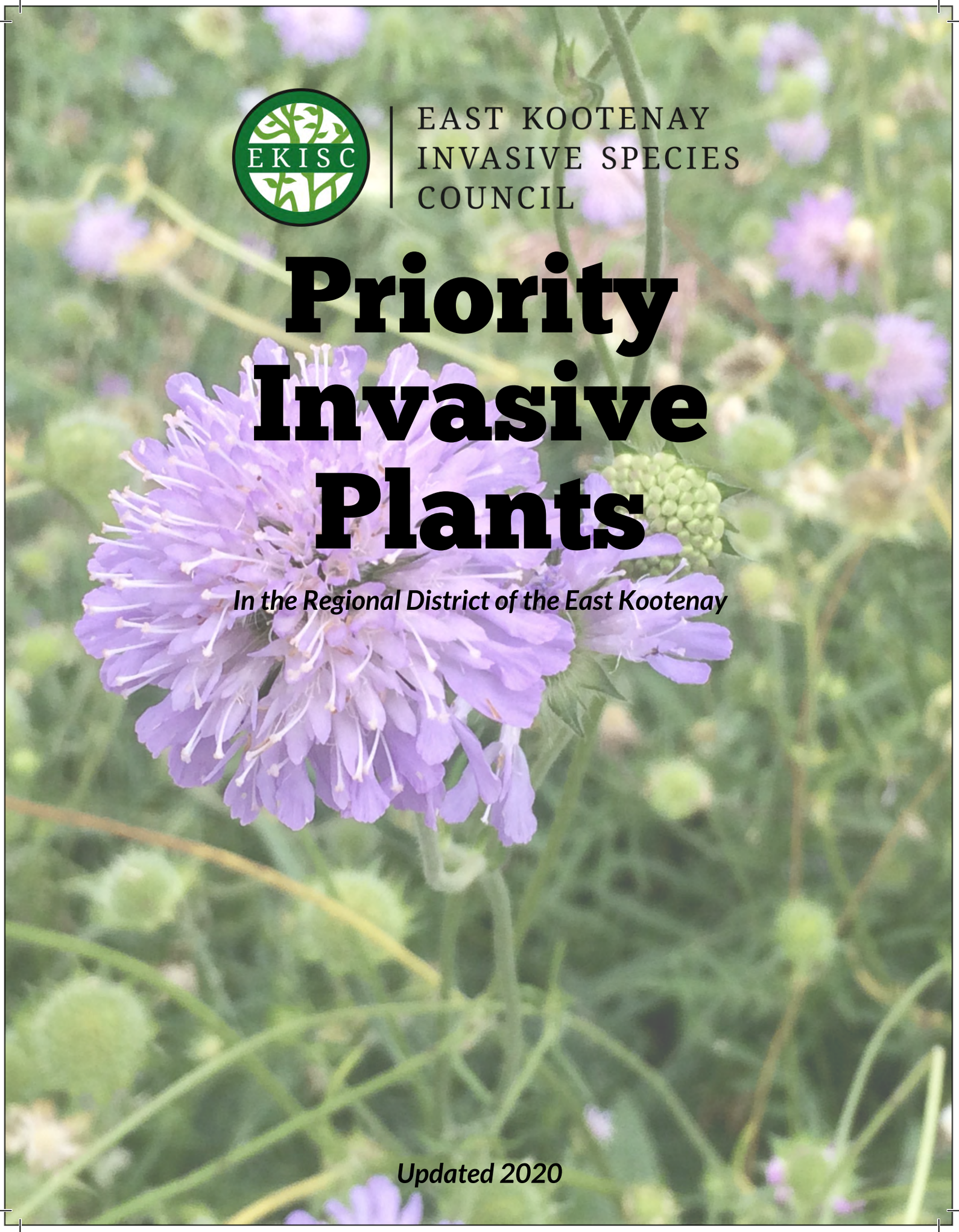


EAST KOOTENAY
INVASIVE SPECIES
COUNCIL

Priority Invasive Plants

In the Regional District of the East Kootenay

Updated 2020

East Kootenay Regional Priority Species

The East Kootenay Invasive Species Council (EKISC) has created this book to identify priority invasive plant species at a regional level. This book is intended to be a resource for land managers within the Regional District of the East Kootenay (RDEK) to adopt for their use. The East Kootenay Region is divided into five primary Invasive Plant Management Areas (IPMAs), which may be further divided into sub-IPMAs. The intent of delineating these units is to provide a more localized approach to prioritizing species. Some species listed in this book may have a large distribution in one IPMA, but fewer, or zero sites in other IPMAs and therefore are important to capture within this book. EKISC reviews each IPMA annually to prioritize species and coordinate with land managers to discuss projects that may be impacted by the spread, or introduction of invasive species. For example forestry, ecological restoration, habitat enhancement, and road construction can all impact invasive species distribution.

Correct identification of species is critical to accurately inventory and report new infestations. This book identifies three categories to help prioritize species for management and accentuate the importance of accurate identification in order to prevent species establishment. This book is not a comprehensive list of species found in the RDEK, for a more location-specific species list, refer to the *East Kootenay Priority Species by Invasive Plant Management Area* found on our website at www.ekisc.com/ekisc-publications. Each species outlined is allocated to one of the following categories:

Provincial/Regional EDRR*: These species include brand new and high-risk invasive plant species that are extremely limited in extent (i.e have less than 10 small sites) in the entire EKISC region. The management objective is eradication.

Eradication: These species are known in the region but with limited distribution and may include new incursions, high-risk species that are extremely limited in extent, or species that pose a particularly significant threat. The management objective is eradication.

Prevention Watchlist: These species are not currently known in the EKISC region. The focus for these species is prevention, education, and awareness. EDRR reporting and action protocols are to be followed if these species are found.

*EDRR: Early Detection Rapid Response is a proactive management technique which prevents the establishment and subsequent impacts of new invasive species.

DISCLAIMER: Chemical treatment is a cost-effective tool to treat a variety of species, however for the purposes of this book, chemical treatment techniques have not been discussed. This is due to a variety of factors affecting successful application. Contributing factors include time of year, chosen herbicide, soil texture, distance to water, method of application, application rate, and delivery rate. Further, the size and density of an infestation may also influence the success rate of chemical treatment. Herbicide application should only be conducted by a trained and licensed professional. If you have any questions regarding herbicide application please contact EKISC.

Authors: Jessie Paloposki, Education and Communications Manager and;

Danny Smart, Field Operations Coordinator, East Kootenay Invasive Species Council.

This book was created with generous funding from the Columbia Basin Trust and the Grassland and Rangeland Enhancement Program.

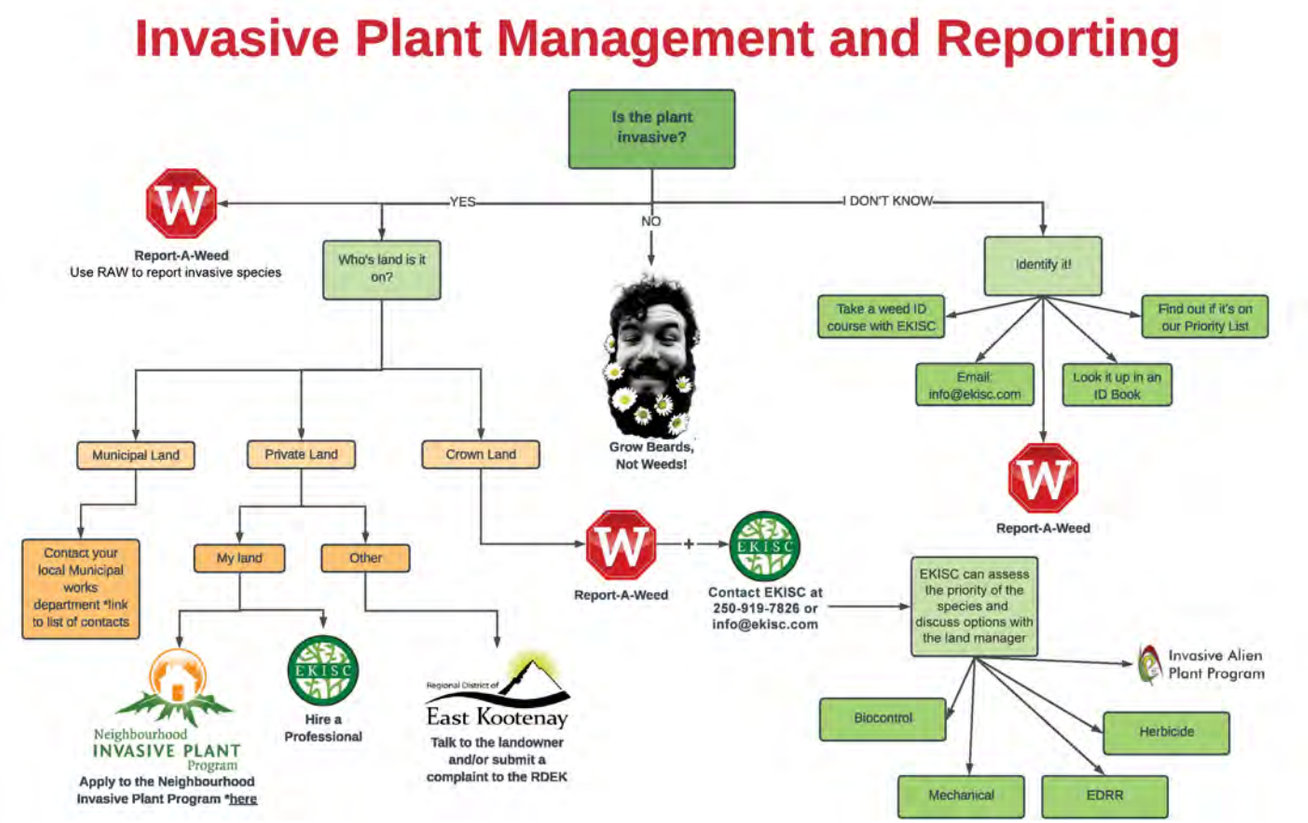
Report-A-Weed

The mobile Report-a-Weed BC app is available free of charge for iPhone and Android platforms. It allows you to report weed sightings anywhere in BC, in just a few simple steps. Your report will go to a BC invasive plant specialist, who will coordinate follow-up activities with the appropriate local authorities.

The app can be used off-line to create submissions as well; simply complete the report, click Submit and the report will be sent as soon as you are back in cell/data coverage!

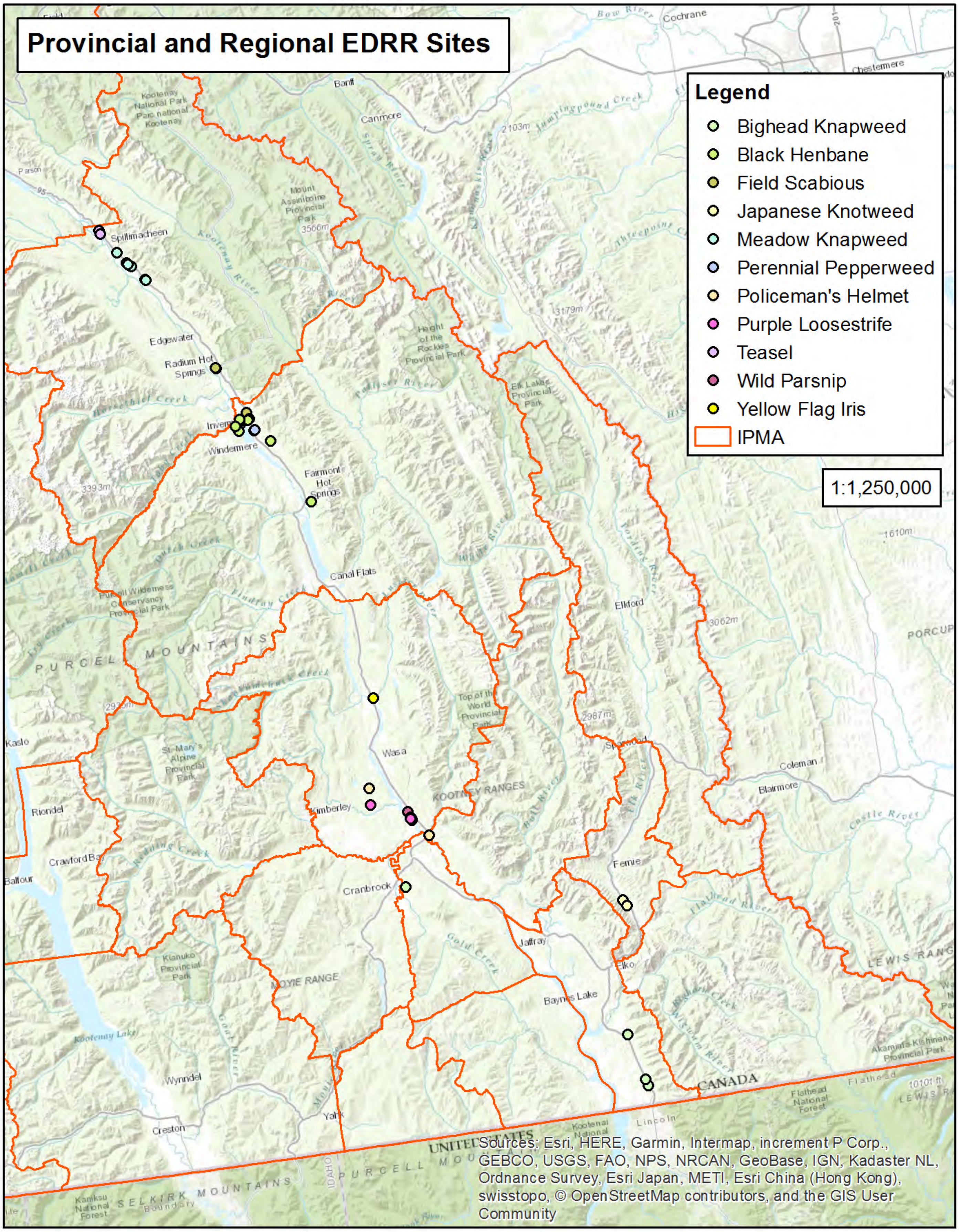
Helpful and user-friendly features:

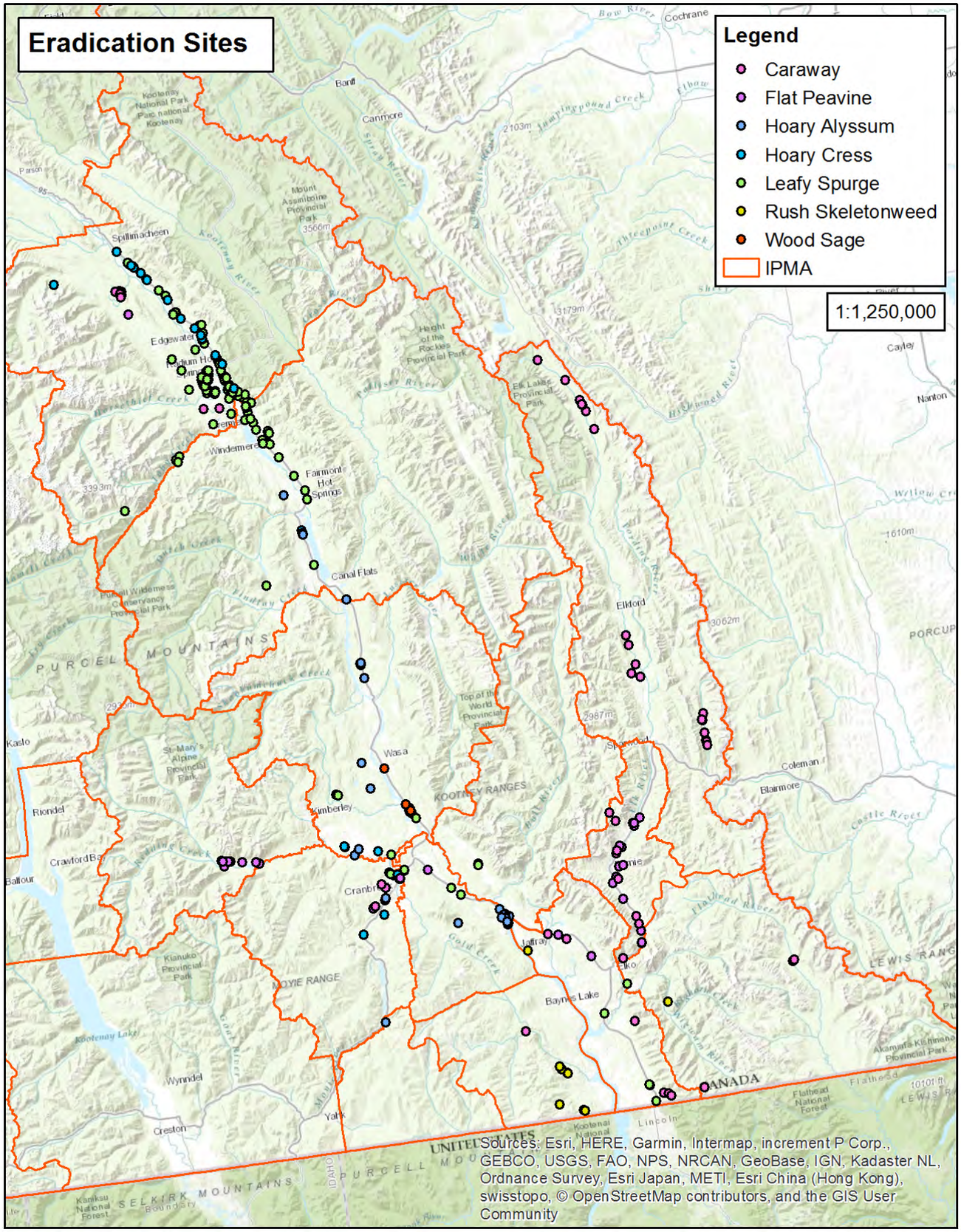
- Search for plants by common name, scientific name, or by flower colour;
- View multiple image galleries for all 215 plants on the list;
- Scroll through images of the same flower colour (e.g. once you have selected a plant with yellow flowers, you can then scroll through all the other plants with yellow flowers);
- Stats tab with a clickable map of BC that displays the 500 most recent submission details; and
- Statistics on the number of locations reported for each species.



Common Name	*Scientific Name*	Provincial/Regional EDRR	Eradication	Prevention Watchlist
Bighead Knapweed	*Centaurea macrocephala*	X		
Black Henbane	*Hyoscyamus niger*	X		
Caraway	*Carum carvi*		X	
Field Scabious	*Knautia arvensis*	X		
Flat Peavine	*Lathyrus sylvestis*		X	
Giant Hogweed	*Heracleum mantegazzianum*			X
Himalayan Balsam or Policeman's Helmet	*Impatiens glandulifera*	X		
Hoary Alyssum	*Berteroa incana*		X	
Hoary Cress	*Cardaria draba*		X	
Japanese Knotweed	*Fallopia japonica*	X		
Leafy Spurge	*Euphorbia esula*		X	
Marsh Plume Thistle	*Cirsium palustre*			X
Meadow Knapweed	*Centaurea moncktonii*	X		
Medusahead	*Taeniatherum caput*			X
Perennial	*Lepidium latifolium*	X		
European Common Reed	*Phragmites australis*			X
Poison Hemlock	*Conium maculatum*			X
Purple Loosestrife	*Lythrum salicaria*	X		
Rush Skeletonweed	*Chondrilla juncea*		X	
Scotch Broom	*Cytisus scoparius*			X
Scotch Thistle	*Onopordum acanthium*			X
Teasel	*Dipsacus fullonum*	X		
Wild parsnip	*Pastinaca sativa*	X		
Wood Sage	*Salvia nemorosa*		X	
Yellow Flag Iris	*Iris pseudacorus*	X		

Invasive Plant Management Areas within the Regional District of the East Kootenay.


Provincial and Regional EDRR Sites
Legend
Bighead Knapweed
Black Henbane
Field Scabious
Japanese Knotweed
Meadow Knapweed
Perennial Pepperweed
Policeman's Helmet
Purple Loosestrife
Teasel
Wild Parsnip
Yellow Flag Iris
IPMA
1:1,250,000
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community


Eradication Sites
Legend
Caraway
Flat Peavine
Hoary Alyssum
Hoary Cress
Leafy Spurge
Rush Skeletonweed
Wood Sage
IPMA
1:1,250,000
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

DICHOTOMOUS KEY

Plants with yellow flowers

1a. Flower is borne singularly at the end of the stem..... 2

- 2c. Sepals curve backwards..... Yellow Flag Iris
- 2d. Leaves are alternate..... 3
  - 3a. Bracts are underneath the flowerhead..... Bighead Knapweed
  - 3b. Flower has distinct purple vein..... Black Henbane

1b. Flowers are in an umbel or cluster..... 2

- 2a. Flower arrangement is a distinct compound umbel..... 3
  - 3a. Pinnately compound leaf structure..... Wild Parsnip
- 2b. Flower arrangement is a cluster..... 3
  - 3b. Lanceolate leaf shape..... 4
    - 4a. Narrow leaf shape..... Leafy Spurge
- 3d. Inverse lance leaf shape, deeply lobed basal leaves..... Rush Skeletonweed
- 3e. Elliptical leaf shape..... Scotch Broom

Plants with purple/pink flowers

1a. Alternate leaf structure..... 2

- 2a. Leaves are winged..... 3
  - 3a. Leaves are prickly..... Scotch Thistle
  - 3b. Plant has tendrils..... Flat Peavine

1b. Opposite leaf structure..... 2

- 2a. Leaf is toothed..... 3
  - 3b. Leaf has a reddish prominent vein..... Policeman's Helmet/Himalayan Balsam
  - 3c. Plant has distinct/unique bracts..... Teasel
  - 3d. Vertical spikes of flowers with distinct smelling leaves..... Wood Sage

1c. Plant has hairy leaves and/or stem..... 2

- 2a. Leaves are lance-shaped and sessile..... Purple Loosestrife
- 2b. Leaves are deeply segmented and are spine tipped..... Marsh Plume Thistle
- 2c. Stem has dark spots..... Field Scabious

1d. Single flower at the top of the stem with light to dark brown bracts..... Meadow Knapweed

Plants with white flowers

1a. Flowers are in an umbel or cluster..... 2

2a. Flower arrangement is a distinct compound umbel..... 3

3a. Leaves are small and carrot like..... Caraway

3b. Stem has purple markings..... 4

4a. Stem has fine hairs..... Giant Hogweed

4b. Stem is smooth..... Poison Hemlock

2b. Flower arrangement is a distinct cluster at the end of the stem..... 3

3a. Alternate leaf structure..... 4

4a. Leaves are toothed..... 5

5a. Leaves clasp the stem..... Hoary Cress

5b. Leaves have slight petiole.....Perennial Pepperweed

4b. Leaves are smooth..... Hoary Alyssum

2c. Flower arrangement in clusters along the stem..... Japanese Knotweed

Grasses

1a. Blue-green leaves and large, dense seed heads..... European Common Reed

1b. Bright green stems with a spike-like seed head, including 2-3 spikelets..... Medusahead

Lisa Scott

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

E. Cameron, ISCBC

Yellow Flag Iris (*Iris pseudacorus*)

Regional EDRR

IDENTIFICATION

Flower:

Bright, showy, yellow 7-10 cm. Three sepals that curve backwards. Flowers appear sequentially on a smooth green stem

Seeds / Fruit:

Fruit is a dry capsule 4-7 cm long containing numerous pale brown seeds.

Leaves:

Green, sword shaped, erect, up to 90 cm long and 3 cm wide.

Stems:

Stems branched once and solid. Smooth green, 100-150 cm tall.

Roots:

Thick horizontal rhizomes form dense mats in wet areas. Roots may withstand drying for several months without dying.

Growth Form:

Perennial.

HABITAT & ECOLOGY

Environment:

Grows in a variety of wetland habitats from the open shoreline of lakes or rivers to floodplains, marshes and irrigation canals. There is currently one known site near Skookumchuck. It has been mechanically treated with no weed found since 2018.

Life Cycle:

During spring long leaves and flower stalks re-grow from rhizomes, flowering occurs by late spring or early summer. The plant dies back during winter.

Mode of Reproduction:

Yellow flag spreads by seeds and rhizomes. Up to several hundred flowering plants may be connected through rhizomes. Rhizome fragments can form new plants if they break off and drift to suitable habitat.

Dispersal:

Dispersal may be by seed spread or through movement of fragmented rhizomes (roots). Seeds float on the water during fall and spring. Fragmented rhizomes float and can easily move downstream or around lakeshores.

Seed Bank:

Little is known regarding seed bank persistence.

MANAGEMENT

Summary:

Efforts are most likely to succeed when patches are small. Use an integrated approach of monitoring for seedlings and re-growth and control efforts.

Mechanical:

Pulling/cutting repeatedly over several years can eventually kill the plant. Digging is effective, but remaining root fragments and disturbance can facilitate seed germination, therefore be sure to remove as much plant debris as possible. Dead heading prevents seed production but does not affect the plants. Make sure to wear long sleeves and gloves as the plant can cause skin irritation.

Laying heavy rubber matting as a benthic barrier to smother the plants causes the plants to respire without photosynthesis, exhausting the plant's energy reserves. Treatments of around 70 days can be effective in eradication attempts.

Field ID Notes


Jessie Paloposki


Jessie Paloposki


Sarah Wilton, EDDMapS

Bighead Knapweed (*Centaurea macrocephala*)

Regional EDRR

IDENTIFICATION

Flower:

Large, solitary flower heads, globe-shaped and range 1 to 3 inches in diameter. Bracts at the base of the flower head are light green to tan and have thin, papery, fringed margins. Lower bracts may have weak spine tips. Flowers are showy and yellow.

Seeds / Fruit:

Brown seeds are 7-8 mm long with flattened bristles on one end and contain a ring of light colored bristles.

Leaves:

Leaves are alternate, may have hairs, gland-dotted and with lower leaves having a stalk and upper leaves stalkless. Leaves become smaller moving up stem. Shape varies, narrow and wider above the middle to narrowly egg-shaped. Edges range from toothed to smooth.

Stem description:

Grows 50 - 120 cm tall. Stems are upright and either unbranched or sparingly branched. Stems may have some soft hairs.

Roots:

Woody, tap-rooted.

Growth Form:

Perennial.

HABITAT & ECOLOGY

Environment:

Typically found in open grassy areas such as fields and pastures; but also a threat to subalpine areas. Often found in gardens as an ornamental plant.

Distribution:

B.C. confirmed sites are limited to the regions of Columbia Shuswap, Thompson Nicola and Kootenay.

Life Cycle:

Flowers from July through September.

Mode of Reproduction:

This plant is a prolific seed producer, but is also possible to reproduce from root divisions. The rosette typically does not produce a flowering stem the first year.

Dispersal:

Up to 200 seeds dislodged from a mature plant by direct contact or wind can spread by livestock, farm equipment, vehicles, humans. New sites can occur through human distribution as this plant is known as a garden ornamental.

Seed Bank:

Seeds may survive in the soil for up to 8 years.

MANAGEMENT

Summary:

Integrated management should focus on reducing seed production and removing the crown root. Use mechanical or chemical methods to reduce seed production and cultivation to destroy the root. For best results, control methods should be adaptive and employed throughout several growing seasons.

Mechanical:

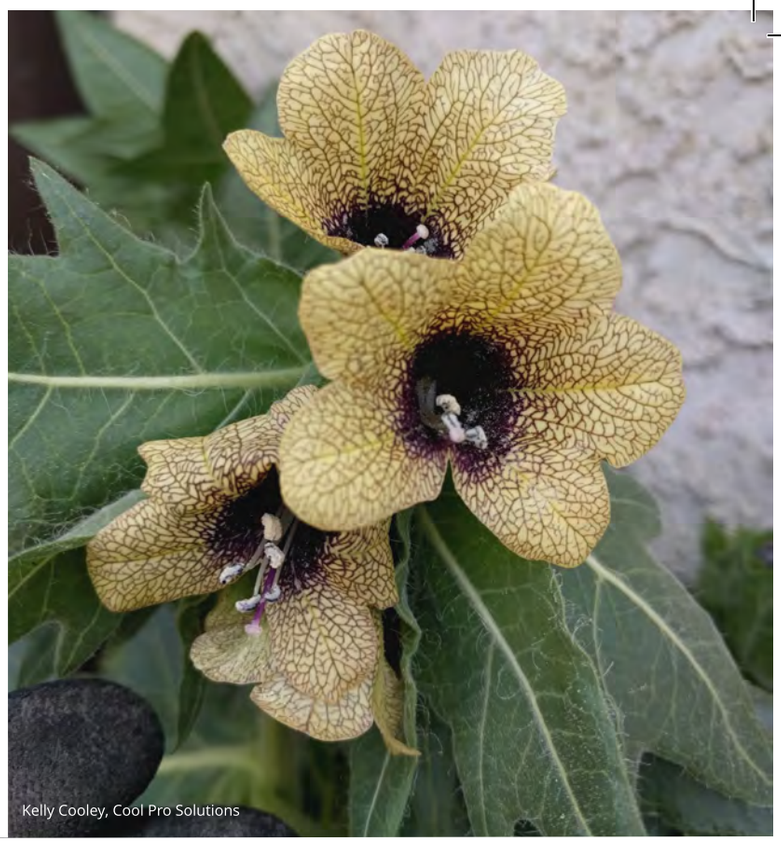
Pulling the plant is impractical for large infestations, but small plants may be dug out. When the flowering stem is broken off without removing the tap-root, a new stem will grow from the woody crown, producing another flower head later in the season. Repeated mowing will reduce seed production, and will eventually diminish root reserves.

Cultural/Preventative:

Alternate cropping and summer fallow provides some control by reducing soil disturbance and allowing native plants to regenerate and flourish.

Field ID Notes

Kelly Cooley, Cool Pro Solutions



Kelly Cooley, Cool Pro Solutions

Jan Samanek, Phytosanitary Administration, Bugwood.org

Robert Vidéki, Doronicum Kft., Bugwood.org

Black Henbane (*Hyoscyamus niger*)

Provincial EDRR

IDENTIFICATION

Flower:

Pale yellow with deep purple veins and throats. Flowers are hermaphroditic – both male and female organs – and have a strong, unpleasant smell.

Seeds / Fruit:

The calyx (flower base) forms a 2.5 cm urn-shaped fruit with a thickened lid that pops off at maturity and spills the numerous, tiny, black-brown seeds.

Leaves:

Alternate, large – up to 15 cm wide and 20 cm or more in length– and have a heavy, foul scent. Leaf edges are shallowly lobed (variable) and veins are conspicuous.

Stem description:

The entire plant is covered with greasy hairs. Stems are upright, tough – almost woody - and can be very thick. Plants can grow to 1m or taller and may be branched or unbranched.

Roots:

Large, whitish, branched, fleshy taproot.

Growth Form:

Annual or biennial.

HABITAT & ECOLOGY

Environment:

Black henbane grows in a wide range of soil textures and pH but does require well drained soil and does not tolerate shade. It is common in disturbed open sites in rangeland and pastures, along fence rows, roadsides, riparian areas and waste areas. It is also found on heavily grazed sites. Its growth is enhanced by increased levels of soil nitrogen.

Distribution:

Currently very limited distribution in the RDEK, and is a provincially listed species.

Life Cycle:

Seeds germinate and develop into a rosette in late May and flowering from June to July.

Mode of Reproduction:

Reproduces by seed only, producing up to 500,000 seeds per plant in one season.

Dispersal:

New sites can occur through human distribution of contaminated soil.

Seed Bank:

Seeds are viable for up to 4 years.

Toxicity:

All parts of the plant are poisonous to humans and animals when ingested – tissues contain several toxic alkaloids. Symptoms of poisoning include impaired vision, convulsions, coma, and death from heart or respiratory failure.

MANAGEMENT

Summary:

Prevention of spread is the most effective method of management. Limiting seed dispersal, containing current infestations, minimizing soil disturbances, detecting and eradicating new plants, maintaining competitive desirable plants, and grazing properly will help reduce establishment and spread of the species.

Mechanical:

Pulling or digging isolated plants or small infestations prior to seed production can be an effective means of controlling this plant if the entire taproot is removed. Gloves and protective clothing are strongly recommended to prevent skin irritation. Pulling when the soil is moist increases the likelihood of removing the entire root. If initial pulling or digging does not kill the plant, the method must be repeated throughout the season to ensure no seeds are produced. Pulling and digging may have to be repeated over several years to control plants emerging from the seed bank.

Field ID Notes


Jessie Paloposki


Jessie Paloposki


Jessie Paloposki


Kendal Benesh

Wild Parsnip *(Pastinaca sativa)*

Regional EDRR

IDENTIFICATION

Flower:

Flat-topped yellow flowers in an umbel 10-20 cm across. The umbels are composed of 6-25 rays with the florets borne at the tips. Florets have 5 petals, the edges entire and rolled back.

Seeds / Fruit:

Fruits are dry, flattened, oval and once matured splits into two strongly flattened seeds. Seeds are rounded or oval, narrowly winged, 4-8 mm long, and straw to light brown coloured. Seeds bear four oil tubes on the outer surface and 2-4 on the inner surface.

Leaves:

Alternate, carrot-like, once or twice pinnately compound, and up to 40 cm long. Leaves can be smooth or hairy. Leaves become progressively reduced in size and division up the stems, until reduced to narrow, sessile bracts. Petioles (leaf stems) are grooved and clasp the stem.

Stems:

Single light green stem, growing up to 2 m. Stems are grooved and hollow, with sparse hairs, and often branched at the upper nodes.

Roots:

Produces a parsnip-like thick yellowish or brownish tap root.

Growth Form:

Biennial.

HABITAT & ECOLOGY

Environment:

Wild Parsnip will grow in a wide variety of soils, from sandy loam to heavy clay. It does best in chalky and alkaline soils. Although it does tolerate wet soils, it thrives in mesic to dry soils and part to full sun. Currently there is one known site on crown land just North of Fort Steele. EKISC is working with provincial invasive specialists to treat this site.

Life Cycle:

Germinating seeds produce strap-like cotyledons about 3 cm long by 4 mm wide and taper to a long petiole. The first true leaves have long petioles, are ovate to broadly heart-shaped, about 1 cm long, and coarsely toothed but not lobed. Seedlings quickly develop a tap root for nutrient storage and a rosette of leaves in the first season of growth. The following year flowering starts in May, peaking June/July and can last into the fall.

Mode of Reproduction:

Reproduces by seed only, with a single plant can producing more than 2,000 seeds.

Dispersal:

Seeds are carried by wind, water, vehicles or equipment via soil movement.

Seed Bank:

Seed viability declines rapidly, lasting only three to four years.

MANAGEMENT

Summary:

Due to the clear white sap containing toxins that can cause serious skin reactions, always wear protective clothing whilst treating this species.

Mechanical:

Mowing before flowering can prevent seed production because energy is put towards stem production rather than seeds and flowers, however re-sprouting is possible. Hand-pulling/digging is effective for small infestations.

Toxic:

While the root is edible, the rest of the plant contains toxic compounds which cause photo-sensitivity in some individuals. Skin contact with leaves, stems and peeling the roots can result in blistering after exposure to sunlight, some cases may become severe.

Field ID Notes


Danny Smart


L.L. Berry, Bugwood.org

Leafy Spurge (*Euphorbia esula*)

Eradication

IDENTIFICATION

Flower:

Flowers are small, yellowish-green, lack both petals and sepals, and are supported by 2 green, heart-shaped, leaf-like bracts, arranged in numerous small clusters.

Seeds / Fruit:

Seeds are about 2mm, smooth, oblong, light gray to dark brown in color and grow in pods on top of the bracts.

Leaves:

Numerous and attached directly to the stem, arranged alternately or sometimes spirally. The leaves are up to 7 cm long, narrow, waxy, have smooth edges and are bluish-green in color, turning yellowish or reddish-orange in late summer.

Stem description:

Stems are smooth, hairless, and arranged in clumps. Stems grow up to 1 m tall and contain a milky latex which is visible when snapped in half.

Roots:

Rhizomatous root system extending up to 4.5 m laterally and 9 m deep.

Growth Form:

Long-lived perennial.

HABITAT & ECOLOGY

Environment:

Grows in diverse environments from dry to sub-humid and from subtropic to subarctic. It establishes more readily in disturbed soil, and is primarily found in untilled, non-cropland habitats such as abandoned cropland, pastures, rangeland, woodland, roadsides and waste areas.

Distribution:

Leafy Spurge is densely populated in northern part of the RDEK (IPMAs 04 and 05), however has very limited distribution across the remainder of the region therefore is considered an eradication species in the southern parts of the RDEK.

Life Cycle:

Clusters of showy, yellow bracts open in late May or early June, while the actual flowers do not develop until mid-June. The plant goes dormant in the height of summer and produces seed in late summer.

Mode of Reproduction:

Reproduction by seed and vegetatively via root buds at a rate of several feet per year; a large plant can produce up to 130,000 seeds.

Dispersal:

Dried seed capsules open explosively, dispersing seed up to 5 m from the parent plant. Seeds may be carried further by water and wildlife.

Seed Bank:

High germination rate and may remain viable in the soil for up to 7 years.

MANAGEMENT

Summary:

Leafy spurge is difficult to control due to its extensive root system which has vast nutrient stores that let it recover from control attempts. Best results are achieved by combining control methods for multiple years.

Mechanical:

Hand pulling can be effective for very small patches. Because hand pulling encourages vegetative growth, small patches must be pulled every 2-3 weeks. If using this method, ensure to use gloves to avoid the toxic sap. Mowing can be effective in preventing seed production, if timed properly.

Cultural/Preventative:

Multi species (sheep and goats) grazing is effective as it removes the top growth of the plant, causes stress to the root system, and opens up areas for native grasses to establish and grow. Grazing also removes the flowering portion of the plant and over time, helps to reduce the number of seeds deposited into the soil bank.

Toxic:

Leafy Spurge contains a white, milky, toxic latex in its leaves and stems. This milky latex has been known to irritate the skin of people and animals, producing blisters and swelling. It also produces an allelopathic compound that inhibits the growth of other plants.

Similar Species:

Cypress Spurge. Leafy Spurge rosettes may be misidentified as Fireweed, however the milky sap easily differentiates the species.

Field ID Notes


Lisa Scott


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


Lisa Scott


Utah State University, Bugwood.org

Rush Skeletonweed (*Chondrilla juncea*)

Eradication

IDENTIFICATION

Flower:

Yellow flowers 1-2 cm across have yellow, daisy-like capitulae, borne singly or in small clusters, almost sessile on the virtually leafless stem.

Seeds / Fruit:

Fruits are achenes, white to dark, 3-4 mm long, with pappus of white toothed bristles 5-8 mm long on a beak of similar length.

Leaves:

Leaves are coarsely lobed with fine dense hair on both sides, and sharp spines on the margin. Basal leaves lobes point back towards the leaf base. Leaves on branching stems are few, narrow and have smooth edges.

Stems:

Grows up to 150 cm, bright green or yellow-green with multiple, slender, leafless branches and reddish downward-pointing hairs near the base. Both stem and leaves produce a milky sap when broken.

Roots:

Deep taproot up to 2 m with lateral roots.

Growth Form:

Perennial.

HABITAT & ECOLOGY

Environment:

Rush Skeletonweed thrives in well drained, sandy textured or rocky soils, along roadsides, in rangelands, pastures and grain fields.

Life Cycle:

Small yellow flowers begin in early summer and continue until frost in the fall. Seeds mature 9 to 15 days after the flowers open.

Mode of Reproduction:

Flowers are self-fertilizing and produce pappus seeds that disperse primarily by wind. Can establish vegetatively by adventitious buds on both vertical and lateral roots and new shoots can also form from tiny fragments of root.

Dispersal:

Plants can produce 20,000 parachute-like seeds that travel easily with wind, water, animals, and humans along dry grasslands.

Seed Bank:

Seeds remain viable for 6-18 months and have very little dormancy; germination is dependent on moisture.

MANAGEMENT

Summary:

Established populations are difficult to control and require multiple years of intensive management. Suppressing the extensive root system is critical for successful control.

Mechanical:

Because Rush Skeletonweed can sprout from cut root fragments, mechanical damage to established plants results in root sprouting and regrowth. Young seedlings may be controlled by cultivation. Frequent mowing may exhaust root storage resulting in suppression.

Similar Species:

Rush Skeletonweed rosettes can be misidentified as a dandelion.

Field ID Notes

Eric Coombs, Oregon Department of Agriculture, Bugwood.org

Tom Heutte, USDA Forest Service, Bugwood.org

Jessie Paloposki

Scotch Broom (*Cytisus scoparious)*

Regional EDRR

IDENTIFICATION

Flower:

Yellow and pea-like; may have a red marking in the middle.

Seeds / Fruit:

Seeds are hard coated and oval measuring about 2.5 mm long. Fully developed pods are 2.5-7 cm long and 8-13 mm wide, oblong, strongly compressed, with brown or white hairs on the margin, initially green then black at maturity.

Leaves:

Stalked lower leaves are composed of three leaflets; un-stalked upper leaves are simple.

Stems:

Woody and 5-angled stems; 1–4 m tall shrub.

Roots:

Deep, branched taproot.

Growth Form:

Perennial shrub.

HABITAT & ECOLOGY

Environment:

Scotch Broom thrives in sunny environments. It can be found growing along river systems, in native grassland and pasture, and in open woodland, including a wide range of disturbed and undisturbed communities. It is found densely along highways on Vancouver Island and is currently not in the RDEK. One site was reported (and shown on the EDRR map on page 3), however the species is no longer found.

Life Cycle:

Most flowering occurs from March to June, however late frosts can stimulate a second burst of flowers. Seeds are mostly shed from June to early September.

Mode of Reproduction:

Mature plants only reproduce by seed and each plant can produce up to 3500 pods, each containing 5-12 seeds; seed numbers in these plants may range from several hundred to 18,000. Soil disturbance can cause a flush of seed germination.

Dispersal:

The pods ripen over the summer, releasing seeds explosively on sunny days when they develop torsional stresses as they dry out.

Seed Bank:

Seedpods can remain viable in water, soil, and gravel for 30-50 years.

MANAGEMENT

Summary:

Scotch Broom is highly flammable, and is known as a volatile flash fuel, therefore treatment with the goal of eradication is extremely important. Cut broom in bloom, and aim to control plants before seed pods mature. Seeds can survive for a long time in the soil, therefore control methods must be repeated for many years.

Mechanical:

Hand pulling and digging is only recommended on small, easy to pull plants with minimal soil disturbance. Alternatively cutting broom (in bloom) at ground level using loppers is preferred and has had positive effects on Vancouver Island. Mowing infestations will not be effective.

Cultural:

Sheep (not all breeds) and goats (particularly meat goats) are effective at suppressing Scotch Broom when used strategically on existing stands.

Field ID Notes

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

Ansel Oommen, Bugwood.org

J. Leekie, ISCBC

J. Leekie, ISCBC

Scotch Thistle (*Onopordum acanthium*)

Prevention Watchlist

IDENTIFICATION

Flower:

Globe-shaped flower heads are in groups of 2 or 3 on branch tips. Flower heads are up to 2 inches in diameter, with long, stiff, needle-like bracts at the base. Flowers range from dark pink to lavender.

Seeds / Fruit:

Achenes hairy, greyish-brown, 4-5 mm long; pappus of numerous slender bristles.

Leaves:

Basal leaves lacking; stem leaves alternate; lower leaves elliptic to oblanceolate, toothed to deeply pinnately-lobed, 10-60 cm long, 5-10 cm wide, spiny, spines are 2-5 mm long, sparsely woolly-hairy and green above, densely white woolly-hairy below; upper leaves reduced and linear-elliptic to linear-lanceolate.

Stems:

Stems erect, simple, branched, broadly spiny-winged, woolly-hairy, 1.5-3.0 m tall.

Roots:

Mature plant has a large, fibrous, and fleshy taproot.

Growth Form:

Biennial.

HABITAT & ECOLOGY

Environment:

Scotch Thistle will grow in wet meadows and pastures as well as dry pastures and rangelands. It may also be found alongside streams and rivers.

Life Cycle:

Flowers from late June to October. Seeds germinate as soon as they reach the soil in late summer or early autumn if adequate conditions are met. Before the onset of winter, the resulting seedlings form sizable rosettes.
Spring-germinating plants are often larger than autumn-germinating plants to ensure that they flower in the next year. The following year, bolting rosettes flower, set achenes and then die. If achenes do not germinate soon after dispersal, they are incorporated into seed banks and over-winter in a dormant state.

Mode of Reproduction:

Reproduces by seed. A single plant can produce from 100 to 50,000 achenes.

Dispersal:

Achenes can be dispersed by water, wind, wildlife, livestock and human activities.

Seed Bank:

Seeds may remain dormant for at least 40 years in the soil.

MANAGEMENT

Summary:

Hand-pulling or grazing young plants with goats prevent seed set combined with seeding disturbed areas using a competitive native perennial mix is a positive method of an integrated management program.

Mechanical:

Small infestations can be eradicated by digging. After first flowering, mowing and slashing can be useful in the right conditions. Mowing will not kill the plant but will lessen the seed production by preventing seed heads from maturing. For total kill, plants must be cut off below the soil surface and no leaves remain attached. If mowing is carried out too early, it may only delay flowering rather than control the plant. However, when plants are cut too late in the flowering process, viable seeds may still develop .

Cultural:

Sheep, goats, and horses, but not cattle, have shown to have significant effect on thistles in the early stages of infestation when they eat young thistle plants.

Field ID Notes


Jessie Paloposki


Jessie Paloposki

Jessie Paloposki

Flat Peavine (*Lathyrus sylvestris*)

Eradication

IDENTIFICATION

Flower:

Unscented, pea-like flowers can be white, pink, or red and grow in clusters of 5 to 15. 13–20 mm long, with 5 Petals.

Seeds / Fruit:

Seeds are 40–70 mm long, brown with 5–15 seeds in a pod.

Leaves:

Alternate and narrowly winged leaf stalks with pinnate blades. 1 pair of terminal leaflets are modified as a tendril. Leaflets lanceolate–narrowly ovate, 5–15 cm long, with entire margins. Stipules are narrower than the stem.

Stems:

Up to 2 m long, the stem lies on the ground or climbs up low lying trees, branches, and bushes using its prehensile organs to climb.

Roots:

Deep horizontally growing roots.

Growth Form:

Perennial herbaceous vine.

HABITAT & ECOLOGY

Environment:

Flat Peavine is found along forest edges, sparse broad-leaved hillside forests, dry hillside meadows, hedgerows, embankments and waste ground.

Life Cycle:

Flowers in July and August.

Mode of Reproduction:

Each seed pod holds 10-15 seeds. Above ground growth dies each winter and regrows each spring from deep roots. Reproduction is mainly via rhizomes.

Dispersal:

Mature seed pods twist and eject the seeds, which can fall up to 10 m away from the parent plant. Seeds are also moved by human activities, water and animals. Most seedlings emerge from seeds buried 2.5 - 5 cm deep.

Seed Bank:

Seeds may remain viable for up to 17 years.

MANAGEMENT

Summary:

Small infestations can be manually treated. Isolated plants should be carefully removed in order to stop them from infesting a larger area; and planting a ground cover species to compete with seedlings may help in the long term.

Mechanical:

Hand pulling may be effective for small infestations, in removing seedlings and young plants. Seedlings are easiest to remove after rain, when it may be possible to remove the entire root system. However, pulling or digging will disturb the ground and likely cause germination of seeds already in the ground. Monitoring for three to five years is essential. Cutting stems will remove above ground growth only and is a temporary treatment. The roots remain in the ground and will re-sprout.

Field ID Notes


Jessie Paloposki


Jessie Paloposki


Rob Routledge, Sault College, Bugwood.org


Jessie Paloposki


Jessie Paloposki

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

Regional EDRR

IDENTIFICATION

Flower:

One to several in leaf axils, whitish to red, usually purplish-spotted; sepals pouched, with a short recurved spur.

Seeds / Fruit:

Capsules, elastically dehiscent, 1.5-2.5 cm long, many-seeded.

Leaves:

Whorled, stalked, egg-shaped to elliptic, serrated edge, 6-15 cm long.

Stems:

Erect to ascending, often branched, glabrous, often purplished-tinged, 0.6-2.0 m tall.

Roots:

Poor root structure, up to 15 cm deep, the plants often forming numerous adventitious roots from the lower nodes.

Growth Form:

Annual.

HABITAT & ECOLOGY

Environment:

Tolerant of a wide range of soil textures and structures. It most commonly occurs in riparian zones, but may also be found in open areas of forests, forest edges, roadsides, and man-made structures.

Life Cycle:

Germination occurs relatively early giving seedlings an advantage over other plants as long as they are not exposed to frost. The first true foliage emerges as a whorl of 4 leaves, with subsequent whorls of 3. Seed sets occur about 13 weeks after flowering.

Mode of Reproduction:

Policeman's Helmet exclusively propagates by seed, with approximately 700-800 seeds per plant.

Dispersal:

Explosive capsules expel seeds from the plant, and dissemination is also aided by flowing water, seeds transported with sediment and the fact that dry seeds are buoyant.

Seed Bank:

Seeds require chilling to become viable. Although the species is reported as not having a persistent seed bank, there are indications that at least some seed can

MANAGEMENT

Summary:

Control must aim at preventing the plants from setting seed. Best results are achieved by applying mechanical control late in the season, i.e. when plants are in flower or beginning to flower.

Mechanical:

This plant is most commonly mechanically controlled due to its poor root structure and ability to be easily pulled. Early cutting of the plants below the first node can control populations. Mowing with or without removal of the plant material, mulching, or soil cultivation have all been successful. In larger stands and where soil conditions permit, agricultural machinery may be used. Where the soil is wet and soft, heavy machinery will damage the soil and provide open spaces ideal for re-establishment. In smaller stands, hand-held brush cutters can be used and hand-pulling of the plants is also feasible.

Field ID Notes

Steve Dewey, Utah State University, Bugwood.org

Jessie Paloposki

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

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

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

Teasel (*Dipsacus fullonum*)

Prevention Watchlist

IDENTIFICATION

Flower:

Dense flowerheads, up to 10-15 mm tall, occur individually at the tips of leafless flower stems and opposite side branches. Bracts at its base are linear, more or less prickly, curved upward and unequal in length. Flowers bloom in 2 rings and are generally pale purple to dark pink.

Seeds / Fruit:

Achenes, 5-8 mm long, 4-angled, hairy.

Leaves:

Basal leaves with wavy margins. Leaves have spines on the underside of the midvein and smaller spines on bases on the upper leaf surface. The stem leaves are opposite and prickly, especially on the lower side of the leaf midvein.

Stems:

Stems erect, stout, angled, few-branched, increasingly prickly upwards, 0.5-2.0 m tall.

Roots:

Produces a stout taproot, which can be more than 0.6 m long and 2.5 cm thick at the crown

Growth Form:

Biennial.

HABITAT & ECOLOGY

Environment:

Teasel grows in garden areas, along creeks, pond edges, roadsides, abandoned fields and other disturbed sites. It also grows into agricultural areas, fallow fields, pasture lands and hay meadows. It prefers open, sunny habitats and can survive in a range of wet to dry conditions.

Life Cycle:

Seeds germinate from early April to early June. Flowers are continually produced from July to early September; seeds mature in the head and are dispersed from September to late November.

Mode of Reproduction:

Reproduction by seed only. A single plant can produce more than 2,000 seeds with 30-80% germination success the following spring.

Dispersal:

Most seeds fall within a meter of the parent plant; however, if seeds fall in water, they will go unharmed for up to 22 days.

Seed Bank:

Seeds can remain viable for 2 - 6 years.

MANAGEMENT

Summary:

Control practices in many areas include mowing plants and leaving seedheads on the ground. Seedheads of various ages can contain viable seed, therefore management methods need to consider the effects of leaving seedheads that may allow for increased populations.

Mechanical:

Repeated mowing or cutting has little effect on populations. Stems cut before flowering regrow but produce significantly fewer flower heads than uncut plants. Stems cut during or after flowering produced no new seed heads, and seeds in flower heads cut at or immediately after flowering fail to germinate. In small infestations flowering stalks could be cut and removed from the site. Rosettes can be dug up, though it is important to remove as much of the root as possible to prevent re-sprouting.

Field ID Notes

Danny Smart

Danny Smart

Jessie Paloposki

Jessie Paloposki

Wood Sage (*Salvia nemorosa*)

Eradication

IDENTIFICATION

Flower:

Lavender to violet blue flowers, blooms in dense, terminal, upright, spike-like, racemes rising above the foliage 40 - 80 cm tall. Tubular corollas 12 - 14 mm long subtended by tiny reddish-purple bracts.

Seeds / Fruit:

Nutlets, 4 clustered together.

Leaves:

Opposite, lanceolate to oblong, 5-10 cm long, narrowed at the base, the margins toothed, the teeth mostly hidden by the dense hairs. Leaves are aromatic when bruised.

Stems:

Stems erect, 40-80 cm tall, branched, 4-angled, densely felted with white, woolly hairs.

Roots:

Thick taproot.

Growth Form:

Rhizomatous perennial.

HABITAT & ECOLOGY

Environment:

Easily grown in average, dry to medium, well-drained soil in full sun. Prefers moist, gravelly or sandy soils with good drainage, but tolerates drought. Plants may repeat bloom through the summer and into autumn.

Life Cycle:

Flowers from May - September in the first year.

Mode of Reproduction:

Reproduces by seed and rhizomes.

Dispersal:

Seeds tend to drop close to the plant and can be spread easily in contaminated soil, wind, wildlife, or humans.

Seed Bank:

Seeds germinate rapidly, however not much is known about seed bank persistence.

MANAGEMENT

Summary:

Wood Sage is distributed mainly through the nursery trade. Please do not purchase plants or seeds labeled with this name on.

Mechanical:

Repeated hand pulling prior to seed set can provide effective control and possibly eradicate small infestations.

Field ID Notes


Jessie Paloposki


Rob Routledge, Sault College, Bugwood.org


Kelly Cooley, Cool Pro Solutions


Jessie Paloposki

Purple Loosestrife (*Lythrum salicaria*)

Regional EDRR

IDENTIFICATION

Flower:

Inflorescence of crowded, terminal, but interrupted, bracted spikes; hypanthium elongate-cylindric to conic, purplish, 4-5 mm long; 5-6 purple petals, 7-10 mm long.

Seeds / Fruit:

Seeds are very small, egg shaped capsules.

Leaves:

Leaves are alternate, opposite, or in whorls of 3. They are 3-10 cm long, lance-shaped to narrowly oblong and sometimes covered with fine hairs.

Stems:

Stems are erect and quadrangular in section with evenly spaced nodes in opposite pairs or in whorls of 3. Mature plants can have 30 to 50 stems emerging from a single rootstock and can grow from 1.2 to 3 m high.

Roots:

A woody, vigorous, and persistent root system.

Growth Form:

Perennial.

HABITAT & ECOLOGY

Environment:

Capable of invading a variety of wetland habitats, including marshes, river and stream banks, pond edges, lakes, road site ditches, and reservoirs.

Life Cycle:

Seed germination occurs in late spring (June) and early summer (July), and continues until the end of August or beginning of September.

Mode of Reproduction:

Reproduces primarily by seed, although vegetative propagation from rooting nodes has also been observed. Each plant produces approximately 2,700,000 seeds.

Dispersal:

Long distance dispersal is largely by means of floating seeds, and seeds are light enough to be dispersed by strong wind, but restricted to short distances only, up to 10 m from the parent plant.

Seed Bank:

Seed viability is very high and will germinate after several years.

MANAGEMENT

Summary:

The best control measure is to preserve a healthy native ecosystem to prevent or slow invasion. Control of Purple Loosestrife is difficult.

Mechanical:

Small infestations, if caught early, can be removed by hand pulling or digging making sure all the entire plant is removed. This method should be applied before seed set to prevent scattering. Mechanical control for large infestations has been unsuccessful.

Similar Species:

Purple Loosestrife can be misidentified as Fireweed due to the pink flowers and dense clusters at the top of the plant. However, Fireweed has a four-lobed flower and alternate stem leaves.

Field ID Notes

J. Leekie, ISCBC

J. Leekie, ISCBC

Rob Routledge, Sault College, Bugwood.org

Peter M. Dziuk

M. Will ISCBC

Marsh Plume Thistle *(Cirsium palustre)*

Prevention Watchlist

IDENTIFICATION

Flower:

Few to many purple flower heads are borne in dense clusters at branch tips. Flower base is egg-shaped to cylindrical, 1-1.5 cm tall, and covered with bracts often tipped with a sharp, pointed spine. Bracts are sparsely to densely covered with white, cobwebby hairs, the outer bracts often sticky.

Seeds / Fruit:

Seeds are tan to straw-coloured, 2.5-3.5 mm long, with a 9-11 mm long pappus.

Leaves:

Narrowly elliptic, 15-30 x 3-10 cm, margins are deeply lobed, with spines 2-6 mm. Leaf surfaces are smooth to soft, hairy above and lightly to densely long-hairy below. Leaves are gradually reduced and become widely spaced up the stem.

Stems:

Single, erect, strongly spiny winged at leaf bases, and sometimes with ascending branches. Stems grow up to 3 m tall.

Roots:

Fibrous root system.

Growth Form:

Herbaceous biennial and/or perennial.

HABITAT & ECOLOGY

Environment:

Marsh Plume Thistle forms impenetrable spiny stands in primarily wetland communities, but can invade forested areas. It is a cold, hardy plant found all the way to the arctic circle.

Life Cycle:

Seeds germinate in early spring (can also germinate as late as October) and rosettes begin vigorous growth, filling in the surrounding area by summer. Their numerous leaves form disks that eliminate other species by pressure and shading. Flowering and fruiting occurs the following year, and mature individuals die.

Mode of Reproduction:

Marsh Plume Thistle can produce 2,000 viable seeds per plant.

Dispersal:

Seeds readily disperse by wind and water, as well as through ingestion and deposit by birds and animals. Under ideal conditions, seeds can travel several kilometers.

Seed Bank:

There are discrepancies about seed bank longevity. High temperatures and reduced access to light induces dormancy in seeds.

MANAGEMENT

Summary:

Minimize soil disturbance and promptly re-vegetate disturbed areas by seeding with competitive native perennials. An integrated control and management program is beneficial.

Mechanical:

Mechanical control can be effective, especially when done before flowering to prevent seed-set. Plants can be hand-pulled or cut/mowed and left on site to decompose. prior to seed set. If mechanical treatment is performed while flowers are present on stems, the flowers must be bagged and removed from the site to prevent production of viable seeds. Other plant material can be left on site to decompose.

Similar Species:

Marsh Plume Thistle has a similar appearance to the more common Canada Thistle. Marsh Plume Thistle has a slender stalk and more compact flower heads at the tip of the stems.

Field ID Notes


Jessie Paloposki


Jessie Paloposki


Kelly Cooley, Cool Pro Solutions


Kelly Cooley, Cool Pro Solutions

Field Scabious (*Knautia arvensis*)

Regional EDRR

IDENTIFICATION

Flower:

Small, violet-blue to pinkish-purple florets clustered into a head resembling a single flower up to 4 cm wide, and occur singly at the ends of stems. Below the flower head is a ring of narrow green bracts. Flowers are hermaphroditic.

Seeds / Fruit:

Seed head is domed and covered with short, bristly hairs. The fruit is nut like, cylindrical and hairy, 5-6 mm in size.

Leaves:

Hairy; degree of the lobes is highly variable. Young rosette leaves are lance-shaped, have pointed tips, and the margins can be entire or coarsely toothed – sometimes a few leaves will be deeply lobed. Stem leaves are opposite, deeply lobed and attached directly to the stem. Lower leaves are 10-25 cm long but become smaller toward the top of the plant.

Stem description:

Erect, hairy, sparsely branched, and grows up to 1.5 m tall. There can be one or several stems per pant, with little or no branching in the upper stem. When leaves and stems are broken, white latex sap is released.

Roots:

Taproot.

Growth Form:

Perennial.

HABITAT & ECOLOGY

Environment:

Prefers nutrient-rich and moderately dry soils, but can also establish in gravelly soils. Often found invading high-quality habitat.

Life Cycle:

Seeds germinate in the spring, and the plants flower from June to August. Germination occurs close to the surface at 1 to 2 cm depth in the soil.

Mode of Reproduction:

Only by seed, and a single plant can produce up to 2000 seeds.

Dispersal:

Seeds can be dispersed by wildlife and water, but the majority of seeds fall around the base of the parent plant.

Seed Bank:

Seeds remain viable for several years.

MANAGEMENT

Summary:

Field Scabious can invade undisturbed plant communities, and once established it is very difficult to control. Infestations that have gone to seed will require many years of diligent control work to eradicate. Wear long sleeves and gloves when treating the plant because skin contact can cause considerable itching.

Mechanical:

Mowing is effective to prevent seed production but must be repeated in the season due to re-sprouting. The taproot is difficult to remove except in loose soils; therefore hand pulling often results in the stem breaking off at ground level allowing the plant to re-sprout. Removing of seed heads is beneficial when mechanically treating.

Cultural/Preventative:

Field Scabious favors grassy areas such as hayfields, therefore it can be widely dispersed in baled forage. Prevent seed heads from entering bales.

Similar Species:

Field Scabious rosettes have a similar appearance to the common noxious weed Spotted and Diffuse Knapweed.

Field ID Notes

Eric Coombs, Oregon Department of Agriculture, Bugwood.org

2020 Minnesota Department of Agriculture

Cindy Roche, Bugwood.org

Great Smoky Mountains National Park Resource Management , USDI National Park Service, Bugwood.org

Meadow Knapweed (*Centaurea moncktonii*)

Regional EDRR

IDENTIFICATION

Flower:

Pink-purple, composed of 40- 100 florets, the heads are solitary at the ends of the upper branches. Comb-like bracts below flowers are overlapping, fringes on bracts are as long or longer than the width of the bract.

Seeds / Fruit:

The fruit (cypselae) is tan, 2.5-3.0 mm long and finely hairy. The pappus is absent or there are 0.5-1.0 mm long bristles that easily detaches.

Leaves:

Basal leaves up to 15 cm long, oblanceolate to lanceolate, simple to irregularly pinnately cut or with a wavy margin, sparsely long-hairy above, long-hairy below, soon deciduous. Not highly divided like many of the other knapweeds. Stem leaves are stalk-less.

Stem description:

20-80 cm, mature plants can reach up to 1 m tall, several stems with many branches mid stem.

Roots:

Deep tap root.

Growth Form:

Perennial.

HABITAT & ECOLOGY

Environment:

Meadow Knapweed tolerates a wide range of conditions although prefers moist and cool conditions.

Life Cycle:

Generally flowers from July through August. Seeds germinate from spring through early autumn. Seedlings that emerge in the autumn often overwinter as a rosette and resume growth in the spring.

Mode of Reproduction:

By seed and occasionally from root shoots. One plant can produce over 1,000 seeds.

Dispersal:

Humans are the most significant agent for spread via various modes of transport or clothing. Yet wind, water, and animals also assist in moving the seeds.

Seed Bank:

Seeds can remain viable in the soil for over 5 years.

MANAGEMENT

Summary:

The plant can spread easily therefore timely management and monitoring is highly cost-effective compared to treating larger areas at a later date. Integrated management techniques will aid in control abilities. In addition, improving the health of a natural area and guarding against disturbance or overuse are good preventive measures.

Mechanical:

Small infestations can be hand-pulled and larger infestations can be mowed, burned, or mulched and then treated with herbicides as soon as new seedlings emerge.

Similar Species:

Meadow Knapweed has a similar appearance to the noxious weed Spotted Knapweed, however Meadow Knapweed leaves are entire and undivided.

Field ID Notes


Caraway leaf
Yarrow leaf (native)
Laura MacKinnon

Caraway (*Carum carvi*)

Eradication

IDENTIFICATION

Flower:

White, but occasionally pinkish, and occur in groups at the top of stems (compound umbels). Flowers hermaphroditic, therefore self-fertile.

Seeds / Fruit:

Seeds are narrow, oblong, and brown with 5 distinct tan, linear, ridges; they are about 2 mm long.

Leaves:

Alternate and very finely divided (very carrot-like). The leaves of first-year rosettes can be very similar to yarrow, a native plant.

Stem description:

Stems are erect, branched, and grow 60 to 90 cm tall. There can be several stems per plant.

Roots:

Narrow, parsnip-like taproot with a black skin and white core.

Growth Form:

Biennial, or sometimes perennial forb.

HABITAT & ECOLOGY

Environment:

Grows in a wide variety of soil types, pH, and climates and is found in a variety of pastures, rangelands, and right of ways. It will successfully reproduce under deciduous forest canopy but appears intolerant of complete shade. Plants can survive light frost and extra moisture.

Distribution:

Densely found in the Elk Valley, however has very limited distribution across the rest of the RDEK, therefore remains a high priority in most of the region.

Life Cycle:

Produces a low growing rosette of leaves in its first year of growth, and then a flowering stalk (bolt) in the second year – it sometimes bolts and flowers a third year before dying.

Mode of Reproduction:

By seed only.

Dispersal:

Light seeds scatter easily by wind, wildlife, and distribution of contaminated soil. Infestations in forage crops have led to weed seed dispersal in baled hay.

Seed Bank:

Seeds are viable for about 3 years.

Interesting Facts:

Wild caraway entered Canada as a spice crop (used in rye breads and some liquors) but has escaped cultivation. Though edible, it is not utilized by livestock.

MANAGEMENT

Summary:

Wild caraway is difficult plant to identify when not in flower. Complete control methods prior to seed set due to the easy dispersal of seeds. Monitor the site for several years to ensure complete seed bank depletion.

Mechanical:

Repeated mowing is ineffective because the plant will re-bloom below cutting height. Hand-pulling the tap-rooted species is an effective method if conducted prior to seed set. Make sure to bag and dispose of the pulled plants appropriately.

Cultural/Preventative:

The best control option for Wild caraway is to stop the plant from going to seed. Preventing seed production from year to year is critical.

Similar Species:

The rosette of Caraway looks very similar to the native species Yarrow.

Field ID Notes

Robert Vidéki, Doronicum Kft., Bugwood.org

Thomas B. Denholm, New Jersey Department of Agriculture

Robert Vidéki, Doronicum Kft., Bugwood.org

5398966

Invasive Plant Council of Metro Vancouver,

Giant Hogweed
(Heracleum mantegazzianum)

Prevention Watchlist

IDENTIFICATION

Flower:

The flower head is a terminal umbel that measures up to 80 cm across. Eight additional satellite umbels exist above and below the main umbel. Flowers are white or pinkish and have petals that extend up to 12 mm.

Seeds / Fruit:

Green, elliptical-shaped fruits are about 4 mm to 10 mm in diameter and 6 mm to 8 mm wide, turning dry and brown when ripe. Fruits have wings and swollen brown resin canals.

Leaves:

Dark green, coarsely toothed, deeply incised alternate leaves. The lower leaves are 3 m long and 1.7 m wide, pinnately lobed and coarsely toothed. Upper leaves on the flowering stem are progressively smaller. The upper leaf surface is smooth but the underside is covered in bristles.

Stems:

Single green, hollow, stem that is 5 cm to 10 cm in diameter and 2 m to 5 m high. The stem is ridged with purple blotches and covered in stiff bristles.

Roots:

Roots are branched; 40 cm to 60 cm deep and up to 15 cm across at the crown when mature. The crown persists approximately 10 cm below the soil surface.

Growth Form:

Perennial herb.

HABITAT & ECOLOGY

Environment:

Giant Hogweed may colonize a wide variety of habitats but is most common along roadsides, other rights-of-way, vacant lots, streams and rivers.

Life Cycle:

During the first year, the plant produces a rosette of leaves up to one metre high. After 2 to 5 years the plant produces flowers. As it grows a large root, thick hollow stems and large lobed leaves are formed. Giant Hogweed flowers once in its lifetime, unless the flower clusters are damaged before opening. Once the plant produces seeds it dies.

Mode of Reproduction:

Reproduces by seed only. Seed production varies from 5,000 to 100,000 per plant with an average seed production of 20,000 per plant.

Dispersal:

Seeds dropped in streams can float for three days. They can move long distances via water in ditches and streams. Seeds can also be spread up to 10 m by the wind.

Seed Bank:

Seeds may take several years to germinate and are viable in the soil for up to 15 years.

MANAGEMENT

Summary:

Optimal time to remove the plant is in late April or early May. It is usually less than 30 cm tall, easier to dig up, and more susceptible to herbicides.

Mechanical:

Digging is most effective on small infestations that have immature (1-2 years post germination) plants. Digging is not recommended for mature plants because the taproot can exceed 1 m in depth. If the tap root is not removed in its entirety, it is possible the plant will re-grow. Annually remove the first 8-12 cm of the central root. Mowing is also an effective method for reducing seed production in small infestations.

Toxic:

The clear watery sap of Giant Hogweed contains toxins that can cause severe dermatitis. You can get severe burns if you get the sap on your skin and the skin is then exposed to sunlight. Symptoms occur within 48 hours and consist of painful blisters. Purplish scars may form that last for many years. Eye contact with the sap has been reported to cause temporary or permanent blindness.

Similar Species:

Giant Hogweed has a similar appearance to another toxic plant, Cow Parsnip as well as Poison Hemlock. The large size of Giant Hogweed is a clear distinguishing characteristic. from the other species.

Field ID Notes

Robert Vidéki, Doronicum Kft., Bugwood.org

James Atland, Oregon State University

Jan Samanek, Phytosanitary Administration,

Ansel Oommen, Bugwood.org

Poison Hemlock (*Conium maculatum*)

Prevention Watchlist

IDENTIFICATION

Flower:

Small with 5 white petals, numerous compound flat-topped umbels at the ends of stems. Sepals are obsolete.

Seeds / Fruit:

2-seeded, dark brown, almost round, 2.5-3 mm long; slightly flattened, ribs slender, light brown.

Leaves:

Leaves are fern-like, opposite, and glabrous with prominent veins on the undersides. Whole upper leaves are sessile, and lower leaf blades are 15-30 cm long and petioled. All leaves have a strong mouse-urine smell when crushed.

Stems:

Stems are 0.5-3 m high, stout, erect, branched, and glabrous. Stems are hollow, except at the nodes, have longitudinal lines, and purple markings.

Roots:

Long, fleshy, white taproot that has a main stem that is sometimes branched. The root has characteristic light red spots and a disagreeable smell.

Growth Form:

Biennial (sometimes perennial in favorable locations.)

HABITAT & ECOLOGY

Environment:

Poison hemlock is common on shady or moist ground and prefers high-nitrogen soils. It commonly occurs in sizable dense stands of dense along roadsides, hiking trails, field margins, ditches, and in low-lying waste areas. It has also been reported to invade riparian woodlands and open flood plains.

Life Cycle:

Flowering typically occurs from April to early July, peaking in some places in May. Seeds ripen by mid to late summer, after which the plant dies.

Mode of Reproduction:

Seed production may range from around 1,500 to 39,000 seeds per plant, about 80% of which are viable.

Dispersal:

Seeds are moved by water or wind, with most seeds falling close to the parent plant.

Seed Bank:

Seeds can persist in the soil for up to six years.

Toxicity:

All parts of Poison hemlock are extremely toxic to humans and livestock when ingested, and can sometimes be deadly. This toxin impacts the nervous system causing trembling, salivation, lack of coordination, dilated pupils, weak pulse, respiratory paralysis, coma and death. Extra care should be taken to wear protective clothing and eyewear before working with or exposure to poison hemlock. Dead plants including leaves, roots and stems can remain highly toxic for years.

MANAGEMENT

Summary:

Complete eradication of Poison hemlock is difficult. Management efforts may need to be continued for several years to be effective. Always use personal protective equipment when treating the plant.

Mechanical:

Care should be taken in handling this plant. If any body part comes into contact with the plant, make sure to wash thoroughly. Hand pulling or digging are effective methods of control for small populations, especially when the soil is moist. Mowing close to the ground is another option of mechanical control if the blade is close to the ground. A dust mask should be worn for protection to avoid inhaling toxins while mowing . In both cases, efforts are most effective if completed before the plants flower, and multiple follow-up efforts should be taken. All parts of the plant should be removed where there is a risk of consumption by livestock, wildlife, or children.

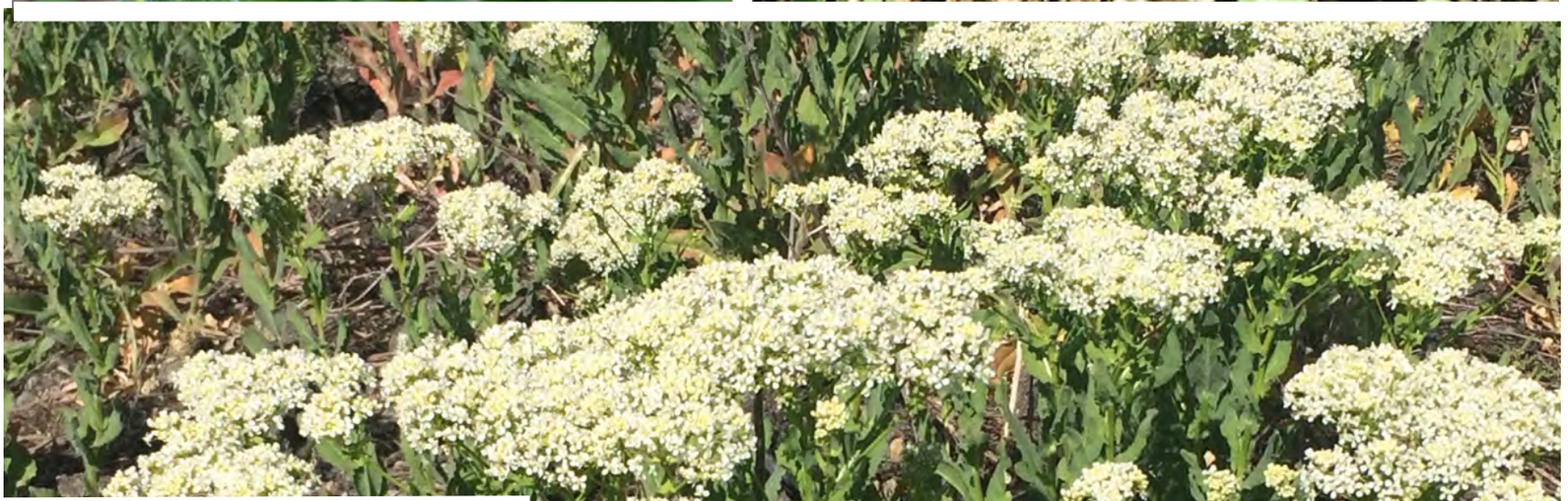
Similar Species:

Poison Hemlock is most commonly misidentified with Queen Anne's Lace. The key differences are; Queen Anne's Lace only grows to 2-3 feet, and has hairy stems and leaves whereas Poison Hemlock grows up to 3m in height and has smooth leaves.

Field ID Notes

Jessie Paloposki

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



Barb Stewart

Jessie Paloposki

Hoary Cress (*Cardaria draba*)

Eradication

IDENTIFICATION

Flower:

Numerous white flowers borne at the end of stems in flat topped clusters. Flowers are about 3 - 6 mm wide, and have four petals.

Seeds / Fruit:

Seed pods are hairless, inflated and generally rounded to heart-shaped. Seeds are dark brown and 2 mm long.

Leaves:

Leaves are alternately arranged on the stem, blue-green and arrow-shaped. Lower leaves are stalked and hairy, while upper leaves clasp the stem and are hairless. Leaf margins are irregularly toothed to smooth.

Stems:

Covered with soft, white hairs, growing up to 0.6 m tall.

Roots:

Rhizomatous, vigorous creeping root system. Root biomass comprises of 75% of the plant.

Growth Form:

Long-lived perennial.

HABITAT & ECOLOGY

Environment:

Hoary Cress invades hay fields, range land meadows and along roadsides. It can be found on open, unshaded areas at low- to mid-elevations on the coast, and interior grassland and forest regions

Life Cycle:

Flowering period is from May to July, with mature seeds produced 1 month later. Branching patterns start with development of the first roots from the radicle in the initial 2-3 weeks of growth; lateral roots grow outwards and downwards to become vertical roots. Secondary lateral roots and shoot buds usually develop just below where the lateral roots turn downwards. Buds at or below the soil surface may become subterranean roots that are able to produce shoot buds later, whereas buds higher up the plant become rosettes. New crowns form rapidly from adventitious buds on upper roots if the crown is damaged.

Mode of Reproduction:

Reproduces by seed and sprouting from lateral roots. Each plant can produce 1200 - 4800 seeds.

Dispersal:

Seeds can be spread by animals, vehicles and water. One plant can spread up to 3.5 m square in one year with no competition nearby.

Seed Bank:

Seeds remain viable for up to 3 years.

MANAGEMENT

Summary:

Hoary Cress requires disturbance to establish and is often spread in contaminated hay. Once established, infestations will require a variety of control methods repeated through the season for a number of years. The plant is unpalatable to cattle (those that do eat it may have tainted milk), but sheep and goats will graze on the plant. Hoary Cress contains glucosinolates, which can form toxic compounds in cattle.

Mechanical:

Tillage can be very effective but must begin early in the season and be repeated every 10 days. Repeated mowing will prevent seed production and limit spread, but plants will re-sprout. By repeatedly removing the stems, energy in the roots will eventually be exhausted.

Similar Species:

Hoary Cress and Perennial Pepperweed can commonly be confused with one another. The key distinguishing feature is; Hoary Cress leaves clasp the stem and Perennial Pepperweed leaves have a short stalk attaching the leaves to the stem.

Field ID Notes

Jessie Paloposki

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

King County Weeds

Serena MacKay

Perennial Pepperweed (*Lepidium latifolium*)

Provincial EDRR

IDENTIFICATION

Flower:

Flowers are white, have four petals, and occur in dense clusters of 6 - 8 tiny blossoms near the ends of stems.

Seeds / Fruit:

Rounded to egg-shaped compressed seed pods form that are 2 -4 mm long. Reddish-brown, slightly hairy.

Leaves:

Stem leaves attach directly to the base of the plant and become smaller toward the top of the stem. Leaves are alternate, waxy, and have smooth or toothed margins. Green to grayish with a prominent whitish midvein.

Stem description:

Stems range from 60-120 cm tall. Mature plants have numerous erect, semi-woody stems.

Roots:

Extensively creeping/interconnected root system up to 4 m deep.

Growth Form:

Perennial.

HABITAT & ECOLOGY

Environment:

Invades irrigated pastures, grasslands, rangelands and native meadows, with large infestations that can eliminate competing vegetation and damage riverbank habitats. A few Perennial pepperweed sites are currently only found in the northern region of the RDEK.

Life Cycle:

In early spring, new shoots emerge from root buds forming low-growing rosettes. Plants remain in the rosette stage for several weeks before developing a flowering stem. Flowering typically begins in late spring with mature seeds produced by mid-summer. After seed production, flowering shoots die back, although rosettes can emerge again in the fall and persist through winter in frost-free areas.

Mode of Reproduction:

Reproduces by seed, rhizomes and root fragments. It produces abundant seeds with a high germination rate. Large populations more commonly expand by creeping rhizomes, which may advance 1-2 m from the parent plant.

Dispersal:

One plant can spread over 6 billion seeds per acre, dropping from the plant or traveling short distances by wind and water.

Seed Bank:

High germination rate however, seeds do not appear to remain viable in the soil for extended periods.

MANAGEMENT

Summary:

Established populations are difficult to control and require multiple years of intensive management. Suppressing the root system is critical for successful control.

Mechanical:

Digging, mowing and tilling can encourage new plants to sprout from the root crown and creeping roots. Seedlings can be hand-pulled or tilled, make sure you are removing large portions of the root system as well.

Cultural/Preventative:

Establishing and maintaining competitive vegetation can dramatically slow the introduction and spread of Perennial Pepperweed. Vigorous sod-forming grasses, alfalfa, or cropping systems with annual tillage help prevent introduction and establishment in agricultural areas.

Similar Species:

Perennial Pepperweed and Hoary Cress can commonly be confused with one another. The key distinguishing feature is; Hoary Cress leaves clasp the stem and Perennial Pepperweed leaves have a short stalk attaching the leaves to the stem.

Field ID Notes

Danny Smart

. Dziuk

Peter Dziuk, Minnesota Department of Agriculture, Bugwood.org

Katy Chayka, www.minnesotawildflowers.info, Bugwood.org

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

Hoary Alyssum (*Berteroa incana*)

Eradication

IDENTIFICATION

Flower:

Small (5-8 mm in length), white flowers with deeply notched petals that are carried on slender stalks. Sepals are hairy and transient.

Seeds / Fruit:

Flattened oval seed pods are chambered, 5-6 mm in length, held close to the stem, and have star-shaped hairs. Each chamber contains 5-7 black seeds. Seeds are 2-3 mm in length and aligned in rows in chambers. Styles remain, leaving a prominent point at the tip.

Leaves:

Upper leaves are elliptical, face upward, generally lack stalks, and clasp the stem. Lower leaves have slender stalks and are 3-5 cm in length. All leaves are gray and have star-shaped hairs that are rough to touch.

Stems:

Multiple or single (annual) erect, thin stems arise from the base of the plant and branch near the top. Stems are covered in whitish, star-shaped hairs and range from 0.3 to 1.1 m in height. Plants may be fully branched and rounded under certain soil, nutrient, and moisture conditions.

Roots:

Slender taproot capable of deep soil penetration.

Growth Form:

Annual, biennial, or short-lived perennial.

HABITAT & ECOLOGY

Environment:

Hoary Alyssum thrives on dry and disturbed ground on coarse limestone and calcareous substrata with poor fertility. It is commonly found growing along roads, and trails, gravelly streams and lake banks, in lawns, farmyards, and vacant lots.,as well as in pastures and hayfields.

Life Cycle:

Seeds can germinate from early spring to late fall. Seedlings establishing in early July or sooner can flower and produce seed by early fall, thus reproducing as annuals. Seedlings establishing in late July or later will remain as rosettes and produce flowers and seeds the following year, reproducing as winter annuals or biennials.

Mode of Reproduction:

Reproduces only by seed. Plants produce an average of 5000 seeds.

Dispersal:

Seeds disperse through valves in the seed pod. Most seeds fall near parent plants, however, the winged margin and light-weight seed enable wind and water dispersal.

Seed Bank:

On average, 50% of seeds are viable and remain so for about 9 years.

MANAGEMENT

Summary:

Hoary Alyssum germinates and establishes throughout the growing season therefore repeated applications are required.

Mechanical:

Mowing will reduce seed production, but cut plants will regenerate low to the ground below mower height. Mowing several times during the season, beginning before seed set and reducing mower height with each cutting, will improve effectiveness. Small populations can be effectively controlled by repeated hand pulling or hoeing if done before seed set, the root crown is removed, and exposed soil is seeded with an appropriate seed mixture to establish competition.

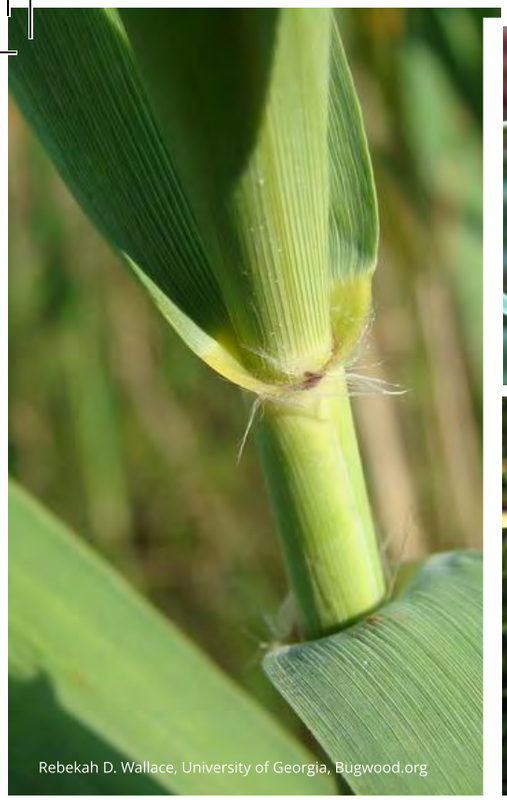
Cultural:

Sustainable suppression of Hoary Alyssum populations is more likely with desirable plants that will compete for light, water, and nutrients. Competing vegetation can greatly reduce seed production.

Toxicity:

Hoary Alyssum is toxic to horses, and can cause fever, edema, and laminitis. Sensitivity varies when small or single doses are ingested, and death has only been reported in horses that have consumed hay infested with a large proportion (30-70%) of Hoary Alyssum.

Field ID Notes



Rebekah D. Wallace, University of Georgia, Bugwood.org

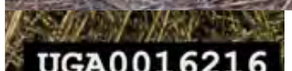
Ohio State Weed Lab , The Ohio State University, Bugwood.org

Caleb Slemmons, National Ecological Observatory Network, Bugwood.org

Bruce Ackley, The Ohio State University, Bugwood.org

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

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



European Common Reed (*Phragmites australis* subsp. *australis*)

Prevention Watchlist

IDENTIFICATION

Flower:

Large feathery panicle, 15-35 cm long, often purplish, but later straw-coloured; spikelets generally 3- to 6-flowered, 10-15 mm long; lower glumes 4-6 mm long, the upper ones about 6-9 mm long; lower lemmas hairy, unawned, 9-12 mm long; anthers about 2 mm long.

Leaves:

Blueish-green leaves. Leaf sheaths are difficult to remove.

Stem description:

Stems are generally tan or beige in colour; rough and dull with a rigid texture.

Roots:

Woody taproot that can penetrate the soil to 4 m deep. The taproot has sufficient reserves to survive two years of adverse growing conditions.

Growth Form:

Perennial grass.

HABITAT & ECOLOGY

Environment:

Prefers areas of standing water, but the roots can grow to extreme lengths allowing the plant to survive in low water areas.

Life Cycle:

In general, growth follows these timelines: Dormant November–March; Germination: April–May; Primary vegetative growth: June–July; Flowering: August–September; Translocation of nutrients: September–October

Mode of Reproduction:

Reproduces by seeds, roots, rhizomes, or by stolon fragments. Phragmites rhizomes can grow horizontally several metres per year and this is the most common method of reproduction. Vertical plant growth can reach 4 cm per day and plants can produce thousands of seeds annually.

Dispersal:

Dispersal can be natural through water, air, or animal movement, as well as through human actions. Phragmites is currently sold through the horticultural trade as an ornamental plant.

MANAGEMENT

Summary:

Due to the extensive underground root system, single control measure is not always effective, and disturbance to an area may increase the density and distribution. Controlling Phragmites before it becomes well-established will reduce the environmental impacts, time, and costs.

Mechanical:

Mowing or hand-cutting stems and seed heads will not affect the root system. If used as a standalone control method, can stimulate growth.

Compressing or rolling dead stalks using a roller acts in a similar manner to mowing or cutting. Compressing compacts the dead biomass, allows for a more effective and efficient prescribed burn to follow, and makes plants easier to see and spot treat new growth.

Prescribed burns can remove biomass that prevents establishment of native vegetation and to provide a source of material for vegetative reproduction.

Tarping, flooding and hand-pulling are not generally recommended.

Distribution:

Currently this species is not in the RDEK, however it is provincial EDRR species and is found on Vancouver Island, Metro Vancouver, Okanagan, Thompson-Nicola, and Central Kootenay regions with extremely limited distributions.

Invasive Phragmites is a subspecies known as *Phragmites australis* subsp. *australis*, and is closely related to the native subspecies *americanus*.

	Native *Phragmites*	Invasive *Phragmites*
Stand height	No taller than 2 metres	Up to 5 metres (15 feet)
Stand density	Sparse, interspersed with native vegetation	Dense monoculture, up to 100% invasive *Phragmites*
Stem colour	Reddish-brown	Beige, tan
Stem texture	Smooth and shiny	Rough and dull
Stem flexibility	High flexibility	Rigid
Leaf colour	Yellow-green	Blue-green
Leaf sheaths	Fall off in fall, easily removed	Remain attached, difficult to remove
Lower glume	3.7–7 mm	2.6–4.2 mm
Flower timing	Early (July–August)	Intermediate (August-September)
Seedhead density	Sparse, small	Dense, large

Ontario Ministry of Natural Resources, Invasive Phragmites – Best Management Practices, Ontario Ministry of Natural Resources, Peterborough, Ontario. Version 2011. 15p

Jessie Paloposki

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

Jessie Paloposki

Jessie Paloposki

Japanese Knotweed (*Polygonum cuspidatum*)

Regional EDRR

IDENTIFICATION

Flower:

Small, white/ green flowers that grow in showy, plumelike, branched clusters along the stem and leaf axils.

Seeds / Fruit:

Seeds are usually dark, glossy, 3 mm long and enclosed in a papery capsule.

Leaves:

Leaves are 5 to 30 cm long, alternate, leathery, and oval. The leaf tip ranges from being blunt to a tapered point. The base is slightly indented to deeply heart-shaped. Leaf midveins are hairy.

Stems:

Bamboo-like, hollow, upright, 2 m to 5 m tall, few to several branches, with purple/brown spots. Stems arise from the large bulbous rhizome and grow in large, dense thickets. Stems die back each fall and may persist through the winter as bare, grey or straw colored hollow stalks.

Roots:

Deep roots extend to a depth of 2 m, and 7 m away from the crown. The root of the plant is significantly more than what is seen above ground.

Rhizomes:

At maturity, rhizomes are thick and woody, and can spread up to 20 m laterally. Rhizomes have reduced leaf scales that span every 2-4 cm, and underside, adventitious roots that travel with penetrable force into soil.

Growth Form:

Perennial shrub.

HABITAT & ECOLOGY

Environment:

An escaped ornamental, Knotweed is often found in waste places, gardens/yards, roadsides, composts, streambanks and riverbanks.

Life Cycle:

Seedlings generally emerge in the spring and grow rapidly. It flowers from August to September and seeds are produced about two weeks later. Stems die back after a hard frost and emerge the following spring from the extensive root system of the plant.

Mode of Reproduction:

Reproduces through seed and vegetatively. Rhizome fragments weighing as little as 0.7 g and are capable of regenerating into a new plant. A conservative estimate that a 1 m^2 stand can produce 238 new shoots.

Dispersal:

Dispersal is generally through tiny pieces of rhizome, stems and internodal sections of the stem. Flooding events can facilitate the spread Knotweed, as whole plants and/or stem parts can be dislodged and transported to new areas downstream, where they can establish easily.

Seed Bank:

Japanese Knotweed is a dioecious plant, meaning there are male and female plants which require pollination to produce viable seeds. Much Knotweed present in North America is presumed to be a male-sterile clone (does not produce pollen) which reproduces and spreads mostly through rhizome; however, seeds can germinate if pollinated by related Knotweed species.

MANAGEMENT

Summary:

Established infestations should be managed by first focusing efforts on preventing spread. Remove isolated plants and small populations outside the main infested area. Many established stands require 5-10 years of active control to achieve eradication.

Mechanical:

In general, mechanical control on its own is not an effective management tool due to the massive root structure and ability to reproduce from small root and stem fragments. Manual control is only recommended under specific circumstances, for small, newly established sites and should be carried out with extreme caution due to the likelihood of spread. Dispose all removed plant material properly.

Similar Species:

Japanese Knotweed can often be misidentified as Bamboo because of the similar shoots. However Bamboo leaves are linear to lance-shaped whereas Japanese Knotweed leaves are oval/oblong.

Field ID Notes

Dr. J. Mangold, Montana State University

Matt Lavin, Flickr

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

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

Steve Dewey, Utah State University, Bugwood.org

Medusahead
(*Taeniatherum caput-medusae*)

Prevention Watchlist

IDENTIFICATION

Flower:

Spike, awns are 2-7cm long, stiff, and finely barbed, straight when green but twist after drying. Mature plants can be confused with native Foxtail Barley, but the seeds do not break apart in the same way.

Florets/Seed:

Seed twists as fruit matures.

Leaves:

Produces tillers but very few leaves, narrow, sometimes hairy. Blades are 0.7-2.5mm wide, flat to rolled. Auricles are usually present, 0.1-0.5 mm long

Stem description:

Hairy stem growing 20-60 cm tall.

Roots:

Fibrous and finely divided.

Growth Form:

Annual or winter annual.

HABITAT & ECOLOGY

Environment:

Medusahead is adapted to a variety of climatic conditions. It is most problematic on soils with a high clay content and shrink-swell potential, but is also capable of invading loamy soils ; it is unlikely to occur on sandy, well-drained substrates.

Distribution:

Medusahead is not currently found in Canada, yet is a species of interest due to its distribution across the USA, including the neighbouring states Washington , Montana, and Idaho.

Life Cycle:

The self-pollinating plant flowers in late spring and early summer. Germination typically occurs with autumn precipitation and in milder climates continues through the winter and spring. In colder environments, a second flush of germination occurs in the spring following snow melt.

Mode of Reproduction:

Primarily by seed.

Dispersal:

New sites can occur through human distribution of contaminated soil. Infestations in forage crops have led to seed dispersal in baled hay.

Seed Bank:

A single plant can produce up to 1,000 seeds. Under ideal conditions a stand of Medusahead can produce well over 10,000 seeds per sq. m. The plant has a high germination rate but low viability after one year.

MANAGEMENT

Summary:

Medusahead is very persistent once established. Effective control must eliminate live plants, prevent seed formation, and control seed germination & emerging seedlings.

Mechanical:

When new infestations are identified, pulling or hoeing should be done as soon as possible. If seeds may be viable, plants should be bagged, removed from the site and disposed of properly.

Although Medusahead recovers well after fire, under certain conditions, prescribed burning can be an effective tool.

Mowing is most effective if used in the late spring after desirable species have set seed and before Medusahead has produced viable seed.

Cultivation:

Proper grazing management is important for maintaining community biotic resistance. Heavy spring grazing in low-elevation range land can reduce seed production of more desirable annual grasses and should, therefore, be avoided just before or while more desirable species are flowering

Field ID Notes

Glossary

Achenes: One-seeded, dry fruit that remains closed when ripe.

Adventitious buds: A bud emerging from an area it does not usually arise from such as leaves or shoots.

Alternate Leaves: Leaves are not directly on opposite sides of the stem. They are staggered slightly.

Annual: Plants that perform their entire life cycle from seed to flower to seed within a single growing season. All roots, stems and leaves of the plant die annually. Only the dormant seed bridges the gap between one generation and the next.

Anther: The top of the stamen, which produces the pollen.

Auricle: Ear-like projection from the base of a leaf or petal.

Awn: A stiff bristle, usually situated at the tip of a leaf, or in grasses, at the tip of a glume or lemma.

Axils: Upper angle between stem and leaf.

Biennial: Plants which require two years to complete their life cycle. First season growth results in a small rosette of leaves near the soil surface. During the second season's growth stem elongation, flowering and seed formation occur followed by the entire plant's death.

Bracts: Specialized/modified leaf like part, located below a flower or on the stalk of a cluster of flowers.

Bud: An undeveloped leaf or flower of a plant.

Corolla: The inner envelope of floral leaves of a flower, usually of delicate texture and of some color other than green; the petals considered collectively.

Cotyledons: First leaf/embryonic leaf in seed bearing, germinating plants.

Dioecious plant: Reproductive systems of male and female plants occur on separate plants.

Elliptic: Ellipse shaped leaf that is widest in the middle.

Glabrous: Smooth, without hairs.

Glumes: Found in grasses and is the bract below a spikelet in the flower cluster (inflorescence).

Hypanthium: A cup-like or tubular enlargement of the receptacle of a flower, loosely surrounding the inner-most whorl of the flower or united with it.

Inflorescence: The discrete flowering portion or portions of a plant; a flower cluster.

I**ncised leaves:** Irregular and sharply cut margins of a leaf.

Lanceolate: Lance-shaped, broadest below the middle, long-tapering above the middle, several times longer than wide.

Leaflet: Leaf-like part of a compound leaf, borne on a petiole or branch of a leaf rather than the stem.

Lemma: Lower bract (of 2) that encloses the flower of a grass species.

Oblanceolate: Lanceolate leaves with the more pointed end at the base.

Opposite Leaves: Leaves are directly on opposite sides of the stem.

Panicles: Branched cluster of flowers.

Pappus: Tufts of hair found on the achene primarily in the sunflower family.

Pedicellate: A flower which has a stalk; without a stalk it it sessile.

Perennials: Plants that persist for many growing seasons. Generally the top portion of the plant dies back each winter and regrows the following spring from the same root system.

Petiolate: A leaft stem which attaches to the stalk.

Pinnately compound: A leaf that has numerous small leaflets.

Pinnately lobed: Leaves have the lobes arranged on either side of a central axis like a feather.

Prostrate: Branches lying upon or just above the ground, rather than being held erect.

Raceme: A simple inflorescence in which the flowers are pedicellate and arranged singly along an elongate axis.

Radicle: The first part of a seedling (a growing plant embryo) to emerge from the seed during the process of germination.

Rhizome: A root-like stem that grows horizontally underground and produces new leaves and shoots.

Rosette: The beginning formation of a plant after the seedling stage. It is a grouping of basal leaves.

Sepal: One of the outer ring of modifies leaves of a flower, usually green.

Sessile: Without a stalk.

Spur: A hollow sac-like or tubular appendage on a petal or sepal.

Stipules: A small leaf-like appendage to a leaf, typically borne in pairs at the base of the leaf stalk.

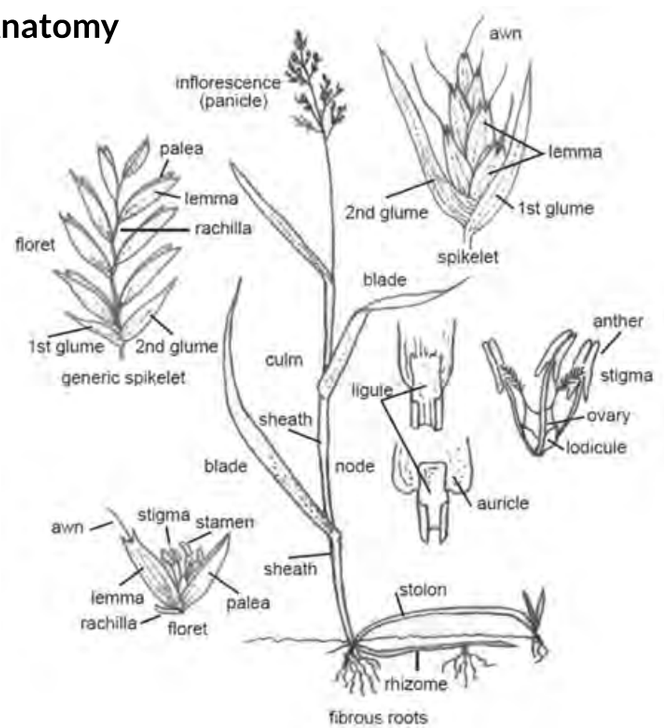
Stolon: A modified stem growing along the ground that develops new plants. An example is strawberry plants.

Tendril: A slender, coiling organ used for support by a climbing plant, and extension of the midrib of the leaves of vetches.

Umbel: An umbrella-shaped, often flat-topped inflorescence with flower stalks arising from a common point.

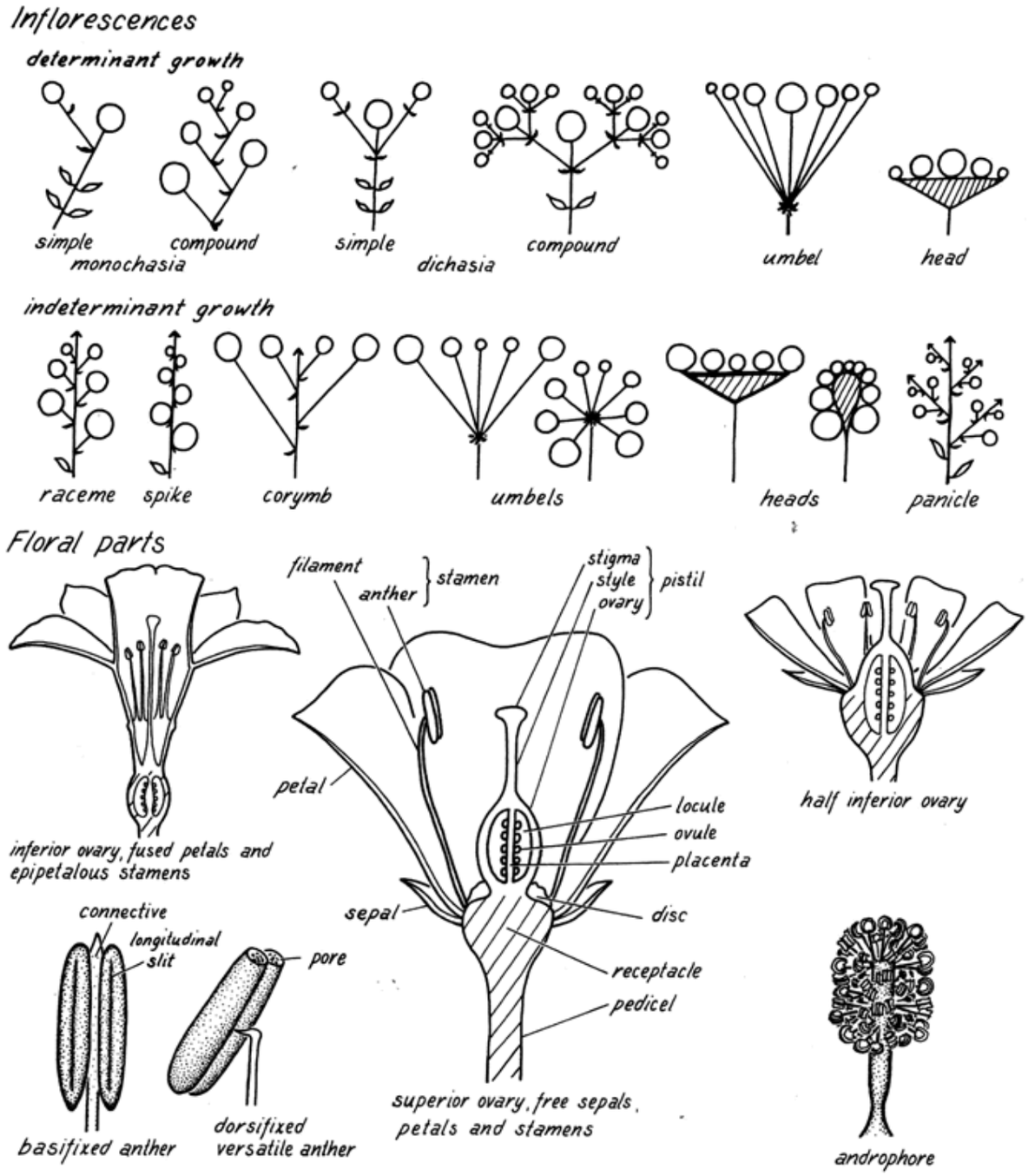
Whorled: Structures arranged in a ring of 3 or more around an axis.

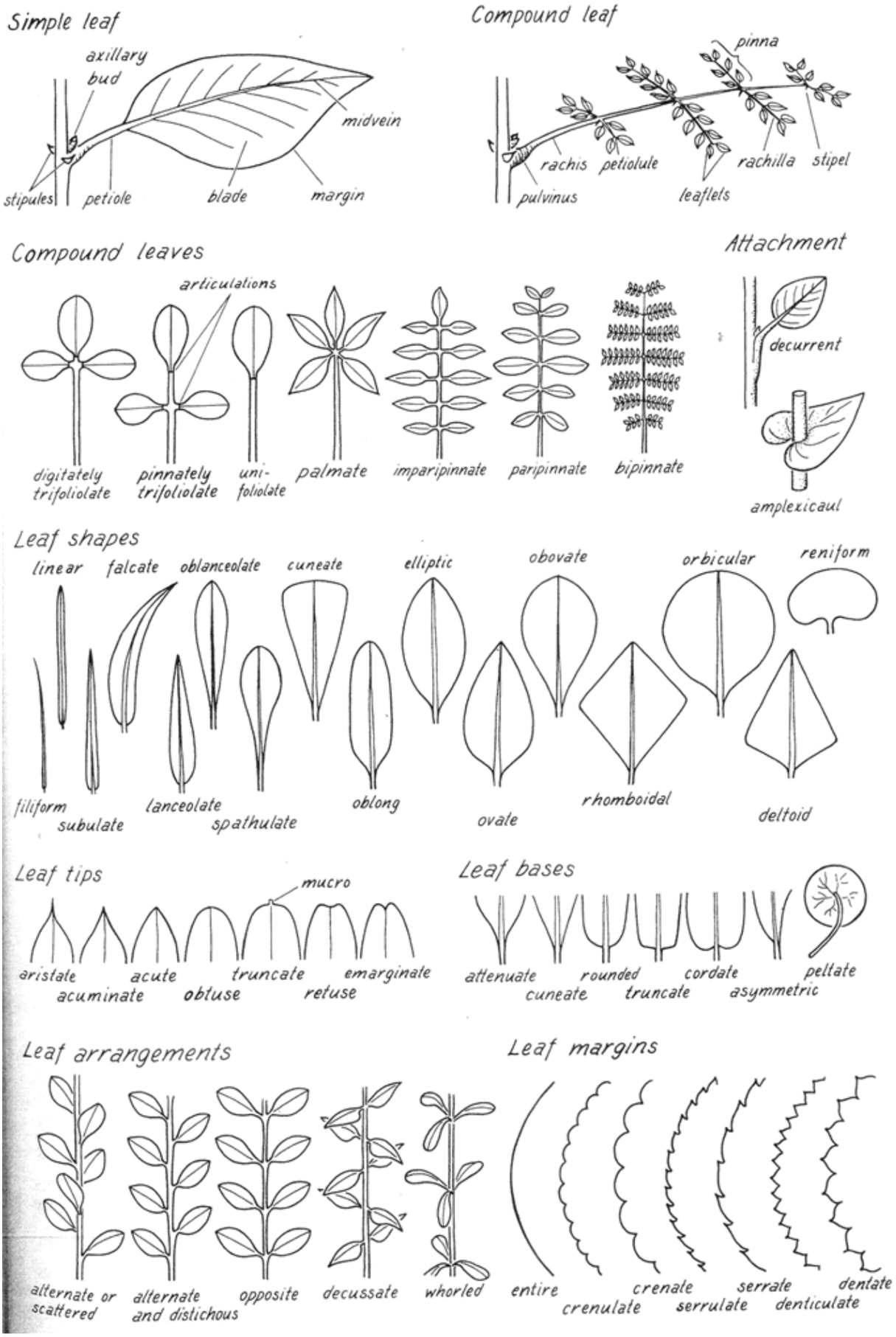
Illustration of Grass Anatomy



Dr. Lauchlan Fraser, Thompson Rivers University

Illustrated Glossary of Plant Anatomy





Short, Philip S, Cowie, I. D and Northern Territory. Dept. of Natural Resources, Environment, the Arts and SportFlora of the Darwin region.. Vol. 2. Dept. of Natural Resources, Environment, the Arts and Sport, Palmerston, N.T, 2010.

Why should you care about invasive weeds?

Facts about Grasslands:

- Grasslands comprise less than 1% of BC's land base, and are home to more than one-third of BC's endangered and at-risk species.
- Over 60% of species that breed in the province can be found right here in the East Kootenay Rocky Mountain Trench. This region has the largest population of elk, mule deer and white-tailed deer in BC. In addition, over 70% of the birds found in BC habitate in the East Kootenay grasslands.
- Of all of BC's grasslands, those in the East Kootenays are under the most serious pressure: human settlement and development, disruption of the natural fire cycle/forest ingrowth and invasive species.

Because Invasive plants:

- Replace wildlife forage impacting hunting opportunities.
- Reduce cattle forage impacting rancher economics.
- Reduce the grandeur of our grasslands, the entire Rocky Mountain Trench and the place we call home.

For more information on how to help protect the East Kootenay from invasive weeds, visit our website at www.ekisc.com

EKISC | EAST KOOTENAY INVASIVE SPECIES COUNCIL

EAST KOOTENAY
INVASIVE SPECIES
COUNCIL

@EK_Invasives

@EastKootenayInvasives

@EastKootenayInvasives

info@ekisc.com

1902 Theatre Rd
Cranbrook, BC
V1C 7G1
250-919-7826
www.ekisc.com