WEED SCIENCE
(APBI 328)

LABORATORY MANUAL

(2020-21)

Faculty of Land & Food System
University of British Columbia

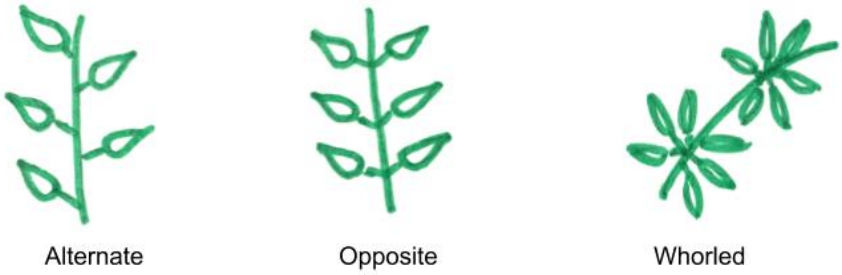
Table of Contents

Identifying Weeds

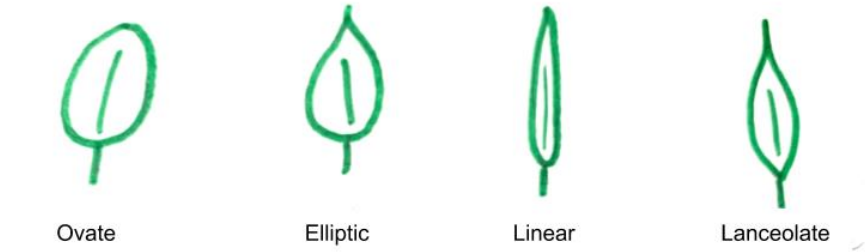
In order to identify a weed species, it is usually necessary to identify several of the different parts of the plant and characterize them. For most plants, these include:

Habit: The general appearance and architecture of the entire plant.

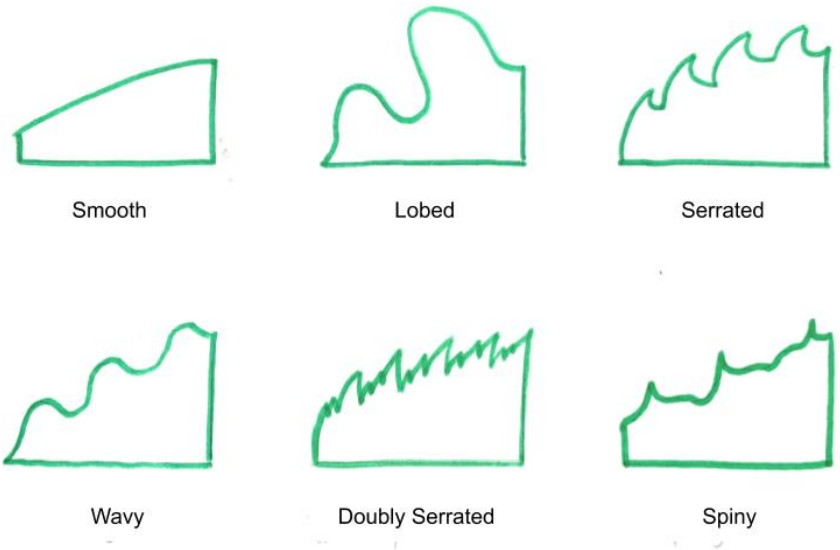
Leaf Growth Pattern: The arrangement of leaves on the plant.



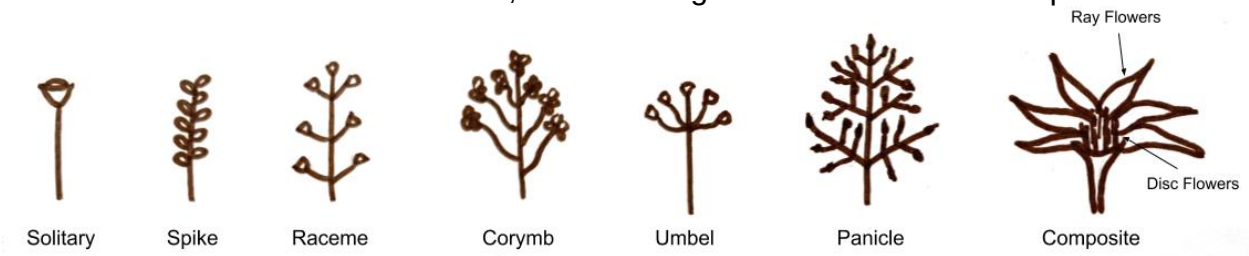
Leaf Shape: The shape of an individual leaf.



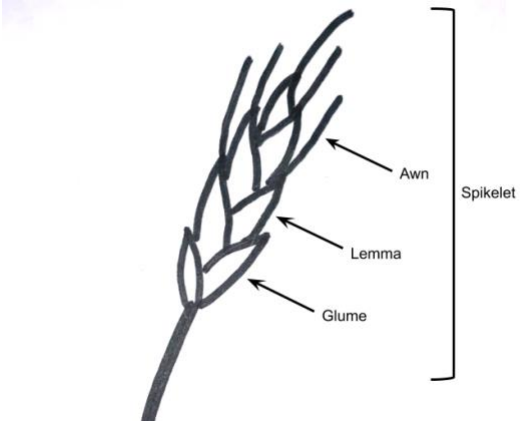
Leaf Margins: The boundary area along the edges of the leaf.



Flower Structure: The inflorescence, or the arrangement of flowers on the plant.



For identifying grasses, different terminology is used.



A more in-depth guide to identifying grasses can be found here:
http://www.omafra.gov.on.ca/english/livestock/beef/facts/06-095.htm

Refer to the video “A Guide to Identifying Weeds” posted on Canvas for more information on learning to identify plants.

Agricultural Weeds

Annual sow thistle (Sonchus oleraceus L.)

Family	Asteraceae
Life Cycle	Annual, reproduces by seed.
General	Forb growing up to 1 meter tall, from a short taproot; hollow stem exudes milky juice.
Leaves	Deeply divided to the mid-rib, terminal lobe large and triangular, pointed lobes clasping stems. Leaf margins with small teeth and soft, weak spines.
Flowers	Several small yellow heads in flat or open topped clusters, glabrous.
Fruits/Seeds	Achenes 3-5 ribbed and cross-wrinkled; pappus of white hairlike bristles.

Reasons for Concern: A common weed of cultivated crops, grain fields, and orchards. It acts as an alternate host to aphids, several viral diseases, and nematodes. Rapid germination and establishment combined with wind dispersal of seeds over great distances allows this species to rapidly colonize new areas.

Chris Evans, University of Illinois, Bugwood.org

John D. Byrd, Mississippi State University, Bugwood.org

ID Video:
https://www.youtube.com/watch?v=JSugCuv-rrU

Spiny Annual sow-thistle (*Sonchus asper* (L.) Hill)

Family	Asteraceae
Life Cycle	Annual, reproduces by seed.
General	Upright stems often have a few scattered, stalked glandular hairs in the upper part, exuding milky juice when broken, up to 2 meters tall.
Leaves	Usually dark glossy green, and have crisped, very sharply and prominently toothed margins. Leaves are sessile and clasp the stem with rounded, ear shaped lobes.
Flowers	Light yellow flower heads are flask-shaped and are all ligulate.
Fruits/Seeds	Brown, flattened achenes have a few prominent parallel ribs on each surface. The pappus consists of numerous simple, white hairs.

Reasons for Concern: This species invades agricultural lands, but is also an important alternative host of pests, viruses and diseases that affect crops, including aphids and downy mildew.

ID Video:
https://www.youtube.com/watch?v=Vn23MxvDU98

Perennial sow-thistle (*Sonchus arvensis* L.)

Family	Asteraceae
Life Cycle	Perennial, reproduces by seed and from buds on widely spreading creamy white, brittle, underground roots.
General	Up to 2 meters tall, upright stems are hollow, and glabrous on the lower part but glandular-hairy towards the top and on branches**.** The entire plant contains a sticky white juice. It also may have a rather sour odour.
Leaves	Variable in outline, with weak prickles along the margins. The basal leaves are stalked, while the stem leaves are sessile and clasp the stem with rounded basal lobes.
Flowers	Bright yellow flower heads occur in a loose terminal inflorescence**.** Bracts are dark grayish-green. Flowers are all ligulate.
Fruits/Seeds	Seeds are ovate, dark brown, ribbed, and cross-wrinkled. The pappus consists of numerous simple, white hairs.

Reasons for Concern: An aggressive, creeping weed that can severely reduce yields in cultivated fields; can also establish and become a serious problem in riparian areas, marshes, and ponds.

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

Tom Heutte, USDA Forest Service, Bugwood.org

ID Video:
https://www.youtube.com/watch?v=LLwIW6Qq9sk

Barnyard grass (*Echinochloa crusgalli* (L.) Beauv.)

Family	Poaceae
Life Cycle	Annual, reproduces by seed, rooting occurs at nodes in contact with soil.
General	Coarse, glabrous stems.
Leaves	There is no ligule (this distinguishes it from all other weedy grasses in Canada) and no auricle. Leaf sheaths are split with overlapping margins. 1-3 hairs may be present near the base of the blade.
Inflorescence	The chunky inflorescence consists of a central stem with numerous, nearly erect branches covered with clusters of spikelets. The spikelets are often awned with a straight or twisted bristle.

Video:
https://www.youtube.com/watch?v=iigt7upkiZ8

Reasons for Concern: Barnyard grass can most often be found in cultivated fields, gardens, barnyards waste places, ditches, riverbanks, and roadsides. It is most abundant on rich, moist soil.

Bull thistle (*Cirsium vulgare* (Savi) Tenore)

Family	Asteraceae
Life Cycle	Biennial, reproduces by seed.
General	Forms a large, flat rosette with a deep, fleshy tap root during the first year. Upright, branched stems are slightly wooly and winged with long spines.
Leaves	Alternate leaves are deeply lobed, with each lobe ending in a long harsh spine. Smaller spines occur between the lobes and on the upper leaf surface. The lower leaf surface is covered with fine woolly hair.
Flowers	Bracts of the flower heads are hairy and tipped with long, sharp prickles. Flowers are large, purple and consist of all tubular florets.
Fruits/Seeds	Shiny seeds are grayish-brown with dark length-wise streaks. They are roughly oblong in shape and have a long, white plumose pappus.

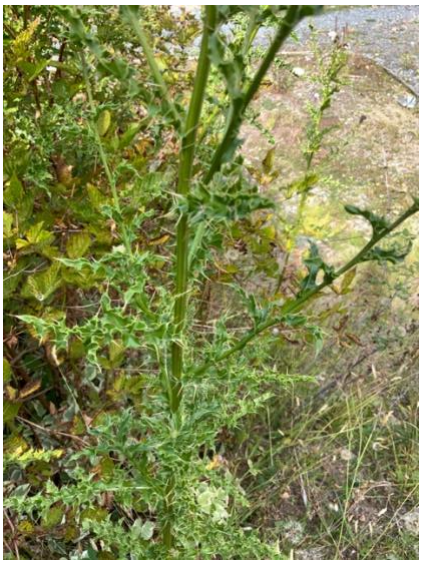
Reasons for Concern: Bull thistle does not persist under cultivation but is an important weed of pastures and roadsides. Its rosettes are occasionally troublesome in lawns and gardens.

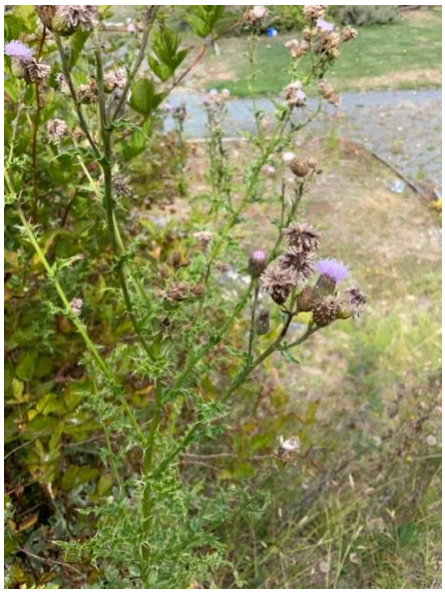
ID Video:
https://www.youtube.com/watch?v=_IRNQWJPiUM

Canada thistle (*Cirsium arvense* (L.) Scop.)

Family	Asteraceae
Life Cycle	Perennial, reproduces by seeds and creeping horizontal roots.
General	Upright stems are green and usually branched, up to 2 meters tall.
Leaves	Leaves are alternate, lobed and spiny. They are oblong, stalkless and often clasp the stem.
Flowers	Flowers are globular in the male plants and flask-shaped in the female plants. The bracts of the heads end in weak prickles. Flowers are all tubular and range from pinkish to white in colour.
Fruits/Seeds	Seeds are smooth, brown or straw-coloured, oblong and curved. The feathery, white pappus is easily separated from the seed.

Reasons for Concern: Canada thistle is the most common and troublesome thistle in cultivated fields, meadow, pastures, roadsides and waste places. Large patches of either all male (seedless) or all female (seed-producing) plants commonly occur.





ID Video:
https://www.youtube.com/watch?v=8ztDC2zOMBM

Scotch thistle (*Onopordum acanthium* L.)

Family	Asteraceae
Life Cycle	Biennial, reproduces by seed.
General	1.5-3 meter tall herb growing from a fibrous root system, branched stems are spiny and woolly-hairy
Leaves	Alternate, elliptic to oblanceolate, toothed to deeply pinnately-lobed, with spines 2-5 mm long. The upper leaf surface is sparsely woolly-hairy and green, and the lower leaf is covered densely with white woolly hair.
Flowers	Florets are purple surrounded by numerous spiny bracts that are woolly at the base and end in orange spines. Heads can be solitary or in groups at ends of branches.
Fruits/Seeds	Achenes hairy, transversely wrinkled, greyish-brown, 4-5 mm long; pappus of numerous slender bristles.

Reasons for Concern: Scotch thistle reproduces through thousands of seeds that remain viable in the soil for over 30 years. This species invades BC's roadsides, irrigation ditches, rangelands (especially in the North Okanagan region) and disturbed areas.

ID Video:
https://www.youtube.com/watch?v=CX0vFQsAHu4

Canada fleabane (*Conyza canadensis* (L.) Cronquist)

Family	Asteraceae
Life Cycle	Annual or winter annual, reproduces by seed.
General	The upright stems are hairy with few branches, up to 1 meter tall.
Leaves	Numerous alternate leaves that may appear opposite. Leaves initially have soft hairs which become harsh on the older leaves. Leaves are narrow, lance-shaped and decrease in size from the base to the top of the plant.
Flowers	The flower heads are small, yellowish green, and are borne of leafless branches near the top of the plant. The ligulate florets are white, and the tubular florets are yellowish and become very fluffy at maturity.
Fruits/Seeds	Achenes, bristly with white pappus hairs.

Reasons for Concern: Canada fleabane is a native North American plant which has now spread to many other parts of the world. The crushed plant has a faint but distinctive odour similar to carrots. This agricultural weed has developed herbicide tolerance, causing problems in Eastern Canada.

Video:
https://www.youtube.com/watch?v=PTw3hXvs7gc

Common burdock (*Arctium minus*)

Family	Asteraceae
Life Cycle	Biennial, reproduces by seed.
General	Stems are thick, hollow, and grooved. Flowering stems are produced in the second year and can get up to 2 m tall.
Leaves	Basal rosette in the first year; can be up to 50 cm long and 40 cm wide. Stem leaves are alternate and reduced in size; white woolly underneath and usually ovate to oblong.
Flowers	Flower heads are in spike-like clusters in the upper leaf axils. They are composed of purple disc florets surrounded by several rows of hooked bracts.
Fruits/Seeds	Club-shaped and mottled brown with a bristly yellow pappus.

Reasons for Concern: Found along fence-lines, river banks, and waste areas. The burs get tangled in manes and tails of horses, cows and other livestock, causing stress as well as eye, nose and mouth injuries that reduce their market value. There have also been incidences where birds and bats have entangled themselves in the burrs.

Burdock and livestock issues: https://www.canadiancattlemen.ca/features/beating-back-burdock/

Common Tansy (*Tanacetum vulgare* L.)

Family	Asteraceae
Life Cycle	Perennial, reproduces by seed and rhizomes.
General	Herb from a stout rhizome, branched, hairless stems to 1.5m tall.
Leaves	Alternate, pinnately divided and re-divided leaves resemble yarrow, but are not as finely divided.
Flowers	Flat-topped flower-heads occur in clusters at the ends of stems and branches. They consist of small, densely packed yellow disk florets. Ray florets are absent.
Fruits/Seeds	Squared achenes, pappus a minute, narrow-toothed crown.

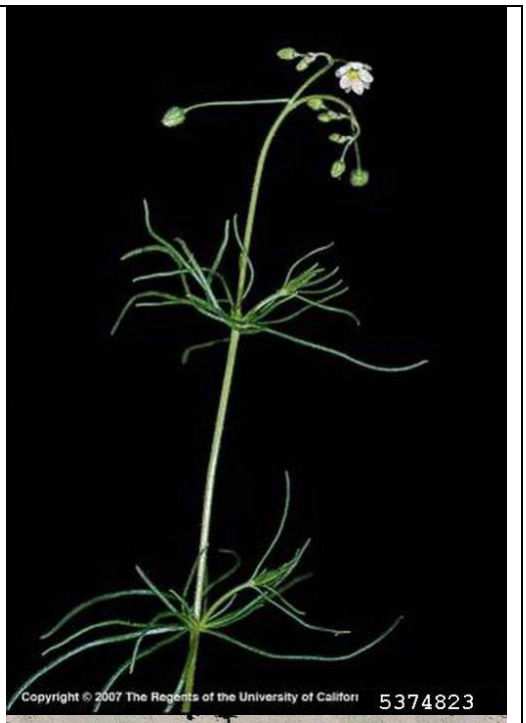
Reasons for Concern: All parts of the tansy plant have a strong, characteristic aroma. The essential oils derived from tansy were widely used in home remedies and it is believed that tansy is an escape from colonists' gardens. Seeds from this species can remain viable for up to 25 years, making prevention of spread a major concern. Infestations may be toxic to livestock and to humans if large quantities are consumed.

ID Video:
https://www.youtube.com/watch?v=84SlZsxLSM8

Corn spurry (*Spergula arvensis* L.)

Family	Caryophyllaceae
Life Cycle	Annual, reproduces by seed.
General	Slender stems from a taproot, usually branched from the base, bright green, sparsely hairy and somewhat sticky.
Leaves	Needle-like leaves are rounded on the upper surface and grooved lengthwise on the lower surface. They occur in whorls of six to thirty (or more) at each node.
Flowers	Numerous, small flowers have five white petals and five green sepals.
Fruits/Seeds	Small, oval seed-pod splits into five divisions to release numerous black, flat, round seeds, each with a narrow light-coloured wing.

Reasons for Concern: Other common names for corn spurry include: devil's gut, pickpurse, and sandweed. Young seedlings may be confused with seedlings of Russian thistle or field horsetail. Corn spurry prefers disturbed, slightly acidic soils. It is a strong competitor in gardens, row crops and field crops, but is never a problem in established pastures.



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

Video:
https://www.youtube.com/watch?v=xOZB-thfIIA

Field horsetail (*Equisetum arvense* L.)

Family	Equisitaceae
Life Cycle	Perennial, reproduces by spores and horizontal underground rhizomes.
General	In the spring, shoots are whitish to light brown, unbranched, hollow, jointed stems. Each node is encircled by a toothed sheath. These shoots soon wither and are followed by green, slender hollow stems which are leafless but which have whorls of 6 to 8 branches at nearly every node. These branches frequently branch again. The green branched stems last until frost.
Cones	The tip of the first, light brown stems bear a brownish, spore-producing cone.

Reasons for Concern: Field horsetail is an intense competitor which flourishes in both poorly drained soils and well drained sandy or gravelly areas. It spreads rapidly underground and its frequent abundance in cultivated overflow land and in low pastures can render it an expensive nuisance. Field horsetail contains a substance which destroys vitamin B and is thus poisonous to stock (especially young sheep and horses). It is more likely to cause trouble when fed in hay than in the green state.

Video:
https://www.youtube.com/watch?v=5RnDHYLK-wg

Green foxtail (*Setaria viridis* (L.) Beauv.)

Family	Poaceae
Life Cycle	Annual, reproduces by seed.
General	Stems may be erect or spreading, to 1 m in height.
Leaves	Margins and surfaces of leaf blades are rough with very fine forward-pointing barbs. The ligule is a fringe of short hairs.
Inflorescence	The inflorescence is a dense panicle covered with short green to purplish bristles. The bristles have microscopic forward-pointing barbs.

Reasons for Concern: Green foxtail grows well in all soil textures. It is commonly found in grainfields, gardens, roadsides, and waste places. Seeds usually germinate between mid-May and mid-June. Early spring and late summer cultivation therefore have little effect on management of this weed.

Howard F. Schwartz, Colorado State University, Bugwood.org

Video:
https://www.youtube.com/watch?v=2GpzfCyR7_o

Hound's-tongue (Cynoglossum officinale L.)

Family	Boraginaceae
Life Cycle	Biennial, reproduces by seed.
General	A rosette of leaves and a thick, deep taproot are produced during the first year of growth. In the second year, a flowering stem (branched in the upper part) is produced.
Leaves	Softly-hairy rosette leaves are narrowly elliptic or broadest towards the base, with rather long leaf stalks. Stem leaves are shorter and stalkless.
Flowers	Reddish-purple flowers with a cup-shaped corolla occur in racemes form the upper leaf axils. Five united sepals with triangular lobes form a star-shaped calyx.
Fruits/Seeds	Fruits consist of four nutlets, roughened by numerous very short barbed hooks. Each nutlet contains a single black-coated seed.

Reasons for Concern: The hooked barbs on the nutlets readily attach to animal's fur, enabling dispersal of the seeds. The green plant has a distinctive odour that discourages animals from eating it. However, it becomes more palatable when dried. Hound's-tongue contains alkaloids which are poisonous to livestock if ingested. Dermatitis due to contact with the hairy stems and leaves may also develop.

Mary Ellen (Mel) Harte, Bugwood.org

ID Video:
https://www.youtube.com/watch?v=mCuTfeN99ZQ

Lady's thumb (Polygonum persicaria L.)

Family	Polygonaceae
Life Cycle	Annual, reproduces by seed.
General	Stems are smooth except for distinct nodes covered by an ocrea. The ocrea gives rise to numerous longish hairs.
Leaves	Leaves are alternate and narrowly elliptic. They may have a reddish to brownish blotch near the middle.
Flowers	Small, flowers are crowded into narrow, cylindrical spikes at the ends of stems and branches. Each flower has 5 whitish to pinkish sepals.
Fruits/Seeds	Mature seeds are shiny, black broadly ovate in outline and usually enclosed by the dried sepals.

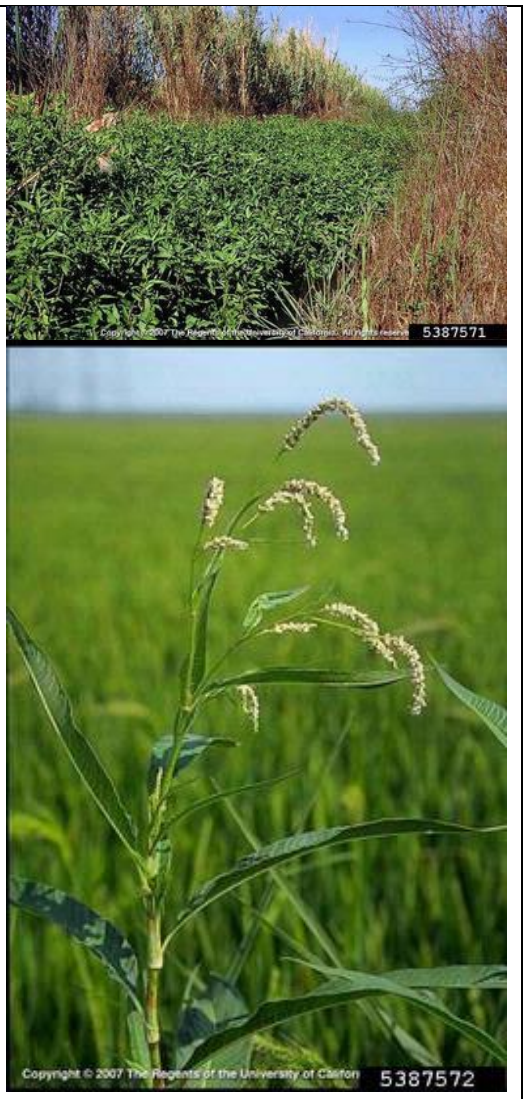
Reasons for Concern: Lady's thumb prefers moist, rich locations, but can be found on nearly all soil textures. The seed is a common contaminant of small grains. Lady's thumb (as well as green smartweed and wild buckwheat) is increasing in abundance in many field crops due to their resistance to 2,4-D.

ID Video:
https://www.youtube.com/watch?v=wXqQOf0-BDE'

Green smartweed (*Persicaria lapathifolia* (L.) S.F. Gray)

Family	Polygonaceae
Life Cycle	Annual, reproduces by seed.
General	Solitary, erect stems from a taproot, freely branched, to 80 cm in height.
Leaves	Alternate stem leaves are lanceolate, smooth or often hairy below, to 20 cm long.
Flowers	Loose panicle of spike-like racemes, greenish-pink to white, with distinct branching veins.
Fruits/Seeds	Egg-shaped achenes, dark brown and shiny.

Reasons for Concern: Green smartweed is very similar to lady's thumb. It can be distinguished from lady's thumb by the lack of hair on the ocrea. It is not necessary however, to distinguish between smartweed species for the purpose of weed control.



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

ID Video:
https://www.youtube.com/watch?v=TOMz_5Pd58U

Wild Buckwheat (*Fallopia convolvulus*)

Family	Polygonaceae
Life Cycle	Annual, reproduces by seed.
General	Slender trailing or twining stems which branch freely from the base.
Leaves	Leaves are arrow-head shaped with pointed lobes.
Flowers	Small, greenish flowers occur in clusters in the axils or in longer slender clusters at the tips of the branches. Flowers have five sepals and no petals.
Fruits/Seeds	A single, three-sided, dull black seed is tightly enclosed within the sepals.

Lynn Sosnoskie, University of Georgia, Bugwood.org

Reasons for Concern: Wild buckwheat readily twines around nearby plants and thereby competes for light. It also interferes with field operations by becoming entangled in field equipment. Wild buckwheat is often confused with field bindweed but upon closer observation, the two species can readily be distinguished on the basis of both vegetative and floral characteristics.

Lamb's-quarters (*Chenopodium album* L.)

Family	Chenopodiaceae
Life Cycle	Annual, reproduces by seed.
General	The branched, ridged, green or purple-striped stems range in height from 20 – 200 cm.
Leaves	Leaves vary in shape from somewhat triangular, with margins coarsely toothed to nearly entire. Leaves are grayish-green and covered with mealy particles.
Flowers	Small, greenish flowers are densely crowded in the leaf axils and at the stem tips. Flowers have five green sepals but are without petals.
Fruits/Seeds	Each flower gives rise to a single shiny, black, flattened seed, which is nearly circular in outline. Seeds are often covered by a thin, papery, white pericarp.

Reasons for Concern: This weed is often referred to as pigweed, a good example of the need for scientific names to avoid confusion when dealing with weed problems. Lamb's-quarters can be found almost anywhere the soil is disturbed. It is especially abundant in farm yards, as the seeds remain viable even after passing through the digestive tracts of cattle and pigs.

ID Video:
https://www.youtube.com/watch?v=nGCPzEzeP_s

Large crabgrass (*Digitaria sanguinalis* (L.) Scop.)

Family	Poaceae
Life Cycle	Annual, reproduces by seed and by rooting at lower stem nodes.
General	Stems are upright or prostrate, base of plant is quite leafy.
Leaves	Leaf blades are 5 to 20 cm long and 4 to 10 mm wide. The sheath is split with overlapping hairy margins; a number of long white hairs are found where the sheath meets the leaf blade. The ligule is membranous and less than 2 mm long. Auricles are absent.
Inflorescence	Flowers are in panicles of 3 to 13 finger-like branches that are 5 to 15 cm long; spikelets are located on one side of each branch. Seeds are elliptical to lance-shaped and dull to olive brown.

Video:
https://www.youtube.com/watch?v=ZWdx3xBwHRA

Reasons for Concern: A serious weed of row crops, cultivated fields and lawns. Introduced from Europe.

Smooth crabgrass (*Digitaria ischaemum* (Schreb.) Muhl.)

Family	Poaceae
Life Cycle	Annual, reproduces by seed and by rooting from nodes that come into contact with soil.
General	Branching, often spreading to prostrate, can form large patches.
Leaves	Numerous leaf blades near the base of the plant are often pubescent. Upper leaves are scattered along the stem and are usually glabrous. A membranous ligule is present (2-3 mm long). There is a tuft of long hair present on either side of the leaf base of the lower leaves.
Inflorescence	The finger-like inflorescence consists of several slender spikes arranged in whorls at the top of the stem. Each spike is composed of flattened spikelets closely arranged along one side only.

Lynn Sosnoskie, University of Georgia, Bugwood.org

Video:
https://www.youtube.com/watch?v=WNi_c7z8o0o

Reasons for Concern: Smooth crabgrass thrives in lawns, gardens, roadsides, pastures, and waste places. It is considered a to be a problem especially in lawns due to its flowering stems, sprawling habit, purple colour, and rapid growth in late summer. Great quantities of seed are produced before the plant is killed by frost. Germination occurs only after the soil has been sufficiently warmed. Management strategies should include good lawn care and prevention of mature seed formation.

Prickly lettuce [Lactuca serriola L. (Lactuca scariola L.)]

Family	Asteraceae
Life Cycle	Annual, winter annual or biennial, reproduces by seed.
General	Tall, upright stems, usually smooth with a few prickles towards the base. Stems tend to be whitish-green and finely branched towards the top. The plant contains a sticky white juice.
Leaves	Alternate, vary from being nearly divided with backward-curving lobes to being lobeless. Margins tend to be weakly spiny-toothed. Lower leaves usually clasp the stem and have a single row of stiff, sharp prickles on the underside of the mid-rib.
Flowers	Very numerous, much-branched inflorescences occur on fine stalks. Each flower head has five to twelve yellow ray flowers, and no disk florets.
Fruits/Seeds	Seeds are narrowly oval with a long beak tipped with a pappus.

Reasons for Concern: This species is a weed of concern in a variety of crops; cattle that consume fresh, young prickly lettuce have been reported to develop pulmonary emphysema.

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

Tom Heutte, USDA Forest Service, Bugwood.org

ID Video:
https://www.youtube.com/watch?v=e_QdoVSJb2g

Purslane (Portulaca oleracea L.)

Family	Portulacaceae
Life Cycle	Annual, reproduces by seed.
General	The prostrate stems are reddish, thick and fleshy. Plants are abundantly branched and form large, circular mats.
Leaves	Leaves are small, thick and fleshy, hairless, and broadest toward the rounded or squared tip and narrowed towards the base. Leaves near the tips of branches are crowded together.
Flowers	Small, pale yellow flowers with five petals open only on bright, sunny mornings. The petals soon fall off. The flowers appear in the axils of stem leaves or near the tips of branches.
Fruits/Seeds	The seed capsule is small and opens below the middle by a lid. It contains many tiny, shiny black seeds.

ID Video:
https://www.youtube.com/watch?v=qq3uR-yMdIU

Reasons for Concern: Purslane thrives in cultivated gardens and row crops, driveways and waste places. It germinates later than other weeds, has long continuous seed production, inconspicuous flowering and seeding, seed dormancy, and retention of viability for many years. These properties make it a particularly difficult weed to manage. Young shoots of purslane may be eaten as a vegetable.

Redroot pigweed (Amaranthus retroflexus L.)

Family	Amaranthaceae
Life Cycle	Annual, reproduces by seed.
General	Stems are erect, ranging in height from 50 - 90 cm, and are simple or branched. The stem is greenish to slightly reddish but usually red near the roots; upper part is usually rough with dense short hair.
Leaves	Alternate, long-stalked, dull green and sparsely hairy. Lower leaf surfaces have prominent white veins.
Flowers	Dense spikes of small green flowers form the terminal panicle. Each flower enclosed in 3 stiff, awl-shaped bracts which give the bristly appearance of the spikes.
Fruits/Seeds	Seeds (~1 mm in diameter) are shiny, black, round and flattened.

ID Video:
https://www.youtube.com/watch?v=Muqv3D-EujI

Reasons for Concern: Redroot pigweed is one of Canada's most abundant weeds. It is especially abundant in soils rich in nitrogen (i.e. barnyard situations). It accumulates nitrogen to excess (luxury consumption) to such an extent that the foliage may be toxic to livestock (due to nitrate poisoning). Redroot pigweed is a strong competitor, especially in warm climates, and a prolific seed producer, producing tens of thousands of seeds each growing season. This species can also host several pest insect species, further threatening agricultural crops.

Scentless chamomile (*Tripleurospermum inodorum* (L.) Schultz-Bip)

Family	Asteraceae
Life Cycle	Annual to short-lived perennial, reproduces by seed.
General	Scentless herb from a fibrous root; upright stems are smooth, glabrous and often much branched.
Leaves	Alternate leaves, finely dissected and usually glabrous.
Flowers	Solitary, showy flower-heads are located at the ends of long branches. White ligulate florets occur in one to several rows around the margins. Numerous yellow tubular florets occur in the center of the flower-head.
Fruits/Seeds	Seeds are dark brown and the pappus is either very short or absent.

Reasons for Concern: This species invades low to mid elevation sites, including roadsides, fencelines, dry shorelines, and hay fields and pastures. Scentless chamomile is increasing in importance in the cultivated lands of the Prairie provinces, as well as in BC in the Kootenay, Okanagan, Peace River, and Thompson regions. This species is a rapid producer, producing up to 1 million seeds per plant that can remain viable for 15 years.

Scentless chamomile in BC: https://www.cbc.ca/news/canada/british-columbia/scentless-chamomile-problem-peace-farmers-1.3317062

Shepherd's-purse (*Capsella bursa-pastoris* L. Medic.)

Family	Brassicaceae
Life Cycle	Annual or winter annual, reproduces by seed.
General	Finely hairy, stems may be solitary or branched.
Leaves	First leaves are stalked, vary in shape from shallowly to deeply toothed, and occur in a rosette at the ground surface. Stem leaves are also variable in shape, but are stalkless, alternate, and clasp the stem with ear-like projections. Leaves are either hairless or covered with fine star-shaped hairs.
Flowers	Small, white four-petalled flowers occur in rounded clusters at the ends of stems and branches.
Fruits/Seeds	Heart-shaped seed-pods are attached by the pointed end to stalks which spread out from the stem. Each seed-pod contains numerous oblong, dull orange-yellow to slightly reddish seeds.

Reasons for Concern: Shepherd's-purse is a widely distributed weed found in gardens, cultivated fields, roadsides, pastures and waste places. This weed is a host for many diseases and viruses which attack domesticated *Cruciferous* plants.

Mary Ellen (Mel) Harte, Bugwood.org

Phil Westra, Colorado State University, Bugwood.org

Video:
https://www.youtube.com/watch?v=R44tBdlga7k

St. John's-wort (*Hypericum perforatum* L.)

Family	Clusiaceae
Life Cycle	Perennial, reproduces by seed and by underground rhizomes.
General	Rust coloured basal stems are erect, many-branched and somewhat woody. Stems above are green, ridged and without hairs.
Leaves	Leaves are opposite, sessile and have many transparent dots.
Flowers	Clusters of yellow five-petalled flowers with numerous, conspicuous stamens occur at the ends of branches. Petals have black dots along the margins.
Fruits/Seeds	Seed-pods are rusty brown and retain three conspicuous styles. At maturity, the pods split into three sections, each containing many dark brown, pitted seeds.

Reasons for Concern: If eaten by livestock, St. John's-wort may cause photsensitization, a condition in which skin becomes seriously sunburned under normal exposure to sunlight. Rarely a weed problem in its native Europe, races of this species have evolved which aggressively invade the rangelands of Australia, the United States, and British Columbia.

ID Video:
https://www.youtube.com/watch?v=Sm958VS3LeA

Stinkweed (*Thlaspi arvense* L.)

Family	Brassicaceae
Life Cycle	Annual or winter annual, reproduces by seed.
General	The entire plant is glabrous, stems are erect and may be simple or branched.
Leaves	Stalked, rosette leaves with smooth or wavy margins soon wither. Upper leaves are alternate, irregularly toothed and clasp the stem with two ear-like lobes.
Flowers	Very small, white flowers with four petals occur in rounded clusters at the ends of the stems.
Fruits/Seeds	Circular, strongly flattened seed-pods with a deep notch at the tip develop on slender, upwardly curving stalks. Each pod contains numerous reddish-brown to black, somewhat flattened seeds with several rows of curved ridges on each side.

Reasons for Concern: Also known as pennycress, stinkweed is a common weed of grain crops and pastures. Leaves have an unpleasant odour when crushed. Not only does it reduce yields through competition, ingestion of its foliage by dairy cows results in tainted milk. Also, isothiocyanates present in the seeds of this species can result in poisoning if ingested in large quantities**.**

Mary Ellen (Mel) Harte, Bugwood.org

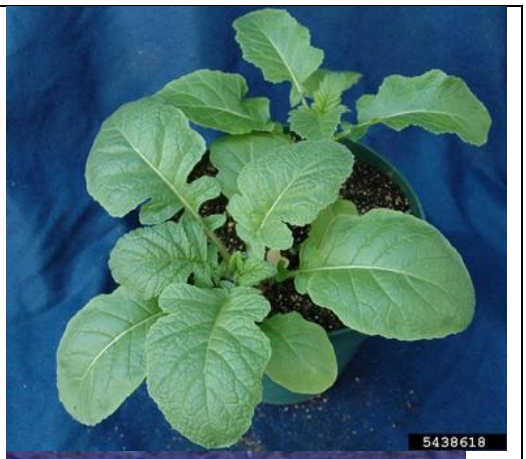
Utah State University , Bugwood.org

Link:
https://www.kimberleybulletin.com/community/weed-warrior-keep-your-eyes-out-for-field-pennycress/

Wild mustard (*Sinapis arvensis* L.)

Family	Brassicaceae
Life Cycle	Annual, reproduces by seed.
General	Simple or branched stems may be purple at the junction with the main stem and are usually hairy.
Leaves	Lower leaves are somewhat hairy, long-stalked, and deeply lobed. Upper leaves are stalkless and tend to be coarsely toothed, but not deeply lobed.
Flowers	Bright yellow, four-petalled flowers develop in clusters.
Fruits/Seeds	Seed-pods are often glabrous, but may be covered with bristly hairs. They are usually ribbed lengthwise and have a long angular beak. The two sides of the pod split lengthwise to release numerous round, black seeds.

Reasons for Concern: Wild mustard is a common weed in field crops where it is a strong competitor, growing very rapidly as a seedling and choking out the crop. Wild mustard seed cannot be separated from canola and will result in rejection of the canola. Wild mustard seeds present in livestock feed may result in poisoning as they contain isothiocyanates, alkaloids, and glucosides.



Bruce Ackley, The Ohio State University, Bugwood.org

Video:
https://www.youtube.com/watch?v=i-KUBpb4hYo

Wild oats (*Avena fatua* L.)

Family	Poaceae
Life Cycle	Annual, reproduces by seed.
General	Stems have distinct dark-coloured nodes.
Leaves	Leaves are long, flat and broad with a prominent light-coloured midrib. Leaf sheaths and bases of leaf blades are usually slightly hairy along the margins. Sheaths are split, with margins transparent and overlapping in the lower 2/3's of each leaf sheath. Membranous ligules are present (2-5 mm long).
Inflorescence	Inflorescence is a large, slender, branched panicle. Seeds are dark, hairy and sharply-pointed with a long twisted black awn. There is a sucker-mouth at the base of each seed.

Jan Samanek, Phytosanitary Administration, Bugwood.org

Video:
https://www.youtube.com/watch?v=OF95CDn_zi8

Reasons for Concern: Wild oats are well adapted as grainfield weeds. They are very similar to cultivated oats. However, unlike cultivated oats, wild oats shatter after ripening and germination is often delayed for several years. The early-ripening seeds remain as an impurity in the crop seed. Delayed germination allows the plant to overwinter as seed. Control measures carried out late in the year are, therefore, of little value.

Wild radish (Raphanus raphanistrum L.)

Family	Brassicaceae
Life Cycle	Annual or winter annual, reproduces by seed.
General	Herb from a slender taproot, stems are much branched and have coarse, short hairs, especially at the base.
Leaves	Lower leaves are usually rough, deeply divided and have a large terminal segment. Upper leaves are narrower and often entire.
Flowers	Conspicuously veined flowers are yellow, white or purplish.
Fruits/Seeds	Seed-pods are constricted between seeds, and at maturity the pod breaks apart at these constrictions.

Reasons for Concern: This species is a prolific invader of field and garden crops, especially grain crops like canola.

Mourad Louadfel, Homemade, Bugwood.org

Video:
https://www.youtube.com/watch?v=9-FhxJhPuJU

Witch grass (*Panicum capillare* L.)

Family	Poaceae
Life Cycle	Annual, reproduces by seed.
General	Branching from the base, stems erect.
Leaves	Leaf blades and leaf sheaths are densely hairy. The hair (2-3 mm long) becomes harsh and prickly as the plant matures. The strongly ribbed, conspicuously hairy leaf sheath is split and the margins are either separate or overlapping. A ligule with a dense fringe of hair (1-2 mm long) is present along with an auricle.
Inflorescence	The inflorescence is a large, open panicle with numerous, very fine branches and tiny spikelets.

Reasons for Concern: Witch grass is also referred to as capillary grass, hair grass, panic grass, tickle grass, or tumble grass. It can be found in gardens, cultivated fields, roadsides, waste places, as well as in more natural sites such as on river and lake shores. It germinates late, but is a vigourous grower. When mature, the main flowering stalk easily breaks off and the panicle is rolled and tumbled by the wind.

Video:
https://www.youtube.com/watch?v=Hl0I5qD8i1U

Invasive Plants

Annual bluegrass (Poa annua L.)

Family	Poaceae
Life Cycle	Annual, reproduces by seed and sometimes by roots at the lower nodes.
General	Tufted, bright green, 5-20 cm in height. It has an erect to spreading habit, forming mats.
Leaves	Leaves are 1 - 10 cm in length with a canoe-shaped tip. Leaf sheaths are often overlapping. Ligules are membranous (1 - 2 mm long) and auricles are absent.
Inflorescence	The inflorescence is a whitish pyramidal panicle. Spikelets 3-6 flowered, lemmas 3.5 mm long.

Reasons for Concern: It usually germinates in June and may take advantage of situations in which early-season weed control measures have removed more competitive weeds. It may also be considered a problem in lawns, on golf courses, and in pastures. While it is nutritious for livestock, it has a weak root system. The grazing action causes the entire annual bluegrass plant to be uprooted.

ID Video:
https://www.youtube.com/watch?v=yNlJpaQTOWs

Bindweed species (*Convolvulus* spp.)

Family	Convulvulaceae
Life Cycle	Perennial, reproduces by seed and an extensively spreading root system
General	Stems are slender, smooth and usually twine or curl about other plants in a counterclockwise direction.
Leaves	Leaves are arrow-shaped with two sharp or rounded lobes at the base. They are variable in size.
Flowers	Flowers have a white to pinkish funnel-shaped corolla, and occur singly or in small groups. The long flower stalk has two small bracts well below the flower.
Fruits/Seeds	Roundish seed-pods contain one to four dull, grayish brown, pear-shaped seeds each. Seed surfaces are covered with grayish warts.

Reasons for Concern: Bindweed is a common weed of cultivated land, grain fields, pastures, meadows, roadsides, and waste places. It is difficult to distinguish between bindweed species, but all species are treated the same from a management approach.

Jan Samanek, Phytosanitary Administration, Bugwood.org

Chris Evans, University of Illinois, Bugwood.org

Bindweed species:
https://www.youtube.com/watch?v=WVL98R7zViw&t=87s

Black medic (Medicago lupulina L.)

Family	Fabaceae
Life Cycle	Annual, reproduces by seed.
General	Stems are wiry, and may be either prostrate or erect, from a tough root.
Leaves	The alternate leaves are comprised of three small, oval leaflets, shallowly toothed at the tips. The central leaflet has a definite stalk. A pair of stipules are present at the base of each leaf stalk.
Flowers	Very small, yellow flowers are borne in dense clusters at the end of long stalks.
Fruits/Seeds	Black coiled seedpods are produced in clusters.

Reasons for Concern: This weed is troublesome in lawns, especially where soil fertility is low or the lawn has been trampled. It also occurs in gardens, waste places, roadsides, pastures and cultivated fields.

ID Video:
https://www.youtube.com/watch?v=f_OKjUbJytw

Black nightshade (*Solanum nigrum* L.)

Family	Solanaceae
Life Cycle	Perennial, reproduces by seed and above ground spreading stems.
General	Short shrub or herb to 120 cm tall, from a taproot.
Leaves	Leaves are ovate with large toothed margins, petiolated (stalked), and hairy or hairless.
Flowers	Flowers are greenish to whitish with prominent yellow anthers.
Fruits/Seeds	Berries grow in bunches and are initially green changing to dull black or purple as they mature.

Reasons for Concern: The berries are toxic to livestock and humans when consumed; toxicity is affected by growing conditions. Berries of certain nightshades are edible, however it is not recommended to eat the berries if there is any uncertainty about the species. Found in fields, on disturbed land and in wooded areas.

Video:
https://www.youtube.com/watch?v=evv55fCztuA&has_verified=1

Bracken fern (*Pteridium* spp.)

Family	Dennstaedtiaceae
Life Cycle	Perennial, reproduces by spores and rhizomes.
General	Solitary fern with large fronds, erect to 3 m tall.
Leaves	The mature leaf is compound and is in the shape of a broad triangle.
Flowers	In the latter part of the summer, the undersides of many of the leaf segments bear dense bands of brown spores.

Video:
https://www.youtube.com/watch?v=dDVvOE2Bky4

Reasons for Concern: These plants occur in moist to dry sites on a range of soil types, however, they usually occur near or under open wooded areas. Both fresh and dry bracken leaves are poisonous to livestock. Its complex poisonous properties include interference with vitamin B. Research indicates that bracken leaves produce certain types of cancer in cattle and laboratory animals.

Broad-leaved plantain (*Plantago major* L.)

Family	Plantaginaceae
Life Cycle	Perennial, reproduces by seed.
General	Erect herb from a fibrous root, stems smooth or stiff-hairy.
Leaves	Oval or elliptical, dull green leaves occur in a basal rosette. Leaves are smooth or roughly hairy, and prominently ribbed.
Flowers	Small, inconspicuous, greenish flowers occur in compact spikes on erect, leafless stalks.
Fruits/Seeds	Brown, egg-shaped seed-pods open when ripe by splitting across the middle to release five to sixteen dark brown seeds.

Reasons for Concern: This introduced weed often grows in trampled areas. Its seeds no doubt are carried on the bottom of shoes, thereby spreading it quickly along footpaths and roadsides. This weed seemed to spring up like magic behind the early explorers leading the natives to dub it "Whiteman's foot".

Ribwort plantain (*Plantago lanceolata* L.)

Family	Plantaginaceae
Life Cycle	Perennial, reproduces by seed.
General	Finely grooved, hairy stems up to 60 cm tall from a taproot with secondary fibrous roots.
Leaves	Long, narrow leaves with very prominent, almost parallel veins or ribs which run the length of the leaf.
Flowers	Very short, compact, oval spikes of tiny flowers occur at the ends of long, thin, leafless stems. During flowering, a halo of anthers surround the spike.
Fruits/Seeds	Seed-pods contain one or two shiny, brown seeds.

Reasons for Concern: This is a common weed of lawns, roadsides, and pastures. Narrow-leaved plantain flowers from spring to late fall, and may act as an annual or perennial. It is often mistaken for a monocot due to its long, narrow leaves with nearly parallel veins.

Chris Evans, University of Illinois, Bugwood.org

Plantain Comparison Video: https://www.youtube.com/watch?v=gWQItee9C-E

Broadleaf dock (Rumex obtusifolius L.)

Family	Polygonaceae
Life Cycle	Perennial, reproduces by seed.
General	Herb from a large taproot, erect, pimply and finely hairy stems.
Leaves	Leaves are broad (15 cm) with rounded or heart-shaped bases. Leaf margins are flat or somewhat wavy, but never strongly crisped or wavy as in curled dock.
Flowers	The three wing-like valves of the fruit have several irregular teeth along the margins, and only one of the three sepals bears a tubercle.
Fruits/Seeds	Achenes, brown, smooth, shiny, about 2 mm long.

Reasons for Concern: This aggressive invasive is found along roadsides, ditches, shorelines, and riverbanks. It has been a problem species in the Great Lakes region since spotted in 1840.

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

ID Video:
https://www.youtube.com/watch?v=2dwvfcGUiP4

Curled dock (*Rumex crispus* L.)

Family	Polygonaceae
Life Cycle	Perennial, spreads by seed.
General	Ridged, upright stem, 1m or higher, from a thick yellowish taproot. A prominent ocrea is present at each node, becoming brown and papery with age.
Leaves	Dark green, wavy and crisped along the margins.
Flowers	The small, greenish flowers are clustered in whorls around the terminal branched inflorescence.
Fruits/Seeds	Each fruit includes three tiny sepals and three large, wing-like, smooth-margined papery sepals (valves). A single egg-shaped, corky tubercle on the back of each sepal encloses a small, shiny, reddish-brown triangular seed.

Reasons for Concern: Curled dock is generally found in moist areas such as depressions in fields. It is rarely a problem in cultivated land.

Steve Dewey, Utah State University, Bugwood.org

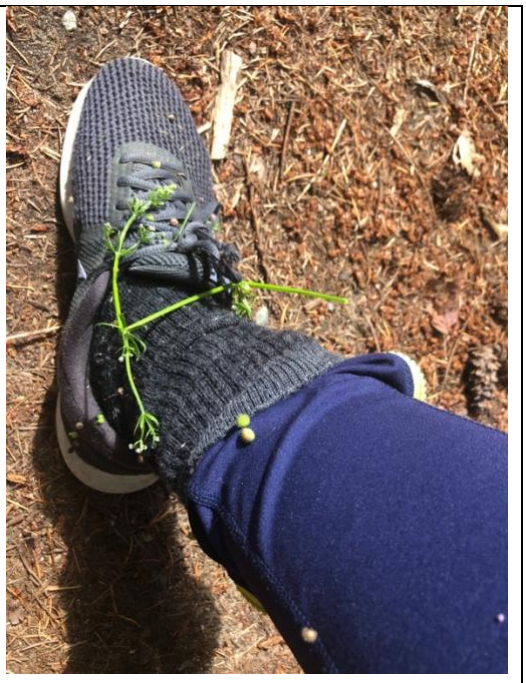
Bruce Ackley, The Ohio State University, Bugwood.org

ID Video:
https://youtu.be/aIAs2vv0tr4
https://www.youtube.com/watch?v=ud8P_87zQfY

Cleavers (*Galium aparine* L.)

Family	Rubiaceae
Life Cycle	Annual, reproduces by seed.
General	The stems are slender, smooth and much branched. They are initially upright, but eventually become matted. There are downward pointing prickle-like hairs or barbs along the angles of the stems.
Leaves	Narrowly oblong leaves occur in whorls along branches.
Flowers	Flowers have four tiny, white petals and occur in loosely branching clusters at the ends of stems and branches.
Fruits/Seeds	Each flower gives rise to a single seed, which is covered with numerous hooked hairs.

Reasons for Concern: This species may cause issues in grain crops, reducing yields and getting tangled in farm equipment. The sticky hairs allow this plant to cling to other plants while it competes for resources in fields and open forests.



ID Video: https://youtu.be/JIHpshUh5J4?t=68

Common chickweed (*Stellaria media* L. Vill.)

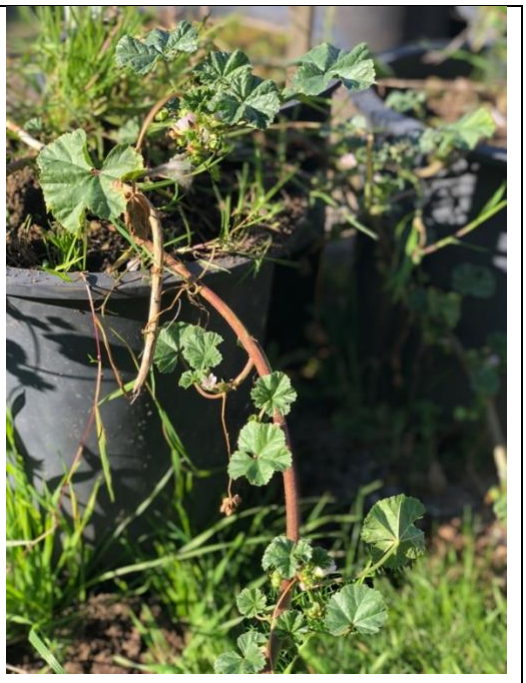
Family	Caryophyllaceae
Life Cycle	Annual or winter annual, reproduces by seed. It may also spread horizontally by stems which root at the nodes to form thick, succulent mats.
General	Many branches, bright green with swollen nodes. Stems smooth except for a single lengthwise band of fine white hair, alternating from one side of the branch to the other on successive internodes and extends onto the petioles.
Leaves	Leaves occur opposite on swollen nodes. They are oval with pointed tips, stalked near the base and sessile near tips of branches.
Flowers	Small, white flowers are produced at tips of branches and in angles between branches. Each flower has five deeply lobed petals.
Fruits/Seeds	Seeds are abundant, reddish brown and spherical.

Video:
https://www.youtube.com/watch?v=QLN-Se0OeYs

Reasons for Concern: Common chickweed is a highly successful colonizing species, especially in disturbed and open areas. This makes it one of the most widely distributed weeds in the world.

Common mallow (*Malva neglecta* Wallr.)

Family	Malvaceae
Life Cycle	Annual, biennial, or short-lived perennial, reproduces by seed.
General	Hairy, multi-branched stems are prostrate to semi-erect, from a taproot.
Leaves	Alternate leaves are roundish, shallowly toothed with heart-shaped bases and have long stalks.
Flowers	White to pale lilac, five petalled flowers occur either singly or in small groups in leaf axils.
Fruits/Seeds	Each flower gives rise to 12 to 15 distinct nutlets that form a disk. Each nutlet is round and smooth on the back and contains a single dark brown seed.



ID Video:
https://www.youtube.com/watch?v=RI1pMD5XBDk

Reasons for Concern: Common mallow is often found in gardens, farmyards, roadsides, waste places and occasionally in cultivated fields. The very tough stem and root make this plant virtually resistant to hand-pulling.

Common mullein (*Verbascum thapsus* L.)

Family	Scrophulariaceae
Life Cycle	Biennial, reproduces by seed
General	A rosette of large leaves and a deep, thick taproot are produced during the first year. During the second year a tall erect, usually unbranched flowering stem emerges.
Leaves	The stem and leaves are densely woolly. Leaves are greenish-gray, oblong in shape, narrowing as they reach the stem.
Flowers	Yellow flowers occur in a very dense, compact, elongated, thick spike. Five yellow petals are united into a saucer-shaped corolla.
Fruits/Seeds	Seed-pods are nearly spherical, but are hidden by woolly bracts and sepals. Each pod produces many tiny, brownish seeds.

Reasons for Concern: Common mullein usually occurs on dry sandy or gravelly soils along roadsides and in poor pastures. The dry, brownish stalks may remain standing for one or two years.

ID Video:
https://www.youtube.com/watch?v=egcxEPi3yjM&pbjreload=101

Creeping buttercup (*Ranunculus repens* L.)

Family	Ranunculaceae
Life Cycle	Perennial, reproduces by seed and by trailing horizontal stems which root at the nodes.
General	Stems may be prostrate or upright and range from smooth to densely hairy.
Leaves	Leaves have long stalks, are alternate and often clustered. The blades are divided into three segments, the middle segment with a distinct stalk. Each segment is further lobed and toothed.
Flowers	Bright yellow flowers consist of five rounded petals and are grouped on long stalks at the top of the plant.
Fruits/Seeds	Numerous strongly flattened seeds with a short hooked beak at the tip are produced in rounded clusters.

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Reasons for Concern: Creeping buttercup is one of the most troublesome lawn weeds. Like tall buttercup, creeping buttercup is a perennial, but unlike tall buttercup, creeping buttercup is stoloniferous, enabling it to spread rapidly through lawns. Its prostrate growth habit allows it to survive mowing operations.

Video:
https://www.youtube.com/watch?v=98slHdkXmbo

Dandelion (*Taraxacum officinale* G.H. Weber ex Wigger)

Family	Asteraceae
Life Cycle	Perennial, reproduces by seed.
General	Herb with sticky white juice, with a simple or branched stem and a thick taproot, up to 60 cm tall.
Leaves	The leaves occur on a basal rosette atop a thick, deeply penetrating taproot. Leaf shape varies from deeply and irregularly lobed to shallowly toothed.
Flowers	Showy, bright yellow flower heads are borne singly on a smooth, leafless, unbranched hollow stem. Florets are all ligulate.
Fruits/Seeds	Long slender seeds have a thin beak and are tipped by a pappus containing numerous, simple white hairs.

Reasons for Concern: Dandelion is a well-known weed to most home gardeners and may also become a problem in orchards or fields of alfalfa and other forage species.

ID Video:
https://www.youtube.com/watch?v=wbRqbBBZCDo

Spotted-cat's ear (*Hypochaeris radicata* L.)

Family	Asteraceae
Life Cycle	Perennial, reproduces by seed.
General	Herb with milky juice from fleshy roots, usually several stems, simple or branched.
Leaves	Lobed or wavy-margined roughly hairy leaves occur in a basal rosette.
Flowers	Yellow, ligulate flowers are borne atop branched, flowering stems.
Fruits/Seeds	Seeds are roughened, long-beaked and tipped by a circle of plume-like bristles.

Reasons for Concern: This species is a particular problem on Vancouver Island, Sunshine Coast and emerging in the southern interior of BC, and impacts sensitive Garry Oak ecosystems. It can displace native plants, especially in disturbed, sunny, open areas, and is a nuisance plant on lawns.

Comparison to Dandelion: http://identifythatplant.com/dandelion-and-cats-ear/#:~:text=The%20cat's%20ear%20leaves%20are,the%20center%20of%20the%20plant.

Daphne laurel (*Daphne laureola* L.)

Family	Thymelaeaceae
Life Cycle	Perennial, reproduces by seed.
General	Evergreen shrub, 0.5-1.5 m in height. The bark is thin and greyish yellow in colour, or green in immature stems.
Leaves	Leaves are alternate, forming dense whorls at the shoot tips but can also cover entire branches. Leaves are oblanceolate, 2-13 cm long and 1-3 cm wide, shiny in appearance and are dark green on the top and lighter green on the bottom.
Flowers	Daphne has yellow-green axial flowers that are very small and often hidden at the leaf bases.
Fruits/Seeds	It forms black berries which are poisonous to humans (not to birds).

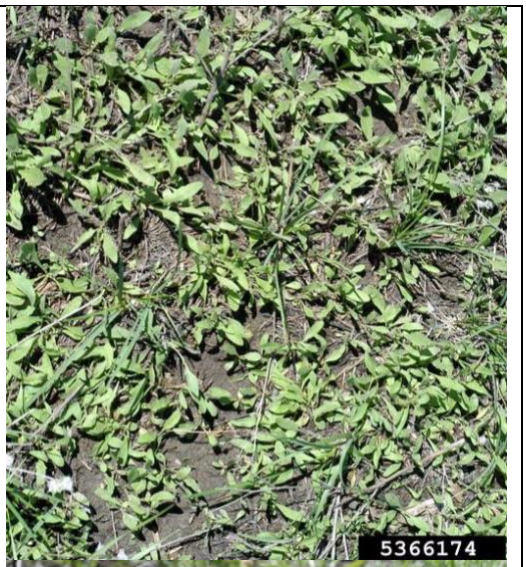
Video:
https://www.youtube.com/watch?v=ChnTO5dsHIc

Reasons for Concern: The sap can cause skin irritation making the plant hazardous to remove (see Worksafe BC Standards for handling Daphne laurel). Daphne laurel is considered the number one invasive plant to threaten BC Parks due to its ability to colonize the forest understory in full canopy forming monotypic stands which reduce biodiversity.

Diffuse knapweed (*Centaurea diffusa* Lam.)

Family	Asteraceae
Life Cycle	Biennial or short-lived perennial, reproduces by seed.
General	Forms a rosette during the first year of growth. Stems are upright and branched.
Leaves	Alternate, much divided, greenish-gray and roughly hairy.
Flowers	Small, numerous flower-heads are borne singly. The bracts of the flower-heads narrow into a rigid spine. Flowers are usually white but may occasionally be pink or purple.
Fruits/Seeds	Small, grayish seeds may lack a pappus or have a short fringe of hairs the length of the seed.

Reasons for Concern: Diffuse knapweed is a prolific seed producer, producing up to 18,000 seeds that can remain dormant in the seed bank for years. This species does not tolerate cultivation or excess moisture, and is uncommon in agricultural settings; rather, this species invades grasslands, open forests, and roadsides.



K. George Beck and James Sebastian, Colorado State University, Bugwood.org

L.L. Berry, Bugwood.org

ID Video:
https://www.youtube.com/watch?time_continue=52&v=guysISPqqZY&feature=emb_logo

Spotted knapweed (*Centaurea stoebe* subsp*. micranthos* L. (Gugler) Hayek)

Family	Asteraceae
Life Cycle	Biennial to short-lived perennial, reproduces by seed.
General	Up to 1.5 meters tall, with several branched stems growing from a taproot.
Leaves	Rosette leaves deeply lobed, up to 20 cm long; stem leaves are alternate, pinnately lobed with deep margins and silvery hairs.
Flowers	Egg-shaped, purple flowering heads surrounded by green bracts with black tips.
Fruits/Seeds	Elliptic, brown seeds with a tuft of bristles at the tip.

Reasons for Concern: Spotted knapweed infests moister, shadier areas than diffuse knotweed. Large infestations of spotted knapweed can increase runoff and erosion, leading to sedimentation of watercourses.

ID Video:
https://www.youtube.com/watch?v=g5HsoeBUvi8&feature=emb_logo

English Holly (*Ilex aquifolium* L.)

Family	Aquifoliaceae
Life Cycle	Perennial, reproduces by seed and suckering.
General	Dioecious tree or shrub with a woody stem, found in shady areas; usually a height of 1-2 m, but is capable of growing to 10 m.
Leaves	Leathery, dark green and shiny; usually 5-9 cm long with 3-5 sharp spines pointing alternately up and down. Upper leaves of mature trees do not have spines.
Flowers	Dull white, 4 lobed corollas.
Fruits/Seeds	Red drupe 6-10 mm in diameter. The berries contain alkaloids, caffeine and theobromine and are considered toxic to humans.

Reasons for Concern: English Holly is an invasive species in the Pacific Northwest as it is able to colonize the forest understory and become dense thickets, lowering biodiversity.

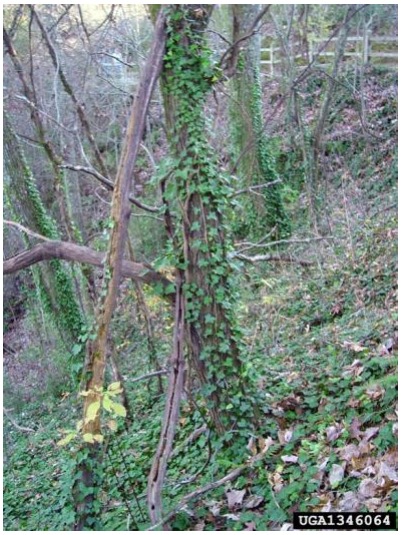
English holly in BC:
https://bcinvasives.ca/invasive-species/identify/invasive-plants/english-holly#:~:text=English%20holly%20(Ilex%20aquifolium)%20is,seeds%20are%20spread%20by%20birds.

English Ivy (*Hedera helix* L.)

Family	Araliaceae
Life Cycle	Perennial, reproduces by seed and vegetatively from stems or cuttings.
General	Evergreen vine, can grow 30m high up trees.
Leaves	Alternate leaves 5-10 cm long; juvenile leaves are five-lobed while adult leaves are unlobed.
Flowers	Umbels 3-5 cm diameter that are greenish-yellow in colour.
Fruits/Seeds	Purple-back to orange-yellow berries that are 6-8mm diameter.

Reasons for Concern: English ivy is capable of toppling mature trees due to the weight of the vines and the sail-like effect that it causes in the wind. Humans are largely responsible for its spread as it is an escaped garden plant, and birds also disperse seeds as they eat the fruits.

Jan Samanek, Phytosanitary Administration, Bugwood.org



Chris Evans, University of Illinois, Bugwood.org

James H. Miller, USDA Forest Service, Bugwood.org

Video:
https://www.youtube.com/watch?v=WAhb04Zp2G0

Fireweed (Epilobium angustifolium L.)

Family	Onagraceae
Life Cycle	Perennial, reproduces by seed and by creeping rootstalks.
General	Simple, upright stems are reddish, glabrous, and somewhat woody.
Leaves	Scattered leaves are lanceolate, simple, nearly sessile and slightly toothed or entire. Upper leaves are alternate, while lower leaves may be opposite.
Flowers	Showy, purple four-petalled flowers occur in terminal racemes.
Fruits/Seeds	Fruits are many-seeded capsules. Each seed has long, fine white hairs attached at the apex.

ID Video:
https://www.youtube.com/watch?v=711Bbn1SGyM

Reasons for Concern: Fireweed often occurs in open fields, especially recently cleared land and pastures, mainly in gravelly soils. It is one of the first colonizers following fire in wooded areas.

Foxtail barley (*Hordeum jubatum* L.)

Family	Poaceae
Life Cycle	Perennial, reproduces by seed.
General	Short lived, stems form smooth tufts, 20-60 cm in height.
Leaves	Leaves are bluish-green to grayish-green, and leaf blades are rough and prominently ribbed. Leaf sheaths are split with overlapping margins. A very short (>1 mm) ligule is present; auricles are usually absent.
Inflorescence	The inflorescence is a dense, unbranched spike with finely barbed, long greenish or purplish awns. The head turns yellowish or straw-coloured at maturity and breaks into separate seed-bearing units. Each unit contains 7 long, spreading awns.

ID Video:
https://www.youtube.com/watch?v=gcYr3Lpt0YI

Reasons for Concern: Also known as skunk grass, squirrel-tail, or wild barley, foxtail barley occurs in meadows, waste places, lawns, roadsides, ocean shores, borders of salt marshes, and dry saline depressions. The bristly segments of mature foxtail barley have tiny forward-pointing barbs. Because the barbs will slide only one way, movement by the animal forces these sharply pointed segments into the skin causing sores, irritation of the back of the mouth and nasal passages and sometimes blindness.

Giant hogweed (*Heracleum mantegazzianum* Sommier & Levier) DO NOT TOUCH!!!

Family	Apiaceae
Life Cycle	Perennial lasting 4-7 years, reproduces by seed.
General	Tuberous with a bright green, hollow, hairy stem with purplish blotches, up to 3 meters in height.
Leaves	Compound and deeply lobed with serrated-looking edges and stiff hairs on the underside.
Flowers	Flowering occurs in final year, producing large, umbels (up to 1 meter across) with numerous white small flowers.
Fruits/Seeds	Fruits blunt and rounded toward base. Each flower head can produce up to 100,000 seeds which can remain viable in the soil for up to a decade.

ID Video:
https://www.youtube.com/watch?v=sysmrqw4sEo

Reasons for Concern: Giant Hogweed poses considerable safety risks to the public at all stage of growth. The plant contains a phototoxic sap that can cause phytophotodermatitis (severe, recurring third degree-type burns that occur any time that part of the skin is exposed to sunlight) and blindness if the sap gets into eyes. **Do not touch!** Giant Hogweed can be found growing in almost any conditions and this invasive plant is a designated Noxious Weed on the BC Weed Control Act.

Gorse (Ulex europaeus L.)

Family	Fabaceae
Life Cycle	Perennial, reproduces by seed.
General	Medium to tall shrub, densely branched stems that are 5-angled, sparsely hairy and tipped with spines.
Leaves	Alternate leaves are reduced to stiff spines or scales that are 1-3 cm long.
Flowers	Pea-like flowers, yellow in colour, usually on tips of branches.
Fruits/Seeds	Black, flattened, hairy pods filled with seeds that are ejected by explosive splitting of the pod.

Video:
https://www.youtube.com/watch?v=WBZOASq5QQY

Reasons for Concern: This species thrives in sunny areas, and can tolerate nutrient-poor soils such as sandy or rocky soils. Gorse plants can live for up to 45 years, and the exploding seed pods can disperse up to 18,000 seeds per plant. It can form dense monocultures, excluding native species. It also contains volatile oils that make it a hazard for fires.

Heal-all (*Prunella vulgaris* L.)

Family	Lamiaceae
Life Cycle	Perennial, reproduces by seed and by creeping stems.
General	Stems are square, roughly hairy, and sharply ridged. Stems may be prostrate to nearly erect and root at nodes which touch the soil.
Leaves	Leaves are opposite and ovate to elliptic or round. They have smooth margins, or may be shallowly or irregularly toothed.
Flowers	Blue to purple flowers occur in dense spikes or clusters at the ends of stems, usually in threes in axils of broadly ovate or kidney-shaped bracts and have five united petals. The upper lip is rounded and arched, and the lower lip has two small side lobes and a larger central lobe.
Fruits/Seeds	Each flower gives rise to four brownish to blackish nutlets. These are oval lengthwise, but triangular in cross-section.

Reasons for Concern: Heal-all is abundant in lawns, gardens, and waste places. It will grow as a prostrate plant with stems rooting at the nodes when subject to mowing or trampling. However, where it grows without disturbance or in crowded situations the stem may be erect.

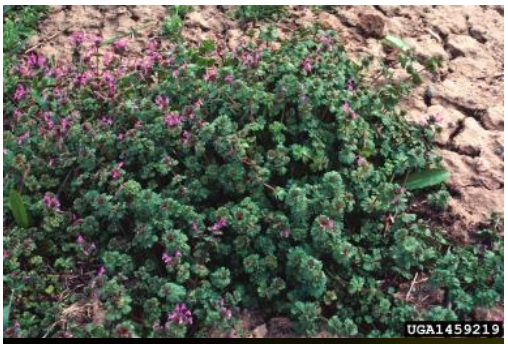
Video:
https://www.youtube.com/watch?v=OwCzOLrxCeg

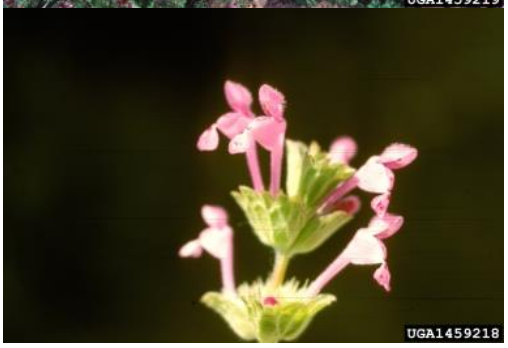
Henbit (Lamium amplexicaule L.)

Family	Lamiaceae
Life Cycle	Annual or winter annual, reproduces by seed.
General	Low growing plant with spreading branches from the base, with square, hairy stems.
Leaves	Leaves are opposite, and roundish to somewhat heart-shaped, with coarsely lobed or irregularly toothed margins. Lower leaves are long-stalked while upper leaves are stalkless and more or less clasping the stem.
Flowers	Pinkish or purplish flowers occur in clusters in axils of upper leaves. Five united petals form an arched upper lip with a hairy margin, and a two lobed lower lip.
Fruits/Seeds	Nutlets, 4 clustered together, three-angled, squared-off at tips.

Reasons for Concern: Henbit is mainly a weed of home and garden. It flowers in spring and early summer and occasionally again in late summer or fall.

Bruce Ackley, The Ohio State University, Bugwood.org





Steve Dewey, Utah State University, Bugwood.org

Video:
https://www.youtube.com/watch?v=-uM-vZPgUDM

Himalayan blackberry (*Rubus armeniacus*)

Family	Rosaceae
Life Cycle	Perennial, produces biennial stems, reproduces by seed and by root pieces.
General	The stem grows rapidly in the first year and bears flowers in the second year. The stem bears shout, curved, and sharp prickles.
Leaves	Leaves are large, alternate, palmately compound with 5 ovate leaflets. Leaflets have toothed margin and are abruptly pointed the tip.
Flowers	The stem produces flowering laterals with smaller leaves (3-5 leaflets). The flowers are whitish pink, 2-3 cm in diameter.
Fruits/Seeds	The fruit changes its colour from green to pink to red and finally to black as it matures.

Reasons for Concern: Blackberry tolerates poor soil and generally colonizes ditches, wetlands, and uncultivated vacant land. Himalayan blackberry forms dense thickets of living and dead stems, which degrade the quality of riparian areas by preventing native vegetation from being established. This species can also obstruct sight lines along roads and walkways.

Video:
https://www.youtube.com/watch?v=JFh8qcLbe8A

Cutleaf evergreen blackberry (*Rubus laciniatus* Willd.)

Family	Rosaceae
Life Cycle	Perennial, reproduces by seed.
General	Tall, coarse shrub with ascending or trailing stems with flattened, hooked prickles.
Leaves	Alternate, evergreen leaves, 5 leaflets are deeply incised and jaggedly toothed and sharply pointed at the tip.
Flowers	Clusters of up to 20 flowers, 5 petals, corollas white to pink.
Fruits/Seeds	Fruits change from green to red to black, to 1.5 cm long.

Reasons for Concern: Similar to Himalayan blackberry, this species forms dense thickets, preventing native vegetation from establishing. It lacks deep, stabilizing roots characteristic of species native to wetlands, where cutleaf blackberry thrives.

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Video:
https://www.youtube.com/watch?v=Erbs1AtMZZQ

Japanese knotweed (*Reynoutria japonica* (Houtt.) Ronse Decr.)

Family	Polygonaceae
Life Cycle	Perennial, reproduces by widely spreading rhizomes and by stem fragments, rooting at the nodes.
General	Erect stems are up to 3 m in height and may be branched or unbranched. Stems are smooth, round, often mottled reddish-purple and hollow except at the nodes. The plant dies back to the ground each winter.
Leaves	The large alternate leaves are long stalked and broadly ovate, to 10 cm long.The hairless ocrea at each node is colourless or light green.
Flowers	Numerous, small flowers form showy, greenish-white branching panicles in the axils of the upper leaves. Male and female flowers occur on separate plants.
Fruits/Seeds	The rarely produced seeds are triangular and enclosed in a papery, three-winged teardrop-shaped dry calyx.

Reasons for Concern: This plant was introduced as a bushy, hardy perennial for use as a foundation planting. Instead it has escaped and continued to spread. It is very competitive if it gets established along roadsides or in waste places, and it's vigorous growth can cause damage to infrastructure such as concrete and foundations.

Jack Ranney, University of Tennessee, Bugwood.org

ID Video:
https://www.youtube.com/watch?v=vCqNPPR1W2U

Giant knotweed (*Reynoutria sachalanensis* (F. Schmidt) Ronse Decr.)

Family	Polygonaceae
Life Cycle	Perennial, reproduces mainly by seeds but also by rhizomes.
General	Erect, branched stems to 6 m high from a rhizome. Hollow and reddish green in colour.
Leaves	Alternate leaves to 40 cm long, blades egg-shaped, heart-shaped at the base.
Flowers	Small panicles of pale green or greenish-white, 5-lobed flowers.
Fruits/Seeds	Triangular, shiny black achenes in a papery, winged calyx.

Reasons for Concern: This species exhibits less vigorous rhizome growth than Japanese knotweed, but can produce viable seedlings.

Jan Samanek, Phytosanitary Administration, Bugwood.org

Barbara Tokarska-Guzik, University of Silesia, Bugwood.org

Video:
https://www.youtube.com/watch?v=02vzWUc59tQ

Bohemian knotweed (*Reynoutria x bohemica* (J. Chrtek & A. Chrtkova) J.P. Bailey)

Family	Polygonaceae
Life Cycle	Perennial, reproduces by seed, spreading rhizomes, and stem fragments.
General	Erect, branched stems to 5 m tall, hollow, mottled purple-red.
Leaves	Alternate leaves are up to 30 cm long with a sharply tapered tip and slightly curved base. Margins on underside have small hairs or spines.
Flowers	Numerous, small flowers form showy, greenish-white branching panicles in the axils of the upper leaves. Male and female flowers occur on separate plants.
Fruits/Seeds	Seeds are triangular and enclosed in a papery, three-winged teardrop-shaped dry calyx.

Reasons for Concern: Bohemian knotweed, a hybrid species of Giant and Japanese knotweed, is considered more invasive and widespread than either parent species. Once established, this species is extremely difficult to control; it's asexual and sexual reproductive modes allow it to rapidly spread and colonize disturbed areas.

Robert Vidéki, Doronicum Kft., Bugwood.org

Mouse-eared chickweed [*Cerastium vulgatum* L. (*C. fontanum* subsp. *vulgare*)]

Family	Caryophyllaceae
Life Cycle	Perennial, reproduces by seed as well as by horizontal stems which root at the nodes.
General	Creeping, forming thick mats. Stems are dark green, densely hairy, and may be slightly sticky.
Leaves	Stalkless, hairy leaves are opposite on swollen nodes, and ovate with a pointed tip.
Flowers	Flowers have five white, deeply divided petals, and hairy sepals with whitish margins. They occur in small groups at the tips of branches.
Fruits/Seeds	Many tiny, reddish brown, roundish seeds are produced.

Video:
https://www.youtube.com/watch?v=Z4lsg3w3e1A

Reasons for Concern: Mouse-eared chickweed occurs in almost any kind of habitat ranging from dry sandy areas to wet depressions. It is a common and persistent weed of lawns.

Orange hawkweed (Hieracium aurantiacum L.)

Family	Asteraceae
Life Cycle	Perennial, reproduces by seed, rhizomes, and stolons.
General	Herb from an extensive rhizome, with short stolons and erect, solitary stems. Stems bristly-hairy and exude a milky juice when broken.
Leaves	Basal leaves oblanceolate to elliptic, to 20 cm long, usually hair above. Stem leaves usually reduced or lacking.
Flowers	Several strap-shaped flowers form a flat-topped inflorescence. Ray flowers orange-red.
Fruits/Seeds	Narrow achenes with a brown pappus.

Reasons for Concern: This is one of many non-native hawkweed species in BC, and can be difficult to distinguish from native hawkweeds. This species is found throughout most forested areas across BC, threatening native forest and meadow species, as it invades natural open areas as well as disturbed sites.

Video:
https://www.youtube.com/watch?v=7wYYYgVCX4Q

Pineapple weed (Matricaria discoidea DC.)

Family	Asteraceae
Life Cycle	Annual, reproduces by seed.
General	Pineapple scented; upright stems smooth and glabrous, many branched, 5-45 cm tall.
Leaves	Alternate leaves, finely dissected, smooth, glabrous and slightly fleshy.
Flowers	Small yellowish-green flower-heads are conical in shape and occur at the end of stems. Florets are all tubular.
Fruits/Seeds	Achenes, veined, hairless; pappus a short, membranous crown.

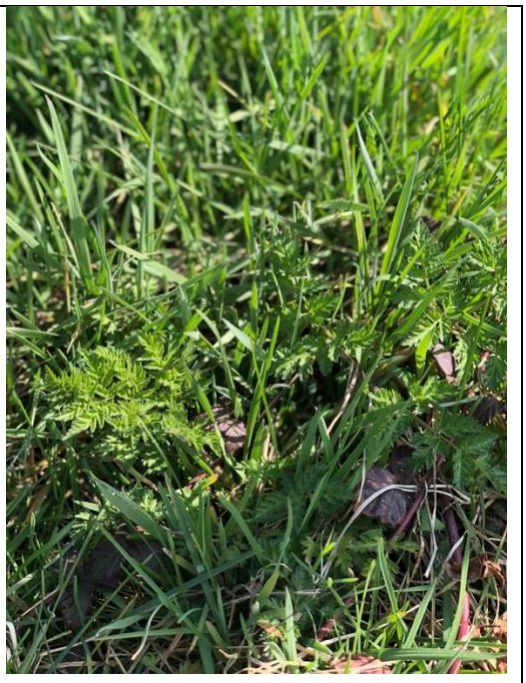
Reasons for Concern: It is a weed of cultivated fields, roadsides, and waste places, and can grow in compact soils.

Tom Heutte, USDA Forest Service, Bugwood.org

ID Video:
https://www.youtube.com/watch?v=OuH1t_MgXLM

Poison hemlock (*Conium maculatum* L.)

Family	Apiaceae
Life Cycle	Biennial, reproduces by seed.
General	Stems are up to two metres in height, erect, branched, smooth, and usually covered with purplish spots.
Leaves	Bright green, glabrous, finely divided and often shiny.
Flowers	Small, white flowers occur in loose compound umbels.
Fruits/Seeds	Fruits consist of two seeds. Each seed has five prominent wavy ridges running from top to bottom.



Reasons for Concern: Poison hemlock resembles spotted water-hemlock, but it grows in dry areas. It may have an unpleasant odour when crushed. Eating even a small amount of any part of this plant can kill people or animals. Dead plants remain toxic for up to three years. This plant is also toxic to the skin and respiratory system. This is currently a species of priority in BC due to its human and animal health risk.

Poison hemlock in BC:
https://vancouverisland.ctvnews.ca/invasive-poison-hemlock-a-growing-concern-on-vancouver-island-1.4502558

Policeman's helmet (*Impatiens glandulifera* Royle)

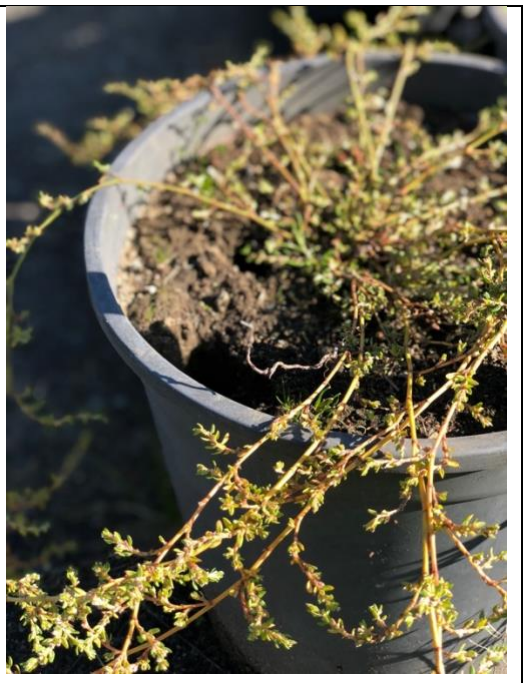
Family	Balsaminaceae
Life Cycle	Annual, reproduces by seeds.
General	Succulent herb, stems erect, branched, and purple-tinged, to 2 m tall.
Leaves	Opposite to whorled, elliptic leaves, sharply saw-toothed.
Flowers	One to several flowers in leaf axils, white to red with purple spots, each flower with a short spur.
Fruits/Seeds	Dehiscent capsules 1.5-2.5 cm long, with many seeds.

Reasons for Concern: This species outcompetes native riparian species, decreasing native biodiversity. It also produces a very sweet nectar that discourages pollinators from visiting nearby native plants.

Video:
https://www.youtube.com/watch?v=XUOEHDRLDFk

Prostrate knotweed (*Polygonum aviculare* L.)

Family	Polygonaceae
Life Cycle	Annual, reproduces by seed.
General	Stems branch freely from a tough, wiry deeply penetrating taproot. The growth habit varies from prostrate (in open, sunny situations) to nearly erect (in partial shade). Main stems have distinct nodes surrounded by a papery ocrea.
Leaves	Leaves are alternate and may be up to 5 cm long, but are usually shorter. They are 3 - 5 times as long as broad, and are narrowed at the tip and base.
Flowers	One to a few flowers arise in leaf axils. They lack petals but are surrounded by 5 small greenish to purplish sepals.
Fruits/Seeds	Sepals tightly enclose a single, dull brown, 3-sided seed.



ID Video:
https://www.youtube.com/watch?v=D6IfelEC9Gs

Reasons for Concern: Prostrate knotweed is frequently found in heavily trampled areas, which may be low in fertility and heavily compacted. It is one of the most commonly found weeds growing along roadsides and out of cracks in sidewalks and pavement. Other common names for prostrate knotweed include: doorweed, mat-grass, knot-grass, and road-spread.

Purple loosestrife (*Lythrum salicaria* L.)

Family	Lythraceae
Life Cycle	Perennial, reproduces by seed.
General	Erect, square, hairy stems to 1.5 m tall growing from a single woody root mass.
Leaves	The stalkless, finely hairy, long leaves are opposite or in whorls of three. They are broad near the base and taper towards the tip. Upper leaves are usually smaller and alternate.
Flowers	Five- to seven-petalled bright, pinkish purple flowers occur in very showy, dense terminal spikes.
Fruits/Seeds	Seed-pods contain many tiny seeds.

Linda Wilson, University of Idaho, Bugwood.org

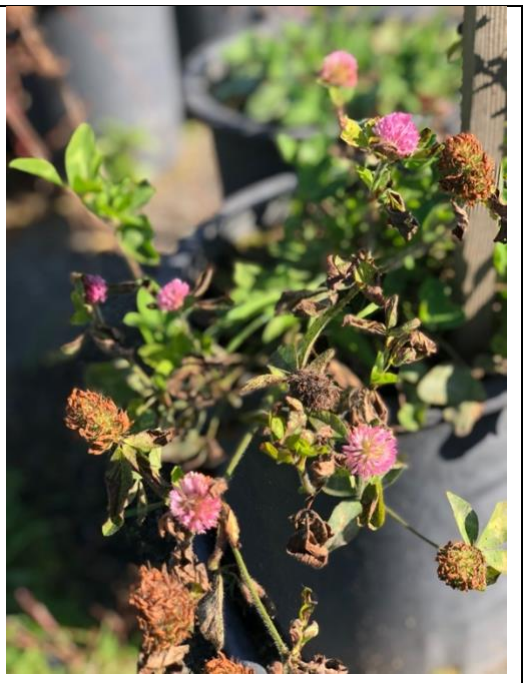
Bruce Ackley, The Ohio State University, Bugwood.org

Reasons for Concern: Purple loosestrife was introduced from Europe, but is now common in wet, moderately disturbed wetlands. Its opposite leaves and square stems are similar to plants of the Mint family. However, purple loosestrife may be distinguished by having separate petals, a seed-pod which contains many tiny seeds, and lack of a minty odour. Each plant can produce up to 2.5 million seeds, which can lay dormant in the soil for many years.

Purple loosestrife is a semi aquatic invasive species and is a designated Noxious Weed under the BC Weed Control Act. This invasive plant can devastate local ecosystems by changing hydrology and displacing native vegetation. It has no food or habitat value for migratory birds. Purple Loosestrife is largely controlled in coastal BC using biocontrol agents *Galerucella calmariensis* and *Galerucella pusilla* (leaf feeding beetles).

Video:
https://www.youtube.com/watch?v=ei82hmX4kKo

Red clover (Trifolium pratense L.)



Family	Fabaceae
Life Cycle	Perennial, reproduces by seed and can root at the nodes of creeping stems.
General	Herb with creeping stems.
Leaves	Leaves are composed of 3 ovate leaflets that are 2 to 5 cm long; leaflets have an inverted white “V” on the upper surface, located immediately beneath the flower heads.
Flowers	Flowers are reddish pink and in globe-shaped clusters.
Fruits/Seeds	Each flower produces a pod containing 1 yellow or purple seed.

Reasons for Concern: A serious weed of lawns, waste areas and abandoned fields. Often found growing next to white clover. Introduced from Europe and Asia.

White clover (*Trifolium repens* L.)

Family	Fabaceae
Life Cycle	Perennial, reproduces by seed.
General	Herb with creeping stems to 60 cm long.
Leaves	Each leaf is comprised of three stalkless leaflets. Each leaflet usually bears a whitish V-shaped marking on the upper surface.
Flowers	Flowers are fairly large, conspicuous and white or pinkish in colour.
Fruits/Seeds	Dark coloured pods about 5 mm long.

Reasons for Concern: White clover is sometimes included as a component of lawn seed mixtures. It can be found in pastures, meadows, waste places and cultivated land, having been intentionally planted as a forage or ground cover in many situations and persisting as an unwanted weed in others.

Reed canary grass (*Phalaris arundinacea* L.)

Family	Poaceae
Life Cycle	Perennial, reproduces by seed and by rhizomes.
General	Stems 1-2 m in height, from a conspicuous rhizome.
Leaves	Flat leaves with open sheaths, ligules usually turned backward, slightly hairy, no auricles.
Inflorescence	Compact panicle, 10-25 cm long, spreading out at maturity. Spikelets 3-flowered, glumes similar in size and minutely hairy.

Reasons for Concern: This species is an aggressive invader of streams, ditches and wetlands, able to overtake native wetland plant communities. In disturbed areas, this species can quickly take over large spaces, preventing deep-rooted species from establishing.

ID Video:
https://www.youtube.com/watch?v=PSuivWHjvBs

Scotch broom (*Cytisus scoparius* (L.) Link)

Family	Fabaceae
Life Cycle	Perennial, reproduces by seed.
General	Medium to tall shrub reaching 1-3 m in height, stems erect, branched with 5-angled twigs.
Leaves	Leaves alternate, on lower branches, they are stalked and palmately compound with 3 leaflets. On upper branches, they are unstalked, simple and pressed closed to the stem. Leaves are oblong, pointed, and hairy when young.
Flowers	Single or 2-3 flowers are formed in leaf axils. Flowers are generally yellow.
Fruits/Seeds	Black 2 to 4 cm long pods bear seeds. The pods split open and ejects 2 to 12 seeds.

Reasons for Concern: Scotch broom can tolerate mesic to dry conditions but not shade. It grows on roadside, rights-of-ways. It is common in parts of SW BC. Being a legume, it forms symbiotic association with N-fixing bacteria.

Barry Rice, sarracenia.com, Bugwood.org

Video:
https://www.youtube.com/watch?v=K3p9VxKVt9w

Sheep sorrel (Rumex acetosella L.)

Family	Polygonaceae
Life Cycle	Perennial or annual, reproduces by seed and by horizontally spreading roots.
General	Roots give rise to whitish buds which grow into dense, leafy aboveground shoots. Stems (10 - 60 cm in length) are numerous, slender and wiry.
Leaves	Lower leaves are borne on long stalks and are usually spade-shaped with a pair of spreading lobes at the base. The uppermost leaves are usually without stalks or lobes.
Flowers	Branched inflorescences, flowers are small and without petals, but with six sepals in two circles of three sepals each. All flowers on one plant are either female (greenish and seed-producing) or male (yellowish and pollen-producing).
Fruits/Seeds	Seeds are reddish-brown with a smooth, shiny surface.

Reasons for Concern: Sheep sorrel is often found in pastures and roadsides, but rarely persists in cultivated areas. It may frequently occur in sandy or gravelly soils in areas of low fertility. It can tolerate acidic soils. The sour-tasting leaves are edible. Sheep sorrel pollen is a primary cause of hay-fever.

Theodore Webster, USDA Agricultural Research Service, Bugwood.org

ID Video:
https://www.youtube.com/watch?v=HtBouHo29CI

Stinging nettle (*Urtica dioica* L.)

Family	Urticaceae
Life Cycle	Perennial, spreads by seed and by rhizomes.
General	Erect, hairless to hairy, 1-3 m tall.
Leaves	Opposite, simple, coarsely toothed leaves, narrowly heart-shaped. Stems and leaves are covered in stinging hairs.
Flowers	Small greenish flowers are found in axillary clusters.
Fruits/Seeds	Seeds are flattened achenes.

Video:
https://www.youtube.com/watch?v=2ASTvp1pgLg

Reasons for Concern: This is a native species, but it is known to invade nutrient-rich soils commonly associated with old pastures, farmyards, cultivated row crops, irrigation canals, drainage ditches and open woodlands. The airborne pollen of this species is known to cause hay fever. The stinging hairs produce a painful sting, followed by a reddish swelling and prolonged itching and numbness of the irritated area. On the other hand, young nettle leaves make an excellent spinach substitute when boiled, due to their high nutritive value.

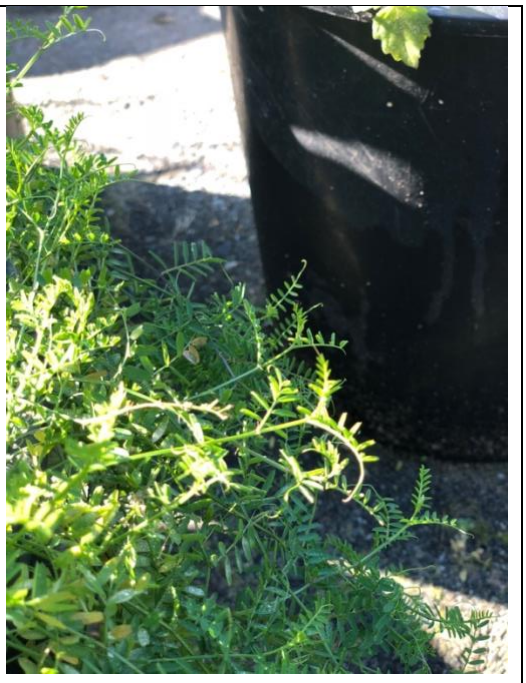
Stork's-bill (*Erodium cicutarium* (L.) L'Her)

Family	Geraniaceae
Life Cycle	Annual, winter annual, or biennial, reproduces by seed.
General	Erect, from a taproot, with hairy, reddish stems to 40 cm tall.
Leaves	Basal rosette of pinnately divided leaves, similar to those of a carrot.
Flowers	Flowering stalks arise from the axils of the leaves. Pink or purplish, five-petalled flowers are borne in clusters of 2 - 12. The style is long and resembles a stork's bill.
Fruits/Seeds	At maturity, the style splits into five segments, each with a long spirally twisted tail with a seed attached to the base. Brown, club-shaped seeds are often covered by a brown, hairy hull.

Video:
https://www.youtube.com/watch?v=8NjBjqB2OR4

Reasons for Concern: Fresh stork's-bill seed has a high germination capacity. New seedlings may emerge very quickly following tillage operations in summerfallow. Under these conditions, it would not be unusual to have five or six growths of this weed throughout the summerfallow year.

Vetch species (*Vicia* spp.)



Family	Fabaceae
Life Cycle	Annual or winter annual, reproduces by seed.
General	Stems are smooth and weak, and are initially erect, however later lie on the ground, or climb onto nearby objects.
Leaves	The alternate leaves are pinnately compound, usually with two to five pairs of long narrow leaflets. Each leaflet is tipped with a hair-like projection. The leaves terminate in curly, branched tendrils.
Flowers	One to two violet, purple, or rarely white pea-like flowers appear on very short stalks in leaf axils.
Fruits/Seeds	Seed pods become round and black at maturity and split into two corkscrew like segments. Each pod contains numerous, spherical, black seeds.

Reasons for Concern: These species commonly occur in fields, waste places, and near the fence. Like all legumes, narrow leaved vetch fixes nitrogen and as such, its presence in pastures is not totally detrimental. It is difficult to distinguish between vetch species, but management approaches are usually the same.

White sweet clover (*Melilotus alba* Desr.)

Family	Fabaceae
Life Cycle	Biennial, reproduces by seeds.
General	Upright herb with stems growing from 1-3 m in height.
Leaves	Leaves are alternate with narrow leaflets.
Flowers	White flowers are borne in racemes.
Fruits/Seeds	Egg-shaped pods with 1 or 2 seeds.

Reasons for Concern: Although as a seedling, the plant is a poor competitor, white sweet clover is a good colonizer and is often used on roadsides to hold soil and reduce erosion. In its second year, it competes very successfully with neighbouring species. It may therefore persist as a weed of roadsides and pastures. The coarseness of the stems and the possibility of coumarins in spoiled sweet clover hay detract from the forage value of this species.

Rob Routledge, Sault College, Bugwood.org

Video:
https://www.youtube.com/watch?v=LaTJnB2nv2E

Wild chervil (Anthriscus sylvestris L.)

Family	Apiaceae
Life Cycle	Annual or biennial, reproduces by seed.
General	Herb from a taproot, stems branching and softly hairy.
Leaves	Basal and stem leaves triangular, fern-like and sparsely hairy.
Flowers	Small inflorescence opposite the upper leaves, umbrella-like clusters of small white flowers.
Fruits/Seeds	Linear, smooth seeds with a 1 mm long beak.

Reasons for Concern: This species is of particular concern in the Fraser Valley, found along roads, ditches, stream banks, and moist areas. It also competes with pasture and grain crops, reducing production, and is avoided by livestock. Wild chervil also acts as a host for diseases that infect other crops in the carrot family.

ID Video:
https://www.youtube.com/watch?v=fXLaTdM4nzA

Yarrow (Achillea millefolium L.)

Family	Asteraceae
Life Cycle	Perennial, reproduces by seeds and by spreading rootstalks.
General	Upright flowering stems may be glabrous or woolly, to 1m tall.
Leaves	Numerous at the base of the plant, becoming fewer and smaller upwards on the stem. Leaves are finely divided or feather-like. They are grayish-green and may be finely woolly to silky hairy.
Flowers	Small flower-heads are crowded into dense flat-topped or rounded clusters. Flowers are of two types. Ray florets (usually about five per head) are white or rarely pinkish. Disk florets are whitish and more numerous.
Fruits/Seeds	The small, oblong seeds lack a pappus and are grayish with white margins.

Reasons for Concern: Yarrow displays a great deal of plasticity, growing up to one meter tall in fertile situations or thriving as a short plant in lawns. The whole plant has a characteristic sage like aroma.

Yarrow vs Poison hemlock:
https://youtu.be/2crsRwitTNQ?t=61

Yellow archangel (*Lamium galebdolon* (L.) Ehrend & Polatschek)

Family	Lamiaceae
Life Cycle	Perennial, reproduces by seed and plant fragments, rooting at nodes.
General	Fast-growing vine, 40-80 cm in height.
Leaves	Paired opposite leaves, 2.5-8 cm in length, heart shaped with a serrated edge and has a square, hairy stem. The upper side of the leaves often have a silver of white pattern and a wrinkly texture.
Flowers	Flowers are yellow in axial clusters, with orange and brown markings.
Fruits/Seeds	Flowers form into 4 nutlets each containing one seed.

Reasons for Concern: Yellow archangel, often also referred to as lamium, is a fast-growing perennial vine that has been a popular plant in hanging baskets. This plant is another example of a highly invasive escaped garden ornamental that will completely cover the forest floor, smothering native vegetation and thereby reducing biodiversity. Lamium can grow in full shade making it a serious concern for forest ecosystems as it is able to colonize in deep woodland.

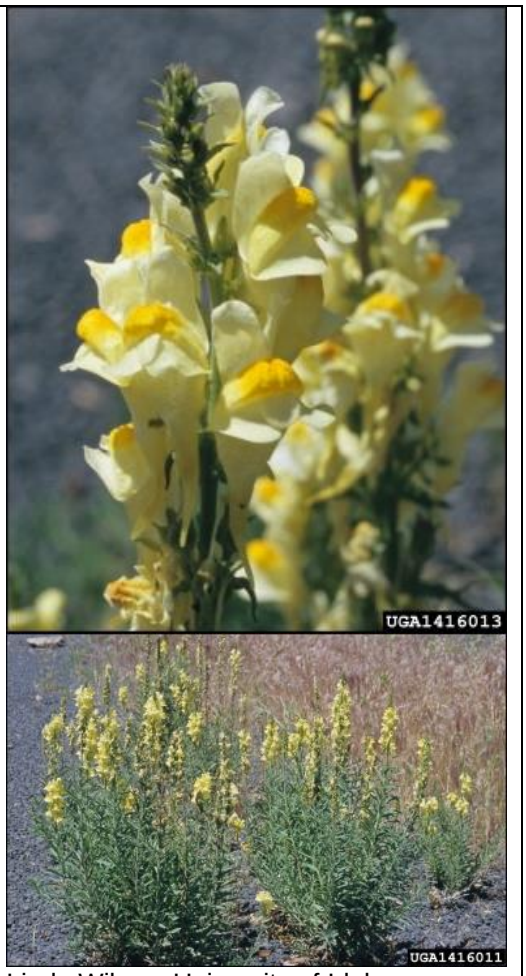
Nisa Karimi, Wisconsin Department of Natural Resources, Bugwood.org

ID Video:
https://www.youtube.com/watch?v=w-QaNvaBh5E

Yellow toadflax (*Linaria vulgaris* Mill.)

Family	Scrophulariaceae
Life Cycle	Perennial, reproduces by seed and by extensively creeping roots.
General	The smooth, hairless stems are erect, and usually branched in the upper part.
Leaves	Leaves are very narrow and alternate, but may be very numerous and crowded.
Flowers	Flowers occur in racemes at the ends of stems and branches. They consist of five united petals, the upper lip with two small lobes and the lower lip with three larger lobes and a long spur, yellow in colour with an orange spot on the lower lip.
Fruits/Seeds	Seed-pods are egg-shaped, and contain many dark brown or black, flat, winged seeds

Reasons for Concern: Also known as butter and eggs, yellow toadflax was introduced as an ornamental but has escaped and become a persistent weed. The seed-pods may appear very warty in appearance due to an insect which lives inside and eats the developing seeds. The extensive root systems allows this species to rapidly form large patches, taking over roadsides and fields.



Linda Wilson, University of Idaho, Bugwood.org

Video:
https://www.youtube.com/watch?v=v11aAU5_8Lw

Yellow wood sorrel (*oxalis corniculata* L.)

Family	Oxalidaceae
Life Cycle	Perennial, reproduces by seeds and creeping stems, rooting at the nodes.
General	Mature plant has creeping, low-growing growth habit. It forms about 30 cm long above-ground stems.
Leaves	Leaves are stalked, clover-shaped (3 heart-shaped leaflets), alternate, and hairless to lightly hairy. Leaf colour varies from green to purplish brown. The leaves fold downwards at midday and at night.
Flowers	Two to five yellow flowers (with 5 petals) are formed in leaf axils.
Fruits/Seeds	Fruit is a small cylindrical pod which contain small egg-shaped seeds. Mature capsules open explosively releasing seeds away from the mother plant.

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

Video:
https://www.youtube.com/watch?v=IrF3jPWrwQ8

Reasons for Concern: This weed grows in shady places, along roadsides, and in containers, lawns, plantations, garden beds, orchards, vineyards, nursery, and greenhouse. Leaves contain oxalic acid and if consumed in very large amount it can be harmful.

Aquatic Species

Cordgrass (Spartina spp.)

Family	Poaceae
Life Cycle	Perennial, reproduces by seed, rhizomes, and vegetative fragments.
General	Bright green to grayish green with round, hollow stems 1-1.5 m tall.
Leaves	Fine hairs at ligules, leaves flattened or rolled inward.
Inflorescence	Flower heads may be in spikes, white to reddish in colour.

Juan Campá, MGAP, Bugwood.org

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

Reasons for Concern: This aggressive grass invades ecologically important intertidal zones, including beaches and mudflats. They form dense, monotypic stands, preventing establishment of native plants. This results in a decline in bird, fish, and shellfish habitat, as well as reduction of overall biodiversity. Some *Spartina* species also trap large amounts of sediment in their extensive rhizomes, which can result in changes to tidal patterns and increased risk of flooding.

Link: https://bcinvasives.ca/news-events/recent-highlights/war-in-the-mud-delta-and-surrey-herbicide-battle-against-invasive-plant-ent

Eurasian water milfoil (*Myriophyllum spicatum* L.)

Family	Haloragaceae
Life Cycle	Perennial, reproduces by seed, rhizomes, stolons, and stem fragments.
General	Aquatic, stems usually branched, to 2.4 m long.
Leaves	Whorls of 3-5 leaves that are simply pinnate, 1 cm apart or more on the stem.
Flowers	Emergent reddish flowers in whorls of 4 on a 15 cm erect spike, male and female flowers on same plant.
Fruits/Seeds	Fruit consists of 4 mericarps with tiny bumps.

Chris Evans, University of Illinois, Bugwood.org

Reasons for Concern: This species has invaded fresh water bodies throughout BC, forming dense, tangled underwater stands as well as large mats at the water's surface. Eurasian water milfoil can stop waterways from flowing properly, causing damage to irrigation ditches and drainage. Resulting stagnant water also becomes breeding grounds for mosquitoes.

ID Video:
https://www.youtube.com/watch?v=Djr_PLNrpFU

Parrot's feather (*Myriophyllum aquaticum* (Vell.) Verdc.)

Family	Haloragaceae
Life Cycle	Perennial, spreads by rhizomes.
General	Aquatic, stems up to 1.5 long, with both submerged and emergent leaf forms. Above the water, branching becomes more extensive and creeps along water surface.
Leaves	Submerged leaves in whorls of 4-6, reddish-orange and feather-like, leaves are green upon emergence from water.
Flowers	Small white flowers occur on leaf axils.
Fruits/Seeds	Seeds are not produced in any North American plants, as there are no male plants found outside South America.

Nancy Loewenstein, Auburn University, Bugwood.org

ID Video:
https://www.youtube.com/watch?v=nos2U72q-Gc

Reasons for Concern: This aquatic has greatly impacted several areas throughout BC, after being introduced as an aquatic garden species. In freshwater lakes, ponds, and streams in the Lower mainland, Parrot's feather out-competes native aquatic plants, forming dense stands. These stands can result in pools of standing water, resulting in an increase of mosquito breeding areas.

Rush (*Juncus* spp.)

Family	Juncaceae
Life Cycle	Perennial, reproduces by seed.
General	Round stems growing in clumps.
Leaves	Narrow, flattened leaves.
Flowers	Flowers borne on stem tips.
Fruits/Seeds	Seed capsules borne on stem tips.

Rob Routledge, Sault College, Bugwood.org

Reasons for Concern: The members of the Rush family are common in wetlands and bogs. Some members of this family, such as slender rush (*Juncus tenuis* Willd.) are troublesome in pastures as they are of practically no value as forage. Wherever found, rushes indicate poor drainage and/or acid soils. Correction of these conditions combined with a seeding of a grass which can thrive in wet soils should eliminate the problem.

Richard Gardner, Bugwood.org

Yellow flag iris (*Iris pseudacorus* L.)

Family	Iridaceae
Life Cycle	Perennial, reproduces by seed and by horizontal root systems.
General	Herb from a large rhizome, simple or branched stems to 1.5 m tall.
Leaves	Leaves are mostly basal, linear-lanceolate with pointed tips, 50-90 cm long.
Flowers	Inflorescence consists of several pale to deep yellow flowers, tubes flared above.
Fruits/Seeds	Seeds are cylindrical capsules 4-8 cm in length.

Reasons for Concern: This species forms dense stands in wet areas such as ditches, marshes, shorelines and ponds. It threatens native wetland species by preventing native plants like cattails, rushes, and sedges from establishing, which are used by native birds for nesting. This species can also reduce water levels and block irrigation channels and ditches, which can have detrimental effects on agriculture.

Video:
https://www.youtube.com/watch?v=6yRUDROIsLw

Early Detection Rapid Response

Early Detection Rapid Response (EDRR) is a term use to describe invasive species that are not yet present in our area or are present in only small, isolated infestations. These species are on a high alert for detection as they pose a significant threat to human health, the environment and/or the economy. Land managers must learn about EDRR species from pictures and information from other jurisdictions that have the plant present and be closely monitoring for them. EDRR species found in the province are quickly controlled by the Provincial Government to ensure the plants do not become widely distributed. Plants that we looked at in the lab, Flowering Rush, Yellow Star Thistle and Kudzu are all examples of EDRR species in our province.

Flowering rush (Butomus umbellatus L.)

Family	Butomaceae
Life Cycle	Perennial, reproduces by rhizomes or sometimes seed
General	Aquatic plant growing from a stout rhizome, stems solitary.
Leaves	Linear, pointed leaves growing to up to 1 m in length. Leaves are triangular in cross section, parallel veined and twisted.
Flowers	Inflorescence consists of 20-50 flowers which grow in an umbel-like shape each consisting of 6 light pink to rose coloured petals and has 9 stamens per flower.
Fruits/Seeds	Reproduction is mainly rhizomatous, but straight, lined seeds are also produced.

Reasons for Concern: Flowering rush is a serious concern for slow moving water ways and wetlands where is can spread prolifically which can alter hydrology, causing infilling and threatening fish habitat. The plant also has serious impacts on recreation such as boating and swimming. There is currently limited effective treatments for this plant other than hand removal for small infestations. Research is currently being completed in the US on effective herbicides. Biological control agents are also currently being researched.

John M. Randall, The Nature Conservancy, Bugwood.org

Video:
https://www.youtube.com/watch?v=2A33AMo2tNk

Kudzu (*Pueraria montana* (Lour.) Merr.)

Family	Fabaceae
Life Cycle	Perennial, spreads by rhizomes, stolons, and seeds.
General	Climbing, trailing vine with mature stems reaching up to 10 cm in diameters and are dark brown and woody. New stems are yellow-green in colour.
Leaves	Leaves are large and grow alternately on the stem with three broad leaflets per leaf. Each leaf is between 7 and 25 cm long.
Flowers	Flowers are purple and grow in long hanging clusters.
Fruits/Seeds	Seeds grow in clusters of brown, flattened pods that are 5-9cm long. Seeds are known to have a long viability in the seed bank.

Reasons for Concern: Kudzu is not currently present in British Columbia and is considered a federally controlled species. Kudzu is only present at one site in Canada on Lake Erie. Known as "The Plant that ate the Eastern United States", Kudzu has a fascinating history as it was first introduced in a garden in Pennsylvania and then was introduced as a new agricultural commodity. This climbing perennial plant is a serious concern for native vegetation as it quickly smothers other plants and out-competes them for light. Kudzu is so aggressive it can grow 30 cm a day. One tap root can weigh up to 45 kg and have 30 vines growing off of it.

James H. Miller & Ted Bodner, Southern Weed Science Society, Bugwood.org

Amy Ferriter, State of Idaho, Bugwood.org

Video:
https://www.youtube.com/watch?v=ZJ-MGqm_crM

Yellow Star Thistle (Centaurea solstitialis L.)

Family	Asteraceae
Life Cycle	Annual, reproduces by seed.
General	Herb first forms a spineless rosette and then grows to 1m in height with numerous spiny capitula; gray-green to blue-green in colour.
Leaves	Rosette leaves are deeply lobed and have toothed wavy edges. Stem leaves are mostly linear to narrowly oblong. All leaves are covered in fine, white, cottony hairs.
Flowers	Flowers are bright yellow with long stiff spines at the base of the flower head.
Fruits/Seeds	Seeds plumed or plumeless.

Reasons for Concern: Yellow Star-Thistle is **not yet in Canada** though is present in states just south of the border and poses a significant threat to the grasslands of BC. This species poses such a threat due to its ability to create monotypic stands eliminating other plants from growing, resulting in significant loss of biodiversity. It is particularly dangerous for livestock and can prevent the movement of wildlife as it forms impenetrable barriers. It is toxic to horses causing a neurological disorder which often results in death. Yellow Star-thistle reproduces by seed with each plant being capable of producing 150,000 seeds which can lay dormant in the soil for many years creating an extensive seed bank. There are 1.25 million acres of land in Washington and Idaho infested with Yellow Star-thistle.

Cindy Roche, Bugwood.org

Video:
https://www.youtube.com/watch?v=MxlONk3KUWA