

PARKS, RECREATION AND CULTURE COMMISSION

*HIS WORSHIP, THE MAYOR
AND COUNCILLORS*

**SUBJECT: UPDATE ON THE BURNABY INVASIVE SPECIES MANAGEMENT
PROGRAM IN PARKS**

RECOMMENDATIONS:

1. THAT Council receive this report for information.
2. THAT a copy of this report be forwarded to the Environment Committee for information.

REPORT

The Parks, Recreation and Culture Commission, at its Open meeting held on 2021 December 07, received and adopted the attached report providing information on the Invasive Plant Management Program in Burnaby Parks 2021.

Respectfully submitted,

Councillor S. Dhaliwal
Chair

Commissioner B. Larkin
Deputy Chair

Copied to: Chief Administrative Officer Deputy Chief Administrative Officer - CFO Director Corporate Services



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Director's Report No.....	11
Meeting	2021 Dec 7

COMMISSION REPORT

TO: CHAIR AND MEMBERS
PARKS, RECREATION & CULTURE
COMMISSION

DATE: 2021 Dec. 01

FROM: DIRECTOR PARKS, RECREATION &
CULTURAL SERVICES

FILE: 02410-20

**SUBJECT: UPDATE ON THE BURNABY INVASIVE SPECIES MANAGEMENT
PROGRAM IN PARKS**

PURPOSE: To provide information regarding the Invasive Plant Management Program in Burnaby Parks 2021.

RECOMMENDATIONS:

1. **THAT** this report be received for information.
2. **THAT** Council receive this report for information and that a copy of the report be forwarded to the Environment Committee.

REPORT

1.0 INTRODUCTION

Invasive Species Management in Burnaby Parks began in 2009 with an Invasive Plant Survey, and Habitat Management Strategy. In 2018, a follow-up assessment was conducted. The field surveys focused on establishing the quantity and location of the top invasive plant species, at that time (Figure 1) and recommendations for treatment options. The summary findings of the survey noted that of the 1,786 ha. of Park lands in Burnaby, approximately 284 ha. or 19% of the total area have been infested with invasive species (Figure 2).

The Invasive Species Management Strategy identified and prioritized key invasive plant species locations and provided management practices to control or eradicate them based on the plant growth spread potential. The goal to *control the spread* of invasive species beyond their current areas, with recognition that total *eradication is unlikely* for any particular species.

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The Invasive Species Management Strategy created four Action Streams that continue to be employed to date: *manual* removal/maintenance, education and awareness raising, community participation in removal programs, and ongoing City participation in regional and Province wide initiatives.

Since 2009, recommendations from the Habitat Management Strategy and follow-up assessment, have been implemented and are ongoing. Each year, initiatives are reviewed and adapted based on field observations of successes and failures and new scientific information about the plants physiology in response to past treatments gathered from the larger regional body of information. The program has also expanded to include management of invasive wildlife and insects. A summary of the variety of plant and insect species managed through the program are captured in Section 3 of this report. The adaptive management approach has been an important part of tackling this very large environmental challenge particularly in light of changing environmental conditions that could be a result of changing climatic conditions.

2.0 POLICY SECTION

The Parks Invasive Species Management Program is aligned with the City of Burnaby's Corporate Strategic Plan by supporting the following goals and sub goals of the plan.

Goal

- A Connected Community
 - Social connection
- A Healthy Community
 - A healthy life
- A Dynamic Community
 - Civic facilities and infrastructure

3.0 BACKGROUND

The Invasive Species Management Strategy is enacted in four areas. The actions are described below:

3.1 MANUAL REMOVAL AND MAINTENANCE

Invasive plant removal is the largest part of the invasive species management program. Progress to date is captured annually and added to the overall tally of work (Figure 3). Removal, monitoring and maintenance of invasive plants occur through two methods: at an overall park level where all species within a specific park are treated and removed concurrently, and at a species level where specific plants are removed from all locations City wide in an effort to eradicate the species. A brief description of each approach is provided for information.

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Overall Park Clean Up Approach to Invasive Removals:

Park wide invasive clean ups occur at Cameron Park, George McLean Park, Taylor Park, Jim Lorimer Park, Second Narrows Park, Warner Loat, Central Park, Deer Lake Park and Burnaby Mountain Park. In addition, where major capital works are happening in other smaller parks, the site is added for general invasive clean up. Post removals and ongoing monitoring and maintenance program covers the entirety of these parks or the capital project area, and keeps invasive plants in these parks at low levels.

Species Specific removals

In this management approach, specific invasive plant species are targeted for removal no matter where they occur in the City park system. The target is to remove the entire species from the City. The selection of work area is the result of a number of factors: the size of the infestation, cost of removal, and environmental/social impacts of not treating the infestation. Some of the important species targeted for overall removal include the following:

- Butterfly bush and Pickerelweed were identified in the 2009 invasive plant survey as existing in sufficiently low numbers to be eradicated in Burnaby Parks, and have been targeted for removal in all parks. Removal and control of both species have been successful with a majority of the sites showing no evidence of re-growth for multiple years.
- Purple Loosestrife is specifically targeted along the shores of Deer Lake. Eradication is likely impossible, however, regular treatment is required to prevent the plant from taking over the entire shoreline of the lake. The total number of hours required to maintain the site and the plant mass removed each year has continued to decline.
- English ivy is widespread throughout parks. All hazardous English ivy infestations growing into the tree canopy have been treated. Removal and control efforts are in less hazardous/safety related areas, when the opportunity allows.
- Scotch broom was found in 36 parks and has been treated by manual removal since 2014. All sites are revisited and new growth that sprouts from the seed bank or old root stumps is removed every two to three seasons.
- English holly removal at Central Park began alongside the development of the Trail of Hope. The treatment program has now expanded to include all areas of the park.
- Knotweed species is the only invasive plant species where herbicide treatment is used. Herbicide is currently the most effective treatment for knotweed species. Following the City's Integrated Pest Management Policy, where manual treatment

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was not effective and in the lack of biological control, Parks was granted permission for an herbicide treatment trial in three parks in 2012. Since that time, under the City's Pesticide Use Bylaw, Parks has been adding knotweed treatment sites where infestations affect public safety and use. Application follows regional Best Practices. In 2021, Parks treated 192 infestations across 47 parks.

Over the years, new invasive species are continually moving into Burnaby, and require a quick action to ensure the species do not establish; these species require an **Early Detection and Rapid Response**. Burnaby staff, Regional or Provincial invasive species staff or sometimes members of the public detect these species. When detected, the response involves confirming the species and initiating required treatment as soon as possible. The infestation then joins the Parks Invasive Species Management Program, is monitored and maintained, until the species is eradicated or controlled. Recent new invasions include:

- Garlic mustard - Found at two locations in Burnaby, treatment involves digging to remove as much of the root mass as possible. Treatment is timed to prevent the plants from flowering and seeding, while removing new plants growing from the 'seed bank', seeds in the soil from previous years.
- Orange hawkweed – Found at Burnaby Mountain and Deer Lake parks, and some homes in those areas, Orange hawkweed is removed by digging, removing as much of the root mass as possible. Treatment is timed to prevent the plants from flowering and seeding, while removing new plants growing from the 'seed bank', seeds in the soil from previous years.
- Wild chervil – Recognized as a regional species of concern, Burnaby Parks has an infestation in three parks, and is treating where found.
- Cocklebur – reported by Burnaby Park's staff, at Deer Lake Beach. The infestation is removed by digging as much root mass as possible. The site is monitored annually and treated as required.
- Hemp nettle – reported by Burnaby Park's staff, at Deer Lake Beach. Hemp nettle is treated by digging as much root mass as possible. The site is monitored annually and treated as required.
- Japanese butterbur – One infestation is found in the Village Museum riparian area. The infestation is manually removed by digging as much root mass as possible. The site is monitored annually and treated as required.
- Bamboo – Identified in 13 parks, totaling 786 m², bamboo can damage infrastructure. Removal requires excavating roots with machinery, and monitoring to ensure remnant root fragments do not re-establish. Due to the scale of

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infestations and limited resources required to manage the growth, staff have had to limit treatment to one or two park sites per year.

- European fire ant – One infestation at Taylor Park. The European fire ant, EFA, infestation was on the slope, likely remnant from the landfill where the park was developed. The site is monitored and treated weekly, during the active season. Treatment is intended to contain the infestation in the current area, and prevent closure of the adjacent playground area. The infestation continues to be monitored and treated as required.
- Japanese beetle – This highly invasive insect has grubs that resides in the soil, much like Chaffer beetle, but has a flying adult that feeds on leaves from target plants. It is a new infestation that has shown up in 5 traps in Burnaby in 2021. As an emerging problem, CIFA and the Ministry have taken region wide approaches to control the spread of the beetle. Stemming from this, a JB Regulated Area of 800 m² surround positive infestations has been established. Within this zone the movement of soil, plant material with roots, and green waste, is restricted. Within Burnaby the 800 m² regulated area encompasses the Parks Nursery Charles Rummel Park, Warner Loat Park, and parts of Burnaby Lake. Staff are working with the Ministry to manage the ongoing infestation and site responses that relate to controlling the spread of the beetle while treatment options are being considered.

3.2 COMMUNITY AND STAFF EDUCATION AND AWARENESS

Public and staff awareness and education are key to controlling the spread of invasive species. Programming in 2020 and 2021 included responding to calls and emails from residents and communicating one-on-one, updating information on the city website, and public invasive plant workshops.

3.3 VOLUNTEER PARTICIPATION

Volunteer activities were also offered to the public, as well as supporting the volunteer efforts of community groups including: Beecher Creek Streamkeepers, Byrne Creek Streamkeepers, Cariboo Heights Preservation Society, Eagle Creek Streamkeepers, Stoney Creek Streamkeepers, and the Invasive Species Council of Metro Vancouver. These activities were suspended in 2020 and early 2021, but has gradually restarted since the summer of 2021.

3.4 LOCAL REPRESENTATION IN REGIONAL COMMITTEES

Burnaby Parks continues to be a representative on the Board of Directors for the Invasive Species Council of Metro Vancouver, and a member of Metro Vancouver Regional Planning Advisory Committee - Invasive Species Subcommittee. These opportunities

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allow Burnaby Parks to be connected with other municipalities on invasive species issues, and regional treatment and education efforts, while staying abreast to the newest updates, and places Burnaby in the forefront of action with addressing invasive species locally. It also involves Burnaby in the development of Regional Best Practices for priority invasive species, and organizing regional events, workshops and training. It is recommended Burnaby continues to have representation on both these regional committees.

4.0 SUMMARY

Invasive plants and pests in parks and green spaces are targeted for removal and control throughout various Burnaby Parks. Through adaptive management, all invasive plants in treatment areas are showing reduced growth and spread, and in some cases, there has been no regrowth for over 2 years. Along with on the ground treatment, public awareness and education programs, and participation in regional efforts are integral parts of the Invasive Species Management in Parks. All current activities will continue in 2022.



Dave Ellenwood
DIRECTOR PARKS, RECREATION & CULTURAL SERVICES

HE:my:tc
Attachments

cc: Chief Administrative Officer

Figure 1. Top Invasive Plant Species targeted in 2018 Assessment

Common Name	Scientific Name
Bamboo species*	Various
Butterfly bush	<i>Buddleia davidii</i>
Cherry-laurel (English laurel)	<i>Prunus laurocerasus</i> and related species
Clematis (old man's beard)	<i>Clematis vitalba</i>
Common comfrey*	<i>Symphytum officinale</i>
Common hops	<i>Humulus lupulus</i>
Common tansy*	<i>Tanacetum vulgare</i>
English holly	<i>Ilex aquifolium</i>
English ivy and Irish holly	<i>Hedera helix</i> and <i>Hedera hibernica</i>
Garlic mustard*	<i>Alliaria petiolata</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>
Gorse*	<i>Ulex europaeus</i>
Goutweed (Bishop's weed)	<i>Aegopodium podgaria</i>
Hedge bindweed (morning glory)	<i>Calystegia sepium</i>
Himalayan balsam (policeman's helmet)	<i>Impatiens glandulifera</i>
Himalayan blackberry	<i>Rubus armeniacus</i>
Knotweed, bohemian/Japanese 1	<i>Fallopia japonica</i> and <i>Fallopia x bohemica</i>
Knotweed, giant	<i>Fallopia sachalinensis</i>
Knotweed, Himalayan	<i>Polygonum polystachyum</i> and <i>Persicaria wallichii</i>
Lamiastrum (yellow archangel)	<i>Lamiastrum galeobdolon</i>
Orange hawkweed*	<i>Hieracium aurantiacum</i>
Parrot's feather*	<i>Myriophyllum aquaticum</i>
Periwinkle	<i>Vinca minor</i>
Pickeral weed	<i>Pontederia cordata</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Reed canary grass	<i>Phalaris arundinacea</i>
Scotch broom	<i>Cytisus scoparius</i>
Small flowered touch-me-not	<i>Impatiens parviflora</i>
Spurge laurel (daphne laurel)	<i>Daphne laureola</i>
Wild chervil*	<i>Anthriscus sylvestris</i>
Yellow flag-iris	<i>Iris pseudacorus</i>

* Species not inventoried in 2009.

Figure 2. Total area of infestation by invasive species in the City of Burnaby, 2018

Common Name	
Himalayan blackberry	107.89 ha
English ivy	56.69 ha
Reed canary grass	41.05 ha
Knotweed, bohemian/Japanese	11.74 ha
Himalayan balsam	7.47 ha
Common hops	4.58 ha
Lamium	4.45 ha
Small flowered touch-me-not	3.76 ha
Hedge bindweed	1.77 ha
Periwinkle	1.23 ha
English holly	0.87 ha
Cherry-laurel	0.57 ha
Scotch broom	0.53 ha
Yellow flag-iris	0.48 ha
Common tansy	0.47 ha
Purple loosestrife	0.35 ha
Parrot's feather	0.26 ha
Clematis species	0.19 ha
Knotweed, Himalayan	0.14 ha
Common comfrey	0.07 ha
Bamboo	0.07 ha
Spurge laurel	0.07 ha
Goutweed	0.05 ha
Wild chervil	98 m ²
Orange hawkweed	35 m ²
Knotweed, giant	30 m ²
Garlic mustard	23 m ²
Butterfly bush	18 m ²
Gorse	8 m ²
Giant hogweed	7 m ²
Pickerel weed	0

Figure 3. Summary of work complete

Treatment Program	Job#	Project	Start Year	Crew Hours	Volume (m ³)	Treatment Units	Parks
Knotweed Maintenance	Job1	Charles Rummel	2015	24	5	2	1
Park sweeps	Job3	Cameron	2010	80	1.6	N/A	1
	Job6	Central Park: English holly	2015	96	4	1	1
	Job15	Deer Lake: purple loosestrife	2010	44	2.5	N/A	1
Site Sweeps	Job5	Central Park (south zone; volunteer site)	2016	145	15	1	1
	Job9	Deer Lake: blackberry (harrier nest site)	2014	40	N/A	1	1
	Job25	Taylor: blackberry (fire ant site)	2017	28	N/A	1	1
	Job31	Barnet Marine: policeman's helmet	2017	10	2.5	1	1
	Job34	Deer Lake: policeman's helmet (volunteer site)	2018	2	0.1	1	1
	Job35	Stoney Creek: Small Flowered touch-me-not (volunteer site)	2018	2	0.25	1	1
	Job37	Central Park: blackberry (Patterson station; volunteer site)	2019	4	0.5	1	1
	Job44	Deer Lake Drive: blackberry, ivy, morning glory (volunteer site)	2019	20	0.5	1	1
	Job48	Keith Street: bamboo	2019	25	N/A	1	1
	Job49	Deer Lake Parkway: ivy and tree saplings (heron colony site)	2019	15	N/A	1	1
	Job51	Second Narrows: blackberry (Edinburgh slope)	2020	48	3	1	1
EDRR	Job14	Garlic mustard	2016	67	8	2	2
	Job18	Butterfly bush	2015*	9	0.2	38	2
	Job32	Cocklebur (Deer Lake)	2018	6	1	1	1
	Job33	Hemp-nettle (Deer Lake)	2018	1	0.1	1	1
	Job36	Orange hawkweed	2018	92	5	18	3
	Job38	Wild chervil	2018	15	2	6	4
	Job41	Japanese butterbur	2019	18	1.5	1	1
Species Sweeps	Job19	English ivy (city-wide)	2011	439	1410 trees	112	~35
	Job20	Scotch broom (city-wide)	2015	136	33	102	~32
Restoration Sites	Job7	Deer Lake Drive (knotweed site)	2016	153	10	1	1
	Job17	Jim Lorimer	2014	52	2	1	1
	Job21	Taylor Park (southridge)	2010	45	2	1	1
	Job22	Warner Loat (parking lot bed)	2013	18	1	1	1
	Job28	Halifax Park	2016	42	2	1	1
	Job29	Parkcrest Park	2017	2	0.01	1	1
	Job30	Westridge	2018	56	4	1	1
	Job46	Warner Loat (east creek buffer)	2018	12	1	1	1
	TOTAL				1746	107.76	-

* Many sites at Taylor Park and Byrne Creek Ravine were started prior to 2015, some as early as 2010.