

FIVE-YEAR STATUS REPORT

I. COMMON NAME: Sierra Nevada Red Fox
SCIENTIFIC NAME: Vulpes vulpes necator
CURRENT CLASSIFICATION: Threatened

II. RECOMMENDED ACTION:

Retain Threatened classification

III. SUMMARY OF REASONS FOR RECOMMENDED ACTION:

The most recent summary of information on the Sierra Nevada Red Fox (SNRF) indicated a small, possibly declining population. Though probably never a very common species, its high elevation habitats are under increasing threat from logging activities, livestock grazing, recreation, and other human-induced disturbance. This situation, coupled with an urgent need for more current information regarding current habitat condition and population trends, forms the basis for retaining the current classification. In addition, the proposed harvest of exotic Red Foxes in the lowlands of California may have an impact on the native SNRF.

IV. NATURE AND DEGREE OF THREAT:

The most recent sightings of SNRF indicate the densest populations might be in the areas near Lassen Volcanic National Park and Yosemite National Park. In both areas the SNRF is generally isolated from significant habitat destruction and take. Certain forms of detrimental human disturbance however, could occur at these locales. Although no direct evidence exists, activities such as timber harvesting, back country recreation, ORV's and other forms of human disturbance may have detrimental impacts on this species. The paucity of information on this species makes accurate assessment of threat difficult because little cause and effect relationship can be documented. Schempf and White (1977) concluded that the SNRF was at best maintaining a low population level, and may indeed have been declining ten years ago when they assessed its status. Sightings in the past decade relative to those of the previous three decades are less frequent. Although not a particularly rigorous indicator of trend this relationship suggests a shrinking population. The virtual absence of data upon which to base management planning is in itself a threat to the population. Schempf and White (1977) suggested a decade ago that in order to ensure the continued existence of the SNRF its true status needs to be determined. In addition, habitat quality and quantity needs to be determined in order that suitable areas can be managed for the species. A major problem in this regard is the fact that the species would be extremely difficult to study over its entire range and therefore costs would be high.

V. HISTORIC AND CURRENT DISTRIBUTION:

Historic

The SNRF is the native red fox of California. It is distinct from the non-native population occupying the Sacramento Valley and other lowland areas of the state. Roest (1977) felt the latter population became established from introduction of northern Great Plains stocks, V. v. regalis. Grinnell et. al. (1937) placed the date of this introduction sometime prior to 1890. Sightings to date place the SNRF in the 5000-to-7000-foot-elevation range (Schempf and White 1977) with extremes recorded at 3,900' in Yosemite Valley and 11,900' at Lake South America in the southern Sierra Nevada (Gould 1980). The range has been reported as extending from the Cascades in northern California eastward to the northern Sierra then southward along the Sierra crest to Tulare County (Grinnell et. al. 1937). The densest concentration was in the Lassen Peak area. Most information prior to the 1974 prohibition on the commercial take of Red Fox in the state was provided by fur trappers. Since then reports have been received in response to Department of Fish and Game (DFG)-distributed furbearer-observation leaflets (Gray 1975).

Current

The current distribution of the SNRF is largely unknown and assumed to remain much as has been recorded in recent history. The most recent sighting reports are from the same elevation range and geographic areas as reported in early literature. SNRF density is probably sparse throughout its Cascade and Sierra Nevada range. The relatively low number of recent sightings suggests a population decline in recent decades (Schempf and White 1977).

The preferred habitat within the geographic and elevational range for the SNRF seems to be red fir and lodgepole pine forests in the subalpine zone and alpine fell-fields of the Sierra Nevada (Ingels 1965). The fox apparently hunts the forest openings, meadows and barren rocky areas associated with its high elevation habitat.

VI. HISTORIC AND CURRENT ABUNDANCE

Actual population estimates for the SNRF are not available for historic times. Authorities feel the SNRF was never a very common species and it has maintained a lifestyle similar to the elusive and rarely sighted Wolverine (Gulo gulo) (Grinnell et al. 1937, Schempf and White 1977). Data on relative abundance may be inferred from sightings recorded over the past several decades. There were 19 recorded sightings in the 1950's, 19 in the 1960's, and 12 from 1970-77 (Schempf and White 1977). Recently there have been very few SNRF sightings reported to DFG. The data, however, are too few and too biased to be statistically significant. Schempf and White (1977) stated that the SNRF is perhaps in a more precarious position than any other furbearer in the state. The continuing decline in reported sightings seems to support their assessment.

Sightings indicate that the SNRF is densest in the Lassen Volcanic National Park and Yosemite National Park areas of California. However, high levels of human activity in these areas may account for a disproportionate number of sightings relative to the remainder of the species Cascade and Sierra Nevada range.

VII. SPECIES DESCRIPTION AND BIOLOGY:

The SNRF is one of 12 recognized North American subspecies of Vulpes vulpes (Hall and Kelson 1959). Roest (1977) used multivariate analysis techniques to describe several subspecies of Red Foxes based primarily on skull characteristics. He concluded that compared to the introduced lowland Red Fox the native SNRF was slightly smaller (1050 mm total length) with a tail less than 360 mm and a weight of less than 4 kg. The color was distinctly reddish especially dorsally in the red phase. The species also exhibits the cross, silver and black phases common to other Red Foxes.

The SNRF is distinguished from the lowland Red Fox by its slightly smaller size and darker colored fur (the lowland fox is somewhat pallid in appearance and does not exhibit the other Red Fox color phases described above) (Roest 1977).

The SNRF is rarely sighted and apparently secretive in nature. It inhabits remote areas of the state where chance encounters with humans are uncommon. Very little is known of its life history but it is assumed its habits are not widely divergent from other Red Foxes in its choice of dens, hunting tactics and prey selection. Schempf and White (1977) report that SNRF observations occur in vegetation types similar to those for Marten (Martes americana) and Wolverine. The fox ranges over a large area and occurs in habitats throughout its wide elevational range.

Typically, Red Foxes, although carnivores, will eat a variety of foods including considerable amounts of vegetable matter such as berries. In the Sierra Nevada such foods would include marmots, ground squirrels, mice, wood rats, pikas, hares, birds, insects and berries (Ingels 1965).

Reproductive behavior is assumed to match that of other Red Foxes with 4 to 5 pups born after a 51-52 day gestation period (Ingels 1965, Ewer 1973, Gould 1980). Dens in the Sierra Nevada probably consist of rocky crevices and caves (Gould 1980). After weaning at eight weeks young foxes may live several years but the average in the wild may be less than one year (Arnold 1956, Gould 1980).

VIII. HABITAT REQUIREMENTS:

Literature sources (Grinnell et al. 1937, Ingels 1965, Schempf and White 1977) indicate the SNRF inhabits a variety of habitats in the subalpine and alpine zones of the Cascade Mountains and Sierra Nevada in California. Red Foxes in general are opportunistic species able to adapt to a variety of natural environmental conditions and available food sources. It is reasonable to assume that the SNRF maintains the

basic characteristics and temperament of other Red Foxes worldwide. Without intensive study, however, much of this discussion must remain speculative.

IX. CURRENT AND RECOMMENDED MANAGEMENT:

Prior to 1950 most Red Foxes trapped in California were likely the SNRF because of the locales where these foxes were taken--Shasta, Plumas, Lassen and Mono counties (Gould 1980). Large takes of foxes during the 1950's occurred in Shasta and Trinity counties. Although the total number of foxes taken was small relative to other fur harvests of the period, any activity that causes mortality of a rare species is potentially significant. Recognizing this, the Legislature moved to ban the commercial harvest of all Red Foxes in the state in 1974 and then the Fish and Game Commission listed the SNRF as Threatened in 1980. Since these actions were implemented, little information has been gathered on the species. There is an urgent need to gather such information as a basis for management activities aimed at the conservation of the SNRF.

It is recommended that the effort to obtain sightings of the SNRF be increased and that wilderness travelers be encouraged to be on the lookout for this species and report sightings. Interagency coordination should be intensified to obtain more sighting information. Because the SNRF inhabits forested regions of the state, U.S. Forest Service (USFS) employees and private timber companies should be the focus of attention. In addition, due to relatively high frequency of reports in and around two national parks in the state, U.S. National Park Service (NPS) personnel need to be cooperatively involved in obtaining information on this and other rare furbearers which may inhabit national park lands.

Although it will be costly and difficult to accomplish, a long-term intensive study of high elevation furbearers needs to be conducted, perhaps jointly, by concerned agencies. The DFG should reassess priorities regarding the SNRF and other rare furbearers with respect to funding for research and management over the next five years.

Until further research can refine our knowledge of the SNRF and other rare furbearing species with similar range and habitat requirements, the following management should be recommended for national forest lands, national park lands, and private timberlands:

- Encourage the reporting of all observations of the SNRF by employees of the USFS and NPS.
- Encourage NPS and USFS personnel to make wilderness travelers aware of the SNRF and the need to report any sightings to DFG.
- Protect mountain meadow systems by re-routing hiking trails around meadows and by restricting livestock use of meadows on federal lands.

The DFG should consider the following program to encourage its personnel and back country hunters and fishermen to report sightings of the SNRF:

- Include literature and report cards on rare furbearers with every fishing and hunting license issued at a DFG license facility.
- Provide mailing information on rare furbearers to members of conservation and hunter groups such as the Wilderness Society, Sierra Club, Cal Trout, Isaac Walton League, National Rifle Association, and National Audubon Society.
- Begin planning and budgeting for intensive field investigations into the status of the SNRF and other rare furbearers.
- Work closely with furbearer study groups at U.C. Berkeley and other institutions and agencies to plan for research and management activities.

X. SOURCES OF INFORMATION:

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