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Impact of land use and management on mesocarnivore mammal species occupancy

The abundance and distribution of mammal species (including coyotes, bobcats, foxes, raccoons and fishers) are changing due to habitat modification and loss, and apex predator removal. Among the impacted are mesocarnivore mammal species—mid trophic level mammals (animals that are both eat other animals and are preyed upon), such as bobcats, foxes, and raccoons. Changes in these species' ranges and population sizes can have social and economic implications as well. Mesocarnivore release often happens in peri-urban landscapes that have been altered for small scale agriculture, leading to increased potential for livestock-wildlife conflict (Prugh et al. 2009, Vercauteren et al. 2012). Mesocarnivore release has been linked to increased incidences of Lyme disease (Levi et al. 2012). Hence, there is growing interest in controlling mesopredator populations to reduce human social costs and protect populations of songbirds and small mammals (Salo et al. 2010, Holt et al. 2008, Cote al. 1997).

On the other hand, certain mesoarnivore species, including martens, require conservation measures to support their populations. However, current understanding of what constitutes favorable and less favorable habitat for these species remains uncertain. To address these gaps, this study focuses on investigating the impact of land use on mesocarnivores within and around Yale Myers Forest by quantifying the occupancy of six mesocarnivore species in different habitats (i.e., timber harvest, unmanaged forest and agricultural areas). The study species include coyote, bobcat, raccoon, grey and red fox, and fisher. My year-long study utilized 55 wildlife camera traps arrayed in a grid across a variety of forest land management practices and agricultural land.

The objective of this study is to determine the influence of different habitat and anthropogenic variables on the occurrence of these mammal species. This information is essential to inform effective conservation and management practices for these species on public and private lands. A second objective of this study is to engage local landowners and provide information on the breadth of species occurring on their properties.