
TITLE: Wolf Population Management Project

The gray wolf has returned to its former range in the Upper Peninsula of Michigan (UP). Since 1989, the Department has monitored wolf population growth and range expansion. As Michigan's wolf population size increased and exceeded levels that required Federal and State agencies to protect the wolves under endangered species statutes, wildlife managers increasingly found themselves responding to wolf-related conflicts. This change in focus prompted the Department to update the state's wolf management plan. The Department revised the management plan again in 2015.

As the wolf population increased, the Department developed a program of research to aid in monitoring their recovery and management. An important component of this work has been the capture and tagging of wolves with telemetry collars to determine their survival, cause-specific mortality, movements, and pack and territory size. Over 400 wolves have been captured and radio-collared to provide this important information. We have completed the transition from deploying VHF collars to GPS collars that transmit data through satellites. The GPS collars provide more frequent and more accurate locations without the need and expense of aerial relocation flights. At the end of 2019 we were monitoring 29 GPS collared wolves.

In 2019, our research focus has been on continuing our comprehensive analysis of our wolf movement and survival data with Michigan Technological University. This year our analyses demonstrated that wolves in Michigan, exhibited density-dependent habitat selection patterns. Our data and analysis supported the idea that wolves' distribution of used habitat shifted towards potentially lower quality habitat characteristics at the population level, but that distributions of unused habitat showed minimal change when considering the increased territory overlap occurring in responses to increasing density as the best habitats became saturated. Specifically, it appeared that new colonizing wolves became less likely to avoid existing territory boundaries as the population expanded, perhaps preferring to risk territorial disputes over settling in lower suitability habitats. Such a phenomenon could lead to increased competition for resources with possible density-dependent influences on reproductive success, dispersal and survival. This finding appears to be consistent with other studies in the Greater Yellowstone Ecosystem and the Great Lakes regions, where interspecific conflict increased with density and led to reduced survival in unexploited populations, while increasing density corresponded with riskier behaviors, increased human conflict and mortality risk in populations with greater exposure to lethal management, harvest and poaching.

The information collected from our sample of collared wolves also continues to be critical to our bi-annual wolf abundance surveys. Most importantly, the movement information and identification of pack territories allows us to interpret winter track survey data to estimate wolf abundance. Without a doubt, estimates of wolf abundance are the most important piece of information we collect on this population. In 2019, we prepared for the next wolf abundance survey scheduled for winter 2020.

Partners: Safari Club International-MIC, Michigan Technological University (MTU).

Timeframe and budget: Wolf population monitoring began in 1989 and work continues annually. Total annual costs in years without a survey are approximately \$60,000 and annual costs increase to over \$100,000 when a survey is conducted. The MTU project was completed in 2017 with a total cost of \$135,000. Targeted funding request from SCI-MIC for FY2020: \$4,000.