Feral Swine Research Project – MIC SUPPORT REQUESTED TO CONTINUE FOR 2016

Feral swine (*Sus scrofa*), specifically the Russian boar breed, pose significant threats to habitat, wildlife, human health, and the agricultural industry in Michigan. Free-ranging feral swine occur in 76 of 83 Michigan counties as of 2012. The occurrence of feral swine is projected to negatively impact the billion-dollar wildlife value (USFWS and US Department of Commerce 2006) and $300 million domestic swine industry in Michigan. Additionally, feral swine impact agricultural crop production with potential ramifications that extend to the entire agricultural industry. Furthermore, researchers are just beginning to understand the indirect impacts of feral swine on naturally occurring plant and animal communities.

Feral-swine are opportunistic omnivores known to consume almost any organic material including vegetation, invertebrates, and vertebrates. Feral swine impact plants and animals through direct consumption and by habitat modification and degradation, competition, and invasive species propagation. For example, feral swine can negatively impact forest regeneration through consumption of vegetation and seeds, particularly during low mast periods and secondarily through soil disturbance and stream bank erosion associated with rooting behavior. In addition, feral swine compete directly with wildlife for food and water resources and can prey on some wildlife species. Direct predation on wildlife is poorly documented in the scientific literature but ground nesting birds (including wild turkey, ruffed grouse and waterfowl) and altricial young are likely susceptible to feral swine predation. The scale of ecological damage caused by feral swine has not yet been spatially delineated nor economically assessed for Michigan. An understanding of feral swine space use and activity budgets is needed to help assess and predict risks to plant and animal communities and to help prioritize targeted management actions. Unfortunately, little is known about feral swine ecology in northern climates that can be used to better inform control strategies in Michigan.

Feral swine are reservoirs and potentially amplifiers for >30 viral and bacterial diseases and at least 37 known parasites that can affect humans, livestock, and wildlife. The presence of feral swine in Michigan threatens to compromise the disease-free status of the domestic livestock herds and complicates eradication of bovine tuberculosis (bTB) in free- ranging deer. Additionally, over the past 17 years the US has spent about $200-250 million to achieve a pseudorabies free status for the domestic livestock herd. In Michigan, preliminary testing of 133 feral swine samples indicated ~10% were positive for pseudorabies. Feral swine can also transmit some common zoonotic diseases to humans such as leptospirosis, salmonellosis, and trichinosis. Collectively, the potential of feral swine as a disease reservoir and vector makes disease monitoring and control a top priority for Michigan's agricultural community.

Feral swine are possibly the most prolific large mammal on earth reaching sexual maturity at a young age, capable of farrowing several times a year, have large litters, and high natural survival. In good habitat, population growth and subsequent colonization through dispersal can occur rapidly resulting in irruptive population growth.

Natural predators have little impact on feral swine populations and in good habitat feral swine can endure extremely high rates of hunting harvest with little impact on the overall population. Thus, if Michigan has any chance to locally control and potentially eradicate feral swine action must be taken swiftly using all available control techniques.

Feral swine trapping in Michigan has been implemented by United States Department of Agriculture (USDA)-Wildlife Services, with support from the Michigan Department of Agriculture (MDA), to control localized populations. However, little is known about the effectiveness of these trapping efforts to reduce or eradicate local populations. Additionally, there is an absence of spatial ecology information (i.e., dispersal capabilities, daily movements, seasonal movements, proximity to domestic swine, and feeding behavior) that can be used to inform stakeholders about risk, educate landowners, and ultimately better inform population management strategies, including lethal removal. The goal of this project is to quantify feral swine space and resource use, disease status and potential for disease transmission, and develop and evaluate effective lethal removal techniques and strategies.

This project will assist Michigan in developing effective control strategies for free-ranging feral swine. The ultimate goal is to eradicate this invasive species to protect Michigan's natural resources for future generations.

This past year we increased public outreach about the threat feral swine pose to Michigan's natural resources; interviewed deer hunters and farmers about feral swine sightings and kills; scouted, baited and used trail cameras to locate groups of feral swine; tested and calibrated new accelerometer technology on 2 domestic swine; and captured and equipped 1 female feral swine with a GPS radio-collar.

Partners: US Department of Agriculture-Wildlife Services, Michigan State University, University of Michigan-Flint, SCI-MIC, and Michigan Pork Producers.

Timeframe and budget: This project started in 2013 and is scheduled to run through summer 2018. Total project costs will exceed $800,000.