Credit Valley Conservation
inspired by nature

Memo

To: **Mark Covert, Town of Halton Hills**

From: **Alana Svilans, Terrestrial Restoration**

Date: **August 19, 2022**

Re: **Town of Halton Hills Spongy Moth Defoliation Survey Results**

Background

Severe outbreaks of *Lymantria dispar dispar* (LDD - spongy moth) have been observed in Ontario since 1981. However, the highest defoliation levels ever were recorded in 2021; more than tripling those seen in 2020 (Ministry of Natural Resources and Forestry, 2022). In response to resident concerns about the impacts of spongy moth, the Town of Halton Hills (Town) contracted Credit Valley Conservation Authority (CVC) to conduct a spongy moth monitoring program. The goals of the monitoring program were to determine the number and extent of egg masses present in 2021, estimate the severity of defoliation that could be expected in 2022, and provide recommendations for future management.

Although egg mass numbers were considered high in some areas of Halton Hills, there was anecdotal evidence of heavy viral and fungal loads as well as parasite and natural predator activity. Therefore, CVC predicted that a spongy moth population collapse was on the horizon. During the late spring and early summer of 2022, there was anecdotal evidence that limited caterpillars were emerging and there was likely no need for extensive management. With the lack of defoliation casually observed by Town and CVC staff, it was decided that a full defoliation survey was not required. However, to conclude the monitoring program for the current spongy moth infestation, the Town contracted CVC to perform an abbreviated defoliation survey to follow up on the early predictions and ensure the anecdotal reports were accurate throughout the region for areas predicted to be most severely affected by high defoliation.

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Methodology

CVC staff visited seven sites in mid-August. Sites were selected to give a geographically representative sample of the most heavily infested sites in Acton and Georgetown (Figure 1).

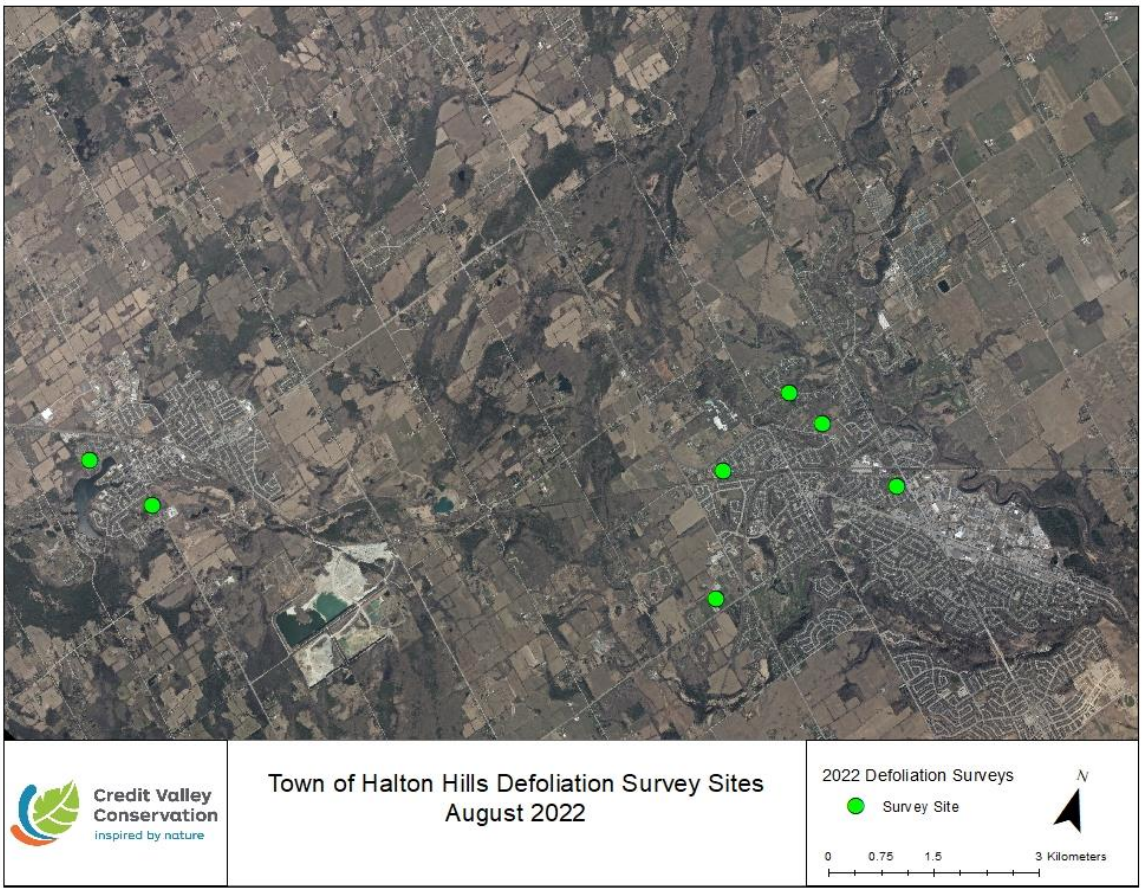

Figure 1. Map of sites surveyed for defoliation. All of the sites selected were predicted to have 'severe' levels of defoliation based on egg mass counts done in fall 2021.

Using the protocol developed by the Canadian Forest Service, defoliation surveys of tree canopy were evaluated on a five-point system based on the Ecological Monitoring and Assessment Network (EMAN) crown rating code outlined in the Tree Health Protocol (Canadian Forest Service, EMAN Ecosystem Monitoring Partnership, Environment Canada, 2004):

1- Healthy (less than 10% defoliation)
2- Light-moderate decline (10%-50% defoliation)
3- Severe decline (over 50% defoliation)

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4- Dead - natural causes
5- Dead – human causes

The ten closest trees to each of the survey points were assessed and defoliation rating scores were given to each.

Sites Surveyed and Results

At all seven sites surveyed, tree canopies were overwhelmingly intact with an average overall score of 1.1 (Table 1). Only five trees out of 70 were more than 10% defoliated, with most defoliation appearing to be the result of factors unrelated to spongy moth feeding damage.

Site	Town	Egg mass count 2021	Avg. Defoliation Score 2022
Tidey Ave.	Acton	82	1
Adams Ct.	Acton	146	1
Trafalgar Sports Park	Georgetown	83	1.1
Jason Cresc.	Georgetown	212	1.1
Banting Rd.	Georgetown	371	1
Greenwood Cemetery	Georgetown	416	1
Oak Ridges Dr.	Georgetown	710	1.4

Table 1. Average defoliation scores from the sites surveyed throughout Acton and Georgetown. The 2021 egg mass counts are included as reference.

Of the five trees with greater levels of defoliation, one young sapling was dead, but a similar neighbouring tree was showing signs of additional stress factors on top of spongy moth damage. A cluster of Bur Oaks in the Trafalgar Sports Park showed the most evidence of feeding damage, however (with the exception of one already-stressed tree) spongy moth still caused less than 10% canopy loss in total. Although many trees showed evidence of some amount of feeding damage, the holes were overwhelmingly small, indicating they were being fed on primarily by early instar caterpillars (Government of Canada, 2021). Damage, if present at all was limited to the lowest branches of the tree.

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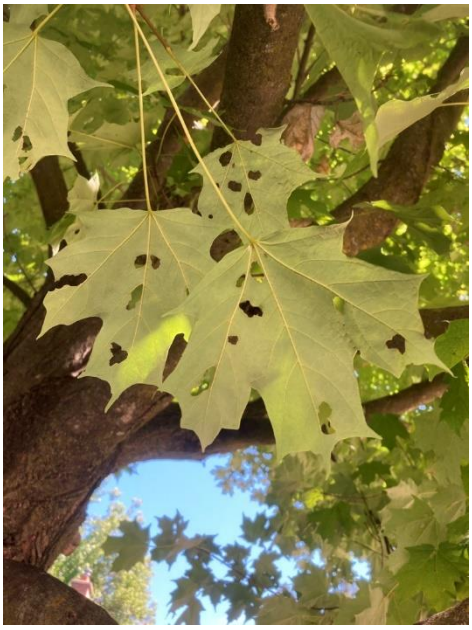
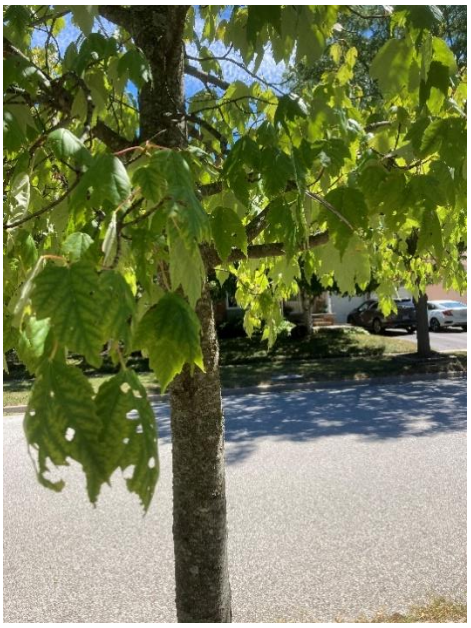

Spongy moth feeding damage consisting of small holes in leaves on the lowest branches, typical of what was seen throughout the surveys.

Recommendations:

These findings confirm the anecdotal evidence that spongy moth populations have indeed plummeted in the area of Halton Hills. This is likely due to the combination of natural controls outlined in our 2021 report. Defoliation levels in the areas predicted to have the most severe levels of outbreak are confirmed to be minimal. It is reasonable to extrapolate that the more lightly infested sites surveyed in 2021 will be showing even less canopy damage than the sites surveyed in August 2022. Generally, impacts on tree health from spongy moth appear limited to situations where trees are experiencing significant additional stressors.

Based on these findings, further management of spongy moth is not warranted nor recommended at this time. However, outbreaks of spongy moth are cyclical, occurring every seven to ten years, and future outbreaks will occur (Ministry of Natural Resources and Forestry, 2022). CVC will continue to monitor forest health throughout the watershed and recommend that when spongy moth levels start to rise again, the Town should ensure a spongy moth management program is reinstated. CVC would be pleased to continue to support the Town on this and other restoration and management initiatives.

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References:

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