



Eastern Coyote: Coyote, Wolf, or Hybrid?

Text and photos by
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Eastern coyotes (coyotes living in northeastern North America) have been an enigma to scientists and laypeople for many years. This coyote started to appear in northern New England and New York in the 1930s and 1940s and currently inhabits all of the northeastern United States and southeastern Canada, ranging from wilderness to urban areas. The animals are often described as a big version of a coyote or a small wolf, and many northern New Englanders still call them coy-dogs. Until recently, however, there was only speculation as to what this

animal actually is. Now, emerging data have shed new light on this potentially distinct species.

I recently reviewed available data on coyote mass (weight) throughout North America and found that the coyote living in northeastern North America is indeed the heaviest version of coyote. It is clearly heavier than the nearest subspecies of coyote, *Canis latrans thomasi*, found in the midwestern United States. While size dimorphism was observed between sexes (males being heavier than females), which is consistent with observations of other Canids, eastern

coyotes were so big that females from the Northeast were 21 percent heavier than male coyotes from outside that region. Furthermore, although Bergmann's rule (i.e., larger size with increasing latitude) has been posited to explain the larger sizes of mammals in colder climates, findings from my study indicate that longitude (degrees west to east) accounted for greater than four times the amount of variation in coyote mass than did latitude.

Most of the studies in the northeastern United States measured coyotes heavier than 40 pounds,



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which are rare in other parts of the country. I radio-collared a 55-pound female eastern coyote on Cape Cod, Massachusetts, that traveled with more normal-sized (smaller) eastern coyotes. I tracked her for over eight years and documented her giving birth to six litters before she left her territory, becoming nomadic until ultimately getting shot.

Theories as to why eastern coyotes are bigger include response to enhanced food supply or larger prey, genetic adaptation to prey, or their being coy-dogs (that is, a coyote-dog mix). Most of the evidence discounts these theories since medium-sized

food (mice and rabbits) and deer are abundant throughout the United States, and coy-dogs reproduce in fall and give birth in winter instead of mating in winter and giving birth in early spring, like the normal wild canid cycle.

The most plausible scenario is that the eastern coyote is actually a hybrid between coyotes and a small type of wolf. Dr. Brad White's research team at Trent University reported that the wolves found in southeastern Canada may actually be the same species as the red wolf (*Canis rufus*, or *Canis lycaon* as proposed) found in the southeastern United States. This

"eastern wolf" is smaller, weighing about 60 pounds, and is thought to be more closely related to the coyote than to the gray wolf because both are theorized to have evolved in the New World whereas the gray wolf originated in the Old World. Thus, White's research group theorized that the genetic similarity of the coyote and *Canis lycaon* might facilitate hybridization, especially when populations are low in an area. (In fact, the biggest threat currently facing the red wolf in the southeastern United States is hybridization with coyotes colonizing the periphery of the North Carolina red wolf recovery area.)

I have been collaborating with White's genetic team, and they recently finished analyzing the genetic results of about 75 of our samples from eastern Massachusetts. Perhaps not surprisingly, they did find evidence for hybridization. They found that our study subjects were mainly eastern coyote, but all also had western coyote and eastern/red wolf genetic influence as well. White believes the eastern coyote should be classified as its own species because all of the samples from the Northeast (including from Massachusetts, New York, Maine, and New Brunswick) grouped more closely to each other than to western coyotes or wolves. Interestingly, biologists call these same Canids "Tweed wolves" in Ontario, and White notes that they are a product of hybridization between eastern coyotes and eastern wolves.

We are still trying to sort through this "canid soup" and have found variability within study areas with some "coyotes" having nearly pure red/eastern wolf and others having much western coyote DNA. We will likely not be able to officially call the eastern coyote a new species until we sample throughout the Northeast and determine where they become less "eastern coyote" and more "western coyote" or "eastern wolflike." However, it is obvious that the eastern coyote is indeed distinct when I compare the size and physical makeup of eastern and western coyotes; I see

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Ecologically, this “coy-wolf” behaves as one might predict for a 30-to-40-pound Canid. On average, it has a larger home range than most western coyotes (but smaller than wolves, at about 10 square miles), it travels long distances daily (10–15 miles), it eats a variety of food including deer but focuses on medium-sized prey such as rabbits and voles, and it is very social (when not killed by people), often living in families of three to five members (note: western coyotes have

also been found to be social where there is abundant prey). In short, it has ecological and physical characteristics that can be seen on a continuum of coyotelike to wolflike.

In addition to the eastern coyote, however, there have also been a number of apparently pure wolves that have made it to the northeastern United States in the past 10 to 20 years. These wolves seem to be either eastern, gray, or a hybrid of the two but have limited eastern coyote genes. Current wolf range in southern Canada is within 100 miles of the United States, a distance that wolves (or eastern coyotes) could travel in a week or two. Unfortunately, all of

these wolves have been found dead before anyone could monitor them. Why is this the case?

Many believe it to be because northeastern states provide little protection to their similar looking cousins, the eastern coyote. All states have a liberal coyote hunting season, with most allowing unlimited, year-round killing. I have always found it peculiar that eastern coyotes, which look so similar to eastern wolves, are afforded virtually no protection while wolves are still on the endangered species list in the Northeast and are currently returning to the area on their own.



On average, the eastern coyote has a larger home range than most western coyotes (but smaller than wolves, at about 10 square miles), it travels long distances daily (10–15 miles), it eats a variety of food including deer but focuses on medium-sized prey such as rabbits and mice, and it is very social, often living in family groups of three to five members.



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active reintroduction) is if they and their close kin (i.e., eastern coyotes) are better protected. How many more dead wolves (or large eastern coyotes) will it take to force people to pay attention to the fact that wolves are trying to recolonize the northeastern United States?

While state agencies have effectively chosen to do nothing to protect pure wolves returning to the Northeast (as they continue to die at the hands of people), we have also had the amazing opportunity to witness the literal evolution of a species, the eastern coyote, in the past 50-odd years. I look forward to continuing to study this amazing animal regardless of whether we fulfill our legal and ethical mandate to allow its larger cousin to return to the Northeast. ■

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As a biologist studying the eastern coyote, I see an incredibly adaptable and family-oriented animal that is personable, social, sentient and an important member of the ecological community. I have a moral and ethical problem with the fact that most states (42 out of 49) treat them as vermin, especially since only a minority of people hunt, and wildlife watching is now a considerably bigger component of our economy.

The traditional wildlife management standpoint is that if a species is breeding and compensating for its losses, then so what if we kill lots of them? But just because coyotes can reproduce quickly does not mean they do not have feelings, for example, as when losing a mate.

What if the mate is theirs for four or five years and then it is shot? I think these social, intelligent animals do feel loss. Accordingly, I believe very strongly that all states should have a strict bag limit on coyotes, which is in line with management for most wildlife species. Treating them otherwise sends the wrong message about the value of these animals both ecologically and aesthetically.

To add further ammunition to my argument is the issue of the wolf in the Northeast. We have a legal obligation to restore a species on the endangered species list to its native range. Many (including myself) now believe that the only way that wolves will likely return to the United States (either by natural recolonization or

Jon Way is the author of *Suburban Howls* (see www.easterncoyotereseearch.com), written from a biologist's perspective but intended for the layperson. The book describes his experiences and findings studying the ecology and behavior of the eastern coyote in urbanized Massachusetts.

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