



# FOX I. NATURAL HISTORY

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**FOX**, small member of the dog family (Canidae). Foxes have large ears and bushy tails; the muzzles are long and pointed, and the skulls are long and flattened relative to most other canid species. Coat color ranges from pale buff to orange-red. They occur throughout most of the world, with four species in Iran and Afghanistan, all in the genus *Vulpes*. Foxes first appear in the fossil record of the late Miocene, derived from a North American canid radiation, entering Eurasia shortly thereafter (Hunt, 1996).

## i. NATURAL HISTORY

Species found in Iran and Afghanistan are the following (Lay, 1967; Hassinger, 1968; Macdonald, 1984; Ziaie, 1996):

*Vulpes cana*, Blanford's fox: mountainous regions of Afghanistan, southwestern Central Asia, Turkmenistan, northeastern Iran, and Baluchistan. Coat blotched sandy-orange with dark dorsal line and dark chin, legs darker brown, tail tip black. The smallest fox in Iran, about 45cm from tip of nose to end of tail.

*Vulpes corsac*, corsac fox: southeastern Central Asia to Mongolia, Transbaikalia to northern Manchuria; northern Iran, and northern Afghanistan. Three subspecies recognized. Rusty-gray with white chin. To about 60 cm total length.



*Vulpes ruppelli*, Ruppell's fox: scattered populations between Morocco and Afghanistan, south to central Africa. Six subspecies recognized. Light sandy, black patches on muzzle, white tail tip. To about 55cm total length.

*Vulpes vulpes*, red fox: Northern Hemisphere from the Arctic Circle to North African and Central American deserts and Asian steppes. Wide-ranging: Arctic tundra to European city centers. Natural southern limit in Sudan. Forty-eight subspecies have been recognized. Coat color variable, from light rust to vivid orange red above, white to black below, tail tip often white. Iran's largest fox, to 70 cm total length.

Many studies of natural history have been carried out on the red fox, primarily in the European parts of its range. It is so widely distributed, in large part, due to its adaptability to many varying ecological situations and its ability to live in close proximity to humans. The other species of Asian foxes have received much less study. Comparative studies of the four species that occur in Iran are greatly needed, particularly for wildlife management concerns. All *Vulpes* species share many behaviors and adaptations, however, and the natural history of the red fox gives us a good indication of what to expect from other species.

Foxes are opportunistic in their feeding habits, taking small prey, including rodents, hares, fish, frogs, turtles, birds and their eggs, and invertebrates, such as earthworms, grasshoppers, and beetles. They also take fruit in season, such as blackberries, figs, grapes, apples, and rose hips. They feed on carrion and have a particular preference for the placentas during lambing season. They are not known to take healthy young newborn lambs, but feed readily on carcasses. They capture rodents with a characteristic stalk-and-pounce technique, preferring voles to field mice when both are available. Foxes cache food items for future consumption, if opportunity provides an abundance. In contrast with some larger canids, foxes are solitary hunters, although their social behavior is complex, and several individuals may interact within the same home range. (See Ewer, 1973, for details.)

In many areas, foxes are monogamous, but the red fox has been observed, in areas where resources are abundant, to occur in small social groups, several vixens to one male. They usually have one litter per year, the gestation period



being about two months. Vixens and cubs occupy burrows dug by the vixen herself or taken over from other burrowing animals, or in rock crevices. Communication among individuals is carried out by various vocal sounds, scent marking, and, at close range, through facial and body postures. (See Fox, 1971; Ewer, 1973; Storm and Montgomery, 1975 for more information about social organization.)

Foxes are mainly nocturnal, mid-level predators, consuming, and perhaps a control factor in, populations of rodents and hares. They are vulnerable to larger mammalian predators and to large raptors. Presumably, their similar food habits bring them into competition where two species occur in the same or adjacent habitats, and their local distributional limits are set by differential abilities with respect to habits and morphology. For example, the larger red fox probably out-competes smaller species, such as Blanford's fox, where resources are abundant, whereas the smaller fox species may have the advantage where resources are perpetually scarce, as in desert mountains.

Ognev (1962) summarized studies on foxes, including the corsac fox and Blanford's fox, in the areas of the former Soviet Union.

The principal economic importance of foxes has been in the fur trade, the red fox in its various color phases being particularly desirable. Foxes are raised for fur in many places in the world, and desirable color mutations have been selected for exploitation in the fur trade. Foxes are of some value as controls on rodent and hare populations in agricultural areas. Their depredations on fruit crops is minor, particularly in contrast to their value as predators on small vermin.

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