Feral Swine Project

Feral swine pose significant threats to habitat, wildlife, human health, and the agricultural industry in Michigan. Feral swine are possibly the most prolific large mammal on earth reaching sexual maturity at a young age, capable of breeding several times a year, have large litters, and high natural survival. Natural predators have little impact on feral swine populations and in good habitat they can endure extremely high rates of hunting harvest with little impact on the overall population. The general ecology of feral swine in northern habitats and the scale of ecological damage caused by feral swine in Michigan has not yet been spatially delineated nor economically assessed. An understanding of feral swine ecology, including 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.

In 2016, trapping of feral swine was conducted by USDA-WS with support from MDNR. Trapping resulted in 2 additional radio-collared animals (10 total for the study) both in the central UP. Using GPS locations from the 2 radio-collared swine, USDA-WS was successful at lethally removing 8 additional feral swine by trapping and sharp-shooting. MSU is analyzing the movements of the radio-collared swine in response to targeted removals of associated animals.

We developed a predictive model using accelerometer (motion sensor) data obtained from GPS collared animals to delineate geographic areas having a high probability of rooting activity. This information was used to select field-sampling sites to investigate the impact of feral swine rooting on native flora. Field crews visited 29 sites (19 rooted, 10 random) that were ~20 ac in size during the summer of 2016. We collected information on localized plant communities, the amount of exposed mineral soil, and tree damage. Additionally, we visited 5 sites where the timing of rooting events was documented. At these sites we collected soil cores to measure the depth of the organic material. We aim to use this measure as an index of how long ago rooting occurred. Crews also conducted a damage assessment in a field of corn that was occupied by feral swine. All sites were resampled in in 2017. Soil samples are presently being analyzed at MSU.

Also in 2017, we analyzed trail camera photographs to determine feral swine group size and activity at baited sites. Based on 72 individual events (separated by at least 12 hours), group size ranged from 1-7 with a mean=2. Pigs responded better to baited sites in summer compared to winter; indicating trapping and sharpshooting may be more successful in summer.

Because of low samples and low disease prevalence, the original disease monitoring objective of this project was revised in FY 2016. The revised objective focuses on testing whether environmental DNA (eDNA) can confirm the presence of swine from water samples obtained from Michigan streams. Use of eDNA is an emerging technology for noninvasively detecting animals by testing environmental (e.g., water and soil) samples. To test the efficacy of detecting swine DNA in 2 different stream environments, we introduced swine body parts and systematically sampled to 400 meters downstream. We collected additional stream parameters (e.g., turbidity, temperature, velocity) to determine their impact on detecting swine DNA. In 2017, we collected 1,179 water samples on 19 different sampling occasions. Samples are presently being analyzed at Central Michigan University.

In 2017, researchers were invited to present research results at two Universities.

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

Time Line and Budget: This project started in 2013 and is scheduled to run through 2018. Total project costs will exceed $800,000.
