THE LANDSCAPE OF FEAR: COUGAR (PUMA CONCOLOR) PREDATION IN A NARROW RIPARIAN CORRIDOR IN NEW MEXICO

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INTRODUCTION

Species: Puma concolor, known as mountain lions, pumas, panthers, or cougars. Range: Limited to the western United States, western Canada, and southern Florida (Anderson, 1983).

Prey Consumption: Obligate carnivores, with the majority of their diet consisting of mule deer (Odocoileus hemionus) (Logan and Sweanor, 2001).

Habitat Selection: Habitat type influences the success of this species as a stalking and ambushing predator (Hornocker, 1970) that needs dense cover to closely approach a prey item undetected (Holmes and Laundré, 2006).

—Edge Habitat: Edge habitat is used extensively as a starting point for cougar attacks on prey (Holmes and Laundré, 2006).

—Riparian Habitat: Riparian habitat is composed of thick vegetation that occurs along river floodplains. Riparian zones have a high proportion of edge habitat.

Past Research: Previously, there has been little focus on cougar habitat selection during predation in such robust riparian zones.

This study attempts to fill in these gaps on predatory cougar behavior in a landscape composed primarily of riparian vegetation. We determine the habitat use for points identified as killsites.

MATERIALS AND METHODS

- Study Period: February 2010-February 2011
- Sample Size: 3 cougars, 485 killsites
- Study Site: Bosque del Apache National Wildlife Refuge (NWR), New Mexico (Fig. 1)
- Methods:
  - Study animals collared with a GPS transmitter set to transmit 8 locations daily
  - Plotted locations in ArcGIS (ESRI, Redlands, California, USA)
  - Killsites extrapolated from GPS points by locating clusters of two or more consecutive GPS points within 50 meters of each other using R Statistical Package
  - Identified the habitat type of each initial GPS point within a cluster

RESULTS

Killsites extrapolated from GPS points by locating clusters of two or more consecutive GPS points within 50 meters of each other using R Statistical Package

- Study site: Bosque del Apache National Wildlife Refuge (NWR), New Mexico (Fig. 1)
- Methods:
  - Study animals collared with a GPS collar after the taking of biological metrics

DISCUSSION

Conclusion: This study determined that P. concolor on the Bosque del Apache NWR use riparian habitat most often during predatory behavior. We also found that the male cougar take prey more often in desert shrubland habitat than the female individuals, likely due to its greater size that enables it to take down larger prey like oryx (Oryx gazella).

Implications:
- Riparian habitat likely provides the best cover for stalking and ambushing prey and could contribute to prey catchability (Holmes and Laundré, 2006) by allowing the cougar to get very close to a prey item.
- As cougars recolonize their historic range, predatory habitat use will be valuable in understanding cougar settlement decisions. We expect riparian regions to be prime cougar habitat for future populations.

Future Research: Studies should identify the prey response to the landscape of fear (Brown, Landre and Gurung, 1999) created by abundant riparian vegetation.

Our study shows that riparian habitat is valuable to cougar population persistence by providing the necessary cover to ambush prey.