these foxes.

#### SPECIES LIFE HISTORY

**Activity Patterns:** Active yearlong; mostly nocturnal, but often active in daytime in cool weather (Ingles 1965).

**Seasonal Movements/Migration:** Non-migratory.

**Home Range:** Little data available. In California, Morrell (1972) reported home ranges of 2.6-5.2 km<sup>2</sup> (1.0-2.0 mi<sup>2</sup>) for the San Joaquin kit fox. Considerable overlap between individual home ranges appears to occur (Morrell 1972). In Utah, Egoscue (1962) reported 0.19 kit foxes/km<sup>2</sup> (0.5/mi<sup>2</sup>) before birth of pups, and 0.48 per km<sup>2</sup> (1.25/mi<sup>2</sup>) after pups were born.

Territory: No data found.

Reproduction: Kit foxes usually are monogamous, but polygamy apparently also is common (McGrew 1979). Most pups born February through April, following a gestation period of 49 to 55 days (Egoscue 1962). One litter/yr of about 4 pups, range 1-7 (McGrew 1979). Pups weaned at about 4-5 mo. Males and females sexually mature in second yr. In Utah, Egoscue (1975) found a known-age individual of 7 yr at last capture.

Niche: Kit foxes play important roles in their respective ecosystems as "architects of subterranean burrows", which in turn provide cover for many other species (Thacker and Flinders 1999). Kit foxes use dens throughout the year. Nocturnal activity and regular use of dens are important adaptations for thermal regulation and water conservation (Golightly 1981). Potential predators are coyotes, large hawks and owls, eagles, and bobcats. Cultivation has eliminated much habitat. Kit foxes are vulnerable to many human activities, such as hunting, use of rodenticides and other poisons, off-road vehicles, and trapping.

## REFERENCES

- California Department of Fish and Game. 1980a. At the crossroads: a report on the status of California's endangered and rare fish and wildlife. Sacramento. 149pp.
- Egoscue, H. J. 1956. Preliminary studies of the kit fox in Utah. *J. Mammal.* 37:351-357.
- Egoscue, H. J. 1962. Ecology and life history of the kit fox in Tooele County, Utah. *Ecology* 43:481-497.
- Egoscue, H. J. 1975. Population dynamics of the kit fox in western Utah. *Southern Calif. Acad. Sci.* 74:122-127.
- Golightly, R. T., Jr. 1981. The comparative energetics of two desert canids; the coyote and the kit fox. Ph.D. Diss., Arizona State Univ., Tempe. 174pp.
- Grinnell, J., J. S. Dixon, and J. M. Linsdale. 1937. Fur-bearing mammals of California. 2 Vols. Univ. California Press, Berkeley. 777pp.
- Ingles, L. G. 1965. Mammals of the Pacific states. Stanford Univ. Press, Stanford, CA. 506pp.
- Koopman, M. E., J. H. Scrivner, T. T. Kato. 1998. Patterns of den use by San Joaquin kit foxes. *J. Wildl. Manage.* 62(1): 373-379.
- Laughlin, J. M., and A. L. Cooper. 1973. A range extension of the kit fox in Oregon. *Murrelet* 54:23.
- Laughlin, L. 1970. San Joaquin kit fox: its distribution and abundance. Calif. Dept. Fish and Game, Sacramento. *Wildl. Manage. Br. Admin. Rep. No. 70-2.* 20pp.
- McGrew, J. C. 1979. *Vulpes macrotis*. Mammal. Species No. 123. 6pp.
- Morrell, S. 1971. Life history of the San Joaquin kit fox. Calif. Dep. Fish and Game. *Wildl. Manage. Branch, Sacramento.* 25pp.
- Morrell, S. 1972. Life history of the San Joaquin kit fox. *Calif. Fish and Game.* 58:162-174.
- O'Farrell, T. P., and L. Gilbertson. 1979. Ecological life history of the desert kit fox in the Mojave Desert of southern California. USDI Bur. Land Manage., Riverside. Draft Final Rep. 95pp.
- Orloff, S., F. Hall, and L. Spiegel. 1986. Distribution and habitat requirements of the San Joaquin kit fox in the northern extreme of their range. *Trans. West. Sect. Wildl. Soc.* 22:60-70.
- Snow, C. 1973. San Joaquin kit fox, *Vulpes macrotis mutica* and related subspecies, and the swift fox, *Vulpes velox*. USDI, Bur. Land Manage. Tech. Note No. 238. 24pp.
- Thacker, R. K. and J. T. Flinders. 1999. Kit or swift fox: *Vulpes velox*. Pages 148-150 in Wilson, D. E. and S. Ruff, editors. *The Smithsonian book of North American mammals.* Smithsonian Institution Press, Washington and London. 750pp.