

# Invasive Species in the Lower Mainland 101

**Nick Wong, PhD, RPBio**  
*Research and Projects Coordinator*

**March 25, 2020 | ISCBC**

- 1. About Me & Ice Breaker**
- 2. The Invasive Species Council of BC**
- 3. Terminology, Definitions & Characteristics**
- 4. Why are Invasive Species a Problem?**
- 5. Noteworthy Invasive Species in BC**
- 6. Invasive Species and BC's Indigenous Culture**
- 7. ISCBC Programs**
- 8. How You Can Help**
- 9. Resources**

# 1. About Me



- Marine Ecologist
- ISCBC Research & Projects Coordinator



**Clubbed  
Tunicate**  
(*Styela clava*)



**Asian Paddle Crab**  
(*Charybdis japonica*)

The image features the word "JEOPARDY!" in a large, metallic, 3D font. The letters are silver with a brushed metal texture and are set against a vibrant, futuristic background. The background is a gradient of colors, transitioning from a deep blue at the top to a bright orange and yellow at the bottom. The scene is filled with glowing particles, starburst effects, and a grid of dotted lines that recede into the distance, creating a sense of depth and digital space. The overall aesthetic is high-tech and dynamic.

JEOPARDY!

#JEOPARDY!

NATIVE OR  
INVASIVE?

\$200

\$400

\$600

\$800

\$1000





**Native**

**Pacific  
Dogwood**  
*(Cornus  
nuttallii)*







**Invasive**

**Himalayan  
Blackberry**

*(Rubus armeniacus)*



@aphercotopist



**Native**

**Arbutus**  
*(Arbutus menziesii)*





**Invasive**

**Red-eared  
Slider**  
(*Trachemys  
scripta  
elegans*)



## 2. ISCBC

# About ISCBC

- Largest provincial invasive species charity in Canada
- Focus is education, outreach, training, cross-border collaboration across Canada and internationally
- Founding member, co-chair of the Canadian Council on Invasive Species





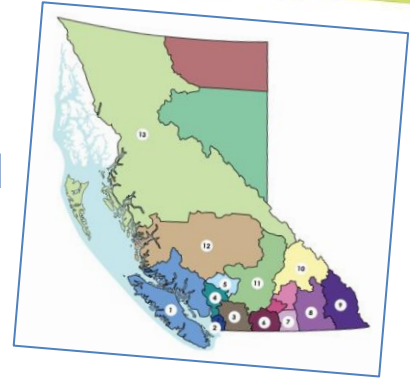
## Guided by a diverse Board of Directors

- Provincial government
- Federal government
- Local/Regional governments
- First Nations
- Non-government
- Industry
- Recreation/tourism
- Regional committees
- Environmental groups



## Regional Partnerships

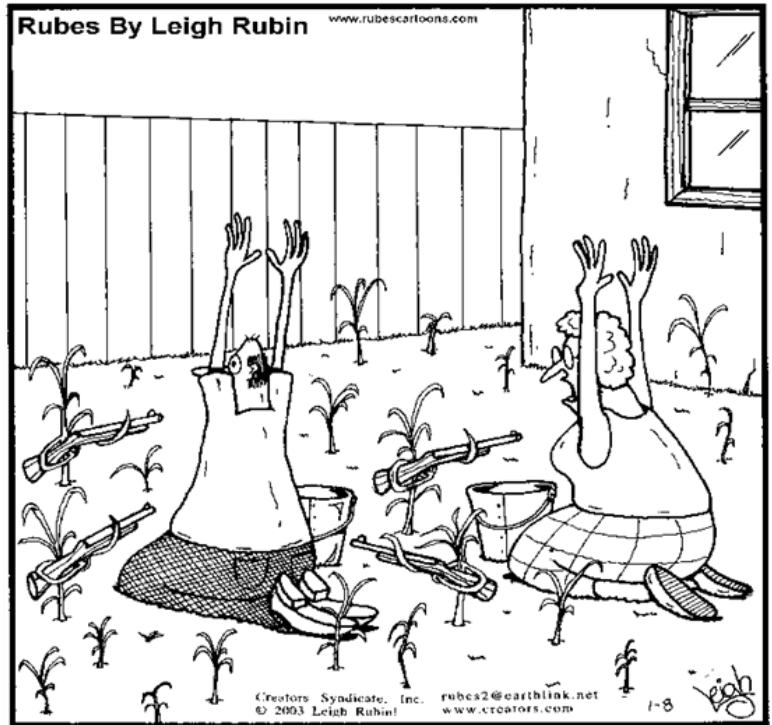
- Work in partnership with 13 regional invasive species organizations
- Special programs include:



Host webinars, local workshops,  
in-person and online training

- And more!

# 3. Terminology, Definitions and Key Characteristics



"We never should have waited this long ...  
Now the weeds have *completely*  
taken over."

# Terminology & Definitions

Non-native

Invasive

Feral

Introduced

Exotic

Pest

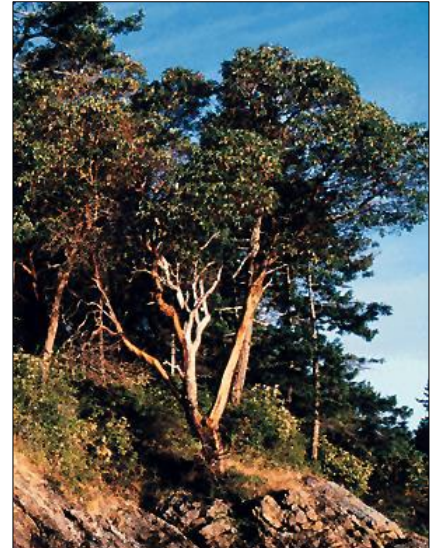
Noxious

Weedy



A ***native species*** is one that naturally occurs in an area:

- A organism that has lived and evolved in a given place for a long time, is part of the natural ecosystem
- Adapted to local conditions, co-evolved with other species, predators, diseases, & climate factors



**Arbutus**  
(*Arbutus menziesii*)

## *A non-native or invasive species:*

- Is **introduced** either intentionally or accidentally, usually by humans from geographically distant locations
- Can be desirable or undesirable - a.k.a. **invasive, alien or exotic**



**Purple Loosestrife**  
(*Lythrum salicaria*)



**American Bullfrog**  
(*Lithobates catesbeianus*)

# Terminology & Definitions



**NOT ALL INTRODUCED SPECIES ARE OR WILL BECOME INVASIVE**

## 1. Prolific reproducers

Spotted Knapweed



*> 140,000 seeds/year*

European Green Crab



*~ 200,000 eggs/year*



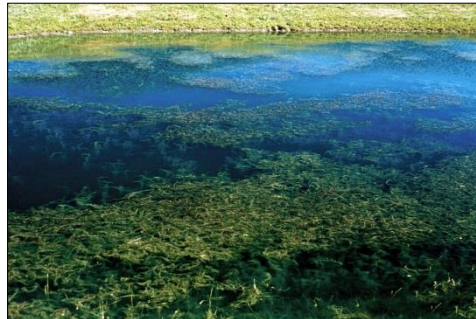
## 2. Spread easily and effectively



Hound's Tongue Burrs



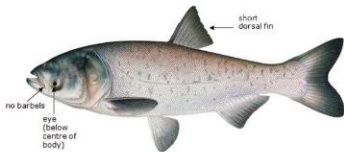
Zebra  
Mussels



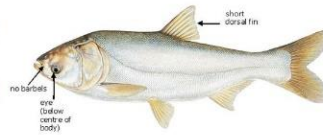
Eurasian  
Watermilfoil  
Fragments

## 3. They grow rapidly under many conditions and are physiologically tolerant

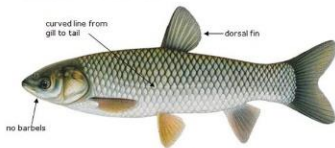
**BIGHEAD CARP**



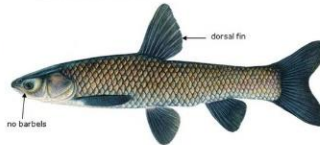
**SILVER CARP**



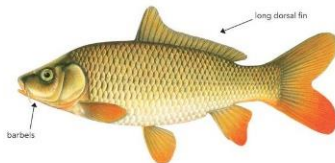
**GRASS CARP**



**BLACK CARP**



**FOR COMPARISON : COMMON CARP**



DFO



**Knotweeds**

4. Usually initially free of the natural stressors like predators, grazers, parasites, diseases found in their native range.



**Orange hawkweed**  
(*Hieracium aurantiacum*)



**Japanese Beetle**  
(*Popillia japonica*)

## 4. Why are Invasive Species Problematic?

## Agriculture & Ranching

Reduces crop quantity  
and quality

## Transportation

MoTI invests \$1.3 Million/yr  
on control

## Reduction in Property Values





**Estimated annual impact of  
invasive species in Canada is  
~ \$30 billion/yr**



**Estimated annual impact of  
invasive species in Canada is  
~ \$30 billion/yr**

**Invasive plants  
in the  
Agricultural sector  
\$2.2 billion**



**Estimated annual impact of  
invasive species in Canada is  
~ \$30 billion/yr**

**AIS in The  
Great Lakes  
\$7 billion**

**Invasive plants  
in the  
Agricultural sector  
\$2.2 billion**





**Estimated annual impact of  
invasive species in Canada is  
~ \$30 billion/yr**

**Forestry  
\$20 billion**

**AIS in The  
Great Lakes  
\$7 billion**

**Invasive plants  
in the  
Agricultural sector  
\$2.2 billion**

## Affects Biodiversity

### Invasive species:

- Compete with native species
- Predate upon native species
- Alter ecosystems and their functions
- Impact water quality and quantity
- Decrease soil productivity
- Alter natural fire & flood regimes
- Transmit and carry diseases
- Hybridize with native species

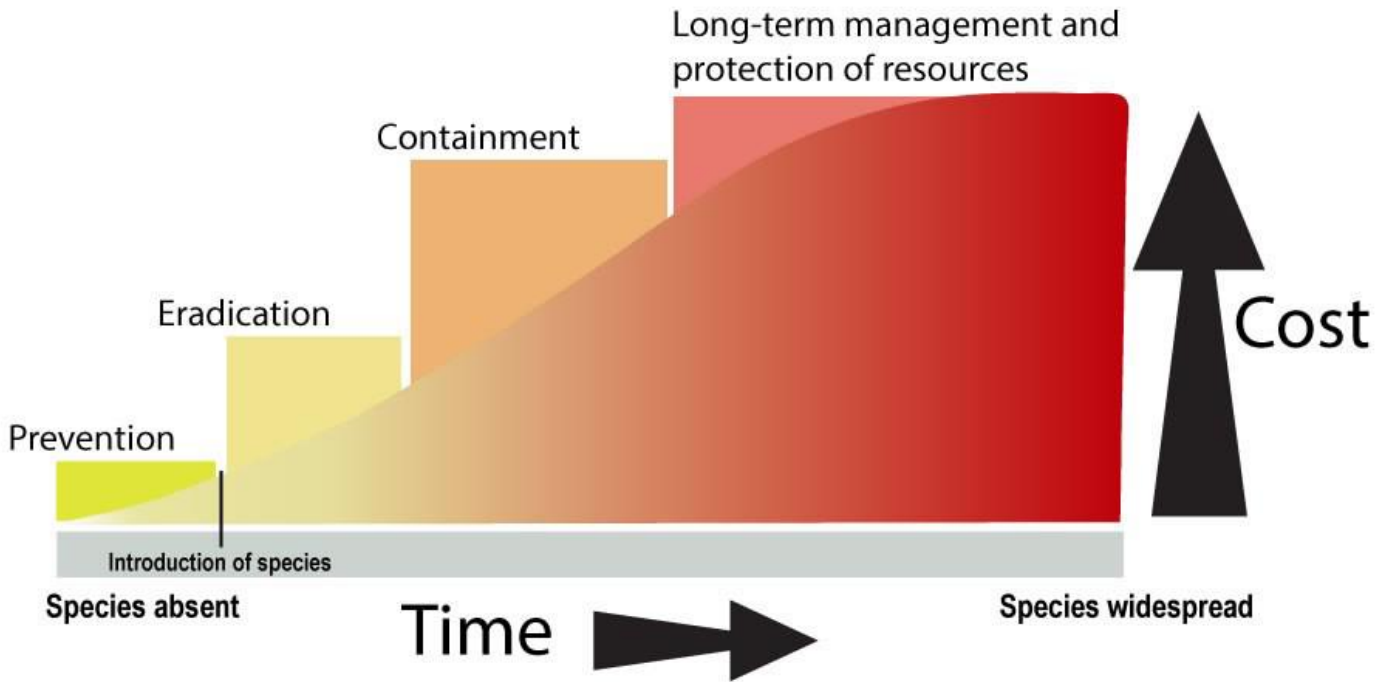
BC is  
Canada's  
most  
biodiverse  
province/  
territory

## Social/Cultural Impacts

- May pose health and safety risks
- Reduce recreational values of green spaces, close parks, trails
- First Nations culture



# The INVASION Curve



# 5. Noteworthy Invasive Species in BC

# Identifying *Popillia japonica*



Photo by D Cappaert – Bugwood.org

- Identified in False Creek's David Lam Park in 2017.
- Attacks roots, foliage and fruit of a variety of host plants >300 types.
- Larvae favor turf grass
- Info on at [inspection.gc.ca/JB](https://inspection.gc.ca/JB)

# Impacts of Japanese Beetle

*Popillia japonica*



Dow Gardens



threetreecenter.com



M.G. Klein, USDA



W. Fountain, University of Kentucky

# Identifying *Popillia japonica*



D Holden - CFIA

Egg

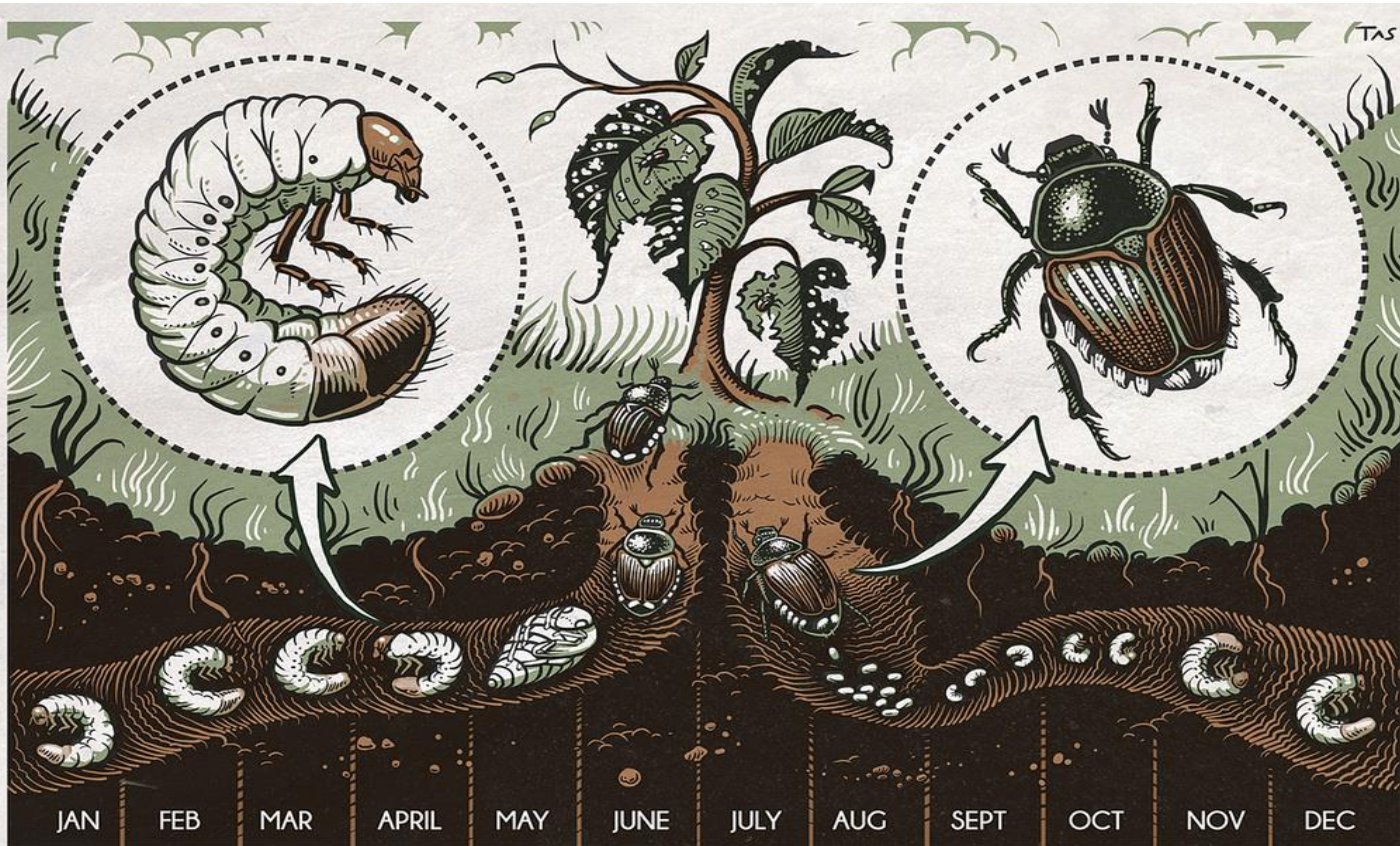
1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> Instars

Pupa

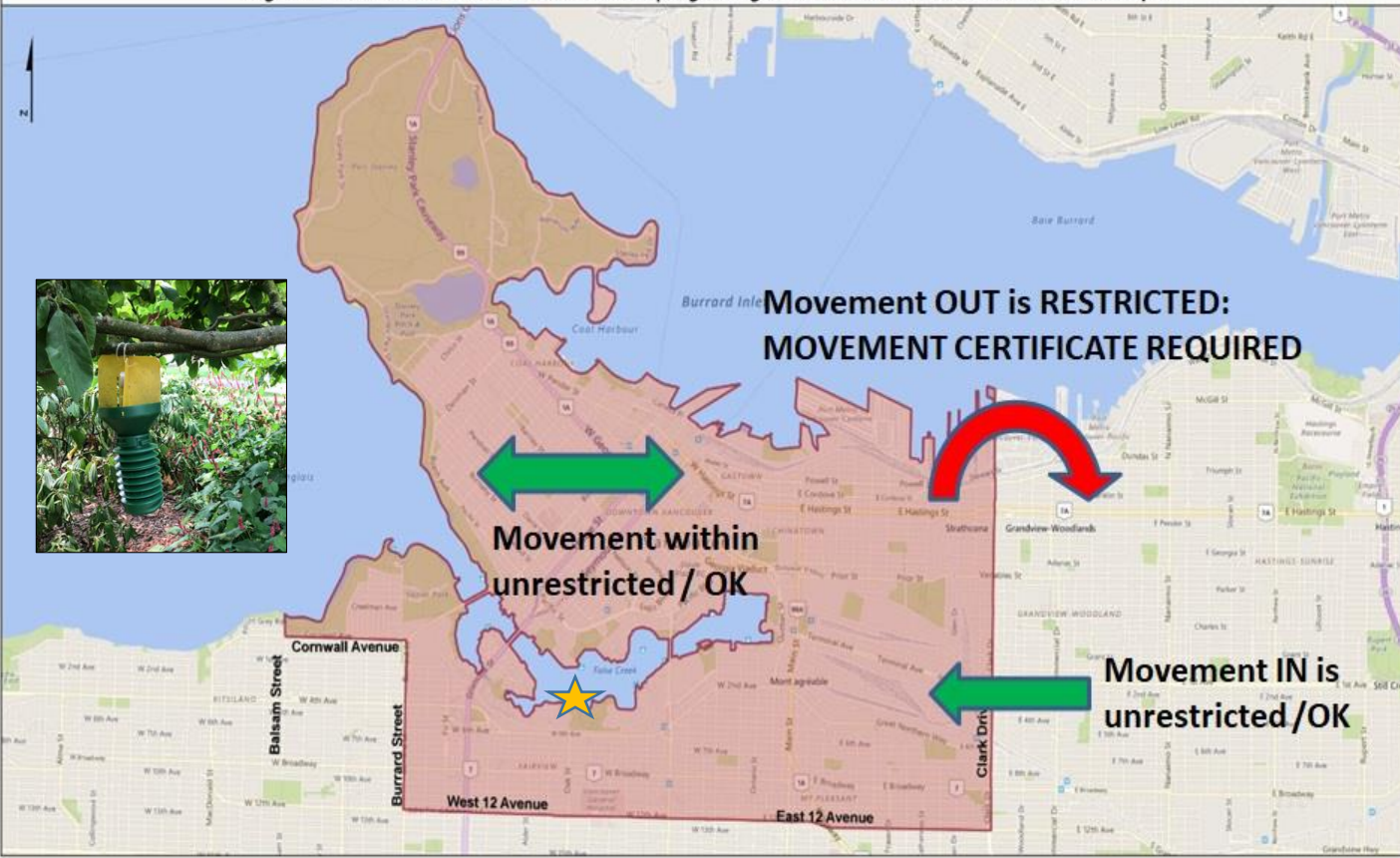
Adult



# Japanese Beetle Life Cycle in BC



# Japanese Beetle | Scarabée japonaise – *Popillia japonica* Regulated Area of Vancouver, British Columbia | Région réglementée de Vancouver, Colombie-Britannique



**Movement OUT is RESTRICTED:  
MOVEMENT CERTIFICATE REQUIRED**

**Movement within  
unrestricted / OK**

**Movement IN is  
unrestricted / OK**



## Japanese knotweed (*Reynoutria japonica*)



## Giant knotweed (*Reynoutria sachalenensis*)



## Himalayan knotweed (*Polygonum polystachyum*)



## Bohemian knotweed (*Reynoutria x bohemica*)



## Japanese knotweed invasion is halting house sales as buyers are denied mortgages on blighted properties

- Homeowners are facing bills of up to £20,000 to remove plant before they can sell
- Weed can grow more than 9ft in just ten weeks and can damage foundations and drains
- Barclays Bank declines mortgage applications unless the knotweed is removed



## Japanese knotweed court victory for homeowner over neighbour who failed to tackle invasive weed over 13 years

A court has awarded substantial legal costs to Adam Smith and ordered Rosemary Line to remove Japanese knotweed from the land at Maenporth near Falmouth

# Giant Hogweed

*Heracleum mantegazzianum*



# Invasive Hornets

*Vespa* spp.

## Two Detections in 2019

### *Vespa mandarina*

- Nanaimo
- Nest destroyed

### *Vespa soror*

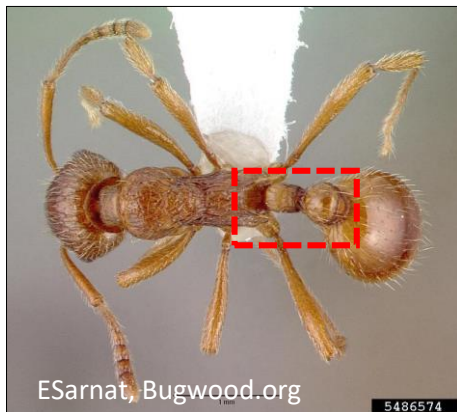
- Port of Vancouver
- Only found one



Youtube search “Conrad Berube” -

<https://www.youtube.com/watch?v=DXZeS1g7oxM&t=>

# European Fire Ant (*Myrmica rubra*)





# Other Noteworthy Species in BC Mainland

- Butterfly Bush



## Other Noteworthy Species in BC Mainland

- Butterfly Bush
- Scotch Broom



## Other Noteworthy Species in BC Mainland

- Butterfly Bush
- Scotch Broom
- Himalayan Balsam



## Other Noteworthy Species in BC Mainland

- Butterfly Bush
- Scotch Broom
- Himalayan Balsam
- European Chafer  
Beetle



## Other Noteworthy Species in BC Mainland

- Butterfly Bush
- Scotch Broom
- Himalayan Balsam
- European Chafer  
Beetle
- Parrot's Feather



## Other Noteworthy Species in BC Mainland

- Butterfly Bush
- Scotch Broom
- Himalayan Balsam
- European Chafer  
Beetle
- Parrot's Feather
- Goldfish



# 5. Invasive Species and BC's Indigenous Culture



Nancy J. Turner

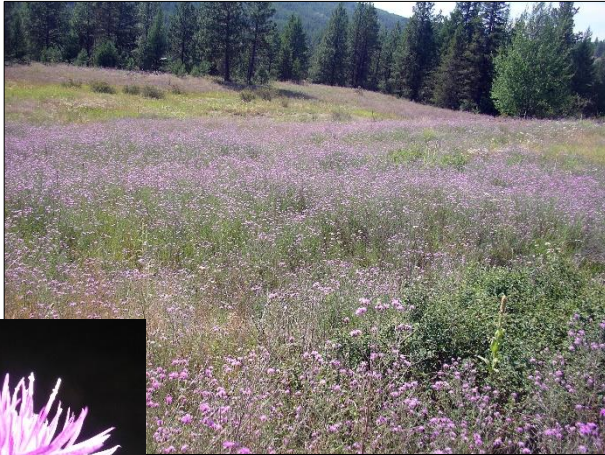
**Sweetgrass**  
(*Hierochloa odorata*)



Splitrock Environmental

**Sage**  
(*Artemisia tridentata*)





**Spotted Knapweed**  
(*Centaurea maculosa*)



**Diffuse Knapweed**  
(*Centaurea diffusa*)



**Cedars**





**Common  
burdock**  
(*Arctium minus*)



**Dalmatian toadflax**  
(*Linaria genistifolia* ssp. *dalmatica*)



**Oxeye daisy** (*Leucanthemum vulgare*)

**Soapberry**  
(*Shepherdia canadensis*)



**Himalayan Blackberry**  
(*Rubus armeniacus*)



**Scotch Broom**  
(*Cytisus scoparius*)

## 6. ISCBC Programs



IT'S NOW EASIER THAN EVER  
TO BE INVASIVE-PLANT-FREE!



Our new user-friendly mobile app and website, [www.beplantwise.ca](http://www.beplantwise.ca), easily shows users how to choose expert-suggested, non-invasive plants for every growing zone.



INVASIVE	NATIVE (Z4)	EXOTIC (Z4)
<p><b>AVOID USE</b></p> <p><b>Oxeye Daisy</b> (<i>Leucanthemum vulgare</i>)</p>	<p><b>Cutleaf Daisy</b> (<i>Erigeron compositus</i>)</p>	<p><b>White New York Aster</b> (<i>Aster novi-belgii</i> white selections)</p>
<p><b>ADDITIONAL ALTERNATIVES:</b> (z4) <b>Pinks and Carnations</b> (<i>Dianthus</i> spp. and hybrids); (z3) <b>Heart-leaved Arnica</b> (<i>Arnica cordifolia</i>); (z3) <b>Blanket Flower</b> (<i>Gaillardia aristata</i>)</p>		
INVASIVE	NATIVE (Z4)	EXOTIC (Z2)
<p><b>AVOID USE</b></p> <p><b>Purple Loosestrife</b> (<i>Lythrum salicaria</i>)</p>	<p><b>Hardhack</b> (<i>Spiraea douglasii</i>)</p>	<p><b>Tall Delphinium</b> (<i>Delphinium elatum</i>)</p>
<p><b>ADDITIONAL ALTERNATIVES:</b> (z3) <b>Blazing Star</b> (<i>Liatris spicata</i>); (z4) <b>Bloody Iris</b> (<i>Iris sanguinea</i>); (z3) <b>Spike Speedwell</b> (<i>Veronica spicata</i>)</p>		

[beplantwise.ca](http://beplantwise.ca)

**Goal: Prevent introduction and spread of invasive horticultural plants**



CleanDrainDry.ca

**I CLEAN  
DRAIN  
DRY**

to prevent the spread of  
aquatic invasive species

**Goal:** Prevent the spread of aquatic  
invasive plants, animals and micro-  
organisms to BC waters.



**Invasive Dreissenid Mussels**  
**NOT YET IN BC!**

**REMEMBER**

✓ **CLEAN**  
plants, animals and mud  
from boat and gear

✓ **DRAIN**  
all water from boat  
and gear onto land

✓ **DRY**  
all parts of boat and  
gear completely

Report Zebra or Quagga mussel  
sightings to the R.A.P.P. Hotline:  
1-877-952-7277



CleanDrainDry.ca



# Releasing unwanted pets is not humane or ethical.

## What Should I do Instead?

- Contact the retailer to see if they will take it back.
- Contact science centers, zoos or aquariums to see if they can use the animal/fish for educational purposes.
- Consider humane euthanasia by a veterinarian.
- Dry and freeze unwanted aquatic plants and add them to non-composted trash.



Goldfish



Red Eared Slider Turtle



Eurasian Watermilfoil



Koi Carp



Brazilian Elodea



American Bullfrog



European Rabbit



Parrot Feather





**BLOW THE WHISTLE ON CANADA THISTLE.**

Give Invasive Species The Brush Off.



**GIVE INVASIVE SPECIES THE BRUSH OFF.**

Clean Your Gear Before Entering And Before Leaving The Recreation Site.



**STOP INVASIVE SPECIES IN YOUR TRACKS.**



**Focus on outdoor recreation**



E R Hoebeke - Bugwood.org



DGA0949053

**Asian Longhorned Beetle**  
*(Anoplophora glabripennis)*

MZubrik - Bugwood.org



**European gypsy moth**  
*(Lymantria dispar)*



Woodworkers Journal 2015

**Emerald Ash Borer**  
*(Agrilus planipennis)*

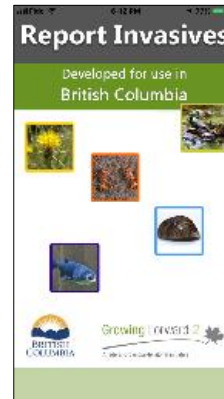
## 7. How You Can Help



## Ways to report to include:



Report-Invasives  
BC Mobile App



## And:

Phone 1-888-933-3722

Email [info@bcinvasives.ca](mailto:info@bcinvasives.ca)

Your Regional Invasive Species Organization or local government

## 8. Resources



Creston Valley Advance

**American Bullfrog** (*Lithobates catesbeianus*)

# Regional Invasive Species Organizations

**Invasive Species Council of Metro Vancouver (ISCMV)**  
604-880-8358  
<http://iscmv.ca>  
[info@iscmv.ca](mailto:info@iscmv.ca)

**ISCMV**  
INVASIVE SPECIES COUNCIL OF  
METRO VANCOUVER

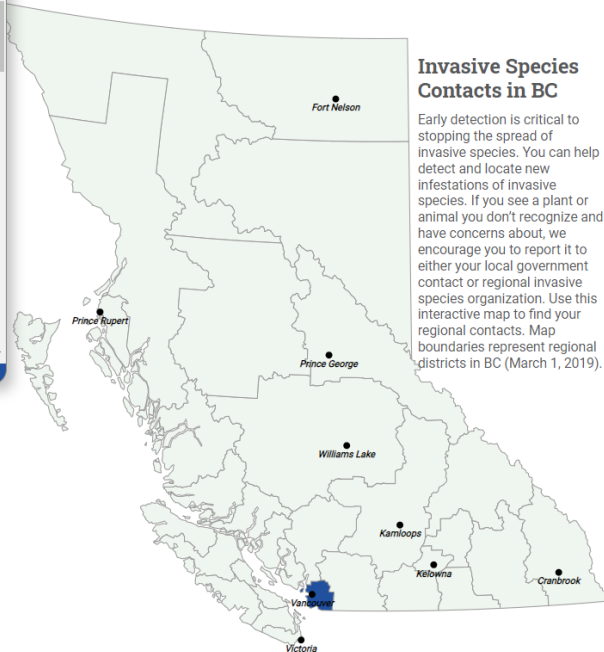
The ISCMV covers all lands within the Metro Vancouver Regional District.

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**Bowen Island Municipality**  
604-947-4255  
<https://bowenlandmunicipality.ca>  
[cskuce@bimbc.ca](mailto:cskuce@bimbc.ca)

**BOWEN ISLAND  
Municipality**

City of Burraby



## Invasive Species Contacts in BC

Early detection is critical to stopping the spread of invasive species. You can help detect and locate new infestations of invasive species. If you see a plant or animal you don't recognize and have concerns about, we encourage you to report it to either your local government contact or regional invasive species organization. Use this interactive map to find your regional contacts. Map boundaries represent regional districts in BC (March 1, 2019).

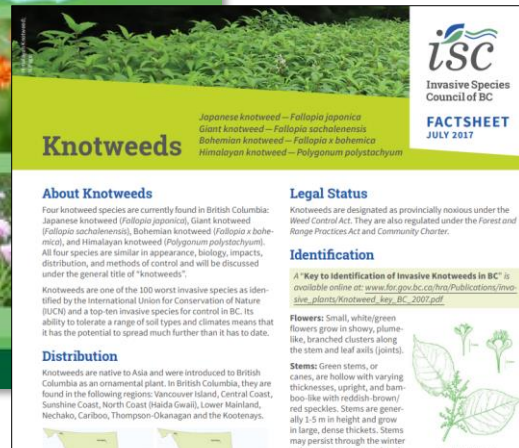
**For Regional Organizations in BC please visit**

<https://bcinvasives.ca/about/partners/invasive-species-contacts-bc>

## Additional publications available:

- Field Guide to Noxious Weeds and other Invasive Plants
- Many species-specific factsheets
- Grow Me Instead resources
- Best practices guides
- Webinars
- Online training

**bcinvasives.ca**



## Join Today

**Become a member of the Invasive Species Council of BC and help protect healthy landscapes, habitats and communities free from invasive species.**

Membership Benefits Include Monthly e-Bulletin, free ISCBC resources, discounts on events and training and more.

Memberships for individuals, youth, non-profit, and business/government.

**To become a member of the ISCBC or  
sign up for our e-news please visit  
our website [bcinvasives.ca](http://bcinvasives.ca)**

### Signup for our Newsletter

Get news from the Invasive Species Council of BC delivered to your inbox. We send "General interest" updates monthly and all other updates from time to time. Please select which updates you would like to receive.

\* Email

First Name

\* Email Lists

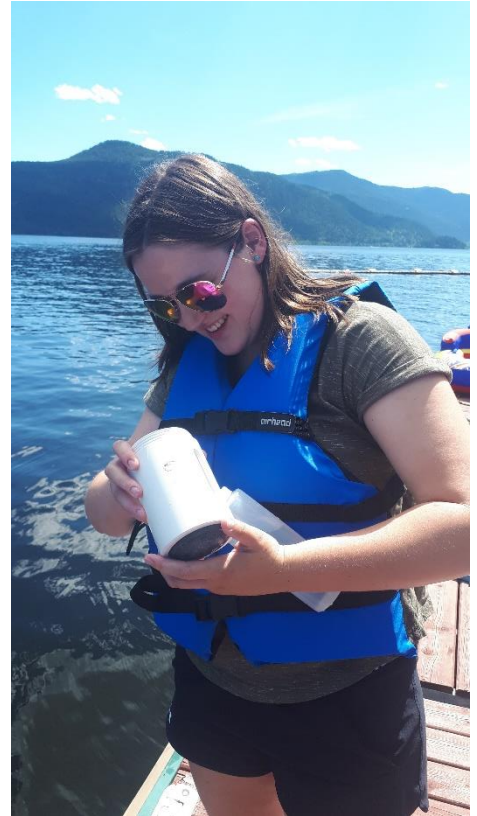
Agriculture

Aquatics



# Calling on Youth to Help Protect BC's Lakes & Rivers

ISCBC Seeks Aquatic  
Youth Ambassadors



# How to Apply to be BC's Clean Drain Dry Youth Ambassador

Youth aged 7-14

Submit a short video with their answers to these questions:

1. Who are you and where are you from?
2. What are your favourite lakes, rivers, and other bodies of water in BC?
3. What are your favourite things to do while visiting them?
4. Why are they important?
5. What do you do to make sure they stay clean and healthy?

# How to Apply to be BC's Clean Drain Dry Youth Ambassador

Send submissions to

***[peter@mastermindstudios.ca](mailto:peter@mastermindstudios.ca)***

with “ISCBC Video submission” in the subject line.

# Thank you!

## Questions?

[projects@bcinvasives.ca](mailto:projects@bcinvasives.ca)