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STATUS OF THE RED FOX IN CALIFORNIA<sup>1/</sup>

by

Gordon I. Gould, Jr.

INTRODUCTION

Taxonomy. At least two distinct populations of red fox as occur in California. The Sierra Nevada red fox (Vulpes vulpes necator) is found from the Cascades east and south to the southern Sierra Nevadas. The Sacramento Valley red fox was recently identified to be most similar to V. v. regalis from the northern Great Plains area (Roest, 1977). This population, inhabiting the Sacramento Valley, was not recorded by early settlers, but was probably introduced sometime prior to 1890 (Grinnell, 1937).

Legal Status. Prior to 1974 the red fox was a harvestable furbearing mammal. It was given protection from take for profitmaking purposes in 1974 by the California Legislature. At that time, the California Fish and Game Commission added the red fox to its list of protected furbearers making all take except for scientific purposes illegal.

NATURAL HISTORY

Habitat. The two subspecies of red fox generally inhabit distinctly different types. The Sierra Nevada red fox is found at higher elevations in the Sierra Nevada and Cascades in Canadian and Hudsonian zones (Ingles, 1965). These areas are typified by lodgepole and red fir forests (Schempf and White, 1977), rock slides and meadows. Sacramento Valley red fox occur in the agricultural and farm lands of California's Sacramento Valley. Here it usually is associated with uncultivated brush areas adjacent to rice and other grain fields as well as with pasture lands at the northern end of the valley.

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Food Habits. Though a carnivore, red fox will eat a wide variety of foods. In the Sierras this may be marmots, ground squirrels, mice, wood rats, pikas, hares, birds, grasshoppers and berries (Ingles, 1965). In the Sacramento Valley, red foxes prey quite heavily upon meadow mice and muskrats and take a variety of other rodents, small birds and their eggs, ducks in winter, insects and arthropods and even carp (D. Moore, pers. comm.). Though known to be a predator on ring-necked pheasants they usually have little effect (Scott and Klimstra, 1955; Arnold, 1956).

Reproduction. Red foxes mate between December and February (Scott, 1943; Ables, 1968; Sheldon, 1949), and 4 or 5 pups (Ingles, 1965) are born after a gestation period of 51-52 days (Ewer, 1973). Dens in the Sierra Nevada are likely to be in rock slides and in the Sacramento Valley in dens dug into the ground. Young are weaned at approximately eight weeks of age. Though capable of living a long life, average life span in the wild is less than one year (Arnold, 1956).

#### DISTRIBUTION AND DENSITY

Recent studies (Gray, 1975; Schempf and White, 1977) were aimed at documenting the distribution of the two red fox forms in California. The Sierra Nevada red fox occurs from Siskiyou County south to Tulare County, mostly at elevations between 5,000' and 8,400' though the extremes are 3,900' at Yosemite Valley to 11,900' at Lake South America in the southern Sierra Nevadas. The major concentration of this subspecies appears to be in the vicinity of Lassen Volcanic National Park.

The Sierra Nevada red fox probably has never been common and Schempf and White (1977) consider it rare throughout its range. Its numbers are unknown and possibly declining (Schempf and White, 1977).

On the other hand, the Sacramento Valley red fox appears to be common and expanding its range (Gray, 1975; 1977). It has been observed from the upper Sacramento Valley foothills in Shasta and Trinity counties south to San Joaquin County. Recent reports indicate further expansion to the southwest into Contra Costa and Alameda counties and into foothills of the Sierra Nevadas. In addition to the counties already noted, red fox have been observed in Tehama, Butte, Glenn, Colusa, Yuba, Sutter, Placer, El Dorado, Sacramento, Yolo, Solano and Napa counties. The major concentrations of this population are reported to be along the Sacramento River south of Red Bluff and in the Butte Sink, Butte County (Gray, 1975).

Other red fox sightings exist from Humboldt, Marin, Santa Cruz, Ventura and Los Angeles counties. These are peripheral populations of unknown origins and size.

#### HARVEST

Fur Trapping. Unlike in many other states, the red fox has never been an important furbearer in California. Only 135 red foxes were reported taken by trappers from 1940 to 1959. Prior to 1950 the majority of red fox taken was probably the Sierra Nevada subspecies since most of the take during that time came from Shasta, Plumas, Lassen and Mono counties. From 1950 to the cessation

of trapping red fox more and more red foxes were taken from the Sacramento Valley though the largest takes during the 1950's came from Shasta and Trinity counties.

Animal Control. Historically the red fox in California has not been a depredation problem. In semi-urban areas it generally keeps to itself but in agricultural areas of the Sacramento Valley, where populations are increasing, so is the potential depredation problem. Elsewhere in its range the red fox may be a great problem to poultry ranchers in particular so the Sacramento Valley red fox situation deserves continued scrutiny.

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