



INVASIVE SPECIES COUNCIL OF METRO VANCOUVER



Invasive Plant Webinar

April 6, 2023



Ministry of
Transportation
and Infrastructure



Agenda

- Invasive species 101
- High priority species
- Overview of MOTI program
- Best practices
- Resources
- Q & A



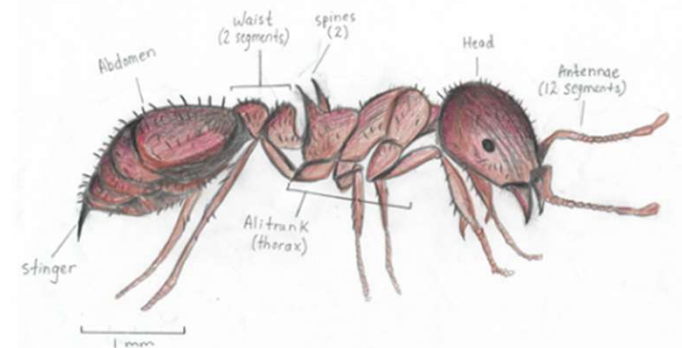


What is an invasive species?

- A non-native species
- Causes significant harm



Alan Chang



Giant Hogweed
Heracleum mantegazzianum



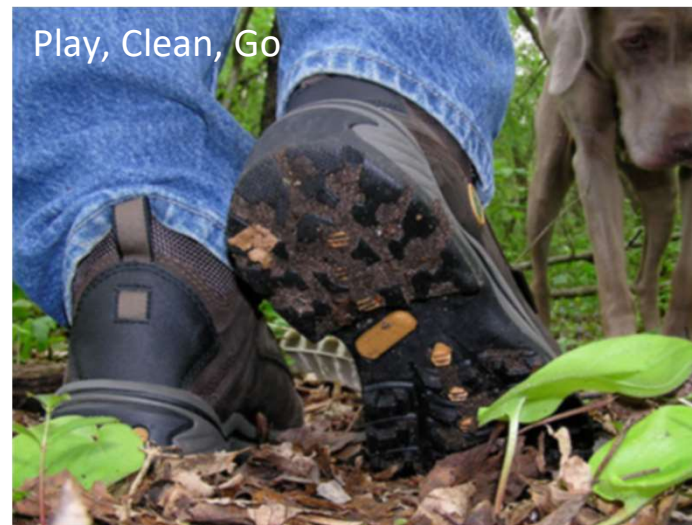
Impacts:

- Ecological
- Safety & infrastructure
- Economic





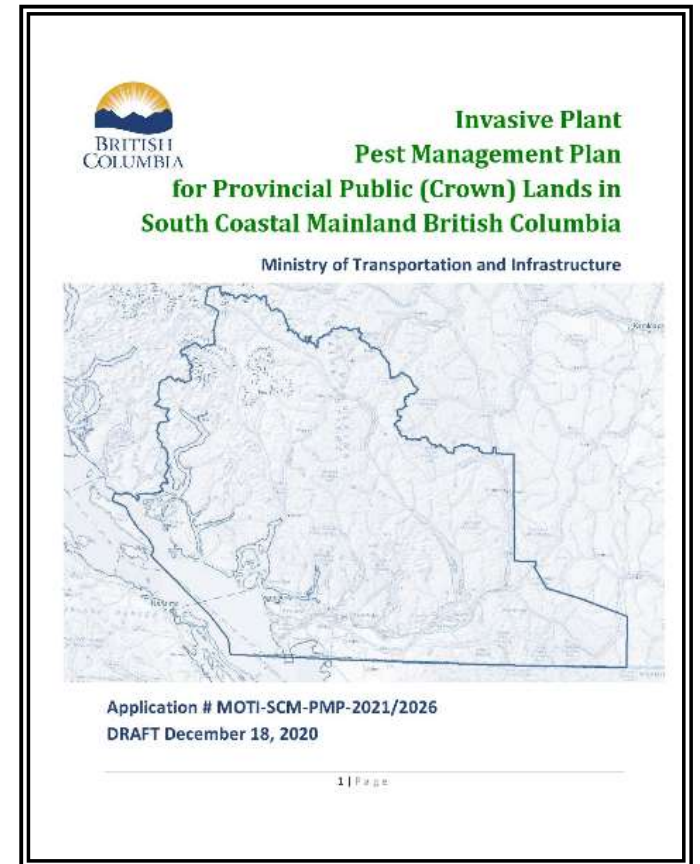
Where do they come from?





Integrated Pest Management

- Goals to reduce the cumulative impacts caused by invasives
- Often, a combination of prevention and treatment strategies are most effective





Types of Control

Prevention: tips coming later!

Manual/Mechanical: digging, cutting, mowing, excavation, etc.

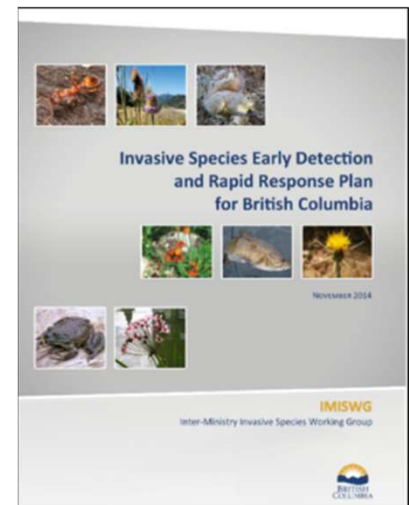
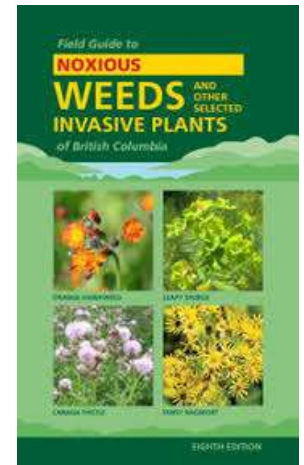
Chemical: herbicide application





Important Legislation

- *BC Weed Control Act (WCA) Regulation*
 - Provincially & regionally noxious weeds
- Proposed Prohibited Noxious Weeds are not present in BC or very limited → candidates for the BC EDRR Program
- *Integrated Pest Management Act* regulates the sale and use of pesticides



Priority Species

2023 Provincial Public Land “Top 25” Invasive Plant Species Priorities

The Top 25 list was developed by Invasive Plant Specialists in the Ministry of Forests, Ministry of Transportation and Infrastructure, and BC Parks and is endorsed by the BC Inter-Ministry Invasive Species Working Group. The ranking considers each species’ current and potential distribution throughout the province and its threat and impacts to people, ecosystems and economic development. The list is used as a planning tool to determine funding of management activities throughout the Province for Provincial Public Land. Annual regional priority adjustments are then also considered and reflected in annual work plans.

Note: this list represents species priorities Province-wide (aka from a Provincial scale). The Provincial Public land containment lines mentioned below are for Provincial public land planning purposes only.

Invasive Plant Species (Species with containment lines in red)	NEW RANK 2023
Bohemian knotweed	1
Giant knotweed	1
Japanese knotweed	1
Giant hogweed	2
Poison Hemlock	3
Wild Parsnip	4
Marsh Plume Thistle	5
(NEW) Japanese Butterbur	6
Shiny geranium	7
Wild chervil	8
North Africa grass	9
Garlic mustard	10
Rush skeletonweed	11
Common tansy	12
Yellow flag iris (5m ² or less sites only)	13
Common bugloss	14



Knotweed (*Reynoutria/Koenigia* species)

Provincial priority #: 1

WCA provincially noxious weeds



Japanese knotweed



Giant knotweed



Bohemian knotweed



Himalayan knotweed



Knotweed Through the Year



Credit DHC

Early Spring
(~15 cm)



Credit DHC

Spring
(~100 cm)



Credit DHC

Early Summer
(~180cm)



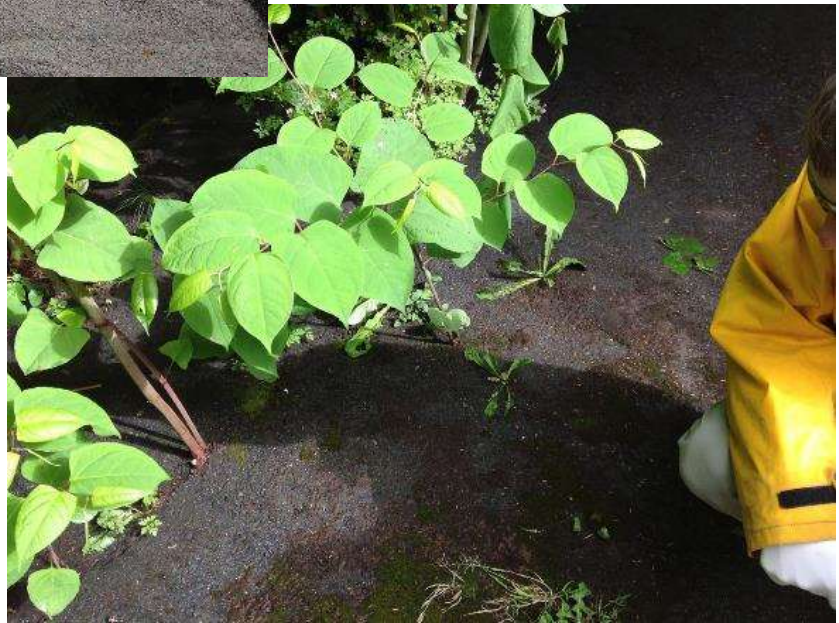
Credit DHC

Late Summer/Fall
(~210 cm)



Credit DHC

Winter
(~180 cm)



2019 HERBICIDE GUIDELINES FOR CONTROL OF KNOTWEED SPECIES ON CROWN LANDS



NOTE: The applicator must always defer to the herbicide label use instructions, paying particular attention to the mixing instructions and suitable site selection. The applicator is responsible for selecting the appropriate herbicide and for ensuring that all guidelines within the relevant Crown Land Pest Management Plan (PMP) and Provincial and Federal Regulations are followed.

Preferred Site Type(s): All sites where herbicide application is permitted (i.e. not in close proximity to waterbodies or licensed water intakes).

HERBICIDE APPLICATION METHODS FOR KNOTWEED

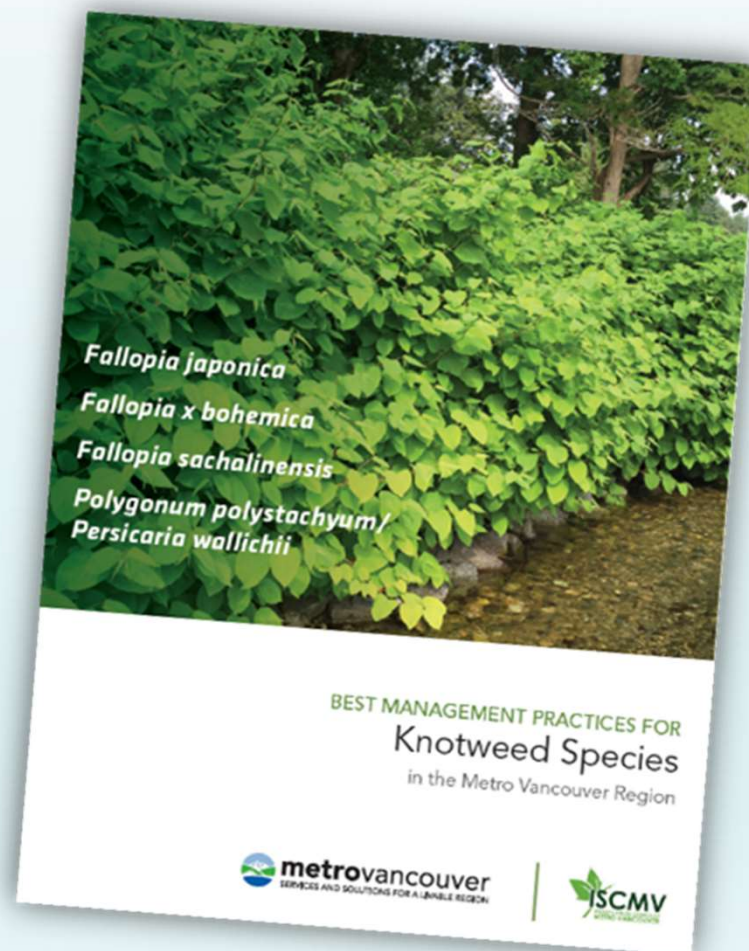
Application of a systemic herbicide is the most effective treatment method for established sites of knotweed due to the extensive root system and ability to spread by root and stem fragments. However, the height, extensive root system, and preferred habitat (riparian) of knotweed may present challenges for herbicide treatment. The following techniques improve treatment efficacy, and reduce the risk of herbicide drift and applicator herbicide exposure. The unique challenges presented by knotweed require innovative thinking and approaches. New techniques should meet label requirements, and be well documented and photographed.

1. Stomata Foliar Application

The stomata on the underside of knotweed leaves are greater in number and larger in size than on the upper side of leaves. The stomata present the best opportunity for herbicide uptake on the knotweed leaves. When applying foliar applications to knotweed, the underside AND upper side of the leaves should be sprayed whenever safe and practicable.

- Long wands and wand extensions should be used when treating tall knotweed clones, in order to access high foliage without spraying immediately overhead, minimizing the risk of applicator exposure to herbicide. Agriculture equipment retailers sell longer wands and wand extensions that can be adapted to fit back pack sprayers.
- Small clones less than 300 stems (<300 stems): Work around the stand perimeter, spraying the underside and upper side of the leaves.
- Large clones 300 stems or more (≥300 stems):

Prepared by the Ministries of Forests, Lands, Natural Resource Operations and Rural Development, and Transportation and Infrastructure





Giant hogweed (*Heracleum mantegazzianum*)

Provincial priority #: 2

WCA provincially noxious weed



USDA APHIS PPQ - Oxford,
North Carolina



Wild Chervil (*Anthriscus sylvestris*)

Provincial priority #: 8

WCA regionally noxious weed (Fraser Valley)





Poison Hemlock (*Conium maculatum*)

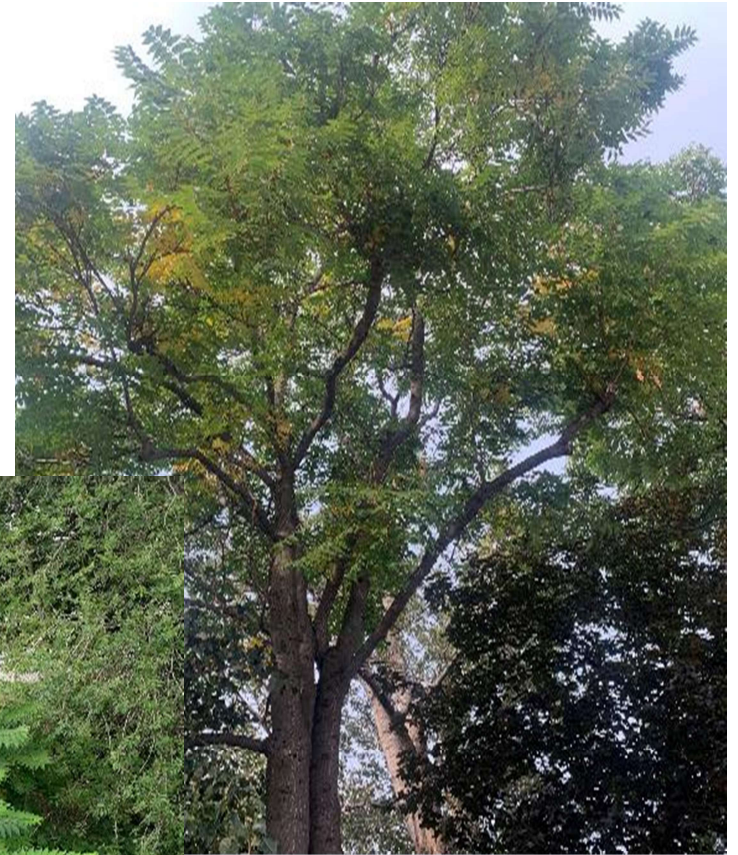
Provincial priority #: 3





Tree of Heaven/Chinese Sumac (*Ailanthus altissima*)

Provincial priority #: not listed





Butterbur/Fuki (*Pestaspites hybridus*)

NEW Provincial priority #: 6





Other Invasive Trees to Exclude on Landscape Plans

- Tamarisk/salt cedar
- Princess tree/Empress tree
- Russian olive
- Black locust
- Norway maple
- English holly
- Golden chain tree
- Many more...



English holly



Many Other Species

Teasel #16



Gorse



Garlic mustard #10



Blueweed #15
Sven-Arne Karlsson, Flickr



Scotch broom #19



MOTI's Invasive Species Management Program

- > \$2M annual budget
- Work with local committees & contractors to survey and treat invasive plants
- Support provincial initiatives





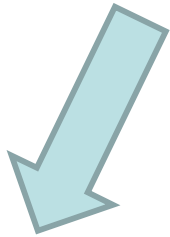
Service Area	Committee/Contractor
7 Fraser Valley	Fraser Valley Invasive Species Society (FVISS) 
6 Lower Mainland	- Invasive Species Council of Metro Vancouver (ISCMV) - Operations contractor Diamond Head Consulting (coordinated by Deirdre Bruce)
5 Sunshine Coast	Contractors (coordinated by Deirdre Bruce)
4 Howe Sound	- Diamond Head Consulting (coordinated by Deirdre Bruce) - Sea to Sky Invasive Species Council (SSISC) (north) 
1-3 Van. Island	Contractors (coordinated by Deirdre Bruce)

Regional Committees/Contractors on the South Coast





Invasive Species & Transportation Activities



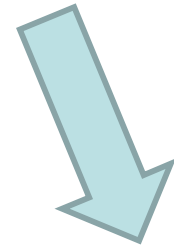
CAPITAL & REHAB PROJECTS

- *Treat in advance*
- *Avoid if possible*
- *Contract specifications*



ROAD & BRIDGE MAINTENANCE

- *Environmental Management Plan*
- *Local Area Specification*



DEVELOPMENT APPROVAL

- *Permitting process*

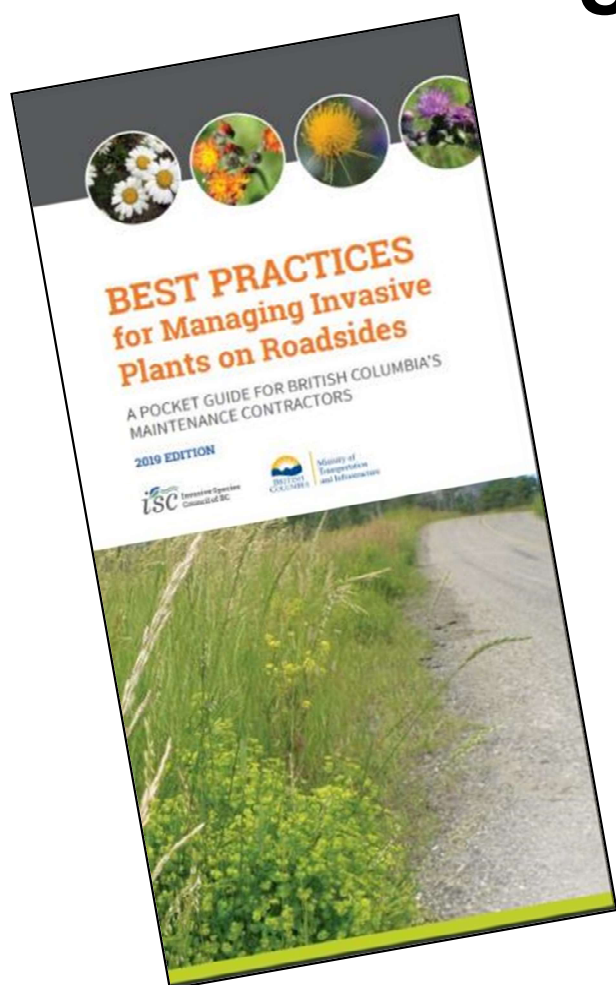


Metro Vancouver Priority Activities 2023

Activity	Species
Early season treatment	giant hogweed, wild chervil, poison hemlock, gorse, white Spanish broom, shiny geranium and teasel
Regular season treatment	knotweed (3 species: Bohemian, giant, Japanese), teasel, Himalayan balsam, blueweed
Surveying for presence of biocontrol agents	Purple loosestrife
Inventory	Yellow flag iris, tree of Heaven, Japanese butterbur



Use Best Practices





Best Management Practices for Soil Movement and Disposal

Invasive Species and Why You Should Care

When soil, gravel, mulch, and other organic matter containing an invasive species is moved or disturbed, it can frequently result in the establishment or re-establishment of an unwanted species. Following best management practices will help prevent spread and reduce the risk of potential impacts on human health, infrastructure, agriculture and the environment in BC.

By identifying issues, developing a response, and carefully executing a plan that utilizes best practices, problems can be managed up front instead of becoming overwhelming or surprising.

The following Best Management Practices will help reduce the risk of transporting invasive species to new locations.

Prevention of invasive species introduction and spread should always be the first consideration in any project. By managing invasive species we will lessen the impacts to the environment, economy and to human health. Inevitably, many projects require the movement of soil, whether developing a new building project, building a new road, or any other activity requiring soil relocation. The key is to follow best practices to ensure that invasive species are managed on-site and are not spread to new areas.

1/ Know Your Legal Obligations

The first step before commencement of operations should always include a review of provincial regulations and local bylaws, requirements, or options that are applicable in the area where the operation is to take place. Many local governments have bylaws that regulate development and the removal of soil or fill, including requirements for invasive species management. In addition, when determining options for disposal it is important to be aware that some landfills accept invasive species or soil, while others do not. By knowing these requirements and options from the outset, the development process can move forward more easily, with a successful outcome.

2 / Know Your Soil Identify Invasive Species and Plan Accordingly

Whether small or large soil removal operations, invasive species and fragments of invasive plants can be undetected. The most effective method of preventing transfer of invasive species is to eliminate that species from the soil prior to movement. Before moving the soil for any reason, the soil surface should be inspected for evidence of invasive species. It is best to inspect both the area to be excavated and adjacent areas as root material, seeds, or insects may have entered the excavation zone from nearby infestations.

The Invasive Species Council of BC and regional invasive species committees provide an abundance of information to assist with the identification of species. Your regional committee can provide advice about species of particular concern in your area: bcinvasives.ca/about/partners/bc-stakeholders/regional-committee-map.



3 / Control It Before You Move It

Where possible, the invasive species should be treated on the site where they were found. The effectiveness of a range of control strategies, from pesticide application to manual removal, will depend on the species. Several invasive species are not adequately controlled by single treatments and while the visible portions of an invasive species may be dead, parts hidden underground can remain viable. Excavation or other soil disturbance may stimulate growth by providing access to light, water, and air. It is important to ensure careful application of pesticide according to its label. Therefore, **pre-movement treatment and control must be thorough**.

September 2018

BCINVASIVES.CA / INFO@BCINVASIVES.CA / 1-888-933-3722



Key Best Practices

1. Identify and plan maintenance activities
2. Report
3. Keep equipment clean
4. Minimize roadside disturbance & retain desirable vegetation
5. Coordinate activities





Key Best Practices

6. Practice effective mowing and brushing
7. Ditch effectively
8. Manage source and waste materials
9. Remove invasive plants prior to seed set
10. Restore disturbed sites
11. Re-seed



Mow to a height
of 15cm above
ground level.

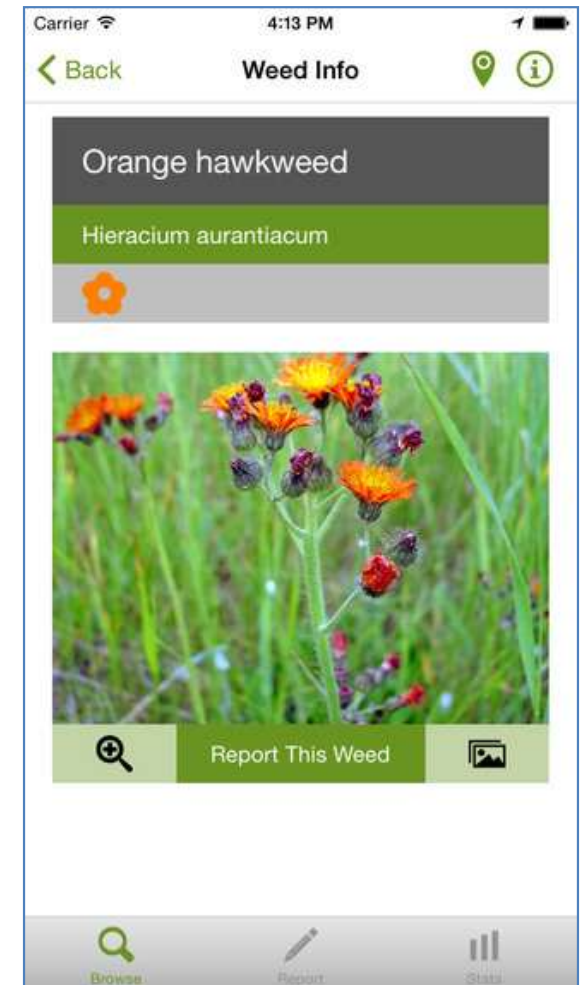


Do not mow invasive
plants after they flower.



Report Invasives

- Learn to ID local species
- Send a photo to an expert
- Free *Report Invasives BC* app
 - Upload photos
 - Note whether MOTI jurisdiction
 - Any site challenges (e.g., streams, access)
- Phone 1 888 WEEDSBC (1 888 933-3722) or online reporting form





Provincial Database

- Currently: Invasive Alien Plant Program (IAPP) database contains invasive plant surveys, treatments, and plans
- Launching soon: New database **InvasivesBC**



The screenshot shows the web application for the British Columbia Invasive Alien Plant Program (IAPP). The header includes the British Columbia logo and the title "Invasive Alien Plant Program". Below the header is a navigation bar with tabs for "Navigation", "Drawing", "Query", and "IAPP Tools". The "IAPP Tools" tab is active, displaying a row of icons for various functions: Report-A-Weed, Invasive Site Search, Highlight Invasive Plant Site, Filter Invasive Plant Site by Species, Highlight Biological Treatments, Highlight Chemical Treatments, Containment Line Layer, and Invasive Plant Map Label Legend. The main content area is divided into two panels. The left panel shows a sidebar with a search bar labeled "GH SB" and a list of site details for "Site 307442", including its description, jurisdiction (Ministry of Transportation and Infrastructure), map label (GH SB), and mapsheet. The right panel displays a map of the area around Seymour Creek Reserve, with several red markers indicating invasive plant sites. A blue button labeled "I want to..." is visible above the map.



Signage

"KNOT" ON OUR HIGHWAYS

Knotweed Best Management Practices for BC Highway Rights of Ways and Gravel Pits

LEARN TO IDENTIFY KNOTWEED



SPRING SUMMER FALL WINTER

IMPACTS OF KNOTWEED

- Spreads easily through plant fragments and seeds
- Potential to cause sightline issues due to fast growth
- Can affect road infrastructure, such as bridge footings, foundations, culverts, and asphalt



WATCH FOR KNOTWEED AND REPORT ALL SIGHTINGS



- Bridge and overpass footings
- Close proximity to watercourses and ditches
- Close to roads
- At future work sites

WHEN WORKING IN AN INFESTED AREA



- Avoid disturbance of knotweed sites
- Establish a clearly marked 20m contamination zone around sites
- Do not store materials, vehicles or equipment in this zone
- Thoroughly clean all equipment used in this zone
- Coordinate all knotweed activities with the Ministry
- Contact the Ministry Representative prior to disturbing the soil within the 20m contamination zone around knotweed sites
- Disposal of knotweed contaminated soil must be pre-approved by the Ministry

CALL BEFORE WORKING IN INFESTED AREAS

WHEN WORKING IN OR AROUND A HERBICIDE TREATMENT SITE




- Read any posted treatment signage
- Wait a minimum of 2 weeks after treatment date before any activities onsite
- Herbicide can only be applied by a certified professional
- Report any regrowth

Working together we can stop knotweed in its tracks and protect our infrastructure and environment

Report any invasive plant sightings to the Ministry Representative and using the Report-A-Weed mobile app or online at gov.bc.ca/invasive-species



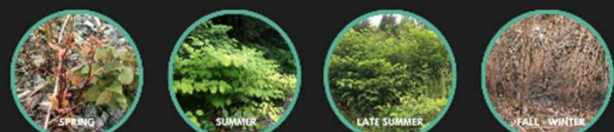
HELP STOP THE SPREAD OF INVASIVE SPECIES

'NO MOW' KNOTWEED

Knotweed is an extremely invasive plant. It spreads very rapidly, and can damage roads and concrete, choke out wetlands and waterways and severely impact property values.

Knotweed reproduces from stem and root fragments. Mowing or trimming knotweed along roadways can easily cause knotweed to spread and multiply.

KNOTWEED ACROSS THE SEASONS



SPRING SUMMER LATE SUMMER FALL - WINTER

IMPACTS OF KNOTWEED

- Outcompetes native plants, including rarer and endangered species
- Destabilizes stream banks, causing erosion and affecting fish populations and water quality
- Knotweed roots can grow through concrete, severely damaging infrastructure
- Can impact property values, and is a huge potential burden to taxpayers.

HELP US CONTROL KNOTWEED



Do not mow or weed-whack knotweed, as the plant fragments can propagate new colonies.

Your actions can play a determining role in slowing the spread of knotweed.



The bright yellow signs are installed at knotweed infestations in spring each year. They are a reminder to let your abate and refrain from mowing.

The length of the no-mow zone is indicated on the sign. The end of the no-mow zone is also indicated with yellow flagging tape.

IF YOU SPOT A NEW KNOTWEED PATCH ALONG THE HIGHWAY

Contact SSISC at (604) 694-8354 or visit SSISC.CA/REPORT






Learn More, Share Knowledge

- Consider your role
- Educate others
- Refer challenging people or questions to regional experts





Videos



Best Management Practices for Invasive Plants During Gravel Pit Operations

Uploads ▶ PLAY ALL



Identification and Management of English Ivy ...

1 view • 8 minutes ago



English Holly Identification & Management

5 views • 1 week ago



How to ID English Holly

18 views • 2 weeks ago



Native Planting in Restoration Areas

7 views • 3 weeks ago



Resources Coming to Your

- All links/documents mentioned, webinar slides & recording
- Invasive Species Roadside website
- Short evaluation form

The screenshot shows the British Columbia government website. The top navigation bar includes the British Columbia logo, a search icon, and a menu icon. The breadcrumb trail reads: Home > Driving & Transportation > Transportation & the Environment >. A 'Contacts' button is visible on the left. The main heading is 'Invasive Species Roadside'. Below it, a paragraph explains that invasive species are non-native and can harm the environment and economy, and that highway maintenance and construction contractors use these resources for best practices. A section titled 'Resources for Roadside Workers' lists five links: 'Knotweed Best Management Practices for BC Highway Rights of Way and Gravel Pits (PDF) (November 2016)', 'Do You Know What is Hiding in Your Seed? (PDF)' (described as a guide to checking seed analysis certificates), 'Best Practices for Managing Invasive Plants on Roadsides - A Pocket Guide for B.C.'s Maintenance Contractors (2015 Edition)', 'Invasive Plant Management Guidelines for Crown Land - Wild Chervil (May 2016)', and 'Herbicide Guidelines for Control of Knotweed Species on Crown Land (June 2016)'. On the right, a 'Report-a-Weed' sidebar provides instructions: 'If you identify an invasive plant: Report it [online](#), or download the [Report-a-Weed](#) mobile app, or Telephone 1 888 WEEDSBC (1 888 933-3722), or Contact the [invasive species organization](#) for your region. Do not touch plants with toxic properties.'

BRITISH COLUMBIA

Home > Driving & Transportation > Transportation & the Environment >

Contacts

Invasive Species Roadside

Invasive species are species that are not native to the province, or are outside of their natural distribution, and can negatively impact British Columbia's environment, people and/or economy. Our highway maintenance and construction contractors use these resources to help follow best practices at the roadside.

Resources for Roadside Workers

- [Knotweed Best Management Practices for BC Highway Rights of Way and Gravel Pits \(PDF\)](#) (November 2016)
- [Do You Know What is Hiding in Your Seed? \(PDF\)](#)
A guide to checking certificates of seed analysis before you seed
- [Best Practices for Managing Invasive Plants on Roadsides - A Pocket Guide for B.C.'s Maintenance Contractors \(2015 Edition\)](#)
- [Invasive Plant Management Guidelines for Crown Land - Wild Chervil \(May 2016\)](#)
- [Herbicide Guidelines for Control of Knotweed Species on Crown Land \(June 2016\)](#)

Report-a-Weed

If you identify an invasive plant:

Report it [online](#), or
download the [Report-a-Weed](#)
mobile app, or

Telephone
1 888 WEEDSBC
(1 888 933-3722), or

Contact the
[invasive species organization](#)
for your region

Do not touch plants with toxic
properties.



INVASIVE SPECIES COUNCIL OF METRO VANCOUVER

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