



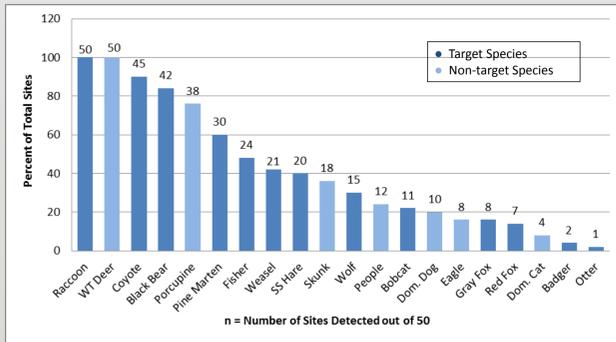
# Remote Camera Surveys for Carnivore and Furbearers on the KBIC L'Anse Indian Reservation

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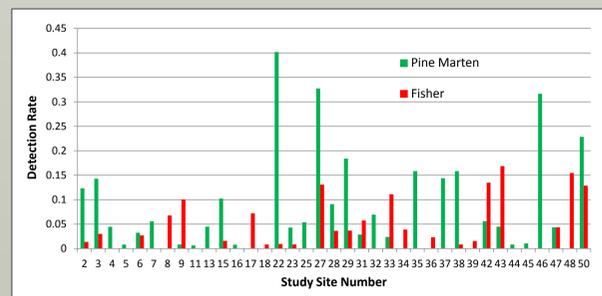
## Abstract

The Keweenaw Bay Indian Community (KBIC) administers over 56,000 acres of land within the boundaries of the L'Anse Reservation. KBIC desires to develop a more systematic approach to management for wildlife and habitat on and near the L'Anse Reservation. A carnivore and furbearer remote camera survey was undertaken to provide baseline wildlife inventory data in which to guide the development of a Tribal Wildlife and Habitat Management Plan in 2013.

Fifty study locations were monitored for a minimum of 30 day time periods in Winter-Spring and Summer-Fall seasons between December 2009 and September 2011. Thirteen of fifteen target species were detected and included Wolf (*Canis lupus*), Coyote (*Canis latrans*), Red Fox (*Vulpes vulpes*), Gray Fox (*Urocyon cinereoargenteus*), Bobcat (*Lynx rufus*), Black Bear (*Ursus americanus*), Raccoon (*Procyon lotor*), Weasel (*Mustela spp.*), Otter (*Lontra canadensis*), Fisher (*Martes pennanti*), Pine Marten (*Martes americana*), Badger (*Taxidea taxus*), and Snow Shoe Hare (*Lepus americanus*). Pine marten were found at more study sites (60%) than fisher (48%) however they often visited the same camera locations. Coyotes were detected at 90% of the study sites whereas wolves were found at 30%. Bobcats were detected at 22% sites, however, they did not appear to be attracted by bait but rather the scented lures which were labeled as bobcat attractants.



**Figure 2.** Target and non-target species detected by remote camera from 50 total study sites on the KBIC L'Anse Reservation from December 2009 to August 2011.



**Figure 3.** Detection rates of pine marten and fisher based on number of camera days detected out of the total camera days for each study site.

## Methods

Remote camera surveys took place on the L'Anse Reservation between December 2009 and September 2011. Animal species targeted for detection were clan species of cultural value, furbearer species, and rare or endangered species. Target animals included: Wolf (*Canis lupus*), Coyote (*Canis latrans*), Red Fox (*Vulpes vulpes*), Gray Fox (*Urocyon cinereoargenteus*), Bobcat (*Lynx rufus*), Cougar (*Puma concolor*), Canada Lynx (*Lynx canadensis*), Black Bear (*Ursus americanus*), Raccoon (*Procyon lotor*), Weasel (*Mustela spp.*), Otter (*Lontra canadensis*), Fisher (*Martes pennanti*), Pine Marten (*Martes americana*), Badger (*Taxidea taxus*), and Snow Shoe Hare (*Lepus mericanus*).

Twenty-five Reconyx Professional Covert cameras were deployed at 50 bait stations in remote areas of upland and riparian habitats. Cameras were deployed for a minimum of 30 days prior to being moved to a new site. Sites were surveyed during two seasonal time periods, Summer-Fall (June-Nov) and Winter-Spring (Dec-May). Meat scraps and long-distance scented trapping lure were used as bait and placed within 5 meters (15 ft) from the cameras along with a measurement stick marked with fluorescent tape at 0.5 m (18.5 in) for size comparison. Cameras were attached to trees less than 0.5 m (18.5 in) from ground level and oriented down an established game trail. Camera stations were maintained on a weekly basis by replacing memory cards, restocking bait, and maintaining a minimum 50% battery charge.

Study site selections were distributed throughout the Reservation and placed on Tribal land or Federal Trust Land whenever possible and in contiguous habitat. Habitat data was collected at each site including volume of coarse woody debris, basal area of trees, percent cover of vegetation, and percent canopy cover.



## Results

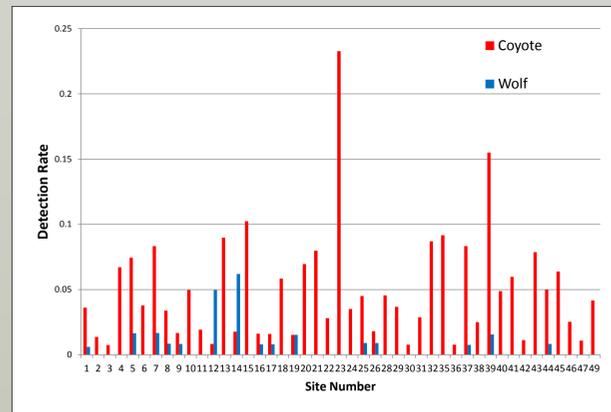
Total camera days ranged from 67 to 185 days at each site with an average deployment of 119 total camera days ( $\pm 25$  s.d.). All sites were surveyed during two seasonal time periods, Summer-Fall (June-Nov) a total 3,147 camera days (average 62 camera days,  $\pm 15$  s.d.) from June 1, 2009 to September 15, 2011 and Winter-Spring (Dec-May) a total 2,823 camera days (average 57 camera days,  $\pm 27$  s.d.) from December 1, 2009 to May 31, 2011.

Thirteen of fifteen designated target species were detected during the study. The species most widely distributed and detected most often were raccoon detected at all 50 camera sites (100%), coyote detected at 45 sites (90%) and black bear detected at 42 sites (84%) (Figure 2). Pine marten and fisher were both detected and often at the same camera locations. Of the 39 camera locations where pine marten and/or fisher were detected, 17 sites (44%) had both species. Pine marten were detected at 30 total sites (60%) and fisher were detected at 24 total sites (48%). Pine marten visited the bait stations on more days than fisher, 335 and 155 detection days respectively (Figure 3), although the difference was not significant ( $T = 586, p > 0.1$ ).

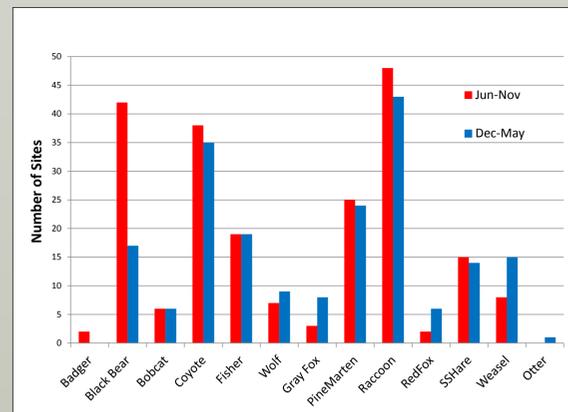
Wolves and coyote were both detected but at much different detection rates. Coyotes were detected at 45 (90%) of the study sites while wolves were detected at 15 sites (30%). Coyotes visited the bait stations significantly more days (274 days) than wolves (30 days) ( $T=241.5, p < 0.001$ ) (Figure 4).

Bobcats were detected at 11 sites (22%). Bobcats did not eat or examine meat used as bait, but rather sniffed and explored scented lure. Some bobcats scent marked the area after investigating the lure. No cougar or lynx were detected.

Seasonal differences in detection were most noted for black bear that peaked in July (211 detections) and started to tapered off in September (35 detections) and re-appeared starting in April (9 detections). Weasel were detected more frequently in winter, as were red fox and gray fox (Figure 5).



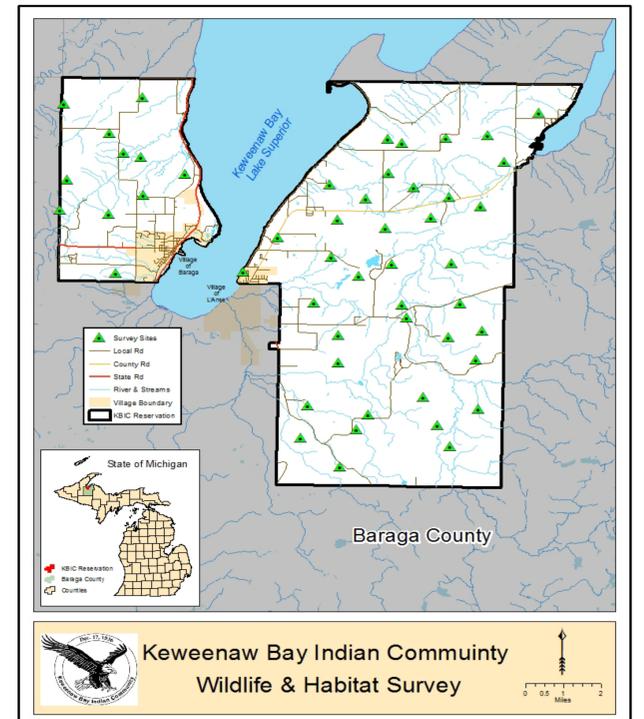
**Figure 4.** Detection rates of Wolf and Coyote based on number of camera days detected out of the total camera days for each study site.



**Figure 5.** Number of sites each target species was detected during Winter-Spring (Dec-May) and/or Summer-Fall (Jun-Nov).

## Study Location

The KBIC L'Anse Reservation encompasses approximately 56,000 acres in Baraga County of Michigan's Upper Peninsula. Fifty camera sites were distributed throughout the Reservation on KBIC owned land or Federal Trust Land (Figure 1).



**Figure 1.** Fifty study site locations where remote cameras were set for detection of carnivore and furbearer species within upland and riparian habitats on the KBIC L'Anse Indian Reservation between December 2009 and August 2011.

## Conclusion

KBIC desires to develop a more systematic approach to management for wildlife and habitat on and near the L'Anse Reservation. This carnivore and furbearer survey provides baseline wildlife inventory data in which to guide the development of a Tribal Wildlife and Habitat Management Plan to be completed in 2014. More results will be presented at public meetings throughout 2013.



## ACKNOWLEDGEMENTS & CONTACT

- Administration for Native Americans
- Little River Band of Ottawa Indians
- Bureau of Indian Affairs
- Grand Valley State University

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