Obtaining social licence to operate: case study – gypsy moth eradication programme, British Columbia, Canada

Joint report

1 September 2017

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Executive summary

The purpose of this report is to present findings from a biosecurity visit to British Columbia, Canada in May 2017 by a delegation consisting of industry, government, and research officials.

The visit was undertaken as FOA has been concerned for some time that MPI has lost its social licence to apply organic insecticides (from ground or air) in urban areas in New Zealand and considers this a serious potential risk to the primary production sector, the conservation estate, and the parks and gardens of New Zealand.

Key findings

In British Columbia, public opposition to aerial and ground spray operations was avoided by:

- a high level of early consultation and interaction with affected residents, by multiple channels (including a high level of face-to-face outreach)
- legislative change preventing appeals based on human health concerns
- email and web communication of results to residents
- long-term operations – spraying has been done for over 20 years
- limited protective equipment worn by contractors when spraying occurred, reducing the visible concerns about toxicity.

Ground spraying was effective at eradicating infestations through targeted species spraying supported by a trapping regime that provides data on infestation locations. This removed the need for blanket spraying.

The New Zealand situation differs from the Canadian experience, in that:

- we do not attempt eradication every year
- public spray opposition groups are likely to be stronger.
- In Canada the native forest are mainly under threat and Canadians are passionate about protecting their forests. In New Zealand there has been little to no messaging that native forests may be under threat.

Conclusions and recommendations for New Zealand

It is clear the British Columbian authorities have a number of factors in their favour in gaining and retaining social licence to operate. These include the need to spray on a regular basis, and the legislative amendments that allow limited appeals.

However, the New Zealand situation is similar in many ways and there are numerous approaches that are directly and easily applied to New Zealand. These include:

- clear and early communications on the benefits of eradication including protection of the native forest estate.
- directly addressing key concerns
- enabling face-to-face interaction with residents, stakeholders and government
- providing a number of channels for information flow, including direct contact with officials

- reducing the opportunities for opposition groups to gain traction (by addressing concerns quickly, responding to social media comments, and providing direct lines of communication.

Acknowledgements

The Forest Owners Association, Scion and the Ministry for Primary Industries acknowledges and thanks our hosts in Canada from the British Columbia Ministry of Forests, Lands and Natural Resource Operations (FLNRO), at the Canadian Food Inspection Agency (CFIA), Vancouver, and the researchers with the Canadian Forest Service (CFS), at the Pacific Forestry Centre (PFC), Victoria.

Introduction and purpose

This report provides insights from a fact-finding visit to British Columbia, Canada, in May 2017. The delegation consisted of:

- Dave Cormack, Chair of the Forest Biosecurity Committee FOA (joint Forest Owner Association and Farm Forestry Association).
- Lindsay Bulman, Science Leader, Forest Protection, Scion
- Rory MacLellan Senior Advisor, Plant Health Surveillance Incursion and Investigation, MPI
- Venise Comfort, Advisor, FOA

The visit included meeting with the following organisations:

- Officials at the British Columbia Ministry of Forests, Lands and Natural Resource Operations (FLNRO)
- Officials at the Canadian Food Inspection Agency (CFIA), Vancouver
- Researchers with the Canadian Forest Service (CFS), at the Pacific Forestry Centre (PFC), Victoria

In addition to meetings, the delegation also visited field sites in a number of locations:

- Ground spraying in Surrey, Vancouver (see map appended)
- Aerial spraying at Bear Hill/Elk Lake in Saanich, Victoria
- Shipping container terminal in North Vancouver – Harborview Park
- Asian longhorn beetle (ALHB) detection training site – North Vancouver

Objectives of the visit

FOA has been concerned for some time that MPI has lost its social licence to apply organic insecticides (from ground or air) in urban areas in New Zealand and considers this a serious potential risk to the wider primary sectors and the indigenous and urban forests of New Zealand.

The main aim of the visit was to understand how BC authorities have gained social licence to operate for aerial and ground spraying gypsy moth eradication programmes. A secondary aim was to share research experiences with researchers at the Pacific Forest Centre on Vancouver Island and to share learnings between the two countries on biosecurity issues with the CFIA that affect commercial plantation forests and other species.

The report is divided into two sections.

1. Obtaining social licence to operate
2. Biosecurity issues, research and learnings.

Background to the visit

MPI, FOA and Scion have had a long association with Canadian officials and researchers, and have shared biosecurity information over the past 100 years. Two early New Zealand forestry officials were Canadian – New Zealand's first Director of Forests, Leon MacIntosh Ellis, and Joseph de Gryse, from the Forest Biology Science Service in Ottawa, who in 1955, conducted a comprehensive forest health study. The study recommended and initiated New Zealand's forest health surveillance system.

The matter of a fact-finding visit was raised at an annual joint MPI/FOA biosecurity workshop, and it has taken two years to coordinate a visit during a suitable eradication programme with aerial and ground spraying.

Gypsy moth is deemed to be a highly destructive pest for many tree species, particularly for shade, fruit, and ornamental tree species – they feed on over 600 species. They have been nominated as one of the worst invasive alien species by the Invasive Species Specialist Group (ISSG).[1]

If the gypsy moth was detected in New Zealand there is a high risk it would be both an economic and environmental high-impact pest. Large numbers of caterpillars can infest trees, stripping them clear of leaves and exposing them to diseases. A major outbreak of gypsy moth in New Zealand could destroy public and private gardens, edible crops, native forests[2] bush and the communities that depend on them.[3] The moths are so highly destructive, they are one of only three horticulture pests in New Zealand that are targetted with an on-going surveillance programme.[4]

[1] http://www.issg.org/index.html

[2] Host plant species for gypsy moth number in the hundreds, including oak, birch, willow, and red cedar. Gypsy moth does not feed on radiata pine, so it does not threaten this aspect of the commercial forestry species. It also feeds on Douglas-fir, which is approximately 2% of commercial forest coverage in the north island, and 16% in the south island. Source http://www.nzfoa.org.nz/images/stories/pdfs/ff_2016_web.pdf

[3] mpi.govt.nz/document-vault/3412 from MPI website, retrieved 21 July 2017.

[4] http://www.kvh.org.nz/vdb/document/91537

Part 1- Obtaining social licence to operate

This section provides detail on the pest management programme in BC, including:

- Why gypsy moth is a concern to BC
- The role of legislation
- Technical background to the spray programme
- The decision-making process and governance roles
- Community outreach initiatives and addressing public concerns
- Success factors and concluding comments.

Invasive pest species management

In Canada, European gypsy moth is not a forestry issue, the pest has been known to feed on conifer species only if deciduous species are not present. However, the BC authorities have responsibility for keeping BC free of gypsy moth to ensure:

- Trade of logs and timber products is not restricted, particularly to the US
- To avoid CFIA having to inspect exports and issue phytosanitary certificates.
- To prevent the ecological impact of gypsy moth invasion on iconic native species such as the Garry Oak.
- To reduce the risk of the Asian gypsy moth invading the province, as this species is a threat to commercial forestry and trade.

The role of legislation

The BC principal authorities are bound by the Integrated Pest Management Act and associated regulations from Federal Government[5]. The Act prescribes a number of pest management processes, including the consultation periods with the public when a permit to spray is obtained.

Importantly, the Act has been amended to include the provision that the spray programme cannot be objected to on the grounds of adverse impacts of human health. So any appeals must not rest on that provision.[6]

[5] http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/604_2004

[6] The relevant section of the legislation is here http://www.bclaws.ca/civix/document/id/complete/statreg/03058_01#section14

The authorisation that is used under the BC Plant Protection Act to enter properties for treatments or conduct aerial spraying is very similar to the New Zealand Biosecurity Act 1993 which gives broad powers to enter property and impose actions. For instance, section 114 allows that "an inspector or authorised person who has lawfully entered a place under section 109 or 111 may do anything in, on, or in relation to the place that the inspector or authorised person considers necessary or expedient to:

(a) eradicate or manage a pest or unwanted organism on the place:
(b) prevent the spread of a pest or unwanted organism from or to the place:
(c) avoid, remedy, or mitigate any effect on the place of non-compliance with a pathway management plan.[7]

Technical background to the spray programme

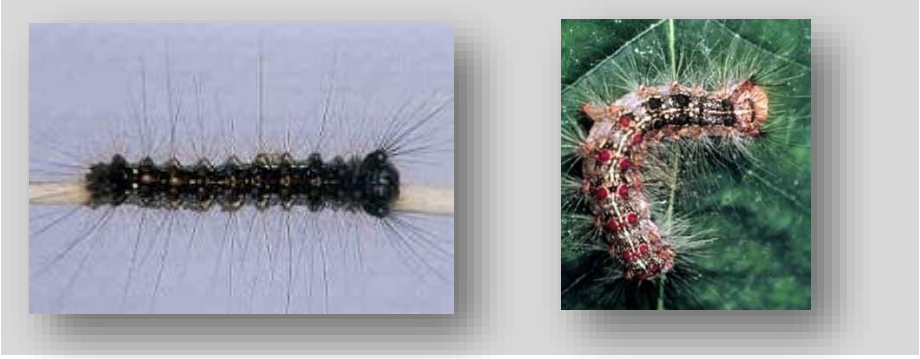
Gypsy moth is from Eurasia and consists of several species. The species classified as European gypsy moth has been established in eastern North America since 1869 and has spread across northeastern USA and Canada since then. Its spread has been inhibited because the female moths are incapable of flight. European and Asian gypsy moths have been found in British Columbia and western USA periodically, the latter since 1991.

Asian gypsy moths are of concern because, in contrast to the European Gypsy moth, the female moths are strong fliers and can disperse readily. Both species can cause serious defoliation to trees, with the Asian species having a broad host range including conifers, whereas the European species prefers hardwoods. In British Columbia gypsy moth was first found in 1911 as egg masses on imported logs, and thereafter annually since 1978. Repeated eradication programmes have taken place since then.

Although eradication programmes take place almost every year they are considered successful. Trapping is carried out the year after spraying and usually no, or very few (insufficient to establish a permanent population), moths are trapped in the treated area. It is considered that new introductions from the east, and not established populations, are responsible for moth catches in new areas.

[7] Section 114 of the New Zealand Biosecurity Act
http://www.legislation.govt.nz/act/public/1993/0095/latest/DLM316307.html

Images: Gypsy moth – caterpillar stage.[8]



The decision-making process is managed by a number of agencies

Decision-making regarding the need for a spray programme is informed by a gypsy moth trapping programme managed by CFIA. The information from this programme is reviewed annually by the BC Gypsy Moth Technical Advisory group that includes BC FLNRO, CFS, CFIA, BC Ministry of Agriculture and BC Ministry of Environment.

Once a joint decision has been made by the Technical Advisory Group on whether treatment or increased trapping densities are required, if the treatment is for European gypsy moth, responsibility passes to FLNRO in British Columbia to manage the eradication programme, including the outreach and communications plan. Treatment responsibilities for Asian gypsy moth are borne by the Federal CFIA but would likely require the technical assistance of the BC FLNRO to implement an eradication programme.

The number of gypsy moths found in the annual trapping programme determines the trigger point for eradication efforts.

Outreach to residents and the wider community

FLNRO officials indicated that at least a third of their budget is dedicated to communication and outreach to residents. This highlights that the authorities have allocated a significant amount of resources to this aspect of the programme.

A number of the outreach elements are regulated by the Integrated Pest Management Act and associated regulations[9]. The FLNRO team is required to apply to the BC Ministry of Environment for a permit to enable pesticide use (a Pesticide Use Permit – PUP), and this includes a number of requirements, including community outreach and notifications schedules.

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[8] http://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/forest-health/forest-pests/invasive-forest-pests/gypsy-moth/biology

The legislated outreach requirements include the following measures:

- newspaper ads (official notification)
- information to hospitals, day cares, care homes, schools
- notification to First Nations, local government authorities
- news releases to all local media

However, the FLNRO officials also employ a number of other outreach strategies that they feel add to the effectiveness of the communication to residents and gives them social licence for the spray programme. These additional activities are considered to vastly improve residents understanding and acceptance of the spray programme.

The non-legislated outreach activities include:

- Highway signs notifying drivers they are entering a spray area.
- Drop in centres ("Open houses"). These are held at a time and location at a community hall where interested residents can talk to officials and other stakeholders (permit holder, entomologists, spray manufacturers, local authorities, pesticide regulators, and health professionals). A series of booths were distributed around a hall and residents could talk one-on-one to FLNRO officials and others. This varies for each spray programme depending on availability and may include horticulture and nursery association representatives, and the spray product manufacturer technical represetnatives.
- Flyers and visits to residents. Each of the houses/apartments in the spray zones was visited up to three times (for each of the spray dates set around ten days apart). A flyer was provided to residents who were not home, or the flyer delivery official could talk to the residents regarding the timing, safety, effects, and reasons for the spray programme.
- Email notification. Residents can sign up for email notifications via a listserv https://lists.gov.bc.ca/mailman/listinfo/l_for_gypsymoth. They then received regular and timely notifications by email of spray operations dates and time (including when any operations were delayed or completed). This message could also be adapted to an automated text notification that you can sign up to but this option was not available for the provincial programme. It was used quite effectively by United States Washington State officials in 2016.
- Web information. Comprehensive information is provided on spray operations and other FAQs at: http://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/forest-health/forest-pests/invasive-forest-pests/gypsy-moth and https://www.healthlinkbc.ca/healthlinkbc-files/gypsy-moth-spraying.
- Social media notifications (Twitter and Facebook).[10]
- Direct access to technical experts via e-mail or telephone to deal with specific questions.

Text from the notifications and the flyers are appended to this report.

[10] https://twitter.com/BCGovNews #gypsyMoth

Addressing public concerns

Many years of experience has taught FLNRO officials the types of concerns residents have. These cluster around three questions/issues:

- Is the spraying safe for me?
- Is the spray safe for my garden and pets?
- Is the spray going to have any impact on my property (house, pool, car)?

Residents also need information on the logistics of the spray operations:

- When will the spray take place (dates and time of day)?
- Where (locations, boundaries, maps)?
- What will be the impact (noise, droplets, residues, smell)?

Residents need to be given a sense of control regarding choosing to avoid the spray operations.

Officials from FLNRO do their best to address these concerns in their communications, pre-empting as much as possible, complaints or telephone calls. They also provide independent videos from health authorities that provides reassurance to residents and explains what BtK is made from.[11]

Officials communicate with residents in the spray zones before, during, between the spray periods (generally three spray applications between six and ten days apart), and a concluding communications to say thank you to residents. They also let residents know that the results of the spray programme will be known in November, and they will be notified. Note that Br officials have not provided compensation for relocation of residents who choose to voluntarily leave the spray area and do not recommend this action. BC health officials suggest residents who are concerned about exposure stay indoors for an hour after application.

On the ground spray operations – success factors

During ground spraying operations FLNRO staff circulate among residences in advance of the spray contractors. They knock on doors and if they get a response, they have a short discussion letting residents know spray contractors will need access to their property. If they do not get a response, they leave a small leaflet in the door (as above).

Staff wore high visibility clothing, but did not carry identification, which would be recommended in New Zealand. In addition, spray operators wore minimal personal protective equipment (PPE), just high visibility clothing and a helmet and gloves. This may contribute to a sense of safety to residents – no masks, gloves or other PPE to give the impression of handling toxic pesticides. This may not be possible in a New Zealand context.

[11] Such as this YouTube video www.youtube.com/watch?v=FzTSmsxkJtc

Photo highlighting PPE

Overall findings on community outreach

Our views on the community outreach are that the FLNRO authorities have the advantage of regular spray programmes (either once a year, or once every two or three years) and many residents are aware of, and accepting of the spray programme as a result. In addition, they have the benefit of legislation that prevents residents lodging a complaint on human health grounds.

The community outreach programme uses a significant amount of the programme funding but is successful because it provides residents with a number of opportunities to talk to an official or to call the Forest Health Officer. This tends to divert or de-escalate any concerns residents have and should be easy to replicate in the New Zealand context. For example, if a community event was held, MPI, forestry officials (and any other impacted sectors), and other stakeholders would attend and address individuals concerns. The aim is to provide a series of information booths, rather than an open forum for residents to air grievances or concerns (i.e., a "town hall" format), there is no microphone present. This may have to be held at more than one location at more than one time.

Social media is key, and officials have a dedicated resource for monitoring social media and jumping in to address concerns when and if they occur.

The FLNRO officials consider that early notification of spraying is best, as it prevents extreme views from anti-spray campaigners from reaching the majority of residents. They also make themselves personally available for telephone calls and emails from concerned residents. In some cases, officials are required to document and report adverse human health effects to the pesticide manufacturer. This notification can de-escalate a resident's concerns and result in a reasoned conversation.

Messages from FLNRO address resident's key concerns and residents therefore feel they have been listened to by government officials.

An over-arching trust in government is assumed for any social licence to operate. If officials at FLNRO behave in a way that builds trust with residents (e.g. doing what they say they will do, being open and transparent, and keeping their word), this provides a foundation for each spray programme.

What works – lessons to take away

Key approaches that have been effective for FLNRO:

- Tell residents early and immediately – avoid anti-spray lobby getting to them first
- Personal communications need to be used as well as mass communications. Reliance on social media alone is unwise.
- Getting people to sign up to get notifications is a personal way to connect with residents – especially if they come from a named person with contact details, not an anonymous mailing list.
- Clearly explain the benefits of the spray programme and why it is necessary for residents (what's in it for them).
- Think about eco-systems (any biodiversity that needs protecting can 'offset' issues)? For example, if other non-pest species are affected by spray operations, how are they being managed?
- Targeting formal community groups like garden clubs, friends of Zealandia, any other relevant organisations to get messages out to residents.
- Provide a forum for one-on-one discussion, not a public debate.
- Drop in meetings with all relevant authorities including organic certification bodies and health officials/professionals.
- Pre-emptive research, e.g. car manufacturers confirming Btk won't damage paint, confirmation from certifying body that Btk won't jeopardise organic certification etc.

Both industry and MPI should note that budget for social license to operate and community outreach is a significant part of the programme budget. Any communications to residents need to build trust and confidence in government and the relevant affected sector. The payoff is a lower level of concern, fewer complaints, less contact with officials, fewer complaints to Ministers, and a better relationship between agencies and residents, if done well.

Part 2 – Other biosecurity information

Findings from Pacific Forestry Centre liaison

The Pacific Research Centre was carrying out biosecurity research in areas similar to that done in New Zealand.

- Acoustics are being investigated to scan logs for defect and FP Innovations[12] are looking at alternatives to methyl bromide. Wraps to exclude hitchhiking insects in timber stacks are also being considered.
- *Phytophthora* diseases are a concern and there was a major scare when *P. ramorum*, the cause of sudden oak death, was discovered on imported nursery stock from California in 2002. A pest risk assessment resulted in regulated movement of highly susceptible species such as *Camelia*, *Rhododendron*, *Rosa*, etc. In 2005 the pathogen was found to infect conifer stems and an announcement in a publication that the pathogen was established in Canada caused Taiwan to immediately ban Douglas-fir imports from Canada. Importantly from the NZ perspective, a Canadian visit to Taiwan showing that the risk of *P. ramorum* from Canada was negligible because it wasn't established there and primary hosts such as bay laurel and tanoak were not present. This very quickly resulted in the ban being lifted.
- Phytosanitary issues are very important to Canada and they recognise the need to have a consistent, objective and scientifically robust process to determine and evaluate risk. Two of the researchers met were key players in the International Forestry Quarantine Research Group. This group meets in Rotorua in late 2017 and discussions will continue then.
- New Zealand's surveillance system is much more advanced than in British Columbia but in many ways that makes sense because the investment case is stronger. New Zealand is an isolated country that does not have the same level of pest pressure from neighbours that BC is subject to, and we are heavily reliant on one species.

Trapping at high risk area at the port

GM Surveillance programme

Gypsy moth surveillance is carried out by the CFIA, however FLNRO does conduct some trapping for the CFIA in more isolated areas where forestry technicians are visiting because the CFIA is mainly based in urban areas. The CFIA obtains vehicle insurance information from the BC Insurance Corporation to map where people have moved from the eastern US or Canada to BC. These people are considered to be a pathway risk for transferring gypsy moth from eastern North America to the west.

[12] FPInnovations are a not-for-profit organisation that specialises in the creation of innovative science solutions for the Canadian pest sector.

The gypsy moth grid is spaced at 1.6km and moves one grid north east each year for four years and then returns back to the original grid to reset. When there are 2-3 positive gypsy moths found in a trap the trapping density around that positive site is increased to 16 traps/ sq mile. If the catch numbers remain consistent at 2-3 the density is increased to 32 traps/ sq mile to delimit the extent of the population and get more accurate information to inform a potential spray programme.

Gypsy moth trapping typically takes place in May to September of each year but surveys are conducted for various pests throughout Canada from mid-April until the end of October depending on pest and temperatures within each year.

High risk site trapping

CFIA carries out forestry Invasive Alien Species (IAS) trapping programmes at high risk sites such as importing facilities (transitional facilities), landfills and container ports and harbours. The trapping is done using Lindgren funnel traps and generic forestry lures (ethanol and alpha-pinene) for bark boring beetles.

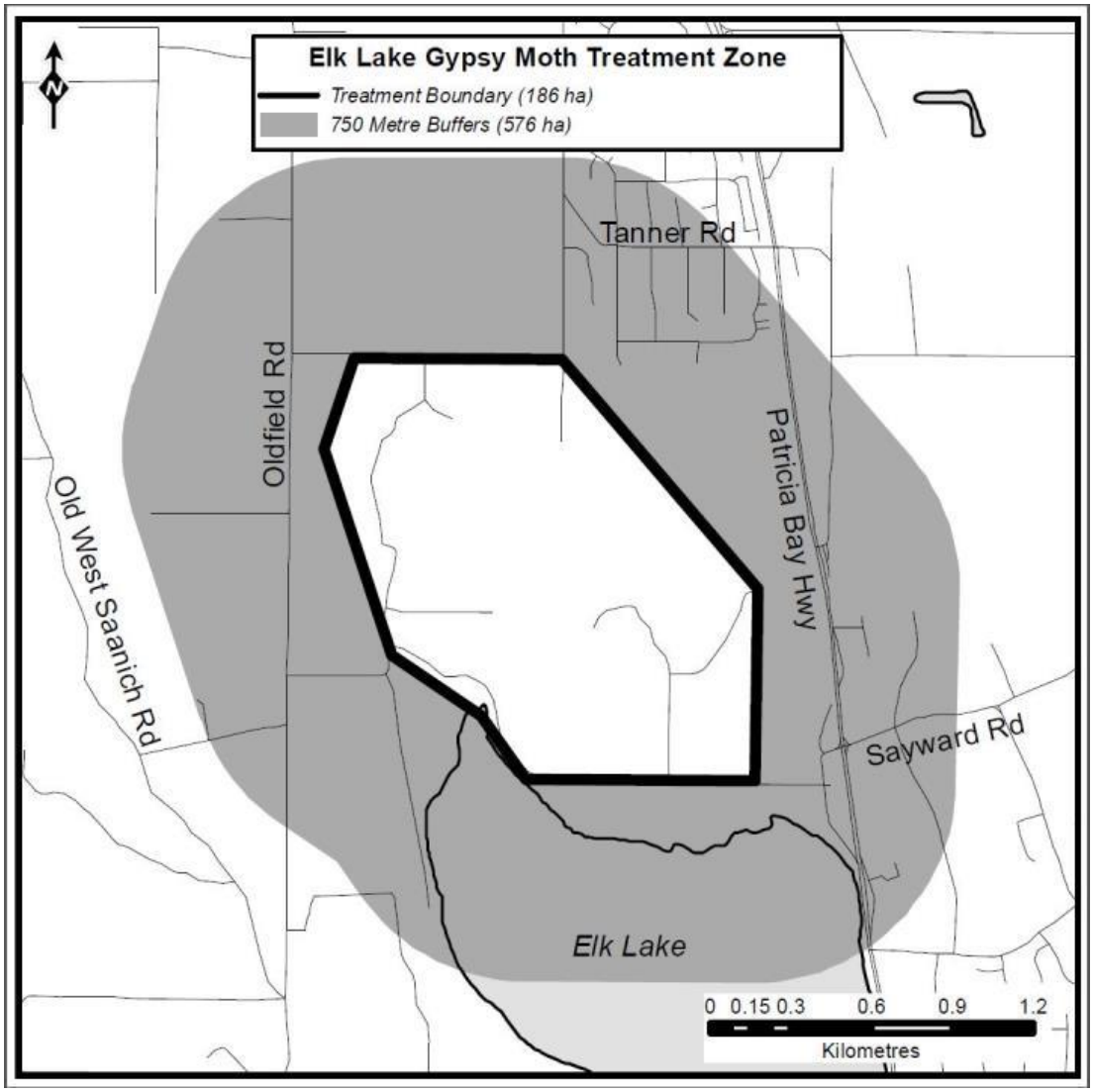
The CFIA also partners with cities at seven locations throughout Canada. If a city has noticed that a tree is in decline or dead, they remove it and notify the CFIA. While the tree is being removed sections (bolts) from the tree are cut off and taken to a CFIA rearing container. The bolts are waxed on the ends and hung in the climate controlled container with nets around each bolt to capture anything that might emerge. These bolts are kept in the container for three years or more. There have not been any significant finds since this was initiated in 2008 but there have been exotic pests that are already present in Canada reared from the bolts.

Image: tree bolts hanging in rearing container. Emerging insects fall to the base and are funnelled into a specimen container.

Appendices

1. Maps of ground and aerial spray areas

Spray area (aerial).



Spray area (ground)

2. Text from notification email

Below are two examples of email notification from FLNRO.

Notification of last round of treatment.

The last round of treatments for both Surrey and Saanich have been rescheduled by one day. Recent warm weather has increased the developmental rate of the gypsy moth caterpillars thus advancing the optimal spray date. The Surrey (Guilford) ground spray will now occur on Wednesday, May 31st from about 8 AM to about 2 PM. Door-to-door notification will be provided in ample time for residents to unlock gates, bring pets indoors, and cover or move items they don't want sprayed.

The Saanich (Elk Lake/ Bear Hill Regional Park) treatment will now begin at first light (~5:10AM) on Tuesday, June 6th, weather permitting. The treatment must end at 7:30 AM but the last application was completed before 7AM. The low flying, twin-engine aircraft will be flying from west of Oldfield/Bear Hill Road, over Bear Hill and proceeding across the Pat Bay Highway towards Cordova Bay. The aircraft will then make a wide turn and return in the opposite direction. This process repeats many times with one break to reload/refuel. In the two applications so far, the entire treatment has taken about one hour. Note that rain and high winds can delay or cancel a treatment at a moment's notice. Treatment will resume the next available suitable morning. Residents in the spray block who wish to avoid making contact with the spray are advised to stay indoors for up to a half hour after the aircraft has completed treatment. There will be a strong odour in the treatment area which will dissipate in a few hours.

Treated items can be cleaned by simply washing with water and a bit of scrubbing. Pre-soaking with a wet towel will soften the droplets and make them easy to remove. Produce can be eaten right after application but following normal hygiene processes and washing them before consumption is recommended.

No other treatments are currently planned for 2017. If poor deposits are identified in the aerial spray block, a touch up application may be required on next available spray morning although this is unlikely.

A final update will be provided once the operations have been completed.

Any changes to the schedule will be provided via this listserv, the web site (www.gov.bc.ca/gypsymoth), the 24 hour gypsy moth information line (1-866-917-5999), and social media (#GypsyMoth).

Notification reminder of aerial spraying

The 1st Saanich aerial spray application is scheduled for Wed. May 17th starting at around 5:20 AM and will be ending at 7:30 AM. The spray block should be completed in one morning unless delayed by poor weather (rain or wind). Note that the aircraft will be passing low over the Pat Bay Highway but not spraying. Motorists have been alerted via highway information signs. Please cover or bring indoors any items you might not wanted treated. Pets and livestock that may be frightened by the low flying airplane should also be brought under cover or indoors. Droplets, once hardened, can be removed from hard surfaces with water and a bit of scrubbing. Pre-soaking with a wet towel will make them easier to remove. Any produce treated should be washed before being consumed as you would do normally. Those wishing to avoid making contact with the spray should stay indoors for at least a half hour (8 AM) with doors and windows closed.

Any change to the schedule will be provided via an updated listserv message, gypsy moth information line outgoing message (1-866-917-5999) or the gypsy moth web site: www.gov.bc.ca/gypsymoth . Social Media will also be used. Follow #GypsyMoth. The second and third (final) applications will be done 7-10 days apart. An updated schedule will be provided later with the entire operation being completed in early June.

The second ground spray in Surrey (NW corner of the Guilford neighbourhood) will be treated on Tuesday, May 23rd starting from 8 AM and running to about 3 PM. Door-to-door notification of residents within the 26 ha spray area will be provided.

If you require any more information, contact me directly.

3. Written notices to residents

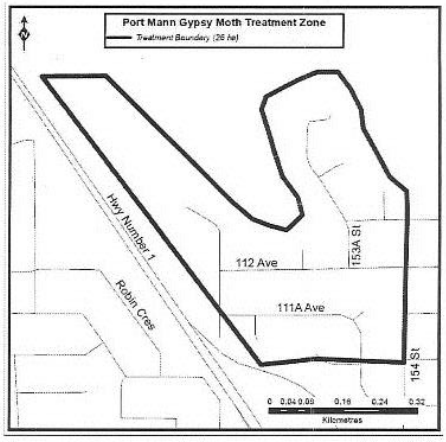
NOTICE TO RESIDENTS

GYPSY MOTH GROUND SPRAY CONCLUDED

The third spray has been completed. We thank you for your patience and co-operation. We won't bug you anymore!

If you have further questions, please contact the gypsy moth hotline (1-877-917-5999).

The results will be posted on the gypsy moth website www.for.gov.bc.ca/hfp/gypsymoth/ in November, 2017.



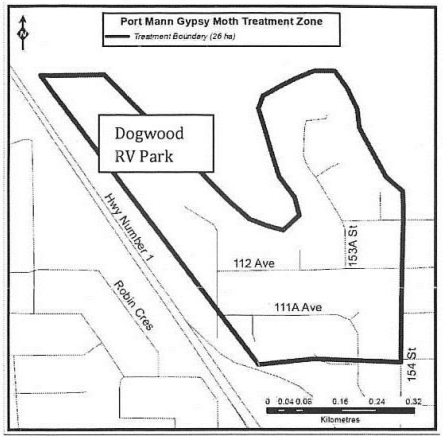
NOTICE TO RESIDENTS

GYPSY MOTH GROUND SPRAY SCHEDULED IN JUNE

If the weather is dry tomorrow, your area will be ground sprayed with Btk (*Bacillus thuringiensis* var. *Kurstaki* – commercial formulation of Foray 48B – P.C.P. # 24977) **for the third and LAST time.** As the caterpillars hatch out at different times, three sprays are required to ensure the entire emerging population is covered.

If you don't want us knocking on your door to let you know the spray crew visit is imminent, please write a note on the back of this flyer and attach it to your front door. We wish only to inform, not disturb your sleep if you are working night shift.

As before, it will take less than a day to complete the entire treatment area, with crews taking only a few minutes to treat an individual property, depending on the amount of trees and shrubs they need to treat. **Only trees and shrubs are sprayed, although some of the spray may drift a little**. To determine the approximate time they may be at your home, crews will start at 8:00AM; one In the RV Park, one starting on the southeast side of 112th and one starting on the right hand side of 153A St (corner at 112th Ave.) and working north. Once these areas are completed, they will move to the southern section of the block and finish on the north side of 112th Ave.



As we have not been notified of any rental units, please notify any other tenants on the property so they may take similar precautions with equipment and vehicles.

As the spray is a bit sticky and has an odour, it is advisable to close your windows while the crew is in your area. Covering outdoor equipment reduces the necessity of washing but soap and water is all that is needed to remove the residue. It does not harm painted surfaces such as cars. Food crops can be harvested and eaten immediately but, as with all products, should be washed before consumption. People with respiratory problems or allergies, and concerned about inhaling the spray, should stay indoors or leave the area during the process.

You can receive constant update information by subscribing to the Gypsy Moth Listserv. For further information, see the gypsy moth web site: www.gov.bc.ca/gypsymoth or call the 24 hour information line: 1-877-917-5999.

Thank you

4. Printed outreach materials

This information addresses the benefits of eradication of gypsy moth. Published by the Washington State Department of Agriculture's Asian Gypsy Moth eradication program (2016)

5. Links

Maps on this website:

http://www2.gov.bc.ca/assets/gov/environment/air-land-water/land/forest-health-images/gypsy-moth-treatment-maps/guilford.jpg

Pesticide use permit

http://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/forest-health/forest-pests/invasive-forest-pests/gypsy-moth/news

Integrated Pest Management Regulation

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/604_2004

http://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/forest-health/forest-pests/invasive-forest-pests/gypsy-moth/news

YouTube video addressing public health concerns

https://www.youtube.com/watch?v=FzTSmsxkJtc

CFIA Plant Protection Survey Report Executive Summary

www.inspection.gc.ca/plants/plant-pests-invasive-species/plant-pest-surveillance/2015-2016-plant-protection-survey-report/eng/1491588512535/1491588513206