Department of Natural Resources
SCI-MIC Supported Research Projects
2023 Progress Reports

Project Title - Wolf Population Management

Project Background - 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 increased, protections under Federal and State laws for wolves changed necessitating action in wildlife managers response to wolf-related conflicts. This prompted the Department to update the state's wolf management plan. The Department revised the management plan in 2015 and again in 2022. As part of the 2022 wolf management plan revision, the Division surveyed the public to assess their attitudes and beliefs regarding wolves and various management options. The social science data collected as a part of this study provided critical input to the plan's revision.

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. To date, over 700 wolves have been captured and radio-collared to provide this important information. We have completed the transition from deploying outdated VHF collars to GPS collars that transmit data through satellites.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 2023 we were monitoring 22 GPS collared wolves.

Progress 2023 - We trapped 20 new wolves and fitted them with GPS collars. The information collected from our sample of collared wolves also continues to be critical to our biennial 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. Estimates of wolf abundance are one of the most important pieces of information we collect for this population and surveys would not be possible without GPS collars. In winter of 2022, we conducted the wolf abundance survey resulting in a minimum population estimate of 631 wolves found among 136 packs across the UP. The Division is conducting another wolf track survey in winter 2024. Also, the Division is currently developing two occupancy modeling approaches as potential alternative wolf abundance estimation techniques, and these will be evaluated against the existing abundance estimator. Any new abundance technique will still rely heavily on having collared wolves in the UP.

Partners - Safari Club International-MIC and MDNR.

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 in years when a survey is conducted.

***Project Title* – Developing a Cost-Effective Technique to Estimate Wolf Abundance**

Project Background - The Michigan Department of Natural Resources (MDNR) has a public trust responsibility for the management of wolves in the state. Though the legal status of wolves at the Federal and State level has changed multiple times over the past several decades, wolf numbers in Michigan have exceeded State and Federal population recovery goals for 20 years. The primary technique for estimating wolf distribution and abundance in Michigan is winter track count surveys, typically during January–March. Simplistically, this approach involves agency biologists searching areas of known or suspected wolf activity for tracks and other evidence of wolves, estimating the minimum number of wolves in each pack from sets of tracks observed, and summing these values to obtain a minimum count of wolves.

Minimum counts can provide a useful index of abundance, however, for species of low abundance and of high public profile, more rigorous counts are often desired. Recent efforts in several western states (e.g., Idaho, Montana) have attempted to address the shortcomings of minimum counts through occupancy-based winter track surveys. A similar survey approach is being used in Wisconsin that includes GPS-collared wolves and demonstrates promise as a long-term and efficacious approach to estimate wolf abundance. In addition to occupancy-based track surveys, use of remote cameras has gained considerable attention for estimating distribution and abundance of wildlife during the last 15 years. Coupled with statistical advances to estimate wildlife abundance, particularly using unmarked animals, remote cameras now provide a field tool capable of facilitating long-term monitoring of wildlife.

The core work of this research includes developing occupancy-based winter track count and use of remote trail cameras to estimate abundance, augmented by continued long-term monitoring of GPS-collared wolves, and comparing their efficacy in terms of accuracy, precision, and cost (economic and personnel) to identify an approach for monitoring long-term trends in wolf abundance and distribution. Funds to replace and supplement ongoing GPS collaring efforts and remote camera work are important to the success of this peninsula-wide monitoring effort.

Progress 2023 – We conducted wolf snow track surveys within the pilot deployment cells during January–March 2023. Survey routes (i.e., transects) were predetermined and included plowed (truck) and unplowed (snowmobile) roads. Transect lengths totaled 1,235 km and were surveyed 3 times. We identified 262 individual wolf tracks across the three surveys.

In 2023, we also expanded the pilot deployment of remote trail cameras across the Upper Peninsula. Preliminary abundance estimates demonstrated a decreased camera density would not result in substantial loss of precision; therefore, we reduced camera density to 1 camera/25 km^2. Additionally, we increased cell size to 210 km^2 to represent mean pack range in the UP, each containing 8 camera locations per cell. From June to October 2023, we deployed 1,230 cameras across the UP. Cameras will be revisited for maintenance and to download images beginning June 2024.

Partners - Safari Club International-Michigan Involvement Committee, Michigan State University, and MDNR.

Timeframe and budget – Work for this project began in 2022 and will continue through 2027. Total project costs exceed 1.2 million.