

Department of Natural Resources 2024 SCI-MIC Project Requests

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, pack and territory size, and abundance. To date, over 700 wolves have been captured and radio-collared to provide this important information. We completed the transition in 2016 from deploying outdated VHF collars to GPS collars that transmit data through satellites. GPS collars provide more frequent and accurate locations without the need and expense of aerial relocation flights.

The Division is currently evaluating a new approach as an alternative wolf abundance estimation technique, and this will be evaluated against the existing abundance estimator. Any new abundance technique will still rely heavily on having collared wolves on the landscape.

Partners – SCI-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 \$100,00 in years when a survey is conducted.

2024 SCI-MIC funding request – Targeted funding request from SCI-MIC for 2024 is \$2,000.

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.

This research includes use of >1,300 remote trail cameras and an occupancy-based winter track count to develop an approach for monitoring long-term trends in wolf abundance and distribution. Augmented by continued long-term monitoring of GPS-collared wolves, this approach will be compared against the existing estimator for efficacy in terms of accuracy, precision, and cost (economic and personnel). Funds to replace and supplement ongoing GPS collaring efforts and remote camera work will be important to the success of this peninsula-wide monitoring effort.

Partners - Michigan State University, SCI-MIC and MDNR.

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

2024 SCI-MIC funding request – Targeted funding request from SCI-MIC for 2024 is \$3,000.

Project Title - ORPHANED CUB PROGRAM

Project Background - Bear cubs are typically born in January and are fully dependent on their mother until approximately 7 months-of-age. During this time of dependency, cubs sometimes become separated from their mothers and/or their mothers die leaving them orphaned. Sometimes these orphans are found by well-intentioned people and turned over to DNR. Removal of a few cubs annually from Michigan's bear population would have no effect on sustainability of bears, however; it has been repeatedly confirmed that euthanasia of orphaned cubs is not publicly accepted. Orphaned cubs less than approximately 4 to 6 months-of-age can be successfully placed with sows that have their own cubs. DNR maintains 6 to 8 radio-collared adult sows annually so they can serve as surrogate mothers for orphans.

Additionally, surrogate sows are used for training DNR staff in anesthetizing and handling bears, and they are incorporated into educational programs. For example, DNR has made available online curriculum for K-5 on the life history of Michigan bears and some of the information used for developing these materials originated from surrogate sows. Occasionally, DNR allows stakeholders, reporters, and politicians to accompany biologists on winter den checks to replace radio-collars. This is done in an educational setting and provides positive public relations. Lastly, although the number of sows maintained annually is not enough for conducting rigorous research, data from den checks collected over many years provides supplemental information on reproduction and cub survival that is valuable for monitoring the bear population.

Partners - MDNR and SCI-MIC

Timeline and Budget - This is an annual project funded internally by DNR with contributions from SCI-MIC for purchase of equipment.

2024 SCI-MIC funding request – Targeted funding request from SCI-MIC for 2024 is \$1,000.

MANAGING THE SOCIO-ECOLOGICAL SYSTEM FOR HUMAN-BLACK BEAR INTERACTIONS IN THE NORTHERN LOWER PENINSULA

In Michigan, hunting is the primary tool for maintaining a sustainable bear population within social and biological limits. Additional tools employed for reducing black bear-human conflicts in Michigan are to trap and relocate, install electric fencing, and targeted lethal removals of nuisance animals. We lack the data for determining if these management tools are effective and if so, under what circumstances.

The Northern Lower Peninsula of Michigan has experienced an increase in abundance and distribution of black bears for more than three decades, growing by about 70% in the last decade alone. Along with an increase in bear distribution, the frequency and intensity of negative human-bear interactions have increased in the Baldwin bear management unit over the last decade. However, bear harvest in the Baldwin Unit typically occurs in prime bear habitat and may not remove bears associated with negative human-bear interactions. The Michigan Department of Natural Resources has initiated a research project with partners at Utah State University to consider both the social and ecological mechanisms that drive human-bear interactions in the Baldwin BMU and identify the management actions that are most appropriate given stakeholder attitudes, an expanding bear population, and limited staff resources. Thus, identifying in what situations and at what times hunter harvest can mitigate conflict is an important component to this research.

A better understanding of stakeholder attitudes towards black bear impacts and management strategies, coupled with an understanding of the social and ecological effectiveness of those management strategies, will allow the DNR to strategically target management interventions to best mitigate negative human-bear interactions while facilitating positive ones (e.g., recreational harvest). With the rapid increase in frequency and intensity of negative human-black bear interactions in the Baldwin Unit, knowing which management tools to apply in which conflict context will result in better use of staff time and resources. In addition, lessons learned through this research will allow the DNR to be proactive, equipped with a better understanding of the effectiveness of the management tools at our disposal.

Financial support for this research from SCI-MIC would assist capture and collaring efforts through the purchase of GPS collars with contracted satellite time and building additional barrel traps to capture bears throughout the study. Data collected from collared bears will allow us to examine how habitat use, bear density, harvest density and distribution, and conflicts are related. This data will more accurately determine if bear density and habitat use is correlated to human-bear conflicts and how hunter harvest influences this relationship. Final project recommendations could include improved DNR communications strategies for the Baldwin and other bear management units, and recommendations for changes to bear harvest regulations.

Partners - Utah State University and MDNR.

Timeframe and budget – Work for this project began in 2022 and will continue through 2027. Total project costs exceed \$650K.

2024 SCI-MIC funding request – Targeted funding request from SCI-MIC for 2024 is \$3,000.