

Introduction to the British Columbia

Japanese Beetle Response

2022 Edition

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Welcome to the 2022 Japanese beetle Response in British Columbia

As a leader, stakeholder, or industry member situated in BC's Lower Mainland, you have been invited to attend Zoom meetings regarding the ongoing Japanese beetle response and collaboration effort in British Columbia (BC) from **8:45 am - 12:00 pm on November 29th and 30th, 2022**.

This introductory package will provide you background information on:

- what Japanese beetle is;
- why it is a pest of concern;
- the history and progression of the Japanese beetle response in BC, including an introduction to the current, active members of the response, their roles and responsibilities;
- an overview of the Japanese beetle detections from 2017 to 2021;
- an overview of the current regulatory controls;
- an overview of treatment activities to-date;
- an overview of outreach activities to-date; and,
- a summary of the Canadian Food Inspection Agency (CFIA) 2022 surveillance results.

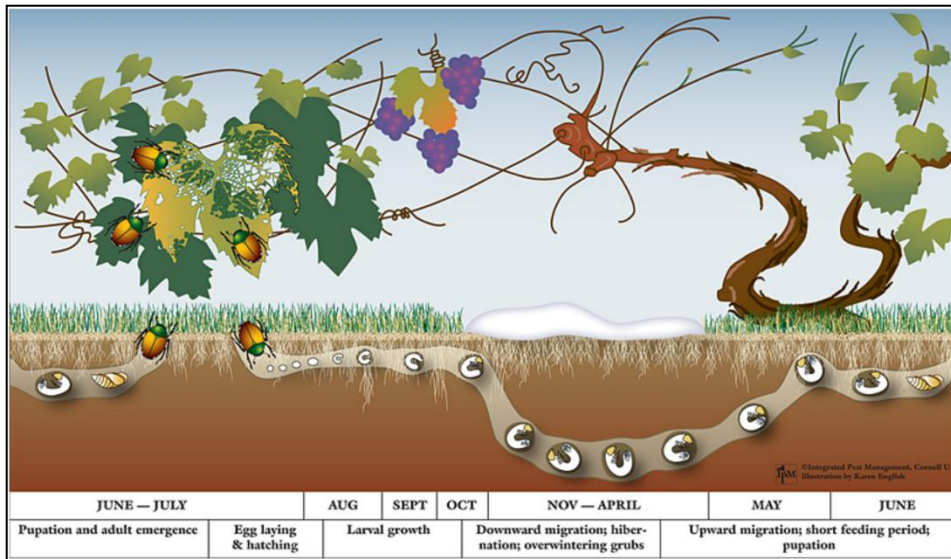
This information plays a critical role in informing your understanding about the Japanese beetle Response as we head into the November 29th and 30th meetings. We value your opinion and feedback as we collectively discuss the path forward and make recommendations for the Japanese beetle Response in BC in 2023 and beyond.



What is Japanese beetle (*Popillia japonica*)?



Popillia japonica is a **regulated and quarantine** pest in Canada. It is commonly known as “Japanese beetle” and referred to as “JB”. It originated on the main islands of Japan and was introduced to North America in 1916. Japanese beetle is now widespread in eastern North America.



Life Cycle

There are 4 life stages to this pest – egg, larva, pupa and adult. It is thought to produce one generation per year. A female beetle deposits up to **60 eggs** in soil within **2-5 cm of the soil surface**. Eggs hatch in about **two weeks**.



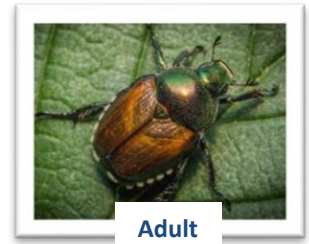
Larvae (grub)

Larvae begin to **feed on grass roots** through the end of **summer and fall** and begin their downward migration into the soil. **Larvae** spend the **winter from 5 to 30 cm below** the surface and migrate upwards to **resume feeding in the spring**. As a grub, the Japanese beetle looks and causes similar damage as the European Chafer beetle. Once **larvae** are full grown, **they pupate in the soil in May or June** for about **two weeks** before they emerge as adult beetles.

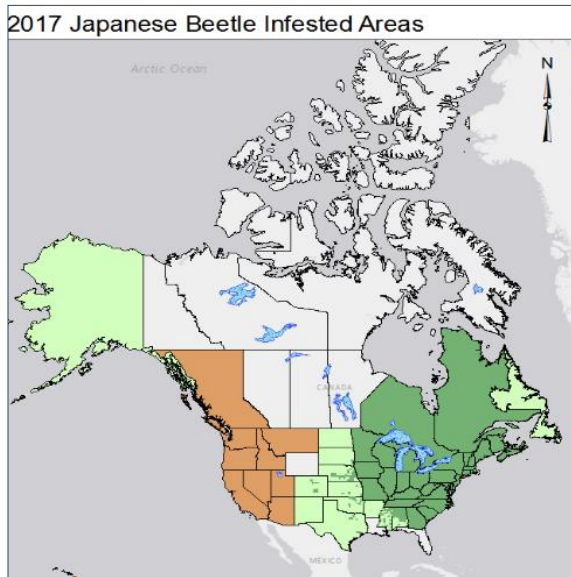


Adults emerge from the soil in summer (June/July) and are **active for 6-8 weeks mating and feeding** on fruit, flowers and foliage of a variety of plants. In regulated areas, this is known as the adult beetle flight period and occurs from June 15 to October 15 annually.

The feeding damage caused by the Japanese beetle as an adult, in addition to the damage caused while it feeds as a grub is what makes it so much more of a threat than the European chafer beetle.



Adult



Japanese beetle Regulatory Status in North America

There are different categories to identify the levels of JB infestation across North America (see map). Eastern USA and Eastern Canada – are partially or generally infested.

States along the West Coast of NA (California, Oregon, and Washington) are considered pest-free. Oregon & Idaho and other states in the Pacific Northwest are also battling introductions of JB

BC is the only province in Canada that is considered a **Japanese beetle pest-free area – we want to keep it that way!!!**

NORTH AMERICA REGULATORY STATUS

Categories:

- 1 – Pest Free Area
- 2 – Area of Low Pest Prevalence
- 3 – Partially or generally infested
- 4 – Not known to be infested



Why is Japanese beetle a pest of concern?

Japanese beetle causes damage during **two phases** of its life cycle; the larval and adult stages. Larvae feed on a wide variety of **plant roots**, reducing the plant's intake of water and nutrients. In this stage of development, they like to eat grass, ornamentals, shrubs, garden crops.

When the larvae feed on grass roots, it results in patches of brown dead grass which may feel spongy and can be easily pulled away.

The adults are **skeletonizers** – they eat the leaf tissue and leave the veins behind. Attacked **leaves look like lace** that soon withers and dies. They will often attack flower buds and fruit. JB adults attack **over 300 plant species**, including common landscape and food plants, including ornamentals, nursery stock, tree fruit, small fruit.

A favourite appears to be *Persicaria amplexicollis*. Adult beetles were found feeding on persicaria plants in David Lam Park. Other favourites include elm, maple, roses, grapevines, fruit trees, including peach, apple, apricot, cherry, and plum trees; blueberries, raspberries, blackberries; and, other small fruit.



The potential consequences of Japanese establishment in BC include severe damage to nurseries, farms, lawns, landscapes, golf courses, gardens and parks, and harm BC's horticultural and agricultural sectors. The spread of this beetle will result in increased costs to municipalities, industry and the public due to losses and JB control measures. Establishment may also result in the loss of BC's Japanese beetle pest-free status and industry requirements to set up and maintain JB certification programs.



The history and progression of the Japanese beetle response in BC

Japanese beetle was **first detected** by the CFIA in **David Lam Park** in Vancouver's **False Creek area** in **July of 2017** during routine annual surveillance activities. This was the first time Japanese beetle was detected in the Province of BC.

It is difficult to pinpoint exactly how the beetles arrived in British Columbia. Adult beetles are active flyers and unintentional human assistance is known to occur. Beetles can hitch a ride on clothing, vehicles, or other methods, and can be transferred through soil and plant movements.

In 2018, it was determined that no one organization held the key to eradication success and as a result the Japanese beetle Response was formed.

By federal Ministerial Order, a regulated area was created in the City of Vancouver to restrict the movement of plants and soil to prevent JB spread. The Province of BC issued treatment orders for all public lands within the regulated area.

Members of the response include the **federal, provincial and municipal governments**, along with **industry and other stakeholders**. These organizations have come together to form a **Japanese Beetle Steering Committee** which oversees the response activities and 3 sub-committees responsible for **Treatment, Movement Controls** and **Communications**. The committees provide valuable information about Japanese beetles to each other, as well as, to industry and the public on their respective websites. They are advised by members of the scientific community who sit on the **British Columbia Plant Protection Advisory Council's Japanese beetle Technical Advisory Committee** or "BCPPAC JB TAC". The Cities of Burnaby and Port Coquitlam recently joined these committees.

Roles and Responsibilities

Each member of the Japanese beetle Response has a different role which they are responsible for operationally and financially.

The Canadian Food Inspection Agency (CFIA)



The CFIA's role is to conduct surveys to find out where the beetles are located and determine if treatments are effective. The CFIA also implements movement restrictions for plants, plant material and soil originating from the regulated areas in BC.

The British Columbia Ministry of Agriculture, Food and Fisheries (BC AFF or "the Province")





The Province is leading the coordinated effort to eradicate Japanese beetle from BC in cooperation with the response members. The Province issues treatment orders on public and private lands, as required, and coordinates treatment planning.



The City of Vancouver (to include the Vancouver Parks Board)

The City of Vancouver is responsible for finalizing and implementing a treatment program of public lands in the City of Vancouver, in consultation with the Province, the CFIA and industry contractors, as required.



The City of Burnaby

The City of Burnaby is responsible for finalizing and implementing a treatment program of public lands in the City of Burnaby, in consultation with the Province, the CFIA and industry contractors, as required.



The City of Port Coquitlam (“PoCo”)

The City of Port Coquitlam is responsible for finalizing and implementing a treatment program of public lands in the City of Port Coquitlam, in consultation with the Province, the CFIA and industry contractors, as required.

Invasive Species Council of BC (ISCBC) and its partners



The Invasive Species Council of BC is a non-government charity, who works in close collaboration with local partners, governments and businesses with the goal of reducing the introduction and spread of invasive species. At the request of governments and industry, the ISCBC is serving as Project Facilitator to help facilitate multi-party planning and information exchange across government and non-government stakeholders.

BC Landscape and Nursery Association (BCLNA)

The BC Landscape and Nursery Association provides industry perspective and outreach to its members who are or may be directly impacted by the Japanese beetle response.



Other response members include:

- **Canadian Agricultural Partnership**
- **Investment Agriculture Foundation of British Columbia**
- **Metro Vancouver Regional District**

An Overview of Japanese beetle Detections: 2017 to 2021

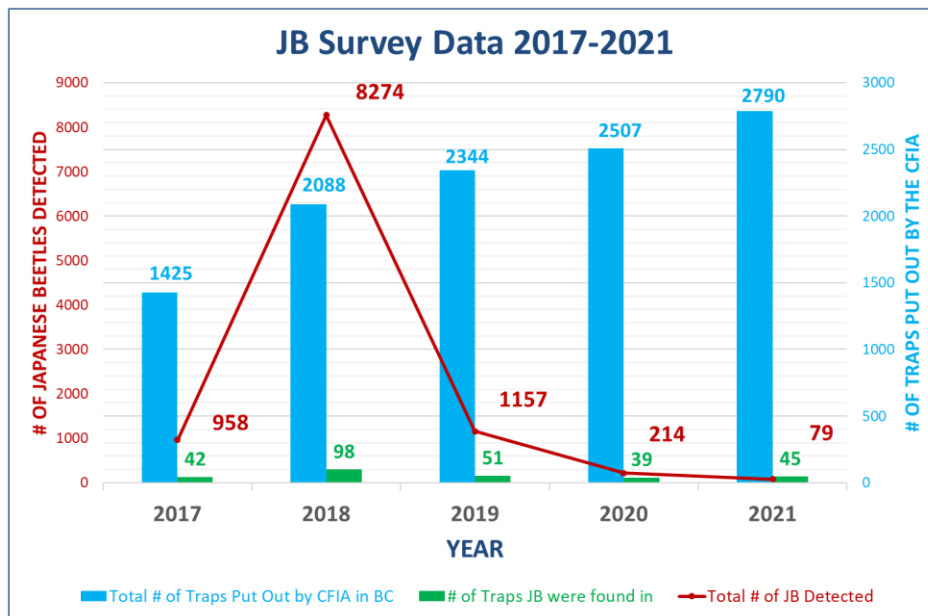
Japanese beetle Surveillance

The CFIA conducts annual surveys for **Adult JB from June 10 to October 15** (typical JB flight season). Trap placement begins in late April. Early placement is due to the number of traps being deployed. Traps are checked every three weeks, while high risk, peak flight sites are checked once per week. Traps use a lure which has a floral and sex pheromone combination.



This picture shows the types of traps CFIA uses. There is a green and/or yellow wing vane over a funnel which is attached to collection chamber. The CFIA use three types of traps: ground, canopy, and roof traps. There is a tag attached to the traps explaining what they are. The CFIA asks that the traps be left alone and that traps which are damaged, have fallen or may be missing, are reported to the CFIA as soon as possible!

Overall, the number of Japanese beetles continues to trend downwards. **This shows that treatment works.**



The red line on this graph shows the number of beetles found over the last five years, from 2017 to 2021. The blue bars show the total number of traps put out by the CFIA, and the green bars show how many traps JB were detected in.



NUMBER OF ANNUAL JAPANESE BEETLE DETECTIONS IN BC FROM 2017 TO 2021

YEAR	Total # of JB Detected	# of Traps beetles were detected in	Total # of JB Traps put out by the CFIA	Locations of the detections
2017	958	42	1425	Vancouver
2018	8274	98	2088	Vancouver Delta (1)
2019	1157	51	2344	Vancouver
2020	214	39	2507	Vancouver Port Coquitlam (1)
2021	79	45	2790	Vancouver Burnaby (5) Port Coquitlam (1)

TIMELINE NOTES:

2017: This is the first year Japanese beetle was detected during routine CFIA surveillance.

2018: The regulated area in Vancouver was established through a federal *Ministerial Order*.

The JB Steering and Sub-Committees were formed.

The Province of BC issued *Treatment Orders* to the City of Vancouver.

2019: Several beetles were found west of the regulated area during 2018 led to a revised federal *Ministerial Order* in 2019 which included Stanley Park and Kits Point.

First indication of the efficacy of treatment – 8274 to 1157 beetles within the Vancouver regulated area.

2020: The total number of beetles detected included two JB found outside of the regulated area: one found in Vancouver; one found in Port Coquitlam.

2021: 79 Japanese beetles were detected in BC. Of these detections, 29 were detected inside Vancouver's previous JB regulated area (RA); the remaining 50 beetles were detected outside of the previous RA, within the cities of Vancouver, Burnaby and Port Coquitlam. The number, sex and locations of the JB detected outside of the previous RA suggested at least two new satellite populations of JB had established in the Cities of Vancouver and Burnaby. This was the highest number of Japanese beetles found outside of the Vancouver regulated area since a RA was first established in 2018.



Current Regulatory Controls

As a result of the number of detections found in 2021 which were outside of the Vancouver regulated area, in March 2022, a federal Ministerial Order (MO) was signed by the Honourable Marie-Claude Bibeau to **expand the JB regulated area in Vancouver** and **create a new regulated area in Burnaby**.

Movement of certain items out of these areas are under regulatory control. Controls are established under *the Plant Protection Act* and the *Ministerial Order*.

The expansion allows regulated articles to move **only within these areas** without certification, in order to, prevent the unintentional human-assisted spread of Japanese beetle into pest-free, unregulated areas.

The CFIA is the regulatory body that enforces the *Plant Protection Act, Regulations* and associated *Orders*. When issues of non-compliance are observed, the CFIA will follow the [Agency's Compliance and Enforcement Operational Policy](#).

Where potential non-compliance is found, CFIA will provide the regulated party with the opportunity to regain compliance. One of the enforcement options is to issue an Administrative Monetary Penalty which is a Notice of Violation with a warning or it can include a penalty. Penalties for individuals can range from \$500 to \$1,300 and \$1,300 to \$10,000 for violations committed during the course of business

What are “regulated articles”?

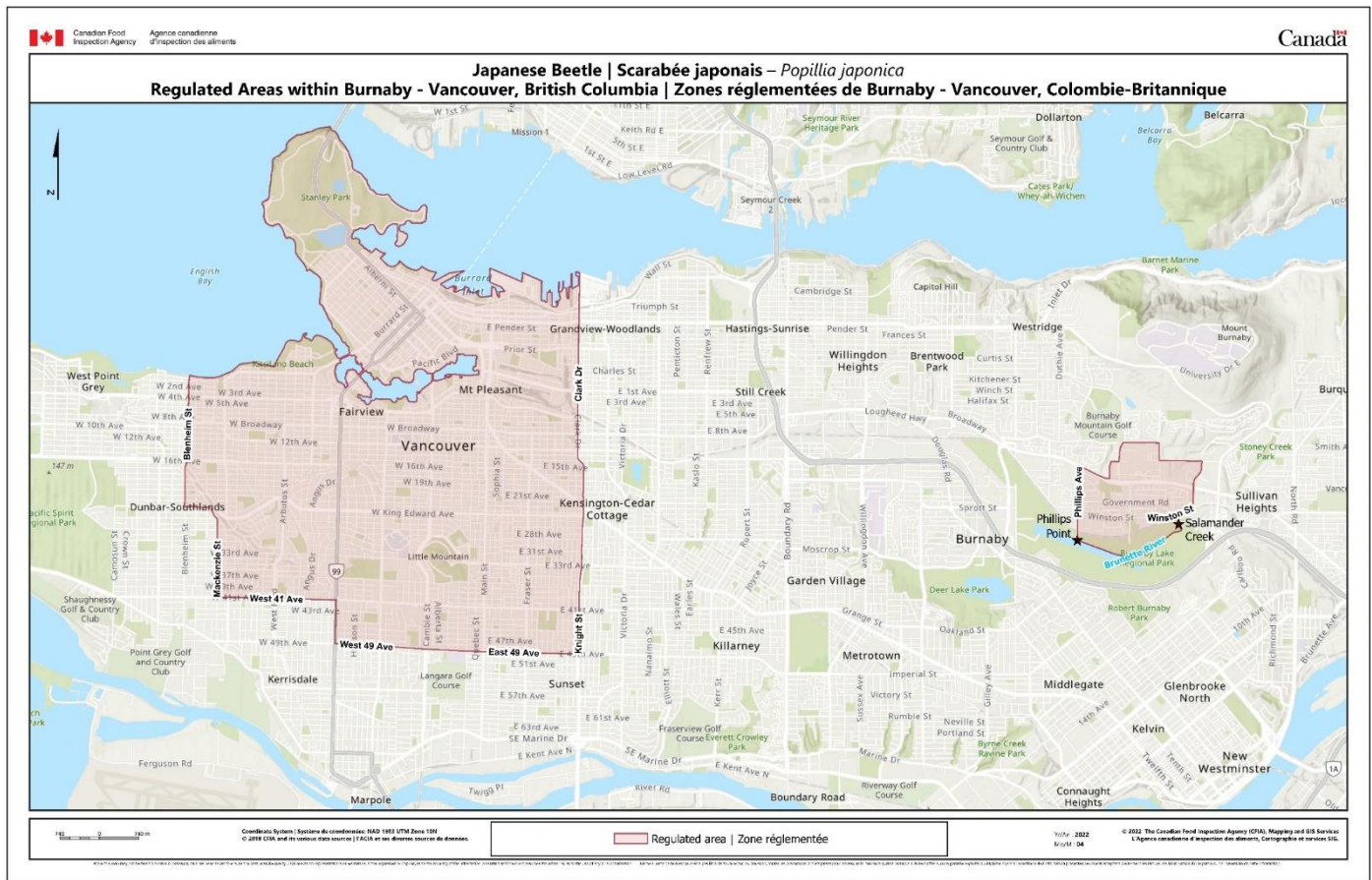
- Regulated articles are things that are infested or likely to be infested with Japanese beetle when originating from a regulated area.
- Regulated articles include things that may be a pathway for the movement of Japanese beetle eggs, larvae, pupae and/or adults.

A CFIA-issued **movement certificate is required** to move **all** of the following Japanese beetle regulated articles **outside of a Japanese beetle regulated area**:

- **soil** (of any depth), year-round
- **plants with soil**, year-round; and
- **plants and above-ground parts that are substantially free from soil**, during the Japanese beetle flight period which takes place from June 15 to October 15 each year



Current Japanese beetle regulated areas in BC



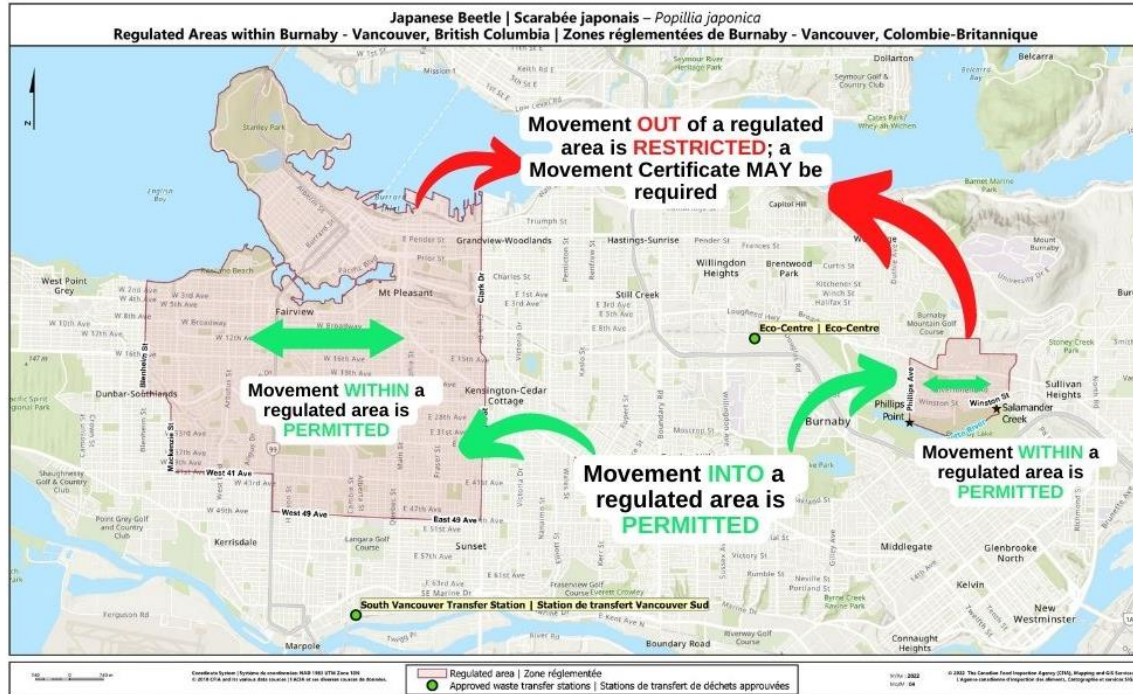
This map shows where the current regulated areas are in BC. There is a regulated area within the City of Burnaby and another regulated area within the City of Vancouver.

It is important to note: Considerations when establishing the boundaries of the current regulated areas included the location of the single detection in Port Coquitlam in 2021, previous detections and subsequent years of trapping, and expectations concerning the natural spread of the beetle.

If a regulated area takes effect, what happens?

Regulated areas are established to restrict the spread of unwanted pests outside of those areas. This is achieved by maintaining and enforcing restrictions on the movement of potentially infested articles out of areas where a quarantine pest has been found. In the case of JB, the regulated articles include soil, all plants with soil and above-ground plant parts without soil. Regulated articles can be freely moved within a regulated area, but cannot be moved outside of a regulated area without a CFIA Movement Certificate. Any person who violates these prohibitions or restrictions of movement may be subject to a fine and/or liable to prosecution.

This map gives a general overview on how movement restrictions work for regulated articles:



- Movement **WITHIN** a regulated area is **permitted**. Items can move freely.
- Movement **INTO** a regulated area is **permitted**.
- Movement **OUT** of a regulated area is **RESTRICTED**; a **Movement Certificate MAY be required**.

An Overview of Treatment Activities to-date

When Japanese beetle is detected, the Province of BC may issue a provincial a Treatment Order, or *Notice to Treat*, for public or private lands at and around the detection site(s). Treatment areas are not always within regulated areas, particularly if then affected site is new and Japanese beetle has not been previously detected there. Treatments are applied with ground equipment by trained and licensed pest management specialists in accordance with Pest Regulatory Management Agency (PMRA) standards and will be as unobtrusive as possible.

When a Treatment Order is issued:

- a larvicide, Acelepryn (*chlorantraniliprole*), may be applied once per year in April-September to turf in the infested areas to kill Japanese beetle larvae. Acelepryn is a reduced risk product approved by Health Canada.
- a foliar (leaf) application of the biological insecticide BeetleGONE!, *Bacillus thuringiensis* subsp. *galleriae* (Btg), may be applied to foliage during the Japanese beetle flight period in areas where adult beetles are suspected. Depending on the weather and



beetle development patterns, up to four applications may be required, generally at one-week intervals in between June to August.

The Province coordinates treatment plans with the municipalities, the CFIA, landscapers, and other partners based on identified priority areas.

The municipalities coordinates the treatment of public lands with turf grass and landscapes at risk where Japanese beetle has been detected. Treatment of private lands is coordinated by the municipalities, licenced applicators, and the Province.

The larvicide used to treat for this pest, Acelepryn (*chlorantraniliprole*), is a reduced risk product approved by Health Canada. The product is applied by ground application once a year, and the Japanese beetle larvae contact or ingest the chemical while they are feeding on turf and plant roots. Acelepryn was selected for the treatment due to its very low toxicity and favourable environmental profile. The larvicide controls root-eating grubs, and will not impact people, pets, mammals, birds, bees, butterflies or other plants and animals, including any mammals or birds that eat the treated grubs. The treatment will be applied manually by trained and licensed pest management specialists and will be as unobtrusive as possible.

The biological insecticide used to protect foliage (leaves) is a low-risk product approved by Health Canada. It will be used in any locations where adult beetles or feeding is found on landscape plants.

In 2018, 2019 and 2020, the treatment orders of public lands were issued within the City of Vancouver where Japanese beetle was detected the same or previous year. In 2021 and 2022, the treatment areas included sites within both the Cities of Burnaby and Vancouver. In May of 2022, the City of Port Coquitlam also applied treatment to a Japanese beetle detection site identified the previous year.

Treatment has proven effective in reducing the number of beetles within the Vancouver regulated area from 2017 to present day. **Note:** A time lapse which shows the reduction of beetles will be included in the planned discussion on November 29th.

An Overview of Outreach Activities to-date

The members of the response have conducted outreach to individually and collectively support each organization's specific area(s) of responsibility in the collaborative response. All members conduct outreach to the public and industry groups to increase reporting of the beetle presence, increase awareness and prevent further spread. Specific messaging and communications products have been developed for those who may be impacted by detections, may be near or within a regulated area, and specific audiences who may be impacted or interested by the response activities (i.e. retailers, growers, strata residents, master gardeners, et al.).



Japanese beetle outreach examples include:

- **social media messaging** (Facebook, Instagram) and **geo-targeted advertising** (via municipal waste collection apps and other platforms);
- **signage** (road signs, on garbage trucks, treatment placards);
- **pamphlets, posters, fact sheets, stickers, tattoos, etc.** for in-person distribution at municipal transfer stations, municipal construction permit offices, retail locations, etc. PDF versions are also available for email inclusion;
- **information Cards** distributed via Canada Post (related to the regulated areas, movement controls, or treatment);
- Invasive Species Council of BC (ISCBC) **Japanese beetle Ambassadors** conduct outreach for the response. They have attended farmer's markets, home and garden shows, local festivals, and gone to schools, master gardener meetings, retail locations, tourist destinations, etc. to provide information about Japanese beetle;
- ISCBC has also developed **videos** which are available on YouTube and discuss what CFIA surveillance/trapping looks like, how a landscaper can tarp their load properly, etc.;
- the BC Landscape and Nursery Association (BCLNA) facilitates **Landscaper and Retailer Technical Sessions** where the CFIA and Province present information to industry members about Japanese beetle;
- **web pages** specific to Japanese beetle (see list below); and,
- much more!

Information has also been prepared in Simplified Chinese, Traditional Chinese, English, French, Italian, Japanese, Korean, Punjabi, Tagalog and Vietnamese.

Japanese beetle web pages:

Additional information about the Japanese beetle response can be found on the following web pages:

- **CFIA:** [English]: inspection.canada.ca/JB | [French]: inspection.canada.ca/SJ
- **Province of BC:** gov.bc.ca/japanesebeetle
- **City of Burnaby:** burnaby.ca/japanesebeetle
- **City of Port Coquitlam:** portcoquitlam.ca/japanesebeetle
- **City of Vancouver:** vancouver.ca/japanesebeetle
- **British Columbia Landscape and Nursery Association (BCLNA):** bclna.com
- **Invasive Species Council of BC (ISCBC):** bcinvasives.ca
- **British Columbia Plant Protection Advisory Council (BCPPAC)**



Summary of the CFIA's 2022 Surveillance Results

In 2022, the CFIA deployed over 5800 JB traps in the Lower Mainland during the Japanese beetle flight season from mid-June to mid-October.

In 2022, beetles have been found:

- inside the Burnaby and Vancouver regulated areas, and
- outside the regulated areas in the cities of Burnaby, Port Coquitlam, Richmond and Vancouver.

Beetles have not been detected in any other municipality within BC to-date this year.

Due to privacy considerations for residents, the exact locations of the detections cannot be shared, but will be discussed during the meetings on November 29th and 30th.

Next Steps

Once the Japanese beetle surveillance data has been collected, it is assessed by scientific experts, including members of the British Columbia Plant Protection Advisory Council (BCPPAC) Japanese beetle Technical Advisory Committee (JB TAC), who will then make recommendations for 2023 along with the JB Steering Committee and sub-committees. Recommendations may impact the surveillance plan for 2023, movement controls, treatment and communications activities in 2023.

- Recommendations will be made to the federal Minister of Agriculture through a governance process regarding whether a new, expanded and/or decreased regulated area is beneficial to the Japanese beetle response. Recommendations will also be made regarding regulated articles (i.e. green waste).
- As mentioned earlier, many factors are considered when establishing or amending a regulated area.
- BC will maintain its Japanese beetle pest-free status while an eradication response is underway.
- Recommendations will also be made to the Province regarding treatment activities in the areas at and around the detection sites.

The discussions which occur on November 29th and 30th, along with the feedback you provide from your organization's perspective, will help to inform these recommendations.