National Wildlife Disease Program

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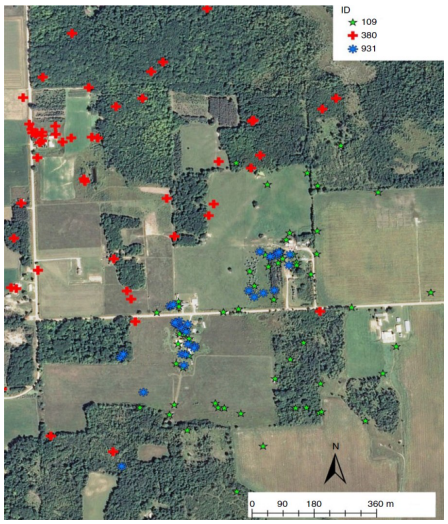
Program Activity Report (PAR)

Opossum and Bovine Tuberculosis in Michigan

Bovine tuberculosis (bTB) is an infectious disease caused by a bacterium, *Mycobacterium bovis*, affecting both domestic and wild animals worldwide. In Michigan, bTB was discovered in white-tailed deer in 1994. Since then, numerous other wildlife have tested positive for *M. bovis* in the state, but no wildlife reservoirs other than white-tailed deer have been identified. Between 1994 and 2010, 36 cattle farms also tested positive, with transmission likely from a variety of sources. Although considerable deer reductions have occurred since 1994, new and recurring infections continue to plague Michigan farmers. Consequently, other potential wildlife reservoirs and vectors warrant further investigation.

Monitoring for *M. bovis* infections was conducted on medium-sized mammals on previously depopulated cattle farms. In particular, opossums and raccoons were targeted because previous efforts documented the potential for these species to be reservoirs or vectors. On farms inside the bTB core area, prevalence in opossum (6%) was comparable to prevalence in raccoon (4%) ,whereas only a single opossum tested positive for *M. bovis* on farms outside the bTB core area. The prevalence in opossum occupying farms that had a history of positive cattle was higher (6.4%) than for opossum occupying farms that never had cattle test positive (0.9%).

Opossum were also equipped with GPS technology to assess potential differences in home range between farms inside and outside the bTB core area. Home range estimates were similar by sex inside and outside the core area. Although disease sampling efforts and home range were not assessed on the same farms, opossum use of farms near structures was apparent, as was selection for farms over surrounding forested habitats. The use of farms, stored feed, and structures by opossum, their ability to serve as vectors of *M. bovis*, and their propensity to ingest contaminated sources of *M. bovis* requires additional research in Michigan.



Locations of some GPS-collared opossum in MI.

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Walter, W. D., J. W. Fischer, C.W. Anderson, D.R. Marks, T. DeLiberto, S. Robbe-Austerman, and K. C. Vercauteren. 2013. Surveillance and movements of Virginia opossum (*Didelphis virginiana*) in the bovine tuberculosis region of Michigan. Epidemiology and Infection 141: 1498–1508.

The original artwork on this page was created by the National Wildlife Disease Program's Erika Kampe and Sarah Goff