



Home & Garden Pest Management Guide For British Columbia

2019 Edition

Chapter 3 Invasive and Regulated Pests



Quarantine and Regulated Pests

There are many pests and diseases that threaten British Columbia's agricultural crops, forests and the environment. Some of these 'quarantine' pests are regulated by the federal government, while others are regulated by the province or at the municipal level.

Regulations may require property owners to control certain pests, may prohibit certain plants from being grown in a control area, and may also restrict the movement or transport of certain plants between areas to prevent a pest from spreading. Local and regional regulations and bylaws may vary. If in doubt, contact your city or municipal bylaw enforcement office, your local office of the B.C. Ministry of Agriculture or the Canadian Food Inspection Agency.

The following section on invasive alien species lists several pests and diseases of concern to B.C. If you encounter these pests or suspect that you have them in your garden, contact your local office of the Ministry of Agriculture, or call [AgriService BC](#). More information on many of these pests can also be found in the sections on [specific crops](#) in this guide.

Invasive Alien Species

Invasive alien species (also known as non-native and exotic pests or invasive alien pests) include plants, animals, insects, mites and plant pathogens (bacteria, fungi, viruses, nematodes) that are introduced to a country or region deliberately or by accident, outside of their natural habitat. If environmental conditions and a food source or host is available, introduced pests can often survive, multiply and spread. A lack of natural enemies in their new location is often an important factor allowing their population to increase unchecked.

The economic consequences of new pests may be direct, such as a decrease in crop yield or death of the host; or indirect, such as quarantine restrictions and market closures. For home gardeners this could mean more work protecting plants or containing aggressive plants. Invasive alien pests affect agriculture, forests, rangelands, native plants and animals (biodiversity) by competing for available space and food, or by directly attacking native species. Control measures to prevent the establishment and spread of new invasive pests are not always available.

Challenges to minimizing the risks from invasive alien species include:

- Increased global movement of crops (fruit, nursery, floriculture), vehicles, aircraft and people.
- Climate change – increasing average temperatures making our climate more suitable for survival of new pests.
- Limited resources for early detection and control of introduced pests.

The Canadian Food Inspection Agency (CFIA) has the lead role in protecting Canada from the introduction of new pests and preventing the spread of certain pests between provinces. A list of regulated pests can be found on the [CFIA website](#). The CFIA also conducts annual surveys across Canada to keep track of newly introduced pests and to check for new invaders.

The B.C. Ministry of Agriculture administers the *Plant Protection Act* and the *Animal Health Act* to help prevent the spread of pests and plant and animal diseases. The Ministry of Forests, Lands, Natural Resource Operations & Rural Development administers the *Weed Control Act*.

The key to management of new invasive alien species is prevention, early detection and rapid response to prevent establishment. Control and management of existing invasive alien species is crucial to eradicate or limit distribution of these pests.

What you can do

Help and involvement from the general public is needed to counter the increased risks of invading alien species.

Don't introduce or spread invasive species:

- Do not collect plant material (plants, seeds, cuttings, produce) when on vacation. Even healthy-looking plants can harbour insects and diseases. For information on “What Can I Bring Back into Canada” visit the [CFIA website](#).
- Travellers should also be aware of how alien species can hitchhike hidden on vehicles and goods. Examples include insects in suitcases, fruits, vegetables, wood crates and packaging material; plant seeds and insects in soil attached to plants, stuck to vehicles tires, tent pegs and clothing; plant diseases in infected plants and plant parts (seeds, fruit, wood), and as spores in soil or containers.
- Avoid introducing an alien plant that could become a serious weed problem. When choosing or ordering ornamentals for your garden, consider whether the plant is a ‘fast spreader’ or ‘vigorous self-seeder’ and could this impact nearby grasslands, forests or parks. Refer to the [PlantWise](#) program with the BC Invasive Species Council for more information about invasive ornamentals and recommended alternative plants.
- Do not release aquarium plants or pets such as frogs, snails, turtles or fish into your garden pond or any natural wetland. Many of the species sold in pet stores are invasive and can have negative effects on native animals and ecosystems. Introduced aquatic plants such as Eurasian Watermilfoil and Parrot Feather displace native species and cause thick underwater stands that interfere with recreation. The American Bullfrog and the Red-eared Slider turtle have been rapidly expanding their range in B.C. primarily due to human facilitated introductions. Refer to the [Don't Let it Loose](#) program for more information.
- Many store bought animals, and even plants, carry with them parasites and diseases that can have a drastic effect on native animals if released into the wild. An example of this is the emerging amphibian infectious disease caused by the chytrid fungus *Batrachochytrium dendrobatidis*. This disease has been identified as one of the primary threats in the global decline of amphibians.
- Do not capture frogs, toads, fish and other animals from the wild and move them to your garden pond or wetland on your property. Do not move frog eggs from the wild into your garden pond. This is against the Wildlife Act of B.C. The animals may not survive in their new environment and even if they do, they may have the negative effects described above.
- Do not transport aquatic invasive plants and organisms such as invasive mussels on your boat. Refer to the [Clean Drain Dry](#) program website for more information on how to protect BC waters.

- Do not transport firewood outside of the area it was produced. Firewood can spread serious pests and diseases such as Dutch Elm Disease, Gypsy Moth and Emerald Ash Borer. Refer to the [Buy it Where you Burn it](#) program website for more information.

If you suspect a new invasive species:

- Call a local garden center where knowledgeable staff are often available to help with pest identification. Call ahead as some garden centers do not want pests brought to their establishments. Secure samples in a container or plastic bag before transporting.
- Bring samples to your local Ministry of Agriculture office. They will forward any suspicious samples to specialists to determine if they are alien species. The provincial [Plant Health Laboratory](#) will accept suspect invasive alien species samples free of charge. If you have any questions about the submission process, please call 1-800-661-9903.
- Report invasive plants by calling 1-888-WEEDSBC or use the [Report-a-Weed App](#).
- Contact the CFIA at 1-800-442-2342 or via the [CFIA website](#) regarding suspected new invasive pests. You will be directed to the nearest office to make your report or submit a sample of the suspicious insect or plant. You will be asked to describe where and when you found the plant or plant pest, and an inspector may ask to visit the area.

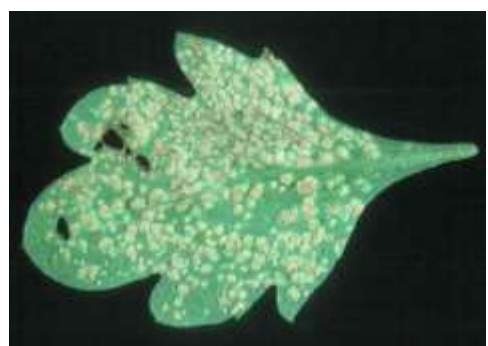
Some Examples of Invasive Alien Pests and Their Impact

Invasive Alien Species – Diseases

Bacterial Ring Rot (*Clavibacter michiganensis* subsp. *sepedonicus*) of potato is not known to occur in B.C. Occasional outbreaks in home gardens and table stock fields have been detected and eradicated. The disease can be prevented by planting only “B.C. Certified” seed potatoes and not using table potatoes for seed or bringing in seed potatoes from outside of the province.



Chrysanthemum White Rust (*Puccinia horiana*) is a fungal disease that has been detected and eradicated several times in British Columbia. The disease is difficult to detect and visual symptoms only develop in the fall when *Chrysanthemum* plants are in bloom. This disease spreads rapidly covering the plants with pustules. It may be confused with brown rust. This fungus is believed to have been introduced to North America through movement of symptomless cuttings.



Dutch Elm Disease (*Ophiostoma ulmi*) has killed the majority of elm trees in Eastern North America. It is not present in British Columbia or Alberta. As one of the few areas in the world still free of this disease, export markets are open to elm stock produced in British Columbia. The disease is transmitted from infected trees to healthy trees by elm bark beetles, which occur in many locations within Southern British Columbia.



Dutch Elm Disease – wilting branch



Native elm bark beetle galleries (bark removed)

Eastern Filbert Blight (*Anisogramma anomala*) has become a common and serious disease in hazelnut orchards throughout the Pacific Northwestern United States and Fraser Valley/Lower Mainland of British Columbia. It causes cankers and sudden dieback of branches, and tree death. Vigour and productivity decline significantly when hazelnut trees are infected with this fungus, resulting in economically unproductive orchards. This disease has not been detected yet in the B.C. Interior.



Plum Pox Virus has never been found in British Columbia. It was detected in Southern Ontario in 2000 and has resulted in quarantine actions and the removal of thousands of trees creating considerable financial losses for fruit growers and nurseries. The virus spreads through infected propagative material and by several species of aphids. The disease was likely introduced to North America on infected budwood smuggled from overseas.



Plum pox virus on peach
Photo courtesy of Ontario Ministry of Agriculture, Food & Rural Affairs

Ramorum Blight and Dieback or Sudden Oak Death (*Phytophthora ramorum*) is not established in British Columbia. This fungus-like organism can cause bleeding cankers on oak trees and is killing oak forests in California. This organism can also infect leaf and stem tissue of a wide variety of nursery plants causing lesions and dieback symptoms. Detections at nursery facilities in California, Washington, Oregon, British Columbia and a few other U.S. states has resulted in intensive eradication efforts. In British Columbia, if it is detected at a nursery, the Canadian Food Inspection Agency eradication activities will include prohibitions on

plant movement and crop destruction. The Canadian nursery sector in conjunction with other stakeholders have developed a **Canadian *Phytophthora ramorum* Certification Program** to minimize the risk of receiving and spreading this organism.



Ramorum leaf blight on rhododendron
Photo courtesy of Joseph O'Brien, USDA Forest Service



Ramorum canker on tan oak
(sudden oak death)

Invasive Alien Species – Insects

Apple Clearwing Moth (*Synanthedon myopaeformis*): The presence of this European pest was confirmed in the Similkameen Valley in 2005 on apple as the first record in North America. This pest is also present in the Fraser Valley and has spread into many areas of the Okanagan Valley. Clearwing moth larvae tunnel under the bark anywhere from below the crown area up to branches. Damage has so far been confined to apple, but in Europe this pest also attacks pear, quince, plum, apricot, cherry, hawthorn, and mountain ash. Infestation can shorten the life of trees and could make the trees susceptible to attack by other insects and diseases.

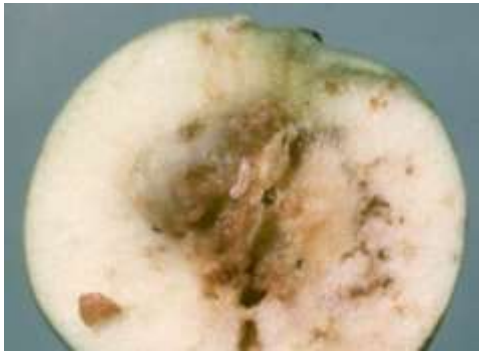


Apple clearwing moth larva



Apple clearwing moth adult

Apple Maggot (*Rhagoletis pomonella*): This fruit fly is a serious pest of apples in North America. The Okanagan Valley in B.C. remains the only major fruit producing region that does not have apple maggot. This pest is moved to new regions primarily by people transporting maggot-infested fruit or pupae-infested soil. The presence of apple maggot would require the use of broad spectrum pesticides on a regular calendar spray program from summer through fall, therefore negating much of the gains of the alternative pest management strategies that are currently common practice in the Okanagan fruit producing areas.



Apple maggot larva and internal feeding damage



*Fruit dimpling caused by apple maggot
Photo courtesy of Agriculture & Agri-Food Canada*



Apple maggot adults



*Apple with Apple maggot damage.
Photo courtesy of H.J. Larsen, Bugwood.org*

Asian Long-Horned Beetle (*Anoplophora glabripennis*): This beetle is currently present in localized areas in Eastern North America, where eradication attempts are underway. There are several long-horned beetles that bore into various species of live trees and logs which could be introduced into B.C. Other species of concern include: brown spruce longhorn beetle, smaller Japanese cedar longhorned beetle, great capricorn beetle, and *Monochamus* spp. (sawyer beetles). There are native sawyer beetles in B.C., including the Oregon fir sawyer beetle, which is commonly confused with the Asian long-horned beetle.



*Asian longhorn beetle.
Photo courtesy: Canadian Forest Service
Insectary, Pacific Forestry Centre*

Balsam Woolly Adelgid (*Adelges piceae*): The adelgid feeds exclusively on true firs (*Abies* species). This pest is inconspicuous and aphid-like, and appears as white, woolly masses about 1 mm long on the bark. They are small and can be easily overlooked in the early stages of an infestation. Toxic saliva is injected when the pest is feeding, causing water stress, stunting, and death in two to three years of certain species of true firs. Feeding causes twigs to swell or 'gout' at infested nodes. Coastal grown firs should not be moved to B.C.'s interior, in order to protect native fir stands in B.C.



Balsam woolly adelgid damage (gouts)

Brown Marmorated Stinkbug (*Halyomorpha halys*) was first detected in B.C. in 2015. This invasive insect has spread rapidly across North America since its introduction to Pennsylvania in 1999 causing extensive damage to crops. It feeds on over 300 species of plants including tree fruit, grapes, berries, vegetables, corn, and ornamentals. It also becomes a nuisance pest when large numbers attempt to overwinter in homes and other buildings.



Brown marmorated stink bug adult



Brown marmorated stink bug nymphs

Emerald Ash Borer (*Agrilus planipennis*): This metallic blue-green wood boring beetle is present in regulated areas, which includes parts of Quebec, Ontario, Manitoba and New



Emerald Ash borer adult.

Photo courtesy of David Cappaert, Bugwood.org

Brunswick. It attacks ash trees, and possibly other hardwoods, causing decline and death of trees over a 2-3 year period. It has already killed millions of ash trees in Manitoba, Ontario, Quebec and the United States, and poses a major economic and environmental threat to urban and forested areas of North America. Programs are underway to slow the spread of this pest. There are native green-coloured wood boring beetles in B.C., including the golden buprestid, which only infests recently downed logs or dying trees, and is larger than emerald ash borer.

European Chafer (*Rhizotrogus majalis*): This scarab beetle is a serious pest of turf in Eastern North America. European chafer was detected in 2001 in New Westminster, B.C. and has since spread to most areas of Greater Vancouver. Most of the damage is done by the final larval instar in the fall, when they feed on fibrous root systems of host plants. Considerable damage can also be done by animals, such as skunks and birds, digging up turf to feed on the grubs. In B.C., the larvae of other species of large beetles that feed in sod (such as the ten-lined June beetle), have a two year life cycle, and larvae are often larger than the European chafer larvae.



European chafer adult (left) and grub (right). Photos courtesy of ES Cropconsult

Gypsy Moth (*Lymantria dispar*): British Columbia has been fighting against Gypsy Moths for decades and has, along with the Western United States, kept the area free of this European exotic insect. The European Gypsy Moth is established in Eastern North America. It was originally introduced into Massachusetts from France in 1868 for the production of silk and escaped from a laboratory. This insect can be moved as egg masses on outdoor household articles and vehicles from Eastern North America. The insect feeds on hundreds of different host trees and continued defoliation by larval feeding can stress and kill healthy trees. Nurseries and businesses within the infested areas of Eastern America must have treatments or special certification to be able to move trees to the western region. Egg masses of the Asian Gypsy Moth are transported from Asia to the West Coast on ships and containers. Periodic eradication efforts in the B.C. Lower Mainland have cost millions of dollars. Trapping and surveillance is ongoing.



Gypsy moth larvae
Photo courtesy of CFS Insectary Pacific Forest Centre



Gypsy moth adults, female left, male right

Japanese Beetle (*Popillia japonica*): This shiny green and bronze scarab beetle is a highly destructive, regulated pest that feeds on over 250 species of plants. It is established in Eastern North America and was detected in B.C. for the first time in 2017 in Vancouver, where eradication measures are underway. The larvae (grubs) feed on roots of turf grass and other plants. Adult beetles feed on foliage. Larvae look similar to other scarab beetles present in B.C., including European chafer and June beetles.



Japanese beetle adult and feeding damage



Japanese beetle larva (grub). Photo courtesy of David Cappaert, Bugwood.org

Spotted Wing Drosophila (*Drosophila suzukii*): This fruit fly is a serious new pest of soft fruit and berries. It is now widespread in Coastal and Interior fruit growing areas of B.C. Adults are light yellow or brown flies with red eyes, about 2 - 3 mm long. They look like regular vinegar flies but male flies have a single black spot on the end of each wing. Females have no spots, but have a distinctive saw-like egg laying device (ovipositor) which enables them to cut into thin-skinned fruit and deposit eggs inside. Unlike most vinegar flies which normally infest overripe or decaying fruit, spotted wing drosophila lay their eggs inside intact ripening fruit. Larvae hatch and begin to feed within the fruit.



Spotted wing drosophila adult male with wing spots. Photo courtesy of Sheila Fitzpatrick, Agriculture & Agri-Food Canada.

Reducing the Impact of Invasive Plants

Invasive landscape plants can escape from nurseries or gardens and negatively impact ecosystems and industries such as agriculture, forestry and tourism. In British Columbia, aggressive ornamentals have escaped propagation to damage the environment. The desirable characteristics for ornamental varieties and many domestic species (hardiness, persistence, self-seeding ability, pest resistance, and vigorous growth and establishment) are some of the same attributes that make a plant species a successful invader. Once established in an area, invasive plants are impossible to eradicate or difficult to control due to extensive creeping, rhizomatous roots or because they produce vast amounts of seed. Some B.C. examples include: purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Polygonum cuspidatum*), giant hogweed (*Heracleum mantegazzianum*), Russian olive (*Elaeagnus angustifolia*), baby's-breath (*Gypsophila paniculata*), reed canarygrass (*Phalaris arundinacea*), Scotch broom (*Cytisus scoparius*), policeman's helmet (*Impatiens glandulifera*), and English ivy (*Hedera helix*).

It has been estimated by Dr. S. Reichard, University of Washington, that 85% of the 235 woody plants invading natural areas in the U.S. were originally introduced for landscape purposes.

Preventing the Introduction of Aggressive Ornamentals

The Invasive Species Council of British Columbia (ISCBC) is a registered charity and non-profit society committed to reducing the spread and impacts of non-native species within B.C. The ISCBC's [PlantWise program](#) is designed to work with the horticulture industry and home gardeners to raise awareness of invasive landscape plants and encourage planting of safe alternative or native plants.

Before purchasing plants for your garden:

1. Understand and consider the potential invasiveness of new species you would like to plant.
2. Refer to the *Grow Me Instead* booklet, available on the [ISCBC website](#) to learn about invasive ornamentals and suggested alternative plants.

Things you can do about invasive plants:

1. Do not purchase or grow invasive or legislated noxious weed seeds or plants.
2. Report invasive plants by calling 1-888-WEEDSBC or use the [Report-a-Weed App](#).
3. Avoid letting invasive plants fruit or set seed, as birds and animals can spread the plants to other areas.
4. Properly dispose of yard and garden waste into a properly functioning compost pile or facility.
5. Avoid using wildflower seed mixes, as most contain invasive species or species not adapted to local conditions.
6. Avoid picking plants from roadsides, gravel pits or other disturbed areas. Many of the prettiest wildflowers growing on roadsides are aggressive invasive species that should not be moved to new areas.
7. Grow regional native plants in your garden, as they are naturally adapted to the local environment.
8. Discourage propagation of invasive species by friends and neighbours. Talk with them about the impacts of invasive plants and the use of suitable alternatives.
9. Contribute to local efforts to manage invasive plants. Contact your local invasive plant committee, or get involved with the [Invasive Species Council of B.C.](#) Membership is free.

If you find an uncommon, aggressive weed on your property, consult the [Field Guide to Noxious and other Selected Invasive Plants of British Columbia](#) as an aid to identification. For noxious weeds that must be controlled in B.C., see page. 21-10. For more information on integrated weed management, see Chapter 21.

Some Examples of Invasive Alien Weeds

Common Bugloss (*Anchusa officinalis*):

Common bugloss is present, but rare, in some areas of south-central BC and southern Vancouver Island. It invades pastures and rangelands and is commonly found on idle areas where competing vegetation is sparse. This weed is also a concern to alfalfa production because the succulent leaves and stalks mould the hay once it is baled. In Washington State, bugloss spread to cover approximately 200 square miles in a seven year period.



Photos courtesy of L. Scott

Giant Hogweed (*Heracleum mantegazzianum*) is a perennial invasive plant currently found in the Lower Mainland/Fraser Valley, Gulf Islands, and Vancouver Island. It can grow up to 5 metres tall, and lower leaves can exceed 2.5 meters in length. Flower clusters are white, in an umbrella-shaped head. Stems are hollow and green with purple spots. Leaves are dark green and coarsely toothed in 3 large segments with stiff underside hairs. The stem hairs and leaves contain a clear, highly toxic sap that, when in contact with the skin, can cause burns, blisters and scarring.

Giant hogweed is highly competitive due to vigorous early-season growth, tolerance of shade and seasonal flooding, and its ability to co-exist with other aggressive invasive plant species. Each plant can produce over 50,000 seeds that remain viable in the soil for up to 15 years.



Giant Hogweed



Giant Hogweed stem

Himalayan Balsam (*Impatiens glandulifera*):

Himalayan Balsam is native to Asia and has escaped ornamental planting in North America to predominately colonize moist areas along river, stream and ditch banks. It prefers moist, rich soil. It likes locations offering sun to light shade. Himalayan Balsam ejects buoyant seeds into rivers and streams which spread far and fast to new locations. Once established, tall Himalayan balsam competes effectively against native plants. In many places it has been known to suffocate native vegetation.



Riverside and ditchbank infestations are spread quickly by mowing operations. It is currently found throughout the Lower Mainland in the Fraser Valley, Southern Vancouver Island and the Central Kootenays of B.C.

Knotweeds: There are several invasive knotweeds present in B.C., including Japanese knotweed (*Fallopia japonica*); Bohemian knotweed (*Fallopia x bohemica*); Giant knotweed (*Fallopia sachalinensis*); and Himalayan knotweed (*Polygonum polystachyum*). These knotweeds are native to Asia, and were likely introduced as ornamental plants. They prefer open habitats and grow in a variety of soil types along roadsides, edges of waterways, neglected gardens and unused areas. Wetlands and moist, low-lying areas are the most common habitats. Dense stands, capable of crowding out all other



Japanese knotweed.
Photo courtesy of L. Scott

vegetation, degrade native plant communities. Knotweed spreads quickly, is extremely aggressive and persistent and able to survive both severe flooding and drought. It poses a significant threat to areas adjacent to rivers, streams and other shore-lines where it can cause bank erosion, clog waterways and lower the quality of habitat for wildlife and fish. During its dormant growth stages knotweed dries and can create a fire hazard. It is also a serious problem in the urban landscape, where it can grow through concrete and damage the foundations of houses.

Orange Hawkweed (*Hieracium aurantiacum*): Invasive hawkweeds are found throughout most areas of BC. Management programs are underway in the regional districts east of the Rocky Mountains, Northern Rockies, and Peace River Regional Districts, which have few known infested sites. Although there are 14 other invasive hawkweed species present in BC, orange hawkweed is the only species that is regulated under the Weed Control Act. It is found primarily on native meadows, forest openings, permanent pastures, hayfields, roadsides, right-of-ways and idle areas. Once established, it quickly develops into a patch that continues spreading by seed and lateral roots. Severe infestations will dominate the site with a solid mat of rosettes or seedlings. They can replace native vegetation, reduce forage and threatening biodiversity.



Orange hawkweed flowers. Photo courtesy of Lisa Scott

Puncturevine (*Tribulus terrestris*): In B.C., puncturevine occurs primarily in the Southern Okanagan and Lower Similkameen regions, but recent sightings have been found in the Kelowna and Armstrong areas. It is classified as a noxious weed for the Okanagan-Similkameen regional district. Puncturevine prefers dry, sandy or gravelly soils and requires less water than most plants. The most distinguishing feature of this weed is its spiny seedpods. The spines can damage the feet of humans, wildlife and domestic animals and can injure the mouth, stomach or intestinal linings of animals when ingested. The spiny pods also puncture bike and small vehicle tires. This ‘hitchhiking’ is the primary mechanism for dispersal of puncturevine.



Puncturevine. Photo courtesy of Lisa Scott



Puncturevine – spiny burrs

Perennial Pepperweed (*Lepidium latifolium*): Perennial pepperweed is of most concern in the Kootenay and Thompson agricultural regions. It was first introduced to B.C. in 1997. It has spread rapidly in northern Europe, Mexico and the Western U.S. It invades cropland, roadsides and idle areas but is a particular threat to riparian areas and rangelands where it degrades wildlife habitat, lowers the yield and quality of forage on pastures and hayfields and displaces native plant species. Much of the U.S. infestation is associated with river systems and wetland areas. The extensive, woody, deep creeping root systems make perennial pepperweed exceptionally difficult to control.



Rush Skeletonweed (*Chondrilla juncea*): Rush skeletonweed was first discovered in B.C. in the North Okanagan region of Spallumcheen in 1983. Subsequent infestations were found at Sirdar and the Slocan Valley in the Central Kootenay region around 1991 and Kimberley in the East Kootenay region in 1998. Native to southern Russia and now spread throughout much of the world, this weed poses a serious threat to B.C. rangelands and other agricultural resources including both dryland and irrigated cereal production. Over 5 million acres have been infested in the Pacific Northwest states and it is currently spreading at a rate of 100,000 acres per year. Since its introduction to Australia in 1935, the expansion of rush skeletonweed has resulted in estimated annual losses to wheat production in excess of \$30 million.



Rush Skeletonweed. Photos courtesy of Lisa Scott

Velvetleaf (*Abutilon theophrasti*): Velvetleaf was first discovered in B.C. at Chilliwack in 1990 as a small infestation in corn and raspberry plantings and in Oliver in 2005 in a private garden. Rated as one of the worst weeds in the U.S., velvetleaf now infests extensive corn and soybean acreages in Ontario and Quebec. Velvetleaf hosts insects, diseases and nematodes of crops, produces chemicals that reduce crop seed germination and root formation and can reduce corn yield by more than 70%. Costs for control in the U.S. in one year alone were estimated at \$343 million.



Velvetleaf. Photos courtesy of Lisa Scott

Wild Chervil (*Anthriscus sylvestris*): Recent infestations have been found in Northern Washington as a possible introduction in British wildflower mixes. Wild chervil is not aromatic like the domestic herb, salad chervil. In British Columbia wild chervil is found predominantly in the Fraser Valley. It is spreading rapidly along road rights-of-way, ditches, fencelines and in to pastures in the Abbotsford-Chilliwack districts. Wild chervil out-competes pasture and hay crops reducing forage available to grazing animals. It is also a known host for a disease that infects carrots, celery and parsnips. Extremely deep taproots and tolerance to selective herbicides make control very difficult.



Yellow Star thistle (*Centaurea solstitialis*): Yellow starthistle is a continuing threat to British Columbia from adjacent infestations in Washington and Idaho states where it infests over 1.25 million acres. In California it infests over 800 million acres. To date, only one isolated plant has been found in B.C. (Kamloops). It will invade areas ranging from roadsides and disturbed areas to undisturbed, healthy grasslands. This invasive reduces the diversity of native plant communities and reduces production of forage for livestock and wildlife. It also infests cropland

reducing yield, quality and can hinder harvesting. Yellow starthistle causes a neurological disorder in horses known a 'chewing disease'. Death is often the result and there is no known cure.



Yellow starthistle



Yellow starthistle flower

Yellow Flag Iris (*Iris pseudacorus*): Yellow Flag Iris is native to Europe and the British Isles, North Africa and the Mediterranean region. It has been transplanted into well-watered gardens all over the world and has widely escaped. Yellow iris is a rapid growing perennial that colonizes into large numbers. It spreads by both underground rhizomes and seeds, and can spread downstream by broken rhizomes which re-root. It forms very dense thickets that displace other native plants including sedges and rushes and alter animal habitat. The creation of thickets also results in restricted water flows, affecting irrigation canals and flood control ditches. All parts of this plant are poisonous. It has been known to sicken cattle when they eat it. In B.C. it is found in B.C.'s Southern Interior and West Kootenay regions.



Yellow Flag Iris.

Photo courtesy of Lisa Scott