



# RED AND GRAY FOXES

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Red and gray foxes are small, agile carnivores belonging to the same family (*Canidae*) as the dog, coyote and wolf. Both red and gray foxes are found throughout Pennsylvania. They are intelligent predators with extremely sharp senses of sight, smell and hearing (a fox can hear a mouse squeal at about 150 feet).

## Biology

The red fox is 22-25 inches in length, with an additional 14-16 inch tail, and weighs 8-12 pounds. The gray is 21-29 inches in length, plus an 11-16 inch tail, and weighs 7-13 pounds. Foxes look like they are heavier than these weights, an impression created by their full, thick fur.

The red has long, reddish-orange fur slightly darkened on the back, black ears, legs and feet, and a long, bushy, white-tipped tail. The gray fox has a black and gray coat, somewhat coarser than the red's, with buff-colored underfur. The gray's tail is also long and bushy, with a black streak running down its length and a black tip.

Dramatic color variations may occur in individual reds, although these are rare and show up more often in the species' northern range, especially in Canada. These color variations include: the "cross fox," with a dark stripe of hair extending from the head down the center of the back and transected by another dark stripe over the shoulders, thus forming a cross-like shape; the "black fox," a melanistic red fox; and the "silver fox," simply a black individual with white-tipped guard hairs giving a frosted appearance. The red fox always has a white tail tip, no matter the color phase or shade of red fur (which also varies slightly in individual animals).

Foxes are swift runners and can swim if they have to. Both reds and grays are mainly nocturnal. The gray can climb trees—it is the only member of the canine family with this ability.

Foxes are "opportunists" when it comes to feeding. This means they will eat whatever is most easily obtained. Foods include mice, rats, rabbits, woodchucks, opossums, porcupines,

domestic cats, chickens, insects, squirrels, game birds, songbirds, bird eggs, fruits and grasses.

Foxes are also scavengers, feeding on road-killed animals and winter kills. Diets of both reds and grays are essentially the same, but different food preferences, behavior patterns and preferred habitat often result in different types and amounts of food eaten. Both species cache uneaten food by burying it in loose earth.

Males are called "dog" foxes and females "vixens." In late winter, foxes can be heard barking at night, making their presence known to members of the opposite sex. Breeding usually takes place in February.

Young are born following a 51-day gestation period for red foxes and a 63-day period for grays. Litters range from 4-10 young, with six the average. Young are born in dens. The red fox usually enlarges a woodchuck burrow or may den in a hollow log; the gray may also den beneath the ground or in crevices in rocky ledges. Underground dens for both species usually have several entrances.

Fox pups weigh about eight ounces at birth, and their eyes are closed for the first 8-10 days. They are nursed by the female in the den for around a month. When the pups emerge, both mother and father keep them supplied with solid food until they are completely weaned after two or three months.

They leave the den area in mid-July or August and may forage with their parents for another month until the family disbands. Foxes trapped in the fall are often young ones, on their own for the first time and establishing new territories. Both males and females are sexually mature at ten months and may breed during their first winter.

Red foxes seldom seek shelter in holes or dens during winter, preferring to sleep in the open with their bushy, well-insulated tails curled over their noses to keep them warm. Grays often hole up for three or four days at a time during severe weather.

Foxes may be afflicted with many parasites, including ticks, fleas, lice, mites, flukes and worms. Reds seem to be more susceptible to mange than gray foxes. Both species can contract rabies. Diseases and parasites strike foxes the hardest when they overpopulate an area; this is nature's way of reducing a too-large population.

Wildlife researchers have live-trapped foxes, tagged and released them. In New York, foxes lived an average of 178 days after tagging, and in Michigan they lived an average of 187 days after release. These figures illustrate the tremendously high mortality rate of foxes in the wild. A life span of 10-12 years is possible, however.

## Habitat

Red and gray foxes generally favor different types of habitat. The red prefers sparsely settled, rolling farm areas with wooded tracts, marshes and streams. The gray fox is more commonly found in heavy woods, swampy lands and rugged, mountainous terrain. But both species are very adaptable and can be found throughout the state, sometimes in areas not considered prime habitat.

Red foxes seem less afraid of people than grays and often inhabit heavily populated areas, although they are rarely seen due to their nocturnal habits. In Lancaster County, a pair of red foxes raised a litter in a hole beneath a large brush pile only 100 feet from a tennis court that was used daily.

On a continental scale, both species have extended their ranges in recent years, usually in response to local habitat changes. Grays are more aggressive than reds and where the ranges of the two overlap, the gray is the dominant species. At present, gray foxes are spreading north into New England as logged-over areas and abandoned farmland grow back into mature forests.

## Population

Fox populations are affected by availability of food, changes in range and suitable habitat, and pressures from man. In a study made in Chester County, it was found that there was approximately one fox per 200 acres, or 3.2 foxes per square mile. Some high-use agricultural areas--with little cover for either prey or predators--had only one fox per 300 acres, or 2.1 foxes per square mile. Wooded and less heavily farmed areas had one fox per 50 acres or 12.8 per square mile, a high concentration. This same study estimated a statewide average

of approximately 1.4 foxes per square mile of suitable habitat.

Fox populations can be measured by different methods, including counting droppings on the snow, den reconnaissance and tracking studies. The gray fox has much larger toe pads and a smaller foot than the red, so the two can often be distinguished by their tracks.

Movements in gray and red fox populations are basically of two types. The first is dispersal, or the movement of young in late summer or early fall. Dispersal spreads the population out, with each young fox moving several miles--occasionally 50 miles or more--to set up its own home territory. The second type of movement occurs within an individual's home territory or range. From tracking studies, biologists estimate that a fox travels an average of five miles in search of food on a winter night.

Populations fluctuate and shift, often as a result of human activities such as logging, farming, construction and even hunting. For instance, the gray fox is fairly easily fooled by electronic calling devices which reproduce the cry of a wounded prey animal. In areas where electronic calling is widely practiced, many grays are taken and local populations may drop drastically. Red and gray foxes may someday be classed as game animals and hunted through the use of the more sporting mouth-operated calls rather than electronic calls. (Trapping, unlike electronic calling, does not wipe out local fox populations, as it is almost impossible to trap out an area.)

At times, foxes may become too numerous. When this happens, local predator control--reduction through hunting and trapping--can be used to bring numbers to an acceptable level. Reduced populations are less susceptible to starvation, disease and parasitism (mange, for example).

In the past, foxes have often been blamed for decreasing game populations, but most of the time the number of game birds and animals taken by foxes and other predators is insignificant compared to other natural losses. When all the facts are in, habitat change is most often found to be the main contributor to lower population, rather than predation. It is true that foxes take grouse, pheasants, rabbits and other game, but these are usually what biologists term "surplus" individuals, those animals which would likely die from other causes--accidents, disease, starvation, etc.--before the next breeding season.

More and more people are accepting predators as natural and valuable members of the world of nature. While some predatory species are dropping in numbers, red and gray foxes are coping with man and a changing environment. They are truly unique animals, and Pennsylvania is enriched by their presence.

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