BEST PRACTICES

FOR MANAGING INVASIVE PLANTS ON ROADSIDES

A POCKET GUIDE FOR BRITISH COLUMBIA'S MAINTENANCE CONTRACTORS

2010 EDITION

INVASIVE PLANT COUNCIL OF BC

BRITISH COLUMBIA
The Best Place on Earth

Ministry of Transportation and Infrastructure

Acknowledgements

This guide was developed by the Invasive Plant Council of British Columbia (IPCBC): A non-profit organization that works in collaboration to minimize the introduction, establishment and spread of invasive plants. For more information please go to the IPCBC website, or contact the head office:

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Scotch thistle along a roadside.

Invasive Plants and Why You Should Care

Invasive plants are any alien plant species that have the potential to pose undesirable or detrimental impacts on humans, animals or ecosystems. Invasive plants have the capacity to establish quickly and easily on both disturbed and un-disturbed sites, and can cause widespread negative economic, social and environmental impacts.

Noxious weeds are invasive plants that have been designated under the *BC Weed Control Act*. This legislation imposes a duty on all land occupiers, including the Ministry of Transportation and Infrastructure, to control a set list of identified invasive plants.
www.agf.gov.bc.ca/cropprot/noxious.htm

Spotted knapweed infestation.

The Problem

Invasive plants are negatively impacting lands across British Columbia (BC). Highway rights-of-way are recognized as a major pathway for invasive plant spread, and are often the starting point for infestations found in adjacent pastures, forests and environmentally sensitive areas.

DID YOU KNOW?

The BC Ministry of Transportation and Infrastructure (MoT) staff and contractors **have the ability to mitigate invasive plant spread by implementing best practices aimed at prevention and effective control.**

For more information on best practices refer to pages 6-15 or to the MoT document, "Environmental Best Practices for Highway Maintenance Activities 2010."

Spotted knapweed and common tansy in a contractor's yard.

Invasive Plants and Roadside Maintenance Operations

Once established, invasive plant infestations can displace desirable roadside vegetation, resulting in areas that are less ecologically diverse, more costly to maintain, and aesthetically less attractive. Invasive plants can severely degrade riparian zones, destabilize slopes, reduce sight lines, increase fire hazards, and in some cases have the potential to cause damage to the highway infrastructure.

DID YOU KNOW?

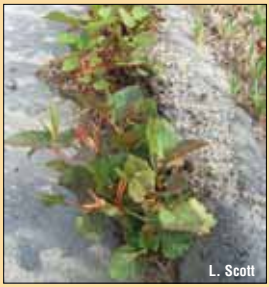
It is critical to report plants that are unusual and appear to be growing out-of-control! Early identification of problem plants is key to limiting the spread of invasive plants in BC *(See page 16 for reporting protocol)*.

Invasive plants can also contaminate gravel pits and other material sources. If workers use these contaminated materials, they could be spreading plant parts and seeds, thereby encouraging new invasive plant sites.

Some invasive plant species can be a concern for human health and safety as well. Puncturevine *(Tribulus terrestris)* produces hard, spiny seed pods that can penetrate human skin and puncture bicycle tires. Giant hogweed *(Heracleum mantegazzianum)* sap can cause severe skin irritations, burns, and even blindness.

DID YOU KNOW?

Japanese knotweed *(Fallopia japonica)* roots can grow through highway shoulders and pavement. In addition, this plant can grow very fast, causing sightline maintenance issues.



Invasive Plant Best Practices for Roadside Workers

MoT has designed invasive plant best practices *(see pages 6-15)*, which should not add significant costs to roadside maintenance operations. By applying these best practices, maintenance contractors can limit the introduction and spread of invasive plants.

All groups working on highway corridors are encouraged to apply these best practices.

DID YOU KNOW?

Many MoT work permits now state: "The permittee is responsible for preventing the introduction and spread of noxious weeds on the highway right-of-way as defined by the *BC Weed Control Act*."

Key Best Practices

- **Identify Invasive Plants and Plan Maintenance Activities Accordingly:** Follow this guide, determine local problem plants, and contact your regional weed committee prior to planning maintenance activities. Consult invasive plant inventory and treatment maps such as the Ministry of Forests and Range, Invasive Alien Plant Program (IAPP): www.for.gov.bc.ca/HRA/plants/raw.htm

- **Record and Report Invasive Plants:** Ensure invasive plants are recorded and reported. Call your regional weed committee, 1-888-WEEDSBC or report online using IAPP *(See page 16 for more information)*.

- **Keep Equipment Clean:** Avoid parking, turning around, or staging equipment in invasive plant infested areas; or mow the areas prior to use. Wash equipment after returning it to the maintenance yard. Inspect and clean vehicles before entering a weed free area, and before leaving an infested area.

- **Minimize Roadside Disturbance and Retain Desirable Vegetation:** Minimize unnecessary disturbance of roadside aggregates or soil, and retain desirable vegetation where possible.

- **Coordinate Activities:** Establish an annual vegetation control schedule in collaboration with the local spray contractor and regional weed committee. Do not brush or mow seven days before or after a herbicide treatment.

- **Practice Effective Mowing and Brushing:** Where possible, begin mowing or brushing in "invasive plant free" areas and end in infested areas. Implement full width mowing around wells and areas where herbicides cannot be applied. Avoid mowing grasses and vegetation lower than 15cm above ground level. Mow or brush invasive plants prior to seed set. Shut-off and raise equipment when selectively cutting areas.

- **Ditch Effectively:** Do not dump ditch waste above or below the ditch where desirable vegetation is established; instead, dispose of infested waste to a designated disposal site, and report. Where it is necessary to side-cast, ensure any material deposited on existing vegetation is spread evenly and reseeded.

- **Effectively Manage Source and Waste Materials:** Use only clean fill material from an "invasive plant free" source. Dispose of soil containing invasive plants in a Ministry approved spoil pile. Regularly inspect all material sources to ensure they are invasive plant free. Record and report invasive plant infested gravel pits and spoil piles.

- **Remove Invasive Plants prior to seed set.**

- **Restore Disturbed Sites:** Re-grade disturbed soils and remove unsuitable waste material. **Re-seed** with grass mixtures that are free of weeds, locally adapted, non-invasive, and quick to establish. Spread seed in the early spring or late fall to ensure successful establishment.

Best Practices Table

MAINTENANCE ACTIVITY	BEST PRACTICES	
	Manage Materials	Keep Equipment Clean
HIGHWAY SURFACE & SHOULDER GRAVELLING	✔	✔
HIGHWAY SHOULDER MAINTENANCE	✔	✔
DITCH & WATERCOURSE MAINTENANCE	✔	✔
ROADSIDE VEGETATION CONTROL	✔	✔
REST AREA & ROADSIDE FACILITIES MAINTENANCE	✔	✔
HIGHWAY INSPECTION		✔
GRAVEL PIT MANAGEMENT	✔	✔

Roadside infestation of common bugloss.

	BEST PRACTICES		
Minimize Disturbance	Coordinate and Plan Activities	Remove Invasive Plants	Identify and Report Invasive Plants
	✔	✔	✔
✔	✔	✔	✔
✔	✔	✔	✔
✔	✔	✔	✔
	✔	✔	✔
	✔		✔
	✔	✔	✔

Roadside infestation of yellow hawkweed.

Highway Shoulder Maintenance and Gravelling

Ditch and Watercourse Maintenance

Minimize disturbance of desirable vegetation and limit soil exposure.

Transport invasive plant material to an approved spoil site and report.

If necessary to side-cast ditch material, spread piles out and re-seed.

Wash equipment to remove invasive plants.

Roadside Vegetation Control

Rest Area and Roadside Facility Maintenance

Highway Inspection

Gravel Pit Management

Reporting Invasive Plants

Identification and fast treatment of new infestations is a key to stopping the spread of invasive plants in BC. It is critical to report new infestations!

Unusual plants that appear to be taking over or growing out of control should be reported in one of these three ways:

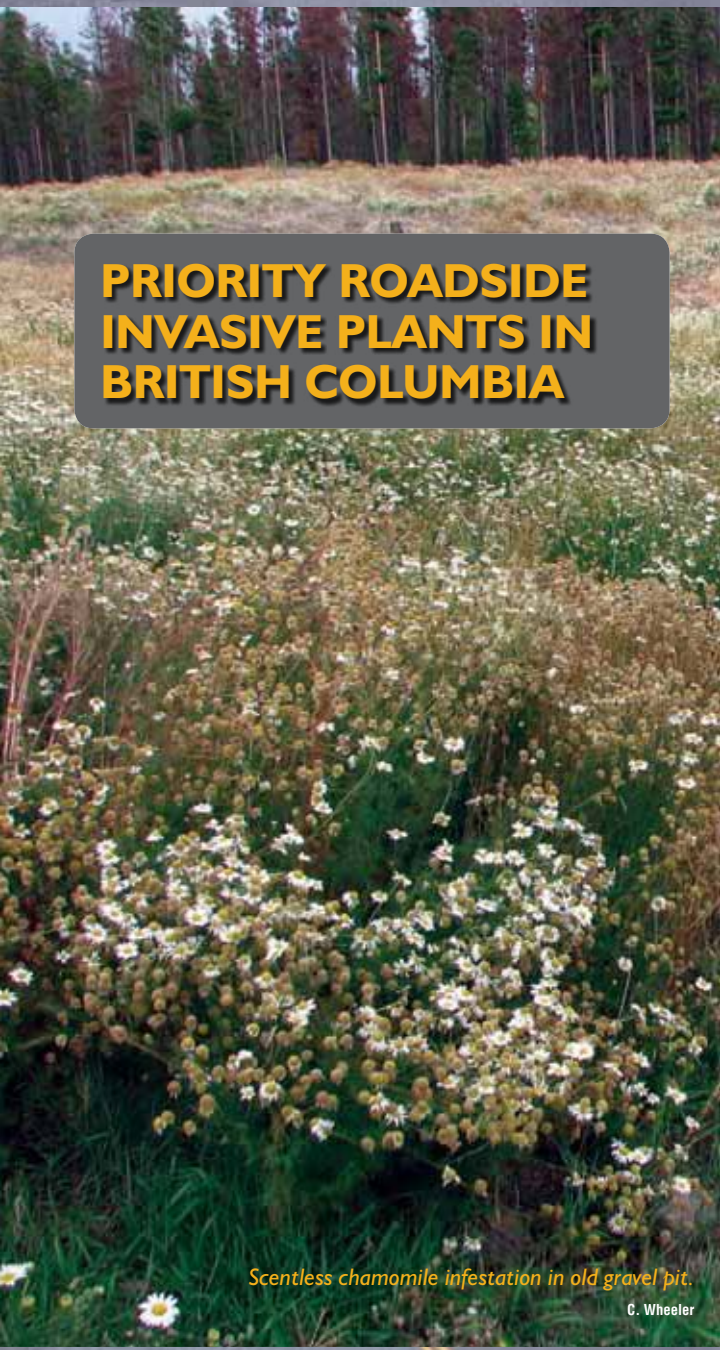
- **Regional Weed Committee**
- Toll Free **1-888-WEEDSBC**
- Online database, **'Report-A-Weed,'** Invasive Alien Plant Program (IAPP): www.for.gov.bc.ca/HRA/Plants/raw.htm

Please report the following information:

1. Species (or plant characteristics and photos if species is unknown)
2. Size of infestation
3. UTM coordinates or directions to site
4. Your contact information

Right-of-way perennial pepperweed infestation.

PRIORITY ROADSIDE INVASIVE PLANTS IN BRITISH COLUMBIA



Scentless chamomile infestation in old gravel pit.

C. Wheeler

Priority Roadside Invasive Plants in British Columbia

The plants included in this guide represent many of the most problematic roadside invasive plants in British Columbia. Consult your regional weed committee to determine which plants are of concern in your area. And remember, **'weeds know no boundaries'!** Consider applying best practices to any suspect plants.

Symbols

Invasive plants may be spread by many or all of the methods represented below. For the purpose of this booklet, only the most significant methods of spread have been indicated for each invasive plant.

Seed or plant pieces spread in farm produce such as hay or commercial seed

Seed or plant pieces spread in contaminated soil

Seed eaten or carried by birds and animals

Seed or plant pieces carried in water

Seed blown by wind

Seed or plant pieces carried on machinery, equipment and vehicles

Seed or plant pieces spread by brushing or mowing

Seed or plant pieces spread by cultivation

P *Indicates perennial weeds (plants that grow for more than two seasons)*

B *Indicates biennial weeds (plants that grow for two seasons)*

A *Indicates annual weeds (plants with a growth cycle lasting one year)*

Plant Flowering and Seed Production Calendars

All plants should be controlled before they flower and set seed. Calendars of flowering and seed production are included for each plant in this guide to help contractors plan maintenance activities.

The shaded months in these calendars indicate the time of year when each species is producing one of the following:

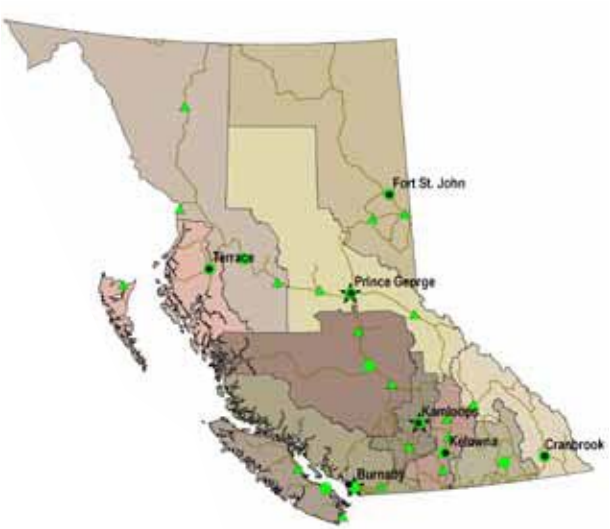
- Flowers (pink squares)
- Seed (orange circles)

For example, in the calendar below, the plant produces flowers from June – September and seed from July – October.

Calendar:

***Note:** *Plants may flower and produce seed at times other than indicated in this guide. Contact your regional weed committee for local information.*

Distribution Map



Consult this legend for invasive plant distribution maps.

Legend

Invasive Plant

MoT Offices

- Area
- District
- Region

MoT Districts

- Bulkley-Stikine
- Cariboo
- Fort George
- Lower Mainland
- Okanagan-Shuswap
- Peace
- Rocky Mountain
- Skeena
- Thompson-Nicola
- Vancouver Island
- West Kootenay

***Note:** *Distribution maps in this guide are from the provincial Invasive Alien Plant Program (IAPP) database as of July 2010, and may not accurately reflect the entire distribution of each invasive plant, as inventory and reporting is a continual process.*

Baby's Breath *Gypsophila paniculata*

R. Mueller

J. Leckie

J. DiTomasco

To kill this plant, remove as much of the roots as possible. Mow prior to seed set to stop seed production. Report all sightings.

DESCRIPTION: Upright, bushy plant up to 1.0m in height. Found in disturbed areas, fields and roadsides, and often used in floral arrangements.
FLOWERS: Sweet-scented, five-petalled, white flowers in clusters at the end of each stem.
LEAVES: Bluish appearance, linear, opposite and covered with a white film.
STEMS: Highly branched, and swollen at the nodes.
OTHER ID TIPS: Woody taproot.

J	F	M	A	M	J	J	A	S	O	N	D

P

Blueweed *Echium vulgare*

B. Stewart

R. Old

L. Scott

Limit or stop seed production - mow regularly or grade prior to seed set. Report all sightings.

DESCRIPTION: Upright, tap-rooted plant up to 1.0m in height. Adapted to rocky, gravelly habitats like roadsides, gravel pits.
FLOWERS: Short, arched branches covered on upper side with purplish-blue, funnel-shaped flowers.
LEAVES: Stem leaves are lance-shaped and alternately arranged.
STEMS: Stiff hairs with swollen reddish bases are found along the stem. Stem hairs are prickly and can irritate skin.
OTHER ID TIPS: Forms a rosette in year one.

J	F	M	A	M	J	J	A	S	O	N	D

B P

Butterfly Bush *Buddleja davidii*

C. Wheeler

C. Wheeler

F. and K. Starr

Mow or brush regularly to exhaust root reserves. And if mowing or brushing only once per year, treat immediately prior to flowering. Report all sightings.

DESCRIPTION: Lanky shrub up to 5m tall. Found on disturbed sites, roadsides, riparian areas, and in gardens.
FLOWERS: Lilac, purple, white or pink flowers with a yellow to orange centre, growing in long cone-shaped, drooping clusters.
LEAVES: Green above, grey and woolly below. Lance shaped and opposite.
STEMS: Shrubby form.
OTHER ID TIPS: This plant does not over-winter well in the interior of BC, and is of little concern in north.

J	F	M	A	M	J	J	A	S	O	N	D

P

Canada Thistle *Cirsium arvense*

Highly invasive plant. Mowing is only recommended if repeated throughout the growing season, as occasional cutting and mowing can worsen infestations by stimulating spread from the roots.

DESCRIPTION: A prickly upright plant up to 1.2m tall, often forming dense stands. Common on road rights-of-way.
FLOWERS: Purplish-pink, less than 2.5cm across, without sharp spines.
LEAVES: Stalkless, alternate, dark green leaves, with spiny lobes.
STEMS: Prickly, hollow.
OTHER ID TIPS: Forms a rosette in its first year.

J	F	M	A	M	J	J	A	S	O	N	D

P

Common Bugloss *Anchusa officinalis*

Limit or stop seed production - mow regularly or grade prior to seed set. Report all sightings.

DESCRIPTION: Upright plant up to 60cm in height.
FLOWERS: Found in coiled clusters at the ends of stalks. Tubular and initially reddish flowers eventually turn purplish-blue with white centers.
LEAVES: Lance-shaped lower and basal leaves. Stem leaves decrease in size toward the top of the plant, and lack stalks. Leaves are covered in stiff hairs.
STEMS: Angular and covered with hairs.
OTHER ID TIPS: Forms a rosette in year one. Plant has a long taproot.

J	F	M	A	M	J	J	A	S	O	N	D

B P

Common Burdock *Arctium minus*

Limit or stop seed production - mow regularly or grade prior to seed set.

DESCRIPTION: Upright, tap-rooted plant up to 3m high. Found on roadsides, ditches, riparian areas, grasslands and forests.
FLOWERS: Globe-shaped purple flowers, to 2.5cm in diameter, on short stalks. Covered in hooked green bristles.
LEAVES: Basal leaves are rhubarb-like. Upper leaves are alternate, with wavy or toothed edges. Leaves have woolly undersides.
STEMS: Upright, grooved, and highly branched.
OTHER ID TIPS: Forms a rosette in year one. Mature flower heads form a bur, which allows seeds to be spread throughout the year.

J	F	M	A	M	J	J	A	S	O	N	D

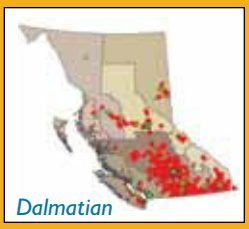
Common Tansy *Tanacetum vulgare*

Repeated mowing prior to seed set can deplete root reserves and limit seed production.

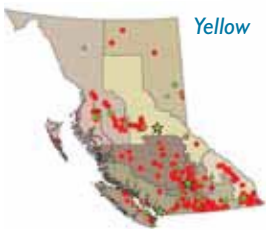
DESCRIPTION: Bushy perennial growing up to 1.8m tall. Common on disturbed areas, streambanks, and roadsides.
FLOWERS: Flat-topped clusters of 'button-like' yellow flowers, at the top of stems.
LEAVES: Alternate, dark green, fern-like leaves.
STEMS: Mature plants have several branched stems that can be reddish, and somewhat woody near the base.
OTHER ID TIPS: Forms a rosette in year one. Leaves and flowers aromatic when crushed.

J	F	M	A	M	J	J	A	S	O	N	D
P											

Dalmatian Toadflax *Linaria dalmatica*
Yellow Toadflax *Linaria vulgaris*



Mowing prior to seed set can reduce flowering and seed production, but must be done regularly for multiple years to reduce plant vigour.

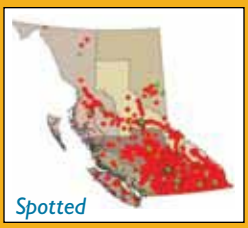


DESCRIPTION: Pretty, waxy-leaved, yellow-flowered plants up to 1.2m tall. Commonly found on dry sites like gravel pits, road shoulders, and cut banks.
FLOWERS: Bright yellow snapdragon-like flowers with a long spur.
LEAVES: Pale-green, waxy leaves are stalkless and have a pointed tip.
STEMS: Branched or unbranched.
OTHER: Yellow toadflax has leaves pointed at both ends, and is shorter – up to 60cm in height.

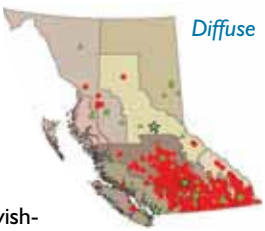
J	F	M	A	M	J	J	A	S	O	N	D

P

Diffuse Knapweed *Centaurea diffusa*
Spotted Knapweed *Centaurea biebersteinii*



Remove, mow, or grade prior to seed set to limit plant growth and seed production. Report all sightings north of Clinton and on Vancouver Island.



DESCRIPTION: Heavily branched plants 1.0m to 1.5m in height. Found on dry roadsides, gravel pits, disturbed sites, and in fields.
FLOWERS: Small white, pink or purple flowers atop spiny bracts.
LEAVES: Deeply lobed, hairy, grayish-green leaves. Form rosettes in their first year.
STEMS: Single main-stem that divides into bushy, spreading branches on a mature plant.
OTHER ID TIPS: Spotted knapweed flowers are usually pink to purple, and have black tipped bracts.

J	F	M	A	M	J	J	A	S	O	N	D

B P

Field Scabious *Knautia arvensis*

Repeated mowing or grading prior to seed set can limit plant growth and seed production. Report all sightings.

DESCRIPTION: Upright plant up to 1.3m in height. Found on dry roadsides and in pastures.
FLOWERS: Clover-like violet-purple flowers up to 4cm in diameter, on long leafless stalks.
LEAVES: Stem leaves are deeply lobed, stalkless, and opposite.
STEMS: Hairy, upright stems. Can form above-ground runners.
OTHER ID TIPS: Forms a rosette in its first year. Woody taproot.

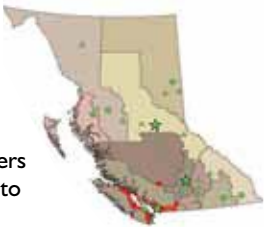
J	F	M	A	M	J	J	A	S	O	N	D

P

Giant Hogweed

Heracleum mantegazzianum

Leaves and stems contain a highly toxic sap that can burn skin. *Refer to Worksafe BC guidelines and consult with regional weed committee. Mow young plants regularly; do not mow older plants. Mature plants should be cut below ground. Report all sightings.*



DESCRIPTION: Large upright plant up to 5m in height, preferring damp, rich soils. Found along roadsides, ditches, riparian areas and disturbed sites.
FLOWERS: Clustered white flowers in large umbrella-shaped heads up to 0.8m in diameter.
LEAVES: Dark green, toothed and deeply cut into three large segments. Stiff hairs on undersides.
STEMS: Hollow, ridged, green; some with reddish-purple spots.
OTHER ID TIPS: Similar to smaller native cow parsnip (2.5m).

J	F	M	A	M	J	J	A	S	O	N	D

P

Himalayan Blackberry *Rubus armeniacus*

B. Brown

S. Dewey

D. Polster

Mow once per month for several years to exhaust root reserves. Grading after mowing can be effective. Do not allow cut plant material to enter a ditch or watercourse. Report all sightings outside the Lower Mainland and Vancouver Island.

DESCRIPTION: Dense, evergreen shrub often growing in thickets to 3m in height. Found on disturbed sites, roadsides, pastures, stream-banks and forest edges.
FLOWERS: Small clusters are white to pink, stalked, and five-petalled.
LEAVES: Grouped in fives or threes.
STEMS: Stiff, five-angled stems support large prickles and are up to 12m in length.
OTHER ID TIPS: Fruits are black, shiny and hairless, and highly sought by berry-pickers. Sharp prickles can puncture tires and skin.

J	F	M	A	M	J	J	A	S	O	N	D

P

Hoary Alyssum *Berteroa incana*

Limit or stop seed production: mow or grade as early in the year as possible and repeat regularly. Report all sightings.

DESCRIPTION: Slender plant from the mustard family, growing up to 1.0m in height. Found on disturbed sites, especially roadsides, pastures and embankments.
FLOWERS: Small white almost spherical flowers found at the end of stems.
LEAVES: Greyish, hairy leaves clasp the stem near the top of the plant.
STEMS: Stems are covered with star-shaped hairs.
OTHER ID TIPS: Seed pods have a distinct oval shape, and a pointy tip.

J	F	M	A	M	J	J	A	S	O	N	D

A B P

Hoary Cress *Cardaria draba*

L. Scott

B. Stewart

S. Dewey

Repeated mowing prior to seed set can limit plant growth and seed production. Report all sightings.

DESCRIPTION: Upright perennial up to 60cm in height, with flat-topped appearance. Found in pastures, rangelands, ditches and roadsides.
FLOWERS: Clusters of white, four-petalled flowers give plant 'flat top'.
LEAVES: Alternate, blue-green leaves up to 10cm in length with toothed edges. Lower leaves are stalked; upper leaves clasp the stem.
STEMS: Single stem, often branched at the top, supports one flower cluster.
OTHER ID TIPS: Heart-shaped, stalked seed pods.

J	F	M	A	M	J	J	A	S	O	N	D

P

Hound's-Tongue *Cynoglossum officinale*

Mowing prior to seed set will reduce seed production, and can kill the plant.

DESCRIPTION: A taprooted leafy plant, up to 1.2m in height, found along roads, trails and in meadows.
FLOWERS: Small, reddish-purple flowers with five petals.
LEAVES: Rough, hairy leaves from 10-30cm in length.
STEMS: Hairy; usually branched near the top.
OTHER ID TIPS: Forms a rosette in its first year. Seeds are small hooked 'burs' which cling to clothing and animals.

J	F	M	A	M	J	J	A	S	O	N	D

B

Knotweed

Japanese, Giant, Bohemian *(Fallopia* spp.)

Himalayan Knotweed (*Polygonum polystachyum)*

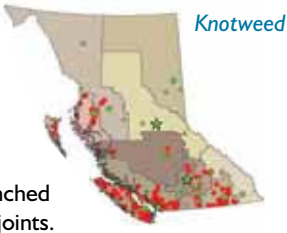
Giant Knotweed
C. Wheeler

Himalayan Knotweed
J. Hallworth

Japanese Knotweed
L. Scott

Giant, Japanese, Himilayan Knotweed
J. Hallworth

Spreads primarily by rhizomes, but can also produce seed. Mow twice per month for several years. Do not allow cut plant material to enter a ditch or watercourse. Report all sightings.


Knotweed

DESCRIPTION: Large, woody, bamboo-like shrubs grow 1-5m in height. Found in moist to wet areas like roadside ditches and riparian areas.
FLOWERS: Small, white/green flowers grow in plume-like, branched clusters along the stem and leaf joints.
LEAVES: Variable. Japanese: spade-shaped; Giant: larger, heart-shaped; and Himalayan: lance-shaped, pointy.
STEMS: Reddish-brown, hollow stems form dense thickets.
OTHER ID TIPS: Japanese leaves appear zig-zagged along the stems. Bohemian knotweed is a hybrid of giant and Japanese knotweeds.

J	F	M	A	M	J	J	A	S	O	N	D

P

Leafy Spurge *Euphorbia esula*

Highly invasive plant. Mowing or grading may worsen infestations. Report all sightings.

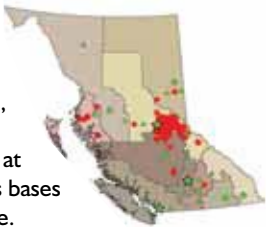
DESCRIPTION: Upright plant up to 1.0m tall, with creeping roots. Thrives in a variety of habitats.
FLOWERS: Greenish-yellow flower clusters on long stalks. Floral leaves are heart-shaped.
LEAVES: Narrow bluish-green leaves are spirally arranged on the stem.
STEMS: Smooth, hairless stems are branched near the top.
OTHER ID TIPS: Exudes a milky juice when cut or broken. This juice is toxic to people and some animals.

J	F	M	A	M	J	J	A	S	O	N	D

P

Marsh Plume Thistle *Cirsium palustre*

Limit or stop flowering and seed production by repeated mowing prior to seed set. Grading can limit plant growth and eliminate seed production. Limited distribution—important to report all sightings.



DESCRIPTION: Slender upright plant up to 3.0m in height. Prefers moist-wet soils, and grows on roadsides, in ditches, cutblocks and riparian areas.
FLOWERS: Purple flowers found at the tips of stems. Bracts at flowers bases are sticky, and tipped with a prickle.
LEAVES: Spiny leaves are hairy on undersides and have winged bases.
STEMS: Usually unbranched, with spiny wings at leaf bases. Branching may occur at the cluster of flowers.
OTHER ID TIPS: Forms a rosette in first year. Fibrous roots.

J	F	M	A	M	J	J	A	S	O	N	D

B

Orange Hawkweed *Hieracium aurantiacum*
Invasive Yellow Hawkweeds

Hieracium spp.

L. Wilson

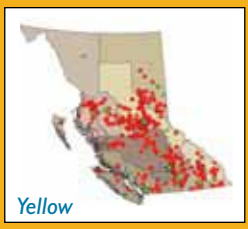
B. Stewart

J. Leekie

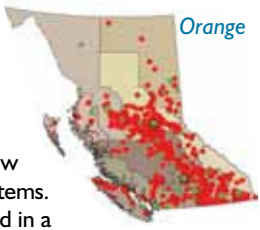
B. Stewart

L. Wilson

Cariboo Regional District


Yellow

Highly invasive plants. Mowing before seed set will limit seed production, but may encourage spread by runners. Report all sightings south of Williams Lake, north of Terrace, and in the Peace.


Orange

DESCRIPTION: Fast-spreading, hairy plants, growing up to 60cm in height. Found on grasslands, lawns, roadsides and other disturbed sites.

FLOWERS: Bright orange or yellow clusters, atop slender unbranched stems.

LEAVES: Hairy leaves are arranged in a rosette. Few to no leaves found on stem.

STEMS: Stems are covered with bristly hairs, which are black on orange hawkweed.

OTHER ID TIPS: Above ground runners root and grow new plants. Plants produce a milky juice when broken.

J	F	M	A	M	J	J	A	S	O	N	D

P

Oxeye Daisy *Leucanthemum vulgare*

Mowing during or after flowering will disperse seeds. Mow or grade prior to seed set.

DESCRIPTION: Upright plant growing up to 1.0m in height in dense clumps. Common along roadsides, in fields and in disturbed areas.
FLOWERS: Daisy-like flowers on the end of each stem branch.
LEAVES: Alternate, and decreasing in size up the stem. Upper leaves are stalkless with wavy to toothed edges.
STEMS: Smooth to sparsely hairy, and branched.
OTHER ID TIPS: Similar to the ornamental shasta daisy and invasive scentless chamomile.

J	F	M	A	M	J	J	A	S	O	N	D

P

Perennial Pepperweed *Lepidium latifolium*

Highly competitive plant. Repeated mowing prior to seed set can limit plant growth and seed production; however plants can reproduce from roots. Limited distribution - important to report all sightings.

DESCRIPTION: Creeping root system results in dense colonies of plants up to 1.0m in height (taller in wet areas). Occasionally found on roadsides and in ditches; thrives in moist habitats.
FLOWERS: Fragrant white flowers in rounded clusters on branch tips.
LEAVES: Waxy, alternate leaves, with a white midvein. Lower leaves are stalked; upper leaves are virtually stalkless.
STEMS: Stems are branched.
OTHER ID TIPS: Seed pods are attached by long stalks.

J	F	M	A	M	J	J	A	S	O	N	D

P

Policeman's Helmet (Himalayan Balsam) *Impatiens glandulifera*

Mowing after seed set will spread plants. Mow regularly to exhaust root reserves. If mowing only once per year, time treatment for immediately prior to flowering. Report all sightings.

DESCRIPTION: Upright branched herb up to 2m in height. Found in moist areas like streambanks and ditches.
FLOWERS: White, pink, or reddish, and shaped like an English policeman's helmet.
LEAVES: Smooth, egg-shaped leaves are clustered in groups of three to five. Leaf edges are toothed.
STEMS: Hollow, smooth and purple-tinged.
OTHER ID TIPS: Seed capsules explode at maturity.

J	F	M	A	M	J	J	A	S	O	N	D

A

Puncturevine *Tribulus terrestris*

Grading can limit plant growth and seed production. Mow prior to seed set. Report all sightings.

DESCRIPTION: Densely-matted, prostrate, trailing plant. Restricted to dry roadsides, fields and disturbed habitats in the Okanagan and Similkameen areas.

FLOWERS: Yellow, five-petalled single flowers on short stalks. Open only in the morning.

LEAVES: Opposite, hairy leaves with four to eight oval leaflet pairs.

STEMS: Trailing and up to 1.5m long, often branching along the ground.

OTHER ID TIPS: Spines on seed pods can cause injury to the feet of people and animals, and can puncture bicycle tires.

J	F	M	A	M	J	J	A	S	O	N	D

Purple Loosestrife *Lythrum salicaria*

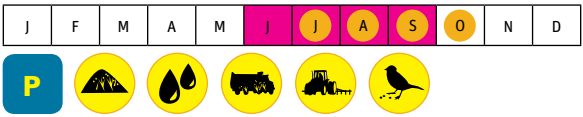
S. Dewey

L. Scott

Ohio State University

Highly competitive. Ditching can limit the growth of young plants; however mature root fragments can form new plants, so be sure to follow ditching best practices. Report all sightings.

DESCRIPTION: Competitive perennial plant, with showy purple flowers. Thrives in moist habitats, such as ditches, ponds, and wetlands.
FLOWERS: Spike of purple flowers found at the upper end of stems.
LEAVES: Leaves are lance-shaped and can vary in arrangement from opposite to whorled.
STEMS: Stiff smooth stems are square in cross-section.
OTHER ID TIPS: Purple loosestrife is sometimes confused with native fireweed, but purple loosestrife does not produce windborne seeds.



Rush Skeletonweed *Chondrilla juncea*

Highly invasive plant. Repeated mowing prior to seed set may limit plant growth and reduce seed production. Report all sightings.

DESCRIPTION: Long-lived perennial up to 1.2m tall with skeleton-like appearance. Found on disturbed, dry sites.
FLOWERS: Small yellow flowers randomly scattered along branches.
LEAVES: Inconspicuous, narrow stem leaves.
STEMS: Wiry, highly branched stems with downward pointing hairs near the base.
OTHER ID TIPS: Forms a dandelion-like rosette in the first year. Leaves exude a milky juice when cut or broken.

J	F	M	A	M	J	J	A	S	O	N	D
P											

Russian Knapweed *Acroptilon repens*

Highly competitive plant. Mowing several times per year prior to seed set will limit seed production and deplete root reserves. Report all sightings.

DESCRIPTION: Upright plant up to 1.0m in height, often forming dense colonies.
FLOWERS: Single, pink to purple flowers are urn-shaped. Bracts are green at the base with a white, slightly hairy tip.
LEAVES: Lower stem leaves are alternate, longer and deeply lobed. Upper leaves are toothed and decrease in size toward the top of the plant.
STEMS: Upright, stiff, branched, and covered in soft grey hairs.
OTHER ID TIPS: Roots are black, scaly and creeping.

J	F	M	A	M	J	J	A	S	O	N	D

P

Scentless Chamomile *Matricaria perforata*

Single plant can produce 1,000,000 seeds. Prevent seed production by removing plants, mowing regularly, or grading prior to flowering.

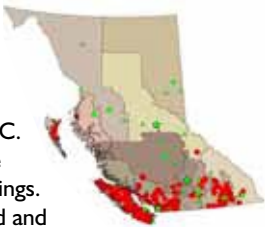
DESCRIPTION: Small, bushy plant up to 1.0m in height.
FLOWERS: Daisy-like and scentless, up to 3cm in diameter.
LEAVES: Feathery, and alternate.
STEMS: Smooth, often reddish-purple, and highly branched near the top.
OTHER ID TIPS: Fibrous taproot. Often found in wildflower seed mixes.

J	F	M	A	M	J	J	A	S	O	N	D

A P

Scotch Broom *Cytisus scoparius*

Limit soil disturbance in the vicinity of Scotch broom infestations, and re-seed cleared areas promptly. Regular brushing can reduce plant vigour over time. Limit seed production - mow or brush prior to flowering. Report all sightings outside the Lower Mainland and Vancouver Island.



DESCRIPTION: Taprooted evergreen shrub up to 3m in height. Common on roadsides, cutblocks and disturbed areas throughout southern and coastal BC.
FLOWERS: Bright yellow pea-like flowers, sometimes with red markings.
LEAVES: Lower leaves are stalked and have three leaflets; upper leaves are simple and un-stalked.
STEMS: Five-angled and ridged, woody, and brown to green.
OTHER ID TIPS: Flat seed pods have fine hairs on edges.

J	F	M	A	M	J	J	A	S	O	N	D

P

Scotch Thistle *Onopordum acanthium*

Repeated mowing or grading prior to seed set can limit plant growth and seed production. Report all sightings.

DESCRIPTION: Spiny thistle up to 3m in height. Found in disturbed areas, ditches and rangelands.
FLOWERS: Many single violet flowers on up to 5cm long branches. Bracts are spiny.
LEAVES: Very hairy, large, lobed leaves with sharp yellow spikes.
STEMS: Numerous branched stems with spiny, hairy wings running down the length.
OTHER ID TIPS: Forms a rosette in the first year, and has a fleshy taproot.

J	F	M	A	M	J	J	A	S	O	N	D

B P

Sulphur Cinquefoil *Potentilla recta*

L. Scott

B. Stewart

L. Scott

Mowing before seed set will limit seed production, but may encourage spread by runners. Report all sightings.

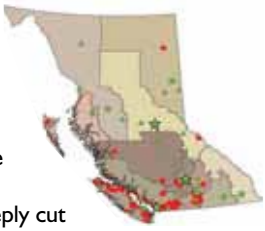
DESCRIPTION: Long-lived perennial, up to 80cm in height. Found in open forests, pastures, disturbed areas, and along roadsides.
FLOWERS: Stalked flowers are pale yellow with five petals, and found at the top of the stem.
LEAVES: Long hairs cover the leaves, which are made up of five to seven toothed leaflets. Leaves appear yellowish-green, not grey, and are hairy on the underside.
STEMS: Stems are hairy and have numerous leaves.
OTHER ID TIPS: Can be confused with native graceful cinquefoil, whose leaves have a woolly, grey underside.

J	F	M	A	M	J	J	A	S	O	N	D

P

Tansy Ragwort *Senecio jacobaea*

Seeds are viable for up to 20 years. Mow regularly prior to seed set. Report all sightings.



DESCRIPTION: Ragged looking plant up to 1.0m in height. Found on roadsides, fields, disturbed and riparian areas.
FLOWERS: Yellow, daisy-like flowers are borne in clusters at the top of stems.
LEAVES: Alternate leaves are deeply cut and almost ragged, and covered with web-like hairs.
STEMS: Mature plants have branched stems (often purple).
OTHER ID TIPS: In the first year it forms a rosette with 10-20 leaves. Crushed leaves have an unpleasant odour.

J	F	M	A	M	J	J	A	S	O	N	D

B P

Wild Chervil *Anthriscus sylvestris*

Fraser Valley Regional District

J. Cardina

J. Cardina

Repeated mowing or grading prior to seed set can limit plant growth and seed production. Limited distribution - important to report all sightings.

DESCRIPTION: Upright plant from Parsley Family growing to over 1.8m in height. Thrives on moist disturbed sites like roadsides, fencelines, fields.
FLOWERS: White flowers on 2cm long stalks, arranged in umbrella-like clusters.
LEAVES: Fern-like, triangular, glossy dark leaves divided into leaflets. Leaves are smooth to softly hairy.
STEMS: Hollow stems are furrowed. A fringe of hairs is found at branch nodes.
OTHER ID TIPS: Seeds are produced in pairs and have a pronounced tip. Deep taproot up to 1.8m.

J	F	M	A	M	J	J	A	S	O	N	D

B P

Yellow Starthistle

Centaurea solstitialis

ALERT!

Not known in BC

Not known in BC. **REPORT ALL SIGHTINGS IMMEDIATELY!** *Do not mow or grade as treatment may cause unwanted spread.*

DESCRIPTION: Upright plant growing up to 1.5m in height. Can form dense stands. Found in rangelands, pastures, and disturbed areas.
FLOWERS: Yellow, single flowers with sharp spines radiating from bracts in a star-like formation.
LEAVES: Upper leaves are sharply pointed.
STEMS: Winged and covered with fine hairs.
OTHER ID TIPS: Hairy cotton-ball seed head visible throughout winter. Deep taproot.

J	F	M	A	M	J	J	A	S	O	N	D

A

Place stickers of
regional species
of concern here.

Place stickers of
regional species
of concern here.

Place stickers of
regional species
of concern here.

Regional Weed Committees in BC

Regional weed committees are key partners in managing invasive plants in BC. Please contact your regional weed committee to find out more about problem plants in your area, for assistance with plant identification, and to coordinate weed management activities.

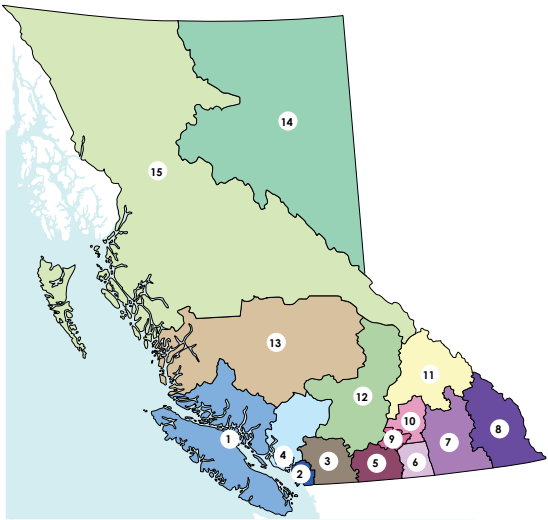
www.invasiveplantcouncilbc.ca/committees

Call: _____

_____

_____

(INSERT CONTACT INFO FOR YOUR LOCAL WEED COMMITTEE FROM LIST)



Contact Information

Regional Weed Committees

For further information on plant identification or to report infestations, contact the Regional Weed Coordinator for your area:

1. **COASTAL INVASIVE PLANT COMMITTEE**
   250-857-2472
   Email: info@coastalinvasiveplants.com
2. **GREATER VANCOUVER INVASIVE PLANT COUNCIL**
   604-880-8358
   Email: info@gvipc.ca
3. **FRASER VALLEY INVASIVE PLANT COUNCIL**
   604-615-WEED(9333)
   Email: fvipc@shaw.ca
4. **SEA TO SKY INVASIVE SPECIES COUNCIL**
   604-935-7665
   Email: ssinvasives@gmail.com
5. **SOUTH OKANAGAN-SIMILKAMEEN INVASIVE PLANT SOCIETY**
   250-404-0115
   Email: sosips@shaw.ca
6. **BOUNDARY WEED MANAGEMENT COMMITTEE**
   250-446-2232
   Email: bwmc@nethop.net
7. **CENTRAL KOOTENAY INVASIVE PLANT COMMITTEE**
   250-352-1160
   Email: coordinator@kootenayweeds.com

8. **EAST KOOTENAY INVASIVE PLANT COUNCIL**
   1-888-55-EKIPC (35472)
   Email: coordinator@EKIPC.com

9. **CENTRAL OKANAGAN REGIONAL DISTRICT**
   250-469-6218

10. **NORTH OKANAGAN REGIONAL DISTRICT**
    250-550-3749

11. **COLUMBIA-SHUSWAP REGIONAL DISTRICT**
    250-832-8194

12. **SOUTHERN INTERIOR WEED MANAGEMENT COMMITTEE**
    250-851-1699
    Email: siwmc@telus.net

13. **CARIBOO CHILCOTIN COAST INVASIVE PLANT COMMITTEE**
    250-392-1400
    Email: info@cccipc.ca

14. **NORTHEAST INVASIVE PLANT COMMITTEE, PEACE RIVER REGIONAL DISTRICT**
    250-784-6838
    Email: damfarm@pris.ca

    FORT NELSON INVASIVE PLANT MANAGEMENT COMMITTEE
    250-233-8745
    Email: ccrumblin@geoterra.net

15. **NORTHWEST INVASIVE PLANT COUNCIL**
    1-866-44WEEDS (449-3337)
    Email: info@nwipc.org

Ministry of Transportation and Infrastructure

For assistance with maintenance activities, contact your Operations Manager, Area Manager, or Regional Environmental staff.

For More Information

Ministry of Transportation and Infrastructure
www.th.gov.bc.ca

Invasive Plant Council of British Columbia
www.invasiveplantcouncilbc.ca

Invasive Alien Plant Program (IAPP)
www.for.gov.bc.ca/hra/plants/index.htm

Noxious Weeds in British Columbia
www.agf.gov.bc.ca/cropprot/noxious.htm

Background Sources:

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Lyons, C.P., B. Merilees. 1995. Trees, Shrubs and Flowers to Know in Washington and British Columbia. Vancouver, British Columbia.

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Ralph, D., B. Wikeem, R. Cranston. 1996. Field Guide to Noxious Weeds and Other Selected Invasive Plants of British Columbia. BC Ministry of Agriculture and Lands. Victoria, BC.

Glossary

Alternate: arranged singly, one at a time; usually referring to leaves or branches.

Annual: a plant that completes its lifecycle in one growing season.

Basal leaves: leaves growing at the base of the stem.

Biennial: a plant that lives for two years, usually flowering and producing seed in year two.

Bract: a modified leaf, usually associated with a flower.

Bur: a rough, prickly husk around the seeds or fruit of some plants.

Clasping leaf: the base of the leaf surrounds the stem.

Compound leaf: a leaf that is divided into many smaller parts.

Fibrous root: root system with many fine parts.

Floral leaf: a modified leaf that is part of a flower.

Lance-shaped: much longer than wide; tapering towards the tip.

Leaf joint: a place where a leaf is attached (a node).

Leaflet: a single segment of a compound leaf.

Linear leaves: long and narrow, with almost parallel sides.

Midvein: the main vein of a leaf.

Node: a place where a leaf or branch is attached (a joint).

Opposite: arranged in pairs, like leaves on opposite sides of a branch.

Perennial: a plant that lives for more than two years.

Prostrate: growing flat along the ground.

Rhizome: an underground stem that can develop nodes or buds at the joints.

Rosette: a circular cluster of leaves found at the base of a stem.

Runner: a stem that spreads horizontally, often rooting at its joints.

Seed pod: the protective shell or case surrounding a seed.

Spike: a flower cluster in which each flower is not stalked.

Taproot: a main root, usually tapering and pointing down, and larger than the branching roots.

Trailing: lying flat on the ground, but not rooting.

Vegetative reproduction: reproduction without seeds or spores.

Whorled: leaves, flowers or branches arranged around an axis in groups of three or more.

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Leafy spurge on roadside, Photo Credit: B. H. Farmer