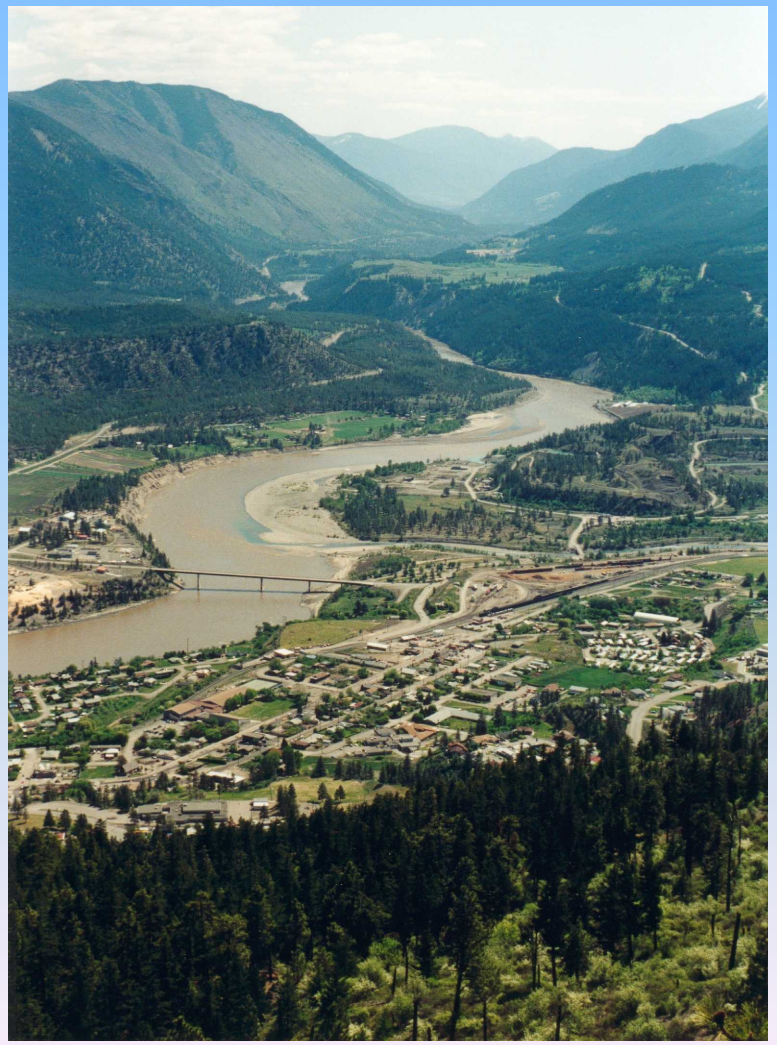

Invasive Species:
What is the problem?
What can we do?
Lillooet Regional Invasive
Species Society
2013

Lillooet Regional Invasive Species Society
Who we are….LRISS



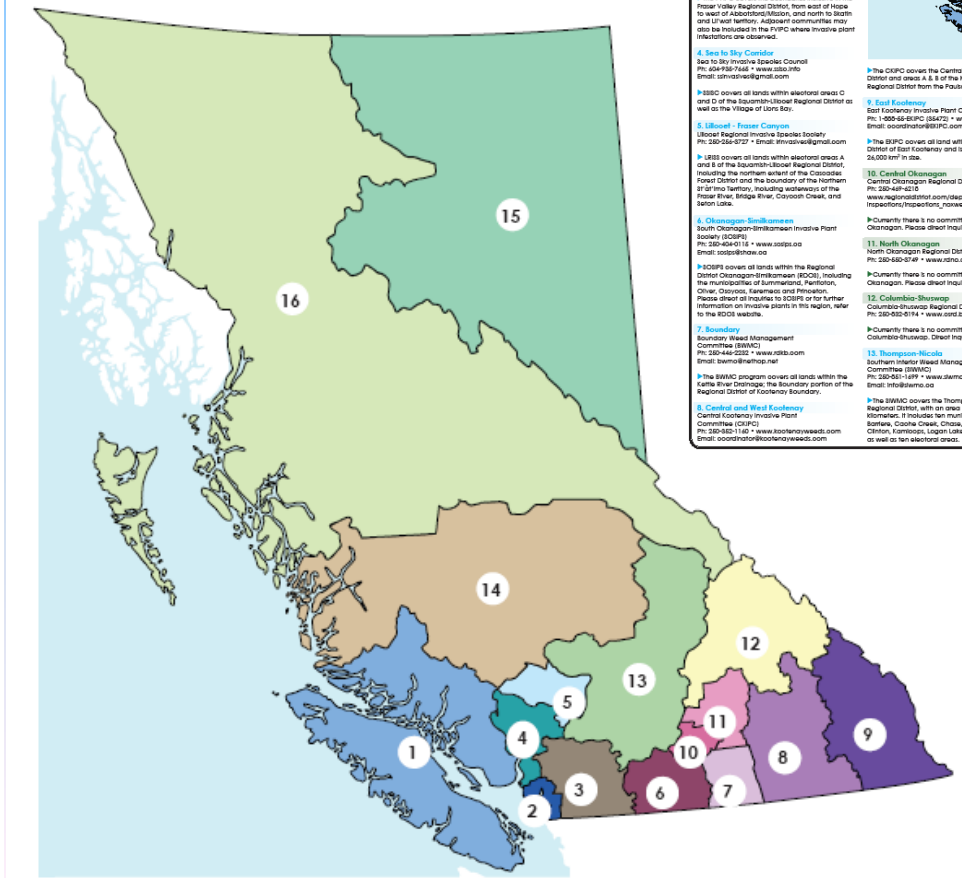
Incorporated as a non-profit society April 18th, 2011.

Board of 9 with 3 officers, 6 directors.

Open free membership that includes the general public, St'at'imc, local, regional and provincial governments, public and private land managers.

"The intent of LRISS is to reduce and minimize the negative environmental, social and economic impacts caused by the introduction, establishment and spread of invasive species in the Lillooet region. "

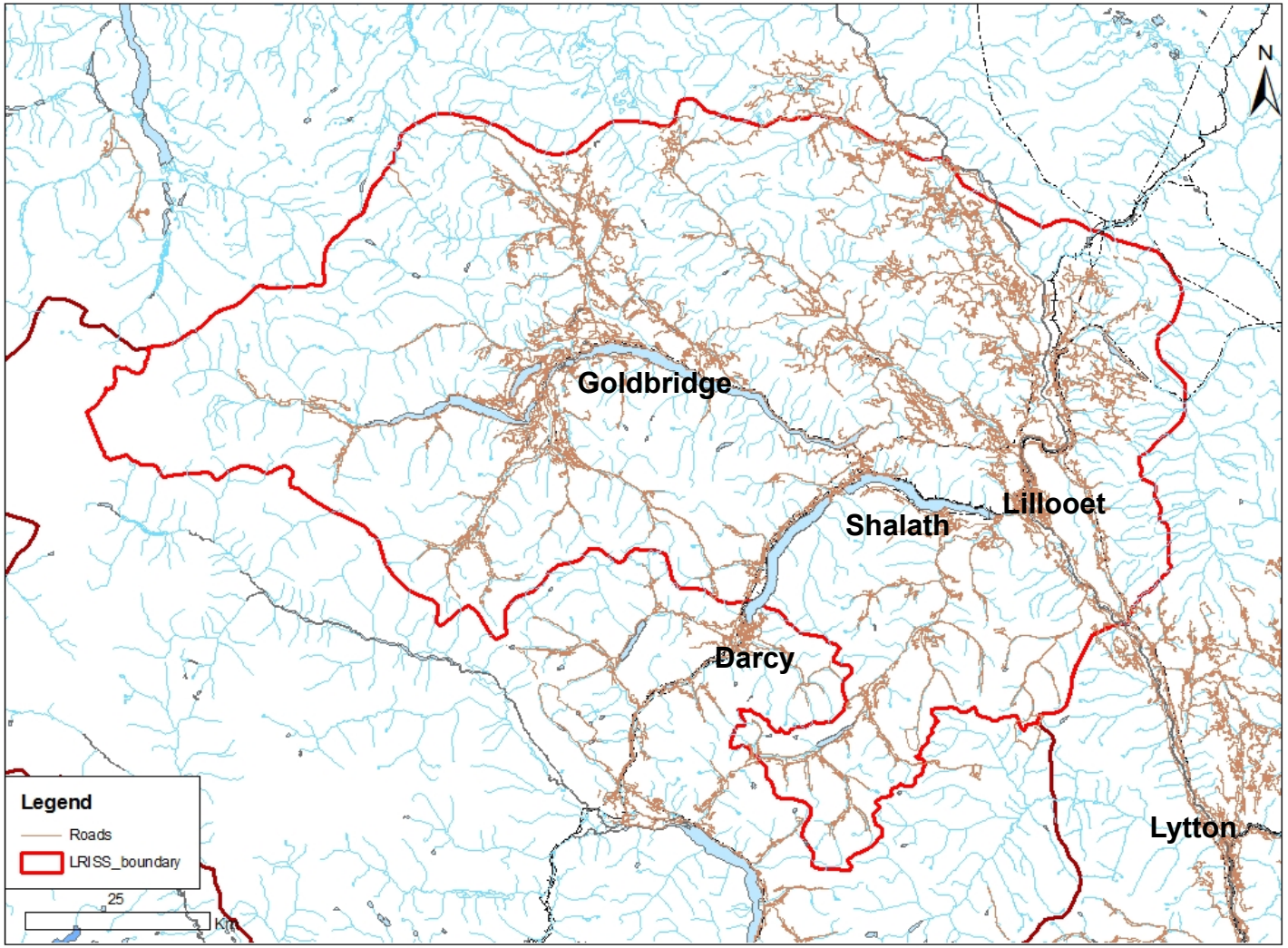
Lillooet Regional Invasive Species Society
Who we are….



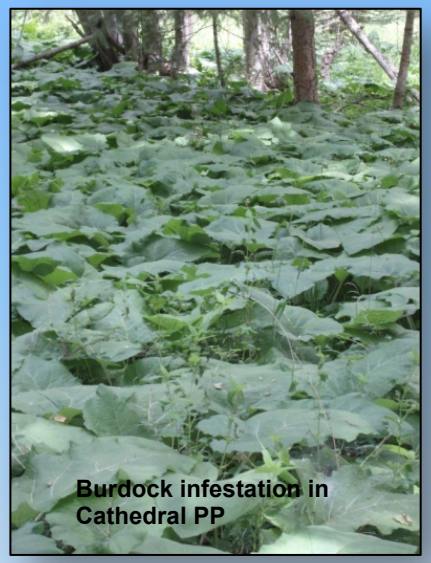
We are one of 17 Regional Invasive plant or species committees in the province.

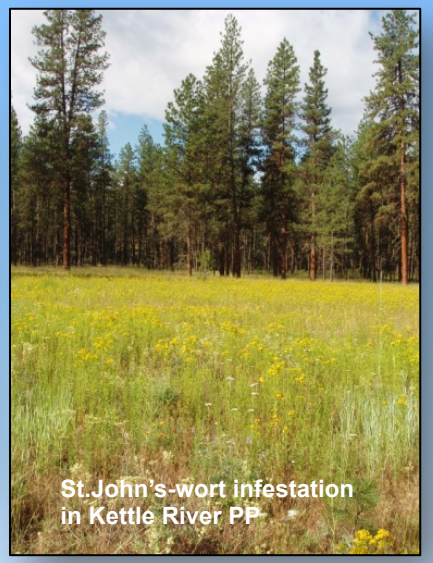
Invasive Species Council of British Columbia.

Lillooet Regional Invasive Species Society Operating Area



What is an Alien *Invasive Plant*?





An invasive plant can be defined as "*a plant that is non-native to the ecosystem under consideration and whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health*". Many invasive plant species have no predators to keep their populations in check.

Why should we care? Impacts

Invasive plants pose undesirable or detrimental impacts on humans, animals or ecosystems.

"As native plants are replaced by invasives, biodiversity declines and habitats change."

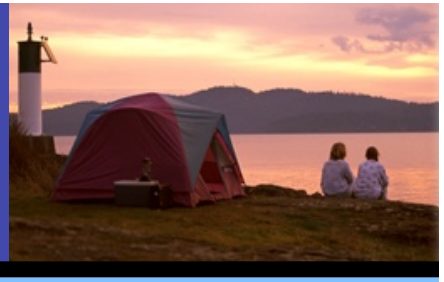
~ *Alberta Invasive Plant Council*

Alien invasive species are recognized globally as the second largest threat to biological diversity and native species.

Blueweed
Photo: http://www.flickr.com/photos/godaddyrab/3235564348

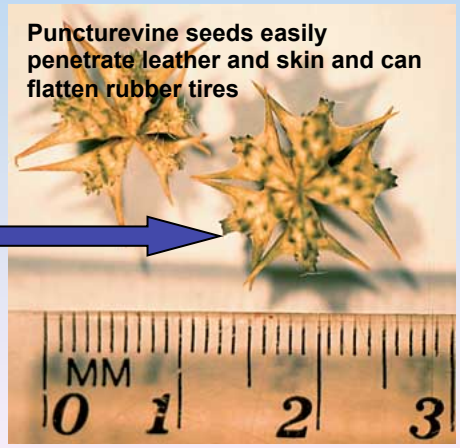
Photo: C. Klym

Why Manage Invasive Plants?




Giant Hogweed


Skin burns caused by Giant Hogweed



Puncturevine seeds easily penetrate leather and skin and can flatten rubber tires

Health hazard.
Wildfire hazard.
Suppress forest regeneration.
Increase soil erosion.
Reduce biodiversity.
Impact wildlife habitat.
Reduce water quality.
Increase stream sedimentation.
Impact fish habitat.
Impact recreation activities.

How do Invasive Plants Spread?

WEEDS KNOW NO BOUNDARIES!!!

Invasives spread can happen by seed, roots, plant fragment or:

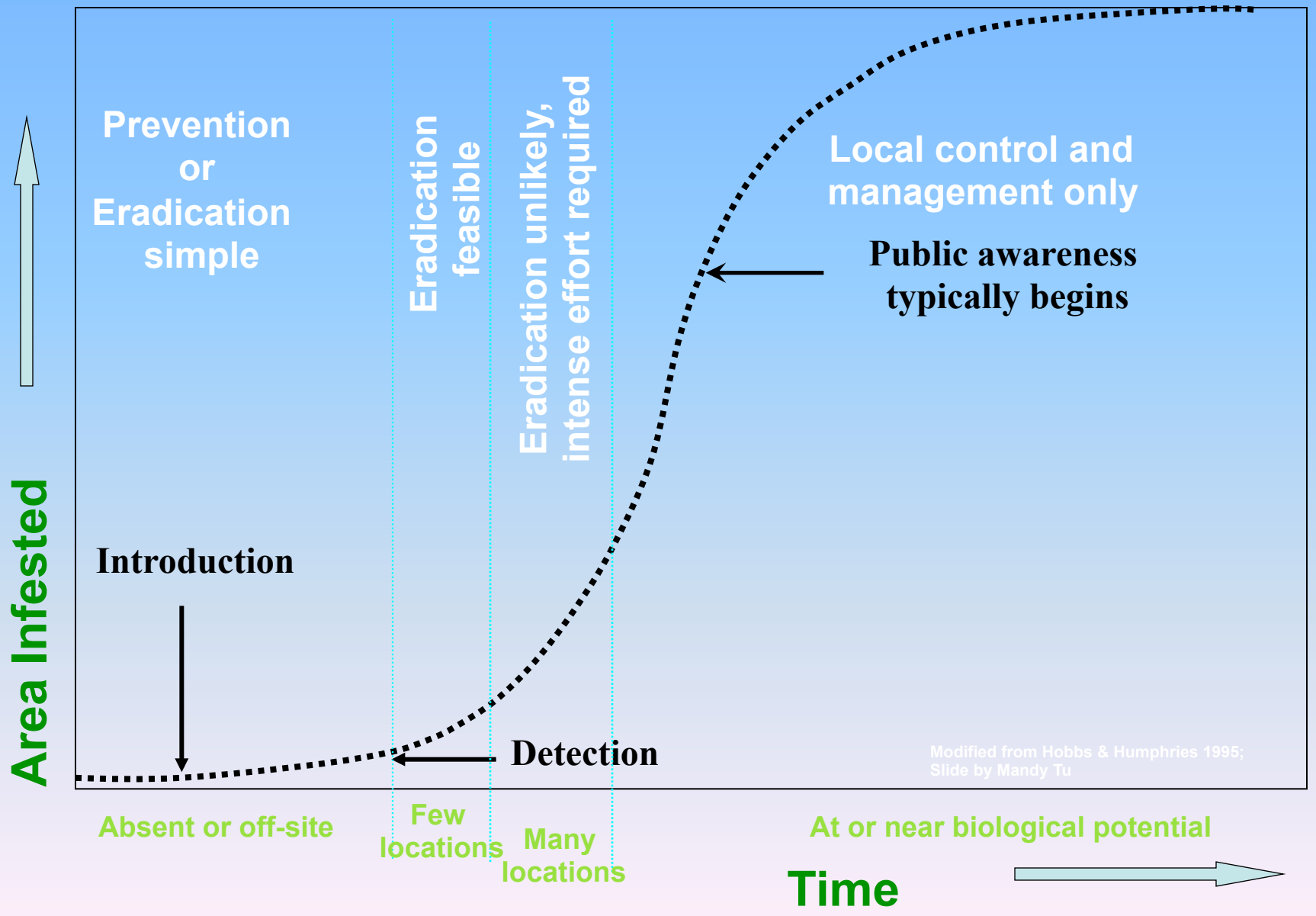
Livestock and wildlife
International trade and travel
Transportation corridors
Land clearing, road building, logging, mining
Recreational Activities (e.g. ATVs, mountain biking).

Ornamental Garden escapees
Seed mixes
Excessive grazing
Hay & Firewood
Gravel & Topsoil
Yard waste
Boats & Trailers

We can prevent infestations…

Tansy ragwort
Photo: J. Atland

Prevention and early detection critical



Legislation

Legislation used to address invasive plants in BC :

Federal Seeds Act
Federal Plant Protection Act
BC Weed Control Act
Forest and Range Practices Act & Regulations
BC Community Charter
Local Government Act
Wildlife Act - Controlled Alien Species Regulation
Integrated Pest Management Act

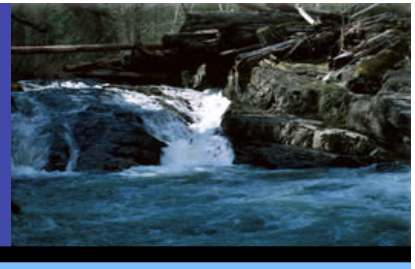
Integrated Invasive Plant Management

Biological Control
Chemical Control
Mechanical and Cultural Control
Monitor & Evaluate

Kamloops' secret weapon in battle against noxious weeds: 440 goats

Source: National Post

Invasive Alien Plant Program

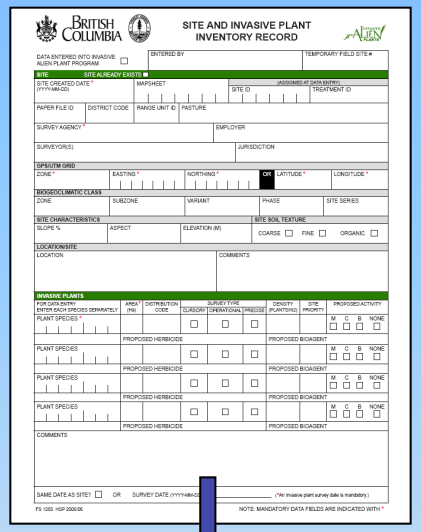


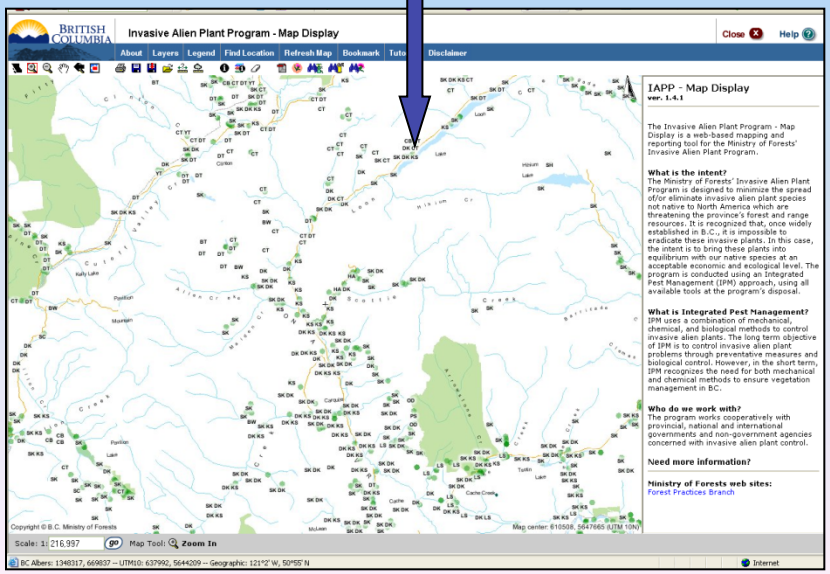
What is it?
Database of invasive plant data in BC

Why do we have it?
Coordinate and share information collected by various groups.

What does it do?
Allows the entry, edit and query of invasive plant data as well and treatment and monitoring information.

Who collects & enters data?
LRISS, other invasive species committees, provincial & regional governments, NGO's.





Disturbance & Invasives

Sources of disturbance that can spread or establish weeds:

- Fire & Fire suppression activities
- Road building
- Logging & other resource extraction
- Road grading
- Rehabilitation activities

Photo by Garnet Mierau

What can You DO?

http://www.michiganbusinesslawcenter.com

Prevention is the Key! How do you do this?

1.Know your weeds.
2.Carry out Best Management Practices.

What are some "Best Management Practices"?

1. Do not purchase and grow known invasive plants.
2. Keep aggressive plants from escaping your garden or landscaped area.
3. Don't let invasive plants go to seed.
4. Learn to recognize invasive plant species.
5. Report invasive species to the local invasive species society.

Best Management Practices Continuted

Best Management Practices for Forestry Operations

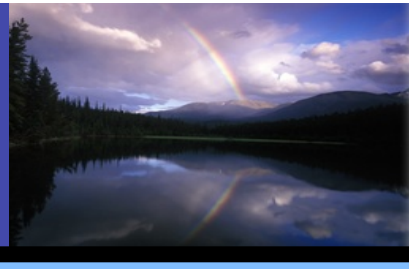
1. Prevent moving seeds by cleaning your personal gear (eg. boots), equipment, tools and machinery of **soil and mud**.
2. Inspect gear, tools, equipment & machinery before leaving an area for burrs and vegetation and dispose of them in tightly sealed bags in the garbage.
3. Avoid parking machinery and vehicles in invasive plant infested areas.
4. Regulate or prevent human and livestock entry into logged areas (and new road systems) until desirable site vegetation has recovered sufficiently to resist invasion by undesirable vegetation.
5. Detect weeds early and eradicate before vegetative spread and/or seed dispersal.
6. Eradicate small patches and contain or control large infestations within or adjacent to new roads or logged areas.
7. Re-establish vegetation on bare ground as soon as possible.
8. When planning for seeding, request Certificates of Seed Analysis for review prior to purchasing seed to ensure that seed is not contaminated with B.C. Noxious Weeds.

Best Management Practices Continued

Best practices for the Range and your Horse:

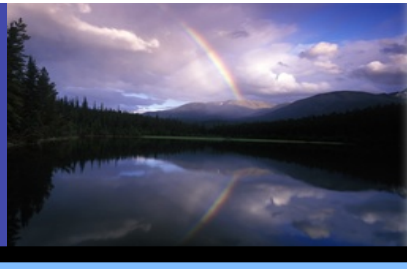
1. Be always on the look out for invasive species in your home pastures and on the range.
2. Good grooming habits, for the most part, will decrease the risk of spreading invasive plant material.
3. Before you leave home, clean hoofs and inspect your tack for plant material.
4. It is important to check your horse when transitioning from one habitat to another. This is especially important when moving in and out of alpine and riparian habitats. Take the time to inspect your horse and tack for burrs and other plant material.
5. If there is a build-up of dirt or mud, clean your horses hooves with the hoof pick – seeds will travel in the dirt.
6. If you find any plant material or burrs on your horse, that could be invasive – take the cautious route: bag it and deposit it in the garbage when you return home.
7. When you are home and find suspicious plant material, do the same.

Blueweed (Echium vulgare)



- Biennial to short-lived taprooted perennial growing to 1 metre high.
- Stems covered in stiff hairs with swollen reddish to black bases where attached to stem.
- Invades rangelands, pastures, roadsides and idle areas particularly on coarse, sandy to gravelly soils.
- Produces 500 to 2,000 seeds per plant.

Burdock (Arctium spp.)

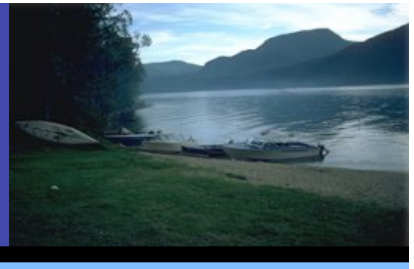


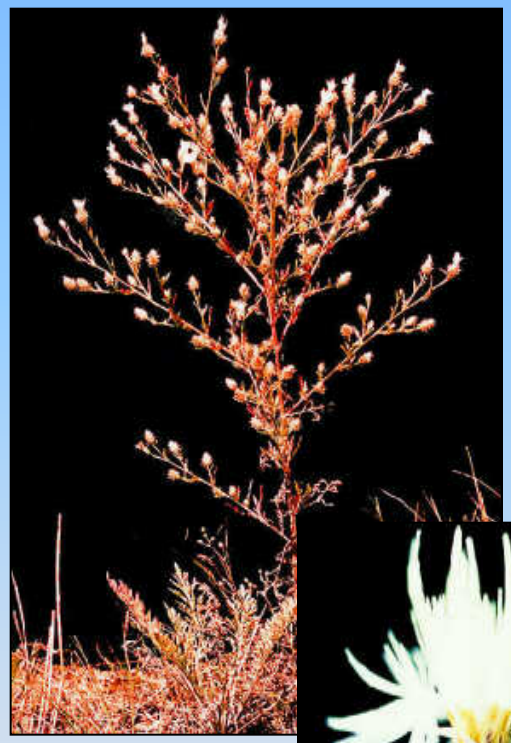
Mary Ellen (Mel) Harte, Bugwood.org

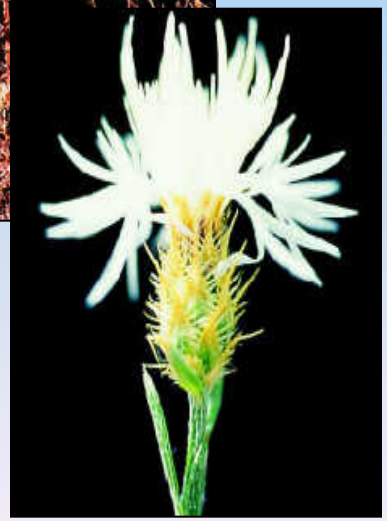
- Biennial thistle.
- 1-3 meters tall.
- Invades rangelands, pastures, roadsides and idle areas.
- Well known for large prickly burrs that attach to clothing and animals.
- Large purple flowers.

Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org

Knapweed (*Centaurea* spp.)







Diffuse knapweed (*Centaura diffusa*)

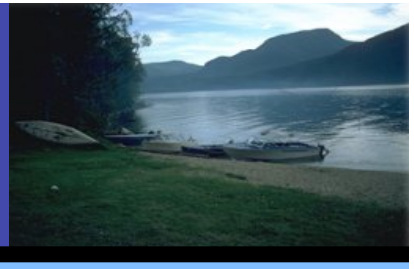
Knapweed arrived in BC's interior, from Europe, over 70 years ago. Both species are perennials that prefer to infest disturbed or idle sites and can produce up to 25,000 seeds per plant! Typically, it distributes seeds by breaking off at the base and tumbling…

Spotted knapweed (*Centaurea maculosa*)

Oxeye Daisy (Chrysanthemum leucanthemum)

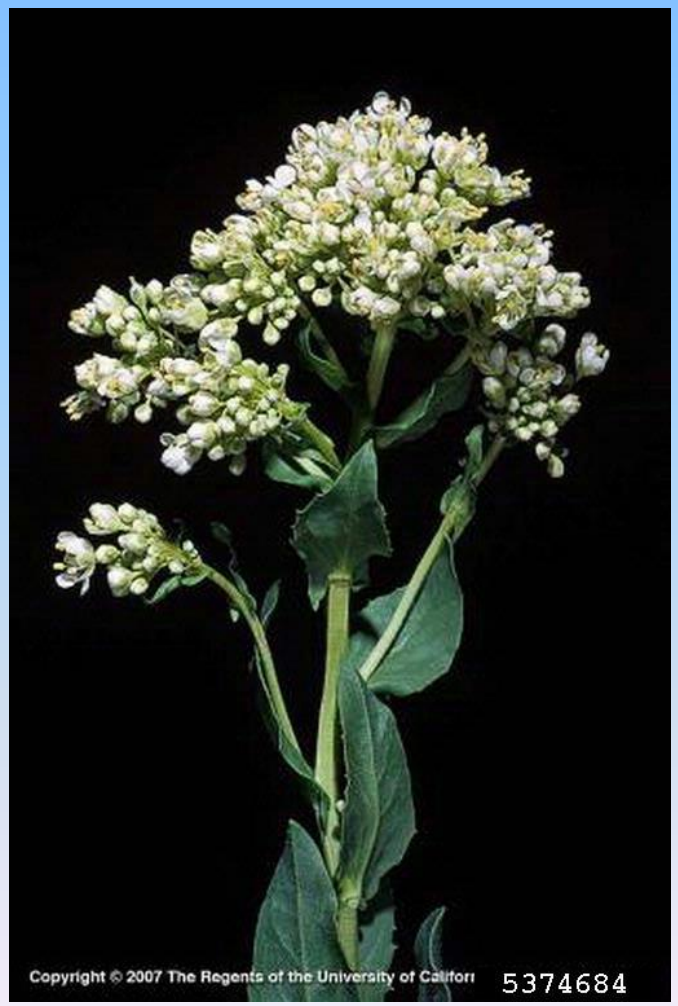
- Short-lived perennial. Mature plants are 20-80 cm in height.
- Often confused with the **ornamental Shasta daisy**.
- Can form dense infestations in pastures and on rangeland, reducing forage for livestock and wildlife because of its disagreeable taste.
- Spreads by seed and creeping underground stems.

Hoary alyssum (Berteroa incana)



- Usually biennial (can behave as annual or short lived perennial)
- .3-1.1m (1-3')tall, has a taproot.
- Star shaped hairs on leaves, stem and seeds.
- Long continuous flowering and seed production June to October.
- Clusters of small deeply notched white flowers
- 6-14 seeds per pod.
- Can be toxic to horses.

Hoary Cress (Lepidium draba)



Joseph M. DiTomaso, University of California - Davis, Bugwood.org

- Creeping rooted perennial in the Mustard Family .
- Grows from 0.1 to 0.6 metres tall
- Numerous white flowers produced at the top of the plant give rise to its other common name of "white-top" .
- Heart-shaped seedpods distinguish this hoary cress from other species.

Hound's-tongue (*Cynoglossum officinals*)

Cow covered in burs

It is a biennial originating from Europe. It has purple flowers and produce burrs and are easily dispersed by humans, wildlife, and cattle.

Contains toxic alkaloids that can cause liver damage to cattle, deer, horses & goats.

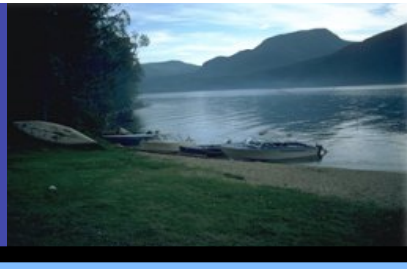
Biocontrol: Mogulones cruciger – weevil

Knotweed (*Polygonum* spp.)

It was originally introduced from Asia as an ornamental **Bamboo** and is still used in gardens. It is highly invasive and is found along roadsides and wetland areas. It is extremely difficult to control once it has established.

It primarily reproduces vegetatively through long creeping rhizomes or by root fragments.

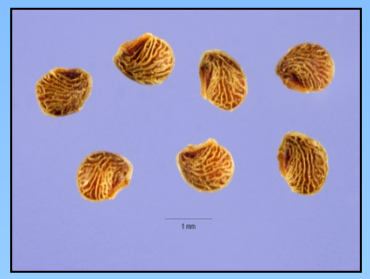
Orange Hawkweed (Hieracleum aurantiacum)



- European introduction, garden ornamental, wildflower seed mixes.
- Range-red flowers clustered atop leafless stem, milky juice when broken.
- Grows .3-1.2m tall (1-4 ft.), Flowers June-Aug Seeds July-August. Basal leaves covered in stiff hairs.
- Vegetative spread rapid by above ground runners (stolons) and below ground rhizomes can form dense mats quickly.

Sulphur cinquefoil (*Potentilla recta*)

- Perennial, Long lived 20 years,
- Flowers light yellow 5 petals
- Fibrous roots with rhizomes.
- Leaves 5-7 toothed leaflets conspicuous perpendicular hairs on the leaf stems.
- Flowers June-September, Seeds set July-September.
- One of 27 *Potentilla* species found in BC! The best way to identify it is by the wrinkled seeds and the conspicuous perpendicular arrangement of the hairs on the stem.



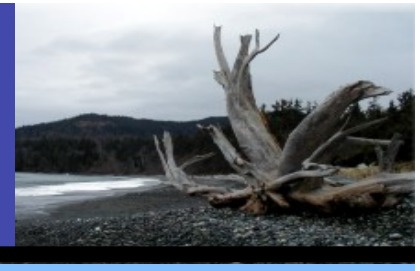
Leafy spurge (*Euphorbia esula*)

- Leafy spurge produces a milky latex that can cause skin irritation in humans and is toxic to some grazing animals.
- Its deep creeping root system makes controlling it quite challenging!
- Roots can extend up to 4.5 meters laterally and up to 9 meters deep.
- Seven biocontrol species.

***Aphthona nigriscutis* flea beetle feeding on leafy spurge.**

Biocontrol: Apthona nigricutis

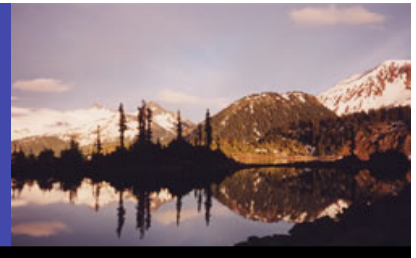
Dalmatian toadflax (*Linaria dalmatica*)



A perennial from southern Europe with waxy leaves and vibrant yellow 'snap-dragon' flowers. Be sure to remove ALL the roots because it can reproduce both by seed and the creeping root system!

Five bioagents have been released. Mecinus janthinus beetle has had success in reducing the infestation populations.

Canada thistle (*Cirsium arvense*)



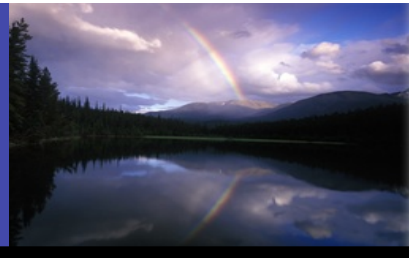
It is a perennial that can grow up to 5 feet tall with small, purple flower clusters and irregular spiny lobes. It spreads by root and seed!

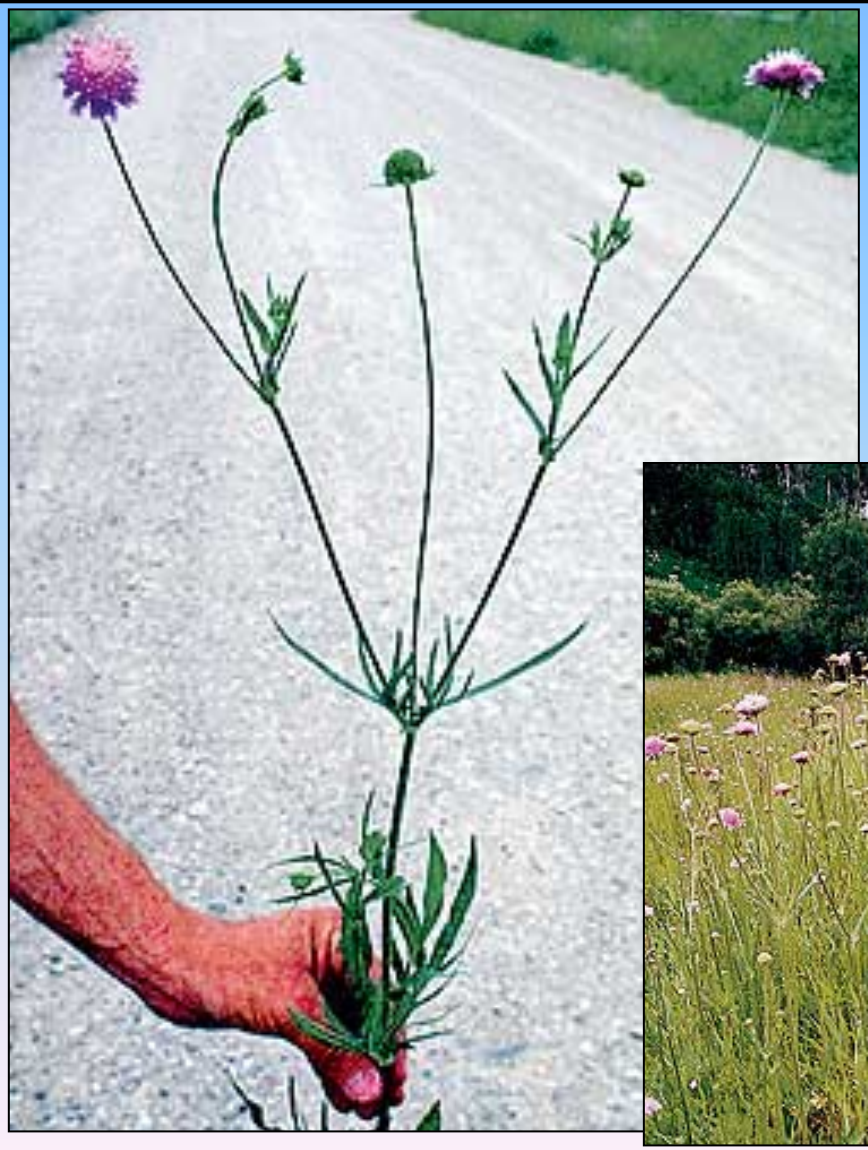
Biocontrol:
A seed weevil (Larinus planus)
Stem gall fly (Urophora cardui)
Leaf-eating beetle (Altica carduorum)
Stem and root mining weevil (Hadroplontus litura)

Common Tansy (Tanacetum vulgare)

- Aromatic perennial growing to 1.8 metres tall; deeply divided dark green leaves.
- Yellow "button" flowers in cluster at top of plant.
- No ray flowers
- Often confused with tansy ragwort (*Senecio jacobaea*) that has ray flowers.

Field scabious (Knautia arvensis)





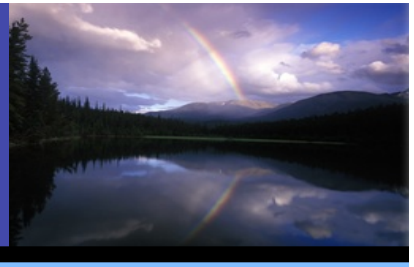
- Taprooted perennial in the Teasel Family growing to 1.3 metres in height.
- Violet-blue flowers; stems and leaves with short, stiff hairs.
- Produces up to 2,000 seeds per plant.

Rush skeletonweed (*Chondrilla juncea*)

- Rush Skeletonweed is from southern Europe and prefers well-drained, light textured soils – readily found in gravel pits.
- It is very hard to pull or dig because its taproot can penetrate up to 2.5m into the ground!

Biocontrol:
Aceria chondrillae – gall mite

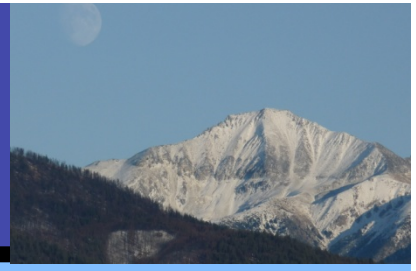
Giant hogweed (*Heracleum mantegazzianum*)



- It is a perennial member of the parsley or carrot family and is native to Asia.
- It can reach 6 meters or more in height.
- It has readily invaded southern Vancouver Island, the Gulf Islands, and Vancouver.

- In addition to being tenacious and invasive, it is a threat to human health. It has blister-like pustules, which form on its stems and stalks, exude a clear watery sap that sensitizes skin to ultraviolet radiation. Affected areas are subject to severe burns that usually result in blistering and painful dermatitis.

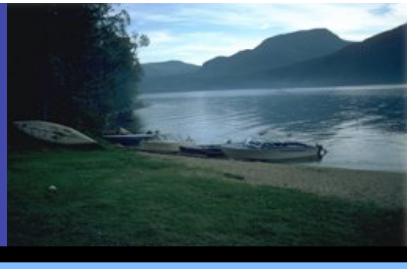
Marsh plume thistle (Cirsium palustre)



- Biennial growing erect to about 1.5 metres.
- Slender stems are strongly spiny-winged and are usually unbranched except the upper portion which terminates in clusters of purple flower heads;
- Deep segmented, spine-tipped leaves are somewhat hairy on the underside and has prominent woody veins.

- This native of Europe prefers moist woodlands, riparian areas, roadsides and pastures on both disturbed and undisturbed sites.
- Biocontrol: Rhinocyllus conicus: seed eating weevil. Trials of use in the Robson Valley.

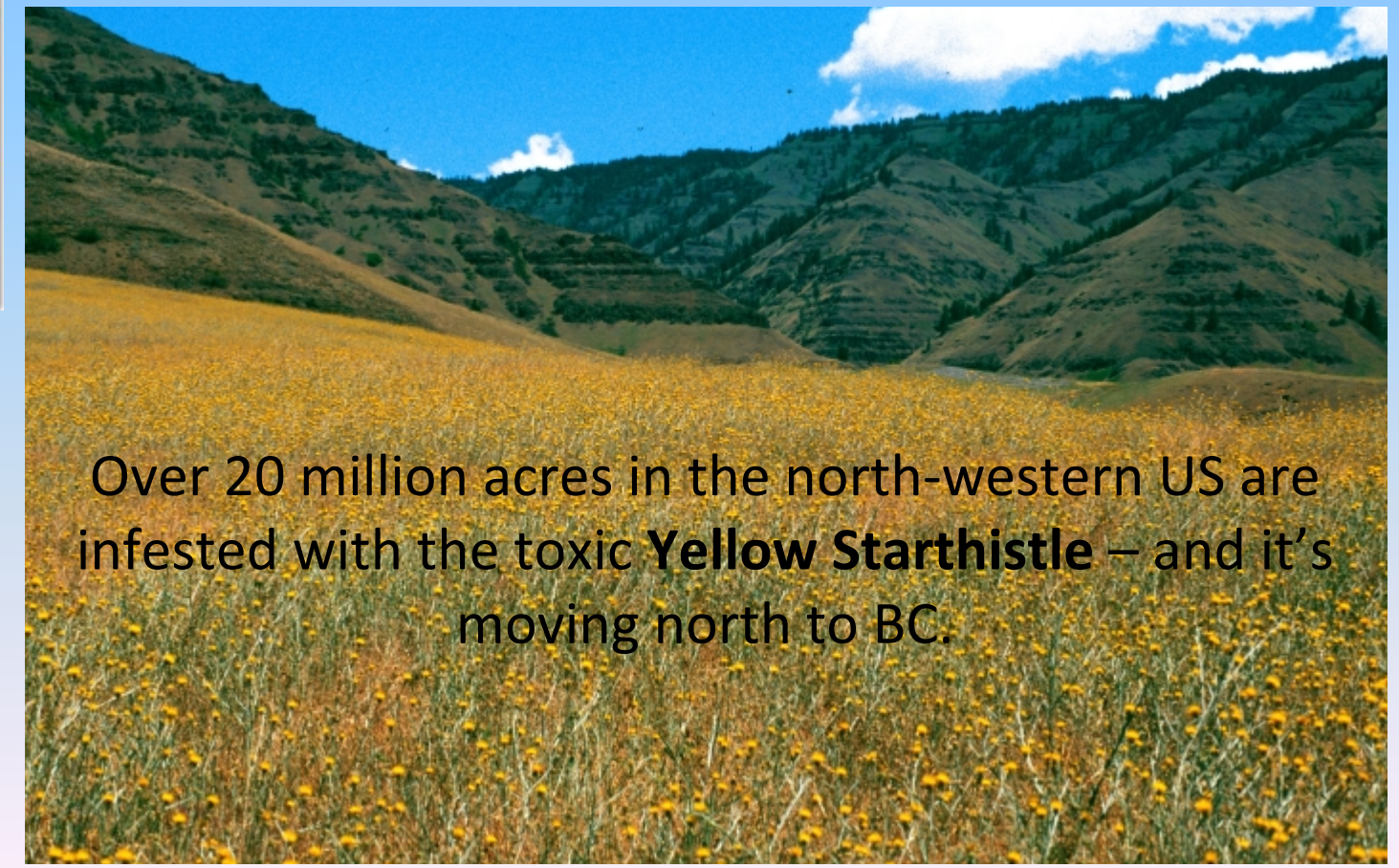
Yellow star thistle (Centaurea solstitialis)



- Annual.
- Tap rooted
- Heavily branched weed grows from 0.6 to 1 metre tall.
- Stems are winged and covered with fine hair. Yellow flowers are borne on ends of branches and armed with sharp thorns up to 2 cm long.

HIGH ALERT

This species is currently not in our province.

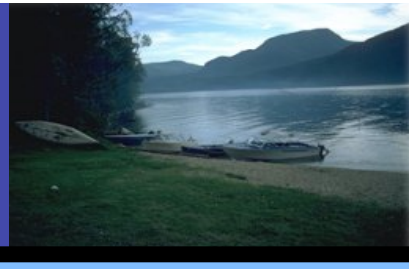


The URGENT Threat!

Once infestation, many sites CANNOT be restored…

Spread of noxious weeds is the second most significant threat to world biodiversity behind habitat loss.

Aquatic Invasives: Purple Loostrife (Lythrum salicaria L.)

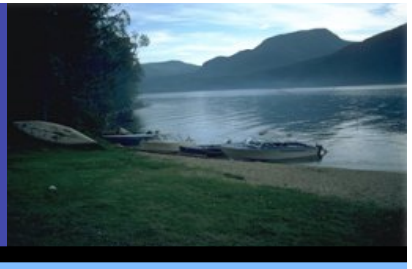


- Introduced as a garden ornamental but spreads rapidly into natural wetland , lakes and river habitats.
- One plant can produce over 2.5 million seeds annually.
- Wetlands can lose 50-100% of their native biomass due to Purple Loosestrife invasion. (Thompson et al. 1987).
- There are 3 biological control agends for purple loosestrife: a root boring weevil (Hylobius transversovittaus) and 2 leaf eating beetles (Galerucella calmariensis and pusilla).

Yellow Flag Iris
(Iris pseudacorus)

- Introduced as a garden ornamental and is still sold widely in nurseries and on the Internet.
- Dense stands exclude native wetland species, threatening plant and animal diversity.
- This plant is very difficult to control once established. Plants can be dug up in small infestations or flower heads can be clipped in larger infestations to prevent seed production.

Didymo (rock snot/river snot)
(Didymosphenia geminata)



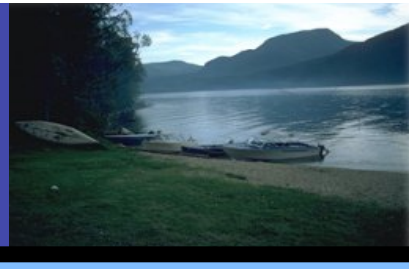
Didymo appears slimy but feels like wet cotton wool; it can be beige, brown or white but not green and does not fall apart or feel slimy or slippery when rubbed between your fingers.

- It only needs a single cell to be transported for the algae to spread. It seems that Didymo has been spread on the felt soles of fly fishers' waders.
- Didymo can live up to 90 days in damp gear and equipment.
- Disinfection procedures require hot water, bleach or long-term drying.

Eurasian Water Milfoil
(Myriophyllum spicatum)

- Mats choke out native plant species, impact fish, and impede recreational use.
- Leaves are approximately 5cm long and whorls of 3 to 6 leaves around the stem.
- Eurasian water-milfoil is known in Shuswap, Kootenays, Lower Mainland, the Okanagan and Nicola Lakes.

Zebra & Quagga Mussels



Dreissena polymorpha
(Zebra mussel)
(Actual size = 15 mm)

Sits flat on ventral side

Triangular in shape

Color patterns vary

Dreissena rostriformis bugensis
(Quagga mussel)
(Actual size = 20 mm)

Will not sit flat on ventral side, topples over

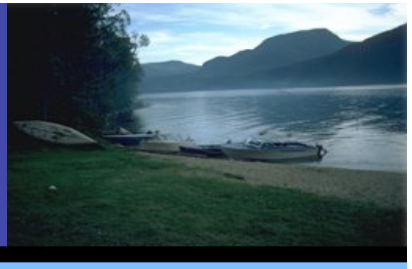
Rounder in shape

Dark concentric rings on shell

Paler in color near the hinge

U.S. Geological Survey

Zebra & Quagga Mussels Impacts



zebra mussels on unionid clams

quagga mussels in a pipe

Aquatic Invasives: Take Action
Clean, Drain, Dry

Invasive Species Council of British Columbia

- The CDD pilot program was aimed at changing behaviour with regard to the spread of aquatic invasives in 2012.
- Crews were stationed at the Seton & Pavilion boat launches to survey boat owners and demonstrate how to Clean, Drain & Dry their boats and trailers.
- One interesting result from Seton Lake was a boat originating from Washington.

Not just Plants – Invasive Species

Eastern Gray Squirrel

Source: oldislandpestcontrol.com

European Fire Ant

Zebra & Quagga Mussels

Source: nas.er.usgs.gov

Tips for Plant Collection

What if you find a "suspicious" plant and don't know what it is?

<u>Collection Tips:</u>

- Always carry plastic bags with you – preferably ziplock bags.
- Take a sample plant home with you in one of these bags.
- Be sure to get all of the plant (flower, if in bloom, stem, leaves and root for identification purposes).
- Make a note of when and where you found the plant. It is best to write on the bag.
- If you can, GPS the location.
- Once you get it home and have identified it, you should dispose of it properly so it won't spread. Bag it and take it to the dump!

LRISS – What can we do for you?

Resources:

Website
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Report a Weed App
Professional Advice
Links to experts

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Our website: www.lriss.ca

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Acknowledgements

LILLOOET REGIONAL INVASIVESPECIESSOCIETY

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St'at'imc Government Services

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BC Hydro

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BRITISH COLUMBIA Ministry of Forests, Lands & Natural Resource Operations

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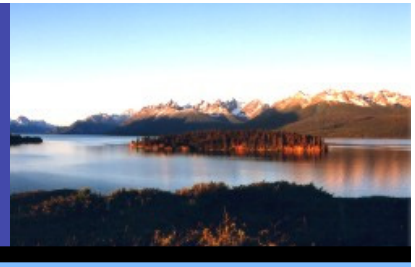
Squamish - Lillooet REGIONAL DISTRICT

BC hydro FOR GENERATIONS

References



Images courtesy of Weeds BC, Ministry of Agriculture and Lands, Ministry of Environment (BC Parks), Central Okanagan Regional District (Rhoda Mueller), Crystal Klym, Ministry of Forests and Range, Montana Department of Agriculture, Garnet Mierau of LinBir., US Geology Department.

Information collated from:

~ Weeds BC (A Guide to Weeds in BC)
~ Ministry of Agriculture and Lands
(http://www.agf.gov.bc.ca/cropprot/invasiveplant.htm)
~ Southern Interior Weed Management Committee
~ Northwest Invasive Plant Council
~ Ministry of Environment (Invasive Plants in BC's Protected Lands: A Strategic Plan & Best Management Practices)
~ Ministry of Forests and Range: Invasive Alien Plant Program
~ Invasive Species Council
~ Field Guide to Noxious and Other Selected Weeds of British Columbia

Questions?

Let us know if you have any questions.

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