

Licking County Carnivore Survey: Pilot Study of Licking Park District

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Abstract:

Bobcats have recently returned to Ohio, after having been extirpated in the mid-1800s. In this pilot study, we sought to determine whether bobcats currently reside at eight parks/reserves in Licking County. As part of this study, we surveyed the following Licking Park District parks/reserves: Lobdell Reserve (from 3/17/20 to 4/14/20), Reese Wildlife Reserve (from 3/17/20 to 4/28/20), Infirmary Mound Park (from 4/28/20 – 5/26/20), and Taft Reserve North (from 4/28/20 – 5/26/20). During the four-week camera trapping surveys, we detected bobcats at two of the areas: Taft Reserve North and Reese Wildlife Reserve. Further, we found coyotes at Infirmary Mound Park, Taft Reserve North, and Lobdell Reserve, and red fox at Infirmary Mound Park.

Introduction:

The bobcat (*Lynx rufus*) is a medium-sized carnivore, and one of the few native cat species found throughout Ohio in pre-settlement times. By the mid-1800s, a combination of over-hunting, habitat loss, and a decline in their prey had eliminated the species from Ohio. Occasional sightings indicated the bobcat had returned to Ohio by the 1960s, and in 1974, the species was listed as endangered in Ohio. As small family farms were abandoned and reverted to secondary forest, additional habitat became available for bobcats, and with protection against hunting and trapping, the size of the bobcat population in Ohio began a slow but steady increase. By 2006, the number of verified sightings recorded by the Ohio Department of Natural Resources-Division of Wildlife (ODW) began a steep rise, largely due to increased use of camera traps by landowners and hunters. In 2012, the species was re-classified from endangered to threatened, and in 2014 it was removed from Ohio's threatened and endangered species list altogether. Licking County is on the north-west edge of the bobcat's currently known range in Ohio, and little is known about the abundance and distribution of bobcats here. Camera traps provide an excellent means of monitoring many species of mammals that are secretive and wary of human presence. Camera traps are automated cameras triggered by movement, and they can be left in the field for weeks or months, operating day and night regardless of weather. We have been conducting a long-term camera trapping study of bobcats in Coshocton and southern Holmes counties since 2015. In the spring/summer of 2020, we sought to conduct a preliminary survey of several parks in Licking County to assess the distribution of bobcats in particular, and carnivores more generally, in this county. In this pilot study, we used

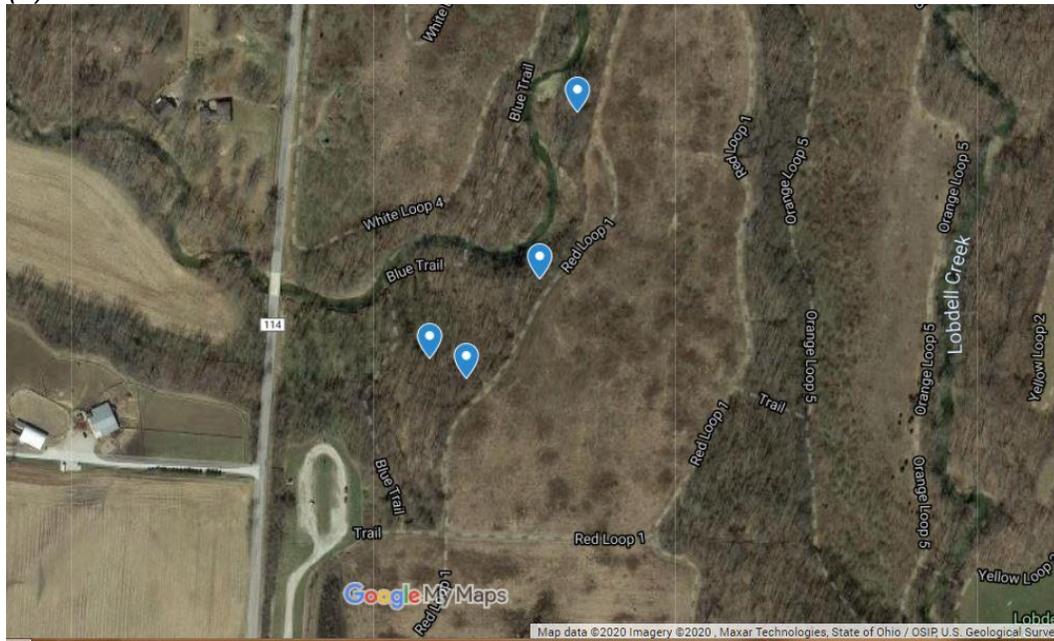
camera trapping to assess the presence/absence of bobcats, red fox, gray fox, and coyotes at Infirmary Mound Park, Taft Reserve North, Lobdell Reserve, and Reese Wildlife Reserve. Other parks/reserves that were surveyed as part of this study include Dawes Arboretum, Denison University Biological Reserve, Morris Woods, and Blackhand Gorge.

Methods:

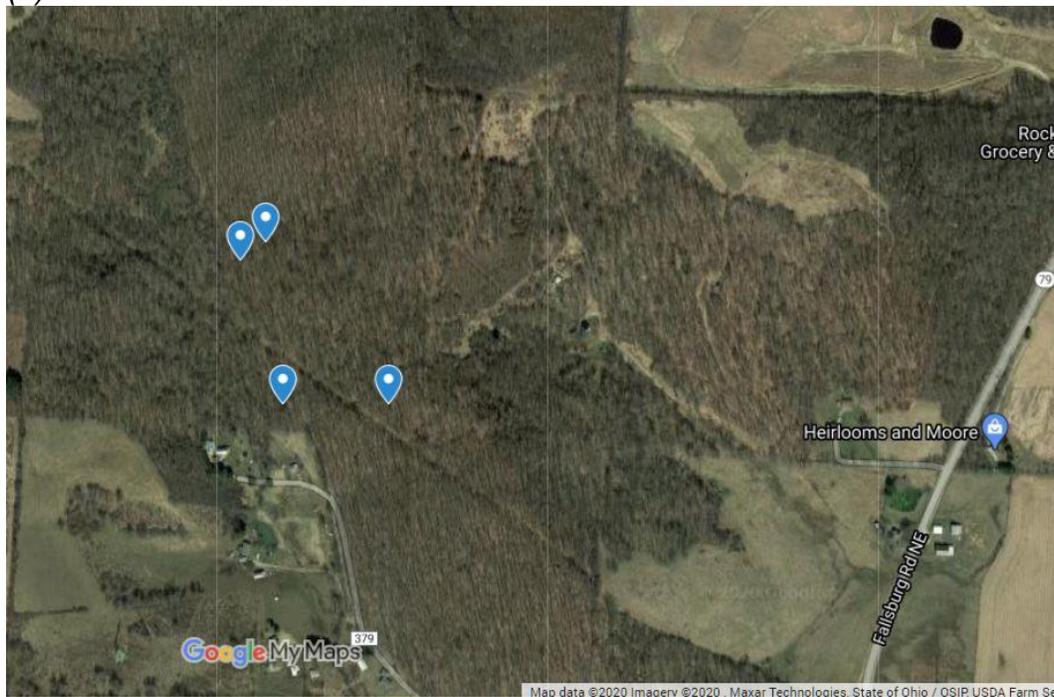
We established four camera trapping stations at each park/reserve to monitor wildlife, with emphasis on predators (namely bobcat, coyote, red fox and gray fox). We used Bushnell Trophy Cams with auto PIR and infrared flash; these trail cameras were mounted to the base of trees along game trails (see Figure 1 for a map of camera trap locations). Camera trapping stations were not baited. Cameras were programmed to take 3 still photos in sequence per triggering event, with a two second delay before re-trigger. Cameras were set up on 3/17/20 at Lobdell Reserve and Reese Wildlife Reserve, and on 4/28/20 at Infirmary Mound Park and Taft Reserve North. Two weeks after setup, we checked the cameras to ensure they were functioning and to change memory cards. Cameras were removed from Lobdell Reserve and Reese Wildlife Reserve on 4/14/20, and from Infirmary Mound Park and Taft Reserve North on 5/26/20. Images from the memory cards were downloaded and reviewed; we recorded species presence/absence at each camera trap, and for carnivores we recorded the number of “independent captures.” We define independent captures as a series of photos of a species separated by less than one hour.

Figure 1: Map of Camera Trap Locations at (a) Lobdell Reserve, (b) Reese Wildlife Reserve, (c) Infirmity Mound Park, and (d) Taft Reserve North.

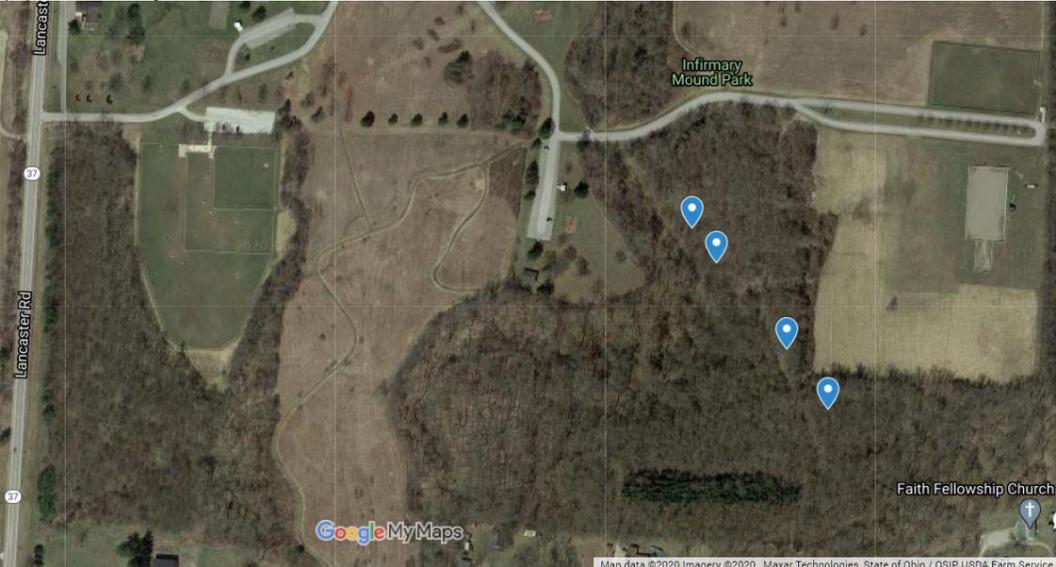
(a) Lobdell Reserve



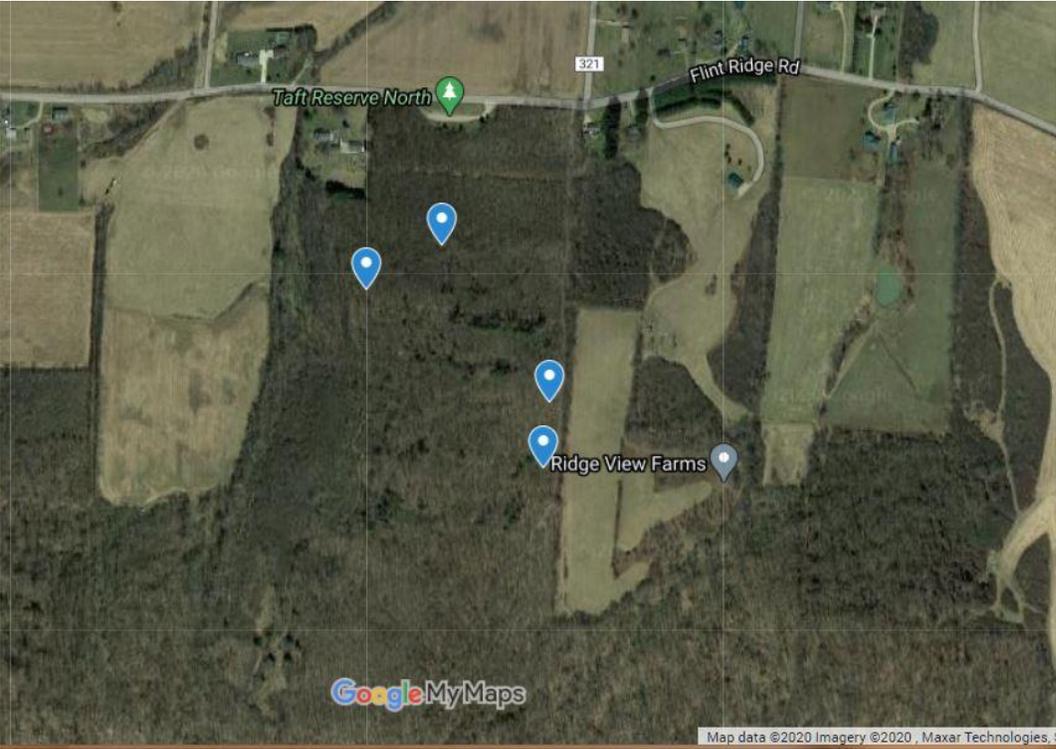
(b) Reese Wildlife Reserve



(c) Infirmary Mound Park



(d) Taft Reserve North



Results:

Our camera traps detected bobcats at two of the four Licking Park District parks during our four-week survey periods. At Taft Reserve North, two separate cameras captured what was likely the same cat on May 19th. At the Reese Wildlife Reserve, one camera captured a bobcat walking along a log on April 15th. Coyotes were photo-captured at three of the four parks (Infirmary Mound Park, Taft Reserve North, and Lobdell Reserve). At Taft Reserve North and Lobdell Reserve, all four cameras captured images of coyotes, whereas at Lobdell Reserve, only two of our four cameras captured images of coyotes. Red fox were only detected at one of the parks (Lobdell Reserve), and gray foxes were not photo-captured at any of the sites. See Table 1 for a complete list of mammal species detected at each park. Figure 2 shows representative images of carnivores collected at each site.

Table 1: Mammals observed at four Licking County parks/reserves.

Infirmary Mound Park	Reese Wildlife Reserve
Chipmunk (<i>Tamias striatus</i>)	Bobcat (<i>Lynx rufus</i>)
Cottontail rabbit (<i>Sylvilagus floridanus</i>)	Chipmunk (<i>Tamias striatus</i>)
Coyote (<i>Canis latrans</i>)	Cottontail rabbit (<i>Sylvilagus floridanus</i>)
Red fox (<i>Vulpes vulpes</i>)	Domestic cat (<i>Felis catus</i>)
Raccoon (<i>Procyon lotor</i>)	Flying squirrel (<i>Glaucomys volans</i>)
Squirrels (<i>Sciurus</i> sp.)	Raccoon (<i>Procyon lotor</i>)
Virginia opossum (<i>Didelphis virginiana</i>)	Squirrels (<i>Sciurus</i> sp.)
White-tailed deer (<i>Odocoileus virginianus</i>)	Virginia opossum (<i>Didelphis virginiana</i>)
	Weasel (<i>Mustela</i> sp.)
	White-tailed deer (<i>Odocoileus virginianus</i>)

Lobdell Reserve	Taft Reserve North
Cottontail rabbit (<i>Sylvilagus floridanus</i>)	Bobcat (<i>Lynx rufus</i>)
Coyote (<i>Canis latrans</i>)	Chipmunk (<i>Tamias striatus</i>)
Domestic cat (<i>Felis catus</i>)	Cottontail rabbit (<i>Sylvilagus floridanus</i>)
Groundhog (<i>Marmota monax</i>)	Coyote (<i>Canis latrans</i>)
Raccoon (<i>Procyon lotor</i>)	Domestic cat (<i>Felis catus</i>)
Squirrels (<i>Sciurus</i> sp.)	Raccoon (<i>Procyon lotor</i>)
Virginia opossum (<i>Didelphis virginiana</i>)	Squirrels (<i>Sciurus</i> sp.)
White-tailed deer (<i>Odocoileus virginianus</i>)	Virginia opossum (<i>Didelphis virginiana</i>)
	White-tailed deer (<i>Odocoileus virginianus</i>)

Figure 2. Images of carnivores photographed at Licking Park District parks/reserves.

(a) Coyote at Infirmary Mound Park



(b) Red fox at Infirmary Mound Park



(c) Coyote at Lobdell Reserve



(d) Bobcat at Reese Wildlife Reserve



(e) Bobcat at Taft Reserve North



(f) Coyote at Taft Reserve North



Conclusion:

Of the eight parks/reserves surveyed in this study, we found bobcats at two locations, both within the Licking Park District: Taft Reserve North and Reese Wildlife Reserve. We found coyotes at three of the four LPD areas surveyed: Infirmary Mound Park, Taft Reserve North, and Lodbell Reserve. In our previous surveys of Coshocton County woodlands, we have frequently found bobcats and coyotes co-inhabiting the same areas. The presence of coyotes seems to indicate habitat that may be suitable for other predators, including bobcats. Further, the presence of a variety of small mammals such as rabbits, squirrels and chipmunks indicates a good prey base for larger predators. Therefore, the two parks at which coyotes were detected, but not bobcats, may eventually come to be inhabited by bobcats. On the other hand, the two parks at which bobcats were located were the least-utilized by humans (Reese Wildlife Reserve and Taft Reserve North); we captured more images of people on our trail cameras at Infirmary Mound Park and Lodbell Reserve. Perhaps bobcats are less-tolerant of human activity than coyotes and will avoid parks that have a higher rate of recreational use. We hope to follow up this preliminary survey with future surveys and track patterns of bobcat occupancy in Licking County in the coming years.