



Managing Wildlife Damage: Coyote (*Canis latrans*)

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INTRODUCTION

The coyote (*Canis latrans*), also known as the “prairie wolf,” is a medium sized member of the dog family. Its highly adaptive nature has allowed it to expand its’ range across North and Central America. Coyotes are considered anthropogenically abundant due to the expansion of the coyotes’ range, increasing human population and urbanization, removal of wolf populations, and the introduction of livestock to new areas. With the increase in coyote numbers, there are growing concerns about the spread of disease (e.g. rabies) as well as attacks on livestock, pets, and humans - particularly in suburban and urban areas.

TAXONOMY

Class Mammalia

Order Carnivora

Family Canidae – Dog Family

Coyote – *Canis latrans*

There are 13 genera in family Canidae with 37 species. Eight of these species are found in the genus *Canis* including 3 species of jackals, 3 species of wolves, all domesticated dogs, and the coyote. The coyote’s scientific name, *Canis latrans*, means “barking dog.” There are 19 recognized subspecies of coyote.

STATUS

In Georgia, coyotes are non-native and there is no closed season for harvest. Coyotes can be captured with foothold traps and live traps. Hunting can also be effective using distress calls to lure in the animal. Their fur is still valued and coyotes harvested for commercial pelts.

NATURAL HISTORY

Identification. The coyote is the size of a small to medium sized dog having pointed ears and snout, a bushy tail, and weighing between 15-45 lbs. The fur can be mottled in color from black to reddish-yellow (Figure 1). Often the throat and underside are white, the legs and muzzle more reddish, and the tip of the tail black.

Habitat. Coyotes are capable of inhabiting a wide range of habitats. This has allowed them to expand their range eastward from their original location in the western half of North America to throughout most of North and Central America. These habitats include agricultural areas, deserts, forests, prairies, and even suburban and urban yards and parks (Figure 2).

Reproduction. Coyotes reach sexual maturity at 12 months of age. The monoestrus females come into heat for 2-5 days between late January and late March. The male-female pair bond is often monogamous for several years. Gestation



Figure 1: Coyote (Photograph by Alfred Viola, Northeastern University, Bugwood.org).

lasts 60-63 days and litters average 6 pups (range 1-12). Pups are born blind and without the distinguishing characteristics of pointed ears and snout but rather lop-eared and pug-nosed. Both parents will tend the young. The pups can leave the den between 21-28 days and are weaned by day 35. Young males will disperse at 6 to 9 months of age while females will stay longer into adulthood. Coyotes reach adult size between 9 and 12 months. Coyotes have been known to hybridize with both domestic dogs and wolves. Coyotes and domestic dogs that have bred produce “coydogs.” While “coydogs” may technically exist, they are rare and of little concern to most biologists.

Feeding. The coyote is primarily carnivorous and while they primarily eat small mammals, they will readily eat avian, reptilian, and large invertebrate species if captured. Coyotes will also frequently eat carrion. In the fall and winter months, fruit is an important food item in their diet. In urban areas, coyotes will dig through garbage to find food and have been known to take pets (cats and small dogs) from yards.

Behavior. Coyotes are generally nocturnal but can be seen infrequently during the day. Daytime sightings seem to be increasing in suburban areas as coyote populations increase and they lose their innate fear of humans. The coyote will dig burrows with several entrances or excavate and modify pre-existing burrows of badgers (*Taxidea taxus*), woodchucks (*Marmota monax*) or natural cavities. These dens will be used by the same individuals for multiple years. Coyotes are capable of running 40 mph and jumping spans of 13 ft. The coyote primarily communicates through barks, howls, and yelps, but also communicates by marking territories via urination and defecation.

DISEASE

Coyotes can be reservoirs of numerous bacterial and viral diseases that can spread to humans. This includes rabies, leishmaniasis, and hydatid disease; however, the diseases of primary concern in Georgia are rabies and canine distemper. There is no effective rabies vaccine for wild coyotes. Pet dogs and cats should be vaccinated to prevent them from being infected.

Coyotes can also harbor a wide range of ectoparasites, internal parasites, and other pathogens. Some of the more common examples of ectoparasites are ticks, fleas, and mites. Mange, caused by the mite *Sarcoptes scabiei* can be fatal. Mange can be severe, causing a near total loss of fur. These individuals are rare but of great curiosity to people.

Internal parasites can include tapeworms (*Echinococcus granulosus* and *E. multilocularis*) and numerous species of nematodes and trematode worms. The causative agents of tularemia, sylvatic plague, Rocky Mountain spotted fever, leptospirosis, and bovine tuberculosis have also been documented in some populations of coyotes.



Figure 3: A coyote attacking a sheep.

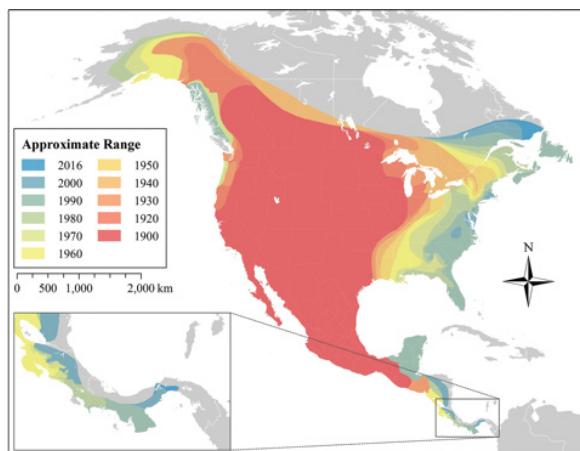


Figure 2: Current distribution of the coyote across North America. Image from <https://doi.org/10.3897/zookeys.759.15149>

DAMAGE ISSUES

Coyotes have been known to attack and kill livestock (poultry, sheep, and calves) (Figure 3), pets (dogs and cats), and rarely humans. Often when incidents like this occur, it is a single coyote or small group of coyotes that have become specialized in attacking this unfamiliar prey. Coyotes may cause damage when searching for food in garbage cans in suburban and urban areas. There may also be damage from burrowing and the consumption of fruit from gardens.

Coyotes have also recently been suspected of suppressing deer populations. This is because they prey on fawns or may scare adults away from the best food sources, leading to nutritional deficiencies. In some cases, this behavior can have a significant local effect, but it should not be assumed that if coyotes are in an area, the deer population is being suppressed. There are other factors like habitat that should be considered before deciding coyotes are the cause.

ECONOMICS

Coyote pelts can be sold in the fur trade. Coyotes are often hunted or trapped for their pelts as well as for being a nuisance. In some cases, coyotes may control rodent problems that would result in other wildlife damage if left unchecked. The greatest cost associated with coyotes occurs when they prey on livestock, pets, or attack humans, particularly children.

CONTROL

Habitat Modification. Even though coyotes are highly adaptable creatures, some habitat modifications can be used to deter them from your area. In suburban and urban settings, bringing garbage cans, pets, pet food, and other attractants indoors will discourage use of the area by coyotes. Cleaning up spilled bird seed will discourage chipmunks and mice which also discourages coyotes.

For livestock, options include: keeping young animals in a barn or an area with little cover and close to humans, synchronizing birthing to reduce the time of vulnerability, and concentrating the entire herd or flock to a more secure area during the period of vulnerability. In addition, if an animal dies on the premises remove or bury the body immediately so that coyotes will not be drawn to the area.



Figure 4: *M-44 device for lethal coyote control (Photograph by Dallas Virchow).*



Figure 5: *A sheep wearing a livestock protection collar.*

In livestock areas, remove objects in the environment that could provide a home to natural prey. Sources of water should be removed from an area if possible so the coyotes will have to move to another location.

Exclusion. Use fencing to keep coyotes away from livestock (such as sheep, cattle, goats, or chickens) as well as away from yards where children and pets maybe located. Bury the fence at least 6 inches so that coyotes will not easily burrow under. Fences should be at least 6 ft tall so that the coyote cannot leap over it and it must have its wire, or other material, close enough together so that the coyote cannot move through it. Woven wire fences are recommended. Fences can be expensive, especially if you have a large pasture for grazing sheep or cattle. If you are only able to use wire strand fencing, electrifying the fence may provide some extra encouragement for the coyote to leave the area.

Frightening. In more rural areas, electronic devices that emit light and sound can be used to keep coyotes from attacking livestock. This may be short-lived solution though as coyotes will potentially adapt to the noise and light. Moving the devices, changing sounds, and light patterns may keep coyotes away for longer periods. Another option is to place a guard animal such as dogs, llamas, donkeys or mules with the flock or herd. In addition, when coyotes are in the area, chase them away, shout at them or make other loud noises, and throw sticks or rocks in their direction. Never approach a wild coyote or feed them. Doing so may cause them to lose their fear of humans.

Lethal Control. If nonlethal control methods are not working, coyotes can be dispatched a number of ways. Coyotes can be caught in foothold traps or live traps and then humanely dispatched. Trapping a coyote may be difficult, as they are cunning animals. Hunting using calls or dogs can be useful for removing individuals. Trapping and hunting can be effective short-term means of control but may face difficulties over multiple years as coyotes learn to be more cautious.

Another method used to control coyotes is the M-44 sodium cyanide device (Figure 4). The device has a cap that, when pulled, releases the poison as a spray into the animals' mouth and death occurs immediately. Like the foothold trap and the live traps, the coyote may be clever enough to avoid this as well. Use of the M-44 is restricted or banned in some regions, and is not legal in Georgia.

Another poison used on coyotes is Compound 1080 (sodium monofluoroacetate). Livestock protection collars (LPC) incorporate Compound 1080 to eliminate an individual coyote that is causing damage to a flock or herd. Fasten the LPC around the necks of the livestock, the area of the body the coyote is most likely to strike (Figure 5). When the coyote strikes at the neck of the animal Compound 1080 in the LPC will be ingested resulting in death of the offending coyote. The drawback to using the LPC is that you must also sacrifice another one of your livestock but you are virtually guaranteed to remove the problem coyote from the area. Dogs and cats are highly susceptible to 1080 poisoning so users are warned to follow all label requirements and use caution when applying 1080 in areas with dogs and cats.

FURTHER READING

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ILLUSTRATION ACKNOWLEDGEMENTS

- Figure 1: Alfred Viola, Northeastern University, Bugwood.org
- Figure 2: <https://zookeys.pensoft.net/article/15149/zoom/fig/13/>
- Figure 3: sheep101.info
- Figure 4: <http://icwdm.org/wildlife/coyotes.asp>
- Figure 5: <http://calag.ucanr.edu/Archive/?article=ca.v055n06p26>

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