

San Joaquin Kit Fox

by Heather Bell

Waif-like in appearance at only four pounds and 12 inches in height, the San Joaquin kit fox (*Vulpes macrotis mutica*) tackles life in the arid regions of California's San Joaquin Valley by staying underground in cool burrows during the day and hunting for food at night. This resident of an ever-shrinking eco-system has become one of California's most photographed, published and controversial endangered species.

Perhaps the fox is photogenic because of those ears. Like satellite dishes scanning the blackness, its large ears search for sounds of prey. Foot-drumming by a giant kangaroo rat or the eerie screech of a wounded cottontail might signal a meal.

Perhaps it is photogenic because of those large eyes that enable the kit fox to see and hunt at night, or its small size that provides it with a niche not already occupied by other members of the dog family. Or perhaps it is all of the above coupled with a generous tail tipped in black.

Not only has this carnivore been photographed, it has also been followed for clues about its life span, reproductive rate, home range size, prey and habitat needs, competitors, predators, and even its need for fresh water. Most of our information on this fox comes from a population which lives amongst oil derricks and pipelines. Radio collars small enough to fit on your wrist have been placed on foxes within the Naval Petroleum Reserve in Kern County for over the last 15 years. During these studies, biologists have found that the population size of these foxes can fluctuate greatly, possibly related to the amount of prey available. During long droughts or extremely wet years, there may be fewer mice, crickets or rabbits around.

Even when reproduction is successful there are still hazards ahead. As an example, an average litter of four might be whelped in February, be fed by both parents and begin to venture from the natal den by June.. Three of the four pups will probably have the misfortune of being killed by a coyote, bobcat, or a motor vehicle before the survivors finally leave their parents in November.

Once an adult, chances of survival increase, but not greatly. As an adult, a kit fox is intimately familiar with its one to two-square-mile home range, changing denning locations frequently, possibly in an effort to avoid attacks by coyotes or infections of parasites. And no, the kit fox doesn't need fresh water! It is physiologically adapted to



San Joaquin Kit Fox
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desert-like conditions and fulfills its water needs from its prey. Also, it restricts water loss by denning during the heat of the day, hunting at night, and excreting highly concentrated urine.

One of eight subspecies, the San Joaquin kit fox was listed in 1967 under the Endangered Species Preservation Act, when it became clear that the number of kit foxes had dwindled to about half that of the turn of the century. The reasons for its decline were many, varied, and had devastating effects. It was hunted for its one-dollar pelt, shot as vermin, trapped and destroyed as a "young coyote", poisoned along with rodents, displaced by the non-native red fox, killed by coyotes, and run over by vehicles. Its habitats were disked, flooded, planted, and paved. It is hard to imagine how populations survived.

Valley. Clearly with such great loss of wildlife habitats, recovering the San Joaquin kit fox is a tremendous challenge. In July 1992, the U.S. Fish and Wildlife Service joined with the U.S. Bureau of Reclamation to establish the San Joaquin Valley Endangered Species Recovery Planning Program, which is preparing a recovery plan for more than 30 threatened and endangered San Joaquin Valley plants and animals. The recovery plan will use an ecosystem approach to conservation and the San Joaquin kit fox has been designated as the "umbrella species" for upland Valley species.

A variety of proposals for kit fox recovery is being offered. One such proposal would involve the agricultural community. In the mid 1900's our country needed fertile land with available water to feed and expanding nation. The agricultural community in California met that need by diverting water into canals and aqueducts and plowing up and planting extensive tracts of land in the valley. These lands were habitat for the kit fox. However, when one looks toward future threats one can see that land lost to agriculture is not lost completely. It still has value for the kit fox unlike most lands lost to urban development.

With the increasing suburban sprawl threatening both the fox and the farmer, a partnership between conservationists and farmers may be essential. In October 1994, the American Farmland Trust developed a proposal to identify landowners willing to participate in a conservation program which would restore and enhance habitat for kit fox and other listed species on their lands.

In anticipation of just such a cooperative program, the San Joaquin Valley Endangered Species Recovery Planning Program recently began researching the use of agricultural lands by the kit fox. If funding becomes available, research will try to determine which crop patterns and agricultural practices encourage habitation by foxes. This is important because habitats and ecosystems in this part of California just do not exist in their entirety, untouched, any longer. Only islands of habitat remain in, or around, a sea of farmlands. Kit foxes must be helped to live in a move through this agricultural "matrix" so that healthier populations will persist on the habitat islands.

Clearly, solutions to the many challenges facing this endearing member of the dog family must be varied, practical, cooperative, and affordable. Recovering this diminutive, four-pound canid may be a weighty task, but, as an integral part of a dwindling California ecosystem, the kit fox is worth its weight in gold.

Heather Bell, a wildlife biologist with Fish and Wildlife Service's San Joaquin Valley Endangered Species Recovery Planning Program in Fresno, recently completed her Master of Science thesis on the San Joaquin kit fox.