



## Foxes



red fox

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 from about 150 feet).

### Biology

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

The red fox 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 grizzled gray coat, somewhat coarser than the red's,

with buff-colored underfur. The gray's tail also is long and bushy, with a black streak running down its length and a black tip.

Dramatic color variations might 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; and the "silver fox," simply a black individual with white-tipped guard hairs giving a frosted appearance. The red fox typically 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 canid 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 also are 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 four to 10 young, with six the average. Young are born in dens. The red fox usually enlarges a woodchuck burrow or might den in a hollow log. The gray might also den beneath the ground or in crevices in rocky ledges. Underground dens for both species usually have several entrances.

Fox pups weigh about 8 ounces at birth, and their eyes are closed for the first eight to 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 might 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 10 months and might 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. Gray foxes 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. Red foxes 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 managing an excessive population.

Wildlife researchers have live-trapped foxes, tagged and released them. These studies have shown that foxes, especially young adults, are susceptible to many limiting factors, including trapping, hunting, highway mortality and coyote predation. A life span of 10 to 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 brushy areas, 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 bothered by people than are grays and often inhabit heavily populated areas, although they are rarely seen due to their nocturnal habits. There are countless stories of reds rearing young in suburban settings. Generally, if the area can provide food and shelter, foxes will consider it, especially since coyotes continue to push out, or displace, reds from their historic habitats.

Gray foxes are usually more aggressive than reds and where the ranges of the two overlap, the gray is typically the dominant species.

## Population

Fox populations are affected by availability of food, habitat suitability, coyote predation and hunting and trapping pressure. Pennsylvania studies have documented that 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.

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 is displacement, which is caused by habitat changes and predation. There are also localized movements, the travels of individual within their home territory or range. From

tracking studies, biologists estimate that a fox travels an average of 5 miles in search of food on a winter night.

Populations fluctuate and shift, often as a result of human activities such as logging, farming or development. Disease also plays a role. In areas where mange outbreaks occur, red-fox populations are often severely impacted. But foxes are very resilient. Both species seem to readily rebound from disease and other limiting factors, so long as the area they inhabit can provide food, escape cover and safe havens.

Foxes weathered decades upon decades of persecution through bounties in Pennsylvania. People were paid a fee for each fox they killed. Bounties were abolished in 1966 after it was



gray fox

determined the money used to pay them was better spent on habitat enhancements.

Foxes often are blamed for decreasing game populations. Most of the time the number of game birds and animals taken by foxes and other predators is insignificant compared to other natural losses. Habitat change is most often found to be the main contributor to lower small-game populations. It's true that foxes take grouse, pheasants, rabbits and other game, but these are usually "surplus" individuals, those animals that would likely die from

other causes – accidents, disease, starvation, etc. – before the next breeding season.

More and more people are accepting predators as valuable members of our natural world. Foxes are no exception. Their presence in Pennsylvania provides recreation and wildlife diversity, two important facets of any wildlife management program.



red fox pups