



Understanding Mountain Lion-Prey Interactions in the Davis Mountains, Texas

Article by CATHERINE DENNISON, PATRICIA MOODY HARVESON, AND LOUIS A. HARVESON

Land-use and landownership patterns in Texas have changed considerably in the last quarter century. As livestock numbers in the Trans-Pecos have declined, interest in wildlife enterprises (e.g., mule deer and other game species) has grown considerably. This renewed interest in managing ungulates can directly impact mountain lion management, as the predation that mountain lions exert on a game species must be accounted for when determining sustainable harvest limits. Given the importance of wildlife enterprises to the economy of the region, it is essential that managers have access to reliable information regarding the effect that mountain lions have on the prey populations in the area so they can make informed management decisions.

In 2011, the Borderlands Research Institute initiated a study of mountain lions in the Davis Mountains. The goal of this project is to gather information to better understand the ecology of the mountain lion population in Trans-Pecos, Texas, with specific interest in understand-

ing predator-prey interactions and providing landowners with management alternatives to managing various ungulate species and their primary predator, mountain lions.

To date, we have captured a total of 17 mountain lions in the Davis Mountains. Mountain lions were captured using foot

snare traps and were held in traps for at least 200 yards apart. Field investigations are then conducted at these sites to determine if a kill is present, and if so, what species of animal was killed. So far, we have documented 164 mountain lion kills of 12 different species.

Overall, deer dominated the diet of mountain lions in the Davis Mountains. However, we have observed differences in the diets of males and females within the population (Figure 1), as female diets consist largely of deer (42 percent of diet) and elk (21 percent of diet), while the majority of male mountain lion kills investigated have been javelinas (54 percent of diet) and feral hogs (19 percent of diet). We have documented that dispersing subadults (young animals just beginning to establish their own home range) seem to select smaller prey,

with one dispersing female killing five porcupines in the first few months of independence.

We have also observed fluctuations in prey preferences, depending on the time of year. While mule deer comprised the largest por-

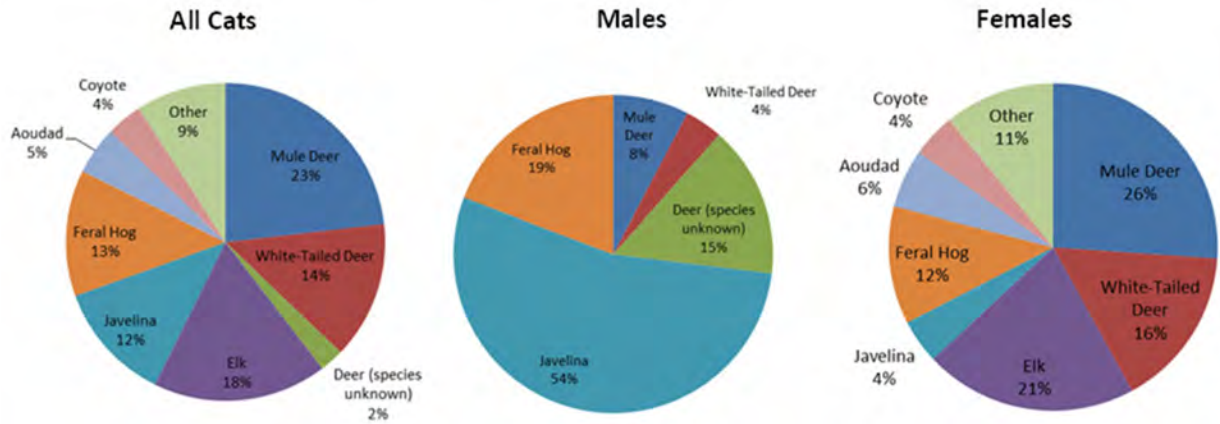


Mountain lions are fitted with GPS satellite collars that allow researchers to determine the locations of kill sites.

snare traps and fitted with GPS satellite collars that acquire a location five times/day. These locations are then sent via satellite to an email account twice per day. Potential kill sites are identified, based on the presence of two or more consecutive GPS locations less



Figure 1. The pie graphs show the diet compositions of mountain lions within the Davis Mountains study site, with percentages reflecting the percent of the diet that each species of prey comprises. Differences were observed in the diets of males and females in the study, as well as between adults and sub-adults.



tions of diets during fall and winter months, elk were the most common prey in summer, and small prey, such as skunks and porcupines, composed the largest percentage of kill sites in spring. One possible reason for this may be that mountain lions are targeting the prey that is the most vulnerable. Half of all elk kills found occurred during the summer months (June-August). This coincides with the end of elk calving season, meaning an influx of young vulnerable elk during this time period. Females giving birth, or caring for young calves, may be more vulnerable to predation, as well. This is consistent with our data that shows that during the summer months, half of the elk that were killed were calves, and all known-sex adults were female.

Though it is not always possible to tell the sex of the animal that has been killed from the remains, particularly when the animal killed was a juvenile, we have been able to determine sex in enough cases to begin to see some patterns emerging. For all of the aoudad kills, we were able to determine the sex were females, 85 percent of elk killed were females, and 83 percent of white-tailed deer killed were females. Avoidance of males in these species may be due to differences in size (females of ungulates are smaller and, therefore, easier to take down), as well as the presence of antlers or horns on males that are absent or smaller on females. Similarly, we



A remote camera captured this image of a collared mountain lion feeding on a javelina kill in the Davis Mountains

have observed a large number of feral hogs killed by mountain lions, however, we have found that they do not regularly kill large boars with dangerous tusks or very large females, again suggesting that mountain lions select against those animals that pose the largest risk.

Data collected from kill sites has also shown variation in the diet preferences of individual mountain lions that fall within the same sex and age groups, supporting the idea that mountain lion diets are, at least, in part, determined by what is available within a given animal's home range, as well as individual preference. By studying mountain lions within a family group over multiple generations, and also considering what prey is available, we will be able to see if individual preferences

may be more influenced by learned behavior during adolescence (i.e., if a mountain lion continues to kill what it's mother taught it to kill), or by what is available to the individual in the home range they establish as an adult.

Data provided by camera traps in the study area helps us to determine what prey is available within the home range of an individual mountain lion, as well as information on the habitat and terrain preferences of different prey species. From what we have observed, the mere presence of a species within an individual's home range does not automatically indicate that species will be predated on. For example, while our prey availability study verifies the presence of livestock in the study area within the home ranges of collared lions, no livestock have been found depredated by mountain lions.

Evaluating the known diet of mountain lions, including where and when they are hunting and what they are consuming, is an important first step to understanding the effect that a mountain lion population has on prey populations. Continued investigation into mountain lion predatory behavior will provide land managers with an understanding of mountain lion kill rates and their relation to prey availability, which will allow them to make sustainable decisions regarding harvest levels for both mountain lions and prey on their property.



Helping conserve the natural resource of the Chihuahuan Desert Borderlands through research, education, and outreach.

Borderlands Research Institute
 Sul Ross State University
 P.O. Box C-21
 Alpine, Texas 79832
www.sulross.edu/brinrm

