

MOUNTAIN LIONS, DEER AND PREDATOR CONTROL

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Abstract: Predator-prey relationships are complex, and not all parameters are well understood. The mountain lion (*Felis concolor*) is a high-class predator, and a controversial species. Mountain lions prey on all age classes of mule deer (*Odocoileus hemionus*) and white-tailed deer (*O. virginianus*). Combinations of factors influence the number of deer killed by mountain lions in a given area over a period of time. Climatic conditions, deer density, cover, the abundance and diversity of prey species and mountain lion density are all factors. To understand the effects of mountain lion predation on deer populations wildlife managers need to have a working knowledge on the ecology of both species before management decisions are implemented. In certain cases predator control is an effective wildlife management tool when benefits will be derived by control measures.

INTRODUCTION

The mountain lion also known as cougar, puma and panther, has been an integral part of the Texas fauna for thousands of years as evidenced by the paintings and pictographs of Native Americans. Lions were one common throughout the state of Texas, but since Anglo settlement, they have been mostly confined to the isolated and rugged areas of the state. Lions now appear to be moving back into historic ranges in other areas of the state.

Mountain lions are controversial animals that often evoke love-hate feelings on the part of humans. Whatever one's perspective, mountain lions are fascinating and little understood predators that play an important role in ecosystems.

BIOLOGY

Mountain lions are high-class predators, and a basic knowledge of their biology is important in understanding the

role of the mountain lion as predator and deer as prey.

Mountain lions are reddish brown to tawny in color, this coloration aids in camouflaging them as they stalk their prey. Mountain lions are solitary animals. They are active in the early morning and at dusk (crepuscular) and at night (nocturnal). Normal weights on adult males in western Texas average 100-150 pounds, and 55-90 pounds for adult females (McKinney 1996).

Adult males and females are only together for a 3 to 5 day period during breeding season. Lions may breed at any time during the year, but most litters are born in the summer and fall. Females first breed when they are around 2 years of age. Intervals between litters average from 18 months to 2 years. Average litter size is normally 2 to 3 young. The gestation period is about 90 days. Female lions pick locations within their home range that offers cover and security for their young. Kittens may be left unattended for hours while the mother hunts. Females may leave their

kittens in heavy brush, rockslides, caves or overhangs. The growing cubs stay with the female until they are 12 to 24 months old, at which time they disperse and began the search for their home range. Dispersal of young lions depends on the distance to unoccupied habitat. Generally, sub-adult males disperse further than females.

The size of a lion's home range is determined by a variety of factors: prey diversity and abundance, topography, and mountain lion density. Male home ranges average roughly 2.5 times larger than those of females. The male's range usually encompasses the range of several females. Recent research in western Texas has indicated a degree of overlap in home ranges of adult males, however males literally do not share home ranges (Pittman et al 2000). The home range of an adult male may vary from 80 square miles (207 km²) to over 200 square miles (518 km²), while females ranges normally average 20 square miles (51 km²) to as much as 100 square miles (259 km²). Female ranges tend to have some degree of overlap with those of other females, yet they remain solitary.

HOW MOUNTAIN LIONS KILL

Lions are opportunistic, preying on a wide range of animals. As with any carnivore, it is impossible to predict what a lion will prey upon at a given time. Lions stalk they prey and kill by crushing their victim's esophagus, resulting in suffocation. Another killing technique is biting the neck, thus separating the vertebrae. In some case, lions will bite through the skull.

Lions are meticulous about their kills compared to other carnivores. Once the kill is made the lion will drag the prey to a

cache area. Lions cache their kills in areas of heavy cover. They often cover the kill with grass, leaves, dirt or other debris, but they do not bury their kill. They often remove the internal organs and cover them up close to the kill site. Lions will uncover their kill and feed, then drag the carcass to another area and cover it again. The carcass normally remains intact as the lion begins to feed at the shoulders and ribs, eventually moving to the hindquarters and loin on subsequent meals.

IMPACTS ON DEER NUMBERS

Lions will predate on all age classes of deer. Newborn fawns and large bucks are particularly more susceptible to lion predation after the rut when they seek solitude to recuperate from breeding efforts. Groups of deer present more eyes and ears to alert them to danger than a solitary animal.

In an area where small mammals are abundant lions will have less impact on deer numbers. Smaller mammals act as buffer species thus reducing predation on deer. Wildlife managers should not over-harvest small game and nongame species that act as buffers. For example, mountain lions will prey on javelina (*Tayassu tajacu*), nine-banded armadillo (*Dasypus novemcinctus*), black-tailed jackrabbit (*Lepus californicus*), porcupine (*Erethizon dorsatum*), skunks (*Mephitis* spp.) and wild turkey (*Meleagris gallopavo*). In areas where deer are the primary prey species, and small mammals are not common lions will prey on deer more heavily.

In the yearly cycle there are "X" number of days the lion will hunt, and when the lion has made an adequate kill he will not hunt. An example of this is when a lion

kills a javelina it may take him out of the killing cycle for up to two days.

A common myth relates that mountain lions will completely kill out a deer population. In all probability, the deer and the lion evolved together and if the above statement were true lions would have extirpated deer many years ago. A look at our national parks where all species are left to their own means to survive is a good example of why this does not occur. Deer and mountain lions coexist in the parks without manipulation by man, and deer populations tend to remain stable. What wildlife managers must recognize is the combination of lion predation and hunter harvest creates the situation where deer are unable withstand natural predation and harvest combined. The result can be a significant decline in deer numbers.

In an area of low deer density mountain lions can suppress population increase. Resident lions have a higher impact on deer numbers than a transient lion. Transient and resident male lions utilize larger areas and deer kills will not be concentrated in one area. In retrospect, a resident female with a much smaller home range will make more kills in one area, particularly when she has kittens to feed.

Another factor that contributes to the rate at which a lion will make a kill is the weather. Lions prefer fresh meat, at times they will scavenge. In cooler weather the meat doesn't spoil and this allows the lion to stay with the kill until he consumes it, which in turn will lessen the number of deer killed. On the other hand, in hot weather a deer kill will spoil quickly. This necessitates the need for the lion to make another hunt. In essence, there are a number of factors

that contribute to mountain lion predation on deer herds.

PREDATOR CONTROL

When deemed necessary, predator control can help a dwindling deer population recover. One must understand that it requires a long-term commitment, both in man- power and money to obtain results. The integrity of the mountain lion population when fractured by removal of lions will for a short period of time increase. This may sound contradictory since you are removing lions, but in reality you are creating a vacuum effect. When you remove resident lions that have established home ranges you create a void, other resident lions that have home ranges that may overlap the individual you removed now find that territory empty. This allows them to expand their range, as well as create openings for transient lions to establish a new home range. Short- term predator control programs do little but aggravate the situation. Long-term predator control will show results.

Professionals that have the knowledge and experience to effectively target the particular species that is creating the problem should handle predator control; non-target animals should not be affected in predator control efforts. Predator control is an effective management tool in situations where wildlife is being reintroduced.

SUMMARY

Deer populations are a numbers game. It takes numbers to make numbers. If by removing several mountain lions creating

a situation where more bucks breed resulting in more doe's having fawns, and the survival rate of fawns increasing, then predator control can be the shot in the arm that a depressed deer herd needs. However, before predator control is implemented all of the aforementioned factors which effect deer herd numbers need to be considered. Predator control is an effective management tool when used properly. Eradication and extirpation are not the answers.

LITERATURE CITED

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