

OPOSSUM



by Chuck Fergus

Bureau of Information and Education
Pennsylvania Game Commission

The opossum, *Didelphis virginiana* (previously *D. marsupialis virginiana*), is one of the world's oldest living mammals and the only marsupial on our continent. Marsupials are born before they are well developed, compared to other mammals, and continue their growth and development in a pouch on their mother's abdomen. Most members of the order Marsupialia are native to Australia and South America. Structurally, they have changed little in millions of years; the opossum's relatives date back to the Cretaceous Period, 90 million years ago. However, the opossum didn't appear in North America until the Pleistocene Epoch, less than a million years ago.

"Opossum" is an Algonquin Indian name meaning "white animal." A creature without specialized body structure or food preference, the opossum thrives in many settings. It is found throughout Pennsylvania, where it is classified as a furbearer.

Biology

Mature opossums are 24-40 inches long, including a 10-12 inch tail. They weigh 4-12 pounds. Males are larger and heavier than females, and the average adult is about the size of a large house cat.

An opossum has a long, pointed snout with abundant teeth (50, the most of any North American mammal), small, dark eyes, and rounded, bare ears. The tapering tail is naked and scaly, like that of a rat. The feet have five toes, each with a claw except the first toe of each hind foot, which is long and capable of grasping, like a thumb.

The long, coarse body fur is light gray; outer hairs may be tipped yellow-brown. Legs and feet are dark brown or black.

Males, females, and immatures are colored alike, although fur and skin color may vary in different geographic areas.

Opossums walk with an ungainly shuffle, averaging 0.7 m.p.h.; their running speed is a little over 4 m.p.h. Excellent climbers, they ascend hand over hand, using their prehensile tails for gripping and balancing. They are good but slow swimmers.

An opossum's brain is small and of primitive structure. Senses of smell and touch are well developed, but hearing is not especially keen and eyesight is weak. When walking, an opossum sniffs the air and occasionally stops and stands on its hind feet to look around. Although normally silent, it may growl, hiss, or click its teeth when annoyed.

If an opossum is threatened and cannot climb a tree or hide in rocks or brush, it may crouch and defend itself—or, more likely, feign death.

When feigning death, also called "playing possum," an individual lies limp and motionless, usually on its side. Its eyes and mouth remain open, its tongue protrudes, its forefeet clench, and its breathing becomes shallow. This state may last from a few minutes to several hours. Feigning may help an opossum survive attack, because some predators ignore dead prey. Opossums also exude a musky odor which may repel some enemies. Wildlife biologists have yet to determine whether feigning death is deliberate (a behavior evolved for survival) or involuntary (perhaps caused by nervous paralysis).

Opossums are omnivorous and opportunistic—they eat whatever they can find. Animal food includes terrestrial and aquatic invertebrates (mainly insects), lizards, snakes, toads, the young of small mammals, bird eggs, and young birds. Plant foods include berries (grapes, pokeberries, blackberries, etc.), mushrooms, acorns, cultivated plants. Opossums eat more animal than plant food. They consume garbage and carrion, including animals killed on highways.

Sometimes opossums forage by day, but they are basically nocturnal. They shelter in hollow logs, woodchuck burrows, rock crevices, tree cavities, the abandoned leaf nests of squirrels, and beneath porches and old buildings. They seldom spend two successive nights in the same den. Opossums do not dig their burrows, although they may line existing cavities with leaves.

Opossums are solitary. Females and unweaned offspring stay together, and the sexes come in contact during breeding season, late February and March in Pennsylvania. After mating, the female drives off the male. The male plays no part in raising young.

The opossum's gestation is short—12 or 13 days. Newborn young are hairless, pink-skinned, blind, and scarcely past the embryonic stage. They are about one-half inch in length and weigh 0.005 ounces. Hind limbs are rudimentary, but the front limbs and feet are well-developed and equipped with claws. The young crawl upward, with overhand strokes as if swimming, through the mother's fur to a pouch in the skin of her belly.

Most litters vary from 5-13 young, averaging eight (as many as 21 have been reported). The pouch is lined with fur and contains the mammary glands. When a young opossum attaches and begins to nurse, the nipple enlarges, forming a bulb on the end which swells in the baby's mouth and helps it stay attached. The female usually has 13 mammaries, so offspring in excess of this number die. The mother can close her pouch to keep the young from falling out.

Young grow rapidly, increasing their weight 10 times and doubling their length in 7-10 days. By seven weeks, they are 2 3/4 inches long. After eight to nine weeks, their eyes open, and they let go of the mammaries for the first time. They begin leaving the pouch for short periods, riding atop their mother's back, gripping her fur with their claws.

When three to four months old, young opossums begin to look for their own food. Soon they stop nursing, but they may stay with the female a few weeks longer. Six to nine young usually survive to fend for themselves.

Females may bear a second litter, breeding again from mid-May to early July. At least two weeks pass between weaning of the first litter and birth of the second, as the female is not sexually receptive while still nursing. Females can breed when they are a year old.

In fall and winter, opossums devote almost twice as much time to feeding and improving their nests as they do the rest of the year. Opossums do not hibernate, but may den up during cold or snowy periods. Although they add a layer of fat, they do not grow a winter pelt, and their fur is poor insulation. Pennsylvania is near the species' northern limit, and many opossums lose the tips of their ears and tails to frostbite.

Ticks, fleas, cestodes, and nematodes parasitize opossums, and the species is preyed on by foxes, bobcats, hawks, and

owls. Trappers take some, although opossum fur is coarse and thin and therefore not very valuable. Many opossums are killed by vehicles when feeding on other highway-killed animals. An opossum's life expectancy in the wild is about 1.3 years, with a few reaching age five.

Population

The opossum is common in wooded areas throughout Pennsylvania. On a continental scale, it ranges from southeastern Canada south through New England to Florida, west to Minnesota, Nebraska, and Texas, and south to Middle America. It has been introduced in several western states.

Opossums are unspecialized animals that can utilize a variety of foods and habitats. The species has expanded its range north and west during the past century. As far as is known, the population is holding steady—or perhaps increasing.

Habitat

Opossums are at home in farmland and woodlots, reverting fields, brushy woods, open woods—in dry or wet terrain, and at varying elevations. They inhabit suburbs and the edges of towns where food and cover are available. Ideal habitat is bottomland woods surrounding streams.

An opossum's range depends on food availability and the individual's tendency to wander. In Maryland, biologists found that opossums had elongated rather than circular ranges (circular being the pattern of most other land-based wildlife), following the edges of rivers and streams. The average home range for each in a sample of 25 animals was 0.6 miles.

Where food is plentiful, an opossum may range only a few hundred yards; in intensely cultivated areas, where fencerows, rocky field corners, and reverting fields have been cleared for crops, an opossum would have to range farther (up to two miles) to find food.

Habitat management aimed at helping other wildlife often benefits opossums. Forest thinning and edge planting stimulate the growth of low, food-producing plants (blackberries, wild grapes, etc.) and create thick cover for escape or daytime loafing. When managing a woodlot, sparing old wolf trees (wide-spreading trees with little timber value) preserves the hollow limbs utilized by opossums. Well-managed game habitat—such as a State Game Land or refuge—provides many forms of wildlife with ample food and cover.

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WOODCHUCK

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Known by many names-- chuck, groundhog, whistle pig, marmot, monax and others--the woodchuck is a common Pennsylvania game animal. Woodchucks are members of the order *Rodentia* (rodents) and family *Sciuridae* (squirrels), and they're closely related to tree and ground squirrels, chipmunks, prairie dogs and marmots. Chucks dig burrows; these holes aerate the soil and provide excellent escape hatches for many other animals, but they are dangerous to livestock and farm machinery. So the woodchuck is often thought of as a "valuable nuisance"--a contradiction in terms that illustrates well this inhabitant of field and fencerow.

Biology

The woodchuck is a mammal about 20-26 inches long, including a bristly, six-inch tail. Weights of adult chucks vary from 5-10 pounds, with extremely large animals as heavy as 12-15 pounds. The weight of an individual fluctuates in a cyclic fashion throughout the year, with the animal at its heaviest by summer's end.

Woodchucks have yellowish-brown to blackish-brown fur. Belly fur is sparse and usually paler than the fur on the back. The pelt is coarse and has little or no commercial value. Light-colored hairs in the coat give some individuals a grizzled appearance. Albinism and melanism occur infrequently. A chuck's feet are dark brown or black, and its front incisor teeth are white. These two front teeth are broad and chisel-shaped like those of rabbits and squirrels and are used primarily to nip off vegetation. They identify the woodchuck as a rodent.

Woodchucks are found throughout Pennsylvania in open fields, meadows, pastures, fencerows and woodland edges and even deep in the woods. Adults rarely move more than a half mile within their home ranges, preferring to stick close to the safety of the burrow.

Chucks don't generally have to move far to find food, as they eat a wide variety of vegetation--including green grasses, weed shoots, clover, alfalfa, corn in the milk stage, dandelion greens, garden vegetables such as beans, peas and carrots and, in the fall, apples and pears. These feeding habits often get them in trouble with farmers and gardeners. In the summer, woodchucks feed most actively during early morning and late evening.

A woodchuck has keen senses of sight, hearing and smell. Note where the animal's sensory organs are located on its skull: eyes, ears and nose are all near the top of the head, enabling a groundhog to check its surroundings simply by sticking its crown out of the burrow. When feeding, a chuck usually raises its head every ten seconds or so to check for danger.

A muscular body, short powerful legs and sturdy claws make the chuck an excellent digger, and the critter spends much of its time underground. It piles excavated dirt at its burrow's main entrance and often sits on this mound to look about. The burrow descends at a sharp angle below the entry hole and then levels off into a narrower tunnel. Woodchucks often dig many side tunnels and two or three back entrances. These "drop holes" are inconspicuous--they aren't marked with dirt mounds--and chucks use them as lookouts or to get underground in a hurry when danger threatens. Burrows are usually located in well-drained, sloping areas and rarely get flooded. In digging, chucks use their strong forefeet to loosen the soil, then their hindfeet to kick the earth behind them.

Even though a groundhog has short legs, it can run at a fairly fast clip for a short distance. An adult is a fierce fighter; men, dogs and foxes are about the only enemies it has, although young chucks are preyed upon by owls and hawks. Woodchucks climb well, ascending and descending trees head first. They have good balance and frequently walk along wooden fence rails. They use their front paws much as people use their hands, to clutch stems of clover or hold apples while feeding.

Woodchucks can produce several sounds. They often let out a sharp whistle for an alarm call. When feeding, they may make a "chuck-chuck" sound, and when angry or cornered may chatter their teeth.

Woodchucks hibernate during winter. They eat heavily throughout summer and early fall to accumulate body fat and prepare to shelter in their burrows all winter. With the hard frosts of October, chucks begin denning up; few remain active past the first of November. A hibernating animal goes into a deep sleep, or a dormant state: its body temperature, heartbeat and other metabolic processes fall off drastically as the animal lives over winter on its body fat. (A chuck's body



RACCOON

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The raccoon is a medium-size woods mammal with the scientific name *Procyon lotor*. *Procyon* means “before dog,” implying that the raccoon is less-advanced than the dog from an evolutionary standpoint; *lotor* refers to the species’ habit of dunking food in water before consumption. The common names “raccoon” and “coon” are anglicized versions of the Indian word “arocoun.” It’s fitting that the common names evolved from a native American word, as the raccoon is strictly a New World animal found in North and Central America.

As with many wildlife species, we view the raccoon with mixed emotions. Some coons are destructive, damaging crops and gardens and raiding nests of game and domestic birds. They’re valuable in many ways, too: a prime pelt brings good money on the fur market, and hunting coons with hounds is an exciting, unique sport with a tradition as old as the hills. But in the end, the true value of any life form cannot be measured in man’s terms. Raccoons have worth simply because they form one of the many fascinating and interlocking segments of nature.

Biology

Raccoons range in size from 28-38 inches, which includes a 10-inch tail, and weigh 10-30 pounds. Males are generally larger and heavier than females. Records exist of coons weighing up to 40 pounds, but individuals this heavy are extremely rare.

The fur of a coon is long, soft and colored a grizzled black-brown. The bushy tail is marked with alternating rings of light and dark fur. Broad cheeks, a long slender muzzle, erect ears and a black strip or mask across the cheeks and eyes give the raccoon an alert appearance. Albinism (a lack of pigment producing a white individual with pink eyes) and melanism (which produces a totally black animal) occur infrequently. The fur on a coon’s feet is light gray in color, and the soles of the paws are hairless. Coons shed in April, producing coats with thinner, lighter guard hairs; in autumn, heavier fur grows in and the pelts become prime.

Raccoons are found throughout Pennsylvania, most often near constant sources of water—lakes, streams, rivers—for food hunting, drinking and dunking of food items. They also adapt well to people and human activities; some coons live in towns and cities, where they den in storm sewers and drainpipes and raid garbage cans for food.

Raccoons are omniverous. This means they eat a tremendous variety of food, both vegetable and animal, including wild cherries and grapes, raspberries, blackberries, persimmons, apples, beechnuts, acorns, melons, corn, grass, leaves, earthworms, crickets, grasshoppers, beetles, grubs, fish, frogs, crayfish, mice, carrion, eggs, etc.

Coons have excellent senses of hearing, sight and smell. They also possess an acute sense of touch in their forefeet, enabling them to catch fish and other small, quick prey. Long, sharp claws anchor slippery food items. No one knows exactly why, but if there’s a water source nearby, raccoons usually “wash” their food. Many naturalists believe the coons dunk or feel food rather than wash it, deriving some information from handling the food underwater which may cause them to accept or reject the item.

Coons are adept climbers, and as they’re nocturnal they spend most of the daylight hours in trees. On warm, bright days they like to sun themselves while lying flat on horizontal limbs, in squirrel leaf nests or curled up in the crotches of trees. Then at night, they descend in search of food. They travel, feed and hunt almost exclusively on the ground. Most coons have central home dens as well as others scattered about their feeding ranges. Adult home ranges are generally about a mile in diameter, greater when food is scarce. An ideal den or nesting site is a hollow in a large tree trunk or limb, but raccoons also use old woodchuck burrows, caves, rock crevices and abandoned farm buildings.

Raccoons have short, stout builds. Like bears, they are plantigrade (flat-footed), walking on the sole of the foot with the heel touching the ground. They’re relatively slow runners but fierce fighters—especially females with young. Men and dogs are the adults’ main enemies, although owls, foxes and bobcats may take young that stray from their mothers’ protection. Coons are strong swimmers.



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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