Camera-trapping Carnivores: Trap Success Across Species and Habitat Selectivity of Carnivores on Salt Pond Mountain, Virginia.

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*Abstract:*To determine habitat selection of selected carnivores, we set up 15 remotely-triggered infrared camera stations across a 30-km^2 section of the Mountain Lake Biological Station in Southwest Virginia. To maintain independence, a distance of 1 km was kept between each station. We monitored the camera stations for 942 trap nights. Raccoons (*Procyon lotor*) had the greatest trap success (3.03%) followed by black bear (*Ursus americanus*; 2.23%), coyote (*Canis latrans;* 1.09%), bobcat (*Lynx rufus*; 0.67%), and gray fox (*Urocyon cinereoargenteus*; 0.00%). We determined percentage cover of habitat features (% coniferous, % deciduous, % mixed) from a geographic information system (GIS) using circular buffers (100 m, 250 m, 500 m, 750 m) around each trap site and compared carnivore-present sites to carnivore-absent sites. We found no relationships. We used linear regression of trap success of animals to determine relationships between visitation rates and species. We found a strong positive relationship between eastern turkey (*Meleagris gallopavo silvestris*) trap success and coyote trap success, suggesting eastern turkey presence equals coyote presence. A negative relationship between raccoon trap success and bear trap success was found, suggesting that raccoons avoid areas where black bear are present. There was no relationship between human use (trap success) and carnivore trap success, implying that carnivores are not deterred by presence of humans. Of the three types of cameras that occupied the stations, DeerCam had the greatest trap success (32.85%) followed by TrailMaster (12.02%) and CamTrakker (8.90%). This study helps reinforce that remotely-triggered infrared cameras are a viable way of monitoring carnivorous animals and analyzing their preferred habitat cover types.

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