

Coyote is chief predator

Coyote research at the field station is part of a Western Regional Experiment Station project. The objectives are to find out how coyotes attack and kill sheep, assess the impact of predation on the sheep industry in the state, evaluate the effectiveness of coyote control on coyote populations, and explore the possibility of developing a better attractant by fractionating coyote urine to improve control efficiency. Of these objectives, the first three were completed, and studies on the fourth are still in progress.

Sheep-killing behavior of coyotes

An extensive series of trials carried out under penned conditions indicated that the usual attack site was the throat of sheep. However, the primary objective of coyotes was to collapse the larynx or trachea on mature sheep and cause suffocation. Damage to blood vessels or other supporting structures appeared to be inadvertent. In small lambs, injury to the spine or brain was not unusual.

Damage assessment

It was found that coyotes are the primary sheep predator in California, accounting for approximately 82 percent of all predator losses; dogs were second, causing 14 percent of the losses. All other predators, including eagles, lions, and bobcats, accounted for only 4 percent of the losses. It was estimated that direct losses of sheep in the state, the cost of predator control, and the indirect effects on the economy, collectively, amounted to approximately \$5,092,000.



Effects of control on coyote populations

A model was developed to simulate the effects of control on coyote population dynamics. This model indicated that when the density of a coyote population is reduced through control operations, compensatory, density-dependent changes are triggered in the coyotes' birth and natural mortality rates.

It is thought that the increase in birth rate and lowered mortality result from a reduction in competition for food supply. Coyotes appear to be able to compensate in this manner, maintaining their numbers except at the very highest levels of control—over 75 percent killed per year.

The net result is that, unless predicide chemicals can be used for control, it is virtually impossible to successfully control a coyote population using trapping or hunting alone.