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Last Updated January 2014

Scentless Chamomile

Tripleurospermum perforatum syn. T. inodorum

Provincial Designation: Noxious

Overview:

Scentless Chamomile can behave as an annual, biennial, or sometimes a perennial, but reproduces by seed only. Plants are usually very bushy and have a fibrous root system. It continually blooms, forms seed, and seeds germinate throughout the growing season: fall seedlings overwinter and are usually first to flower in spring. Native to Europe, it was introduced as an ornamental and/or a contaminant in crop seed. This is not the chamomile used for tea as it is scent-less. A single, robust plant can occupy one full square metre and produce up to one million seeds. Scentless Chamomile and Oxeye daisy are often mistaken for each other as the flowers are nearly identical, but the leaves are very different. Both plants are weeds - there are no native white-flowered daisies in Alberta. It can also be confused with stinking mayweed or pineapple weed, but the foliage of these two plants has an odour.

Habitat:

Scentless chamomile is well adapted to heavy clay soils and tolerates both periodic flooding and dry sites. It is a poor competitor but establishes quickly on disturbed sites. The seeds float on water and are widely dispersed this way.

Identification:

Stems: Stems are erect to semi-erect, highly branched, may be reddish in color, and can grow up to 1 m tall. There can be a few to many stems per plant.

Leaves: Leaves are alternate and very finely divided into short segments (carrot-like) and odorless when crushed. Basal leaves disappear by flowering time.

Flowers: Flowers are composed of a yellow central disk surrounded by white petals. The flowers are borne singly at the end of stems and have numerous bracts, arranged in overlapping rows.

Seeds: Seeds are tiny (about 2 mm), ribbed and dark brown. Seeds develop and become viable quickly.

Prevention:

Scentless Chamomile does not compete well with vigorous, healthy plant communities. Dispersal by weed seed contamination in crop/grass seed and livestock forage is common. It can be very difficult to eradicate in crop situations.

Control:

Grazing: Scentless chamomile is generally unpalatable to grazers and its seeds can survive digestion. Invasive plants should never be considered as forage.

Cultivation: Late fall and early spring tillage will control rosettes. Frequent, shallow tillage can help exhaust the seed bank by repeatedly destroying germinating seedlings. Equipment must be cleaned after.

Mechanical: Mowing can prevent seed production but plants will re-bloom below the cutting height. Hand-pulling can prevent spread into new areas and is effective on small infestations. Pulled plants should be burned or bagged and sent to the landfill. Burning infestations that have finished blooming can prevent seed spread.

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Scentless Chamomile (Continued)

Chemical: Aminopyralid (alone or in a product mix with 2,4-D or Metsulfuron-methyl), Chlorsulfuron, Clopyralid (alone or in a product mix with MCPA), Dicamba, Glufosinate ammonium, Hexazinone, Picloram, MCPA (in a product mix with Bromoxynil), Metsulfuron-methyl and Tribenuron-methyl (in a product mix with Thifensulfuron-methyl) are registered for use on scentless chamomile. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: A seed-head feeding weevil, *Omphalapion hookeri*, and a gall midge, *Rhopalomyia tripleurospermi*, have been released in Alberta.

Seedling

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Yellow Toadflax

Linaria vulgaris (Aka Common toadflax, Butter-and-Eggs, Spurred Snapdragon)

Provincial Designation: Noxious

Overview:

Brought from Europe over 100 years ago as an ornamental plant, Common toadflax has escaped and has now become a serious problem to rangeland and mountain meadows all over North America. This perennial plant makes seed, but reproduction is primarily by sprouting from its extensive, creeping root system (rhizomes) – 2-3 week old seedlings can produce creeping roots. The ability of this plant to form large colonies allows it to crowd out other vegetation.

Common toadflax is easily confused with Leafy spurge before flowering, but toadflax stems do not contain the milky latex that spurge does.

Habitat:

Native to nearly all parts of Europe and Asia, toadflax prefers sandy-gravelly soils, but is adapted to a wide range of growing conditions.

Identification:

Stems: Stems are erect, hairless, generally un-branched and can be as short as 15cm or grow to 1 m tall. Mature plants may have 1 to 25 stems.

Leaves: Leaves are soft, lance-shaped, pale green, and very numerous. Leaves are mainly alternate but may appear opposite on the lower stem due to crowding. Leaves can be up to 10 cm long and are attached directly to the stem. The most distinctive difference between Yellow and Dalmatian toadflax is that Dalmatian toadflax has broad, heart-shaped leaves that clasp a woody stem; whereas, yellow toadflax has narrow, linear leaves with a narrow stem[1].

Flowers: Flowers are bright yellow, arranged alternately in dense spikes at the ends of stems and have a long spur extending from the base that is usually as long as the flower itself – in all, 2 to 3.5 cm long. The snapdragon-like flowers can have orange colouring on the throat. They flower at different times depending on site conditions. In high elevations they could flower as late as July. Flowers are identical to Dalmatian toadflax, but leaf shape differs between the two plants.

Seeds: The seeds are winged, disk-shaped, and dark brown to black. Despite its prolific seed production (5000 seeds/stem) and long viability (up to 10 years), germination rates are often very low – less than 10%.

Prevention:

Spurred snapdragon, another common name for this plant, often appears in wildflower seed mixes. Do not purchase seed mixes unless all contents are listed.

Control:

Once present, it establishes dense patches that are extremely difficult to control, let alone eradicate. Multiple control methods and several years of commitment provide the best success.

Grazing: Pasture invasions flourish because the plant is not palatable to livestock.

Cultivation: Repeated cultivation can effectively destroy the root system. Equipment should be thoroughly cleaned after.

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Yellow Toadflax (Continued)

Mechanical: Thorough hand-pulling can be effective in soft soils where the roots can be removed easily. Repetition is required to deplete the seed bank and all root pieces. Mowing can assist by starving the roots.

Chemical: Acetic acid, Amitrole, Dichlorprop, Diuron, Glyphosate, Hexazinone, Imazapyr, MCPA, Metsulfuron-methyl, Picloram and Tribenuron-methyl & Thifensulfuron-methyl (in a product mix) are registered for use on toadflax. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: Several biological control agents have been imported to control Common toadflax. New Alberta research shows a stem mining weevil, Mecinus janthinus, successfully established and providing effective control.

REFERENCES

1 http://www.ag.ndsu.edu/pubs/plantsci/weeds/w1239.pdf

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Dames' Rocket

Hesperis matronalis (Aka Dames violet, sweet rocket)

Provincial Designation: Noxious

Alberta Sustainable Resource Development

Overview:

Dame's rocket is a biennial or short-lived perennial native to Europe & SW Asia. A member of the Mustard family, it is a prolific seed producer. The flowers are very fragrant - especially in the evening – and are insect pollinated. Introduced as an ornamental, it has spread throughout North America, except for the driest areas.

Dame's rocket produces a rosette in the first year of growth and then a flowering bolt in the second year. It blooms early summer; stems wither and die by late summer.

It is very similar to Garden phlox, which has 5 petals and opposite leaves, but Dame's rocket has 4 petals & alternate leaves.

Habitat:

Requires moderately moist soils and does best in the moist, humus rich soils of wooded areas. It is tolerant of partial shade, such as forest edges.

Identification:

Stems: Are erect, several per plant, and grow 0.5 to 1m tall, occasionally taller. The upper stems are often branched.

Leaves: Are alternate, lance shaped, and 1-4 cm wide and 4-15 cm long. They are dark green, hairy on both sides, and have serrated edges. Lower leaves have short petioles (stems). Basal leaves wither by flowering.

Flowers: Can be white, lavender-pink or purple and are 8-12 mm wide with four petals. Flowers are borne in loose clusters at tops of stems. Seed pods are long 0.5 to 1.5 cm long, constricted between seeds[1] and become papery as they mature. Seeds are black and 1-1.5 cm long.

Prevention:

Dame's rocket is often a contaminant of wildflower seed mixes – do not purchase seed mixes which do not list the Latin names of the contents. It requires disturbance to become established, but then can out compete native vegetation. Plants will re-bloom if deadheaded.

Control:

Grazing: Not known. Invasive plants should never be considered as forage.

Cultivation: Not a suitable control method.

Mechanical: Hand pulling is considered the most effective as the roots come out easily from moist soils, or can easily be dug out with a knife. Plant density may increase the year following control work due to disturbance, but repeated removal will exhaust the seed bank. Burning can also be effective.

Chemical: Currently no selective herbicides are registered for use on Dame's rocket. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: None researched to date.

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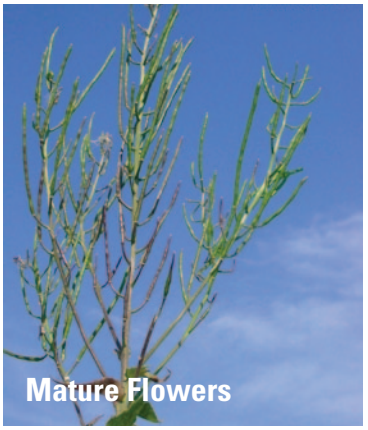
Dames' Rocket (Continued)

M. Frey, The Presidio Trust United States



Richard Old, XID Services inc.

REFERENCES

1 Flora of China. Hesperis matronalis wwweFloras.org

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Last Updated August 2024

Oxeye Daisy

Leucanthemum vulgare, Chrysanthemum leucanthemum

Provincial Designation: Noxious

Overview:

Native to southern Europe, Oxeye Daisy was first reported in Canada in 1862. Oxeye Daisy and the very similarly flowered Scentless Chamomile can be considered conspicuous, as there are no native white-flowered daisies in Alberta. Often perceived to be a 'pretty' wildflower, this non-native is an aggressive invader. Oxeye daisy is a perennial that spreads primarily by seed, but also by shallow, creeping roots (rhizomes). Individual flowers can produce over 500 seeds, but an individual plant can produce up to 26,000 seeds that are viable in the soil for 2-3 years or more.

The greatest impact of oxeye daisy is on forage production in pastures and meadows. Cattle avoid oxeye daisy and therefore any pasture infested with dense stands of oxeye daisy will decrease forage available for grazing. Dense stands of oxeye daisy can decrease plant diversity and increase the amount of bare soil in an area.

Habitat:

It grows in a wide variety of habitats, and flourishes in disturbed areas with nutrient poor soils. Tolerant of light frost and survives well under drought conditions.

Identification:

Stems: Grow up to 1m tall and are smooth, frequently grooved and sometimes branch near the top (although more frequently unbranched).

Leaves: Progressively decrease in size upward on the stem. Basal and lower leaves are lance-shaped with "toothed" margins and petioles that may be as long as the leaves. The upper leaves are alternately arranged, narrow and often clasp the stem with wavy margins.

Flowers: Are borne singly at the end of stems and can be up to 5 cm in diameter, with yellow centers, and 20 to 30 white petals radiating from the center. The petals are slightly notched at the tip.

Prevention:

The availability of closely related plants through the nursery and seed trade contradicts the perception of Oxeye Daisy as an invasive plant, and subsequent control. Shasta daisy is a cultivar (originated from) of Oxeye sold through nurseries and as seed in wildflower mixes. This fact makes public awareness critical to prevention and control. The two plants can cross breed, resulting in an invasive hybrid that is extremely difficult to distinguish from either parent. Invasive ornamentals can be very difficult to contain and should be avoided. Consumers should carefully read the contents of so-called 'wildflower' seed mixes and avoid those containing invasive ornamentals.

Control:

Grazing: Oxeye Daisy is avoided by cattle and therefore capable of dominating pastures and rangeland. Horses, sheep and goats, however, will readily graze oxeye daisy and can be used in companion grazing situations to control oxeye daisy. Switching to higher stock densities and shorter graz-ing periods does encourage cattle to eat and trample more of the plant. Intensive grazing and trampling slightly reduces the number of seeds produced, and presumably injures younger rootstalks. Trampling also brings dormant seeds to the surface and removes the canopy cover so those seeds will germinate with mid-summer rain showers. In normal years, those seedlings will dry-out and die before becoming established, further reducing the number of seeds in the seed bank. It should be noted, however, that inten-sive grazing in wet summers may increase the number
of successful seedlings. As many as 40% of the seeds consumed by cattle may remain

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Oxeye Daisy

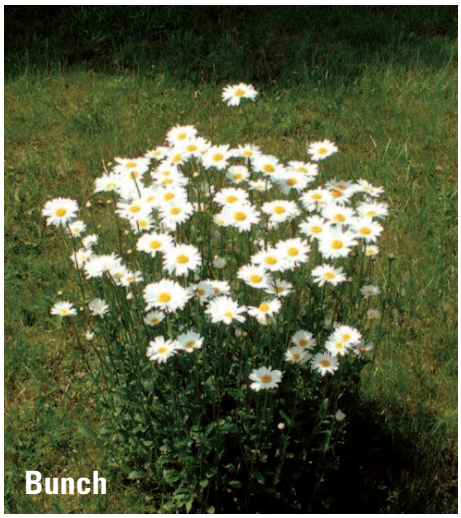
(Continued)

viable after passing through the digestive tract, so care should be taken to avoid spreading the seeds when moving stock.

Mechanical: Repeated mowing prevents seed production, but also can stimulate re-sprouting of stems. Hand-pulling or digging before seed production is effective, but it is important to remove as much of the fibrous roots and rhizomes as possible. Ground disturbance while digging should be kept to a minimum. Hand removal will have to be continued for several years because seeds may remain viable in the soil for a long time. Because of its shallow root system, oxeye daisy is easily killed by intensive cultivation.

Chemical: Aminopyralid alone or in a product mix with Metsulfuron-methyl or 2,4-D is registered for use on oxeye daisy. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: In 2008, a literature study was conducted to investigate European insect species that feed on oxeye daisy. Studies on ploidy analysis, to be conducted by CABI, and molecular analysis, to be conducted by USDA-ARS, are underway with field collected and commercially available Shasta daisy cultivars to determine the relationship with the target oxeye daisy and assist in host range understanding of potential biocontrol agents. An international consortium, including the Alberta Invasive Species Council, is funding research at CABI.


Bunch


Leaves


Stem

REFERENCES

1 https://www.agric.gov.ab.ca/app107/loadPest?action=display&id=41

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Last Updated July 2015

Himalayan Balsam

Impatiens glandulifera (Aka Poor Man's Orchid, Policeman's Helmet, Indian balsam, Ornamental jewelweed)

Alberta Regulation: Weed Control Act & Fisheries Act

Barbara_TokarskaGuzik_UofSilesia_Poland

JR_Crellin

Overview:

Himalayan balsam is a summer annual of riparian areas which reproduces by seed only. Native to the western Himalayas, it was introduced to Kew Gardens in the early 1800s. By the 1900s it was already common in south-west Germany and spreading via the Rhine River[3], and throughout Scandinavian countries by the mid-1900s. Today it is widely known as an invasive alien in temperate areas of Europe, Asia, North America and New Zealand.[3] In Alberta there are patches along water courses within the cites of Edmonton & Red Deer, and Parkland County.[1]

Seeds germinate in the spring to produce dense, even-aged stands which shade-out competing vegetation. It then exhibits an impressive growth rate for an annual with some plants growing to 3m tall. Himalayan balsam has a shallow, fibrous root system but adventitious roots from the lower stems provide some buttressing. However in winter, erosion can occur as a result of balsam's shallow rooting having replaced the deeper rooted native vegetation.

Plants flower from July until frost. Flowers are self-compatible but the anthers release their pollen before the stigma is receptive, therefore plant requires pollinators.[7] Himalayan balsam attracts pollinators away from native species with its high nectar content and extended flowering.[6] It is a late season nectar source for butterflies, bees and bumble bees.

Mature seed capsules explode when disturbed and eject the seeds, hence another common name of Touch-Me-Not plant. Medium sized plants produce on average 700-800 seeds which can be flung as much as 5 m from the parent plant. Seeds do not float but can be carried along in water currents and can germinate under water and when fully soaked – seed viability is about 2 years.

Habitat:

Himalayan balsam requires moist soils and some soil disturbance to establish (uprooted trees, flooding). It thrives best in nutrient rich soils of disturbed riparian habitats and wet woodlands. It is tolerant of partial shade and soil pH values of 3.5 to 7.7.[8] It is frost sensitive and intolerant of drought. In its native range it grows at elevations 1800-4000m^3 – its limiting factor at high elevations is the short growing season.

Identification:

Stems: Are smooth, hairless, and usually hollow, tinged red-purple and are easily broken. Stems grow 1 to 3m tall and there may be some branching.

Leaves: Are lance shaped or elliptic with pointed tips and rounded bases, and 6-15cm long. The leaves are stalked and have sharply serrated edges[5]. They occur opposite or in whorls of 3. Leaf size decreases with height on the stem.

Flowers: Are large – 2.5 to 4 cm long –in shades of pink through purple, occasionally white. Flowers occur 5-10 together in racemes on long stems borne in the upper leaf axils.[5] Flowers have 5 petals and are bilaterally symmetrical. The upper petal forms a hood over the reproductive structures (resembling a British policeman's helmet) and the lower petals form a platform for landing

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Himalayan Balsam (Continued)

insects.[7]

Seed capsules are 1.5-3.5 cm long and up to 1.5 cm wide and contain up to 16 seeds which are 4-7 mm long and 2-4 mm wide. Seeds require cold stratification before germination.

Prevention:

Initial spread is mainly from ornamental plantings – do not purchase or grow Himalayan balsam. Seed can be spread by movement of riparian soil and in the sediment from the bottoms of water courses of infested areas. Remedy soil disturbance in suitable habitats. Any control work on infested stands must be done before flowering.

Control:

Grazing: Sheep and cattle have been known to graze the plant in Britain without ill effects. Invasive plants should never be considered as forage.

Cultivation: Likely very effective but cultivation is not practical in riparian habitats.

Mechanical: Mowing can be very effective but may need to be repeated as cut plants can grow new flowering branches, and would be difficult in riparian areas. Himalayan balsam plants are easily hand pulled due to the shallow root system. Plant debris should be incinerated or bagged and sent to the landfill.

Chemical: Currently no selective herbicides are registered for use on Himalayan Balsam. The use of herbicides in aquatic environments requires Alberta-specific applicator certification and permits. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information..

Biological: CABI began researching natural enemies in 2006 and host specificity testing began 2008.[6]

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REFERENCES

1 McClay, A. 2008. Risk assessment fact sheet for Himalayan balsam, Impatiens glandulifera.
2 Hejda, M. 2006. Impatiens glandulifera. Delivering Alien Invasive Species Inventories for Europe.
3 Helmisaari, H. 2006. NOBANIS – Invasive Alien Species Fact Sheet – Impatiens glandulifera. Online database of the Northern European and Baltic Network on Invasive Alien Species – www.nobanis.org
4 Down Garden Services, for County Down, Northern Ireland. http://www.dgsgardening.btinternet.co.uk/himalbals.htm
5 Ecological Flora of the British Isles. http://www.ecoflora.co.uk
6 The Biological Control of Himalayan Balsam. www.cabi.org
7 Nienhuis, C. and Stout, J. 2009. Effectiveness of native Bumblebees as Pollinators of the Alien Invasive Plant Impatiens glandulifera. Journal of Pollination ecology, 1(1), 2009, pp 1-11 (ISSN 1920-7603)
8 Beerling, D.J., and J.M. Perrins. 1993. Biological Flora of the British Isles. Impatiens glandulifera Royle (Impatiens roylei Walp.). Journal of Ecology 81: 367-382.

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Last Updated January 2014

Common Mullein

Verbascum thapsus (Aka Flannel Plant, Velvet Plant, Lungwort, Feltwort, Jacob's Staff, Torchplant)

Provincial Designation: Noxious

Richard Old, XID Services, Inc., Bugwood.org

Mary Ellen (Mel) Harte, Bugwood.org

Overview:

Common mullein, a biennial in the figwort family, is native to Asia. It was deliberately introduced to the United States in the 1600s as both a medicinal herb and a fish poison. Historically it has been used to treat a variety of ailments ranging from coughs to earaches.[1]

Common mullein naturalized and rapidly spread west after introduction. Currently it is not a weed of cultivated crops.[2] However, it can overtake and displace native species in disturbed areas.[3] It is also thought to serve as an alternate host for insects which can attack apples and pears.[2]

Common mullein is a high seed producer. A single plant may develop as many as 240,000 seeds. The seeds have no specialized structures for dispersal so most fall in close proximity to the parent plant. Research has shown that the seeds can remain viable in the soil more than 100 years.[2]

Habitat:

A colonizing species, common mullein will readily establish in disturbed areas with well-drained, sandy or gravelly soils.[3] It is intolerant of shade and is frequently found along roadsides, rights-of-way and waste areas. Common mullein also grows in meadows, pastures and forestry cut blocks. It is one of the first species to appear on recently burned sites.[2]

Identification:

Stems: Erect, 0.3-0.2 m in height with few to no branches.[1] Stems appear ridged and are densely wooly-hairy.[4] Mature stems from the previous season are brown and often remain standing through the winter.[5]

Leaves: Rosette leaves are grey-green, 5-40 cm long and wooly-hairy or felt-like.[2] Upper leaves are alternate and smaller (10-30 cm long) with bases that extend down the stem.[4]

Flowers: Bright yellow (rarely white) flowers are produced in 20-50 cm spike-like racemes. Individual flowers mature from the bottom to top in a spiral pattern.[4] Each flower is 5-lobed and nearly regular in shape.[2]

Seeds: Brown, irregular, oblong seeds (0.5-0.7 mm long) are located in two compartment capsules. The surface of each seed has longitudinal grooves and ribs.[2]

Prevention:

The key to prevention is to avoid disturbance from machinery, vehicles and overgrazing.[5] Common mullein is highly unpalatable to cattle and sheep so maintenance of proper stocking rates will help curtail spread in pastures or rangeland.[6] Sources for soil used in construction should be checked to ensure they are mullein-free. Contaminated soil used for building highways and buildings is believed to have been a major means for dispersal of this plant in the past.[2] Small infestations of common mullein are easily hand-pulled or hoed. If flowers or seeds are present, plants should be bagged and burned.[7]

Control:

Cultural: Seeding bare ground with early successional native grasses and forbs will decrease the establishment of common mullein on disturbed sites.[7]

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Common Mullein (Continued)

Mechanical: Where feasible, tillage provides good control of common mullein rosettes.[8] Mowing is less effective since the rosettes will continue to develop after cutting. Once mowing ceases, the plants will produce axillary branches that can flower later.[6]

Chemical: 2,4-D, Bromacil, Dichlorprop in a product mix with 2,4-D, Hexazinone and Imazapyr are registered for use on mullein. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: A weevil, *Gymnaetron tetrum*, was accidentally introduced to North America from Europe. The larvae destroy up to 50% of the seeds, but not enough to keep populations in check.[4] Another agent, the mullein moth (*Cucullia verbasci*) is currently being researched in the United States.[7]

USDA APHIS PPQ Archive, USDA APHIS PPQ, Bugwood.org

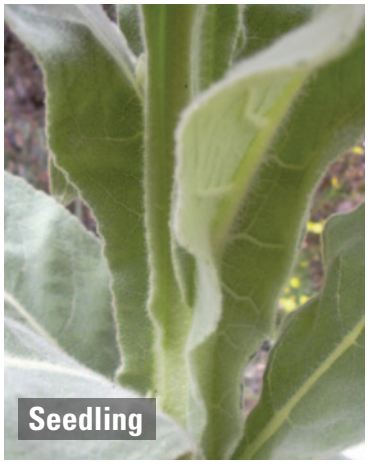
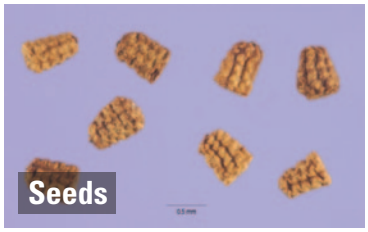


Photo by Forest & Kim Starr, Starr Environmental, Bugwood.org



Steve Hurst, USDA NRCS PLANTS Database, Bugwood.org

Photo by Richard Old, XID Services Inc., Bugwood.or

Photo by Richard Old, XID Services Inc., Bugwood.or

REFERENCES

1 Mitich, L.W. 1989. Common Mullein – The Roadside Torch Parade. Weed Tech. 3: 704-705

2 Invasive Plants of California's Wildland – Verbascum thapsus http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.efm@usernumber=87&surveynumber=182.php

3 United Forest Service Weed of the Week – Common Mullein http://www.na.fs.fed.us/fhp/invasive_plants/weeds/common-mullein.pdf

4 Gross, K.L. and P.A. Werner. 1978. The Biology of Canadian Weeds. 28. Verbascum thapsus L. and V. blatteria L. Can. J. Plant Sci. 58: 401-413

5 Common Mullein: Options for Control http://www.co.lincoln.wa.us/weedboard/biocontrol/COMMON%20MULLEIN%20BROCHURE.pdf

6 Common Mullein – Verbascum thapsus Fact Sheet http://sbsc.wr.usgs.gov/research/projects/swepic/factsheets/vethsf_info.pdf

7 Plant Conservation Alliance Fact Sheet: Common Mullein http://www.nps.gov/plants/alien/fact/pdf/veth1.pdf

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Last Updated January 2014

Common Tansy

Tanacetum vulgare

Provincial Designation: Noxious

Pennington County website (www.co.pennington.sd.us).

Overview:

Common tansy is a perennial forb that reproduces by both seed and short rhizomes (underground horizontal roots). Introduced from Europe in the 1600's, its pungently aromatic foliage has been used medicinally, as an insect repellant, and for embalming.

Common tansy forms dense stands and the plants contain alkaloids that are toxic to both humans and livestock if consumed in large quantities. Cases of livestock poisoning are rare, though, because tansy is unpalatable to grazing animals.

Habitat:

It grows best in full sun and fertile, well-drained soil.

Identification:

Stems: Stems are branched, erect, often purplish-red, and dotted with glands. There are many stems per plant and grow up to 1.5 m tall.

Leaves: Leaves alternate on the stem and are deeply divided into numerous narrow, individual leaflets with toothed edges.

Flowers: Flowers are yellow, numerous, and button-like, occurring in dense, flat-topped clusters at the tops of the stems.

Seeds: Seeds are yellowish brown achenes with short, five-toothed crowns.

Prevention:

Because of its long medicinal and horticultural use, Common tansy is still available in plant nurseries and from herbal remedy suppliers. Gardeners should not purchase or grow Common tansy.

Control:

Grazing: Common tansy is unpalatable to cattle and horses, but sheep and goats are reported to graze on it.

Cultivation: Since this plant is rhizomatous, flowering stems can re-grow from severed roots, therefore cultivation is not a control option.

Mechanical: Regular mowing can reduce seed production but must be repeated to eliminate regrowth from rootstock. The most effective control method combines mowing or hand cutting with chemical control and encouraging competition from native vegetation. Repeated stem removal depletes the food energy stored in roots.

Chemical: Aminopyralid (alone in a product mix with 2,4-D), Chlorsulfuron (alone or in a product mix with Metsulfuron-methyl), Metsulfuron-methyl (alone or in a product mix with Aminopyralid) and Tribenuron-methyl are registered for use on Common tansy. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: An agent search by CABI Switzerland was initiated in 2006. Since 2007, the Common Tansy Consortium (numerous American and Canadian organizations including the Alberta Invasive Species Council) has been funding research. The chemical

continued next page

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Common Tansy (Continued)

variability of common tansy populations is being investigated with respect to host plant acceptance by biocontrol agent candidates. A literature review and field surveys have resulted in focus on five potential agents: the flower-feeding moth *Isophrictis striatella*; the stem-mining weevil *Microplontus millefollii*; the root-feeding beetle *Longitarsus noricus*; the leaf-feeding beetle *Cassida stigmatica*; and the stem-mining longhorn beetle *Phytoecia nigricornis*[1].

REFERENCES

1 http://www.for.gov.bc.ca/hra/plants/biocontrol/screenagents.htm#Commontansy

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Last Updated January 2014

Tall Buttercup

Ranunculus acris (Aka Tall Crowfoot, Meadow Buttercup, Blister Plant, Field Buttercup)

Provincial Designation: Noxious

Overview:

Perennial that spreads only by seed. Tall buttercup contains a bitter, irritating oil called protoanemonin that is toxic to livestock (especially cattle) and other grazing animals. While generally avoided by grazers, poisonings can occur when fresh stems and leaves are consumed. Dried plants are no hazard as the toxic oil evaporates quickly. In mild cases, tall buttercup causes irritation or blistering of the skin, mouth and digestive tract. In more severe cases, it can cause paralysis, convulsions and death. Fresh tall buttercup, or hay in some cases, consumed by lactating animals can result in the production of less milk and may turn the milk a tinted red color and give it a bitter taste. Animals tend to avoid grazing tall buttercup if given a choice, but this may also allow it to dominate. Tall buttercup is an alternate host for Anemone Mosaic and Tomato Spotted Wilt virus.

Habitat:

Tall buttercup prefers moist to well-drained humus soils but can survive coarse, gravelly soils given sufficient moisture. Infestations will decrease dramatically in very dry years, but rebound and expand in wet years.

Identification:

Stems: Are erect, hollow, and sometimes hairy, highly branched in the upper part of the plant, and grow to 90 cm tall.

Leaves: On the lower stem are 3-8 cm long, on long stalks and deeply divided into 3-5 lobes. The upper leaves are smaller, hairy and are divided into 3-4 narrow segments. Basal leaves have no stalks, 3 simple lobes and are 1-2 cm long. The amount and depth of the leaf lobes is highly variable.

Flowers: Are bright yellow, on long stalks, and have 5 petals, each 10-14 mm long. The upper surface of the petals is waxy, giving them a shiny, lacquered appearance.

Seeds: Each plant produces about 250 seeds which can remain viable for 2-4 years. The tiny, brownblack seeds are carried easily by water. Seed clusters are prickly and can attach to hair and clothing.

Prevention:

Use only certified weed-free grass and forage seed. Do not sell or purchase contaminated hay. Good pasture management will help prevent spread.

Control:

Grazing: Maintaining a vigorous grass stand in pasture and rangeland will provide good competition and help control tall buttercup and reduce the likelihood of an invasion. Grazing to control tall buttercup is not recommended as the plant is toxic. Tall buttercup thrives with fertilizer use in a poorly managed pasture.

Cultivation: Pastures severely infested with tall buttercup can be ploughed and reseeded to an annual crop for several years to reduce infestations. Tall buttercup does not persist under cultivation.

Mechanical: Mowing prior to seed set can assist in reducing the infestation; however it needs to be timely in order to prevent the further spread of seed. Hand picking is suitable

continued next page

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Tall Buttercup (Continued)

for individual plants or small infestations. Be sure to wear gloves and long sleeves as the plant's juices can cause blistering and redness.

Chemical: Aminopyralid alone (or in a product mix with Metsulfuron-methyl or 2,4-D), MCPB and MCPA (alone or combined in a product mix), Mecoprop-p, and Tribenuron-methyl are registered for use on tall buttercup. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: A literature survey completed in 2012 indicated that a couple of very closely related native *Ranunculus* species in BC and the US would make finding a host-specific agent difficult.

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Last Updated June 2015

White Cockle

Lychnis alba syn. Silene alba S. latifolia

Alberta Regulation: Weed Act

Overview:

White cockle was introduced from Eurasia and is often confused with bladder campion (not hairy, not sticky) or night-flowering catchfly (hairy, upper stems sticky), white cockle is not sticky on any part of the plant. It is a short-lived perennial (sometimes biennial) native to Europe. Plants are either male or female, so not all plants produce seed.

Habitat:

White cockle prefers full-sun and rich, well-drained soils. Hayfields are a frequent habitat of this invasive plant – compounding the problem as weed seed gets distributed in baled forage.

Identification:

Stems: Stems are hairy, grow 30 to 120cm tall, and can be erect or spread laterally. There can be several stems per plant – crowded plants branch in the upper stems. Stems are swollen at the nodes.

Leaves: Leaves are opposite, hairy, and lance or slightly oval-shaped with pointed tips. Basal leaves and upper stem leaves are smaller.

Flowers: Flowers are numerous, fragrant and arranged in spreading clusters. The white (or pinkish) flowers have 5 notched petals and only open in the evening. The tubular calyx surrounds the flower's base. The calyx of the male flower has 10 veins, and the female's 20 veins are longer, and inflate with ripening.

Seeds: The calyx matures into a fruit with 10 teeth at the tip containing many tiny, grayish seeds.

Prevention:

White cockle seeds are similar in size to clover and so is often a contaminant of forage seed.

Control:

White cockle can be a serious economic problem as its seeds are difficult to separate from alfalfa, clover and some grass crop seeds – and this invader is an extremely heavy seed producer. This plant emerges early spring, initially forms a taproot, and next spreading lateral roots.

Grazing: Not grazed. Invasive plants should never be considered as forage.

Cultivation: Stem and root pieces can sprout to form new plants; therefore cultivation will usually spread an infestation.

Mechanical: Frequent mowing will reduce seed production.

Chemical: Mecoprop (in a product mix with 2,4-D and Dicamba) and Tribenuron-methyl (alone or in a product mix with Metsulfuron-methyl and quinchlorac) are registered for use on white cockle. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: None researched to date.

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White Cockle (Continued)


Flowers


Leaves


Seed Pod


Seedling

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Last Updated January 2014

Yellow Clematis

Clematis tangutica (Aka Golden Clematis, Golden Tiara, Virgins-Bower, Radar Love, Helios)

Provincial Designation: Noxious

Alec McClay

Alec McClay

Overview:

Yellow clematis is a perennial vine of the buttercup family, native to high mountain areas of China and India. It reproduces both by seed and vegetatively from stem pieces. Vines grow rapidly either along the ground or will climb and cover other shrubs/trees, fences and trellises. It is widely available as both an ornamental plant and seed under a variety of names - Golden Clematis, Golden Tiara, Virgins-Bower - from seed; Radar Love, Helios. *C. tibetana* is a very similar yellow flowered clematis that is also available and hybridizes with *C. tangutica*.

Yellow clematis has become very common and becoming abundant at some sites in the Bow Valley corridor from Wheatland County through Calgary to Canmore; also in city of Medicine Hat, town of Jasper, city of Edmonton, MD of Pincher Creek[2].

In Alberta there is a native blue-flowered clematis which grows in the foothills – *C. occidentalis* or common names Blue clematis, blue Virgin's Bower[3]. A white-flowered clematis native to western N. America is *C. ligusticifolia* var. *ligusticifolia* – Western white clematis or white Virgin's Bower.

Habitat:

Yellow clematis is tolerant of cold, drought, nutrient-poor soils, and part shade, but prefers full sun. It develops a long taproot[3] can be found thriving in open woodland, grassy areas and even gravelly areas such as railway ballast and industrial areas. In its native habitat it grows at elevations of 1300-5400 m[4].

Identification:

Stems: Several stems per plant, growing up to 3-4 m long[1]. Young stems are green while the older stems are tough & woody.

Leaves: Are bright green and compound with 5-7 lance-shaped leaflets 5-6 cm long, which may be lobed. Leaf tips are pointed and leaf edges are coarsely toothed. Leaves may be slightly hairy on the underside and are deciduous.

Flowers: Are lemon-yellow, nodding, with four petals, and appear mid-summer through late fall. Flowers are bell-shaped at first and then flatten as the petals spread. Petals may be silky-hairy on the outside and occasionally tinged purplish-brown[1]. Flowers are borne at the ends of stems or in leaf axils – usually solitary but sometimes 2 or 3 together -on a short (0.5-3 cm) peduncle[1] (flower stem). Bracts are similar to the leaves but smaller[4]. Seeds are oval (3.5-4.5 mm long) with silky tails about 5-6 cm long[4].

Prevention:

Yellow clematis is distributed mainly through the nursery trade, and then spreads far beyond the gardens and flowerbeds via its abundant, wind dispersed seed. Do not purchase plants or seeds labeled with any of the names listed above.

Control:

Grazing: Not known. Invasive plants should never be considered as forage.

Cultivation: Not known. Unlikely since stem pieces can produce new plants and

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Yellow Clematis (Continued)

vines climb and out-shade any competing vegetation.

Mechanical: Repeated hand pulling prior to seed set can provide effective control and possibly eradicate small infestations[3].

Chemical: Currently no herbicides are registered for use on yellow clematis. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: None researched to date.


Infestation

Alec McClay


Leaves

Alec McClay


Seed heads

Alec McClay

Alec McClay

REFERENCES

1 Grey-Wilson, C. 1989. Clematis orientalis (Ranunculaceae) and its allies. Kew Bulletin 44: 33-60.
2 McClay, A. 2007. Risk assessment fact sheet for golden clematis, Clematis tangutica.
3 Yellow Clematis fact sheet, Non-native Vegetation Control Plan, Jasper National Park.
4 Grey-Wilson, C. 2000. Clematis, the genus: a comprehensive guide for gardeners, horticulturists, and botanists. Timber Press, Portland, Oregon. 219 pp.