

City of Walker
Recommended Gypsy Moth Spray Areas 2021

Aquatic Consulting Services LLC
January 2021

Block #	Acres	Reason for Spray
Walk01	82	A persistent remnant population in prime habitat. Nuisance is likely lower than in previous years, but population has been causing some level of nuisance for several years prior. Tree damage is primary concern in stressed trees due to high defoliation for successive years, particularly in northern portion of block. Spray to mitigate potential nuisance, limit further tree damage, and further suppress population.
Walk02	46	A persistent remnant population in prime habitat. Conditions are very similar to block Walk01, but egg mass densities are slightly lower overall. Area has experienced high nuisance for successive years, so further nuisance is primary concern. Tree damage is secondary concern, particularly in previously stressed trees. Spray to limit further tree damage and potential nuisance.
Walk03	87	A rising population in good habitat. Southern portion of block shows higher egg mass densities, but lower nuisance, confirmed by resident reports. Nuisance is higher in northern portion of block. Spray to reduce nuisance and limit tree damage in more heavily infested trees.
Walk04	175	An established population in prime habitat. Population has been largely suppressed for several years but is showing signs of rebound in several areas. Nuisance is low according to resident reports, but chance of nuisance in coming season is higher. Some trees in block were heavily defoliated at peak infestation, so tree damage is the primary concern in coming seasons. Spray to forestall population rebound, limit prospective nuisance and further tree damage.
Walk05	128	An established population in very good habitat. Population is showing signs of rebound in a few areas. Population was largely suppressed for a few years but rebound may cause issues in coming season. Nuisance is slightly elevated according to resident reports. Spray to reduce nuisance and inhibit rebound.
Walk06	52	A remnant population in very good habitat. Population shows some signs of rebound. Spray to limit further tree damage, inhibit rebound, and suppress population growth.

Total Acreage = 570 acres

As stated in previous reports to the City of Walker, 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. Several of these monitoring areas have continued a downward trend, but frustratingly a few have already started to rebound in number. In addition, some areas where environmental controls were not sufficiently active in the 2020 survey continue to show high enough egg mass densities to warrant treatment in spring 2021. We have also found a few rising populations scattered around the city. When we combine all of these scenarios, **we feel we must recommend an increase of 61 acres for a total of 570 acres indicated above.** The current population cycle continues to be challenging, but we are headed the right direction (downward). We will just 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 2021.

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 city 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.