Why be vigilant about defending your pastures?

• If pasture is part of your yearly feeding program, noxious weeds are costing you money by reducing availability of edible grasses

• Invasive plants may lead to loss of valuable topsoil; erosion; mud and dust

• Your horses’ health may be at stake due to the presence of toxic species

• You have obligations under The Weed Control Act – “an occupier must control noxious weeds growing or located on land and premises, and on any other property located on land or premises, occupied by that person”

• If not you, who? Invasive plants have no natural predators here and only we can stop them from taking over our ecosystems
Outline

1. 3 Important Pasture-Invasive Plants by Region (Northwest Coast, Peace River Country, Cariboo Chilcotin, Kootenay Rockies, Thompson Okanagan, Southwest and the Islands)

2. Prevention and Recovery

3. Species with Possible Toxicity for Equines
Northwest Coast

**Himalayan Blackberry** – reproduces by seed, and by rooting at stem tips to form daughter plants. Out-competes grasses by shading and the production of impassable dead thickets. Hard to eradicate – best bets are twice-yearly mowing, before flowering, in combination with root removal and tillage. Goat grazing has proved somewhat effective.

**Wild Carrot, also known as Queen Anne’s Lace** – reproduces by seed. Forms a deep taproot, and is best controlled by mowing at late flowering stage, and tillage. Chokes out pasture grasses with vigorous production and base leaf mats.

**Blueweed** – reproduces via rough seeds which stick to clothing, hair and feathers, up to 2800 seeds per plant. Competes with pasture grasses by forming a base leaf mat. Control by pulling, or by mowing frequently. Due to the ability to re-sprout, mowing must be done repeatedly until all root viability is ended.
Orange Hawkweed – This plant spreads through above ground runners, horizontal roots, seeds and root buds, and like many other noxious weeds, forms a base mat of leaves that overwhelms grasses. Hawkweeds are sometimes found in commercial wildflower seed mixes – read labels carefully.

Common Tansy – Reproduces by seed and rhizomes, often forming dense vegetative colonies. Dig these out in the spring – always wear gloves as common tansy has toxic properties. Sometimes confused with Tansy Ragwort, the difference can be readily seen in the flowers – Tansy Ragwort has spiky petals, Common Tansy is a tight cluster.

Alsike Clover – This plant, although perhaps safe for some horses to ingest in tiny amounts, is best avoided as it can cause severe liver damage, jaundice and photosensitivity, particularly in horses with a lot of white. Check labels; alsike clover is often present in bagged seed. A favorite crop for honey bees, and widely distributed in BC.
Hoary Alyssum - Toxic to horses, it can cause fever, limb edema, and laminitis. Sensitivity varies when small or single doses are ingested, and death has only been reported in horses that have consumed hay infested with a large proportion (30-70%) of hoary alyssum. Reproduces via seed – mowing before seed set can be effective, but plants will regenerate low to the ground below mower height.

Blueweed – reproduces via rough seeds which stick to clothing, hair and feathers, up to 2800 seeds per plant. Competes with pasture grasses by forming a base leaf mat. Control by pulling, or by mowing frequently. Due to the ability to re-sprout, mowing must be done repeatedly until all root viability is ended.

Orange Hawkweed – This plant spreads through above ground runners, horizontal roots, seeds and root buds, and like many other noxious weeds, forms a base mat of leaves that overwhelms grasses. Hawkweeds are sometimes found in commercial wildflower seed mixes – read labels carefully.
Cariboo Chilcotin

**Orange Hawkweed** – This plant spreads through above ground runners, horizontal roots, seeds and root buds, and like many other noxious weeds, forms a base mat of leaves that overwhelms grasses. Hawkweeds are sometimes found in commercial wildflower seed mixes – read labels carefully.

**Spotted Knapweed** – currently a major concern in the Cariboo, Knapweed is another mat-forming invasive plant of great adaptability. It spreads by seed. Pulling, cutting or mowing is most effective when completed prior to seed set.

**Oxeye Daisy** - may compromise vegetative ground cover due to its growth form that results in exposed soil. A single plant produces underground stems, and 26,000 seeds. Due to its unpleasant taste, most grazers avoid this plant, leaving it to spread easily within grazed grasslands, pastures, and rangelands. Mowing may be effective, with repetition, and grazing with goats has been known to keep infestations in check.
Southwest Coast & Islands

**Tall Buttercup** – with a very robust underground system, Buttercup is easiest to pull up in spring when it’s less than 3 inches high. Unfortunately pastures in this region are often underwater at that time of year. Buttercup can spread over a 40 square foot area in a year. Mowing at least twice per season to prevent seeding can be effective.

**Himalayan Blackberry** – growing in dense thickets in pastures, this aggressive plant spreads quickly and causes much economic and ecological damage. Eradication is a challenge. Mechanical means can be effective, as can certain herbicides, but it can take years to remove this plant. Seeds are in berries, and daughter plants are created for close spread.

**Common Burdock** – the burrs of this plant were the inspiration for Velcro, and it’s best to mow before seed set to prevent their growth and transfer to horses manes and tails. Large underground tap roots will need to be tilled to fully remove these plants.
Orange Hawkweed – This plant spreads through above ground runners, horizontal roots, seeds and root buds, and like many other noxious weeds, forms a base mat of leaves that overwhelms grasses. Hawkweeds are sometimes found in commercial wildflower seed mixes – read labels carefully.

Spotted Knapweed – A member of the Aster family which also includes sunflowers, over 40,000 hectares of BC is Knapweed infested. Knapweed is another mat-forming invasive plant of great adaptability. It spreads by seed. Pulling, cutting or mowing is most effective when completed prior to seed set.

Canada Thistle – reproduces via seed and horizontal roots, with the root system being it’s more effective method. In one year, a single plant may extend over a curricular area 6.1 m in diameter. Mowing to starve roots and tilling can be effective if you’re persistent.
Prevention and Recovery

With invasive plants, **prevention** is highly superior to cure, because the cure can be the hard work of years. It’s worth it to ride or walk your pasture land frequently and stop infestations before they take hold. Preventative measures include:

- Seeding throughout already planted grasses, called overseeding, will keep bare spots, which allow weeds a foothold, down.
- Mow your pastures at least twice a year, and drag a harrow after mowing to break up and spread manure. A good time to spread seed is right after harrowing.
- Practice rotation and the use of sacrifice areas to allow your pasture to regenerate – don’t overgraze. A good rule of thumb for rotation is moving to the next pasture section every 3 to 6 days, or when grasses are around 3 - 4 inches high.
- If your pasture is a feed source, horses with a mature weight of 1,000 to 1,200 pounds generally need 1.75 to 2 acres of pasture – try not to overtax your pasture grass with too many horses.
- Test your soil and add lime and fertilizer as needed.
- If desired, treat invasive species present with a broadleaf herbicide – those containing 2, 4 D (Dichlorophenoxyacetic acid) or MCPA (2-methyl-4-chlorophenoxyacetic acid) are effective. Check in with your regional Agrologist or Regional District Invasives Specialist on getting the most from these products.
Sometimes, renovating a pasture becomes necessary – although it’s a good idea to be sure that just upping your management game might not do the trick, first. However, if your pasture is less than 25% grasses and the balance is in invasive species, a renovation may be indicated. Proper pasture renovation is a bigger topic than we can effectively cover here – we’ve provided ways to get more information on that at the end of the presentation. However, a tip prior to tilling:

• If you’re comfortable with it, determine which invasives are present and use a good broadleaf herbicide – some species, such as Canada Thistle, will just spread throughout the pasture and re-grow from small fragments unless treated first.

Have your soil tested for pH after tilling and add lime and fertilizer as needed. This allows for more efficient use of fertilizers, especially phosphorous and lime which need to be in the root zone as they do not move down readily when applied on the surface.
Alsike clover, in either hay or pasture form, is poisonous to horses. It can trigger a severe skin reaction to sunlight or it can kill horses within 24 hours of exposure. The plant contains a toxin, thought to be an alkaloid, which causes liver damage.

Horses with alsike clover poisoning may show signs of liver disease; they may go off feed and seem colicky. They may also pass brown urine and clay-coloured manure. Skin lesions and photo-sensitivity may also develop. Offer clover-free feed immediately and keep the horse out of sunlight.

If you think your horse may have ingested Alsike Clover, call your vet immediately.
Some Toxic Species 2

- Tansy ragwort is another invasive plant that can be fatally toxic to horses, whether consumed fresh or dry. Bitter to taste, most horses wouldn’t touch this plant unless trying to ward off hunger. Symptoms include:
  - Weakness and lethargy
  - Difficulty standing
  - Walking in circles
  - Staggering
  - Yellow mucous membranes or jaundice
  - Weight loss through lack of appetite
  - High fever
  - Restlessness
  - Photosensitisation
  - Liver failure
  - Loss of sight

If you think your horse may have ingested Tansy Ragwort, call your vet immediately.
Hoary Alyssum is toxic to, and can cause fever, limb edema, and laminitis. Sensitivity varies when small or single doses are ingested, and death has only been reported in horses that have consumed hay infested with a large proportion (30-70%) of hoary alyssum. Not all horses will be affected by this plant. The toxin in Hoary Alyssum is unknown, but symptoms include:

- Stocking up, sometimes including pitting edema
- Elevated body temperature

If horses are removed from an infested pasture or infected hay source, recovery is usually achieved within four days. If left unchecked, however, many horses will go on to develop laminitis.
Horsetail has been present on the planet since the Paleozoic era and is distributed throughout the world. A horse would have to consume a large quantity of the plant fresh, over a period of 10 days to 2 weeks, to be affected, but the presence of horsetail dried in hay to a quantity of 20% or more will produce toxic effects. The first signs might be a scruffy physical appearance, weight loss (without a particular loss of appetite), diarrhea, and slightly uncoordinated movements. If not treated, the disease will progress to a point where the horse will show a loss of muscular control, staggering gaits, and extreme balance issues. The horse is prone to become uneasy and nervous due to the inability to control muscle movement, it might lie down and not be able to get up, and seizure, but the horse ultimately will die from sheer exhaustion within approximately one to two weeks.

Check your hay carefully (always a good practice)- if your horse is displaying symptoms and you suspect horsetail may be the cause, call your vet. Early intervention is the key to full recovery.
Some Toxic Species 5

**Water Hemlock** is considered one of the most toxic plants in North America. All parts of the plant contain a cicutoxin alkaloid that affects the central nervous system, but the toxin is most concentrated in the root. Because cattle are more likely to pull up and consume the root, that species is considered most at risk of poisoning, but horses have also been known to browse the plant; less than a pound of the leaves and stems can be fatal. Symptoms of anxiety and muscle twitching are noted, particularly around the lips, nose, face, and ears, followed by seizures and teeth grinding. Trampled roots of the plant leaching into a still water source such as a pond is also dangerous.

Water hemlock is present throughout BC and is highly toxic to humans also; handle with care.
Blueweed is present in the Cariboo, Central Kootenay, Columbia-Shuswap, Okanagan-Similkameen, and Thompson-Nicola and can present toxicity problems to horses and cattle. It contains alkaloids that can cause liver damage.

Careful removal of blueweed is necessary, making sure you get the large taproot. As with other toxic species, horses generally don’t bother with this plant unless driven to by sparse other choices.
Common Mallow is another toxic plant that horses are not usually attracted to but will eat in the absence of better forage. Symptoms include muscle twitching, inability to rise, high heart rate, and sweating.

It has fairly limited distribution in BC but is one to watch for, near marshy and boggy areas, and eradicate with care.

If you think your horse may have eaten Common Mallow, call your vet.
There are hundreds of invasive plant species threatening pasture and rangeland health in BC, and up to 10 of those present threats to our horses’ health and wellbeing, although luckily their general unpalatability means that they are usually only ingested when the horse can find little else to eat. We’ve touched on only a few today. It’s up to all of us as horsekeepers to walk or ride our pastures, make sure our horses continue to have enough pasture grasses to occupy and nourish them, supplement with hay as needed, and that we routinely identify invasive plants and take steps to eradicate them.

This webinar has attempted to assemble a few of the most prevalent invasive plants distributed around the province, together with a look at best practices, with a view to giving you a starting point for finding out more about your local threats and challenges.

Contact your local Regional Agrologist, Invasive Species Council of BC Committee or Regional District Invasives Specialist to discuss your area and get sound advice on current management practices.
Find Out More

Invasive Species Council of BC & Regional Committees
http://bcinvasives.ca/about/partners/bc-stakeholders/regional-committee-map/

Peace River Regional District
http://prrd.bc.ca/services/invasive-plants/

Regional District of Fraser-Fort George
http://www.rdffg.bc.ca/

Regional District of Central Kootenay

Regional District of North Okanagan

Cariboo Regional District
http://cariboord.ca/services/invasive-plants/crd-invasive-plants
Find Out More

Fraser Valley Regional District
http://www.fvrd.ca/EN/main/services/invasive-weeds.html

Invasive Species Council of BC Field Guide

Ministry of Forests, Lands and Natural Resource Operations
https://www.for.gov.bc.ca/hra/Plants/

Equine First Aid (Glossary of Species Toxic to Horses)
http://www.equinefirstaid.ca/learning-resources

Organic Pasture Renovation
http://www.uworganic.wisc.edu/pasture-renovation/

Ministry of Agriculture and Food
http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/plant-health/invasive-pests-and-biosecurity

How You Can Help
http://www.reportaweedbc.ca/

Invasive Species and the Law
The Weed Control Act
http://www.bclaws.ca/civix/document/id/complete/statreg/96487_01

Soil Testing Information
http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/soil-nutrients/nutrient-management/what-to-apply/soil-nutrient-testing
Contact Nancy by emailing: recreation@hcbbc.ca