

# **Key Invasive Species in Urban and Interface Forestry: Issues, Impacts and Best Management Practices**

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Invasive Species Council of BC

## **Vision**

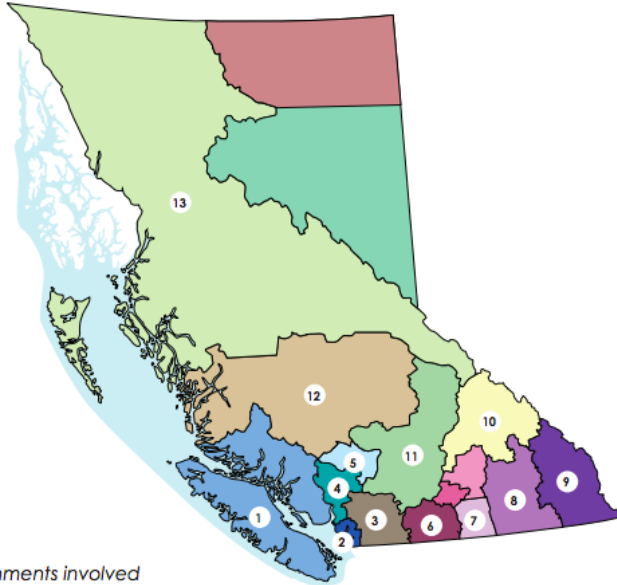
**TOGETHER. PREVENT. RESTORE.**

## **Mission**

To collaborate and stimulate actions that prevent the spread of invasive species to our communities and the natural environment

## KEY PARTNERS include REGIONAL COMMITTEES

As invasive species do not respect administrative boundaries, collaboration is key to success. Across BC, private and public organizations undertake actions to reduce the spread and impacts of invasive species. A unique network of specialized invasive species, non-government organizations are located across the province.



*Note: A map of local governments involved is under development.*

Alien

Invasive

Non-native

Exotic

Introduced

Weedy

Noxious

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

- a plant/animal that has lived and evolved in a certain place for a long time, is part of the natural ecosystem
- adapted to local conditions, co-evolved with other species, predators, diseases, & climate factors



**Kinnickinnick, a native ground cover plant.**

# Non-Native Species



Gerald Holmes

*Introduced* either intentionally or unintentionally, usually by people from distant geographic locations.

Can be desirable or undesirable.

***Not all introduced species***  
***are invasive!***

- many ornamental plants won't survive outside gardens
- tomatoes and wheat beneficial food resources
- brown trout and ring-necked pheasant from Eurasia prized by anglers and hunters



**Brown Trout**



**Ring-necked Pheasant**

The ISCBC defines the term “invasive species” as any non-native organism that causes economic or environmental harm and can spread quickly to new areas of BC.

The BC Weed Control Act imposes a duty on all land occupiers to control designated **noxious** plants.



# 1. Can be prolific seed producers/ reproducers

- Purple loosestrife can produce over 300, 000 seeds/year.
- Zebra mussels can produce up to 1 million eggs a year.



L. Haugen

**Purple Loosestrife**

## 2. Seeds spread easily and effectively

- Hounds-tongue has burrs: hooked seeds attach to animals, vehicles and clothing
- Diffuse knapweed produces 18,000 seeds a year and forms tumbleweeds!





### **3. Can quickly establish and thrive on disturbed, open ground, spreading and displacing native plants**

Roots or other plant pieces can sprout new shoots (e.g. Tansy ragwort and Dalmation toadflax will sprout from roots, root pieces and crown buds)

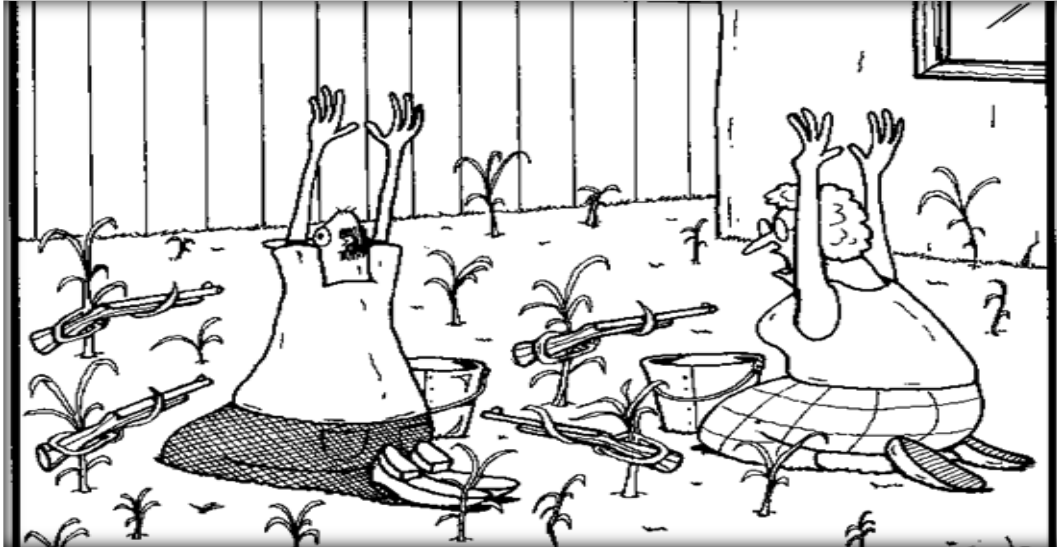




## 4. Usually lack natural pathogens or predators

Sulphur cinquefoil & orange hawkweed not palatable, so not grazed by livestock or wildlife; spread widely, displace other forage plants





“Honey, we never should have bought these plants! They have **COMPLETELY** taken over !”

There are a wide range of invasive species, including plants, insects, fish, mammals and birds in BC:

**Insects** (e.g. Asian Gypsy Moth, European Fire Ant)

**Fish** (e.g. Small-mouth Bass and Yellow Perch)



**European Fire Ant**



**Yellow Perch**

**Amphibians** (E.g. American Bullfrog)

**Mammals** (E.g. Eastern Grey Squirrel; Nutria)

**Birds** (E.g. Starlings)

**Fungus**

**Viruses**

**Bacteria**



S. Price



Wikipedia

**Starling**

**American Bullfrog**





**isc**  
Invasive Species Council of BC

## INVASIVE SPECIES

### Why should you care?

**OUR ENVIRONMENT**

Invasive species can alter habitats and disrupt essential ecosystem services. Some are the **second greatest threat to biodiversity** after habitat loss...

**OUR ECONOMY**

Invasive plants and animals can be costly to manage. It's not impossible to eradicate. According to independent estimates, the estimated annual cost of biological invasions in Canada is \$1.2 to \$1.9 billion and invasive species that damage the agricultural and forestry industries result in an additional \$1.7 billion of lost economic potential.

Prevention is best. An economic cost analysis by the Ministry of Environment has indicated that if prevention and control measures continue to fail, they could result in up to \$2.1 billion per year in damages to agriculture, forestry, and fisheries, water and soil loss, and loss of recreational benefits. Invasive species cause \$1.6 billion in annual losses.

Environmental loss prevention begins in the stage of 1st notice to 25 million over the course of an invasive species' life cycle. Most of the damage is done in the first 100 days.

**OUR COMMUNITIES**

When introduced, invasive species can lead to:

- Reduced biodiversity
- Reduced water quality and quantity (due to increased erosion and sedimentation)
- Reduced property values
- Damage to wildlife, particularly at risk and keystone species
- Loss of native vegetation
- Increased risk of wildfire
- Increased cost of land management costs
- Reduced and degraded public health
- Loss of health and safety (e.g. damage and erosion potentially caused by people, pets, livestock, water utilities)

**REPORT INVASIVE SPECIES**

- Call 1-800-450-7222 (24/7)
- Report it. Report it. Report it. (24/7) or online [www.isc.bc.ca](http://www.isc.bc.ca)
- Report it to your regional invasive species committee or regional director. (24/7) or [www.invasivespeciescommittee.com](http://www.invasivespeciescommittee.com)
- Report sightings of invasive species to the Ministry of Population and Community Services by calling 1-877-469-7227

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**TOGETHER • PREVENT • RESTORE**





Invasive Species are considered to be one of the greatest threats to biodiversity.

- *International Union for the Conservation of Nature*

## **BC is home to more species of living things than any other province:**

**70%** of Canada's nesting bird species

**72%** of Canada's land mammal species

**50%** of Canada's amphibians, **41%** of reptiles

**60%** of Canada's plant species, **73%** of mosses and liverworts

**40,000 +** species of insects, spiders and mites

The BC Ministry of  
Transportation invests  
\$1.3 Million each year on  
invasive plant control!



**Japanese knotweed**

## **Invasive species limit habitat, displace fish and wildlife, reduce water quality.**

- Eurasian watermilfoil displaces native plants and makes water bodies unsuitable for fish or for swimming
- May cause partial park closures



**Eurasian Watermilfoil**

Park trails, camp sites, expensive to maintain due to toxic or prickly invasive plants (e.g. the seeds of Puncturevine, found in the Okanagan, can puncture bike tires and hurt animals and people)





## Impact human health and safety:

- obstruct sightlines, road signs along highways
- cause skin burns and dermatitis
- increase allergies



CIPC

**Giant Hogweed**

# Giant Hogweed

*Heracleum mantegazzianum*



Many First Nations have suffered the loss of traditional food and medicinal plants, due to invasive plants displacing native species.



E. Armagost

Invasive plant removal on Tobacco Plains Reserve



M. Hillis

Kispiox Community Weed Pull



## Vectors of Spread





## Pathways of Invasion





The **PlantWise** program (PW) is an industry certification & gardener awareness program in BC.

Changing the behaviour of BC citizens and Garden Centers so they choose to sell, buy, trade, gift, propagate, relocate and use only non-invasive plants.



## **Target Audiences:**

- Industry: Hydro, Oil and Gas, Forestry, Roads, Mining, etc.
- Homeowners, Gardeners, Horticulture
- All Levels of Government
- Recreationists: Boaters, Anglers, Hunters, Campers, Hikers, Dog walkers, Horse Owners
- Students / Formal School System, Non-formal Education



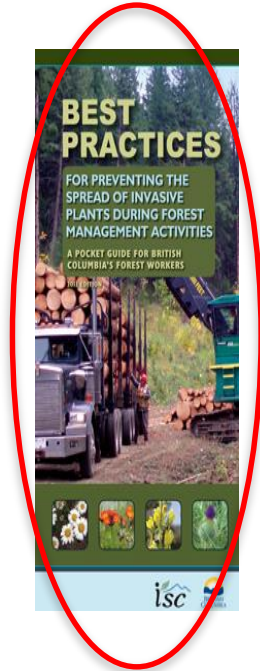
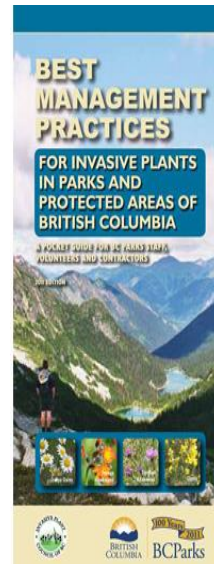
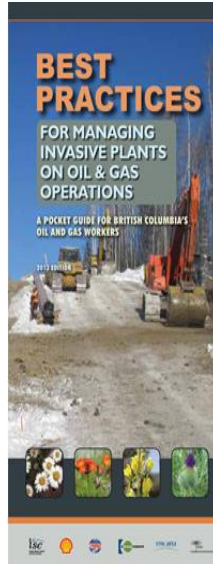
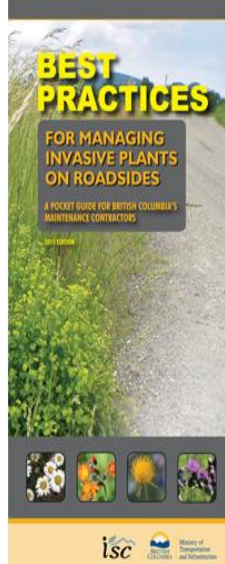
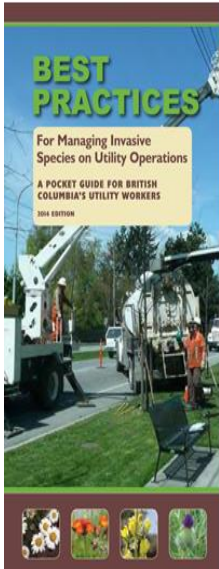
**History**

**Content**

**Successes**

**The Future**



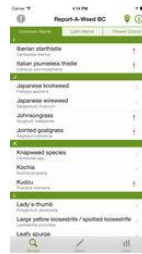


## Half Day Training Program

- In-person
- Pilot programs
- Demand grew





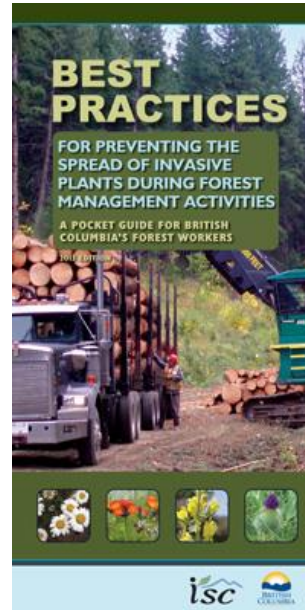


# Invasives 101

## Best Practices

## Tools & Resources

## Tailored & Relevant





Emerald ash borer



Asian long horned beetle



UGA1241459

Pine beetle





Balsam woolly adelgid



Gypsy moth



UGA5190100

*Septoria musiva* (hybrid)



European scleroderris canker



# Fuel load





## **Invasive species have and can have serious impacts on BC's urban forests**

There is ***legislation*** in place that emphasizes invasive species management.

**Several key actions** that urban forest managers can take to prevent introduction and spread and contain known infestations.

## Best Management Practices

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**1** Incorporate known invasive plant sites into development plans and report new sites as they are discovered.

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**2** Avoid infested sites for staging, parking, and log sorting, both in the bush and storage yards.

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**3** Work in uninfested sites before moving to infested sites.

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**4** Clean equipment before moving to a new work site or region.

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**5** Inspect and ensure fill and erosion-control materials are free of invasive plants before transport and use.

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**6** Minimize soil disturbance and maintain native vegetation.

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**7** Revegetate disturbed sites as soon as possible.

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**8** Promptly control infestations resulting from forestry activities.

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The Future is....

Online

Tailored

Includes assessment

Thinking BIG – BC, Canada, North America....



This will change how forest  
companies plan and manage  
for invasive species