

# Distinguishing Large Wild Canids in New York State



Department of Environmental Conservation

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Photo courtesy Global Wildlife Conservation Center

Red fox  
(*Vulpes vulpes*)

Gray/Eastern wolf  
(*Canis spp.*)

Coyote  
(*Canis latrans*)

## History of Large Wild Canids in New York

Historically, wolves were the only large wild canid found in New York State. After European settlement, extermination programs and loss of habitat led to their extirpation from most of the contiguous United States, including New York, by the early 1900s. The extirpation of wolves from much of North America in the 19<sup>th</sup> century allowed coyotes, a native of the prairies west of the Mississippi, to drastically increase their range and move east. Coyotes were first documented in New York in the 1920s, after moving into the northern part of the State from Canada. Coyotes spread throughout New York, bolstered by additional animals moving into the state from the west. By the 1970s, they could be found throughout most of upstate New York. As they spread east, coyotes interbred with wolves and domestic dogs, forming what has become known as the eastern coyote.

Today, eastern coyotes can be found throughout New York, including in NYC and Long Island. Elsewhere, wolf populations have grown dramatically in recent decades with protection under the federal Endangered Species Act and reintroduction efforts in the west. Although there are no resident wolf populations in New York or neighboring states, populations of wolves exist relatively close to the region. Ontario's Algonquin Provincial Park and parts of Québec support wolf populations located less than 200 miles from the New York border.

There have been rare confirmed cases of wild wolves in the northeast. In 2001 and 2021, hunters in New York shot large canids that they thought were coyotes. Analyses later revealed that they were likely wild wolves. Two seemingly wild wolves were also documented in Vermont in 1998 and 2006, providing additional evidence that natural dispersal into the region is possible.

## WHAT IS THE EASTERN COYOTE?



As coyotes became established in the northeast, researchers noticed that they looked different than their western counterparts. The coyotes found in the east were larger, weighing 35–45 pounds rather than 20–25 pounds. They were taller as well, with broader heads and larger jaws. As it turns out, eastern coyotes are genetically different than coyotes found in the western U.S. Although individual breakdowns vary, the average northeastern coyote is about 64% western coyote, 26% wolf, and 10% domestic dog. This interbreeding occurred as coyotes expanded their range east and encountered existing wolf populations and feral dogs. Although there is no evidence that interbreeding is still occurring, all of New York's coyotes have some wolf DNA mixed into their genetic ancestry and can have some wolf-like characteristics. These similarities can make it more difficult to differentiate from wolves.

EASTERN COYOTE DNA BREAKDOWN (%)

64  
WESTERN  
COYOTE



26  
WOLF



10  
DOG





# DISTINGUISHING WOLVES AND COYOTES BY SIGHT



Although similar in appearance, there are several characteristics that can be used to distinguish wolves from eastern coyotes. Size is the most reliable indicator, with eastern coyotes rarely weighing more than 50 pounds and generally standing less than 2 feet tall at the shoulder. In contrast, wolves typically weigh between 70-100 pounds (the two wild wolves documented in NY weighed 99 and 84 pounds) and are taller than coyotes. However, size can be very difficult to judge accurately from a sighting or photograph, so knowing other distinguishing characteristics can help differentiate the species.

## KEY CHARACTERISTICS:

- (1) **FACE:** Wolves have a large head with small, rounded ears. Their muzzle is short and broad. In contrast, coyotes have very large ears relative to the size of their head. Their muzzle is long and pointed, with a ski-slope appearance.
- (2) **LEGS & PAWS:** Wolves are noticeably taller than coyotes, with extremely long legs and oversize feet. Coyotes have a more stout appearance with small paws.
- (3) **TAIL:** Both coyotes and wolves have straight tails with visible black spots. Coyote tails tend to have a fluffier appearance and extend past their hocks, while wolves have a shorter tail. Wolves are also more likely to carry their tail outwards while moving, whereas coyotes usually have them pointing down.

### WOLVES



### EASTERN COYOTES





## TRACKS

Coyotes, wolves, and domestic dogs all have tracks showing four large toes and a triangular heel pad. Claw marks are often (but not always) visible. Their tracks are symmetrical, and you can draw an 'X' through the negative space between the toes and heel pad.

Coyote and wolf tracks can be distinguished from each other based on their size. Wolves have much larger paws, with tracks measuring 4-5 inches long and a heel pad that is at least 2.5 inches wide. The stride length (distance between tracks from the same foot) averages around 40 inches. Coyote tracks are much smaller, typically measuring less than 3 inches long with a total width of around 2 inches.

The tracks of domestic dogs can overlap in size with both coyotes and wolves, but there are some clues that help distinguish them from wild canines. Domestic dogs often leave large, blunt nail prints. Their tracks also tend to splay out more, especially those of large dogs, with the outer toes pointing slightly outward. Wolves and coyotes typically keep their toes tight, with all toes pointing directly forward.

**Track pattern** is also very important for differentiating tracks. Dogs are more likely to have “sloppy” patterns – meandering around and rarely placing their hind foot within their forefoot tracks. Wolves (and coyotes) tend to move in straight lines and their hind foot will often land within the forefoot track.

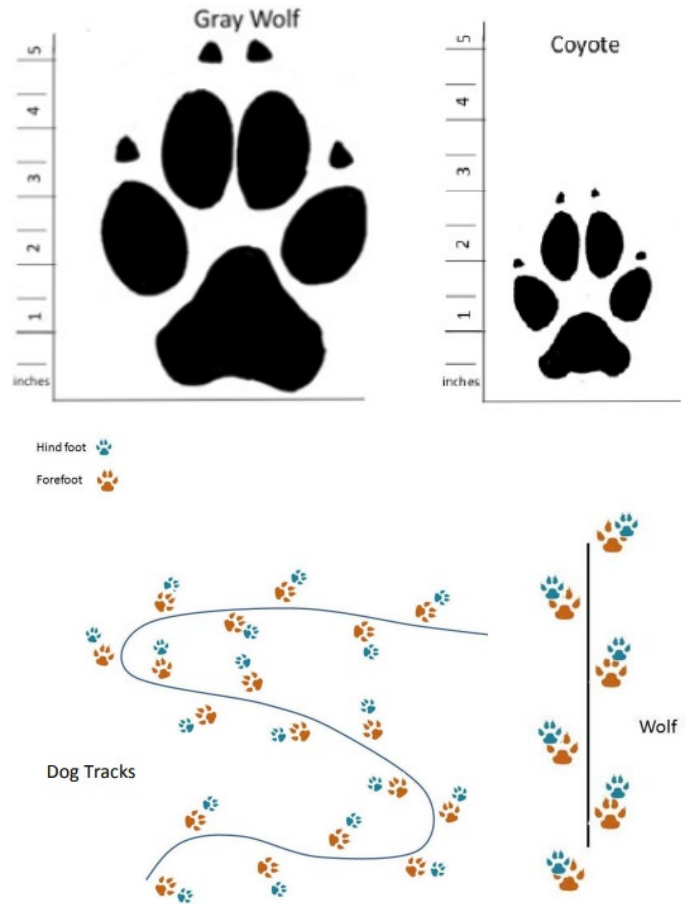


Image from [National Wolfwatcher Coalition](#)

## SCAT



**Wolf scat** (top left) can vary widely in appearance based on what the animal is eating, but often contains hair and bone fragments. The ends are generally tapered and twisted. Wolf scat is usually greater than an inch in diameter.

**Coyote scat** often appears similar to wolf scat, but is smaller, measuring under an inch in diameter.

Both coyotes and wolves often leave scat in prominent locations along trails. Scat serves as a form of communication and a way to mark their territory.

**Domestic dog scat** (bottom left) is typically more uniform in appearance due to their diet of commercial dog food. It often lacks the tapered end, although softer scats can still show this characteristic.

Tracks and scat of domestic dogs are typically found in areas where people bring their dogs (e.g., hiking trails). However, never rule their presence out of more remote areas. Off-leash dogs can roam widely and show up in unexpected places. In addition, if you got somewhere, there's a good chance someone else did at some point as well!





# REPORTING A LARGE CANID SIGHTING TO DEC



There is currently no evidence of an established, breeding wolf population in New York State. However, there have been 3 confirmed wolves in the State since 2000. One of these animals was an escaped captive, but two were found to be eating a wild diet and are believed to have traveled into New York. To monitor large canines in New York, DEC asks the public to submit potential sightings of any wolf-like wild canids for evaluation by biologists. Because wolves and eastern coyotes can be extremely difficult to differentiate, please follow the guidance below to increase the chances of a reliable identification:

- Any reported sightings **must** include physical evidence (i.e., photographs of the animal or sign).
- Include the location where the sighting occurred. **Locations of sightings will not be shared publicly.**
- Ensure that photographs are of sufficient quality to clearly see the subject. Avoid submitting photos of an image or screenshots.
- Please do not submit extremely dark, blurry photographs where no distinguishing characteristics can be seen
- Include multiple photographs of any sign
- When photographing tracks, include photos of several different tracks and the overall track pattern
- Since size is the most reliable way to differentiate wolves and coyotes, include some measurement of scale
  - Whenever possible, use an object of known size (e.g., penny, dollar bill) to show the size of tracks or scat
  - Avoid using your hands or feet for scale, as these can vary widely in size. If you have no other option, please provide measurements of your hand/foot for reference.
  - For photographs of an animal, providing measurements of any features, such as a prominent tree, can be very helpful. For trail cameras, another option would be to provide reference photos of other animals in the same general location as the large canid.



*An example of an ideal trail camera image where you can clearly see the entire animal and make relative comparisons of the length of the legs and size of the feet. This image has a snow stick that can be used to estimate the animal's size. If the stick was not present, providing the height of the brush in the background would be helpful.*

Reports of large canids can be submitted to [wildlife@dec.ny.gov](mailto:wildlife@dec.ny.gov) or to your [Regional DEC Wildlife Office](#) (scan QR code). Staff will review all reports to the best of their ability and provide feedback to the reporter. In cases where biologists feel that the animal may be a wolf, you may be asked to provide additional information or to collect any sign for further analyses.



## REMINDER FOR HUNTERS & TRAPPERS:

Wolves are protected in New York. Take care to reliably identify your target before harvesting any large canid. If you believe that you have mistakenly harvested a wolf, have harvested a canine that weighs more than 50 pounds, or if you have a canid in a trap that is over 4.5 feet in length and appears to weigh over 50 pounds, contact DEC Law Enforcement (1-844-332-3267) or your regional DEC Wildlife Office (scan QR code above) as soon as possible to receive additional guidance.

## Additional Resources:

- DEC Wolf Page: <https://dec.ny.gov/nature/animals-fish-plants/gray-wolf>
- Western Wildlife: <https://westernwildlife.org/signs-of-wolves/>
- Oregon DFW: [https://dfw.state.or.us/wolves/about\\_gray\\_wolves.asp](https://dfw.state.or.us/wolves/about_gray_wolves.asp)
- Voyageurs Conservancy: <https://www.voyageurs.org/news/wolves-and-coyotes>

