GYPSY MOTH PUBLIC MEETING

Wednesday October 23rd 2019,
6:30pm
Accursi Room, MCC

Jason Marr, P. Eng.
Director, Public Works & Utilities
Town of Pelham

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AGENDA

- Description of the Gypsy Moth
- Climate Change and the Impacts on Invasive Species
- Town of Pelham and Gypsy Moth Timeline
- 2019 Gypsy Moth Aerial Spray Program
- Future Alternatives for the Gypsy Moth Aerial Spray Program

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Description of the Gypsy Moth

What is a Gypsy Moth?

- The European Gypsy Moth (GM) *(*Lymantria dispar) is a defoliating insect that severely weakens trees in North America.
- The caterpillar, or larva stage of the insect, eats the leaves of the trees, making the trees more susceptible to disease and damage from other insects

How to Identify a Gypsy Moth

- There are four development stages:
  - Egg, caterpillar, pupa (i.e. cocoon) and moth
- Caterpillars are 5-6cm in length and have 5 pairs of blue dots and six pairs of bright red dots along their back
- In summer, hair-covered egg masses are laid in tree bark crevices and under picnic tables

What Type of Trees are Most Affected by the Gypsy Moth?

- The GM prefers the leaves of deciduous (i.e. seasonal) hardwood trees, such as:
  - Birch
  - Crab Apple
  - Oak and
  - Maple
- However, when the caterpillar matures and runs out of foliage of its preferred species, it will begin to feed on more than 200 vegetative species such as Alder, Poplar, Spruce, Aspen, White Pine and Willow trees

When Does the Outbreak Normally Occur?

- Outbreak usually occurs during spring seasons (i.e. April to early June), where broadleaf trees are almost covered entirely in caterpillars
  - Populations are known to fluctuate over time, with long periods of low population levels climbing rapidly to outbreak conditions and then collapsing again
  - The cyclical nature of outbreaks **makes control difficult** as the pattern is not predictable

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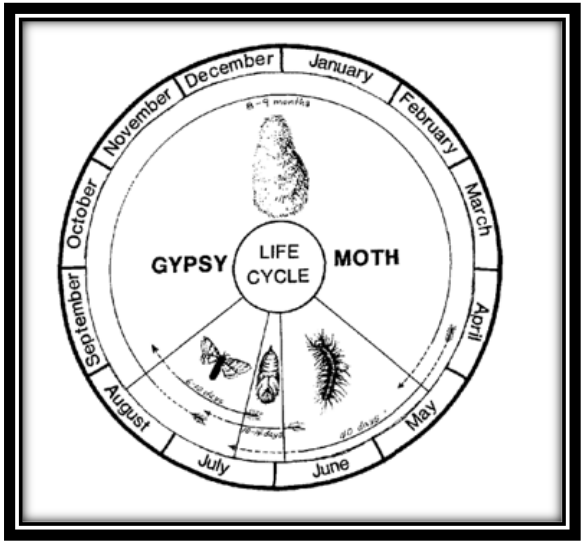
How To Control the Outbreak

- Biological controls that naturally suppress outbreaks, such as fungal pathogens, viruses, and predators, unfortunately are not effective
- As a result, treatment programs apply Foray 48B to the areas with a high GM population density so that susceptible trees are protected from lethal damage
  - Foray 48B contains a naturally occurring soil bacterium called Bacillus thuringiensis var. kurstak (Btk)



Gypsy moth larva – Memorial Drive 2018.

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Climate Change and the Impacts on Invasive Species

- Global spread of harmful forest pest species, like the GM, is a consequence of climate change
- Climate change will permit invasive species to expand their seasonal boundaries within Canada, creating greater exposure to hardwood forests
- The risk of damage caused by the GM to Canada's deciduous forests is estimated to grow from the current 15% to more than 75% by 2050 (Régnière 2009)
- The Town is taking a proactive approach by creating a Corporate Climate Change Adaptation Plan, in which best municipal practices to combating invasive species such as the GM and the Emerald Ash Borer will be critically analyzed

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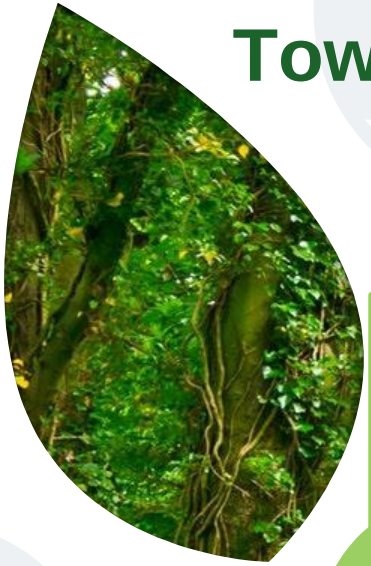
Town of Pelham and Gypsy Moth Timeline



May 2008

- Aerial Spray Program was administered at Hillcrest Park
- Abutting landowners were included in the program
- Two applications of spray were planned for mid-May 2008
- **The Town did <u>not</u> charge the property owners for this treatment**
- Cost of program: $4500-$6000

May & June 2009

- Town sprayed approx. 105 acres, made up of 255 private and public properties
- **The Town did <u>not</u> charge the property owners for this treatment**
- Cost of program: approx. $100,000 - 50% was funded through the 2008 surplus and the other 50% from the 2009 Working Fund Reserve

June 2017

- Town staff assessed Town-owned trees in Hillcrest Park on Pancake Lane and Blackwood Crescent
- No action had been taken to eradicate the issue, as the treatment window had already passed
- Town staff did however, request the amount of $10,000.00 to be included for pest treatment in the Facilities & Beautification Operating Budget

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Town of Pelham and Gypsy Moth Timeline

May 2018

- Council approved Aerial Spray Program in Hillcrest Park and two applications of the biological Btk were sprayed (6.47 acres of Public Property and 2.77 acres of private property)
- Cost: $7,319.10 (plus HST)
- **Private landowners were not asked to contribute to the cost of spraying**
- Staff continued to receive reports of severe levels of infestation in the summer, so a budget of $25,000 was requested as part of the 2019 Operating Budget to administer an aerial spray program
- It did **not** include a provision for the spraying of privately owned property in the urban or rural area

April 2019

- Trees Unlimited completed survey in early April 2019
- By-law #4106 (2019) passed - staff had the authority to spray on public and private land where the infestation was found to be moderate to severe
- **Total Cost: approx. $89,000 to spray 161.2 acres**. Cost of coordination and consultation was approx. $10,000, whereas the cost to spray Town parks and unopened road allowances was approx. $12,000 (52.7 acres) and urban/private areas was approx. $68,000 (108.5 acres). Amongst the urban/private area, 294 properties were within the spray zone boundary, which cost approx. $260 per landowner.
- The funding in previous spray programs was not available in 2019 due to the status of the Town's reserves
- Council authorized the cost of spraying private property to be **evenly distributed** amongst private properties located within the spray blocks
- The spray was successful in reducing the population of GM's and limiting defoliation of highly valued trees

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Future Alternatives for the Gypsy Moth Aerial Spray Program

How is the Town Developing a Gypsy Moth Control Policy?

- On September 3rd 2019 a report was brought forth to Council stating that Town staff are developing a Gypsy Moth Control Policy
- Since eradication of the GM population is not achievable, the objective of the Town's Gypsy Moth Control Policy is to maintain a tolerable population at any point in time and to make sure that outbreaks are properly controlled
- In doing so, Town staff have acknowledged that it is considered best practice to complete annual surveys to monitor populations of GM's and other defoliating pests to allow for targeted control programs

What Are Some Other Alternatives?

- Six alternatives have been identified and are available on the following slides …

Best alternative? You tell us

Alternative #1

The Town of Pelham completes annual Gypsy Moth infestation surveys of Municipal Property and **sprays only municipal property with moderate to severe infestation**. This alternative would be funded through the general tax base. Property owners would be responsible for the cost of coordinating and spraying for the Gypsy Moth on private properties.

Pros	Cons
- Spraying only Municipal Property allows for greater cost certainty and budget projection. - Urban and Rural property owners would be treated equitably. - Reduction in staff time developing and coordinating residential spray programs. - Unused budget during low population cycles could be placed in reserve for control measures during infestation cycles. - Cost of spraying would be minimized: This approach would require an estimated annual budget between $20,000 and $60,000 depending on the gypsy moth population and control measures required in a given year. Between infestations it is best practice to budget for annual surveys to monitor populations of Gypsy Moths and other defoliating pests.	- Municipal properties could be re-infested from neighboring properties that do not attempt control measures. - Private properties owners who do spray their trees could be re-infested from neighboring properties that do not attempt control measures. - Increased cost to property owners for treatment, removal and replacement of trees. - Potential loss of urban canopy.

Alternative #2

The Town of Pelham completes annual Gypsy Moth infestation surveys and **sprays the entire urban boundary** when infestation levels meet moderate to severe limits in a defined percentage of urban acreage. This alternative would be funded through the general tax base.

Pros	Cons
- Gypsy Moth populations will be controlled within the entire urban canopy. The approximate area within the Urban Boundary is 1040 Hectares. - A program of this scale would receive a cheaper rate per Hectare for aerial spraying. - Reduction in complaints of program exclusion.	- Non-targeted spraying results in the inefficient use of funds and unnecessary application of pesticide to pavement, roofs and other large areas without trees or presence of Gypsy Moths. - Extensive traffic control and safety measures are required beyond the capabilities of the Public Works Department. - Rural property owners are required to pay out of pocket for spraying private property - Properties boarding the urban boundary may become re-infested from rural properties that do not attempt control measures. - Cost of spraying: the cost of spraying the entire urban boundary (approximately 1040ha) would cost $911,040 based on information received for spray programs of this scale. Additional costs for police assistance for road closures, and notification requirements are unknown at this time.

Alternative #3

The Town of Pelham completes annual Gypsy Moth infestation surveys and **sprays public properties and private properties, within or adjacent to the urban boundary** with moderate to severe infestation. This alternative would be funded through the general tax base.

Pros	Cons
- Targeted spraying for Gypsy Moth is the most efficient method for controlling populations. - The urban canopy provides a social and environmental benefit to all residents and visitors. - Including properties adjacent to the Urban Boundary would reduce re-infestation from rural properties that do not attempt control measures. - No requirement for individual invoicing. - Cost of spraying up to 200 acres: This approach would require an estimated annual budget between $20,000 and $125,000 depending on the Gypsy Moth population and control measures required in a given year. Between infestations it is best practice to budget for annual surveys to monitor populations of Gypsy Moths and other defoliating pests.	- It is difficult to estimate the annual budget for spraying based on infestation levels unless it is limited to a defined number of acres. This could mean that without additional budget allocation some properties could be excluded. - Rural property owners adjacent to the urban boundary may be included in the program while others are left to fund their own spraying.

Alternative #4

The Town of Pelham completes annual Gypsy Moth infestation surveys and **sprays public properties and private properties, within or adjacent to the urban boundary** with moderate to severe infestation **with the cost of the spraying of private properties being equally distributed amongst the tax base within the urban boundary**. In this alternative the cost of surveying and spraying of public property would be funded by the general tax base while coordination and spraying of private property would be funded by only those property owners within the Urban Boundary.

Pros	Cons
-Targeted spraying for Gypsy Moth is the most efficient method for controlling populations. - Including properties adjacent to the Urban Boundary would reduce re-infestation from rural properties that do not attempt control measures. - No requirement for individual invoicing. - Cost of spraying up to 200 acres: this approach would require an estimated annual budget between $20,000 and $125,000 depending on the Gypsy Moth population and control measures required in a given year. Between infestations it is best practice to budget for annual surveys to monitor populations of Gypsy Moths and other defoliating pests.	- It is difficult to estimate the annual budget for spraying based on infestation levels unless it is limited to a defined number of acres. This could mean that without additional budget allocation some properties could be excluded. - Rural property owners adjacent to the urban boundary may be included in the program while others are left to fund their own spraying. - Information regarding the tax base within the urban boundary would be required.

Alternative #5

The Town of Pelham completes annual Gypsy Moth infestation surveys and **sprays private and public properties throughout the Urban and Rural areas** with moderate to severe infestation **with the cost being equally distributed throughout the entire Town's tax base**. This alternative would be funded through the general tax base.

Pros	Cons
- All property owners within the Town of Pelham would receive the same level of service.	- It is difficult to estimate the annual budget for spraying based on infestation levels unless it is limited to a defined number of acres. This could mean that without additional budget allocation some properties could be excluded. - Cost of spraying up to 200 acres of urban land and 400 acres of rural property: this approach would require an estimated annual budget between $20,000 and $350,000.

Alternative #6

The Town of Pelham completes annual Gypsy Moth infestation surveys and **sprays only municipal property** with moderate to severe infestation. The Town of Pelham subsidizes the coordination and administration of spraying private properties, while the owners are responsible for organizing and funding the spraying of neighborhoods.

Pros	Cons
- Engaging the public to determine and organize their method of Gypsy Moth control increases the level of community participation and awareness of the problem. - Spraying only Municipal Property allows for greater cost certainty and budget projection. - Urban and Rural property owners would be treated equally. - Significant reduction in the overall program cost: this approach would require an estimated annual budget between $20,000 and $80,000 depending on the Gypsy Moth population and control measures required in a given year. Between infestations it is best practice to budget for annual surveys to monitor populations of Gypsy Moths and other defoliating pests.	- Municipal properties could be re-infested from neighboring properties that do not attempt control measures. - Consensus within neighborhoods might not be achievable. - Cost of private spraying may increase depending on scale.

Questions?