New York Feral Swine Management Report

April 1, 2017 – March 31, 2018

Prepared by:
Justin Gansowski and Kathryn Long
United States Department of Agriculture
Animal Plant Health Inspection Service
Wildlife Services

Funding Provided by:
New York State Department of Environmental Conservation
Great Lakes Restoration Initiative Grant from the Environmental Protection Agency
And
United States Department of Agriculture

April 2018

USDA

WS Wildlife Services

Protecting People | Protecting Agriculture | Protecting Wildlife

APHIS

Status in New York

To date there have been four distinct breeding feral swine (*Sus scrofa*) populations documented in New York located in Tioga, Cortland/Onondaga, Delaware/Sullivan, and Clinton Counties. Three of these populations are believed to have originated from animals escaping high-fence wild boar hunting preserves. Wildlife Services has reason to believe that the population in Clinton County became established when feral swine were intentionally released on the landscape for hunting purposes. The establishment of free roaming feral swine populations by animals that have escaped or were intentionally released from such facilities has been documented throughout the country (Kaller and Reed, 2010; Missouri Dept. of Conservation, 2012). Through aggressive removal efforts by USDA APHIS, Wildlife Services (WS) and New York State Department of Environmental Conservation (NYS DEC), feral swine have been eliminated from the state. Wildlife Services has found no credible evidence of any wild Eurasian boar in Cortland/Onondaga County since 2012, Tioga or Clinton Counties since 2013, Delaware/Sullivan Counties since 2014, and St. Lawrence County since 2017. WS has built and maintained numerous relationships that allow WS to obtain and assess feral swine reports in a timely manner. This early response system is key in the continued elimination status of feral swine in New York.

Wildlife Services was able to implement its feral swine management plan and protect the state's resources through grants provided from the Environmental Protection Agency's Great Lakes Restoration Initiative and New York State Department of Environmental Conservation.

Impacts of Feral Swine

Feral swine are a destructive problem across the country and are a conscious concern for New York, as we do not want populations to return. They are a direct threat to agricultural production, natural resources, and human health and safety. Rubbing, rooting, and wallowing by feral swine causes damage to agricultural field crops, turf, landscaping, orchards, and vineyards. These habits adversely affect soil and water quality through soil erosion and sedimentation, wetland degradation, and the introduction of nutrients and pathogens into surface waters. Feral swine impact native wildlife and plant communities through direct predation, consumption, resource competition, habitat destruction, and disease transmission (Seward et al. 2004). Sensitive ecosystems, critical habitats, and threatened and endangered species are particularly vulnerable to these impacts. Feral swine harbor and transmit up to 30 diseases and 37 parasites that can affect people, pets, livestock, and wildlife (Hutton et al. 2006). Disease risks from feral swine could have the greatest potential impact on commercial pork productions, a $38 million industry in New York (Witmer et al. 2003). Finally, though it is rare, feral swine have been known to behave aggressively toward humans, especially where habituation to human resources (eg. wildlife feeders, waste disposal) put people and feral swine in close proximity (Draft EIS, USDA).

Since 2008, when the first known breeding populations were discovered, Wildlife Services in New York estimates that feral swine have accounted for over $2,578,453.66 in damage and management efforts. If feral swine are allowed to become re-established, New York residents can expect the return of damage caused by feral swine and the cost associated with it.

As feral swine hunting has grown in popularity across the United States, so have feral swine populations. Feral swine populate the landscape by escaping from enclosed shooting facilities and are released intentionally into the wild to increase hunting opportunities (Bratton, 1975). The intentional release of swine by hunters and the accidental release of European wild boar from enclosed shooting facilities are the major factors in the increase of feral swine populations across the United States (Missouri Dept. of Conservation 2012). This report provides an update on Wildlife Services' field activities from April 1, 2017 to March 31, 2018.

Cooperating Agencies

Strong interagency partnerships have been essential for effective feral swine management in New York. Wildlife Services works closely with New York State Department of Environmental Conservation, New York State Department of Agriculture and Markets, and USDA Veterinary Services. These agencies developed and enforced feral swine regulations, performed inspections of game preserves and high-fenced shooting facilities, and assisted with reporting feral swine sightings to WS. County governments provided WS with cadastral data that was essential for securing access to private property to conduct management efforts. WS also worked with New York State Office of Parks, Recreation and Historic Preservation; USDA Farm Service Agency; Cornell Cooperative Extension; and non-governmental organizations including The Nature Conservancy, Audubon Society, Humane Society, Broome County Soil and Water Conservation District, Partnership for Regional Invasive Species Management (PRISM), Finger Lakes Land Trust, New York State Conservation Council, New York State Fish and Wildlife Management Board, and New York Forest Owners Association.

Wildlife Services has been working closely with Cornell Cooperative Extension offices throughout the state and focusing on collaborating with the offices located on the New York/Pennsylvania border. WS will be conducting a border survey similar to the one that was completed in 2010. WS will be speaking to residents about feral swine and asking if they have any knowledge of them being in the area. The goal is to promote education of the damage feral swine cause, promote the reporting of feral swine sightings by the public, and to monitor the border to ensure feral swine are not travelling north into New York. WS also provided updated feral swine information for CCE's websites and will be conducting educational workshops throughout the year regarding continued monitoring and surveillance.

Monitoring Activities

WS-NY is continuing to implement the five-prong approach elimination plan which includes; on the ground management and surveillance, an early detection network, collaborating with NYSDEC law enforcement, aerial surveillance, and canine surveillance. WS is utilizing these strategies to document the continued efforts of maintaining elimination of Eurasian boar populations in New York State.

On the Ground Management and Surveillance. - Through creating and maintaining networks using the early detection network, WS has acquired written permission from 168 private landowners and public land managers to access 77,705 acres of property to conduct feral swine management activities. Table 1 shows the acreage that was monitored by WS throughout the year. All of these properties are in areas where feral swine have been reported, where feral swine populations had previously been documented, and in close proximity to high-fence game farms that were known to have Eurasian boars. WS employees conducted periodic surveys on these properties, both by foot and by ATV, to determine if feral swine were present. During these surveys, technicians searched for evidence of feral swine such as, scat, tracks, tree rubs, rooting, and wallows. Technicians also maintained numerous trail cameras in areas where feral swine had previously been present or where a credible feral swine report was located. Trail cameras were deployed continuously, except for during deer and turkey hunting seasons. Cameras were checked every 2-6 weeks to see if feral swine photos had been captured.

Table 1. The number of cooperators in each county and the acreage that was monitored by Wildlife Services for feral swine activity from April 1, 2017 to March 31, 2018.

County	**Number of Properties**	**Area** (Acres)	**Feral Swine Detected**
Steuben	1	25	No
Cortland	1	32	No
Schenectady	1	3	No
Hamilton	1	1	No
St. Lawrence	13	7,019	No
Total	**17**	**7,060**	**No**

Early Detection Network. - Wildlife Services is working with cooperating agencies and news outlets to inform the public, build public awareness of the program, and encourage people to report feral swine sightings to WS or NYSDEC. From April 1, 2017 to March 31, 2018, WS spoke to four groups about feral swine management and disease surveillance in New York, with a total of approximately 200 participants.

On May 17, 2017, WS attended the SLELO PRISM (St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management) Annual Meeting. WS presented on the aerial surveillance that was performed in February 2017 to approximately 25 attendees. WS educated about feral swine as an invasive species as well as aerial surveillance, on-the-ground management, current and future management practices.

On May 25, 2017, WS presented at a SUNY ESF Wildlife Workshop. Three WS personnel conducted individual workshops focusing on rabies, airport raptor management and feral swine management for 20 students.

On September 16, 2017, WS gave a presentation for a Sportsman's Night Out in New Woodstock, NY. WS spoke to 50 attendees about feral swine and the work Wildlife Services provides to manage the invasive species.

On March 22, 2018, WS presented at the New York State Wildlife Society Meeting. WS presented on "The need for monitoring after feral swine elimination." There were approximately 100 attendees representing over 17 different organizations, institutions and agencies.

Wildlife Services and NYSDEC worked together to look into reports made by the public of possible feral swine activity in the state. These reports are usually submitted to NYSDEC, and then forwarded on to WS for further investigation if necessary. This process is the foundation of Wildlife Services' early detection network. WS investigated 31 such reports from April 1, 2017 to March 31, 2018. The nature of the reports included observation of a feral swine (22), rooting or tracks in yard (3), feral swine carcass (2), camera photos (3), and video of swine activity (1). Wildlife Services performed site visits for 12 of these reports (Figure 1). Sixteen investigations were conducted through phone or email conversations. During site visits, WS personnel spoke to the individual who made the report as well as residents and business owners in the area. Whenever possible, WS spoke with owners of domestic pigs to see if any of their animals had escaped around the time of the report. WS personnel also scouted the area for evidence of feral swine activity when access to property was available. Nine of these reports turned out to be the result of escaped domestic pigs. Seventeen of the reports were likely cases of mistaken identity in which other wildlife such as turkeys, raccoons, bears, coyote silhouettes, etc. were mistaken for feral swine.

WS collected tissue samples on a hide and skull that was found by NYSDEC on March 14, 2018. WS analyzed the characteristics of the pig and determined it closely resembled the feral swine population that was in Delaware County. WS sent the tissue samples to the National Wildlife Research Center in Fort Collins, Colorado. The lab will sequence the DNA sample and run tests to see if it resembles any other feral swine population that was present in New York. WS is still waiting on the findings.

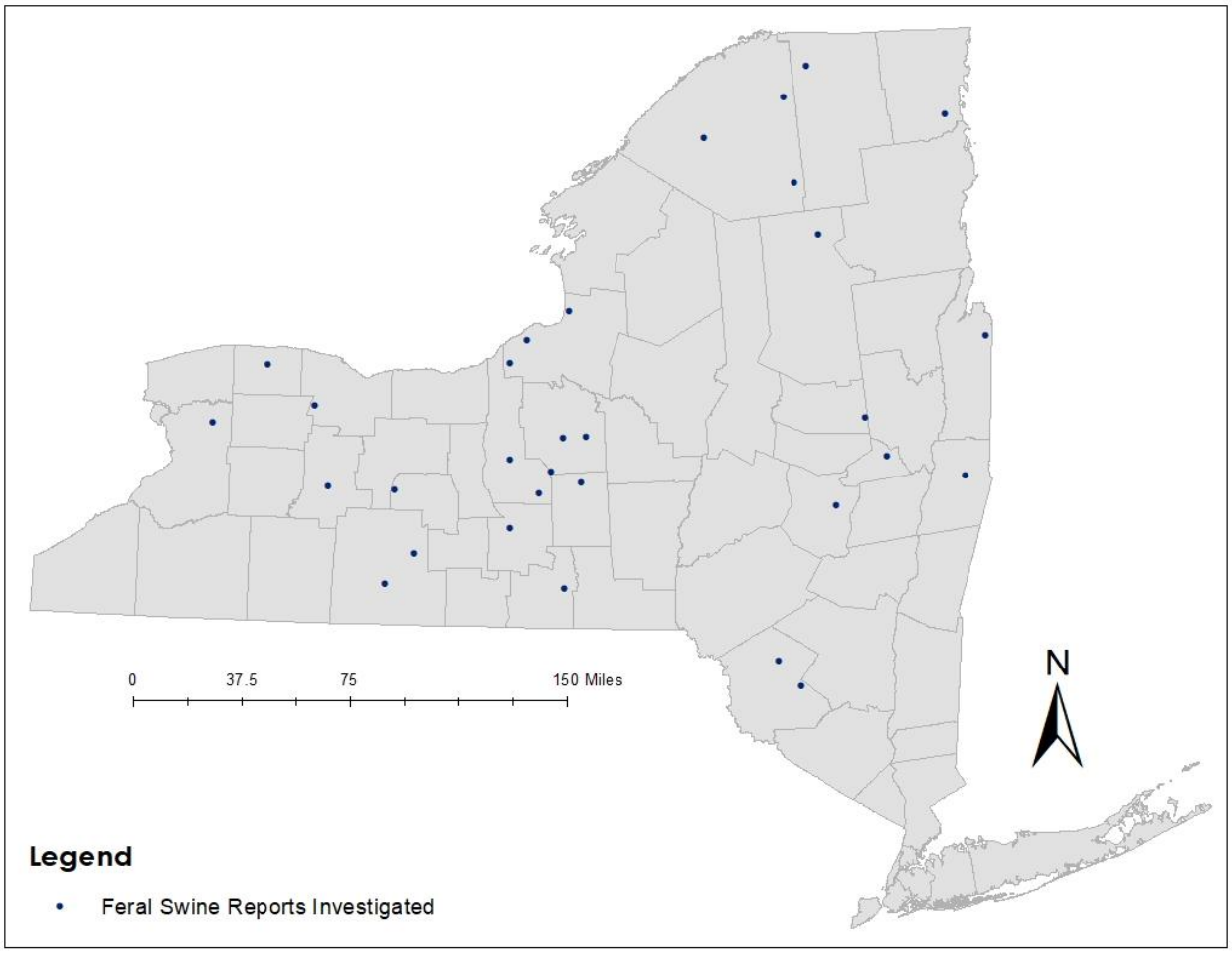

Figure 1. Distribution of feral swine reports investigated by USDA-APHIS, Wildlife Services from April 1, 2017 to March 31, 2018.

Collaborating with Law Enforcement. - Wildlife Services continued to work closely with NYSDEC law enforcement during the last year by providing support to officers working to enforce new Eurasian boar regulations. WS personnel provided man power and expertise on the identification of Eurasian boar physical characteristics while participating in inspections and compliance checks of high-fence shooting facilities, game farms, animal preserves, and other facilities that had or may have possessed Eurasian boars. WS also worked with NYSDEC law enforcement to help identify an unknown registered breed of domestic pigs that possessed Eurasian characteristics. NYSDEC aided in obtaining information in regards to the removal of the boar in St. Lawrence County. They were able to obtain the ear tag from the boar and provide contact information for additional assistance about the removal.

Aerial Surveillance. - Wildlife Services did not have a need to conduct aerial surveillance from April 1, 2017 to March 31, 2018.

Canine Surveillance. - Wildlife Services did not have a need to conduct canine surveillance from

April 1, 2017 to March 31, 2018.

Surveillance Summary

While conducting these surveillance strategies, Wildlife Services employees spent 47 hours scouting for feral swine, including physically looking for feral swine sign and investigating feral swine reports. Wildlife Services spent over 45 hours conducting outreach to cooperators, landowners, and the general public about feral swine elimination. Wildlife Services spent 133 hours driving over 6,695 miles to conduct scouting efforts and investigate feral swine reports throughout the state of New York (Figure 3).

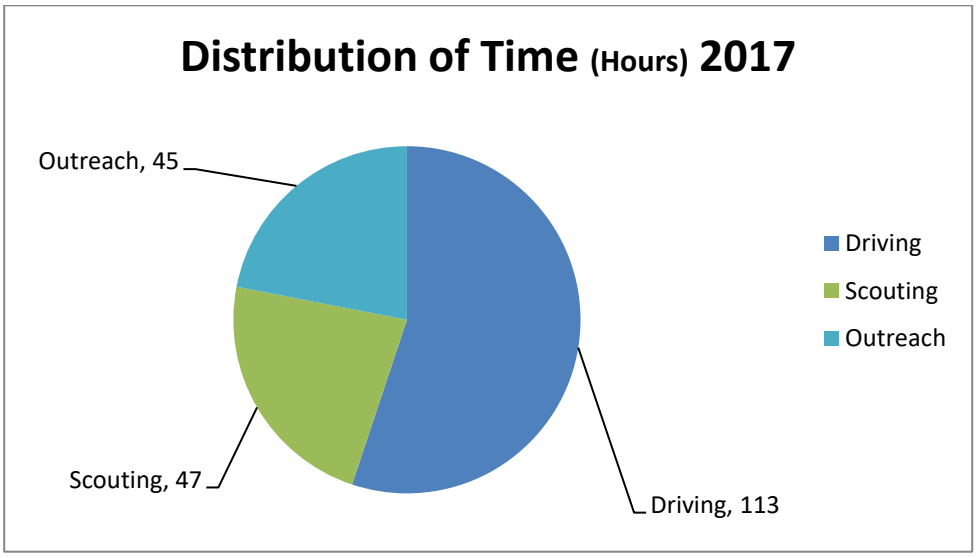

Figure 3. Distribution of time spent in the field by Wildlife Services personnel during feral swine management in New York, April 1, 201 to March 31, 2018.

Current Focus

Populations at very low levels of abundance are exceedingly difficult to detect. Knowing with any certainty when elimination has been achieved is extremely difficult (Morrison et al. 2007). Terminating an eradication program before we are reasonably certain that complete elimination has been achieved could result in failure, wasted time, and wasted funds. Feral swine have been known to reinvade up to two years after a population was presumed eliminated (Schuyler et al. 2002). The single castrated boar went undetected in St. Lawrence County since 2010 despite all active measures taken to ensure elimination. A variety of monitoring techniques (eg. aerial surveys, canine surveys, trail cameras) implemented in concert can enhance our ability to detect feral swine, but absolute certainty of feral swine absence can only be attained by the passage of time without detection (Morrison et al. 2007). WS is prepared to implement the proven removal techniques if feral swine return to the landscape. However, there are a few key issues that should be addressed to ensure New York remains free of feral swine for the long-term.

The prohibition of Eurasian wild boars in New York was a critical step in the success of our efforts to permanently eliminate this invasive species. However, in the past, some high-fence hunting operations have taken advantage of an obvious loophole in the law and are now offering domestic “meat pig” hunts. Even though these are domestic pigs, they do represent a potential source of feral swine. The concern is that domestic pigs maintained in a semi-natural environment, such as within an expansive high-fence enclosure of tens or hundreds of acres will, over time, develop wild behavioral traits that would greatly increase their ability to survive and establish populations in the wild if they were to escape or be released from confinement. Domestic pigs raised for the purpose of meat production using conventional husbandry practices are not likely to fare well in the wild after escaping. This is due in part to the lack of external

factors and stimuli necessary for the animals to develop behavioral characteristics needed in the wild (Stolba and Wood Gush, 1989). It is well documented that most of the wild pigs in the US originated from domestic stock, but in almost all cases it was from domestic stock that were loosely maintained under free range practices in which the animals had no reliance on humans. Another reason is that pen-reared pigs, domestic or Eurasian, form strong associations with humans that may preclude their ability to transition to a free-living lifestyle (Graves, 1984; Lewis, 1966). However, research has shown that domestic pigs moved to a spacious, semi-natural enclosure with multiple habitat types and minimal human interaction will develop a repertoire of behavior resembling that of the Eurasian wild boar within 1–6 months (Stolba and Wood-Gush, 1989). This is the basis for the often misunderstood concept that pigs readily "go wild" or become wild boars after escaping confinement.

There is still the possibility that feral swine populations could expand into New York from bordering states or Canada. New York has been proactive in its adoption of regulations that minimize the risk of feral swine invasions from within. However, lax regulations regarding Eurasian boars in neighboring states, most notably Pennsylvania, pose an ongoing threat. Wildlife Services has spent nearly eight years managing feral swine in Tioga County, a population that was established by animals that escaped a shooting preserve in bordering Bradford County, PA (USDA, 2010). Though our ability to influence policy in other states is limited, targeted public outreach in communities along the Pennsylvania border is warranted to facilitate early detection of feral swine in those areas. Wildlife Services is partnering with organizations that regularly interact with landowners in these high-risk areas. Agencies such as USDA-Farm Service Agency (FSA), USDA-Natural Resource Conservation Services (NRCS), Cornell Cooperative Extension, as well as various private landowner groups and associations already have methods in place to disseminate information to the people most likely to encounter feral swine invading from outside the state. More direct long-term surveillance methods, such as trail cameras and active scouting by trained wildlife technicians should also be considered where feral swine populations are known to exist within close proximity to the New York State border. Being able to monitor or regulate these sites is imperative for maintaining the elimination status of feral swine in New York.

Literature Cited

Bratton, S. P. 1975. The effect of the European wild boar, *Sus scrofa*, on gray beech forest in the Great Smoky Mountains. Ecology 56:1356-1366.

Graves H. B. 1984. Behavior and Ecology of Wild and Feral Swine (Sus scrofa). Journal of Animal Science 58: 482-492.

Hutton, T., T. DeLiberto, S. Owen, and B. Morrison. 2006. Disease risks associated with increasing feral swine numbers and distribution in the United States. USDA, APHIS, Wildlife Services Report.Draft

Kaller, D., and D. Reed. 2010. Invasive feral swine in Louisiana. Louisiana Agriculture. Volume 53, Issue 4.

Lewis, J.C. 1966. Observations of Pen-Reared European Hogs Released for Stocking. Journal of Wildlife Management 30: 832-835.

Missouri Dept. of Conservation. 2012. Feral Hog Control. Retrieved from <http://mdc.mo.gov/landwater-care/invasive-species/invasive-animal-management/feral-hog-control-1>. Accessed 6 Dec 2012.

Morrison, Scott A., Macdonald, N., Walker, K, Lozier L., and M. Rebecca Shaw. 2007. Facing the dilemma at eradications end: uncertainty of absence and the Lazarus effect. Frontiers in Ecology and the Environment 5(5):271-276.

Schuyler, P. T., Garcelon, D. K., and S. Escover. 2002. Eradication of feral pigs (*Sus scrofa)* on Santa Catalina Island, California, USA. In C.R. Veitch and M.N. Clout (Eds), *Turning the Tide: the eradication of invasive species* 274-276. IUCN, Gland, Switzerland.

Seward, N. W., Ver Cauteren K. C., Witmer G. W., and R. M. Engeman. 2004. Feral swine impacts on agriculture and the environment. Sheep & Goat Research Journal 19:34-40.

Stolba, A., and D.G.M. Wood-Gush 1989. The Behaviour of Pigs in a Semi-Natural Environment. Animal Production 48: 419-425.

USDA. 2010. Status of feral swine in New York State. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services. Castleton, New York. <http://www.pressconnects .com/assets/pdf/CB172981412.PDF>. Accessed 12 Feb 2015.

USDA. 2014. Feral Swine Damage Management: A National Approach. Draft Environmental Impact Statement. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services. Riverdale, MD. < http://www.regulations.gov/#!docketDetail;D= APHIS-2013-003>. Accessed 12 Feb 2015.

Witmer, G. W., R. B. Sanders, and A. C. Taft. 2003. Feral swine -- are they a disease threat to livestock in the United States? Proceedings of the Wildlife Damage Management Conference 10:316-325.