

City of Richmond

# Pesticide Reduction & Invasive Species Management – 2023 Update

Enhanced Pesticide Management Program & Invasive Species Action Plan





Giant hogweed specimen – If exposed, Giant Hogweed’s sap can cause severe burns

Richmond City Council adopted the Enhanced Pesticide Management Program and the *Pesticide Use Control Bylaw No. 8514* in 2009 with the objective of reducing the use of traditional pesticides, based on a level of risk and benefit. The City’s program has been recognized for its integrated management approach, which includes educational programming and outreach initiatives that are designed to empower residents with information related to the effects of pesticides and potential alternatives.

Subsequently, the Invasive Species Action Plan was adopted under the Enhanced Pesticide Management Program (EPMP) in 2015, which has allowed for a strategic, risk-based approach to prioritize the management of invasive species that pose immediate and long term threats to civil infrastructure, local ecology, and human health. As Richmond experiences climate change and associated ecological shifts that influence the proliferation of invasive species, the Invasive Species Action Plan (ISAP) enables Richmond to adapt and respond to these shifts, as well as to changing senior and local government priorities.

Richmond’s EPMP and ISAP include detailed strategies and actions organized around the following four pillars to achieve City initiatives:

- **Leadership & Innovation**
- **Partnership**
- **Public Outreach & Engagement**
- **Invasive Species Treatment**

This document follows an update issued in 2021. The information below summarizes achievements in 2022 and 2023 in implementing the EPMP and ISAP, and highlights future actions. The program continues to take preventative approach to integrated pest management, as well as considering potential impacts from forecasted changes in climate and local ecology.

The City is also committed to identifying invasion pathways to prevent further introduction and establishment of new invaders.

## LEADERSHIP & INNOVATION

### KEY ACHIEVEMENTS

**Technical innovation:** The City completed treatment of an infestation of Brazilian elodea, an aggressive aquatic invader, in 2021. In partnership with the province, staff utilized a novel suction dredge technology to remove Brazilian elodea from a water feature without the use of pesticides. The technology is a custom, water-based water craft that is able to extract and filter aquatic threats such as Brazilian elodea through a specialized suction technology. Staff are now actively monitoring the historic infestation site near Garry Point Park for regrowth of Brazilian elodea. To date since the conclusion of the pesticide-free trial in 2021, no regrowth has been noted at any time.

2  
years  
of no observed  
regrowth of a historic  
Brazilian elodea  
infestation site

**Technical contributions and partnerships:** Staff continue to contribute technical insight and content to a regional document series developed by the Metro Vancouver Regional District and Invasive Species Council of Metro Vancouver. The document series currently consists of 22 technical documents (an increase of 5 since 2021) and associated fact sheets that provide public education on invasive species management best practices.

**City-wide pollinator award:** Richmond's City-wide pollinator program was awarded the Canadian Association of Municipal Administrators, Environmental Leadership and Sustainability Award in 2022. The award recognizes the City's proactive approach to supporting chemical-free practices and protect pollinator habitat through community programming, including maintaining over 10,000 square metres of pollinator habitat in Richmond; equivalent to the size of approximately two football fields.

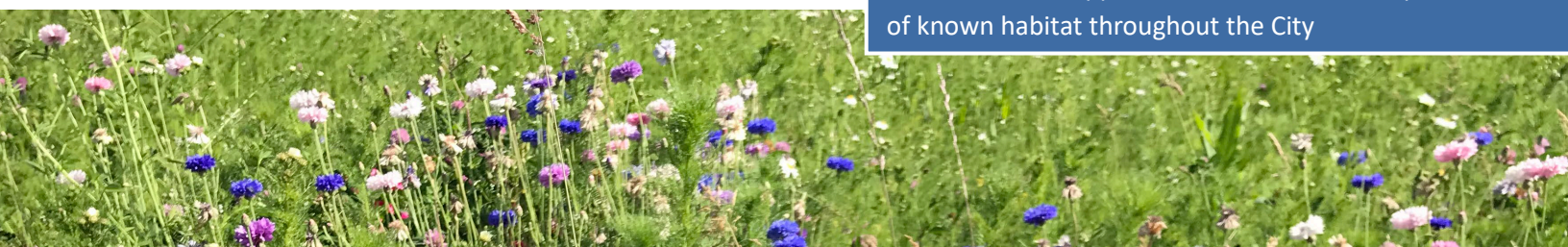
5  
additional technical  
Best Management  
Practice documents  
published

**Canadian Bee City certification:** The City became the sixth city in BC to become a Bee Certified City by Pollinator Partnership Canada in 2022. Bee City Canada is a voluntary membership program that recognizes Local Government efforts to protect pollinators and their ecosystems through conservation, education, and research.

**Public notification:** To address community concerns related to the City's knotweed treatment program, staff improved the public notification process in 2017. The process notifies residents near treatment sites, through letters, of upcoming treatment activities – over 350 letters have been sent annually to residents notifying them of nearby knotweed treatment activities. The notification process has since been adopted to additional invasive species management programs, notably the Japanese beetle treatment that occurred in spring 2023.

over 700  
public notifications  
sent through  
knotweed  
management

Pollinators are supported with over 27,000 square metres of known habitat throughout the City



## PARTNERSHIPS

### KEY ACHIEVEMENTS

**Province of British Columbia:** The City worked closely with the Province of BC to develop and maintain standards for Early Detection and Rapid Response, a “proactive approach to managing new invasive species to BC that prevents establishment and subsequent impacts through targeted species risk assessment, verification, containment, and eradication”. This partnership is maintained yearly through grant funding for education and awareness within the City, as well as a standing objective to collaborate on any new species that present themselves in City limits.

**Invasive Species Council of Metro Vancouver / British Columbia:** The Invasive Species Councils of Metro Vancouver and British Columbia provide assistance in research, confirmation of invasive species, educational materials, and public engagement. The City participates in regional programs hosted by the Invasive Species Councils, such as Don’t Let it Loose, Clean Drain Dry, and Plantwise – programs designed to encourage proper management of invasive species and native planting.

**Ducks Unlimited Canada:** City staff are active participants in Metro Vancouver’s invasive cordgrass working group, which include monitoring sites on Sturgeon Bank since 2003. The City also supported a regional Pesticide Use Permit renewal for the project in 2019. To date, only one seedling has been detected on Roberts Bank, and the individual was removed by hand in the field by program consultants.

**Canada Food Inspection Agency:** When requested, the City supports investigations and placement of traps at various sites in search of a variety of invasive insects that are a threat to the region, notably the presence of Japanese beetle since 2018.

**Participation in regional management groups:** The City participates in both the Regional Invasive Species Working Group, and the Soil and Invasive Species Working Group. The groups are both tasked with increasing working regional knowledge of invasive species management best practices, and identifying gaps in knowledge as well as supporting research and novel management techniques.

**Academic / research institutions:** City staff maintain working relationships with academic institutions, to bolster capacity for correct identification of invasive organisms to the species level. Of note is work conducted with Ducks Unlimited on invasive cattails and with KPU identifying and protection of Vancouver Island beggarticks.

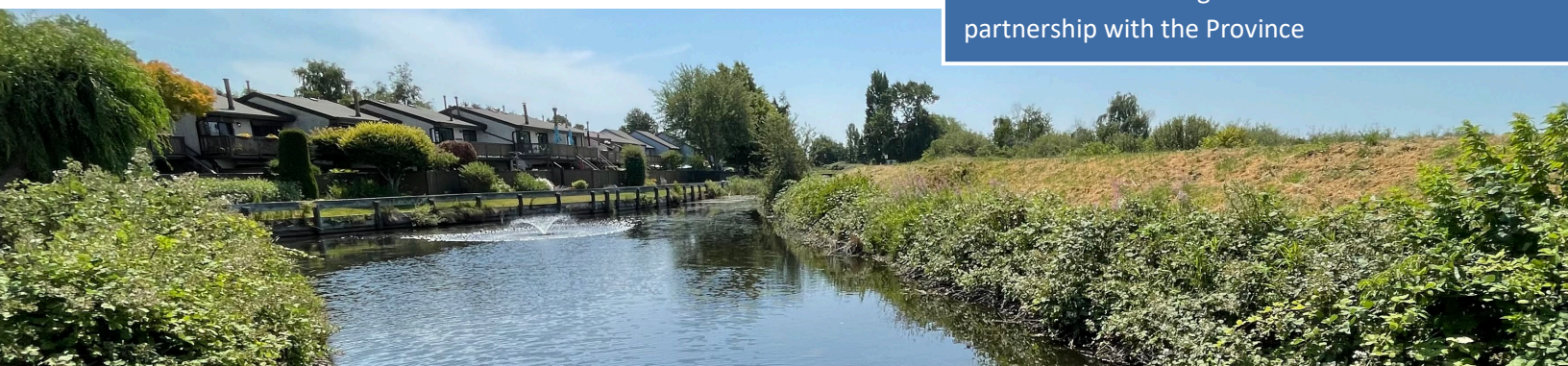


Provincial partnership for Brazilian elodea management



Japanese beetle have been placed throughout the City – a single individual was detected within the City in 2022.

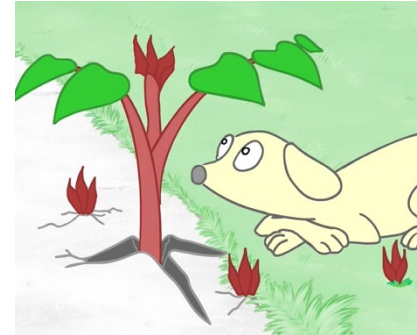
Water feature managed for Brazilian elodea in partnership with the Province



## PUBLIC OUTREACH & ENGAGEMENT

### KEY ACHIEVEMENTS

**Knotweed video:** As part of the suite of educational materials staff provide to residents on invasive species management, an animated video is being produced on knotweed impacts and management. The video will provide information on knotweed biology and management tactics, and will further encourage residents to conduct their own research, or speak with a staff representative if they want to learn more. The video is expected to be completed before the end of 2023, and will be published on the City’s website and social media channels.



Screen capture of forthcoming knotweed educational video

**Richmond Nectar Trail:** Launched in 2020 in partnership with Border Free Bees, the Nectar Trail initiative concluded in summer of 2022. The initiative activated the community and improved habitat connectivity for native pollinators in the urban environment. At its conclusion, over 60 sites throughout the City that include private properties, city facilities, schools, and parks were registered; all committed to maintaining pesticide-free habitat to benefit local pollinators.

**Community workshop programming:** Free community-led workshops are offered annually to residents through the EPMP that includes a variety of education programming to inform the community about the pesticide restrictions and promote natural gardening and pest solutions. This includes a series of natural gardening workshops to help residents learn proper plant care and sustainable pest solutions. Over 30 environment focused workshops were delivered through various City departments in 2022 and 2023.

**Public accessibility to information:** Staff maintain dedicated email and phone lines and encourage the public to contact staff with any inquiries related to pesticides and invasive species. Staff have responded to over 100 invasive and pesticide related resident inquiries via the email and phone hotlines in 2022 and 2023 to date.

**Support to local pesticide retailers:** Ongoing support is given to local pesticide retailers to assure compliance with changing provincial legislation, and the City’s *Pesticide Use Control Bylaw No. 8514*.

**Community Invasive Species Pulls:** Through various programs, City staff provide opportunities for residents to get involved with hands-on invasive species management in their communities and parks. Weed pulls, focussing on blackberry and other mechanically controllable invasive species, and subsequent replanting of the sites contribute to invasive management and site restoration efforts in Richmond. In 2022 and 2023, 9 events were held and attended by 180 residents

64

sites registered in the Richmond nectar trail

180

volunteers engaged through community weed pulls and restoration events

**Invasive species action month:** The City participates in the provincially-recognized Invasive Species Action Month to raise community related in invasive species in Richmond. Weekly themed displays were featured in the City Hall galleria and Richmond Public Library, as well as use of social media during the month to educate residents on the importance of invasive species management.

**Demonstration lawns:** Traditional grass lawns are susceptible to Chafer beetle infestation, drought, and offer lower habitat benefits. The City maintains four demonstration plots at Terra Nova Park to display practical alternatives to traditional grass lawns. Unlike conventional grasses, the alternatives presented at Terra Nova can reduce the reliance on pesticides, are drought tolerant, and are aesthetically pleasing.

**City Nature Challenge 2022/2023:** The City Nature Challenge is a month-long event in which residents were encouraged to document Richmond’s biodiversity through the iNaturalist application on mobile devices. In addition to native flora and fauna, residents were encouraged to identify and report invasive species they may have come across. Reports that came through during the challenge include yellow flag iris, Himalayan blackberry, and reed canary grass.

**Social media:** Social media platforms such as Twitter and Instagram continue to be utilized to communicate topics related to invasive species. Posts about events such as Invasive Species Action Month and occurrences of new potential invaders such as the northern giant hornet and Japanese beetle have effectively notified residents and continue to receive positive feedback when issued. In 2022 and 2023 to date, 21 social media posts related to invasive species prevention and management have been published on the City’s communications channels.

**Public notification:** During the course of regular field work, if staff identify invasive species on or near private land, owners will be notified via letters informing them of risks, best management practices, and offering city staff assistance in steps to take. Letters are met with appreciation, typically with residents responding with thanks and a desire to learn more about the identified species and how best to manage them.



A post from the City’s Instagram account, highlighting Invasive Species Action Month

21

social media posts published highlighting invasive species and City programs



Demonstration lawns highlighting alternatives to traditional lawns have been installed at Terra Nova Park



# INVASIVE SPECIES MANAGEMENT

## KEY ACHIEVEMENTS

**Knotweed:** The program currently manages 261 knotweed sites, equal to approximately 2.5 hectares. Most of these sites are currently in a monitoring phase, with no observed regrowth. Knotweeds are a top 10 invasive species for control in BC and a priority species in the ISAP. Knotweeds are also designated as provincially noxious under the Weed Control Act and must be controlled. Richmond has implemented an annual treatment program on city land, which continues to successfully reduce the spread of knotweed. Residents are also required by the Province to control knotweed on private property. The City also maintains various informative material on Richmond’s website to support residents with the management of knotweed on private land.

261

actively managed and monitored knotweed sites

**Himalayan blackberry:** Himalayan blackberry is designated as a regional containment and control species by the province that is incredibly difficult to manage but it is not listed as a noxious species. In 2022 and 2023, over 20 hectares of blackberry has been removed from City properties and infrastructure from development, enhancements and operational activities.

over 20 ha

Himalayan blackberry managed

**European chafer beetle program:** The City successfully manages over 3 hectares of public property with pesticide-free alternatives and biocontrol products in response to Chafer beetle infestations. Chafer beetles feed on the roots of turf grass and can cause serious damage to green spaces. They are a nuisance pest as they infest traditional lawns and attract predators such as crows, skunks, and raccoons that damage property as they dig for larvae. Staff introduced a 50% rebate for residents to control Chafer beetle infestations with nematodes. Residents were encouraged to sign up for the rebate using the MyRichmond portal and distribution was facilitated at the City’s Works Yard.

**Parrot’s feather:** Parrot’s feather is an aggressive aquatic invader that impacts the City’s drainage system. The City’s drainage and environment staff continue to take an aggressive approach to management when infestations grow large enough to impede flow. In 2022 and 2023, approximately 5000 linear metres of historic parrot’s feather sites were surveyed and had material removed where deemed necessary – costing over \$70,000 for person-time, materials, and tipping fees of parrot’s feather being removed from the City’s drainage network. Staff have also noted a reduction in biomass year to year utilizing mechanical control.

5 km

parrot’s feather monitored and managed

**Japanese beetle response:** The Japanese beetle is an invasive insect that is exceptionally efficient at feeding on a wide variety of plants and an infestation in BC poses a significant threat to the province’s agricultural sector. The federal Canadian Food Inspection Agency and BC Ministry of Agriculture manage the Japanese beetle response efforts in BC. Staff were notified in September 2022 that a single beetle was identified in Richmond’s City Center Neighborhood. Following a provincial order to treat this area, the City treated approximately 1 hectare of right of way and boulevards in this area in 2023. Over 400 notification letters were sent out to residents in the area prior to treatment and appropriate signage was placed in the area. The federal government resumed its regional Japanese

1 ha

City rights-of-way and boulevards treated for Japanese beetle prevention

## Pesticide Reduction & Invasive Species Management – 2023 Update

beetle trapping and monitoring program in April 2023. No new detections have been reported in Richmond since 2022.

**Brazilian elodea management:** City staff are actively monitoring a historic infestation site near Garry Point Park for regrowth of Brazilian elodea. To date since the conclusion of a pesticide-free trial in 2021, no regrowth has been noted at any time.

**Feral rabbits:** Feral rabbits in Richmond pose a threat to natural spaces, to the agriculture sector, and to local ecology and biodiversity. In a pointed effort to manage the population in Richmond, staff conducted a field study to estimate distribution and population of existing feral rabbits in Richmond’s public lands, as well as a literature review on the impacts of feral rabbits to better guide management options, and identified potential management practices of feral rabbits. Staff are currently examining the results of these studies and intend to implement practices to control the current rabbit population, and decrease expansion in the future.

**Rodents management:** The City has developed its own integrated pest management approach for rodents since 2021 that has included a rodenticide ban, private property home assessments, complaint response and new rodent abatement requirements for demolition applications. Staff coordinated 31 private property assessments and responded to 140 community inquiries in 2022 and 2023 to date.



Best management practices for pet rabbit surrenders have been communicated via social media and other communication channels

# 140

resident rodent inquiries addressed



Knotweed site delineated, signed, and prepared for treatment



## FUTURE OUTLOOK

**Updating the ISAP:** The City's ISAP was initially endorsed in 2016 and included a list of priority species based on an assessment to determine the potential risk that a given species poses to the community. Staff are updating the City's invasive species risk assessment to determine if changes or additions to the ISAP's priority species list is required. Staff will bring forward updates to Council following the assessment, as needed.

**Pesticide use permits:** The City currently manages knotweed and parrot's feather to protect infrastructure, reduce flooding and maintain biodiversity. Parrot's feather is currently being manually removed as are stands of knotweed along the dike when located below the high water mark, resulting on some plants being left untreated due to provincial restrictions. The province manages the use of pesticides near or in a waterbody through a pesticide use permit process. To reduce the City's climate related risks such as flooding, staff are considering assessing the benefits of a pesticide use permit to address persistent parrot's feather and knotweed infestations for these instances. The process for obtaining a provincial permit including guidelines for public and stakeholder engagement will be investigated. Staff will bring forward updates to Council following the assessment, as needed.

**Early detection and rapid response:** The City will continue to identify, track and control emerging invasive species such as Japanese beetle, Asian hornet and zebra mussels to protect Richmond from environmental or socioeconomic impacts.

**Business and public outreach:** Local business owners and residents can prevent the spread by restricting the sale, use and disposal of invasive species. Staff will continue to promote public awareness related to invasive species with residents and business owners.

**Support to academic institutions:** Local and regional partnerships with non-government organizations and local experts can result in more effective and collaborative solutions. The City will continue to seek opportunities to partner with local, regional, and provincial agencies to supplement invasive species management, including assessing alternatives to pesticides, supporting pollinators, and identifying new species such as invasive cattails. Risk assessments for new invaders, and shifting best practices due to changes associated with climate change will be essential to effective management in future years. The City will continue to explore opportunities for partnerships with academic institutions such as University of British Columbia and Kwantlen Polytechnic University, for research on invasive species ecology and best management practices.

**Partnerships:** Local and regional partnerships can result in more effective and collaborative solutions. The City will continue to seek opportunities to partner with local, regional, and provincial agencies to supplement invasive species management, including assessing alternatives to pesticides, supporting pollinators, identifying new species such as invasive cattails.

**Pesticide Use Control Bylaw update / Invasive Species Bylaw:** Despite all the voluntary compliance in the community under this bylaw, staff note that provincial requirements to control invasive species under the Weed Control Act is ineffective due to the lack of provincial enforcement. Staff are assessing options to address noxious weeds located on private property that encroach onto city lands and infrastructure. Staff will bring forward updates to Council following the assessment, as needed.



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