

The Impact of Coyotes on Wildlife

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The coyote, *Canis latrans*, sometimes called "prairie wolf" or "brush wolf," has roamed the plains of central and western North America for many centuries. Though reported absent from western Oregon before 1911, the coyote is now abundant throughout the state and is considered the most important single predator in Oregon.

Coyotes vary in size from about 18 to 35 pounds, yet they catch and kill animals from mice to full-grown deer. They have been described as clever, cowardly, intelligent, wary, skillful, adaptable, sneaky, and "low-down ornery varmints." These, and perhaps many more adjectives, are appropriate when describing one of Oregon's most interesting and versatile furbearers.

The primary food of coyotes is meat—with up to 98 percent of the yearlong diet consisting of animal matter. Individual animals, however, may feed heavily on insects, fruits, berries, and vegetable matter, including melons. As much as 25 percent of the diet may be carrion, though some observers believe the coyote leaves more carrion than he consumes. One early naturalist described the coyote's food habits by stating, "There is nothing in the way of fish, flesh, or fowl, dead or alive, ancient or modern, that the coyote disdains for food."

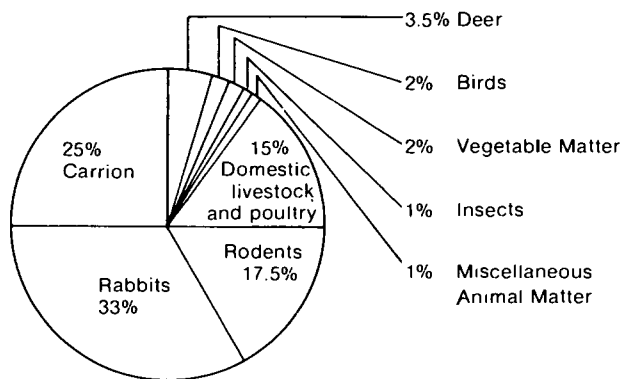


Figure 1. Average coyote diet. Data was obtained by analyzing stomach contents of 8,263 coyotes from western states. Stomach collections were made during all months of the year. (Courtesy Colorado State University.)

Today, the primary concern with the coyote centers around the fact that approximately 20 percent of his diet is made up of poultry, livestock (particularly domestic sheep), and wildlife—including deer, antelope, upland game birds, and waterfowl, which man prefers to harvest for himself. As a result, many controversies

have arisen over how the coyote fits into today's scheme of wildlife and livestock management.

Many popular assumptions, some bordering on myth, have arisen regarding coyote-wildlife relationships. A few key questions need to be answered to separate fact from fiction.

- **Do coyotes kill deer, antelope, or other big-game animals? Can they kill healthy, mature animals, or only the sick, weak, aged, or very young?**

Coyotes can and do kill healthy, fully grown deer and antelope, particularly when such animals are caught at a disadvantage as in deep or crusted snow, or on ice. Most kills probably are fawns and yearlings. Certainly the young, weak, and inexperienced animals are most vulnerable. Over a long period, coyote predation on a total deer or antelope population probably is not significant. The same degree of predation on an individual herd or in a local area could be important if loss of habitat, poor nutrition, disease, bad weather, or accidents had already taken a heavy toll.

In Utah, Arizona, and Oregon, studies show antelope fawn survival is significantly higher in areas where numbers of coyotes and other predators are substantially reduced by trapping, shooting, or other control methods. A small herd in northeastern Oregon provides a good example of the impact of predation on antelope numbers. In March 1969, 17 antelope, including 10 adult does, were transplanted from central Oregon to the 20,000-acre Umatilla Army Depot. About 16,000 acres of the area is considered suitable antelope habitat. The total number of fawns born to the 10 females in May 1969, is not known but by fall only one survived. Good reproduction was reported in the spring of 1970, but again only one fawn remained alive by September. Observations indicated a high coyote population in the area. Following the removal of 135 coyotes with traps and poison "getters" (5.4 per square mile of the antelope habitat), fawn survival was 13 for 9 does or nearly 80 percent of the reproductive potential of the does. This compares to 20 percent survival for other antelope areas in southeastern Oregon where coyote control was less intensive or absent.

The Steens Mountain mule deer study in southeastern Oregon, by the Oregon Department of Fish and Wildlife, presents well-documented evidence of predator losses in deer. From 1951 to 1958, survival of mule deer fawns to December averaged about 80 per 100 does. Since 1959, December fawn counts have averaged only 50 fawns per 100 does—nearly a 40 percent reduction. Winter population counts for all age classes



also declined sharply from 32 deer per mile in the 1950's (10-year average) to 26 per mile in the 1960's to only 17 per mile in the 1970's. This reflects the sharply reduced recruitment of fawns into the total deer herd.

A six-year study shows fawn production in the Steens Mountain deer herd is within the normal range for mule deer, averaging 156 fetuses per 100 mature does, or 131 fetuses per 100 females of all ages. Periodic inventories of fawn:doe ratios show an estimated total loss during the first nine months of life of the fawns to be nearly 78 percent. Radiotelemetry studies of fawn deer in the Steens indicate predation (mostly by coyotes) is the principal direct cause of known fawn mortality during both summer (55 percent) and winter (78 percent) periods. From September to December 1975, all 12 mortalities that occurred in a sample of 21 fawns monitored were due to predation—9 to coyotes and 3 to bobcats.

Of course, these exact findings cannot be applied to every mule deer herd in Oregon, but the high fawn losses shown in the Steens study strongly support the contention that coyotes have a serious depressing influence on mule deer herds, especially those struggling to survive habitat encroachment or deterioration, severe winter weather, or other problems of survival.

- **Do coyotes have an impact on birds?**

Coyotes are "opportunists," and seldom pass a chance to dine on a fat pheasant or a tasty clutch of duck eggs. One report noted that a single coyote broke up 51 Canada goose nests on an island in the Columbia River before it could be removed by a federal trapper. Other examples can be cited in support of predator management (control) as a useful tool for increasing nesting success of ground-nesting birds, including sage grouse, pheasants, quail, and waterfowl. Coyote food-habits studies show wild birds, including non-game species, are infrequent items in stomach or scat samples; most often present following hunting seasons or severe storms. The coyote is probably more of a scavenger than a predator on birds. Skunks, raccoons, opossums, and foxes may be more efficient nest predators than the coyote.

- **Do coyotes or other predators limit or prevent irruptions of rodents?**

Probably not. The overwhelming consensus of biologists who have studied this complex problem for many years seems to be that the "prey species," by its absence or abundance, controls the "predator." The meadow mouse irruption in eastern Oregon during the late 1950's seems to substantiate that premise.

In 1957-1958, five counties in eastern Oregon experienced the most severe irruption of meadow mice ever recorded in Oregon with mouse populations estimated as high as 4,000 per acre in some areas. Cottontail rabbits and blacktailed jackrabbits also were extremely plentiful. Well-fed coyotes and other ground and avian predators responded to this food bonanza with larger litters and increased numbers. Following the "crash" decline of the rodents, coyote ranks were soon decimated and half-starved coyotes were a common sight after the drastic reduction of their food source. Later, coyote numbers stabilized to the supply of mice, rabbits, and other prey species.

- **Are coyotes harmful to rare or endangered species, fish, or non-game wildlife?**

The evidence is sparse or lacking. Present studies on Oregon's only endangered big game species, the Columbian whitetailed deer, do not indicate predation is the major limiting factor, though wild-running domestic dogs and coyotes do account for some losses to both fawns and adults. The major problem in this case is restricted habitat rather than predation.

Fish make up an insignificant part of the coyote's diet.

The kit fox, another endangered animal, was never abundant in Oregon, though there are some in south-eastern Oregon. Though only conjecture, kit fox numbers may have been still further reduced during the period 1940 through 1960, when coyote-control operations, including the wide use of toxic baits, were extensive in southeastern Oregon.

- **Are control efforts aimed at reducing coyotes and other predators harmful to non-target wildlife?**

Records of population reduction of non-target species are lacking. Control techniques such as aerial gunning, shooting, or destroying pups in dens are quite target-specific. But steel trapping, snaring, and poisoning depend to a great degree on the training and skill of the individual operator to take a specific predator.

Individual birds and animals other than the coyote undoubtedly have been killed by improperly placed toxic baits, either directly or by secondary poisoning. Evidence of the overall effects of such incidents is either inconclusive or lacking. In fact, some studies have indicated increased numbers of some of the smaller carnivores such as raccoons and skunks following reduction in coyote numbers. U.S. Fish & Wildlife Service studies over a 30-year period indicated that populations of non-target carnivorous species did not measurably decrease in the vicinity of predator control operations. Despite such evidence, increased public sentiment against predator control, particularly against the use of toxic chemicals, led to an Executive Order which banned the use of all toxicants on federal land and by federal employees on both federal and private lands.

- **Do coyotes and other predators have an impact on wildlife populations?**

Yes, but that impact is not always negative and it may be more noticeable on localized wildlife populations rather than throughout a general area. Today's wildlife manager must take a much broader look at the "predator" as an important part of the total wildlife scene. Even the term "wildlife" must include nearly everything that swims, crawls, walks, or flies and not just the species harvested during the annual angling or hunting seasons. Frederic H. Wagner stated it well in the January 1975, issue of the *Journal of Range Management* when he said:

"If there is one lesson that comes through strongly in the tortured history of predator control—and all resource management, for that matter—it is that the day of single-value management is gone. Predatory animals are game species to a growing clan of varmint hunters. To hikers, campers, back-packers, and numerous groups of nature lovers, they are as much a part of the variety and beauty of the American outdoors as pine trees, lakes, red squirrels, and deer."