



# MAMMALS OF OHIO *field guide*

DIVISION OF WILDLIFE



# INTRODUCTION

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Wild mammals stir high interest among human observers. A white-tailed deer, black bear, or river otter is sure to draw the eyes of all who see it. Even mice, shrews, weasels and other small furbearers rarely fail to garner a reaction. This may be because we share a close kinship with mammals. After all, everyone reading this IS a mammal – Homo sapiens, to be specific. Our evolutionary roots are much more closely intertwined with other mammals than birds, reptiles, fish or other types of frequently encountered fauna.

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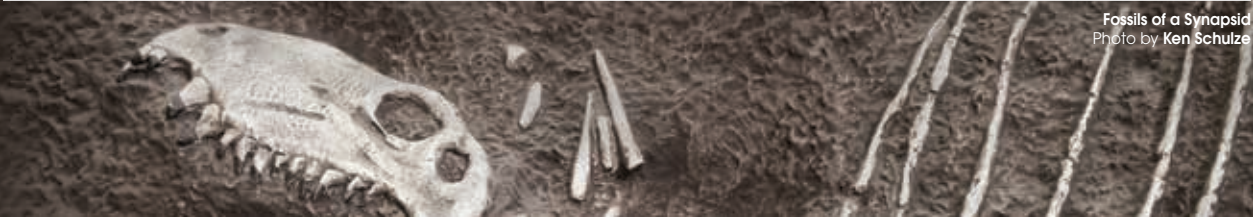
# MAMMALS OF OHIO

Mammals belong to the phylum Chordata, and all species in this group possess a notochord, among other commonalities. “Mamma” is the Latin word for “breast”, and all mammals nurse their offspring with milk. Mammals also possess hair, have three inner ear bones, and a specialized brain structure known as the neocortex. The latter constitutes the largest section of the cerebral cortex, and provides for higher functioning such as motor commands, reasoning and conscious thought, and language.

The evolutionary pathways to current mammalian diversity began near the end of the Carboniferous Period, about 300 million years ago. The earliest representatives were mammal-like reptiles that diverged from a group of creatures known as synapsids. By the Jurassic Period, the ancient synapsids begin to diverge into modern lineages of mammals. Following the extinction of dinosaurs about 65 million years ago, mammalian diversity exploded, as dinosaurs had dominated most ecological niches. Some dinosaur species were effective and voracious predators, further preventing mammals from flourishing. Before the disappearance of the dinosaurs, most mammals were small, secretive, and largely nocturnal. The most primitive living

mammals today are the monotremes: the duck-billed platypus and four species of echidna (spiny anteaters), all of which occur in Australia and New Guinea. The monotremes’ primitive ancestry – dating back about 200 million years – is revealed by their egg-laying reproduction. They are the only modern mammals to retain this reproductive strategy.

Today, nearly 5,500 species of mammals occur worldwide. They can be found in nearly every situation: deep in caves, high in trees, far out at sea, under the soil, and even flying through the air. Mammal diversity is extraordinary, ranging from blue whales that are almost 100 feet in length and weigh 200 tons to pygmy shrews that barely exceed two inches in length and weigh only two grams (less than a penny). Ohio is – or was – home to 65 native mammal species. Unfortunately, 12 species no longer occur, leaving a current mammal fauna of 53 species. Two nonnative introductions, the brown rat and house mouse, occur widely, and commonly in some areas. Several species of highly mobile bats have turned up on a few occasions; they could be considered vagrants.



Fossils of a Synapsid  
Photo by Ken Schulze



# ABOUT THIS BOOK

*Below are symbols and information for quick comparisons and identification. They are located in the same place for each species throughout this publication. Definitions for the scientific terms used in this publication can be found at the end in the glossary.*

## ORDER AND FAMILY

Mammal species appear in taxonomic order. Both “order” and “family” classifications are provided for each species. Species are classified based on their evolutionary relationship to one another.

## ACTIVITY

**Diurnal** – Most active during the day

**Nocturnal** – Most active at night

**Crepuscular** – Most active at dawn and dusk

A word about diurnal and nocturnal classifications. In nature, it is virtually impossible to apply hard and fast categories. There can be a large amount of overlap among species, and for individuals within species, in terms of daily and/or seasonal behavior habits. The activity designated for each species represents the most common activity. It is possible for the activity patterns of mammals to change due to variations in weather, food availability or human disturbances. The designation of diurnal or nocturnal represent the most common activity patterns of each species.

## DIET

**Carnivore** – Feeds primarily on meat

**Herbivore** – Feeds primarily on plants

**Insectivore** – Feeds primarily on insects

**Omnivore** – Feeds on both plants and meat

## STATUS

**Endangered** – species is in imminent danger of extinction throughout all or a significant portion of its range

**Threatened** – species that are likely to become endangered in the foreseeable future

**Special Interest** – species occurs periodically and is under minimal management efforts; Ohio is often at the edge of its range

**Concern** – species that might become threatened, under continued or increased stress

**Uncommon** – localized; infrequent

**Common** – widespread and frequent

**Game** – a species that can be legally harvested

## TRACKS

Many mammals can be elusive leaving only a trail of clues that they were present. Careful observation is required to detect their presence. A significant sign that a mammal resides or has passed through an area are the tracks they leave behind. This guide illustrates the tracks of the relevant species to help identify them in the field.

## RANGE

The map represents where the species is found in Ohio. The warmer the color (red) the more likely a species resides in that area, the cooler the color (blue) the less likely it is found in that area.



# MAMMAL CLASSIFICATION

*In this guide, the mammal orders appear in taxonomic order, meaning they are listed according to how they evolved in relation to each other. In other words, the more “primitive” groups are listed first and the “advanced” mammals are last. The Virginia opossum, a marsupial, has five fingers and toes, which is a characteristic that is considered to be very primitive among mammals. White-tailed deer, on the other hand, have a divided or split hoof considered to be more advanced in evolution. Fewer toes with hooves allow ungulates to take longer strides and run faster than flat-footed mammals with five toes.*

## **DIDELPHIMORPHIA**

Marsupials are a fascinating group because their mode of reproduction is unique among mammals. A chief characteristic of marsupials is the presence of a marsupium, or pouch, on the abdomen of the females. Unlike most mammals, marsupials, such as opossums, are not fully developed when born. The premature young are equipped with tiny front legs so that they can crawl to the female’s pouch immediately after birth, where they will continue to grow and develop.

## **RODENTIA**

Rodents are the most numerous mammals, with over 2,000 species in the world today. All rodents have incisors that grow continuously and must be kept short by gnawing. Many rodents, such as mice and voles, are important food sources for predators, making them a vital part of the ecosystem. Despite their popularity as prey, rodents are considered to be one of the most successful groups of mammals because of their high reproductive rate and ability to adapt to almost any environment.

## **LAGOMORPHA**

The order Lagomorpha includes rabbits, hares, and pikas. Rabbits and hares are stout-bodied animals that resemble large rodents with short tails and long ears. Their big feet and strong hind legs are specialized for running and quickly escaping danger. Pikas are found in the western U.S. Like rodents, rabbits and hares have two large incisors (front teeth) that continually grow and must be kept short by gnawing, or else they could grow too long and prevent eating. All species in the rabbit family are herbivores that feed on grasses and other plants.

## **INSECTIVORA**

As indicated by the order’s name, Insectivora, these animals feed primarily on insects. The insectivore group includes shrews and moles; small mammals that are rodent-like in appearance. Shrews and moles spend much of their time in dark, underground tunnels, thus having little need for the sense of sight. Because of this, the eyes are often very small and vision is reduced. Instead, these insectivores use their exceptional senses of smell and touch to get around and find food.

## CHIROPTERA

Bats are noteworthy because they are the only group of mammals that have wings and can fly. A few other mammals have “gliding membranes” that allow them to soar through air for a short time, but they cannot truly fly like bats and birds.

All Ohio bats are insectivorous and eat flying insects that they catch on the wing, but some species in other parts of the world may feed on fruit, blood, and other vertebrates. Because bats are nocturnal and it is not easy to see in the dark, they use echolocation to navigate and find food at night. Bats echolocate by making high-pitched sounds which produce sound waves that bounce off objects in the environment. The bats listen to the returning echo to determine details about their surroundings. Bats can see though.

Bats typically mate in the fall, right before winter hibernation begins. However, ovulation and fertilization of the egg are delayed until the females awake from hibernation the following spring. This is referred to as delayed fertilization.

## CARNIVORA

While the term “carnivorous” means to eat meat, not all carnivorous mammals are included in this order. Nor are all those included in Carnivora strictly carnivores. This extremely diverse group includes dogs, cats, bears, raccoons, and weasels. Most carnivores have excellent senses, relatively large brains, and are strong runners. They also have teeth and claws that are specially adapted to cutting and tearing meat. All of these characteristics are beneficial to this group of efficient hunters.

## ARTIODACTYLA

Ungulates are characterized by having hooves. Some may also have horns or antlers. Three species of ungulates once inhabited Ohio: Elk, American bison, and the white-tailed deer. Today, only deer still naturally occur in the state. White-tailed deer are ruminants. Ruminants consist of herbivorous ungulates that digest their food by first eating it, then regurgitating it in a semi-digested form called “cud.” It then chews the food, or cud, again in order to break it down even more before it can be fully digested. This process is referred to as “rumination.”

# *Didelphis virginiana* VIRGINIA OPOSSUM

Status: **Common/Game**

**DESCRIPTION:** An adult is about the size of a house cat, with coarse, grizzled, grayish fur. It has a long, scaly tail, ears without fur, and a long, pointed snout that ends in a pink nose.

**HABITAT:** Quite adaptable and can be found in suburbia and the city. Ideal habitat, however, is an area with woods, wetlands, and farmland interspersed.

**REPRODUCTION:** A female opossum carries 12-13 young internally for approximately two weeks before they are born. Opossums are undeveloped and tiny (1/15 ounce) at birth. The offspring must crawl to a teat in the female's pouch to survive. At about three months of age, young opossums emerge from the pouch for short periods and will hitch a ride on the adult female's back to get from place to place.

**DID YOU KNOW?:** The opossum "plays dead" when frightened, by essentially passing out when confronted with danger. This technique usually causes the predator to lose interest and wander off. Then the opossum wakes up a short time later and goes about its business.

## RANGE



## TRACKS

Front

Back



Photo by Donna Heatfield

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# *Tamias striatus* EASTERN CHIPMUNK

Status: **Common**

**DESCRIPTION:** Reddish-brown in color with five black stripes on the back. These stripes are separated by brown, white, or gray colors.

**HABITAT:** Chipmunks inhabit deciduous forests, brushy areas, and urban and suburban yards.

**REPRODUCTION:** Like others of the squirrel family, the Eastern chipmunk has two breeding seasons; one in early spring and the other in early summer. Four to five young are born after a gestation period of about 31 days.

**DID YOU KNOW?:** Eastern chipmunks do not hibernate continuously. Instead, they keep large stores of food in their burrows that they periodically snack on during the winter months. Chipmunks also cache huge numbers of seeds, and “forget” the location of many. Thus they plant scores of trees and other plants.

## RANGE



## TRACKS

Front



Back



Photo by Jim McCormac

# T *Spermophilus tridecemlineatus*

## THIRTEEN-LINED GROUND SQUIRREL

Status: **Uncommon**

**DESCRIPTION:** Brown with stripes on the sides and back. They are small, measuring about seven to 12 inches long, including a three-to five-inch long tail. There are actually 12 dark and 11 light stripes on the back.

**HABITAT:** These ground squirrels inhabit open short to mid-grass prairies, golf courses, cemeteries, airports and other sites with expanses of mowed grass.

**REPRODUCTION:** Soon after hibernation ends in April, these squirrels mate. After a gestation period of 28 days, seven to 10 young are born. They mature quickly and leave the burrow after about a month. Females usually produce only one litter a year.

**DID YOU KNOW?:** The thirteen-lined ground squirrel hibernates about six months out of the year. This species is the eastern “prairie dog”. In the western United States, there are 25 species of ground squirrels and prairie dogs.

### RANGE



### TRACKS

Front



Back



Photo by Jim McCormac

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# *Sciurus carolinensis* EASTERN GRAY SQUIRREL

Status: **Common/Game**

**DESCRIPTION:** Gray with hairs that may have orange tips that will give the animal a reddish cast. Its belly is more of a grayish-white color.

**HABITAT:** Gray squirrels are found in large expanses of hardwood trees, and wooded urban and suburban sites.

**REPRODUCTION:** Gray squirrels running up and down and around trees is thought to be a part of the courtship ritual. Young squirrels are reared in leaf nests, dens, and occasionally bird houses. Squirrels usually breed twice a year; in winter and in summer.

**DID YOU KNOW?:** Squirrels use two types of nests: leaf and den. Leaf nests are located in the crotches of tree branches and dens are formed in hollow tree trunks or branches. A leaf nest is known as a drey.

## RANGE



## TRACKS

Front



Back



Photo by Chris Froome



# *Sciurus niger* EASTERN FOX SQUIRREL

Status: **Common/Game**

**DESCRIPTION:** Much bulkier than the gray squirrel, typically weighing 1½ times as much. The fox squirrel's body is a yellowish gray with a reddish-yellow belly, cheeks, and feet. Tufts behind the ears and the tips of its tail are yellowish-brown. The tail itself is a reddish-orange with a mixture of dark gray or black hairs throughout.

**HABITAT:** Fox squirrels inhabit deciduous and mixed forests. Preferring more open habitats than gray squirrels.

**REPRODUCTION:** Fox squirrels usually mate twice a year; in December and June. A litter of two to three young are born after about 44 days. They are helpless and rely on the female's milk for at least five weeks.

**DID YOU KNOW?:** When a fox squirrel is threatened, it stands upright with its tail over its back, flicking it.

## RANGE



## TRACKS

Front



Back



Photo by Charles Brutiag

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# RED SQUIRREL

*Tamiasciurus hudsonicus*

Status: **Game**

**DESCRIPTION:** The red squirrel is the smallest tree squirrel in Ohio. It has a uniformly yellowish or reddish coat and a whitish belly. The tail is bushy.

**HABITAT:** Red squirrels are found in coniferous and mixed forests, but are most frequent around mature conifers.

**REPRODUCTION:** Red squirrels breed April-May and August-September. Two to seven young are born per litter after a gestation period of 38 days.

**DID YOU KNOW?:** Red squirrels store conifer cones in middens, or piles, instead of burying them like their larger cousins do. The middens made by red squirrels can be up to 30 feet across and 1.5 feet deep. This species is more localized and much less frequent than fox and gray squirrels.

## RANGE



## TRACKS

Front

Back



Photo by Jim McCormac



# *Glaucomys volans*

## SOUTHERN FLYING SQUIRREL

Status: **Common**

**DESCRIPTION:** Easily distinguished by a patagium, which is a flap of loose skin that extends from wrist to ankle. When outstretched, this skin allows the squirrel to glide from tree to tree. The fur is an olive-brown color on the upper parts and white on the under parts.

**HABITAT:** Southern flying squirrels inhabit woodlands or forests of deciduous or mixed deciduous-coniferous trees.

**REPRODUCTION:** Breeding takes place twice a year, once between February and March and again between May and July. After a gestation period of about 40 days, two to six young are born.

**DID YOU KNOW?:** This is probably Ohio's most common squirrel, although its strictly nocturnal habits mean that people infrequently see flying squirrels.

### RANGE



### TRACKS

Front



Back

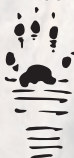


Photo by Tony Campbell

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# WOODCHUCK

*Marmota monax*

Status: **Common/Game**

**DESCRIPTION:** The coarse fur is usually grizzled grayish-brown with a reddish cast. The legs and feet are typically dark brown to black in color and are well suited for digging.

**HABITAT:** Woodchucks prefer open grasslands, pastures, and woodlands. Their large burrow entrances are conspicuous.

**REPRODUCTION:** Immediately after coming out of hibernation in the spring, the male seeks a mate. The female gives birth to two to seven young. By July and August the female will drive the young off into nearby burrows.

**DID YOU KNOW?:** Woodchucks are also called groundhogs or whistlepigs. They are the largest member of the squirrel family. Celebrity woodchucks such as Pennsylvania's Punxsutawney Phil are said to foretell winter's end.

## RANGE



## TRACKS

Front

Back



Photo by Paul Reeves



# *Castor canadensis* AMERICAN BEAVER

Status: **Common/Game**

**DESCRIPTION:** Beavers are large furbearers with webbed feet, a flattened, paddle-like tail, and huge front teeth. They also have transparent eye membranes and closable nostrils and ears; adaptations suited for an aquatic existence.

**HABITAT:** Beavers are found in forested ponds, lakes, and rivers.

**REPRODUCTION:** Beavers are generally monogamous; young are born between April and July, after a gestation period of about 128 days. The kits are born furred, with their eyes open, and are able to swim within 24 hours.

**DID YOU KNOW?:** The beaver is North America's largest rodent, weighing up to 60 pounds. They eat bark and cambium, which is the softer growing tissue under the bark of trees. Their lodges, which are comprised of branches and mud, can reach massive dimensions and can be used for many years. The largest known beaver dam, in Alberta, Canada, is 2,790 feet long.

## RANGE



## TRACKS

Front

Back



# EASTERN HARVEST MOUSE

*Reithrodontomys humulis*

Status: **Threatened**

**DESCRIPTION:** A rich, brown color, but the belly and the underside of the tail are paler than the back.

**HABITAT:** The Eastern harvest mouse inhabits old fields, marshes, and wet meadows.

**REPRODUCTION:** The baseball-sized, spherical nests are constructed on the ground out of shredded grasses. After a gestation period of about 21 days, a litter of two to five young is born between May and November.

**DID YOU KNOW?:** This species was once known in at least 13 counties. Although probably always uncommon, it seems to have become much rarer in recent years.

## RANGE



## TRACKS

Front



Back



Photo by Erni/Shutterstock.com



# N *Peromyscus maniculatus*

## NORTH AMERICAN DEERMOUSE

Status: **Concern**

**DESCRIPTION:** About the size of a common house mouse. Their color ranges from a pale gray to a deep reddish brown. The tail is always sharply bi-colored; it is white below and dark above.

**HABITAT:** Inhabits nearly every dry-land habitat within its range. They can be found in forests, grasslands, brushlands, agricultural fields, and deserts. They are semi-arboreal.

**REPRODUCTION:** Deermice will nest in burrows, trees, and buildings. The average litter has five or six young. Usually two to four litters are produced each year. The young are altricial at birth but develop very quickly.

**DID YOU KNOW?:** When disturbed, deermice may drum their front paws rapidly up and down against a hard surface; this may serve as a warning signal to other deermice. This species is visually inseparable from the white-footed deermouse. Chemical analysis is the only reliable way to identify them. This species appears far scarcer than the white-footed deermouse.

### RANGE



### TRACKS

Front

Back



Photo by Steven Russell Smith

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# WHITE-FOOTED DEERMOUSE

*Peromyscus leucopus*

Status: **Common**

**DESCRIPTION:** The upper parts are a pale to rich reddish-brown. Its belly and feet are white. The tail is usually shorter than the entire length of the body.

**HABITAT:** Inhabits a variety of areas, but most often found in woody or brushy areas. They are also good swimmers. Often enters buildings.

**REPRODUCTION:** This mouse produces two to four litters per year during the breeding season, which occurs between March and June. A litter of two to six young are born after a gestation period of 22 to 28 days.

**DID YOU KNOW?:** A distinctive behavior of white-footed mice is drumming on a hollow reed or a dry leaf with their front paws to produce a long musical buzzing.

## RANGE



## TRACKS

Front



Back



Photo by Jim McCormac

# *Neotoma magister* ALLEGHENY WOODRAT

Status: **Endangered**

**DESCRIPTION:** About the size of a brown rat; the body is brownish-gray in color and the undersides and feet are white. The tail is completely covered with hair and is blackish gray above, white underneath.

**HABITAT:** Allegheny woodrats can be found in rocky outcrops, such as cliffs and caves, in forested areas. Builds a large, cup-shaped nest under rocks or ledges.

**REPRODUCTION:** Woodrats nest in rock crevices and usually produce three litters a year.

**DID YOU KNOW?:** This species is a classic “pack rat”, creating large debris piles known as middens. The woodrat was once found in at least eight counties. Only small populations persist in Adams County, Ohio, and it is listed as endangered.

## RANGE



## TRACKS

Front



Back



Photo by Tim Daniel

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# *Microtus pennsylvanicus* MEADOW VOLE

Status: **Common**

**DESCRIPTION:** Dark brown in color with a silvery to slightly buffy or dark gray belly and bi-colored tail. The fur is long and soft.

**HABITAT:** The most widely distributed of the voles; can be found in meadows, fields, grassy marshes, and other places near streams, lakes, and swamps.

**REPRODUCTION:** Meadow voles breed March-November and produce litters of around six young. Females can have up to 17 litters per year.

**DID YOU KNOW?:** Meadow voles are excellent swimmers, but poor climbers. This rodent is a major food source for large raptors. Northern harriers, rough-legged hawks, and short-eared owls are especially dependent on meadow voles.

## RANGE



## TRACKS

Front

Back



Photo by Jim McCormac



# WOODLAND VOLE

*Microtus pinetorum*

Status: **Concern**

**DESCRIPTION:** This little vole has thick, soft, auburn-colored fur with whitish or silvery under parts.

**HABITAT:** Eastern deciduous forests. They live on the forest floor in the thick layers of leaves and loose soil.

**REPRODUCTION:** Woodland voles are monogamous animals and mating takes place in the spring through the fall. Females produce more than one litter per year, with an average of three to seven young per litter. Gestation lasts about 21 days. Nests are located under stumps or logs.

**DID YOU KNOW?:** Also known as pine voles, they live in small family groups and use burrows and tunnels under leaf litter, rarely coming to the surface.

## RANGE



## TRACKS

Front

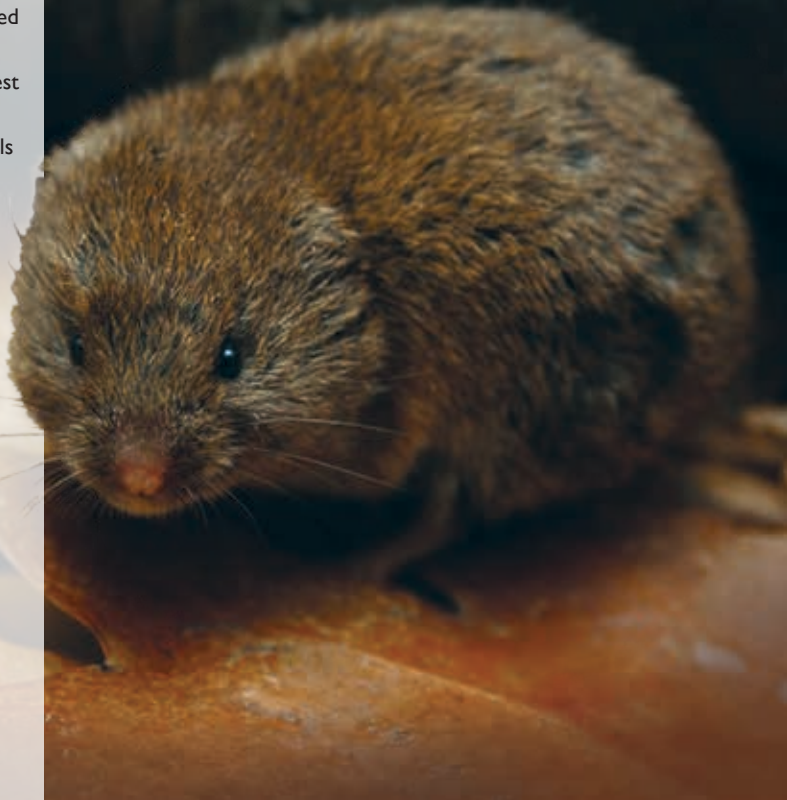


Back



Photo by Phil Myers / <http://Animaldiversity.org>

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# PRAIRIE VOLE

*Microtus ochrogaster*

Status: **Concern**

**DESCRIPTION:** Grayish to dark brown hair tipped with brownish-yellow, giving it a grizzled look. Its belly is whitish or yellowish and its tail is relatively short.

**HABITAT:** Prairie voles occur in prairies, fencerows, old cemeteries, and other fairly dry grassy places.

**REPRODUCTION:** Female prairie voles share an underground, grass-lined nest with their mate. Females give birth to three or four young usually between May and October, although they breed throughout the year.

**DID YOU KNOW?:** Prairie voles are monogamous with both the male and female caring for their young. Older offspring may stay around to help care for younger siblings. A recent study suggests that this species has declined significantly in Ohio.

## RANGE



## TRACKS

Front



Back



Photo by Jim McCormac



# *Synaptomys cooperi* SOUTHERN BOG LEMMING

Status: **Concern**

**DESCRIPTION:** Brownish gray upper parts and a grayish belly. Its tail is extremely short and its ears are nearly concealed by hair.

**HABITAT:** Southern bog lemmings live in low, damp bogs and meadows with heavy vegetative growth.

**REPRODUCTION:** Breeding takes place year round with most litters being produced between April and September. An average female will produce two to three litters a year, with three or four young per litter. Gestation lasts about 23 days.

**DID YOU KNOW?:** Bog lemmings travel via grass runways and underground tunnels. Nests are usually built from dry grasses and hidden under stumps. This is a very secretive mammal, but its bright green droppings along grassy runways can reveal its presence.

## RANGE



## TRACKS

Front



Back



# *Ondatra zibethicus* COMMON MUSKRAT

Status: **Common/Game**

**DESCRIPTION:** The fur is a dark brown that gets lighter around the throat. The tail is long, rat-like, and laterally compressed.

**HABITAT:** Muskrats live in aquatic habitats, such as marshes, ponds, lakes, rivers, and canals.

**REPRODUCTION:** Females normally produce one to five litters per year, with each litter containing four to seven young. Young are born three to four weeks after breeding and are born hairless. Only two weeks after birth the young muskrats have fur and are able to swim. They are able to take care of themselves within a month and are on their own.

**DID YOU KNOW?:** Muskrats can swim at speeds of up to two to three miles per hour. They build distinctive “houses”; conical piles of cattails in standing water. Muskrats are important in maintaining openings in densely vegetated marshes.

## RANGE



## TRACKS

Front



Back



Photo by Jim McCormac



# *Rattus norvegicus* BROWN RAT

Status: **Common**

**DESCRIPTION:** A large member of the mouse family that can be distinguished by its grayish-brown color and long, scaly tail.

**HABITAT:** Brown rats inhabit any place where food and shelter can be found, including woodlands, open fields, garbage dumps, sewers, and basements.

**REPRODUCTION:** These rats are social animals and tend to breed in large groups, where communal care makes this species somewhat of a cooperative breeder. Litters of eight to 10 young are produced after a gestation period of 21-22 days.

**DID YOU KNOW?:** Female brown rats have been known to produce up to 12 litters per year. This species was long known as the Norway rat. It is native to Eurasia and was introduced in North America around 1775.

## RANGE



## TRACKS

Front



Back



Photo by Emi/Shutterstock.com

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# *Mus musculus* HOUSE MOUSE

Status: **Common**

**DESCRIPTION:** A small, gray-brown mouse with a gray or buff-colored belly. The tail is scaly.

**HABITAT:** Generally found in close association with humans. While house mice are occasionally found in fields, they usually live in buildings.

**REPRODUCTION:** The house mouse reproduces often with several litters per year. They produce litters of three to 11 young after a gestation period of 18-21 days.

**DID YOU KNOW?:** Because of their association with humans, house mice can live in areas that would otherwise be inhospitable for them, such as deserts and tundra. House mice and brown rats are the only widespread nonnative rodents in Ohio.

## RANGE



## TRACKS

Front

Back



Photo by Snasz-Fabian Jozsef

# WOODLAND JUMPING MOUSE

*Napaeozapus insignis*

Status: **Concern**

**DESCRIPTION:** Identified by its bright yellowish sides, brownish back, white belly, large hind feet, and a long, white-tipped tail.

**HABITAT:** Woodland jumping mice live in brushy areas near water, including wet bogs and stream borders.

**REPRODUCTION:** Woodland jumping mice mate after emerging from hibernation. Young are born between June and September, after a gestation period of about 29 days. Females produce one or two litters per season, with three to five young per litter.

**DID YOU KNOW?:** Woodland jumping mice can jump as high as two feet (0.6 m) and as far as six feet (1.8 m). This mammal appears to be rare and local, and is confined to the eastern ¼ of the state.

## RANGE



## TRACKS

Front



Back



Photo by Phil Myers / <http://Animaldiversity.org>

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# Meadow Jumping Mouse

*Zapus hudsonius*

Status: **Uncommon**

**DESCRIPTION:** Olive-yellow in color with a long tail and large hind feet. It has a tiny tuft of black hair at the tip of the tail.

**HABITAT:** Meadow jumping mice are found in a variety of habitats with herbaceous cover, but most often found in low, moist grasslands.

**REPRODUCTION:** The breeding season occurs after hibernation in April or May. Gestation lasts 18-21 days and four to five young are in a litter. Females will produce two or three litters per year.

**DID YOU KNOW?:** Meadow jumping mice are incredible leapers, able to cover several feet in a single bound. This kangaroo-like locomotion makes them easy to recognize.

## RANGE



## TRACKS

Front

Back



# *Sylvilagus floridanus* EASTERN COTTONTAIL

Status: **Common/Game**

**DESCRIPTION:** A large rabbit with a brownish-gray body, long ears, and a small white tuft of a tail that resembles a cotton ball.

**HABITAT:** Open areas bordered by thickets or brushy areas. Cottontails prefer old fields with bunch grasses and weeds but will also be found in suburban areas if brushy escape cover is near.

**REPRODUCTION:** The nest is a shallow depression made in the ground, lined with dry grass and fur from the female's body. The young are born helpless with very fine fur and closed eyes that do not open for four to five days. The female conceals the young in the nest and only returns once or twice per day to feed them. Females can have up to 5 litters of young per season (Feb-Sept).

**DID YOU KNOW?:** Cottontails are common prey for hawks, owls, foxes, coyotes, weasels, and humans. The rarely seen courtship display is spectacular. The male leaps vertically high in the air while the female runs underneath him. He twists 180 degrees in mid-air, landing to face his prospective mate.

## RANGE



## TRACKS

Front



Back



Photo by Jim McCormac

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# *Lepus americanus* SNOWSHOE HARE

Status: **Concern**

**DESCRIPTION:** Hares are larger than rabbits. Their hind feet can be up to seven inches long and have webbing between the toes. Their feet act like snowshoes to allow the hare to stay on top of the snow while running and jumping. During the winter, snowshoe hares have a thick white coat that helps them blend in with the snow. In the spring, they shed their winter fur and grow thin brown summer fur.

**HABITAT:** Hares are found in open fields, fence rows, swamps, riverside thickets, cedar bogs, and coniferous lowlands.

**REPRODUCTION:** Females may have up to four litters a year, depending on environmental conditions. The young hide in separate locations during the day and only come together for a few minutes at a time to nurse. The female cares for the young until they are about four weeks old, when they are weaned and disperse.

**DID YOU KNOW?:** Hares and rabbits are different in several ways: Hares are born with fur, open eyes, and are able to run (precocial), but rabbits are born almost hairless with eyes closed (altricial) and don't leave the nest for several weeks.

## RANGE



## TRACKS

Front

Back

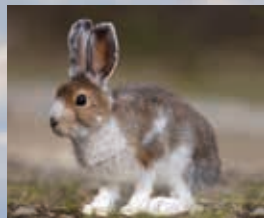


Photo by Tom Reichner

Photo by Howard Sandler

# MASKED SHREW

*Sorex cinereus*

Status: **Common**

**DESCRIPTION:** The masked shrew is grayish-brown in color, with the under parts paler than the upper parts.

**HABITAT:** Masked shrews can be found in a variety of habitats, including forests, open country, and brushland.

**REPRODUCTION:** Masked shrews construct nests out of dry leaves and grasses, usually in stumps or under logs. They produce more than one litter per year with two to 10 young per litter.

**DID YOU KNOW?:** As the most widely distributed species of shrew, they are also known as the common shrew. This is by far the most common of the tiny long-tailed shrew species in Ohio.

## RANGE



## TRACKS



Back



Photo by Phil Myers / <http://Animaldiversity.org>





# **N**ORTH AMERICAN LEAST SHREW

*Cryptotis parva*

Status: **Uncommon**

**DESCRIPTION:** Fur is dense, velvety, and cinnamon in color. The color, small size, and extremely short tail help to distinguish it from other shrews.

**HABITAT:** Least shrews prefer open, grass-covered or brushy areas. It can also be found in marshes.

**REPRODUCTION:** Least shrews nest under debris, underground, and sometimes in beehives. In Ohio, they breed from March to November, with more than one litter per year, and about three to six young per litter.

**DID YOU KNOW?:** Unlike most shrews, the least is somewhat social. In the winter, more than one shrew may nest together for warmth. This species is probably locally common in meadows, but is incredibly easy to overlook.

## RANGE



## TRACKS

Front



Back



Photo courtesy of [Konza.ksu.edu](http://Konza.ksu.edu)

# *Sorex fumeus* SMOKY SHREW

Status: **Concern**

**DESCRIPTION:** Uniformly dull brown except for a bi-colored tail that is yellowish below and brown above. Its feet are pale in color.

**HABITAT:** Smoky shrews generally live in the leaf litter of birch and hemlock forests.

**REPRODUCTION:** After a gestation period of three weeks, two to seven naked, blind young are born in the spring. Another litter may be produced later in the summer.

**DID YOU KNOW?:** Smoky shrews travel and forage in underground tunnel systems, but they usually nest in stumps or logs. These are very secretive small mammals, and much remains to be learned regarding their true status.

## RANGE



## TRACKS

Front



Back



Photo by Phil Myers / <http://Animaldiversity.org>

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# *Sorex hoyi* AMERICAN PYGMY SHREW

Status: **Concern**

**DESCRIPTION:** This tiny shrew has a pointed nose and narrow head. The hair is gray-brown to gray with a lighter colored underbelly.

**HABITAT:** Pygmy shrews can live in a variety of habitats, including wooded and open areas, swamps, grassy clearings, and floodplains.

**REPRODUCTION:** Pygmy shrews produce one litter a year, between June and August, with three to eight young in a litter. The average gestation period is 19 days.

**DID YOU KNOW?:** The pygmy shrew is one of the smallest living mammals. Its weight is about equal to that of a dime. This is thought to be a rare and local mammal in Ohio, but it is an incredibly difficult species to locate.

## RANGE



## TRACKS

Front



Back



Photo by Rudmer Zwerver



# NORTHERN SHORT-TAILED SHREW

*Blarina brevicauda*

Status: **Common**

**DESCRIPTION:** Short, dense, slate-gray fur and a short tail. The snout is short and heavy.

**HABITAT:** These shrews are not restricted to a particular habitat, but they are most likely found in forests, grasslands, marshes, and brushy areas. This may be the most common mammal in Ohio.

**REPRODUCTION:** The breeding season occurs from March to September with females producing up to three litters per year. Gestation periods usually last 21 days and five to eight young are in a litter.

**DID YOU KNOW?:** The salivary glands of the Northern short-tailed shrew produce a venom which helps in subduing prey. Some of the shrew's victims may be as large or larger than the shrew itself. Typical prey are earthworms and insects, but they are known to take crayfish and small birds.

## RANGE



## TRACKS

Front



Back



Photo by Tim Daniel

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# *Scalopus aquaticus* EASTERN MOLE

Status: **Common**

**DESCRIPTION:** Broad front feet with the palms turned outward; lack of external ears. The tiny eyes are covered with a thin layer of skin. Their soft fur is a silvery to slate-gray color. The tail is hairless.

**HABITAT:** Eastern moles burrow underground in areas with moist, sandy loam soil such as lawns, golf courses, gardens, and fields.

**REPRODUCTION:** Breeding takes place in the spring. After a gestation period of about six weeks, four to five young are born. They live in a nest in the tunnel system with the female until they reach maturity at about one month of age.

**DID YOU KNOW?:** The long ridges of tunneled earth over reveal the presence of moles. While the Eastern mole may cause damage to lawns and gardens, they also aerate the soil and eat unwanted insects like Japanese beetle grubs.

## RANGE



## TRACKS

Front



Back



Photo by Mikiwikipikidikipedia/wikipedia.com

# Hairy-tailed Mole

*Parascalops breweri*

Status: **Common**

**DESCRIPTION:** Looks much like the Eastern mole, except it is smaller and has a distinctly hairy tail.

**HABITAT:** Hairy-tailed moles are found in sandy loam soils with good vegetative cover; they avoid heavy, wet soils.

**REPRODUCTION:** Hairy-tailed moles breed once or twice a year. After a gestation period of about four weeks, an average of four young are born. They live in a nest in the tunnel system with the female until they reach maturity at about one month of age.

**DID YOU KNOW?:** Underground tunnels may be used for eight years or more by many generations of these moles. This mole appears to be limited to the eastern half of Ohio.

## RANGE



## TRACKS

Front



Back



Photo by Tim Daniel

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# *Condylura cristata* STAR-NOSED MOLE

Status: **Concern**

**DESCRIPTION:** Easily identified by its nose, which is surrounded by 22 finger-like, fleshy tentacles. The body is dark brown or black and the tail is hairy.

**HABITAT:** Star-nosed moles inhabit low, wet soil near lakes or streams.

**REPRODUCTION:** Male and female star-nosed moles pair up in the fall and remain together throughout the mating season. Only one litter per year is produced with three to seven young being born between April and June.

**DID YOU KNOW?:** Unlike most moles, the star-nosed is semi-aquatic, so many of its tunnels open under the surface of a stream or lake. This bizarre-looking creature is most likely to be found in northeastern Ohio.

## RANGE



## TRACKS

Front



Back



# *Myotis lucifugus* LITTLE BROWN BAT

Status: **Concern**

**DESCRIPTION:** The fur is a sleek, glossy brown ranging from dark brown to reddish brown on the back with a slightly paler underside. The muzzle is furred and the ears are relatively short with a blunt tragus (prominence on middle of external ear). Hairs on the toes extend beyond the claws and there is no calcar, which distinguish this species apart from Indiana bat.

**HABITAT:** As a colonial species, they form large, summer maternity colonies roosting in trees, bat boxes, barns, and buildings. In the winter, the species migrates relatively short distances to hibernaculum (e.g., caves or mines) that provide stable temperatures just above freezing.

**REPRODUCTION:** Mating occurs in the late summer and early fall during fall swarming. Delayed fertilization allows females to store the male sperm through hibernation and fertilize their eggs after emerging. Most females give birth to only one young a year, although some instances of twins have been recorded. Gestation is 50-60 days during spring and summer. Young bats are weaned and able to fly at approximately four weeks of age.

**DID YOU KNOW?:** Most Ohio bats are descriptively little and brown, including the species little brown bat. To determine species identification, experienced scientists often need to observe closer details.

## RANGE

Summer



Winter

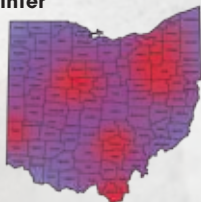


Photo by Geoffrey Kuchera

40



# NORTHERN LONG-EARED BAT

*Myotis septentrionalis*

Status: **Threatened**

**DESCRIPTION:** The fur is similar to little brown bats with less variation in the tones of brown. This species is distinguished from the other *Myotis* species with their slightly larger ears which extend just beyond the tip of the nose when laid forward.

**HABITAT:** In the summer, northern long-eared bats inhabit forests and woodlands with smaller maternity roosts. Females will often move flightless pups every two to three days during the summer. In the winter, the species migrates relatively short distances to hibernaculum (e.g., caves or mines), which provide stable cool temperatures just above freezing.

**REPRODUCTION:** Mating occurs in the late summer and early fall during fall swarming. Delayed fertilization allows females to store the male sperm through hibernation and fertilize their eggs after emerging. Most females give birth to only one young a year. Gestation is 50-60 days during spring and summer. Young bats are weaned and able to fly at approximately four weeks of age.

**DID YOU KNOW?:** Northern long-eared bat populations and other species have been severely affected by white-nose syndrome. In Ohio, populations have declined by over 95 percent.

## RANGE

Summer



Winter



Photo by Jennifer Norris



# INDIANA BAT

*Myotis sodalis*

Status: **Endangered**

**DESCRIPTION:** Similar in appearance to the little brown bat, but this species has duller gray-brown fur, shorter inconspicuous toe hairs, and a keel on the calcar (cartilage near the tail).

**HABITAT:** As a colonial species, they form large summer maternity colonies roosting in larger trees in forests. In the winter, the species migrates relatively short distances to hibernaculum (e.g., caves or mines) that provide stable temperatures just above freezing.

**REPRODUCTION:** Females have one young per year. This species has been known to use shagbark hickory trees for nursery roots, hiding the pups under the peeling bark.

**DID YOU KNOW?:** Indiana bats have been federal listed under the Endangered Species Act since 1967. Populations of this species have been declining because of reductions in available habitat.

## RANGE

Summer



Winter



Photo by Larry Master/MasterImages.org

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# **E** *Myotis leibii* EASTERN SMALL-FOOTED BAT

Status: **Endangered**

**DESCRIPTION:** One of Ohio's smallest bats, with brownish fur, a black facial mask, small black ears, a keeled calcar, and a tiny foot measuring 6-8 mm.

**HABITAT:** In the summer, this species is thought to favor rocky, hilly or even mountainous areas. In the winter, they hibernate in mines and caves, generally near the entrance where the temperatures are colder.

**REPRODUCTION:** Mating occurs in the late summer and early fall during fall swarming. Delayed fertilization allows females to store the male sperm through hibernation and fertilize their eggs after emerging. Most females give birth to only one young a year.

**DID YOU KNOW?:** This species is hardy, entering hibernacula sites last and exiting first, as well as occupying the coldest areas of a hibernaculum (the entrances).

## RANGE

Summer



Photo by Larry Master/MasterImages.org

# TRI-COLORED BAT

*Perimyotis subflavus*

Status: **Concern**

**DESCRIPTION:** The smallest bat in the Midwest. Fur has three distinct color bands, with the base being the darkest color, then the lightest shade, and the tip being the middle shade. Overall color varies from a pale yellowish-brown to a dark reddish-brown. The forearms are distinctly pinkish and the wing membrane is black.

**HABITAT:** Tri-colored bats prefer open forests near water in the summer. This species hibernates in mines, caves, and rock crevices.

**REPRODUCTION:** Mating occurs in the fall and is followed by delayed fertilization. Females birth generally two pups a year (range from one to three young per year).

**DID YOU KNOW?:** Formally known as the Eastern Pipistrelle, this is Ohio's smallest bat species, and can be mistaken in flight for a large moth.

## RANGE

Summer



Winter





# *Eptesicus fuscus* BIG BROWN BAT

Status: **Concern**

**DESCRIPTION:** Uniformly light to dark brown on the upper parts, with slightly paler under parts. The fur is relatively long and silky, and the muzzle is not furred. The ears and wing membranes are black. Big browns have relatively large heads with shorter rounded ears compared to the *Myotis*.

**HABITAT:** In the summer, big brown bats are found in a variety of habitats, including fields, forest openings, urban and/or suburban areas, and around water. In the winter, big brown bats hibernate in caves, mines, and even in attics.

**REPRODUCTION:** Mating starts in the fall and is followed by delayed fertilization. They produce two young per year. Females carry the nursing young for one to two days, then leave them in the roost, returning to nurse after feeding each night. The pups are weaned at three to four weeks old.

**DID YOU KNOW?:** Big brown bats are the second largest species of bat in Ohio. It is also one of the most commonly seen species of bat as it comes out earlier than other species in the evening.

## RANGE

Summer



Winter



Photo by Steven Russell Smith

# *Nycticeius humeralis* EVENING BAT

Status: **Special Interest**

**DESCRIPTION:** A medium-sized brown bat that looks like a smaller version of the big brown bat. The hairs on its back are a bronze-brown, whereas the hairs on its underside are slightly lighter. The muzzle is hairless and black.

**HABITAT:** Evening bats prefer forest roosting in large colonies to raise pups and forage in open habitats in the summer. In the winter, this species migrates to southern U.S. or even further south to hibernate.

**REPRODUCTION:** It is thought that this species mates in the fall and has delayed fertilization, but many details of this species are unknown.

**DID YOU KNOW?:** This southern species is often misidentified as a small, big brown bat. This is the only bat in the *Nycticeius* genus in United States, and Latin origins of the genus name means “belongs to the night”.

## RANGE

Summer



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Photo by Merlin D. Tuttle/Bat Conservation International

# *Lasiurus borealis*

## EASTERN RED BAT

Status: **Concern**

**DESCRIPTION:** Males are bright red in color and females are usually a yellowish- red. Dense, soft fur covers the body, including the uropatagium (the skin connecting the legs and tail).

**HABITAT:** Red bats roost among the foliage in forests, forest edges, hedgerows, or in tree bark. Often the species roosts near the ground and move their location every couple of days. In the winter, the species migrates in large groups south. Hibernation sites are not well documented for this species.

**REPRODUCTION:** Mates in the fall before migration and exhibits delayed fertilization. Eastern red bats can produce and nurse up to four or five young per year, which is fairly rare for bats. Newborns cling to their mothers while they are flightless.

**DID YOU KNOW?:** Red bats migrate to warmer southern states for the winter. As the most colorful Ohio bat, they may be seen foraging high over trees at dark.

### RANGE

Summer



Photo by Merlin D Tuttle  
Bat Conservation International



# HOARY BAT

*Lasiurus cinereus*

Status: **Concern**

**DESCRIPTION:** The largest bat in Ohio, this species has dark fur with white tips giving it a frosted appearance. The hoary has full, soft fur all over its body, including the uropatagium. The head of this bat is large with short, rounded ears with distinct black borders. The throat fur is lighter yellowish, and the wrists and shoulders have whitish fur.

**HABITAT:** In the summer, hoary bats roost in the foliage of deciduous and coniferous forests. It is thought that in the winter the species migrates large distances south to hibernate.

**REPRODUCTION:** Breeding occurs in late fall, exhibiting delayed implantation until spring. Generally, this species produces two young per year, but they may have as many as four to five pups. Females locate their roosts with ease by vocalizations of her young.

**DID YOU KNOW?:** Hoary bats are Ohio's largest bat, with a wingspan of 12-13 inches. They are also one of several species that migrate south in the winter to hibernate.

## RANGE

Summer



Photo by Jim McCormac

48



# SILVER-HAIRED BAT

*Lasiorycteris noctivagans*

Status: **Concern**

**DESCRIPTION:** A medium-sized bat, with black fur that has white tips giving it a frosted appearance. The ears and wing membranes are black.

**HABITAT:** In the summer, silver-haired bats are found in mature forests with a water source nearby. In the winter, the species migrates and is found to generally hibernate in trees and rock crevices.

**REPRODUCTION:** This is a solitary species, and not much is known about their reproduction in Ohio. They are thought to produce two young per year.

**DID YOU KNOW?:** Silver-haired bats are one of the slower flying bats in Ohio. This species wing morphology is adapted to long distance migration.

## RANGE

Summer



Photo by Merlin D Tuttle  
Bat Conservation International

# *Lynx rufus* BOBCAT

Status: **Uncommon**

**DESCRIPTION:** The coat color varies to include light gray, yellowish brown, buff, brown, and reddish brown. The ear tufts are short and the tail is bobbed (short) with black banding on the upper surface. The bobcat's larger cousin, the lynx, which is not found in Ohio, has longer ear tufts and a black tip on its tail.

**HABITAT:** A variety of habitats, including forests, old fields, and brush land. They often sleep in hidden dens, hollow trees, or rocky crevices.

**REPRODUCTION:** Breeding may occur at anytime throughout the year; mostly it occurs from December through May. The young are fully weaned at eight weeks and they will disperse and begin life on their own in the fall and late winter.

**DID YOU KNOW?:** Bobcats had largely disappeared from Ohio by 1900. Recovery of forests and other factors have allowed the cats to rebound, and there were over 400 reports in 2013.

## RANGE



## TRACKS

Front



Back



Photo by Geoffrey Kuchera

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# COYOTE

*Canis latrans*

Status: **Common/Game**

**DESCRIPTION:** A slender animal, very similar in appearance to a medium-sized dog and much smaller than a wolf, a species not found in Ohio. The majority of coyotes are gray, though some show a rusty, brown or off-white coloration. It has a bushy tail which is usually tipped with black.

**HABITAT:** The coyote's strength is that it can adapt and exploit most any habitat to its advantage, including forests, clearcuts, and woodlots in rural and urban areas.

**REPRODUCTION:** Mating occurs between late January and March. A litter of about six young are born two months later. Both adults hunt for food and feed the young. At about three weeks of age, the young leave the den under the watch of the adults.

**DID YOU KNOW?:** Although coyotes are small, they are the largest of the three members of the Canid (dog) family found in Ohio. The other two canids are the gray fox and the red fox.

## RANGE



## TRACKS

Front



Back



Photo by **The Green Man**/Shutterstock.com



# RED FOX

*Vulpes vulpes*

Status: **Common/Game**

**DESCRIPTION:** Most commonly a rusty-red or reddish yellow color from its face down its back and sides. Its undersides, throat area, and cheeks are white. The legs, feet, and outside of the ears are black; its long, bushy tail has black hairs mixed with the red and ends in a white tip.

**HABITAT:** Red foxes are found in a variety of habitats, including mixed, cultivated, and wooded areas, as well as brush lands.

**REPRODUCTION:** Mating occurs in the winter and a litter of one to 10 kits is born in the spring. The male brings food to the nursing female until the young are weaned. They accompany the adults on hunting trips where they learn basic survival skills.

**DID YOU KNOW?:** Red foxes are solitary animals and do not travel in packs like wolves, which are not found in Ohio. They also hunt like cats because they stalk their prey. Black and silver forms of the red fox occur occasionally.

## RANGE



## TRACKS

Front



Back



Photo by Pim Leijen

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# GRAY FOX

*Urocyon cinereoargenteus*

Status: **Game**

**DESCRIPTION:** The coat color is a salt and pepper gray. A black stripe runs from the base of the tail and ends in a black tip. Its belly is white and a reddish band separates it from the gray sides.

**HABITAT:** Gray foxes live in mostly wooded areas and partially open brush land with little human presence.

**REPRODUCTION:** Breeding takes place in early spring. An average of four kits are born after a 53-day gestation period. While the female is nursing her offspring, the male will bring her food. By fall of the same year, the family unit breaks up when the young are mature enough to go out on their own.

**DID YOU KNOW?:** Gray foxes are the only canids (dogs), in North America that can climb trees. This species appears to be declining in Ohio.

## RANGE



## TRACKS

Front



Back



Photo by Tim Daniel



# *Ursus americanus* AMERICAN BLACK BEAR

Status: **Endangered**

**DESCRIPTION:** Appears in a range of color forms that include black, chocolate brown, cinnamon brown, blue-black, and even white. Its face, in profile, is straight, a characteristic that helps differentiate it from the dish-faced grizzly bear, which is not found in Ohio.

**HABITAT:** Heavily wooded habitats, ranging from swamps and wetlands to dry upland hardwood and coniferous forests; prefers wooded cover with a dense understory.

**REPRODUCTION:** Black bears breed in June and July, but implantation of the egg is delayed until the fall. The sow (adult female) gives birth to two or three cubs during the winter while denning. The young remain with the female for the first year and a half of their lives. Bears usually give birth every other year.

**DID YOU KNOW?:** Contrary to popular belief, bears primarily eat herbaceous material, and only a small portion of their diet consists of animal matter. The Ohio population has increased markedly in recent decades. About 88 bears were reported in 2014.

## RANGE



## TRACKS

Front



Back



Photo by Tom Reichner

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# NORTH AMERICAN RIVER OTTER

*Lontra canadensis*

Status: **Game**

**DESCRIPTION:** Highly adapted for swimming, with a long, tapered body and short, dense fur. Their large feet are completely webbed. The tail is flattened and muscular.

**HABITAT:** Otters live in aquatic habitats, including rivers, lakes, and marshes.

**REPRODUCTION:** Breeding occurs in early spring following the birth of a litter. Young otters are self-sufficient by the time they are five to six months, but the family group remains intact for at least seven or eight months or until just prior to the birth of a new litter.

**DID YOU KNOW?:** The otter's tail is important in the animal's swimming ability and makes up about 50 percent of its total body length. Otters had become very rare by 1900. A reintroduction program initiated by the Division of Wildlife in 1986 was successful, and otters are once again fairly common.

## RANGE



## TRACKS

Front

Back



Photo by Tory Kallman



# ERMINE

*Mustela erminea*

Status: **Concern**

**DESCRIPTION:** Has a brown coat in the summer and white coat in the winter. They are small, measuring seven to 13 inches in length. The tail is less than 40 percent of its total body length.

**HABITAT:** Ermines have a wide range that includes open woodlands, brushy areas, grasslands, wetlands, and farmlands.

**REPRODUCTION:** Ermines mate in the spring and early summer. A litter of four to eight young is born between April and May after a gestation period of about 280 days due to delayed implantation.

**DID YOU KNOW?:** Ermine are also known as short-tailed weasels. They look similar to the long-tailed weasel except that their tail is less than 40 percent of their body length.

## RANGE



## TRACKS

Front  
Back



Photo by **Outdoorsman**/Shutterstock.com

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Photo by **Stephan Morris**





# *Mustela frenata* LONG-TAILED WEASEL

Status: **Common/Game**

**DESCRIPTION:** Has a brown coat in the summer and some animals develop a white coat in the winter. Distinguished by its yellowish-white under parts and the black tip on the end of its long, bushy tail. The tail is more than 40 percent of its total body length.

**HABITAT:** Long-tailed weasels are found in most land habitats near water, but they avoid dense forests.

**REPRODUCTION:** Long-tailed weasels exhibit delayed implantation. Breeding occurs in the summer, but the egg does not begin to develop until March, making the gestation period between 205 and 337 days. Litters of four to eight are born in April or early May.

**DID YOU KNOW?:** Long-tailed weasels are very aggressive. They will even threaten animals much larger than themselves. They are also good swimmers. Probably only animals in northernmost Ohio turn white in winter.

## RANGE



## TRACKS

Front

Back



Photo by Wildphoto3/Shutterstock.com

# *Mustela nivalis* LEAST WEASEL

Status: **Game**

**DESCRIPTION:** Has a brown coat in the summer and some animals develop a white coat in the winter. It is distinguished from other weasels by the lack of a black tip on the end of its short tail, and its tiny size.

**HABITAT:** Least weasels inhabit open areas such as meadows, marshes, brushy areas, and agricultural fields. Avoids wetlands.

**REPRODUCTION:** Most breeding occurs in the spring and late summer, although they may reproduce any time of the year. Multiple litters of four to five young may be produced in a year.

**DID YOU KNOW?:** The least weasel is the smallest member of the weasel family and the smallest carnivore in the world. It is small enough to enter mouse and vole burrows, and can eat its own weight in food a day.

## RANGE



## TRACKS

Front



Back



Photo by Ainars Aunins

58



# *Neovison vison* AMERICAN MINK

Status: **Common/Game**

**DESCRIPTION:** Has a long, narrow body with a bushy tail. The fur is usually a rich chocolate brown, but can look almost black. Looks much like a large ferret, but wild ferrets do not occur in Ohio.

**HABITAT:** Mink are found near running waters of streams and rivers and the standing waters of marshes and lakes, especially in wooded or brushy areas.

**REPRODUCTION:** Mating occurs in the winter. The female usually makes a den in a burrow along the bank of a stream or lake, or under a stump or log. The gestation period is variable due to delayed implantation.

**DID YOU KNOW?:** Like its distant relative the skunk, the mink has anal scent glands which can excrete a fluid that smells like musk. Mink are voracious predators, often killing more than they can eat and caching extra prey in burrows.

## RANGE



## TRACKS

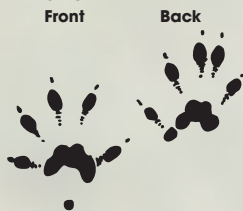


Photo by [Erni/Shutterstock.com](https://www.shutterstock.com)



# *Taxidea taxus* AMERICAN BADGER

Status: **Concern**

**DESCRIPTION:** A stocky animal with a white stripe that extends back over the head from the nose. White fur surrounds the eyes and black cheek patches, or “badges,” for which they are named. The rest of the body is a shaggy mix of silvery gray, black, and buff colors and the feet are black.

**HABITAT:** Badgers prefer short-grass habitats, such as fields and pastures, typically with dry sand or loamy soils.

**REPRODUCTION:** Though mating occurs earlier, implantation of the fertilized egg is delayed until winter. One to five young are born in the spring, in a grass lined, underground nest. They are lightly furred and blind at birth.

**DID YOU KNOW?:** The badger has many adaptations for burrowing in the soil, including webbed toes, long claws, and an extra transparent eye membrane. Their large burrows are conspicuous and often the best evidence that badgers are in the area.

## RANGE



## TRACKS

Front



Back



Photo by [Outdoorsman/Shutterstock.com](#)

60



# *Mephitis mephitis* STRIPED SKUNK

Status: **Common/Game**

**DESCRIPTION:** The hair is long and black, with a broad patch of white on its head and shoulders. Two white lines forming a “V” from the shoulder area may extend part way or all of the way to the base of the bushy tail.

**HABITAT:** Skunks are found in somewhat open areas with a mixture of habitats such as woods, grasslands, and agricultural clearings.

**REPRODUCTION:** Skunks mate in late February through March. Litters can be from two to 10 young. This group will stay together until the fall when the young will go off on their own.

**DID YOU KNOW?:** Skunks do not usually discharge the foul smelling contents of their scent glands unless threatened. They are highly nocturnal and not often seen, but the shallow divots created by their digging for beetle grubs is a sign of their presence.

## RANGE



## TRACKS

Front



Back



Photo by Critter Biz





# Raccoon

*Procyon lotor*

Status: **Common/Game**

**DESCRIPTION:** Gray or black in color and pale gray underneath. The black mask is rimmed on top and bottom with white. The raccoon's tail has four to six black or dark brown rings.

**HABITAT:** Raccoons live in urban and suburban wooded areas with big trees and water close by.

**REPRODUCTION:** Raccoons mate from February through March in Ohio. Typically only one litter is produced each year, but there can be exceptions to the rule. The young raccoons will stay with the female through the fall or winter.

**DID YOU KNOW?:** Male raccoons are called boars and females are called sows. While raccoons do not hibernate, they become less active in winter and spend much of their time holed up in dens.

## RANGE



## TRACKS

Front



Back



Photo by Jimmy Knapp

62





# WHITE-TAILED DEER

*Odocoileus virginianus*

Status: **Game**

**DESCRIPTION:** Has two seasonal coats; a reddish-tan spring and/or summer coat and a grayish winter coat. White patches are found around the eyes, on the throat, belly, tail (underside), and insides of the legs. When running, the large white tail, flipped up high, can be the easiest way to spot the deer.

**HABITAT:** A variety of habitats, including woods, farmlands, brushy areas, dense thickets, and edges.

**REPRODUCTION:** Courtship activities among deer begin in mid-October. Bucks (males) will chase does (females) over a period of five or six days prior to mating. Eventually the two will separate and the buck will go on to breed with more does before the breeding, or rutting, period ends. The female has one or two fawns in the summer.

**DID YOU KNOW?:** Young male deer leave their mother and become solitary after one year, but young females often stay with the mother for two years.

## RANGE



## TRACKS



Photo by Tom Reichner

## EXTIRPATED MAMMALS

*Extirpated means locally extinct, and while the mammals on the following list no longer occur in Ohio, they are still found elsewhere. The primary reasons for the loss of these species were habitat loss, and persecution by humans in the days before wildlife laws existed.*

**GRAY WOLF**, *Canis lupus*. Wolves were common throughout much of the state until 1800. Their predatory habits brought them into great conflict with people. Bounties for wolf hides were paid by the state, and the gray wolf was eradicated by the 1850's.

**AMERICAN MARTEN**, *Martes americana*. These large weasels were widely distributed, at least in northern Ohio, prior to European settlement. Martens are denizens of large tracts of sparsely populated older-growth forests. Wholesale logging of forested areas followed by human settlement drove them from the state by 1850 or so.

**FISHER**, *Martes pennant*. An even larger weasel than the marten, fishers disappeared around the same time and for the same reasons as the marten. There are faint signs that fishers may return, though. There have been a few records in recent years in eastern Ohio. Successful reintroduction programs in Pennsylvania and West Virginia may account for the Ohio sightings, as populations in those states continue to expand.

**COUGAR**, *Puma concolor*. Also known as mountain lion, panther, or puma, the cougar was probably widely distributed in Ohio prior to European settlement. This species has the largest distribution of any mammal in the western hemisphere, but it has been driven out of many regions due to habitat loss and settlement by humans. Cougars probably disappeared from Ohio by the mid-1850's.

Fisher

Photo by Geoffrey Kuchera



**CANADIAN LYNX**, *Lynx canadensis*. Ohio was at the extreme southern limits of this northern cat's range, and it was limited to extreme northeast Ohio. Expanding human settlement and habitat changes had pushed the lynx from the state by the middle of the 19th century.

**SOUTHERN RED-BACKED VOLE**, *Clethrionomys gapperi*. This beautiful vole, with its rufous-red pelage, was never common or widespread. It is a northern species, reaching the southern limits of its range in northeastern Ohio. There are only a few records, the last from 1960. Targeted efforts to locate this species in recent years have failed.

**ELK**, *Cervus elaphus*. This mega-herbivore is one of the world's largest deer species. The largest bulls can weigh nearly half a ton. Elk were widespread in the state prior to European settlement, but were vanquished by overhunting, habitat loss, and expanding human settlements by the early 1800's.

**AMERICAN BISON**, *Bison bison*. Prior to European settlement, bison ranged widely throughout the state, in large numbers. As the human population expanded, hunting pressure became increasingly heavy. The last bison shot in Ohio was in Lawrence County in the same year that Ohio achieved statehood, 1803.



Elk

Photo by Paul Staniszewski



# MAMMALS OF OCCASIONAL OCCURRENCE

**NORTH AMERICAN PORCUPINE**, *Erethizon dorsata*. The second-largest rodent in North America, porcupines occur across the northern U.S. and Canada. They range near Ohio in Michigan and Pennsylvania, and were once common in northernmost Ohio. While porcupines disappeared by 1900, a number of recent reports suggests they may be recolonizing from the east.

**ROOF RAT**, *Rattus rattus*. Sometimes known as the black rat, this rodent arrived here from its native Eurasian range early in the settlement of Ohio. Like the brown rat, it got here as stowaways in people's cargo and commodities shipments. Roof rats did not seem to become widely established and were soon displaced once the larger more aggressive brown rat arrived.

**NUTRIA**, *Myocastor coypus*. This large aquatic rodent is similar to a beaver or muskrat, and is indigenous to Central and South America. There were a number of attempts to establish nutria fur farms in the early 1930's, and some animals escaped or were released. Feral nutria were reported from 14 counties, but fortunately this species did not persist. Nutria colonies can be damaging to the ecology of wetlands in areas where this mammal is not native.

**ORD'S KANGAROO RAT**, *Dipodomys ordii*. Efforts were made in the early 1900's to establish this species of the western Great Plains along the shores of Lake Erie in Lake County. The site of the introduction was the area now protected as Headlands Dunes State Nature Preserve. The populations apparently thrived for a few decades, but vanished by the 1960's if not earlier.



Nutria

Photo by Tomas Kouba

**MEXICAN FREE-TAILED BAT**, *Tadarida brasiliensis*. Also known as the Brazilian free-tailed bat, this species has turned up at least two times in Ohio. Some bat species are powerful flyers capable of extended flights, and can turn up far from their normal range. This species' normal range is from the southern half of the U.S. south through much of South America.

**GRAY BAT**, *Myotis grisescens*. This species is rare and local in a limited range, from Kentucky and Missouri south to the Gulf Coast. There is one Ohio record, along the Ohio River.

**RAFINESQUE'S BIG-EARED BAT**, *Corynorhinus rafinesquii*. There are only two Ohio specimens, both from Adams County, collected in 1953 and 1960. This species' range covers much of the eastern U.S., from Kentucky south to Florida. While there is no evidence that it is a regular member of Ohio's bat fauna, its core range lies very near Ohio.

**SEMINOLE BAT**, *Lasiurus seminolus*. This migratory tree bat is very similar to the red bat. It has turned up in Ohio on a few occasions. The core range is from southern Tennessee south to the Gulf Coast, west to eastern Texas, and east to the Carolinas.



Rafinesque's Big-eared Bat  
Photo by Eric Isselee

# EXTINCT MAMMALS

Mammal-watching in what is now Ohio would have been very different during the Pleistocene Epoch. The Pleistocene, which is popularly known as the “Ice Age”, began about 2.5 million years ago. A cooling climate stimulated the formation of massive glaciers, which eventually flowed southward into this region. As the last of the Pleistocene glaciers retreated from Ohio about 14,000 years ago, they left a greatly altered landscape thanks to the bulldozing effect of the giant ice sheets. The habitats left in the glacier’s wake were boreal forests, bogs and other peatlands – habitat types that one would now have to travel far to the north to find.

Post-glacial animal life featured mega-fauna: huge mammals such as the woolly mammoth, giant ground sloth, mastodon, short-faced bear, giant beaver, long-horned bison, stag-moose, and others. The mammoth is related to African elephants, and was about the same size. Males could exceed six tons in weight. Mastodons were even larger, with the largest males weighing over 15 tons and standing nearly ten feet tall at the shoulders. The giant beaver could exceed seven feet in length and weigh 275 pounds – many times the size of the American beaver familiar to modern-day humans. Large specimens of the short-faced bear could weigh over a ton and stand 12 feet in height when reared up on the back legs. Stag-moose belong to the same family as the familiar white-tailed deer, but dwarfed the deer. A bull stag-moose might weigh nearly a ton and tower to 8 feet in height – many times larger than the largest buck white-tail. All of these mammals went extinct

about 10,000-12,000 years ago, at the onset of the Holocene Epoch. One theory for their disappearance is overhunting by the earliest Homo sapiens to arrive in North America, a group known as Paleoindians. These people entered North America via the Bering Land Bridge in the same time period that the prehistoric mega-fauna went extinct. A rival theory implicates climate change. Rapidly warming weather on the heels of the Ice Age did not favor large cold-hardy mammals, and they could not adapt rapidly enough to the changing climate. Many scientists feel that it was probably a combination of these two factors that ultimately did in the mastodons and other Ice Age mega-fauna.



Woolly Mammoth  
Artwork by Nicolas Primola



# MAMMALS AND PEOPLE

People have long surrounded themselves with other mammals. The earliest domesticated mammals were probably dogs, originally culled from wild wolves and selected and bred for desirable traits. Wolf-dogs were probably tamed at least 12,000 years ago, with the original purpose of helping their human masters to hunt large game. Today, there are nearly 350 breeds of dogs, representing all manner of sizes, shapes, and uses. The 50+ breeds of cats can be traced back to the domestication of the African wildcat in the Middle East about 10,000 years ago. As agrarian communities began to flourish, cats probably served a valuable role in controlling rodents, a function they still perform today. Americans keep an estimated 150 million pet dogs and cats. Perhaps 9 million horses keep equestrians occupied. An army of 90 million cattle provides steak and milk products. The survival and well-being of *Homo sapiens* depends in large part on our fellow mammals.



Undomesticated wild mammals are hugely important to the ascent of man. In North America, it was the beaver that was a major catalyst for initial exploration and settlement by European colonists. By the early 1600's tens of thousands of beaver pelts were being harvested annually in the northeastern states. Depletion of eastern populations of this valuable furbearer sparked westward exploration as trappers sought new stocks. Several decades prior to the famed 1849 California Gold Rush, there was a "California Fur Rush" spawned by the thirst for beaver pelts. The Hudson's Bay Company was founded in 1670 in large part to exploit trade in beaver pelts and other furs. John Jacob Astor launched the rival American Fur Company in 1808, and it made him a fortune – Astor became the first multimillionaire in the United States. While trapping is much reduced from the earliest days of North American exploration, the craft still has many practitioners. Hunting is another way in which mammals contribute to the economy and serve as an important source of food. White-tailed deer, rabbits, squirrels, and raccoons are popular game mammals. Hunting and trapping contributes over \$850 million annually to Ohio's economy.

# MAMMAL ECOLOGY

Mammals are intimately intertwined with natural systems; their roles are vital to maintaining ecological balance. Some species serve as prey for predators, other species are predators. Mammals are important dispersers of plants. Chipmunks, squirrels, and mice are hoarders of acorns, hickory nuts, beechnuts and many other species of plant fruit. They lose plenty of seeds in the process, and thus are important in spreading plant populations. Beavers are engineers extraordinaire and their dams often create highly diverse wetland communities that greatly spike local biodiversity. Muskrats are important in maintaining openings in otherwise dense marshes by harvesting prodigious amounts of cattails and other aquatic plants. Muskrat-managed wetland openings spike wildlife diversity. Bats consume extraordinary numbers of insects and are an essential check and balance on insect species that could otherwise overwhelm their environments. Small rodents, especially mice and voles, are a major food source for carnivores. Meadow voles, for example, have boom and bust cycles. When vole populations are at peaks, tremendous numbers of wintering hawks and owls can congregate around habitats rich in voles. Burrowing mammals such as groundhogs, moles, and thirteen-lined ground squirrels create warrens of tunnels that may be used by other animal species, including foxes, small rodents, snakes, crayfish, and various insects.

Eastern Fox Squirrel  
Photo by Kenneth Keifer





In general, most mammals are “keystone species” – organisms whose behavior and actions have a disproportionate impact on their localized environment. Their presence is critical to the ecological well-being of the habitats in which they live, and their disappearance is likely to have dire consequences for many other organisms. Even in death, mammals are important. Many species of scavengers make quick work of carcasses. While vultures, opossums, raccoons and other large species are conspicuous carrion consumers, they are but the tip of the iceberg. Numerous species of insects such as blow flies and flesh flies, and burying, carrion and rove beetles, are just a few of the myriad insects that help dispose of carcasses. In turn, these insects often become food for other animals.



Turkey Vulture  
Photo by Jim McCormac



## MAMMAL UPS AND DOWNS

Following colonization of the Ohio Country by Europeans, the original tapestry of Ohio's pre-settlement habitats was rapidly altered. Historically, ninety-five percent of the state was swathed in forest: oak-hickory woodlands on high ground, beech and maple on richer soils, and elm-ash associations on poorly drained sites. What wasn't woodland was largely prairie, which once blanketed about 1,500 square miles of Ohio. Various wetland types covered nearly a fifth of the state. By the late 1800's, forest cover had been reduced by nearly 90%. To date, about 90% of our wetlands have been lost. The original prairie has been hardest hit. Over 99% of this ecosystem, which harbored some of the greatest biodiversity in North America, has been destroyed.

Such wholesale habitat alteration had profound impacts on mammal populations. At one time, American elk and bison were common in Ohio. These megafauna disappeared by the 1830's. The gray wolf was common in the state prior to the 1800's, but had probably vanished by the mid to late 1800's. Mountain lions and lynx also roamed pre-settlement Ohio forests, but they too largely disappeared by the mid-1800's. Snowshoe hares occupied the extreme northeast corner of the state, but vanished in the 1800's.

Not all is gloom and doom, though. Several other mammal species were vanquished from Ohio on the heels of the *Homo sapiens* invasion, but have returned, or show signs of



Bison

Photo by Jane Rix

a comeback. As Ohio's forests have recovered – about one-third of the state is now wooded – several forest-dependent mammals have staged comebacks. Bobcats had probably largely disappeared by 1900. Several documented reports in the 1960's and '70's offered hope that the charismatic little wildcats might return. And return they have. There were 200 verified sightings in 36 counties in 2013, mostly in southeastern Ohio, along with an additional 236 unconfirmed sightings. Evidence suggests that black bears were common prior to 1850, but the last one was reportedly killed in Paulding County in 1881. Reports started to surface in the late 1900's and in 2014 an estimated 88 bears were reported. River otters were probably common throughout Ohio prior to settlement, but had become very rare by the onset of the 20th century, and may have vanished by 1980. In 1986, the Ohio Division of Wildlife began an otter reintroduction program. The results were swift and stunningly successful. As many as 5,000 of the large charismatic weasels now populate the state and it has been removed from the endangered list.

**Bobcat**

Photo by **Tim Daniel**





# MAMMAL DISEASES

*It is part of the Ohio Division of Wildlife's mission to manage wild animal populations and their habitats and to ensure that they are healthy and benefit the citizens of Ohio. We take this mission seriously and want to update our sportsmen and women with current information about these diseases.*

## **CHRONIC WASTING DISEASE**

Chronic wasting disease (CWD) is a fatal disease of the central nervous system of mule deer, white-tailed deer, Rocky Mountain elk, and moose. CWD is a prion disease (not a bacteria or virus) caused by abnormal proteins that ultimately destroy brain tissue. This type of disease is known as a transmissible spongiform encephalopathy (TSE).

In early stages of infection, animals may not show any clinical signs of the disease. Except in the later stages of the disease, most deer with CWD do not appear sick, typically only displaying subtle behavioral changes. As the disease advances, animals will begin to lose body condition and behavioral changes become much more pronounced. Deer with late-stage CWD will often appear emaciated or "boney" – thus the name "wasting disease."

Research has shown that CWD may be transmitted through direct contact (animal-to-animal) and indirectly from the soil (or other surface) to the animal. Since transmission can be facilitated via the movement of carcasses and animal parts, a number of states (including Ohio) have regulations on carcass transportation. Additionally, while the risk of disease transmission through the use of deer urine or other lures is currently unknown, hunters are discouraged from using these products.

There is no strong evidence that CWD affects humans, however, hunters can take some common-sense precautions, such as not harvesting deer that appear sick or otherwise abnormal and wear-

ing rubber gloves while field dressing and processing deer.

The Division of Wildlife, along with the Ohio Departments of Agriculture (ODA) and Health, and USDA Animal and Plant Health Inspection Service Veterinary Services (APHIS-VS) expanded the surveillance that has been conducted biannually for tuberculosis in addition to ODNR's existing, aggressive monitoring for disease.

Anyone who sees deer that appear to be sick or are displaying abnormal behavior should immediately report the occurrence to the Division of Wildlife.

## **RABIES**

Rabies is caused by a virus that can be contracted by all mammals, including humans. Wild animals most commonly infected in Ohio are raccoons, skunks, foxes, and bats. People and their pets are at risk to contract rabies from exposure through contact with wild animals.

Symptoms include: Change in behavior; frothing or slobbering from the mouth; uncoordinated movements; spasms; tremors; and paralysis.

The best protection against rabies is prevention. Do not allow pets to roam free. All furred pets should be vaccinated. Do not feed, touch, or adopt wild animals as pets, and be cautious of stray dogs or cats.



## WHITE NOSE SYNDROME

White nose syndrome (WNS) is caused by a cold-loving fungus, *Pseudogymnoascus destructans* (PD). Although PD in different life stages can be found year-round on infected bats (sometimes only visible through a microscope), the disease is most obvious during cold winters while the bats are hibernating. During the winter, the cold-loving fungus grows exhibiting white tufts on the muzzles (hence the name) and wing membranes of infected bats. However, if bats are aroused they may not display the typical signs of white-nose syndrome. Despite many scientists across North America and Europe actively evaluating the bat species that are most affected, researching the disease, surveying caves for the presence of the species, and evaluating strategies for disease management, there are still many unknowns about this disease.

One big question still unanswered fully-- how to prevent WNS from killing bats. It is thought that the PD fungus is not unlike other skin fungi, such as ringworm or athlete's foot consuming dead skin cells. However, unlike these other skin fungi, PD also consumes the vital and sensitive living skin cells on a bat's wing membrane. So, it itches and hurts a lot—and is enough to waken hibernating bats, who burn precious fat reserves every time they stir from their hibernation. It has been estimated that one of these non-essential awakenings (bats do sometimes naturally wake during hibernation) uses up the equivalent of one month's fat reserve used during hibernation. Disturbed frequently by the irritating fungus, hibernating bats quickly deplete their energy reserves and begin to starve. Some bats may also seek to explore the winter skies for insects and freeze to death. Wing membranes

on bats provide more than the functional flight role, the membrane is critical in preventing water loss during hibernation, exchange of gas, maintaining blood pressure, and providing heat exchange. Although some suggest that bats are literally irritated to death, the fungus on this critical organ likely impacts the overall health of infected bats which reduces their survival.

The Division of Wildlife is working cooperatively with partner agencies to continue to monitor bat population in Ohio, survey for WNS, and implement management strategies in attempt to reduce the spread of WNS. These hibernacula counts can provide indices of changes in bat winter populations. In Ohio, our hibernacula survey results from pre-WNS (pre-2011) to the most current (2014, post-WNS) results, suggest an 85% decline in the winter bat population. Additionally, from 2011 and 2014, the DOW and volunteers have conducted standardized acoustic surveys across the state to evaluate our summer bat population numbers and distribution. Similar to the recorded declines in Ohio hibernacula, the summer declines documented during the acoustic surveys are potentially also indicative of declining numbers of bats as a result of WNS.

For more information on these and other mammal diseases, visit [wildohio.gov](http://wildohio.gov).



# MAMMAL SCAT

“Scat!-starts with an ‘s’ and ends with a ‘t’. It comes out of you and it comes out of me. I know what you’re thinking, but don’t call it that. Be scientific and call it scat! If you want to find out what animals eat, take a look at what they excrete. Found in their scat are all kinds of clues, parts of the food that their body can’t use.”

Next to tracks, scat is one of the best clues that scientists and wildlife enthusiasts can use to learn more about the mammals found in their area. And this thirty year old camp song is a great way to help kids understand that scat can be a useful tool to help identify not only what local mammals are eating, but what mammal species are in the area, how healthy they are, where they travel, and more.

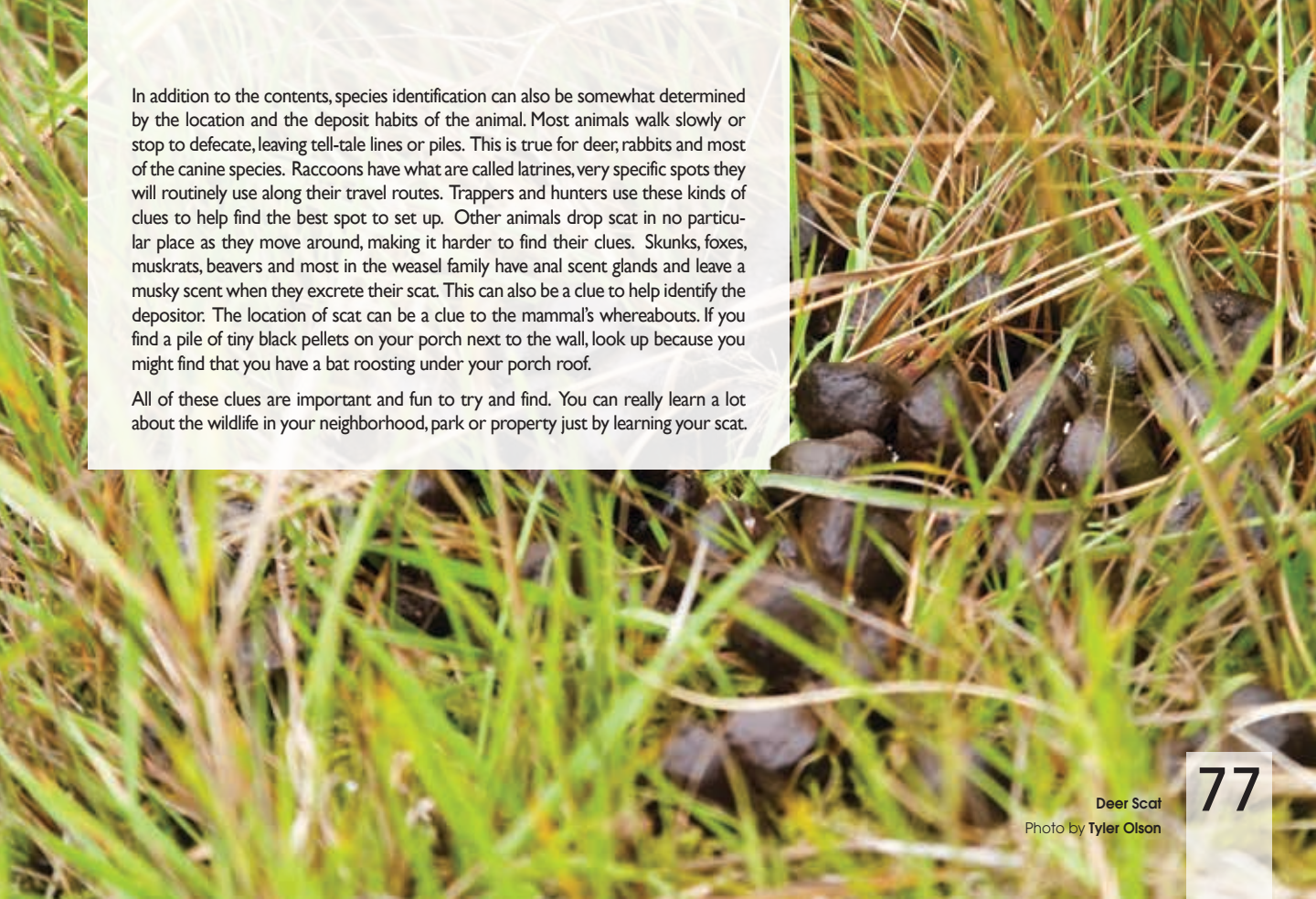
Biologists can identify an animal in the area by the size and shape of their scat, in addition to other clues like tracks. Some scat are tubular in shape, others are pellets. The larger the scat, the larger the animal and vice versa. Obviously, this can change depending on the health of the animal or their reaction to something in their diet. A carnivore tends to have more fur, feathers and bones in their scat. An herbivore will show hulls of seeds and other indigestible parts of the plants they consume. Omnivores will have both. For example, the scat of fox and coyote will often be tubular shaped and tipped with fur. A white-tailed deer will excrete pellets that show bits of grass and leaves. A raccoon’s scat could have berry seeds, fish scales, insect parts and leaf parts all in the same small tubular blobs. Most mammals are consistent in what they eat and therefore their scat is fairly consistent in appearance. In general though, omnivores have the widest variation in their scat due to their widely varying diets. This can make for tough identifications and one should always look for tracks around the scat pile to confirm the identification.

Coyote Scat

Photo by Jim McCormac







In addition to the contents, species identification can also be somewhat determined by the location and the deposit habits of the animal. Most animals walk slowly or stop to defecate, leaving tell-tale lines or piles. This is true for deer, rabbits and most of the canine species. Raccoons have what are called latrines, very specific spots they will routinely use along their travel routes. Trappers and hunters use these kinds of clues to help find the best spot to set up. Other animals drop scat in no particular place as they move around, making it harder to find their clues. Skunks, foxes, muskrats, beavers and most in the weasel family have anal scent glands and leave a musky scent when they excrete their scat. This can also be a clue to help identify the depositor. The location of scat can be a clue to the mammal's whereabouts. If you find a pile of tiny black pellets on your porch next to the wall, look up because you might find that you have a bat roosting under your porch roof.

All of these clues are important and fun to try and find. You can really learn a lot about the wildlife in your neighborhood, park or property just by learning your scat.



# GLOSSARY

**Altricial** — young which are helpless when born, unable to care for themselves at birth

**Carnivore** — that which feeds primarily on meat

**Cervid** — animal distinguished by males having antlers

**Coniferous** — relating to trees or shrubs bearing cones and evergreen leaves

**Courtship** — specialized behavior in animals that leads to or initiates mating

**Crepuscular** — most active at dawn and dusk

**Deciduous** — plants, trees, and shrubs that shed their foliage at the end of the growing season

**Delayed fertilization** — in most bats, mating occurs during fall, but the egg is not fertilized until after hibernation in April. This strategy allows the female bats to use stored energy reserves to survive hibernation instead of producing a fetus.

**Delayed implantation** — in certain animals, the embryo does not implant immediately following fertilization, but remains in a state of suspended growth or a diapause. A diapause allows for birth to occur under the most favorable of conditions.

**Diurnal** — most active during the day

**Echolocation** — a sensory system in certain animals, such as bats, in which usually high-pitched sounds are emitted and their echoes interpreted to determine the direction and distance of objects. This system is primarily used for finding prey and to avoid obstacles in low-light conditions.

**Ecosystem** — a system formed by the interaction of a community of organisms with their physical environment

**Endangered** — species is in imminent danger of extinction throughout all or a significant portion of its range

**Endothermic** — of or relating to an organism that generates heat to maintain its body temperature, typically above the temperature of its surroundings; warm-blooded

**Extinct** — no members of particular species surviving anywhere in the world

**Extirpated** — no members of a particular species surviving in certain portions of its original range, but surviving elsewhere

**Gestation period** — the period of carrying young in the uterus; the duration of pregnancy

**Habitat** — an area or environment where a plant or animal normally lives or can be found; the kind of environment in which an organism is able to find adequate food, water, shelter and space for survival

**Herbaceous** — green and leaflike in appearance or texture; characteristic of a non-woody herb or plant part

**Herbivore** — that which feeds primarily on plants

**Hibernation** — period of time when an animal becomes inactive or dormant, usually during winter. Allows an animal to survive harsh conditions using less energy than when active.

**Incisor** — a tooth adapted for cutting and gnawing, located at the front of the mouth

**Insectivore** — that which feeds primarily on insects

**Litter** — the offspring produced at one birth

**Mammary Gland** — milk-producing glands in female mammals that begin secreting milk when young are born

**Marsupial** — a mammal of which females have a pouch where the young are fed and carried

**Monogamous** — having a single mate for one reproduction event, season or possible lifespan

**Morphology** — the branch of biology that deals with the form and structure of organisms without consideration of function; study of the form and structure of an organism

**Nocturnal** — most active at night

**Omnivore** — that which feeds on both vegetable and animal substances

**Opposable** — a digit that rotates at the joint so that it can be placed opposite any of the other digits

**Ovulation** — discharge of eggs from the ovary

**Polygamous** — one male which mates with several females

**Precocial** — young born with hair or fur, eyes open, and the ability to move about immediately after birth

**Prehensile** — adapted for seizing, grasping, or holding, especially by wrapping around an object: an opossum's prehensile tail

**Primitive** — relating to an early or original stage; primary or basic

**Regurgitate** — to cast up partially digested food

**Species of concern** — species in need of concentrated conservation efforts; receives no legal protection

**Taxa** — a scientific grouping of living things

**Taxonomic Order** — an order for a list of taxa that depicts evolutionary relationships

**Threatened** — species that are likely to become endangered in the foreseeable future

**Vertebrate** — having a backbone or spinal column



For more information about Ohio's native wildlife, please contact the Division of Wildlife:

**1-800-WILDLIFE**

*(1-800-750-0750 Ohio Relay TTY only)*

**WILDOHIO.GOV**

To mail a donation, send to:

**WILDLIFE DIVERSITY FUND**

2045 Morse Road, Bldg G.  
Columbus, OH 43229-6693

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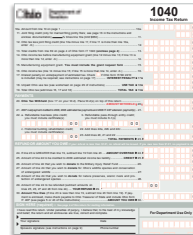
### To purchase a Legacy Stamp:

Call the Division of Wildlife at  
**1-800-WILDLIFE** or visit  
**wildohio.gov**



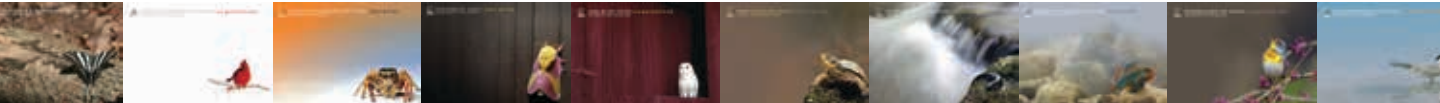
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### To purchase a license plate:

Visit your local registrar's  
office or call the **BMV** at  
**1-888-PLATES3**



## OTHER OHIO DIVISION OF WILDLIFE BOOKLETS

**Pub 5127** - Stream Fishes of Ohio

**Pub 5140** - Common Spiders of Ohio

**Pub 5204** - Butterflies & Skippers of Ohio

**Pub 5320** - Dragonflies & Damselflies of Ohio

**Pub 5334** - Sportfish of Ohio

**Pub 5344** - Mammals of Ohio

**Pub 5348** - Amphibians of Ohio

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**Pub 5354** - Reptiles of Ohio

**Pub 5414** - Common Birds of Ohio

**Pub 5418** - Waterbirds of Ohio

**Pub 5423** - Owls of Ohio

**Pub 5467** - Moths of Ohio

**Pub 5473** - Common Lichens of Ohio

**Pub 5488** - Common Bees & Wasps of Ohio



# DIVISION OF WILDLIFE

## OHIO DEPARTMENT OF NATURAL RESOURCES



ODNR Division of Wildlife is the state agency responsible for managing Ohio's fish and wildlife resources. The primary source of funding for the division comes from the sale of hunting and fishing licenses, federal excise taxes on hunting, fishing, and shooting equipment, and donations from the public. We care about all wildlife and maintaining stable, healthy wildlife populations. Our challenge is to balance the needs of wildlife, habitat, and people.

### MISSION STATEMENT

To conserve and improve fish and wildlife resources and their habitats for sustainable use and appreciation by all.



WHITE-TAILED DEER  
BY TOM REICHNER

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