MOUNTAIN LION PREDATION ON PRONGHORN IN CENTRAL ARIZONA

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Aside from winter kills (Einarsen, 1948), predation is the primary source of mortality on adult pronghorn Antilocapra americana (Yoakum, 1978). Coyotes (Canis latrans; Einarsen, 1948; Yoakum, 1978), bobcats (Felis rufus; Einarsen, 1948; Yoakum, 1978), golden eagles (Aquila chrysaetos; O’Gara, 1978), and dogs (Mitchell, 1980) are main predators. Humans, through legal hunting and poaching, also prey upon pronghorn (Einarsen, 1948; T. L. Hailey, in litt.). Hunting is regulated and assumed to have little impact, whereas effects of poaching are unknown.

Mountain lions (Felis concolor) have not been documented as a major predator on pronghorn. O’Gara (1978), in discussing sign at pronghorn mortality sites, implicated mountain lions as a predator, but he presented no support for his contention. I found four reports of mountain lion predation on pronghorn: T. Knipe (in litt.) noted 5 kills in northern Arizona and stated, “Lions do considerable preying on antelope in certain areas”; Shaw (1977) noted one pronghorn kill out of 62 kills during a mountain lion study in central Arizona; Engstrom and Maxwell (1988) reported a single lion preying on 60–70 pronghorn over a two-year period on the Edwards Plateau, Texas; and Canon and Bryant (in press) reported two cases (out of 10 mortalities) of mountain lion predation during a Trans-Pecos, Texas, pronghorn study.

Throughout much of the pronghorn’s range, mountain lion predation is probably inconsequent, if it occurs at all. Pronghorn typically inhabit prairie-type habitats (Yoakum, 1978) that do not provide the hiding and stalking cover that mountain lions favor (Russell, 1978). However, not all pronghorn exist under ideal conditions. In Arizona, they also occur in rugged terrain with much more vegetation than in prairies; both terrain and vegetation could provide mountain lion hiding and stalking cover.

Under just such circumstances I documented mountain lion predation on adult pronghorn in central Arizona (34°20′N, 112°07′W) from October 1989 to October 1993. Terrain varied in the 1,367-km² study area from undulating flats to rolling hills interspersed with rugged canyons. The area supported short-grass prairie, semidesert grassland, juniper (Juniperus sp.) woodland, and chaparral habitats; small areas of montane coniferous forest and Sonoran desert were also present. The short-grass prairie supported more than 400 animals, whereas the other habitats supported smaller populations; one area had ≤25 individuals, another perhaps ≤50 individuals, and a large semidesert grassland had ≥250 pronghorn. Survey data for the population in the large, semidesert grassland, where most predation occurred, indicated it had maintained itself for nearly 15 years and may have increased over the past 30 years (data provided by Arizona Game and Fish Dept., Phoenix).

I captured and collared 47 pronghorn, 29 females and 18 males, with motion-sensing (i.e.,

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mortality) transmitters. Signals were monitored two to three times per week, and pulse-rate changes that indicated mortalities were investigated within 2 days. During the 4 years, mountain lions were identified as cause of death for 11 of 29 mortalities (9 females, 2 males). Three additional mortalities (1 female, 2 males) were suspected kills, but I lacked conclusive evidence that the pronghorn were killed by lions.

Terrain affected whether mountain lions were able to prey on pronghorn. None of the kill sites occurred in the large undulating flats typical of most pronghorn habitat; most were within 100 m of rugged terrain, either a major canyon or substantial rocky outcropping. Only three kills were on small flats >400 m from what I considered rugged terrain.

Vegetation type was also a factor in the capability of mountain lions to prey on pronghorn. All kill sites were in semidesert grassland or juniper woodlands; no kills occurred in short-grass prairie. Substantial woody vegetation or succulents were near most kills. KIls tended to be near small chaparral or woodland patches if rugged terrain was >100 m away.

Most kill sites showed extensive drag marks (n = 6), and most remains were buried (n = 9). Five kills were buried under junipers, one under mesquite (Prosopis juliflora), two in shrub (Quercus turbinella, Acacia greggi) thickets, one under tobosa (Hilaria mutica) grass, and one kill was not buried. Another kill had been scavenged by a black bear (Ursus americanus) and coyotes; therefore I did not know if it had been buried or not.

On three occasions mountain lions were seen at the kill. In one (<20 m) sighting, the mountain lion appeared to have the body and relative head size of a large male. In a face-to-face (<2 m) confrontation during a second sighting, the individual appeared to be a female, again by body conformation, and the third sighting (<5 m) was of a large female with four heavily-spotted kittens.

After several mountain lion kills had occurred in 1990 I investigated whether this was an unusual circumstance happening only in central Arizona. I obtained information (Clay Bravo, Hu- alapai Nation, northwest Arizona, pers. comm.; Steve Dobratt, Buenos Aires National Wildlife Refuge, southcentral Arizona, pers. comm.; Raymond M. Lee, Arizona Game and Fish Department, western Arizona, unpubl. data; Kathy McCoy, Navajo Nation Fish and Wildlife, northeast Arizona, pers. comm.; and Sandy Nagiller, Coconino National Forest, northcentral Arizona, pers. comm.) on mountain lion predation on pronghorn throughout Arizona that indicated it wasn’t. This information on seven kills, together with documented reports (T. Knipe, in litt.; Shaw, 1977; Engstrom and Maxwell, 1988; Canon and Bryant, in press), suggested to me that substantial mountain lion predation on adult pronghorn likely occurs wherever their distributions overlap in rugged, heavily-vegetated terrain. Managers with pronghorn in such habitats should consider mountain lions as an important cause of pronghorn mortality.

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