

Subject: FW: Iosco County Gypsy Moth Survey Report for 2020 Season
From: Mindy Schirmer <mschirmer@ioscocounty.org>
Date: 2/27/2020, 12:13 PM
To: "Plainfield Township (supervisor@plainfieldtwpmi.com)"
<supervisor@plainfieldtwpmi.com>

Fred,
Have a good day.
Mindy

From: Aquatic Consulting Services [mailto:gypsymoth@aquaticremedies.com]
Sent: Tuesday, January 14, 2020 6:21 AM
To: Elite Shellenbarger <elite@ioscocounty.org>
Cc: Mindy Schirmer <mschirmer@ioscocounty.org>
Subject: Iosco County Gypsy Moth Survey Report for 2020 Season

Good morning Elite,

I have completed the egg mass survey, analysis, mapping, and report for the 2020 season in Iosco County. Overall, as I'm sure you know, there is a fairly significant gypsy moth infestation throughout the areas initially designated. Some areas are so heavily infested that spray may be needed 2-3 years in a row, should natural controls not help us out. The conditions in numerous areas show established populations that have the possibility of getting worse if left untreated. There are some areas that can go without treatment, as those populations are on the decline, but all recommended areas are in need of immediate treatment. I tried to triage the areas as much as possible, so you may still get complaints next spring/summer, but I could not realistically recommend every area with potential for noticeable infestation as that would total several thousand acres. As is, the total area recommended for spray is 2,386 acres. Much of this is detailed in the attached Transmittal and Report. I would be happy to answer any questions or comments you may have... I did have one initial question for you however, I assume Mindy relayed my question, but to reiterate... Several of the requested survey areas are partly if not entirely enclosed in National Forest lands. This is federal property, which I have not previously had to deal with. Are you aware of how Iosco handled this in the past in terms of approval, etc? I don't want to go looking to complicate matters, but I also would hate to treat federal property without approval and get ourselves into even more trouble. Any insight you may have into this would be appreciated... In the meantime, I will stay in touch as the winter moves along and we get closer to spring 2020.

Thank you for the opportunity to work with Iosco County,
Neal Swanson

Neal J Swanson
Manager

Midland County
Gypsy Moth Suppression Program
gypsymoth@aquaticremedies.com

Aquatic Consulting Services, LLC
PO Box 530
Sanford, MI 48657
Ph: (989) 689-0223
Cell: (616) 706-2164

—IOC_ReportMap20_Overall(2).JPG—



Aquatic Consulting Services

P.O. Box 530, Sanford, MI 48657
www.aquaticremedies.com

989-689-0223

January 13, 2020

Mr. Elite Shellenbarger, Treasurer
P.O. Box 538
Tawas City, MI 48764
(989) 362-4409

Dear Mr. Shellenbarger:

We have completed the gypsy moth surveys, maps, and report for the 2020 season in Iosco County. I have included JPG and PDF map files of the results for you to review and to post on the city website as needed. Both JPG and PDF files are printable for your purposes although the .PDF file will be more user friendly on a website. I will provide your Equalization/GIS personnel with .SHP files for use in a GIS mapping system. I have also included a short report on the conditions in each recommended spray block. An 18 x 24 inch map is being sent in a separate package for display purposes.

During my survey, I was able to confirm that the areas of concern referenced by Iosco County residents and officials are in fact infested with gypsy moths. Unfortunately, there were a few additional areas where significant infestation was identified as well. Thankfully, we were able to catch the populations on the rise, and using our methods, I anticipate we will be able to limit any further growth and damage. We have the nuisance and tree damage thresholds well described so our survey and spray methods generally produce good results. I must emphasize though, when in a growth phase, gypsy moth populations can be quite resilient and several years of treatment and monitoring are often needed. Established populations in prime habitat such as in spray blocks IOC_01, IOC_05, IOC_07, and IOC_10, can be especially hardy and often require 2-3 years of spray just to suppress population growth. The total acreage recommended for spray in spring 2020 is 2,386 acres. This total may be higher or lower than you anticipated, but I must assure you, only the areas with significant, potentially damaging population densities were recommended for spray. There are a few areas with less severe infestations that were not recommended, but should definitely be monitored. A proactive approach toward monitoring can usually prevent this type of situation, and is much more economical relative to several years of costly reactionary spraying. Overall, I anticipate good results for next season, but strongly encourage Iosco County to continue with some sort of monitoring program.

I will hold off on digitizing the spray blocks for the pilot's use until you have had a chance to review the maps. Once we get closer to spray time and you have selected an aerial applicator, I will provide the pilot with spray maps and digitized files.

Thank you for the opportunity to work for Iosco County this season. Please let me know if I can help you with anything further at this time. 989-689-0223 or gypsymoth@aquaticremedies.com.

Sincerely,

Neal Swanson
Owner/Biologist

Iosco County
Recommended Gypsy Moth Spray Areas 2020

Aquatic Consulting Services LLC
January 2020

Block #	Acres	Reason for Spray
IOC_01	101	An established population in prime habitat. Nuisance threshold has already been surpassed. Historical tree damage is evident throughout area. Tree mortality is possible in stressed trees in 1-2 seasons if treatment is delayed. Spray to reduce nuisance, limit further tree damage, and suppress population growth.
IOC_02	57	An established population in very good habitat. Nuisance and tree damage thresholds have been reached. Population may possibly serve as a source of re-infestation if left untreated. Spray to limit nuisance, mitigate tree damage, and contain spreading.
IOC_03	18	A rising population in very good habitat. Nuisance threshold has been surpassed. Several trees in the area are heavily infested and could experience tree mortality in 1-2 seasons if left untreated. Area has the potential to spread to surrounding habitat. Spray to reduce nuisance, suppress further growth, and contain spreading.
IOC_04	92	A sustained population in prime habitat. Nuisance threshold has been surpassed throughout area, although the southern portion of the block shows potential for higher tree damage. Spray to limit further tree damage and reduce nuisance.
IOC_05	89	An established population in prime habitat. Nuisance level is very high throughout the area. Evidence of historical tree damage, particularly in northern portion of the block, and tree mortality is a concern in coming seasons. Spray to reduce nuisance and limit further tree damage.
IOC_06	149	A rising population in very good habitat. Nuisance level is slightly lower in the eastern portion of the block than in other recommended spray areas, but potential for nuisance in coming seasons is a factor. The remainder of the block shows high nuisance and tree damage potential. Spray to limit further tree damage and reduce nuisance.
IOC_07	88	An established population in prime habitat. Habitat conditions are similar to Block IOC_04, but infestation appears slightly more persistent. Tree damage is evident on several trees in the area. Nuisance level is quite high as well, particularly in the northern portion of the block. Spray to limit further tree damage and suppress population growth.
IOC_08	433	A rising population in very good habitat. The southern portion of the block along Wickert Rd/Hwy 65 shows high potential for tree damage with nuisance also at a very high level. Potential for tree damage and increased nuisance is also a concern in the northern portion of the block, but population is less robust. Spray to reduce nuisance and mitigate tree damage.
IOC_09	107	A sustained population in very good habitat. Potential for future tree damage is still high. Spray to suppress further population growth and limit tree damage.
IOC_10	169	An established population in prime habitat. Nuisance level is high in the area and tree damage is evident throughout. Tree mortality is a concern in some trees within 1-2 seasons, particularly in the southern portion of the block. Spray to reduce nuisance and further tree damage.

IOC_11	117	A rising population in very good habitat. Several “subdivisions” off of main roads have slightly different habitat and gypsy moth population conditions, but the overall area shows high potential for tree damage in coming season, and nuisance is a concern. Spray to suppress population growth and limit tree damage.
IOC_12	70	A rising population in prime habitat. Nuisance threshold has been reached and tree damage is a concern in coming seasons. Spray to reduce nuisance and mitigate future tree damage.
IOC_13	48	A sustained population in very good habitat. Nuisance level is elevated. Spray to reduce nuisance and further suppress population.
IOC_14	63	A rising population in very good habitat. Tree damage is a concern in coming seasons. Spray to mitigate tree damage and limit future population growth.
IOC_15	112	An established population in good habitat. Area is conducive to prolonged infestation due to variation in habitat quality. Spray to suppress future population growth and limit nuisance.
IOC_16	263	An established population in prime habitat. Nuisance threshold has already been reached and some tree damage is evident throughout the area. Spray to reduce nuisance and further tree damage.
IOC_17	59	An isolated rising population in very good habitat. Population has the potential to cause nuisance and tree damage in the coming season. Spray to mitigate tree damage and reduce potential for nuisance and future population growth.
IOC_18	56	A rising population in very good habitat. Population has the potential to cause tree damage in coming seasons. Nuisance level is also likely elevated. Spray to suppress future population growth and reduce nuisance and potential tree damage.
IOC_19	64	An established population in very good habitat. Nuisance level is elevated, and historical tree damage is evident in a few trees. Spray to reduce nuisance and limit further tree damage.
IOC_20	231	An established population in very good habitat. Nuisance and tree damage thresholds have already been surpassed. Variation in habitat has the potential to facilitate a prolonged infestation. Spray to suppress future population growth, reduce nuisance, and limit tree damage.

Total Acreage = **2,386 acres**

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. All recommended areas contain potentially damaging gypsy moth egg mass numbers. Accordingly, all spray areas are highly recommended for *Bacillus thuringiensis var. kurstaki* (B.t.k.) treatment in spring 2020. There is significant risk of potential tree damage and high nuisance levels if recommended areas are left untreated for another cycle.

Overall, all areas initially designated as problem areas by County officials did in-fact support robust infestations of gypsy moths. Some areas showed evidence of several successive years of infestation (particularly Chain Lakes/Jose Lake and Long Lake areas), which is often proves much more challenging to suppress. Under these circumstances, several years of treatment are often necessary. It is not possible to completely eliminate gypsy moth populations, so this should never be the expectation. With 2-3 years of treatment and monitoring, an acceptable level of control is attainable.

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. In order to efficiently determine when treatment is no longer advisable, monitoring is imperative. Accordingly, we strongly advise Iosco County to maintain a monitoring program for the next 2-3 years at least.