

Cascade Charter Township
Recommended Gypsy Moth Spray Areas 2022

By
Aquatic Consulting Services
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Block #	Acres	Reason for Spray
Cas01	33	An established population in good habitat. Population has been largely suppressed for a few years but does show signs of rebound. Population is continuous with Ada Township, so reinfestation is a concern. Nuisance is primary concern due to successive years of infestation. Spray to inhibit reinfestation and mitigate potential nuisance.
Cas02	40	A remnant population in very good habitat showing signs of rebound. Nuisance is primary concern due to prior infestation in the area. Tree damage is not as much of a concern due to relatively low egg mass densities. Spray to inhibit rebound and mitigate potential nuisance.
Cas03	32	A sustained population in good habitat. Tree damage is not a concern, but some nuisance has been confirmed in the area via homeowner interaction. Spray to reduce nuisance and further suppress population.
Cas04	41	A persistent remnant population in very good habitat. Population was largely suppressed for several years but is showing signs of slight rebound. Nuisance is primary concern as egg mass densities are not high enough to cause significant tree damage. Spray to mitigate potential nuisance and inhibit rebound.
Cas05	9	A rising population in good habitat. Several years ago, a small population was identified in Tassel Park. The area was treated, and no population was found in recent years. A small population was identified in 2021 surveys. Spray to contain any spreading and mitigate potential nuisance in public park.
Cas06	61	A persistent remnant population in prime habitat. Rebound in population is evident. Some trees in the area were heavily defoliated in successive years, so tree damage is primary concern, particularly along 30 th and Hayward St. Nuisance is a secondary concern due to history of infestation. Spray to limit further tree damage and inhibit rebound and mitigate potential nuisance.
Cas07	72	An established population in good habitat. Tree damage is primary concern particularly in trees overhanging 28 th St. Nuisance is secondary concern but is low according to resident reports. Spray to suppress population and limit tree damage.
Cas08	44	A persistent remnant population in very good habitat. Population was largely suppressed for a few years but does show signs of slight rebound. Some trees in the area were heavily defoliated in successive years, so tree damage is the primary concern. A secondary concern would be visibility of defoliation on the heavily traveled Whitneyville Rd. Spray to inhibit rebound and limit further tree damage.
Cas09	46	Conditions are similar to block Cas08. Area is not as heavily traveled but significant tree damage did occur in successive years in the area. A history of nuisance is also notable. Spray to limit further tree damage and mitigate potential nuisance

Cas10	23	A rising population in very good habitat. Population has been largely suppressed for several years. Population is continuous with untreated Caledonia Township, so reinfestation is a concern. A few trees in the area were heavily defoliated in prior years, so tree damage is the primary concern. Spray to limit further tree damage and inhibit reinfestation.
Cas11	30	A persistent remnant population in prime habitat. Population was largely suppressed but does show some signs of rebound. Tree damage is primary concern, especially in previously heavily infested trees along 60 th St. Reinfestation from untreated adjacent communities in Lowell and Caledonia Townships is also a concern. Spray to inhibit reinfestation and limit further tree damage.

Total Acreage = **431 acres**

As stated in previous reports to Cascade Township, gypsy moth suppression programs in Michigan generally follow an Integrated Pest Management (IPM) strategy which is focused on low environmental impact and economic awareness. Further, an IPM strategy intends to mitigate exponential population growth with treatment only until latent environmental controls begin to limit populations sufficiently. This approach requires that a monitoring period be commenced once environmental controls begin to act on populations sufficiently where tree damage is expected to be minimal and nuisance levels will be tolerable in the coming season. Egg mass surveys for the 2020 season (fall 2019) showed that environmental controls had begun to act in various areas, so monitoring activities commenced in lieu of suppressive efforts. Considering the low number of complaints, and low defoliation levels observed in the 2020 post-spray survey, we are confident this was the correct approach. Unfortunately, a few monitoring areas did show some rebound in fall 2020 surveys, and we felt it was necessary to respond accordingly and increase spray acreage. It appears that we made the right call, as population growth in many of the monitoring areas has stalled and started to decline. Additionally, establishment of new populations is low, so we currently have acceptable suppression over much of the Township. However, there are a few areas that still contain high enough egg mass densities to cause potential nuisance, but these areas should respond well to treatment. **We are pleased to recommend a decrease of 43% (324 acres) for a total of 431 acres indicated above.** The current population cycle continues to be challenging, but we are headed the right direction (downward). We need to remain vigilant though, as we are already seeing significant rebound in neighboring West Michigan communities. We will have to continue to stay on top of monitoring and treating remnant populations and small rebounds as we continue to reduce numbers in wait of mother nature’s assistance. Accordingly, we advise that all recommended areas are treated with *Bacillus thuringiensis kurstaki* (B.t.k.) in Spring 2022.

The term “nuisance” is subjective and relates to the likelihood that the feeding behavior and number of caterpillars in the area will impact a property owner’s quality of life. Some property owners may experience heavy infestation yet go unbothered. Other property owners may view 5-10 caterpillars visible on a barn door as a nuisance. Field experience during gypsy moth infestation suggests that the number of egg masses found in an area may yield a widespread nuisance situation. The term “tree damage” is more literal, but relative to environmental and historical factors as well. Any level of defoliation should be considered damaging, but otherwise healthy trees are generally much more resilient, even after consecutive years of defoliation.

Other environmental stressors such as drought or disease are additive factors that will contribute to greater risk of tree degradation and/or mortality. Defoliation levels of >60% are also very stressful to trees, although most trees can survive 3+ years of >60% defoliation if few other stressors are present. Habitat quality relates to the species composition, density, distribution, understory, and topography of an area. Mixed forest type consisting primarily of oaks, neatly groomed understory, mixed age-class, and low topographic variability are the ideal conditions for persistent infestation, and so this habitat is designated as “prime” with very good, good, and marginal habitat in decreasing suitability. Trends in populations are designated by the egg mass residues in the area. Rising populations show a high new/old egg mass ratio, with established, sustained, and remnant populations extending toward a high old/new egg mass ratio.

Spray areas are recommended based on historical data, habitat suitability, population dynamics, and field experience in gypsy moth management. Other areas within the township may also contain some level of gypsy moth infestation, but such areas are either show a significant downward trend or habitat conditions do not exhibit high likelihood of a vigorous infestation. The level of damage and/or nuisance can be difficult to predict given the interaction of unpredictable environmental factors. Additionally, gypsy moth suppression program managers are often tasked with balancing high potential for damaging gypsy moth numbers with high community benefit. Areas where these considerations overlap are generally the areas that are treated first with available funds and areas of diminishing return are treated as funds are depleted. Our treatment recommendations take this into account, and we try to limit recommended spray areas to these top-tier areas. Accordingly, it is possible that some residents may observe low level gypsy moth activity outside of recommended treatment areas. These areas may have simply not met the requirements to warrant treatment this season but may qualify for treatment in coming seasons.