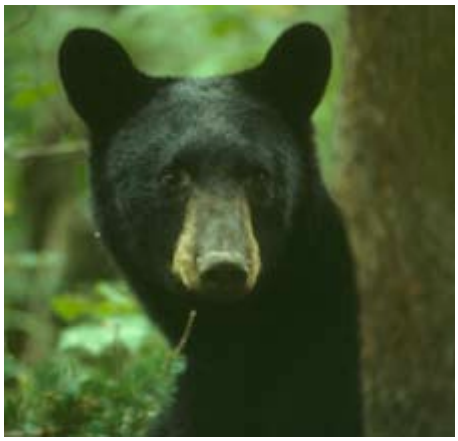
# Black Bear



The black bear is New York's second largest land mammal; only the moose is larger. An average adult male weighs about 300 pounds while females average about 170 pounds. The largest bear reported from New York weighed approximately 750 pounds. Black bears are omnivorous, eating grasses, berries, fruit, nuts, seeds, insects, grubs, and carrion, as well as human sources of food like corn, honey, bird seed, trash, and pet food when available.

Although the color of black bears actually varies widely in other parts of North America, over 99.9% of the black bears in New York are jet black in color with a brown muzzle.

Once thought to inhabit only large forests, over the past two decades, black bears have been expanding their range throughout New York and can now be found in a variety of habitats including developed areas. As recently as the mid-1990s, black bears occupied three relatively distinct ranges: Adirondack, Catskill, and Allegany. The areas open to bear hunting (see Bear Hunting Seasons) show the approximate location of these ranges. Currently, bears occupy habitat across the Southern Tier and it is now more appropriate to refer to Northern and Southern Bear Ranges. New York's 6,000-7,000 black bears are great travelers and occasionally pass through virtually every upstate county of our state.

The Adirondack region in the Northern Bear Range is home to the largest black bear population in New York State (4,000 to 5,000 bears) and the Catskill region in the Southern Bear Range contains the second largest population (1,500 to 2,000). The Allegany portion of the Southern Bear Range has a smaller but growing population of bears (300-500). If you live or recreate in these areas of New York you may expect at some time to see, or in some other manner encounter, a black bear. One of the more common encounters occurs when bears obtain food from human sources.

## Feeding of Black Bears is Prohibited in New York

DEC has adopted a rule prohibiting the deliberate and intentional feeding of black bears. The incidental, indirect feeding of black bears also is unlawful after a written warning has been issued by the department. For details, read the Black Bear Feeding Regulations and the Summary of Public Comment (PDF 347 kB).

## Learn More about Living With New York Black Bears

The recently produced video, "Living with New York Black Bears" explores the history of black bears, the challenges that face New York bear biologists, and how landowners can responsibly and safely share their neighborhood with bears. The video is available at most local libraries, high school and college libraries throughout the State, or at your local DEC regional wildlife office.

## Facts About Bear Behavior

**Bears are Curious** - They spend a great deal of time exploring for food, and this can bring them close to humans.
**Bears are Intelligent** - Bears learn from experience. If an activity results in food, they will repeat that activity. If an encounter with a human is negative, they learn to avoid humans. Also if an encounter with a human doesn't result in a reward (food), they will not have any reason to have contact with humans.
**Feeding Bears Creates "Bad" Bears** - When bears learn to obtain food from humans, they can become bold and aggressive.
**Feeding Bears is Bad for Bears** - Bear's natural foraging habits and behavior can be changed. Usually solitary, bears can be concentrated in areas causing stress, injuries from physical conflicts, and the spread of diseases. Often when feeding on garbage or camper's supplies bears will eat unhealthy materials such as soap, shaving cream, insect repellant, food packaging, etc.

Never deliberately feed bears and avoid unintentionally feeding bears. If you avoid attracting and rewarding bears, you, your property and the bears will all benefit.

Use the links to the right to obtain more detailed information on how to avoid negative bear encounters.

## Problems with Black Bears

Typically these negative encounters fall into one of the following categories:

- Bears raiding bird feeders at residences and second homes;
- Bears raiding garbage at residences, second homes and restaurants;
- Bears taking improperly stored food from campers at campgrounds; or
- Bears taking improperly stored food from back country campers.

All of these situations can be avoided through simple changes in human behavior. The the links to the right provide information about black bears - so that you may better understand their behavior; and advice about proper practices - so that you can avoid negative interactions with black bears.

Black bears are an important and natural component of New York's ecosystem. Whether you live or recreate in the bear country, please help maintain and protect the bears, and at the same time protect yourself and your property.

NYSDEC REGULATION REQUIRES THE USE OF BEAR-RESISTANT CANISTERS BY OVERNIGHT USERS IN THE EASTERN HIGH PEAKS WILDERNESS BETWEEN APRIL 1 AND NOVEMBER 30.

NYSDEC encourages campers to use bear resistant canisters throughout the Adirondack and Catskill backcountry.

# Bobcat

## Scientific Name: Lynx rufus

### Description

Bobcat are about twice the size of a domestic cat and usually smaller than the Canada lynx. Their fur is dense, short, and soft and is generally shorter and more reddish in the summer and longer and more gray in the winter. Spotting occurs in some bobcats and is faded in others. The face has notable long hairs along the cheeks and black tufts at the tops of each ear.

Males are, on average, one-third larger than females. Both sexes can be greater than 30 pounds; however, averages for males and females are 21 and 14 pounds, respectively. Body length for males is 34 inches and 30 inches for females. Tail length is usually between 5 and 6 inches for both sexes.

Sometimes sightings of bobcat are confused with Canada lynx. Bobcat can be easily distinguished from lynx by the absence of the huge, seemingly oversized paws and a black-tipped tail that are characteristic of the lynx. Bobcats have paws that are proportional to their body size, and their tail is black spotted. Lynx tracks are roughly twice the size of that of a bobcat. DEC attempted a lynx restoration program in the Adirondacks in the late 1980s

and early 1990s, but the animals released there dispersed far and wide and a resident breeding population was never established. Currently, the lynx is considered extirpated in New York because there is no evidence of any remnant population of resident animals.

## Distribution and Habitat

Based on surveys from the late 1970s, bobcat occupied 13,500 square miles (a little more than one-quarter) of New York. There were three population centers: (1) Adirondack, (2) Catskill, and (3) Taconic regions. The Adirondack Study area had about 5 bobcats for every 100 square miles of area, while the Catskill area had about 16 bobcats for every 100 square miles of area. Bobcats also occur occasionally in many areas of western New York (and probably breed there).

The most critical features of bobcat habitat are places for refuge and protection, such as ledges. Bobcat often use rocky ledges and rock piles for shelter, breeding, and raising young. Brush piles, hollow trees, and logs are other good structures for resting and dens. Evergreen bogs and swamps, and other secluded places also fill the bobcat's requirement for refuge and protection.

Bobcat usually are not present where there are continuous human population centers; however, they can use patches of habitat if the patches are not completely isolated by urban development.

## Food and Feeding

Research in the late 1970s found that white-tailed deer, rabbit, and hare are the most common items in the diet of bobcat in New York. They eat deer more often during the winter than other times of the year and will store or cache carcasses for future use. Deer can be a valuable prey item in areas of deep snow because one carcass can last for several weeks. Opportunistic prey items include birds, squirrels, meadow voles, and road kill.

## Behavior

Bobcat are solitary animals and may be active at any time, day or night. Males have larger home ranges than females, and they travel greater distances on a daily basis. The average home range of a male in the Adirondacks is 136 square miles. The average female home range is 33 square miles. In the Catskills, the average male home range is 14 square miles, while the female average is 12 square miles. Home ranges are smaller in areas of good habitat than in areas of poor habitat.

Bobcat will use multiple strategies while hunting. They may approach stealthily, using any form of cover available between them and their prey, attempting to get close enough to pounce and strike. They may also use an ambush technique where they will sit and wait for prey to pass by, thereby affording them the opportunity to strike undetected. Smaller prey items such as mice and birds are consumed whole. Larger animals taken and stored are eaten in the position they lay, and can be identified as a bobcat cache by the upperparts being consumed, while the portion of the cache in contact with the ground may be untouched.

Scent marking using feces, urine, and scrapes of fluid from their anal glands have all been documented as ways they mark territory, and are commonly found on the underside of leaning trees, logs, shelter rocks, or stumps.

## Reproduction

Bobcats begin to breed between mid-January and early February. Some researchers found breeding activities continuing into July. Females can reproduce in their first year, while males breed in their second year and likely mate with more than one female. Courtship activities may include chasing, ambushing, and what appears to be fighting.

The average gestation period for a litter is 62 days, but varies from 50 to 70 days. Most litters are born in April and May, ranging from March through July. Young are born in a dry, well hidden den, usually found within natural rocky areas and caves where available, and the female will likely have numerous auxiliary dens which they will use to aid in raising their young. Females raise one litter of 1-5 kittens alone. Kittens are able to accompany their mother away from the den by their third month, and disperse prior to the birth of the following year's litter.

## Predators, Parasites and Disease

Bobcat kittens are killed by foxes, owls, and adult male bobcats. Adults may be injured or killed by their prey animals. The most common cause of death for kittens and juveniles is low food supply. It is not uncommon for an adult to die of starvation, especially during severe winters.

The importance of disease to wild bobcat populations is not well known. Some researchers have suggested that diseases carried by raccoons and feral cats may be an important mortality factor for bobcats. Twelve infectious diseases have been documented in wild bobcat. These diseases include rabies, feline distemper, and feline leukemia. They also

carry a variety of parasites including tapeworms, roundworms, and others that are common in their prey species.

## Management

A 1983 publication reports that 47 states in the U.S. had bobcat within their boundaries at that time. Thirteen states had a policy of total protection (no harvest). Thirty states had hunting seasons, while 32 had trapping seasons. Three states, Wyoming, Texas, and North Dakota, allowed year-round harvest.

Many northern New York counties paid bounties on bobcat before 1971. The New York State Legislature passed a law ending the payment of bounties in 1971.

In 1973, a group of 75 countries (including the U.S.) developed the Convention on International Trade in Endangered Species (CITES) treaty. CITES made it illegal to export pelts of endangered spotted cats such as cheetah, leopard, and ocelot. The treaty also included a list of species that had the potential to be affected negatively by the export ban. Bobcat are on this list because they are a spotted cat, and possibly an alternative for the banned pelts.

Although the federal government, under CITES, controls export of bobcat pelts, the states are responsible for management. Bobcat were unprotected in New York until the Legislature gave DEC the authority to set open seasons in 1976. The Department closed a large portion of the state to bobcat harvest after 1976, and started a pelt tagging system to track bobcat harvested by hunters or trappers in some areas with open seasons beginning in 1977. Hunting has been the dominant harvest method since the 1988-89 season. This is likely due to declining pelt prices and the resultant decrease in licensed trappers.

Although the status of bobcat in New York is stable, the Bureau of Wildlife will continue monitoring bobcat populations to determine whether any important changes occur. Wildlife biologists are developing a "sighting index" based on observations of bobcats by volunteer bowhunters, or you can report bobcat sightings by filling out a Bobcat Observation Report (see "Important Links" above in the right-hand column). This information, along with harvest statistics, provides the primary tools for assessing bobcat population trends.

# Canada Lynx

"Lynx" by Jean Gawalt

## Species Status

- From historical records we know that Canada lynx were present in New York State in the past; however, we do not know for sure if there were ever self-sustaining resident populations in New York. It is likely that there were always lynx traveling through the state from other areas and that the New York population was sustained by immigration from these other areas.
- Occasionally, we still get reports of lynx in the state. Some of the reports turn out to be the similar-looking bobcat; however, over the last few years we have had a few convincing reports of lynx in the state, and it is clear from these that New York still has an occasional lynx passing through. We do not know of any recent instances of lynx breeding in New York.
- The lynx is considered extirpated in New York because there is no evidence of any remnant population of resident animals.

## Lynx Restoration Study

- Between 1989 and 1992, SUNY Environmental Science and Forestry (ESF) conducted an experimental program of lynx releases in northern New York. Over 80 lynx were caught in northwestern Canada and released in the Adirondacks. All of the lynx were radiocollared at the time of release, and the radios provided information of survival and dispersal of these animals.

- Some of the released lynx dispersed farther than anyone expected. Lynx from the ESF release showed up in Pennsylvania, New Jersey, Massachusetts, New Hampshire, Quebec, Ontario, New Brunswick, and other parts of New York. One lynx was found a straight line distance of 485 miles from the release site, 8 months later and 2 pounds heavier than at the time of release.

- Home ranges of the released lynx were large, and there is still no firm evidence of lynx reproduction. The researchers did receive reports of lynx with litters but were unable to confirm them.

### Current Program

- Lynx are fully protected in New York. The species is classified by New York state law as a small game animal, but regulations do not permit lynx harvest.
- The Wildlife Conservation Society of the Bronx Zoo conducted surveys in the High Peaks area of New York in 1998-99 attempting to document the presence of lynx. No evidence of lynx was found.
- People who observe lynx or evidence of lynx in New York can help by observing carefully and contacting a DEC office or emailing us at fwwildlf@gw.dec.state.ny.us to report their observation. Reports are most helpful if they include details such as specific time, location, and features of the animal or track. Size, coloration, and behavior of the animal are important. For tracks, note the size, shape, length and width between individual footprints, and snow or soil conditions.

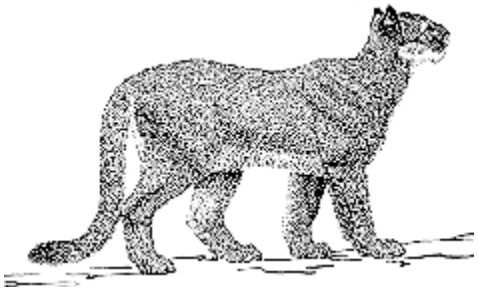
# Eastern Cougar

The Eastern Cougar, or Mountain Lion, is listed as an endangered species in New York. This animal was historically present in the state, but has been absent since the late 1800s. There are a few kept in captivity under a special permit, and likely illegally as well. In at least two cases in past years, captive cougars did make it to the wild. Neither cougar survived for long. Officially, cougars are considered extirpated from the state. However, sightings of animals believed to be cougars are commonly reported to DEC wildlife offices.

To date, no hard evidence has been produced that would prove the existence of cougars living and reproducing in the wild in New York . . . no tracks, scat, dead cougars, photos, videos, or audio tapes. Contrast that with areas with known cougar populations, where sign is relatively easy to find. For instance, there is an estimated cougar population of 200 cougars in the Black Hills of South Dakota. In 2006, South Dakota officials documented 56 cougar carcasses, and 67 carcasses in 2007. No wild cougar carcasses have been documented in New York since 1894. If you believe that you have seen a cougar, please check for tracks or other signs that have been left by the animal. If possible, photograph the animal. Photographs of tracks are also useful, please include an object of known size such as a quarter next to the track. Placing a can or bucket over the best tracks may help preserve them until they can be examined by Wildlife staff.

Wildlife staff will only investigate reports where physical evidence is likely or known to exist, or when a captive animal has been reported to have escaped.

# Eastern Cougar Fact Sheet



***Eastern Cougar***

**Puma concolor cougar**

New York Status: **Extirpated**

Federal Status: **Extinct**

## Description

The cougar is known by many common names, including puma, mountain lion, catamount, and panther. Next to the jaguar, it is the largest North American cat. Weights range from 80-225 pounds (36-103 kg), averaging 140 (64 kg). Length varies from 5-9 feet (150-275 cm); this measurement includes the 26-32 inch (66-82 cm) tail. Males are larger than females. Cougars have long, slender bodies and small, broad, round heads. Ears are short, erect and rounded. The short fur is usually tawny (brownish red-orange to light brown), more tan in the summer months and grayer during the winter. The muzzle, chin and underparts are a creamy white. Black coloring appears on the tip of the tail, behind the ears, and at the base of the whiskers on the sides of the muzzle. Immature cougars are paler, with obvious dark spots on their flanks.

## Life History

Females mate every two to three years and produce a litter of two to three cubs. There is no set breeding season, however most births are in the spring. At six months of age, the cubs weigh 30-40 pounds. They leave the den at this time, accompanying the female to her kills and occasionally hunting with her individually. A young male may leave at one year of age, but most cubs remain until they are nearly two. The average life span for cougars is about eight years. Adult cougars have no natural enemies, only man with his hunting dogs.

Prey species include deer, elk, occasionally domestic livestock, and any smaller mammals which opportunity makes available. The preferred meat is deer. Cougars kill about a deer a week. Like wolves, cougars often kill old, weak or sick individuals, leaving the prey population in a healthier overall condition. Cougars are solitary, territorial hunters.

## Distribution and Habitat

The original distribution of the cougar was across lower Canada in the north to Patagonia, South America in the south. It was the most widely distributed land mammal in the Western Hemisphere. It was found in a variety of habitats, including tidal marshes, deserts, mountainous terrain and deciduous, coniferous and tropical forests.

With the exception of Florida, the cougar has been considered extirpated from east of the Mississippi River since 1900. In the west, it is still quite common in wilderness areas of the Rocky Mountain states and British Columbia.

## Status

Cougars have been extirpated from much of their former range, especially in the east. Though their distribution has been reduced considerably by expanding human populations and conflicting land uses, cougars do well where habitat exists. In the west, it continues to be found from southern Canada south through Latin America to Patagonia. Florida has cougars in the Everglades and Big Cypress Swamp.

Cougars are considered big game in many of the western states. There are limited legal harvests in these areas that do not threaten local cougar populations. We in New York receive a few reports of cougar sightings each year from throughout the state.

In many instances it is a case of mistaken identity. Other cats, fishers or dogs are the animals probably seen. Once in a great while a real cougar is sighted. Based on our experiences, it is safe to assume that these animals have been intentionally or unintentionally released by people. Contrary to some peoples beliefs, they are not part of a native, self sustaining population. They leave tracks which would be regularly seen in any area frequented by them. If there were enough cougars for a population, there would be many sets of tracks readily available for people to see throughout the year.

## Management and Research Needs

The remaining population of cougars in Florida is federally protected as an Endangered species. It is unlikely that any eastern state will reintroduce cougars; the required habitat is simply not available. Western cougars appear secure; the relatively vast amount of wilderness available to them will assure their continued survival.

# Eastern Coyote

## Scientific Name: Canis latrans

### Description

The Eastern coyote looks like a medium-sized German shepherd dog, with long thick fur. The tail is full and bushy, usually carried pointing down. Ears are erect and pointed.

**Length:**4 to 5 feet (including tail)

**Weight:** 35 to 45 pounds (males usually larger than females.)

**Color:**Variable, from blonde or reddish blonde to dark tan washed with black. Legs, ears and cheeks usually reddish.

## Coyotes in Suburbia

The Eastern coyote, commonly believed to live only in the more wild parts of New York, readily adapts to living close to people. Coyotes live throughout upstate New York. They have been sighted in parts of New York City, and are common in the suburbs north of the City. As unlikely as it may seem, human development makes surprisingly good coyote habitat. The abundant coyote food supply (e.g., rabbits, squirrels, deer, cats, small dogs, garbage, and pet food) makes living in close to people worthwhile.

As coyotes increasingly adapt to people, more encounters between humans and coyotes will occur, either as sightings, confrontations with pets, disturbed garbage or pet foods, or howling at night. Some background on coyote habits may help people understand these encounters and solve any problems that occur. To minimize conflicts, it is important that suburban residents do their part to maintain the natural fear that coyotes have of people.

## The Coyote Diet

What do New York coyotes eat? A coyote's diet depends on one thing - what is easiest to find or catch and kill. During the summer, coyotes will feed heavily upon berries, insects, and rodents. During early fall they rely on abundant grasshoppers. Small mammals become the prey of choice during late fall and winter. As winter becomes harder and small mammal populations decline, coyotes turn toward their largest prey - whitetail deer. Deer killed by vehicles and other causes (carrion) can be an important food source for coyotes. Lacking

any carrion, coyotes can, will, and do kill healthy adult deer. Coyotes in the spring time can have an impact on fawn survival in localized areas.

## How Many Coyotes live in New York

After hearing a family group of coyotes howl, it is easy to get the impression that the woods must be overflowing with coyotes. In reality there were probably five or six. A few coyotes make a tremendous amount of noise when they want to. The eastern coyote does not form a true 'pack' with multiple adults living together like their relative the wolf. Instead they are organized as a 'family unit'. Each family unit is made up of the adult pair and their pups from the current year. A family unit will defend a territory of 6 to 15 square miles against other coyotes. It is the territorial behavior of coyotes that limits their numbers in any one area. The coyote population in New York during the Summer is approximately 20,000-30,000.

Young of the year coyotes are driven from their parents' territory between September and March. These young coyotes travel up to one hundred miles in search of a vacant territory to claim as their own.

## How Did Coyotes Arrive in New York?

There are two theories to explain the presence of Eastern coyotes in New York. The first theory is that coyotes were here before Europeans settled North America. The clearing of the forest for farms and homes forced coyotes to retreat to unsettled areas of the northeast, e.g., the Adirondack mountains. The return of the forest during this century coincided with the return of the coyote.

The second, and more widely accepted theory, is that the Eastern coyote is a relatively new species in New York. This theory suggests that western coyotes extended their range eastward, eventually forming a distinct subspecies.

Whichever theory is true, coyotes have been present in New York at least since the 1930's, and firmly established themselves by the 1970's. They are here to stay.

## Coyotes or Coydogs?

The large canid which resides in New York is a true species; they are not a hybrid. The proper name is the Eastern Coyote, *Canis latrans.* Coyotes and dogs theoretically can interbreed to produce what is called a 'coydog'. However, these crossbreeds have a reproductive cycle of dogs, not coyotes, and will give birth at times of the year when the pups cannot possibly survive (i.e., January). In addition, there are behavioral differences

between dogs and coyotes which prevent crossbreeding from occurring. Coyotes want to mate with other coyotes and not with dogs. Coyotes are actually more likely to prey upon a domestic dog instead of mating with it. It is in this manner that dog genes are prevented from entering the gene pool of true coyotes, maintaining the two separate species. Coydogs occurred at the leading edge of coyote range expansion during the 1950 to early 1970's. The occurrence of a coydog would be an extremely rare event in New York today.

## Coyote Hunting and Trapping

Over 60,000 New Yorkers participate in coyote hunting each year and about 3,000 participate in coyote trapping. All of Upstate New York is open for coyote hunting and a small game hunting license is required to hunt coyotes. All of Upstate New York is also open for coyote trapping and a trapping license is required.

Consult the NYS DEC Hunting and Trapping Regulations Guide for more information on coyote hunting and Trapping.

The Environmental Conservation Law allows 'problem coyotes' to be killed at other times of the year. Section 11-0523 says coyotes that are "injuring private property may be taken by the owner, occupant or lessee... at any time in any manner."

# Gray Fox

## Scientific Name: Urocyon cinereoargenteus

### Description

The gray fox is easily distinguishable from the red fox in that they have a mane of short, stiff black hairs along the back leading to a black-tipped tail. Coloration of their upper-parts appears grizzled as a result of multi-colored guard hairs. The remainder of their pelage is usually a variation of reds and browns with buff or gray underfur. Their face is distinctly marked with white, black, and rufous coloration. Total length, including the tail ranges from 31-44 inches and weight ranges from 7-13 pounds, with little difference between males and females.

The claws on the front paws have a greater curvature and they have a greater ability to rotate their forearm more than that of the red fox. These are two morphological features that

may serve as adaptations for tree climbing. One classic postmortem means of identification lies in the temporal ridges along the top of the skull. When viewed from above they form the shape of a U and do not contact the sagittal crest along the back of the skull.

## Distribution and Habitat

Ranging across New York State, gray fox inhabit a mixture of deciduous woodlands, brushy and rocky areas. Old fields bordering extensive forested areas and interspersed with farmlands may serve as ideal foraging grounds.

## Food and Feeding

Small mammals make up the majority of the food base of the gray fox. Mice, voles, and cottontail rabbits serve as staples but they have been known to eat birds, amphibians and reptiles, various arthropods, and carrion. They will also forage for a variety of hard and soft mast such as acorns, grapes, apples and in farm country, corn.

## Reproduction

Breeding occurs between mid-January and May. The gestation period may range between 51-63 days. Pups are usually born in a den in March or April, nearly hairless, blind and helpless. Single litters contain 2-7 pups. Weaning occurs between 8-10 weeks of age, at which time they venture out of the den, and begin hunting with the parents by 3 months. Families disperse in the autumn when young are nearly full-grown. Males reach sexual maturity sooner than females, but both are capable of reproducing in their first year.

## Behavior

Gray fox dens may be in use any time of year, but the majority of use comes during the whelping season, or the time of year when birthing occurs. Dens are usually located in wooded or brushy habitats, and are generally less obvious than that of a red fox. They do not excavate their own den and infrequently use abandoned dens of woodchucks or other small mammals. They prefer to use hollow logs or trees, rocky outcrops, or thick brush. They will also use abandoned houses or beneath manmade structures such as sheds or abandoned woodpiles as both temporary dens and a place to rear their young.

Tree climbing is one of the most notable adaptations in the gray fox. Gray fox have been reported to den several yards above the ground. This is not only advantageous in escaping predators such as coyotes, it may also improve their ability to find food. By gripping the bole of the tree with their front paws, and as they push off with their hind feet, they will let go with

their front and re-grip the bole of the tree higher up. Once they're up in the crown they tend to jump from branch to branch. Descent is backwards or if the tree is leaning they will run down the trunk of the tree.

Due to their more aggressive behavior, Gray fox prefer to hunt thicker cover than the more timid red fox. The gray fox's preference for thicker cover, aggressive behavior, and the ability to climb trees minimizes the effect that eastern coyotes have on their population. The red foxes preference for open terrain where they are more visible and farther away from cover allow coyotes to suppress red fox populations where coyotes are abundant.

## Predators, Parasites, and Disease

Across its range the gray fox serves as a host to over thirty different external parasites that includes lice, ticks, mites, chiggers and fleas. Internal parasites include roundworms, flatworms, tapeworms and acanthocephalans.

Unlike the red fox, the gray fox exhibits a natural resistance to sarcoptic mange, a mite that causes irritation resulting in a thickening of the skin, loss of hair, and eventual death due to either malnourishment or hypothermia. Rabies has been reported in New York specimens, but canine distemper appears to be the leading mortality factor, in terms of diseases, affecting wild gray fox populations.

In terms of predators, humans are likely the primary cause of mortality in this species through trapping and automobile collisions. Where encounters occur, the Eastern coyote will undoubtedly predate gray fox, as may bobcat and some of the larger raptors such as great horned owls.

# Gray Wolf

***Wolf***

**Canis lupus**

New York Status: **Extirpated**

Federal Status: **Endangered**

## Description

The wolf, including the eastern subspecies, the eastern timber wolf (*Canis lupus lycaon*), is

a large animal. Adults weigh 50-l00 pounds (23-46 kg). Males are generally heavier than females. Coloring is usually a mixed gray or grizzly color, though a few are black or white. Wolves appear quite similar to large German shepherd dogs. They have a pointed muzzle, erect pointed ears, bushy tails and moderately long legs.

## Life History

Wolves usually live in family groups or packs of 2-8 individuals, though some packs contain 20 or more members. Packs are territorial, frequenting areas of 20-200+ square miles (51-555+ sq km). A dominance hierarchy exists within each pack. Generally, only the dominant male and female breed, though exceptions exist. Pups are born from early April to early May. Litter size ranges from 4-7. Offspring remain within the pack or move out to become "lone wolves." These individuals are nomadic, some living in areas over 1,000 square miles in size. If a member of the opposite sex is encountered and suitable range exists, the pair may start a pack of their own.

Prey species include deer, moose, beaver, and sometimes domestic livestock and pets. Generally, wolves target the easiest prey including the old, weak, sick or disabled individuals. Wolves are not normally detrimental to populations of prey species. However, some studies in Alaska with caribou and in northern Minnesota with deer indicate that wolves have eliminated or are limiting their prey in parts of their range.

## Distribution and Habitat

Wolves originally occurred over much of North America, ranging from the Arctic in the north to the middle of Mexico in the south. They were only absent from the southeast and desert regions of the continent. The eastern timber wolf, one of 37 subspecies of wolves, was found throughout the eastern United States and southeastern Canada.

Today, the eastern timber wolf is found only in Minnesota, Wisconsin, and Michigan, three percent of its original U. S. range. It is still relatively common in much of its original Canadian range.

## Status

Wolves were perceived as a threat to the lives and livelihood of settlers since earliest colonial times. The Plymouth and Massachusetts Bay colonies waged war on wolves in 1631. Consequently, they were hunted and trapped relentlessly until they eventually disappeared from most of the United States. Only in recent decades have public attitudes

changed some. Since the beginning of the conservation movement at the turn of the century, people have become increasingly interested in wilderness preservation and the conservation and restoration of wildlife species frequenting these areas. To many, large predators such as wolves and mountain lions epitomize the wilderness state, symbolic of the wildest conditions. Aldo Leopold, the father of modern wildlife management, espoused this "land ethic" in the 1930's and 40's. Wolf preservation and management efforts were enhanced in 1973 with the passage of the Endangered Species Act. Today, populations in the upper midwest are doing well, and it is expected that the wolf will be removed from the Endangered Species list by 2005.

The history of wolves in New York is by no means clear, although it seems reasonable to assume that they were once present. We know of only one museum specimen of a wolf taken from New York State. Since we have not checked the accuracy of that identification and are without a substantial body of physical evidence to work with, we cannot be sure how many animals historically reported as wolves were indeed wolves. It is possible that the animals we call coyotes were considered wolves by early settlers and that some portion of historic wolf accounts may have been attributed to the wrong species.

New York State's Department of Environmental Conservation has a long and proud history of restoring native species when it is both biologically feasible and socially acceptable to do so. It is not clear that a wolf population could survive in New York given the abundance of highways and our large human population. Nor is it clear that having wolves in the woods of northern New York would be compatible with the interests of residents or the farmers that live on the periphery of that region. For these reasons, DEC does not believe that wolf restoration warrants serious consideration at this time.

## Management and Research Needs

The U. S. Fish and Wildlife Service published the Recovery Plan for the Eastern Timber Wolf in January 1992. The original plan was approved in 1978. The current plan represents a major effort by the Eastern Timber Wolf Recovery Team; with it they hope to secure the future of this species.

# Moose

## Scientific name: *Alces alces*

*Art by Jean Gawalt*

New York Status: **Protected**

### *Description*

The moose is the largest member of the deer family (Cervidae), and the largest land mammal in North America. Bulls weigh from 600 to 1,200 pounds and stand up to 6 feet tall at the shoulder. Cows weigh from 500 to 800 pounds. Both sexes have long, grayish-white legs, dark brown or black bodies, and a dangling flap of skin under the throat called a bell. A mature bull's bell is much larger than those of cows and younger bulls. Cows have light brown faces and a white patch of skin under their tails, while bulls have dark faces and no white patch. Only bulls grow antlers, beginning in March or April. The antlers, which regrow annually, may reach a width of more than 5 feet on mature bulls and are shed from November through January.

### *Life History*

The breeding season, or rut, occurs in late September and early October. During this time, bulls compete for cows by sparring with each other, with older, larger bulls usually doing most of the breeding. A single bull may breed with five or six cows during the rut. Bulls do not eat much during the rut and lose considerable weight. After the rut, they feed heavily to prepare for the upcoming winter. Cows can breed at 1½ years old, but most don't breed until they are 2½ years old. Young cows normally have one calf, while mature cows may have twins or, rarely, triplets. The gestation period is about 230 days, so calves are born in late May or early June. Calves are 20-25 pounds at birth but will weigh 300 to 400 pounds by fall. Calves stay with cows for the first year of their lives until the cows have calves again the following year.

### *Distribution, Habitat and Food Habits*

Moose are a circumpolar species, occurring in boreal forest areas of the Northern Hemisphere. In North America, they are found from Alaska eastward to the Atlantic Ocean, and south into the Rocky Mountains, northern Great Lakes, and the Northeast. In New York, most moose are located in the northeastern part of the state in the Adirondack Mountains and the Taconic Highlands along the Massachusetts and Vermont borders.

Moose are primarily browsers, feeding on the leaves, twigs, and buds of hardwood and softwood trees and shrubs. An adult moose eats 40 to 60 pounds of browse every day. Favored plant species include willows, birches, maples, balsam fir, viburnums, aspen, and mountain ash. In the winter, moose may strip and eat the bark from small trees, usually maples and aspen. In the summer, moose feed heavily on aquatic plants in ponds and wetlands, wading into the water and reaching beneath the surface for plants. They also depend on these wet areas to escape from biting insects and hot weather.

Ideal moose habitat consists of a mosaic of upland mature mixed forest, open areas created by burns or logging, and wetlands. The regrowth of browse species after a fire or clearcut offers nutritious food in large quantities needed by moose. Small clearcuts with some softwood cover retained are better than large clearcuts of more than 100 acres.

## *Mortality Factors*

The black bear is a significant predator of moose calves less than nine weeks old. Coyotes may also take an occasional calf. There are no predators of adult moose in New York State, but, elsewhere in North America, wolves are their main predator.

Moose are susceptible to a parasite known as brainworm that infects the nervous system and usually causes death. Other parasites such as liver flukes and lungworm can weaken a moose and make it susceptible to secondary infections. In other states with a higher moose density, winter ticks have become the main mortality factor for moose, but these ticks have not yet been documented in New York. The winter tick spends three life cycles on an individual animal, feeding on its blood during each cycle.

Vehicle collisions are a significant mortality factor for moose, especially where road densities are high. Moose are so tall that an automobile usually passes under the body, causing the moose to come over the hood into the windshield and onto the roof. Moose are most active from dusk to dawn, when their coloration makes them difficult to see in the roadway and their eyes are usually above the reach of car headlights. About one to two percent of moose/car collisions result in a human fatality. DEC is working with the Department of Transportation to develop warning methods for motorists in moose country. Research in other states has shown that vehicle speed is the most common factor leading to moose collisions, so the best way to avoid hitting a moose is to slow down, especially from dusk to dawn.

## *Status and Management*

Moose entered the state on a continuous basis in the 1980s, having been absent since the 1860s. DEC collected reports of sightings between 1980 and 1999 as an informal way of monitoring the species' progress.

In the early 1990s, DEC drafted an Environmental Impact Statement and conducted a series of public meetings on moose. As a result, DEC instituted a number of actions to follow until the moose population, or our understanding of it, changed substantially. DEC (1) supported the return of moose in the northern 14 counties of the state; (2) rejected a proposal to accelerate the natural return of moose through a translocation program; (3) recognized the need to monitor the species' progress, both to ensure its success and to meet public demand for information about moose; and (4) recognized the need to address nuisance situations.

DEC biologists estimated that there were about 500 to 800 moose in New York State as of 2010. However, a standard procedure for estimating numbers of moose has not yet been established.

Moose management in the state consists of monitoring population size and distribution and occasionally relocating an animal that becomes a nuisance or catching and moving a moose from developed areas where it is a danger to itself, to people or both. Future DEC actions include implementing studies to refine our knowledge of the factors affecting moose distribution and numbers in New York State, estimating key population characteristics (e.g., size and rates of population change), assessing potential impacts of climate change on moose populations, balancing moose population attributes with biological and social carrying capacity, and developing a moose management plan that takes these factors into account. For more information on moose management and to view DEC's "Moose Response Manual", visit the "Moose Management" page.

## *Moose-related Legislation*

Effective July 6, 1999, the New York State Legislature amended section 11-0915 of the ECL concerning the disposition of moose carcasses resulting from vehicle collisions. It allows people who accidentally kill moose with a motor vehicle that has been damaged in the process to obtain a permit from a law enforcement officer to keep the carcass. Should the motorist decline the opportunity, the officer may issue a permit to another party.

# Red Fox

## Scientific Name: Vulpes vulpes

## Description

Adult red fox have a year-round red coat that is typically much more striking during the winter months; a washed out orange to cherry red. The red portions cover the head, shoulders and back, and the rump may be either red or a light gray. Jet black marks the legs and ears and the chest and throat are typically a light gray to white. Their tails are typically very bushy and cylindrical in shape, and they occur in variety in colors, blacks and reds predominating, with a characteristically white tip.
Males are generally larger than females, but no definitive comparisons have been made. Individuals may average from 8-12 pounds as adults, and vary in total length from 48 - 57 inches. The tail accounts for nearly half of that length.

## Distribution and Habitat

Red fox are the most widely distributed carnivore in the world, and are known to occur in nearly every county of New York State. Preference is given to open country, with an aversion to open landscapes devoid of vegetative cover or deep forests. Lands with a mixture of old fields, forest edges, and farmlands may all serve as prime red fox habitat, as a mixed landscape provides ample foraging opportunities and cover from would-be predators.

Residential suburbs also provide ample habitat and a substantial prey base. Broken wood lines alongside lawns, roadside ditches, and utility rights-of-way provide plenty of cover and potential denning sites. Expanding coyote populations (a potential predator of red fox) have pushed red fox further into residential areas in recent years.

## Food and Feeding

As with most of New York's predators, the red fox has a variable diet, likely coinciding with local prey populations and seasonal availability of small mammals and birds. Small mammals such as mice, squirrels, woodchucks, and rabbits comprise the majority of their mammalian diet, while birds such as grouse, nesting waterfowl, and other ground-nesting birds and their eggs are the most important avian food items in their diet. Other opportunistic food items such as nestling songbirds, various amphibians and reptiles,

invertebrates such as earthworms, and carrion are all consumed as the opportunity presents itself. Additionally, red fox have a sweet tooth as they have been noted to consume ripening grapes and apples in the early autumn.

Use of food caches is common for this species. Foraging behaviors most commonly seen include erratic movements in open grassland, head and ears erect searching for the slightest rustle of grass or a glimpse of fur. Once a prey item is located, a fox will freeze, presumably to zero in on the location, followed by a quick aerial pounce and capture of the prey.

## Reproduction

Red fox breed in New York from December to April, with a peak between January and February. This species maintains lifelong breeding companions. After a gestation period of about 52 days, females give birth to litters that vary in number from 1 to 12, with 3 - 6 being common. Young are born blind and helpless, and are weaned by week 12 when they learn to hunt for themselves. Both males and females play a major role in food acquisition for growing pups.

Dens are usually found in abandoned woodchuck or other small mammal burrows, widened to suit the needs of a family of foxes. Their basic structure consists of the main channel, with a chamber or a widening of the main channel, lined with grasses and other forbs to make a dry refuge and birthplace for their pups. Dens vary in location, and may be found among the root systems of large trees along the banks of streams or gullies, in or beneath hollow logs or hedgerows, or anywhere a woodchuck might decide to dig their burrow. It is common to find a den with multiple entrances. As temperatures in the den increase with the onset of summer, red fox will move the pups into a new den site every few weeks to minimize exposure to parasites such as fleas.

Females are ready to breed in their first autumn, but may not produce offspring until their second year. Dispersal among littermates varies by region, food availability, and habitat quality. Between the months of September and January territoriality between parents and offspring occurs after the rearing period has ended, thus resulting in the dispersal of offspring. Some individuals have been documented to travel over 100 miles in search of unclaimed territories.

## Behavior

The core of red fox social structure is the family unit, as this species is monogamous and actively defends their territories from other red fox. Territorial disputes are seldom marked by violent encounters and usually consist of antagonistic displays, chasing, and harassment. Territories are maintained year round.

Red fox are highly mobile and can cover long distances on a daily basis. Travel of greater than 6 miles is not unheard of. Range expansion occurs during the winter months, presumably due to a decreased availability of prey, and contract during the rearing season. Displayed feces and scent posts marked with urine are evidence that red fox are wary of other foxes, and as a result territories seldom overlap.

Primarily nocturnal, red fox may occasionally be seen during the day. The activity of females during daylight hours increases with the feeding demands of growing pups; otherwise daytime is spent resting in regular spots, oftentimes above ground.

## Predators, Parasites and Disease

Most predators whose distribution overlaps that of the red fox have been known to kill this species as either prey or as competition for food resources. In New York, coyotes have been thought to have a significant impact on red fox populations, and although general distributions may overlap, red fox tend to avoid coyote territories completely or reside on the periphery of established coyote territories. Bobcat and domestic dogs may also contribute to red fox mortality.

Human trapping and hunting efforts and automobile collisions comprise the majority of human-related mortality. Red fox are a historically popular commodity in terms of fur harvest and sales.

Red fox are host to a wide variety of parasites, both internal and external. Internal parasites range from protozoans to roundworms and tapeworms. Of particular importance in New York State are heartworms, a roundworm found in the right ventricle of many canids that is only transmitted by infected mosquitoes.

Red fox are very susceptible to mange, a disease caused by the mite *Sarcoptes scabei*. Mange mites burrow into the skin, thereby causing irritation, skin thickening (hyperkeratosis), and hair loss. Infected individuals may make it through the summer months, but quickly succumb to hypothermia once winter arrives.

Canine distemper and rabies are diseases that affect the central nervous system in all mammals and are both important factors regarding red fox mortality. Rabies poses a substantial human health risk, while distemper does not. These diseases can be recognized by clinical signs such as disorientation, a marked increase in aggression, and a basic loss of all typical behaviors. Both diseases are transmissible through saliva via bite wounds or exposure of damaged tissue to saliva and almost always result in the death of the infected animal.

# White-tailed Deer

*Art by Jean Gawalt*

The white-tailed deer (*Odocoileus virginianus*) is New York's most popular game animal and is found throughout the state. Residents and visitors to the state derive countless hours of enjoyment from the white-tailed deer resource. Each year, more than 500,000 deer hunters contribute nearly $690 million to New York State's economy through hunting related expenses, and through license purchases and federal excise taxes hunters generate over $35 million to support management activities of NYSDEC. Hunters take some 220,000 deer annually, filling freezers with roughly 10.8 million pounds of high quality local venison, and due largely to efforts of more than 3,000 volunteer Sportsman Education instructors, hunters continue to demonstrate exceptional safety records.

Aside from the recreation and economic benefit deer afford to New Yorkers, as a large herbivore, deer also play a role in shaping the landscape and can compete with human interests. Abundant deer populations can negatively affect plant communities and the other wildlife dependent on those communities. Deer can also cause problems for farmers, tree growers and homeowners and are a frequent hazard for motorists. Management of deer in New York seeks to maximize the benefits of this important resource while being mindful of the human and ecological concerns associated with abundant deer populations.