



“The results of this research may justify amendments to predator compensation programs and producers’ deadstock management programs”

## PREY COMPOSITION, HABITAT SELECTION AND MOVEMENT OF WOLVES IN SOUTHWEST ALBERTA

**RESEARCH INSTITUTION:** University of Alberta  
**LEAD RESEARCHERS:** Dr. Mark Boyce and Andrea Morehouse

**Background:** Ranching benefits the environment by helping to preserve natural habitats and ecosystems. Grasslands maintain watersheds, reduce soil erosion, accumulate organic matter in the soil (called carbon sequestration), promote plant biodiversity, and provide a habitat for wildlife. In some areas of Canada, grazing lands border on or overlap with crown lands, national parks, and nature reserves. This can lead to conflict, particularly if deer, elk or moose damage fences, forage, or stored feed. Wolves and other predators help to control populations of prey species. But when wild game is scarce, wolves may turn their eyes to domestic livestock.

Alberta’s wolf population fell dramatically in the 1950’s and 60’s as a result of efforts to control rabies. In fact, wolves were completely eliminated from southern Alberta. Wolves have made a comeback since then, along with concerns about wolf predation. Several provinces have programs to compensate producers who have had livestock killed by predators. Usually, a producer can be compensated if wildlife officers confirm that the cattle were killed (or probably killed) by a predator. In Alberta, 74% of predator compensation payments are for cattle that have been killed or injured by wolves. Compensation is generally not available for scavenged or “missing” cattle, which means

that kills must be found when they are relatively fresh. This is difficult in heavily wooded areas or rough terrain. Ranchers have often suspected that these missing animals were killed by wolves, although no one knew for sure.

Wolves avoid human contact, and this makes them difficult to study. To improve knowledge about wild wolf habits, captured wolves have been fitted with radiotelemetry collars, returned to their packs and tracked. Older systems report wolf pack locations about three times per day, and were accurate to within a mile or so. Newer, GPS-based radiotelemetry collars can pinpoint locations to within 65 to 80 feet on an hourly basis. This gives researchers much more insight into wolf pack ranges and behavior patterns. In 2009, Alberta Beef Producers funded a small study that used this GPS technology to shed some light on wolf activity and diet in a 1,300 mile<sup>2</sup> area that was 30% private and 70% crown land.

**Objectives:** To use new GPS tracking technology to study wolf movements and diet in southwestern Alberta ranch country.

**What they did:** These researchers used GPS radiotelemetry to track the Bob Creek, Crowsnest and Castle Carbondale wolf packs in southwestern Alberta for over a year. When radiotelemetry data indicated that a pack had moved less than 350 feet in three hours (clustered), they went to investigate what the wolves had been doing. If the wolves had been

eating, dead animals were classed as a “kill” if there were signs of a struggle, the rumen was intact, the hide wasn’t eaten, and the skeleton was taken apart. The carcass was also examined to determine the species, sex and age. Deadstock or animals that were killed by other predators were classed as scavenged. Wolf scats (droppings) were also collected, and undigested hair was examined to determine whether it came from small prey (e.g. squirrels, beavers), wild game or cattle.

**What they learned:** Nearly 700 clusters of activity were examined. Of these, 181 were kill sites, 32 were scavenging sites, and the others were bedding, denning or rendezvous sites. Only large prey (deer, moose, elk, cattle and horses) were found at the kill sites. This makes sense; a wolf pack doesn’t need three hours to kill and eat a beaver.

*June through October:* Investigation of cluster kill sites indicated that nearly half of the animals killed by wolves were cattle, the rest being mostly elk, moose and deer. Roughly 40% of the cattle killed were calves, 40% were yearlings, and less than 20% were adult cows or bulls. Scat samples indicated that killed and scavenged cattle made up approximately 60% of the wolf diet, and the other 40% was wild prey.

*November through May:* Cluster kill sites showed that just over 10% of the animals killed by wolves were cattle. Scat analysis indicated that killed or scavenged cattle provided about 30% of the wolf diet, with the other 70% coming from wild prey. Scavenging provided a much bigger portion of the diet in winter, and 85% of the scavenging consisted of visits to deadstock disposal sites.

**What it means:** This research was done in a small area of southwestern Alberta. Although this area represented only 3% of Alberta’s land base, it was responsible for 37% of Alberta’s predator compensation. Most previous studies have generally reported that most wolf packs kill one beef animal per year, but the packs in this study killed an average of 17 beef cattle per year. It is unclear why the wolves in this study appeared to prey more heavily on cattle. On one hand, older radiotelemetry technology couldn’t pinpoint clusters of activity as effectively as the GPS collars used in this study, so many predation events may have been missed in the older studies. Past studies also relied more heavily on physical tracking to locate predation events. This is more easily done in winter, when there are fewer young cattle on the range. On the other hand, it is suspected that some wolf packs prefer wild game while others are more inclined to prey on livestock. The wolves in this study area may simply be partial to Alberta beef.

The results of this research do not justify efforts to eradicate wolves. However, these results do suggest that ranchers may be feeding more wolves than predator compensation programs currently recognize. A significant proportion of cattle that are missing at the end of the grazing season may actually represent wolf predation in these areas of southwestern Alberta, suggesting that amendments to predator compensation programs should be considered. However, this research also indicates that deadstock disposal sites attract hungry wolves in winter, suggesting that producers in these areas who do not wish to feed wolves need to plan their deadstock disposal sites carefully.



[www.albertabeef.org](http://www.albertabeef.org)