

Coyotes in the Commonwealth

by John J. Cox

The story of wildlife in North America during the past 20,000 years is one that is bookended by two major extinction events. The first occurred during the end of the last Ice Age when many giants such as the mastodon and ground sloth disappeared because of climate change and overhunting by early humans who entered North America. The second extinction event began around 400 years ago with European colonization and the overexploitation of many species that were important sources of food and fur, such as beavers and bison. Wolves, bears, and mountain lions became targets of widespread persecution and soon disappeared across much of their range. These species and many more were greatly reduced in number and range or went extinct.

The coyote is one carnivore that stands in utter defiance of this extinction trend. It is a medium-sized (typically 20-40 lb) wild dog historically found in the grasslands, deserts, shrub-steppe, and some forests of central and western North America. Settlers moving into this region often referred to the coyote as the brush wolf, barking dog, or song dog given the wide vocal repertoire that carried for miles across the vast expanses of land, and perhaps unnerved a few weary travelers. Long before these newcomers, however, the coyote was a long established and important part of Native American culture and mythology, often portrayed as a clever trickster, thief, and deity.

Unlike its larger and more carnivorous cousin, the grey wolf, which is also found in Eurasia, the coyote is uniquely North American. While its larger carnivore competitors disappeared across much of their range, the coyote has instead spread across much of North America, from coast to coast, and from Alaska to Panama, despite millions spent in eradication efforts across two centuries. Widespread

forest fragmentation and creation of farms stocked with animals only created more habitat and feeding opportunities for the coyote. The rapid range expansion of this carnivore can be attributed to its adaptability. With a relatively small body size and more omnivorous diet that includes small rodents, insects and plants, the coyote is much better suited to coexist with humans than wolves. In addition, the coyote has a flexible social structure that can range from lone animals to small packs.

Having grown up in northeastern Kentucky, my impression of coyotes was what I learned from Looney Tunes and in western lore. Little did I know that this clever canid first appeared in Kentucky around 1953. Although conventional wisdom from wildlife biologists was that coyotes increased in number after portions of the Ohio and Mississippi rivers froze during the blizzard of 1977, their initial colonization patterns into the Commonwealth



Dr. John Cox holding coyotes.

largely remain a mystery. Coyotes have since spread to all counties in Kentucky and are occasionally spotted within the urban boundaries of Lexington and Louisville, including the University of Kentucky campus.

As a young graduate student, I became intrigued with the coyote and the reasons behind its wildlife success story, a fascination that would lead into various research studies over the next 25 years. My research has sometimes been conducted via the capture, radio-



The coyote is one of the most adaptable animals and can be found in a wide range of habitats across the state.

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collaring, and tracking of individual animals across a myriad of habitats, through examination of biological samples from live and dead animals and, at other times, by learning about their diet through examination of scats or by studying their prey.

Our work and others found that as coyotes spread east from their historic range in the central and western United States, they interbred with domestic dogs, red wolves, and gray wolves, particularly along the leading edge of their colonization front. Under normal circumstances, behavioral barriers prevent these species from interbreeding; however, when mates are scarce, hybridization can occur. As coyotes colonized the northeastern United States and southeastern Canada, they occasionally bred with gray wolves. In the southeastern United States, they sometimes mated with the few remaining red wolves or with domestic dogs. Consequently, eastern coyotes can display physical characteristics picked up from hybridization events, including larger body size, wider jaw, and fur colors and characteristics of wolves or dogs. We found that around 10% of coyote-like canids in Kentucky appeared to be coyote-dog hybrids, or “coydogs” (Cox et al. 2001), and more recently while studying coyotes in Louisiana (Murphy et al. 2018), that at least one Kentucky coyote was a descendent of a past coyote-grey wolf hybridization event. The evidence therefore suggests that some coyotes in Kentucky have some degree of wolf ancestry and that they can and do sometimes breed with dogs.

Coyotes often get blamed for causing population declines of both large and small game species, but the direct evidence for that is lacking in many places they have been studied. Coyotes certainly prey on species such as the white-tailed deer (particularly fawns), eastern cottontail rabbit, squirrels, and some game birds, but their diet often consists primarily of rodent pests, carrion, insects, and plants. We examined nearly 500 coyote scats from southeastern Kentucky and found that their diet was highly varied across the year and by vegetation cover type, with major seasonal shifts in foods consumed (Cox 2003). Rodents, cervids (deer and elk), rabbits, plants, and insects were the major food items, but much of the deer and elk in coyote scats collected in fall and winter was likely scavenged given its coincidence with deer gun season and the death of some elk released into Kentucky. Coyotes also consumed grasshoppers, pokeweed and autumn olive berries, and persimmon during the summer and fall.

By studying coyote prey survival, we gained additional insight into its ecological role. A radio-collar study of elk calves in Kentucky suggested that survival is very high (90% after one year), and that coyotes have minimal impact on this large deer species (elk calves weigh as much or more than a coyote). In contrast, a separate study of white-tailed deer fawns in southeastern Kentucky indicated 44% of all fawns



In the right conditions, a coyote howl can be heard for miles.

All photos courtesy: Dr. John Cox

survived thru the first four months, but that predation from coyotes and bobcats was responsible for 77% of all deaths (McDermott 2017).

The coyote is a supreme survivor that has lasted through multiple Ice Ages, human attempts to eradicate it, and the vast habitat modifications we've made across the continent. In all of that, this small, adaptable song dog has thrived and will likely remain with us well into the future. Some Native American tribes believe that long after humans disappear, the coyote will be the last animal on Earth.

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