

**COUGAR MORTALITY ATTRIBUTED TO ELECTROCUTION FROM POWER LINES IN SOUTH DAKOTA** -- On 10 May 2006, a private landowner alerted South Dakota Department of Game, Fish and Parks (SDGF&P) personnel of a cougar (*Puma concolor*) carcass located on his property approximately 4.8 km east of Caputa, South Dakota (Latitude: 43.99° N, Longitude: 105.98° W). The carcass lay adjacent to a power line pole and mortality due to electrocution likely occurred earlier that day. Apparently, the animal had contacted an electrical current that entered through the nasal cavity and exited through the hind feet; grounding most likely occurred via the power pole or another power line. Based on tooth wear and pelage description (Anderson and Lindzey 2000), the cougar was approximately three years old and weighed 54.4 kg. Mass was determined 8 to 12 hours post mortem.

After gross examination, the animal was collected and sent to the Department of Wildlife and Fisheries Sciences at South Dakota State University for necropsy. The majority of facial hair and vibrissae were singed and gum line recession caused by extreme heat to the cranium was observed. Significant burning and singeing of hair and muscle tissue in the outer phalanges of both rear feet indicated the current exited from the rear feet. The plantar pad of the right rear foot was burned completely away from the body and found lying adjacent to the carcass. There was extensive hemorrhaging throughout the thoracic cavity, with exterior lung tissues severely burned. Burn marks on the epidermis and haircoat and trauma sustained throughout the thoracic cavity were indicative of electrocution suffered from contact and grounding of power lines (Thomas 2001). The cougar was in good nutritional condition, with moderate kidney, mesentery, and heart fat.

The cougar is an adept climber (Hornocker 1970) that climbs trees as a defense mechanism (Young and Goldman 1946). The mortality site of this cougar was located on the prairie east of the Black Hills, and would be considered non-typical cougar habitat. Possibly, the animal was frightened and climbed the power pole to seek refuge due to a lack of forested habitat. Another case of cougar mortality due to electrocution was documented in New Mexico where a subadult male cougar ascended a utility pole to escape an encounter with a resident male and came into contact with the power lines (Logan and Sweanor 2001).

While electrocution from power lines can be a significant source of mortality in avian species, such as large raptors (Lehman 2001, Thomas 2001), it is less common in mammals. Electrocution from power lines has been documented in the bobcat (*Lynx rufus*) (Bailey 1974, Williams 1990), which is capable of climbing power poles and, therefore, susceptible to electrocution risk. Downed power lines have been a source of mortality for the grizzly bear (*Ursus arctos*) in the greater Yellowstone ecosystem (Gunther et al. 2004).

While we do not think the risk of electrocution will serve as a significant source of mortality to individuals of the wild cougar, this case is an interesting incident that warranted documentation. When assessing population dynamics of secretive large carnivores, such as the cougar, knowledge of total cumulative mortality is critical in addressing long-term population viability. As cougar populations expand and habitat fragmentation due to human encroachment continues, risk of anomalous human-induced mortality is likely to increase in wild cougar populations.

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