
Management of *Lymantria* *Dispar Dispar* (commonly known as Gypsy Moth)

July 6, 2021

Report Highlights

- LDD (Gypsy Moth) is a province wide environmental issue. The Town of Caledon has received numerous complaints of LDD during an outbreak in Spring, 2021.
- There are currently no Town staff resources dedicated to the research and planning for proactive invasive species management.
- Town of Caledon follows IPM best practices and has a multi-faceted approach to LDD including Communications and Conservation Authority resources.
- Additional resources are required to increase the current IPM plan for the remainder of 2021 and 2022.
- Aerial spray costing and recommendations.

LDD Facts and Lifecycle



- LDD moths lay eggs in the form of yellow masses
- Eggs hatch into caterpillars early Spring
- Caterpillars feed on foliage for 6 – 8 weeks
- Caterpillars cocoon late June for about 2 weeks
- Cocoons morph into moths. Individual moths live 2-3 days but moth population may be active for 2-3 weeks
- Female moths lay eggs on plant trunks and branches
- Egg masses are present from late summer to early Spring when the cycle starts again

LDD Outbreaks

- LDD population outbreaks occur once every 7 – 10 years
- The 2 most important factors in collapsing outbreak populations are:
 - the presence of a virus known as nucleopolyhedrosis virus (NPV)
 - a fungus called *Entomophaga maimaiga*
- Large populations of LDD must be present to trigger these natural controls
- Extended days of extreme cold (–20 degrees Celsius) may kill overwintering larvae in exposed egg masses

LDD Control Methods



- Egg Mass Scraping
- Burlapping
- Pheremone Traps
- Tree Banding
- Pesticides/Chemical Control



Town of Caledon LDD Management Efforts to Date

- Staff investigate on a complaint basis on Town property only
- 79 complaints on Town property in 2020. All locations were monitored and staff performed egg scraping at all locations
- As of June 23, 2021 staff received 205 complaints regarding LDD on Town property
- Staff have investigated all complaints

Town of Caledon LDD Management Efforts to Date

- 52 of the 205 are on the Caledon Trailway, rural roadside or within a Town woodlot with 153 being urban street or park trees.
- Of the 153 urban investigations 113 were found to have low to no level of LDD infestation, 22 of a moderate level and 18 as severe infestations.
- Several Oak trees in Stonehart Park and Dicks Dam Park were determined as needing Btk ground spray or TreeAzin injection to preserve their canopy. Those operations occurred in Spring, 2021.

Town of Caledon LDD Management Efforts to Date

- Since the recent LDD outbreak that started in 2020 Town of Caledon and CA staff have coordinated efforts on communication advising on action that can be taken by residents to control LDD on their property. The TRCA, CVC and Town of Caledon have updated their websites including dedicated web pages containing information on LDD identification and control.
- Operations staff plan to continue to monitor, egg mass scrape in Fall/Winter months and plan for Btk ground spray severe infestations in Spring, 2022.
- Operations and Service Caledon teamed up to provide burlap wrapping to residents to help control LDD on private property.

Ongoing Town of Caledon LDD Management Efforts

- Operations staff requests additional resources for enhanced ongoing LLD and overall invasive species management including:
 - a year-round forestry crew consisting of three staff;
 - two Temporary Full-Time conversions allocated to winter sidewalk plowing operations so that the arborists do not need to perform this function;
 - an IPM Coordinator dedicated to research, planning, collaboration, procuring and managing contracted services that may be required for invasive species management on Town property; and
 - resources for enhanced Btk ground spray contracted services for LDD management as well as in-house ground spraying capabilities to supplement contracted services where needed to address unplanned needs that may arise.

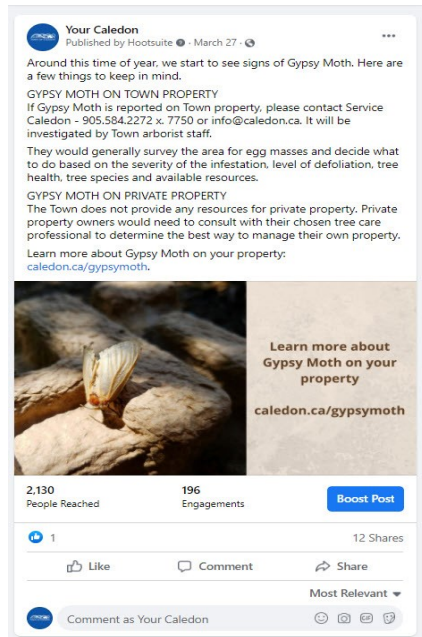
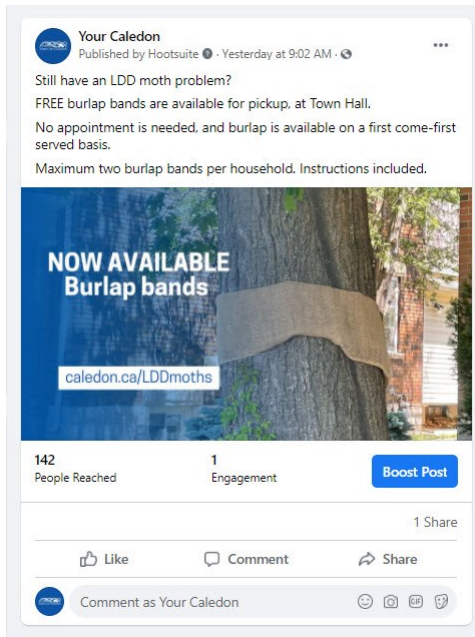
Ongoing Town of Caledon LDD Management Efforts

Resource	Pro-rated 2021 Cost	2022 Capital	One Time Cost - 2022	Annualized Cost
IPM Coordinator – Permanent Full Time - Grade 7 non-union (3 months in 2021)	\$23,255			\$93,019
Conversion of 3 Parks TFT Staff to 3 FT Staff (arborist and 2 parks maintenance)	\$58,927			\$145,429
1 Forestry Co-Op Student				\$16,800
Uniforms, Training, Computer, Fixtures	\$11,550			\$6,550
Vehicle Rental - Coordinator	\$4,800			
Vehicle Purchase - Coordinator		\$40,000		
Vehicle Rental – Spray Unit				\$6,400
Spray Equipment		\$35,000		
Contracted Ground Spray Services			\$100,000	
Btk Treatment Supply				\$10,000
Communication				\$5,000
TOTAL	\$98,532	\$75,000	\$100,000	\$283,198

Ongoing Town of Caledon LDD Management Efforts

Town of Caledon Communication Plan

The Town of Caledon Communications team will implement a communications plan designed to educate Caledon residents about LDD moth prevention methods to reduce the impact of the moths on private property in the 2021/2022 season.



Ongoing Town of Caledon LDD Management Efforts

Strategy;

- Create communication products that support instructional information and learning like video and two-way communications.
- Partner with conservation authorities and libraries to offer prevention tutorials.
- Communicate expectations around prevention on private property.
- Align communications with moth life cycle and optimal prevention periods.
- Keep residents informed of Town prevention activities and moth infestation updates.
- Utilize communications channels that residents are familiar with (i.e. website) in addition to a combination of print and digital media signs and advertisements.

Recommendations

1. Approve additional resources to manage invasive species management and allow for enhanced year-round Town tree services where Town arborists are not plowing sidewalks during the winter months.
2. Approve a single source procurement award with Allan Fyfe Equipment Limited to purchase the bucket truck currently in use as a rental unit
3. Staff continue to collaborate with the Conservation Authorities and the Region of Peel Urban Forestry Working Group on LDD management including resident communication and education opportunities.
4. Increase awareness through an enhanced communication strategy including direct mail campaigns at strategic times of the year.
5. Implement cultural practices such as reducing the number of LDD susceptible species planted on Town property and promote those types of species in the tree seedling program.

Other Agency Current LDD Control Methods

Table 1. Comparative Analysis		
Agency	Method of Treatment	Treating Private Property
Town of Caledon	Egg Scraping, Btk Ground Spray	No
City of Brampton	Egg Scraping, Btk Ground Spray, TreeAzin Injection, Tree Banding	No
City of Mississauga	Egg Scraping, Btk Ground Spray, TreeAzin Injection	No
City of Vaughan	Egg Scraping, Tree Banding	No
City of Toronto	Egg Scraping, Btk Ground Spraying, TreeAzin Injection	No
Town of Oakville	Btk Aerial Spray of 15 Town owned woodlots, Ground Spray	No
Town of Newmarket	Burlap Banding	No
Township of King	Egg Scraping	No
Town of Richmond Hill	Egg Scraping, TreeAzin Injection, watering defoliated street trees	No
City of Burlington	Btk Aerial Spray of 4 Select City Woodlots	No
City of London	Egg Scraping, Btk Aerial Spray of 5 City owned parks with expected 90% defoliation	No
Town of Halton Hills	None. Monitoring and Planning for 2022	No
TRCA	Egg scraping, Btk Aerial Spray of 3 select areas, 2 of which are in Caledon	No
CVC	None. Monitoring and planning for 2022.	No
NVCA	None. Monitoring	No
York Region	Egg Scraping, TreeAzin Injection	No
Region of Peel	None. Working with CA's and Area Municipalities to establish best practices through Urban Forestry Working Group.	No

Other Considerations in the Report

- **Aerial Monitoring Program** – MNRF performs this on a provincial level annually. Areas indicating severe defoliation are surveyed for egg mass infestations. Enhanced aerial surveillance program costs \$1,800 per day.
- **Aerial spray of the Caledon Trailway** – Based on 2020 TRCA costing it would cost about \$38,000 to aerial spray the Caledon Trailway plus project management fees, staff and OPP resources for closures during spray operations. Zimmer Air provides aerial spray operations and they cannot provide 2022 pricing at this time.
- **Aerial spray including Private Property** – Mass aerial spray of the entire Town would cost about \$36,000,000.00. Mass aerial spray of woodlots would cost about \$9,000,000.00.
- **As annual needs and prices change, it is recommended that aerial monitoring and spray programs are discussed as capital projects including all costs as part of annual budget considerations.**