



<b>Policy Name: Gypsy Moth Management</b>	<b>Policy No: S802-03</b>
Committee approval date:	February 18, 2020
Council approval date:	March 2, 2020
Revision date(s):	-
Department/Division:	Public Works

## 1. Purpose

The overall purpose of this policy is to provide a process that addresses the periodic infestation of European Gypsy Moth experienced in the Town of Pelham.

The specific goals of this Gypsy Moth Management policy are to develop an integrated set of objectives and procedures that will combine to form a set of overall working guidelines that will:

- Maintain tolerable gypsy moth populations at any point in time, and make sure that outbreaks are controlled properly.
- Educate residents about the European Gypsy Moth to foster a thorough understanding of forest pests and their environments, as well as, understand the rationale behind the Town's decision making process with respect to gypsy moth management.
- Provide a policy that Town officials and the general public are confident is an effective and fair tool in responding to gypsy moth infestations.
- Establish a feasible gypsy moth monitoring network and egg mass survey program.
- Establish an intervention threshold criterion for implementing gypsy moth treatment efforts.
- Strategically allocate resources toward forestry & tree health.
- Reduce the workload and duplication of effort for Town staff in responding to gypsy moth concerns.
- Allow for the collaboration across municipal and regional boundaries to help strengthen gypsy moth management.

## 2. Policy Statement

It will be the policy of the Town of Pelham to protect the tree canopy within the Municipal Boundary against Tree Mortality caused by defoliation by the gypsy moth and hence, preserve and enhance the quality of Pelham communities.



### 3. Policy Constraints

The policy will be applied to all properties within the Town of Pelham with the exception of properties, or sections of properties being used for agricultural production or commercial business, as well as properties owned or operated by; the Niagara Region, the Niagara Peninsula Conservation Authority or the Province of Ontario unless otherwise approved by the Director of Public Works.

The policy may be affected by the availability of Town staff, financial resources, regulatory restrictions and requirements from other departments and agencies.

### 4. Definitions

**Integrated Pest Management (IPM):** a multi-disciplinary, ecological approach to the management of pests based first on prevention and when needed, a control (biological, cultural, physical or mechanical intervention), saving registered pesticide application as a last resort.

**Pest:** an organism that causes damage, is a nuisance or interferes with the health, environmental, function or aesthetic objectives of citizens.

**Biological Controls:** other organisms that prey specifically on a pest.

**Pest Action Threshold:** the number or density of a pest when management action should be taken.

**Tree Mortality:** the level of defoliation (>60%) where a tree is likely to die.

**Treatment Buffer Zone:** the area adjacent to a treatment plot that will be included for treatment to reduce re-infestation or gypsy moth migration into nearby properties.

**Sequential Sampling:** a sampling technique wherein the researcher picks a single or a group of subjects in a defined area, conducts a survey, analyzes the results then picks another group of subjects if needed and so on.



**Commercial Property:** a property that is being used for a commercial purpose and/or generates an income.

## 5. General Provisions

The goal of the gypsy moth control program is not to eradicate the pest, but to protect tree health by suppressing the population to acceptable levels. Due to the relationship between weather and egg survivorship and the unpredictability of gypsy moth outbreaks, an Integrated Pest Management (IPM) approach will be taken to manage their population. The IPM decision-making process results from an evaluation of treatment options available and an analysis of potential impacts.

### 5.1 Treatment Threshold Criteria

In order to preserve the Town of Pelham's tree canopy and prevent tree mortality resulting from Gypsy Moth infestation, the Threshold Criteria used to identify plots that require treatment within Municipal Boundary will be a minimum of 2500 egg masses per hectare.

## 6. Annual Egg Mass Surveys

Decisions and control strategies for the management of the gypsy moth population will be made on the most appropriate IPM strategy based on analysis of egg mass survey results. Egg mass surveys will be undertaken annually in the fall, to determine the egg mass densities within the developed Gypsy Moth monitoring plots. (*Appendix A*) The information gathered during the surveys will be utilized in the development of a treatment program if the threshold criteria or special circumstances are met.

The number of surveying plots required to monitor gypsy moth populations fluctuates in times of high or low population densities. Sequential sampling plans increase the efficiency of the survey program by focusing in areas where intervention is most likely required. Areas with very low or high populations require the least amount of sampling, as a decision may be reached after sampling only a few plots. Plot sampling requirements may vary depending on land use for continually forested and urban/suburban habitats depending on gypsy moth populations.

## 7. Gypsy Moth Control Program



## **7.1 Spray Block Development**

If the threshold criteria for treatment are met, treatment blocks will be identified utilizing the information gathered through the annual egg mass surveys. Once the survey data is compiled and analysed, spray blocks will be identified based on the most appropriate IPM strategy.

Spray blocks will be developed to include areas where gypsy moth egg mass densities exceed the threshold criteria of 2,500 per hectare. Spray blocks are developed in such a way to accommodate aerial spraying in a safe and efficient manner. Due to the application method it is not logistically possible for individual properties inside the spray block to opt out of the treatment. Authority delegated through By-Law 4106(2019) allows the Director of Public Works to implement a gypsy moth control aerial spray program when the threshold criteria is met.

Special circumstances such as proximity to selected treatment areas, or areas where high gypsy moth populations threaten nearby property where protection is greatly desired, may extend consideration of treatment to additional areas or Treatment Buffer Zones. Also, consolidation or expansion of proposed treatment areas may be attempted in the interests of program efficacy and efficiency.

Circumstances may warrant the consideration of areas with egg mass counts below 2500 egg masses per Hectare, on a lower priority basis, when Habitat Susceptibility and Land use factors are high and there is a clear indication that the gypsy moth populations, though low, are in increasing and are healthy. Generally, areas that in the past have experienced high and rapidly rising outbreak levels of gypsy moth would be candidate for such consideration to achieve effective and more efficient long term pest management.

## **7.2 Treatment Program Communication**

Prior to the implementation of any treatment program, staff will prepare a report outlining the results of the egg mass surveys, management recommendations, treatment costs, proposed spray blocks as well as the amended by-law to be presented to Council for approval.

Town of Pelham Staff will host a Public Information Centre (PIC) to present the purpose, objectives and implementation process of the treatment program. Program information will also be made available on the Town of Pelham's Website and social media feeds as well as public notices in local print media.

The Town of Pelham will notify landowners, whose properties are included within or adjacent to the spray blocks prior to May 1st by Canada post letter mail.



The Town of Pelham will provide information concerning the gypsy moth, including control measures on private properties to the residents of Pelham. Information provided will be made available at; all Municipal Facilities, Libraries, gypsy moth treatment program PIC, the Town of Pelham website, social media feeds and media releases. (*Appendix B*)

Further to the communication plans described in the previous paragraphs, the Town of Pelham shall adhere to section 79 of Ontario Regulation 63/09 under the Pesticides Act for alternative means of public notice of pesticide use.

### **7.3 Aerial Application for Gypsy Moth**

The treatment of gypsy moths shall be completed in an ecologically responsible manner. To protect other sensitive species, a number of factors are considered in determining the timing for aerial application of control agents including; foliage emergence, gypsy moth in-star development, weather conditions and manufactures' specifications.

Spray application will not be initiated until foliage has developed to no less than 30% of mature size, and caterpillars have reached 90% emergence and display evidence of feeding. Application must be made only during meteorological conditions that are suited to maximize spray deposit in the treatment areas and to minimize off target movement of the spray. Foliage must not be too wet prior to application and applied well in advance of any rain events. This may vary depending on manufacturers' technical information and product-specific recommendations.

### **7.4 Post Application Assessments and Communication**

Initial post-spray assessments are to be completed after each spray application to ensure that the treatment area was completely and correctly flown over. Efficacy assessments will be performed within 24 hours of the spray application utilizing an Accurate Deposit Assessment Methodology (ADAM) kit from Valent Biosciences or approved alternative.

Once the majority of gypsy moth caterpillars have finished feeding and begun pupation and before trees have had time to grow new leaves, defoliation surveys will be completed in a representative number of spray blocks as well as other locations where gypsy moth egg mass data was collected. This information will be utilized to design future egg mass surveys and estimate population migration.



Town of Pelham Staff will prepare and present a report to summarize the effectiveness of the treatment program including; graphical spray event data, post-spray assessments and defoliation survey.

### **7.5 Alternative Gypsy Moth Control Measures**

The Integrated Pest Management decision-making process includes an evaluation of treatment options and an analysis of potential impacts. Through the IMP approach, a number of alternative management options may be utilized based on; survey results, tree species, tree maturity and density, land use, location, ecological factors and the health of the gypsy moth population.

In locations where aerial spray application is not well suited, a number of other treatment options may be utilized. These may include but are not limited to: ground spraying, tree injection, burlap banding, or a “do nothing” approach if the impact of the infestation will be limited to a remote area.

## **8. Community Volunteer Program**

The Town of Pelham may develop and implement a volunteer based forest health monitoring program overseen by a qualified forestry consultant. Effective volunteer programs can have many positive results and increase awareness among the general public about tree health and invasive species. Raising interest in tree health issues in the community is imperative for the future conservation of the Town of Pelham’s tree canopy. By enlisting and training members of the community to identify invasive species, and collect tree health data from their own lands and public property, volunteers can generate pertinent information that can be useful for municipal operations and help cultivate an awareness of tree health issues among Town of Pelham residents.

## **9. Gypsy Moth Management Funding**

The Town of Pelham will endeavour to strategically allocate resources toward the protection of tree health. The Gypsy Moth Management Policy identifies how the periodic gypsy moth infestations are treated by the Town of Pelham as part of an overall Integrated Pest Management Policy.

A Forestry Health Reserve Fund will be established which will be used to fund programs related to the health of the forests and tree canopy within the Town of Pelham.



The Gypsy Moth Management Program will be funded through the Forestry Health Reserve with Council approval.

To help ease the costs associated with treatment programs the Town of Pelham may attempt to coordinate spray programs with neighbouring municipalities, conservation groups, agricultural and commercial operations and other governmental organizations.

## **10. Attachments**

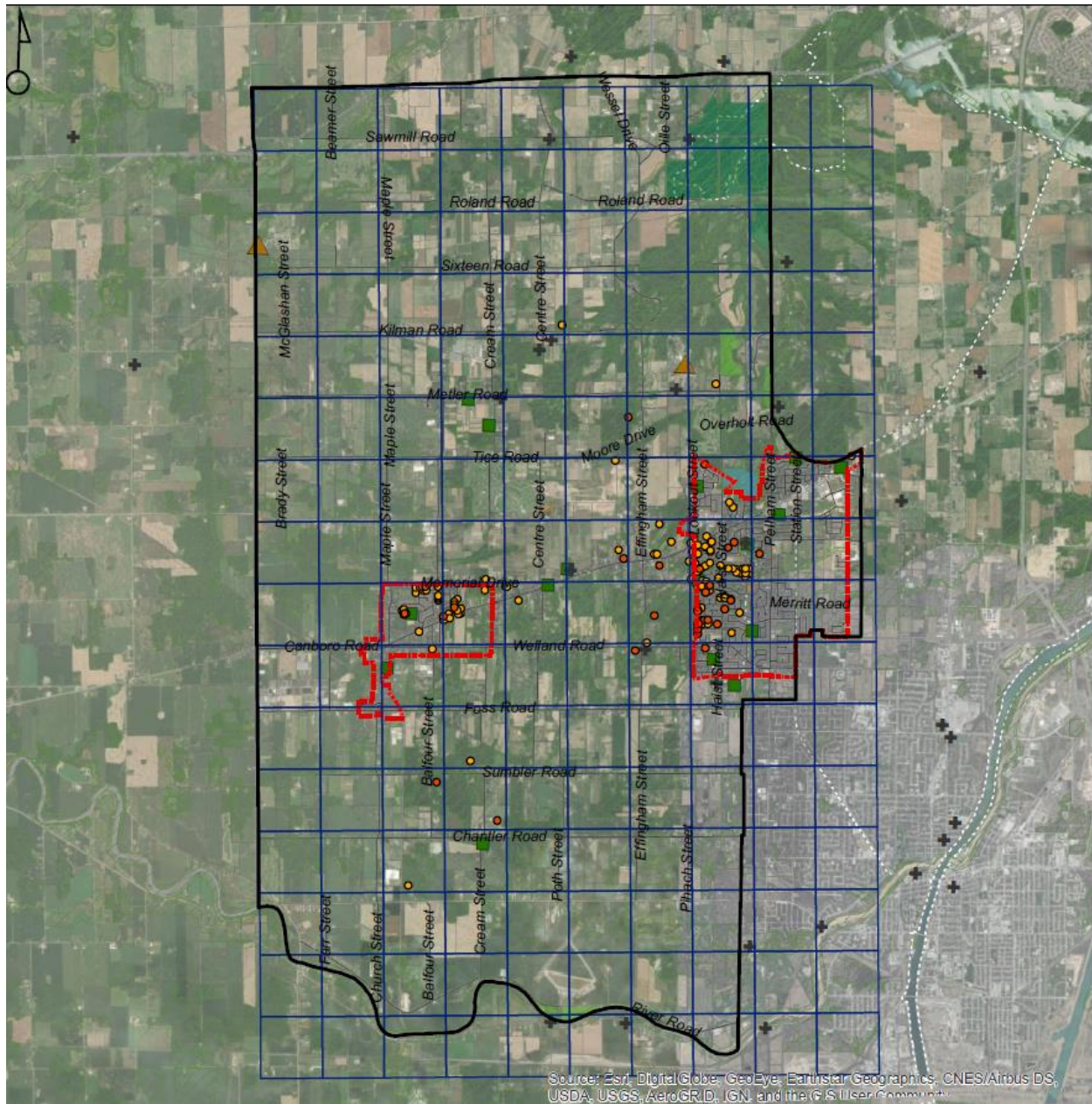
Appendix A Gypsy Moth Egg Mass Survey Plots

Appendix B Gypsy Moth FAQs





## APPENDIX A – Gypsy Moth Egg Mass Survey Plots





# GYPSY MOTH FAQs

## ***What is European gypsy moth?***

Gypsy Moth (*Lymantria dispar*)

European Gypsy moth (EGM) is an invasive insect from Europe and Asia that established in North America in the late 1860's near Boston. Gypsy Moth caterpillars are 5 to 60 millimetres in length, dark and hairy, with five pairs of blue dots and six pairs of red dots on the back. They feed on a wide range of coniferous as well as deciduous trees, but show a preference to oak trees.

## ***Where does European gypsy moths come from?***

Gypsy moths are an invasive pest originally from Europe and Asia. They were brought to North America in the late 1800's to conduct experiments for silk production, but escaped captivity and have since established themselves across much of the northeastern portion of North America

## ***How does European gypsy moth cause damage to trees?***

Caterpillars begin by chewing small holes, but as they mature can completely strip a tree of its leaves depending on their age and population.

## ***How much damage can they cause?***

High levels of gypsy moth caterpillars can cause trees to experience severe loss of leaves, which could cause them to enter a state of decline and make them more susceptible to further harm from other insects, diseases, and weather fluctuations.

## ***What does the damage look like?***

Gypsy moth caterpillars chew small holes in the new leaves. As the caterpillars begin to grow, they eat more and the holes become larger until only the leaf veins remain. When population levels are high, gypsy moth caterpillars have the ability to strip trees of all of their leaves.

## ***What types of trees do these caterpillars affect?***

Gypsy moth are known to feed on hardwood trees such as apple, birch, cherry, elm, hickory, oak, willow, and maple species. Other deciduous trees, and even conifers such as pine or spruce, could be susceptible when populations are high.

## ***What is defoliation?***

Defoliation is the widespread loss of leaves on a tree and other plants.

## ***Why does it matter if trees lose a few leaves from hungry caterpillars?***

Tree damage can range from light to severe defoliation. As the caterpillars grow, they consume more and more leaves. As the growth cycle winds down, usually in late June, trees can look as if they have lost their leaves overnight. Under normal circumstances, defoliation caused by gypsy moth caterpillars won't kill a tree. Healthy trees should regrow their leaves two to three weeks after defoliation, or by early July depending on the year. However, when a tree uses energy to replace damaged leaves, it reduces the energy available for annual tree growth and to fight potential new diseases and other insect attacks.

# GYPSY MOTH FAQs

The urban tree canopy provides health, social, environmental, and ecological benefits to communities.

Trees help to:

- Improve air quality and reduce smog and pollution
- Provide shade
- Reduce energy demand for cooling in summer (shades buildings) and heat in winter (windbreak)
- Reduce the negative effects from urban heat (reducing the 'heat island' effect by shading paved surfaces and provides water vapor that cools the air)
- Prevent flooding and reduce peak storm water run-off volumes
- Increase property values and aesthetics
- Strengthens communities
- Improve emotional well-being and mental health (stress reduction)
- Increase outdoor activity and walkability, leading to improved health (e.g., cardiovascular health)

## ***Why are there so many gypsy moths in Pelham?***

Gypsy moth has been present in Pelham for at least 20 years. Their populations rise and fall in a cyclical manner. In 2008, an aerial spray was completed to mitigate high gypsy moth populations. Since then, the Town has attempted to monitor and managed these pests using a variety of treatment methods.

## ***Why are they such a nuisance?***

Besides defoliating trees, caterpillars can become quite a nuisance to homeowners. They can be heard munching on leaves and their droppings can create a mess on the surfaces below. As the caterpillars complete their feeding, they tend to crawl everywhere including up the sides of homes, on outdoor toys, decks and patio furniture in search of suitable hidden spots to pupate. Exposure to gypsy moth hairs, silken threads, and shed skins can cause skin rashes and upper respiratory tract irritation in some people.

## ***Do they have any natural predators?***

Gypsy moths do have natural predators: a fungus (*Entomophaga maimaiga*), a virus (*Nucleopolyhedrovirus*) and a small wasp (*Encyrtidae* family). The fungus and virus can be very effective at naturally controlling populations however they require a cool wet spring to be effective. The wasp only kills eggs that are near the surface of an egg mass, but can't parasitize any of the eggs that are hidden beneath the eggs on the outer surface of the mass.

## ***What is Integrated Pest Management (IPM)?***

IPM focuses on the long-term prevention and mitigation of pests or their damage through techniques such as monitoring, biological control, habitat manipulation, and modification of cultural practices, such as the use of gypsy moth resistant tree varieties. A major component of this program consists of egg mass surveys in the fall and winter to predict defoliation levels for the following year. Following that, prescription and implementation of various control strategies can be undertaken.

# GYPSY MOTH FAQs

## ***What can residents do to help?***

Residents can help by:

- Remove egg masses off of trees and other hard surfaces. Soak them in soapy water for a minimum of 48 hours.
- Install burlap skirts around tree trunks at beginning of June. Caterpillars will find shelter under the burlap, making it easy for residents to collect and dispose of them.
- Destroying pupae/cocoons.
- Consult with private arborist companies when larger trees require attention for control for gypsy moth.

Though effective, these control options are time sensitive. They must be implemented at the appropriate time to be effective. The City recommends these IPM techniques as well as their associated appropriate timing:

- September to beginning of May: Scrape gypsy moth egg masses off of trees and other hard surfaces leaves, tree trunks and branches. Soak them in soapy water for a minimum of 48 hours to destroy them.
- May to Mid-August: Burlapping: Install burlap wraps around tree trunks and then collect and destroy the caterpillars, pupae, adults, and egg masses.
- End of June-Mid-August: Collect, crush or otherwise destroy pupae/cocoons when you see them.
- Beginning of May- Mid June: Consider chemical treatments such as Btk-based products or TreeAzin; however, they are extremely time sensitive for them to be effective at controlling gypsy moth. It is highly recommended that you consult with a private arborist no later than the end of April if you are looking at having your trees treated/sprayed to allow the private arborist time to properly schedule our work. Once the caterpillars get too large (approximately mid- June is the cut off point for treatment), pesticide treatments are no longer effective at controlling gypsy moth and can be a costly mistake on the homeowner's part. Some private companies will conduct egg mass removal for your trees during the winter months. The earlier you can consult with an arborist, the better

## ***AERIAL SPRAY***

### ***Why is the Town planning an aerial spray?***

The Town is facing a gypsy moth population rise that is affecting Pelham's tree canopy. Elevated levels of gypsy moth have caused severe defoliation of trees in certain areas of the Town. This has led to potential negative impacts on the overall health of many trees on both Town and privately-owned property.

While the Town will continue to implement ongoing IPM measures, it will also conduct an aerial spray in areas predicted for severe defoliation. Aerial spraying has proven in the past to be very effective in lowering gypsy moth populations. Although the aerial spray won't eradicate all traces of the insect, it will naturally lower populations to a more manageable level.

### ***Which areas are being sprayed?***

The final spray map will be developed and shared with the public once determined.

# GYPSY MOTH FAQs

## ***What type of pesticide is being used?***

The Town of Pelham will be using a product that contains *Bacillus thuringiensis* subspecies *kurstaki* (Btk). The product is registered under the trade name Foray® 48B. Btk is a naturally occurring bacteria found in soil. Btk is not a chemical. Btk was successfully used by the City of Toronto in 2007, 2008, 2013 and 2017 to control gypsy moth populations. The Cities of Mississauga and Oakville have completed similar spray programs in the past. The City of Hamilton will be conducting an aerial spray program with this same product this spring as well.

## ***What organisms does Btk pesticide affect?***

Btk only works against organisms that go from egg to larvae to pupae to moth (lepidopterans). Btk does not affect adult moths and butterflies, including the monarch butterfly, as it is not in the caterpillar stage and feeding on plant material at this time of the year. Btk does not affect other insects, honeybees, fish, birds, or mammals.

## ***How does Btk work?***

Btk produces a protein that is toxic only to the larvae (caterpillars) of specific insect species. When ***ingested by susceptible insects, the toxic protein molecules break down the walls of the insect's stomach*** causing the insect to stop feeding. The insect usually dies within two to five days.

For Btk toxins to be activated, the alkaline conditions that exist only in certain insects' digestive systems must be present. The acidic conditions in the stomachs of humans and animals are not present and do not activate Btk toxins, which is why the pesticide is not toxic to humans and animals. Btk has been used in many countries without health impacts to individuals on medications or vulnerable populations.

## ***What is the formulation of the Btk product?***

The registered name of the pesticide that will be used by the City is Foray® 48B Biological Insecticide Aqueous Suspension. It is registered under the Pest Control Products Act (PCP # 24977). It is comprised of 3% Btk bacteria, 75% water and 22% food grade inerts. The term 'food grade inerts' refers to a special blend of additives that give the formulation protection against ultraviolet light and help make it stick to foliage. They do not pose any health risks. Btk remains effective for approximately one to four days before it breaks down in the presence of sunlight.

## ***What is the concentration of Btk?***

A small amount of liquid covers a large area: 4 litres will cover 1 hectare (2.5 acres). Comprehensive spray drift modelling has been done to ensure accurate and effective application.

## ***Who regulates Btk use in Canada?***

Btk has been approved by the Pest Management Regulatory Agency, an agency of Health Canada, for aerial use over urban areas.

# GYPSY MOTH FAQs

## ***Is Btk safe?***

Btk is an effective pesticide that has been shown to successfully manage many lepidopteran species such as gypsy moth. It has been extensively studied by Health Canada and the US Environmental Protection Agency (EPA). Research shows that Btk poses minimal risk to human health when used as directed.

Btk is approved by Health Canada for aerial use over urban areas. It has been used by many countries over the last 30 years, including Canada and the United States. The City of Toronto has used Btk in multiple aerial spray programs in the past. Its use did not result in any reported health impacts to the general population.

The public is unlikely to experience any symptoms and no special precautions are necessary. Btk aerial spraying is also not expected to have adverse effects on vulnerable populations including children with asthma, people with weakened immune systems, pregnant women or the elderly. However, infrequently there may be some residents who are more sensitive and may experience skin, eye or respiratory irritation.

In addition to the Btk active ingredient, other ingredients called formulants have also been studied broadly and do not have any significant health risks. Formulants normally include water and other ingredients to make the product stick to leaves and needles of trees.

While the aerial spray will not eradicate the gypsy moth populations currently present, it will reduce populations to more manageable levels to protect tree canopies.

Another subspecies of *Bacillus thuringiensis* bacterium, called Bti, has been used to control mosquitos in surface water in the GTA for over a decade as part of the efforts to protect against West Nile Virus. Btk has been used successfully in aerial sprays as well as ground-based spraying for the past 10 years by the City of Toronto to control gypsy moth populations.

Aerial application of Btk has not shown to have any negative environmental effects. Once applied, Btk biodegrades quickly, (approximately 1 to 4 days), through exposure to sunlight and other micro-organisms.

The urban tree canopy provides social, environmental, and ecological benefits to communities. Trees improve air quality and reduce smog and pollution, provide shade, reduce energy demand for cooling in summer and heat in winter, prevent flooding, and promote physical health (improves walkability, improves cardiovascular).

## ***What personal precautions can be taken in preparation for aerial spraying?***

Members of the public are unlikely to experience any health effects, and no special precautions are necessary or required. Individuals who have concerns should take reasonable precautions to avoid exposure during an application period of the program.



# GYPSY MOTH FAQs

While no special precautions need to be taken, the following measures may be considered by residents living in treatment areas:

- Whenever possible, remain indoors for 30 minutes after spraying to allow for the droplets to deposit onto the tree leaves.
- Bringing laundry, toys and pets indoors before spraying begins.
- Practice good personal and food hygiene (e.g., hand washing after outdoor activities, especially after gardening; leaving outdoor shoes at the door; washing all fruits and vegetables before eating or cooking).
- Covering lawn furniture, outdoor tables, pools, BBQs, play equipment and sandboxes and/or rinsing them off with water after spraying is finished.
- Minimize opening and closing windows and doors during the spraying.
- Shutting off the heating/cooling vents or selecting the recirculate setting.
- Contacting your family physician if you are concerned that a personal medical condition may be aggravated by the spraying.

## ***Does Btk spraying pose a risk to residents who might have sensitivities?***

Members of the public are unlikely to experience any symptoms and no special precautions are necessary or required. However, infrequently there may be some residents who are more sensitive and may experience skin, eye or respiratory irritation. Btk aerial spraying is not expected to have adverse effects on vulnerable populations including children with asthma, people with weakened immune systems, pregnant women or the elderly.

## ***What should I do if I experience an adverse reaction?***

If you experience an adverse reaction or worsening medical condition, speak to your physician or, in an emergency, call 9-1-1.

## ***Can gypsy moth affect my health directly?***

Extreme gypsy moth outbreaks have been associated with skin rashes and upper respiratory tract irritation in some people exposed to airborne gypsy moth hairs, silken threads, or shed skins.

There is a potential for some people to develop minor skin irritations or rashes when they come in contact with these insects. If this is a concern, it is recommended that you try and avoid contact whenever possible.

## ***Is Btk safe for animals?***

According to Health Canada, Btk is only effective during the larval (caterpillar) stage of the gypsy moth life cycle. Btk does not affect adult moths and butterflies, including the Monarch Butterfly, as it is not in the caterpillar stage at the time of the spray. Btk does not affect other insects, honeybees, fish, birds or mammals. There is also no impact on animals or pets if they are exposed to or ingest Btk.

# GYPSY MOTH FAQs

## ***Where does Btk go in the environment?***

Research shows that Btk used in aerial spray programs has not been shown to have any negative environmental effects. Once applied, Btk biodegrades quickly, approximately 1-4 days, through exposure to sunlight and micro-organisms. There are no groundwater contamination concerns, as Btk does not travel through the soil beyond 25 cm.

## ***How long does Btk remain effective?***

Btk is applied to leaves when caterpillars are feeding. It breaks down quickly (approximately 1 to 4 days) when exposed to sunlight and micro-organisms.

## ***Is there a certain season or window of time the spray has to happen within?***

The best time to first apply Btk is mid-May when caterpillars are small, hungry and feeding. The seasonal spray window is set for May 16th to June 15th, 2019. On the day of the sprays, the helicopters will begin spraying just before sunrise (5 A.M.) and will take approximately 2.5 hours to complete. Applications can occur any day of the week, including weekends. Once the leaves are a certain size, the caterpillars have reached almost 90% emergence and the caterpillars begin feeding, the spray window can be narrowed. Once it is determined that those factors are met, the weather conditions then need to be monitored.

The Btk application is weather dependent. Ideal application conditions consist of:

- Calm winds (1-16 km/h)
- High humidity (> 40%)
- Temperatures between 2 and 25 degrees Celsius
- No precipitation within the spray window and ideally not for 24 to 48 hours after application

## ***What type of aircraft will conduct the spray?***

For this program, two helicopters with spray systems will fly approximately 15 metres above the tree-tops. It is anticipated to take 2 days to complete one application and there will be a total of two spray applications.

The spray zones were created using scientifically designed methods. Comprehensive spray drift modelling has been done to ensure accurate and effective application. All zones and their boundaries were critically reviewed by City staff and Zimmer Air.

## ***Why are only certain areas of Pelham getting sprayed?***

The spray zones were created using scientifically designed methods. Comprehensive spray drift modelling has been done to ensure accurate and effective application. All zones and their boundaries were critically reviewed by Town of Pelham Staff, our Forestry Consultant, and Aerial Spray Applicator.

The spray zone areas we have defined have been refined on the basis of scientific data. Areas that are being sprayed are those where there is no other IPM control option available that would reduce the populations significantly enough to meet acceptable thresholds.

# GYPSY MOTH FAQs

Areas found where the Threshold Criteria was greater than 2500 Gypsy Moth Egg Masses per Hectare were considered as critical areas which are included in the spray. The spray zones were refined using extensive data gathered from these areas.

## ***What happens if the spray is cancelled?***

Bad weather or wind may cause the aerial spray to be postponed with little advanced notice. The Town will issue a communication to the public 48 hours before each treatment and provide up-to-date information online at <https://www.pelham.ca/en/living-here/gypsy-moth.aspx>, through the Town's social media channels (Twitter and Facebook) and through Email News Alerts. The spray may be cancelled up to 24 hours in advance if the weather conditions change.

## ***If the weather isn't co-operative and spraying can't be done – what are the Town's next steps?***

The Town will continue to monitor pest population levels and consider appropriate treatment methods.

## ***Why is spraying from the air seen as more effective than spraying from the ground?***

Evaluation of previous programs over the past few decades have shown that aerial sprays are highly effective for controlling many forest pests including gypsy moths. Large areas can be treated in just a few hours. Most droplets reach the ground within 10 minutes of application.

Aerial spraying can treat remote or difficult-to-access areas, providing even coverage throughout the target area. Also, the droplets can penetrate the crowns of even the tallest trees.

## ***How is the Town going to measure the success of the spray program?***

Success will be measured by evaluating tree health through the months following the spray (if the trees are green and covered with leaves versus completely defoliated). As well, egg mass counts will be conducted annually in the fall/winter.

Residents are encouraged to implement healthy tree practices and to consult with qualified arboricultural companies to develop healthy tree management plans for their own trees.

## ***If the spray isn't successful, what's next?***

We will monitor immediately following the first spray to determine initial results and will readjust if required for the second spray.

## ***Will spraying become an annual thing?***

We are confident this year's spray will be enough to bring the gypsy moth population back down below a tolerable threshold to prevent severe canopy damage from occurring. Spraying this spring is the best approach for the health of the trees, our environment, and residents.

# GYPSY MOTH FAQs

Proactive prescribed treatments do not follow the approach of Integrated Pest Management as it is nearly impossible to determine if population levels of gypsy moth will require an aerial spray a year in advance. Decisions regarding whether to treat with an aerial spray will be left after extensive egg mass surveying has been completed to determine if treatment is warranted or not.

## PREPARING FOR THE SPRAY

### ***How will I know when the spray is happening?***

48 hours in advance of the spray, the Town will inform residents of the specific areas of the flight path, treatment plan, and any other relevant information.

- Notification signs will be posted along local roads to announce the approximate spray window.
- Social media will be used to update the public on current spray operations. The Town is on Facebook and Twitter. The website will also be updated regularly.
- The public are encouraged to subscribe for up Email News Alerts regarding the aerial spray at, <https://www.pelham.ca/en/living-here/gypsy-moth.aspx> and clicking “subscribe to this page” at the bottom of the page.
- For questions or for up-to-date information about what you can do to control gypsy moth on your property, aerial spray details like spray dates, times and locations visit <https://www.pelham.ca/en/living-here/gypsy-moth.aspx> where you can also sign-up for Aerial Spray Email News Alerts.
- Residents with questions or concerns related to the health impacts of aerial spraying with Btk should call Niagara Regional Public Health at 1-800-263-7248 or speak to their family physician.

### ***Should I cover items in my backyard?***

It is recommended to cover things you don't want sprayed like patio furniture, outdoor tables, play equipment and sandboxes or you can simply rinse them off with water after spraying is finished. The spray does not damage paints or finishes on automobiles, houses, boats or trailers. If it is left to harden, the spray can be removed with water but may require more effort. The sooner it is washed off, the easier it is to remove.

### ***Can my pool remain open?***

If possible, cover pools during the spray period. After the spraying has been conducted and the pool cover has been removed, consider testing the water to ensure chemistry balance in water chemistry prior to swimming in the pool. If the pool has not been covered during the spray, test the water to ensure chemistry balance in the water chemistry prior to swimming.

## AFTER THE SPRAY

### ***There is a film on my patio furniture; will it come off with water?***

The spray does not damage paints or finishes on automobiles, houses, boats or trailers. If it is left to harden, the spray can be removed with water but may require more effort. The sooner it is washed off, the easier it is to remove.

# GYPSY MOTH FAQs

## ***Can I use my BBQ?***

If possible, prior to the spraying, close and cover your BBQ or bring it into a covered area. BBQs left open or uncovered should be rinsed with water prior to use. If left to harden, it may require more effort to remove.

## ***Is it safe to go swimming in my pool after the spray?***

Btk biodegrades quickly through exposure to sunlight. If possible, cover pools during the spray period. After the spraying has been conducted and pool cover has been removed, consider testing the water to ensure chemistry balance in water prior to swimming in the pool. If the pool has not been covered during the spray, test the water for chemistry balance prior to swimming.

## ***Can my dog be outside when the spray occurs? Is it harmful to pets?***

Individuals who live in the treatment areas should bring pets indoors before spraying begins. This will reduce pets bringing Btk indoors; However, Btk is not considered a risk to pets or animals.