

# Identification Guide

## ALBERTA INVASIVE PLANTS

Himalayan Balsam

Prohibited Noxious &  
Noxious Weeds legislated under  
the Alberta Weed Control Act

# ACKNOWLEDGEMENTS

## ACKNOWLEDGEMENT

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Rocky View County

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Centre for Invasive Species & Ecosystem Health [www.bugwood.org](http://www.bugwood.org)

Invasive.org [www.invasive.org](http://www.invasive.org)

## INFORMATION SOURCES

Sarah Schumacher - Wheatland County

Nicole Kimmel - Alberta Agriculture and Rural Development

Weeds of the Prairies - Alberta Agriculture and Rural Development

Weeds of Canada, Authors Royer and Richard Dickinson Published by Lone Pine Publishing

Alberta Invasive Species Council [www.abinvasives.ca](http://www.abinvasives.ca)

Montana State University - Invasive Plant Identification Guide

Invasive.org [www.invasive.org](http://www.invasive.org)

USDA National Invasive Species Information Centre [www.invasivespeciesinfo.gov](http://www.invasivespeciesinfo.gov)

Centre for Invasive Species & Ecosystem Health [www.bugwood.org](http://www.bugwood.org)

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This guide can also be found on line at [www.wheatlandcounty.ca/weedguide](http://www.wheatlandcounty.ca/weedguide)



# Identification Guide

## ALBERTA INVASIVE PLANTS



Produced by Wheatland County  
2015

# THE ALBERTA WEED CONTROL ACT

## PROHIBITED NOXIOUS WEED

Means a plant designated in accordance with the Weed Control Act regulations as a prohibited noxious weed and includes the plant's seeds. This weed designation can be seen as regulatory support for an "Early Detection, Rapid Response" stage of invasive plant management. Plants in this category are either not currently found in Alberta or are found in few locations such that eradication could be possible. Under the Weed Control Act a person has a responsibility to destroy a prohibited noxious weed.

## NOXIOUS WEED

Means a plant designated in accordance with the Weed Control Act regulations as a noxious weed and includes the plant's seeds. This weed designation can be seen as regulatory support for a "containment" stage of invasive plant management. Plants listed in this category are considered to widely distributed to eradicate. Local authorities shall conduct control programs for these weeds as they have significant ecological or economic impact on lands within their municipality.

## WEED INSPECTORS

Weed inspectors are appointed across Alberta, at provincial and municipal level, as required by the Act. Inspectors may enter land or personal property to make inquiries, take samples or enforce a weed notice on the regulated species list, as identified in the regulations.

The Weed Control Act is available on line at the Alberta Queens Printer Website or from [www.agriculture.alberta.ca](http://www.agriculture.alberta.ca)

## CONTACTS

If you have questions or concerns regarding the Alberta Weed Control Act or for assistance with weed identification contact:

The Alberta Ag-Info Centre Phone: 310-FARM or 310-3276 or,  
Your local county or municipal Agricultural Fieldman or Weed Inspector  
The Alberta Invasive Species Council [www.abinvasives.ca/](http://www.abinvasives.ca/)  
Alberta Native Plant Council [www.anpc.ab.ca/](http://www.anpc.ab.ca/)



# LEGISLATED WEEDS

## PROHIBITED NOXIOUS WEEDS

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Whiplash Hawkweed	<i>Hieracium flagellare</i>
Kingdevil Hawkweed	<i>Hieracium floribundum</i>
Yellowdevil Hawkweed	<i>Hieracium glomeratum</i>
Smooth Hawkweed	<i>Hieracium laevigatum</i>
Common Hawkweed	<i>Hieracium lachenalii</i>
Spotted Hawkweed	<i>Hieracium maculatum</i>
Wall Hawkweed	<i>Hieracium murorum</i>
Tall Hawkweed Noxious	<i>Hieracium piloselloides</i>
Queendevil Hawkweed	<i>Hieracium praealtum</i>
European Hawkweed	<i>Hieracium sabaudum</i>
Showy Hawkweed	<i>Hieracium vulgatum</i>
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Pale/European Swallow-wort	<i>Vincetoxicum rossicum</i>
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Queen Anne's Lace	<i>Daucus carota</i> L.
European Field Pansy	<i>Viola arvensis</i>
Persian Darnel	<i>Lolium persicum</i>



# QUICK ID GUIDE

## YELLOW FLOWERS



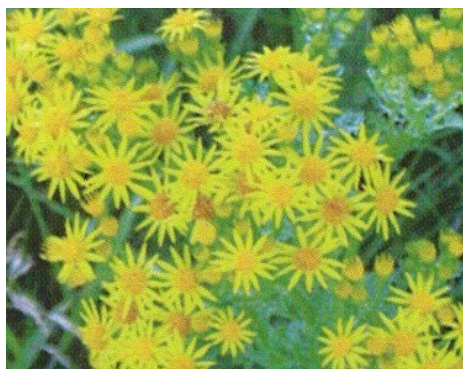
Common Mullein - Pg. 69



Common St. Johnswort - Pg. 25



Dyer's Woad - Pg. 27



Tansy Ragwort - Pg. 59



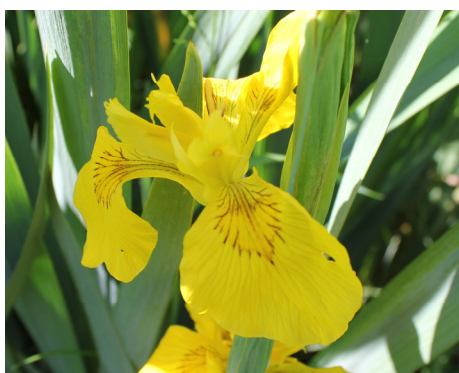
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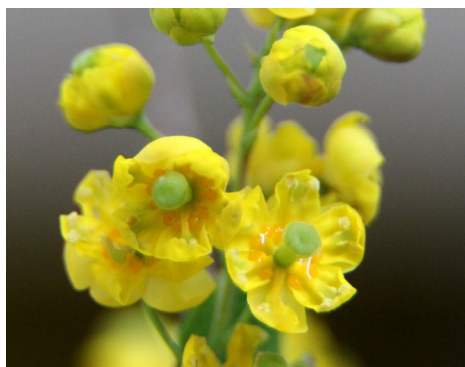


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# QUICK ID GUIDE

## YELLOW FLOWERS



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# QUICK ID GUIDE

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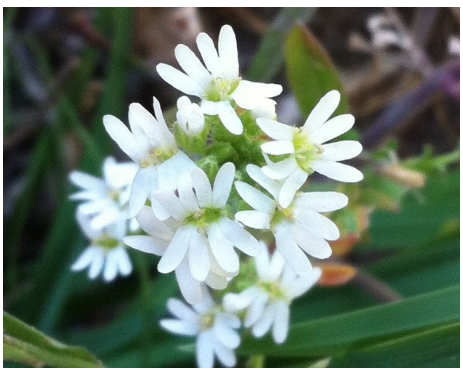
Autumn Olive - Pg. 18



Giant Hogweed - Pg. 31



Garlic Mustard - Pg. 30



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# QUICK ID GUIDE

## PURPLE & PINK FLOWERS



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Plumeless Thistle - Pg. 47



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Nodding Thistle - Pg. 44



Canada Thistle - Pg. 67

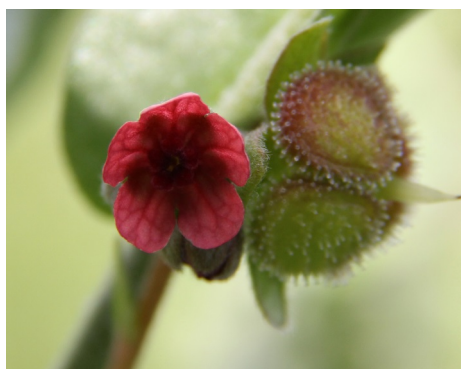


# QUICK ID GUIDE

## PURPLE & PINK FLOWERS



Dame's Rocket - Pg. 73



Hounds Tongue Pg. 79



Red Bartsia - Pg. 50



Hybrid Knapweed - Pg. 36



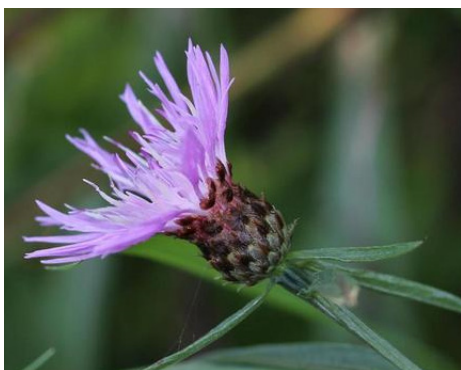
Woolly Burdock - Pg. 88



Meadow Knapweed - Pg. 41



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# QUICK ID GUIDE

## PURPLE & PINK FLOWERS



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Flowering Rush - Pg. 29



Salt Cedar - Pg. 53



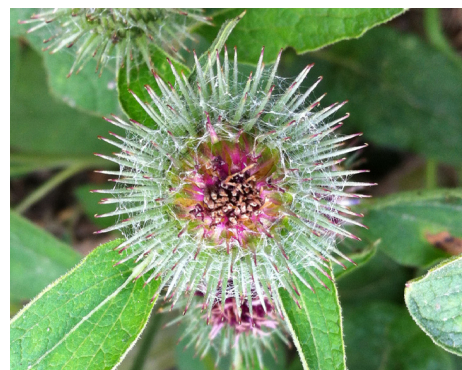
Himalayan Balsam - Pg. 33



Squarrose knapweed - Pg. 56



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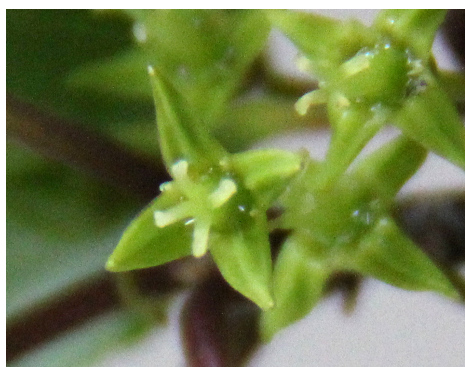


Lesser Burdock - Pg. 82



# QUICK ID GUIDE

## GREEN FLOWERS



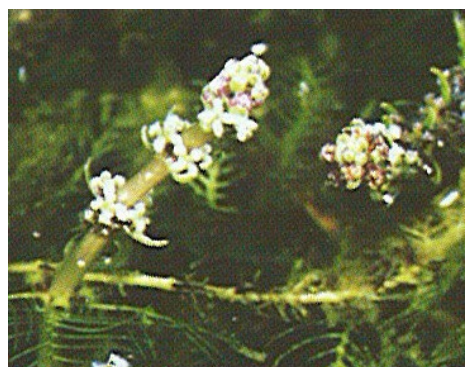
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# QUICK ID GUIDE

## KNAPWEEDS



Big Head Knapweed - Pg. 19



Squarrose Knapweed - Pg. 56



Spotted Knapweed - Pg. 55



Hybrid Knapweed - Pg. 36



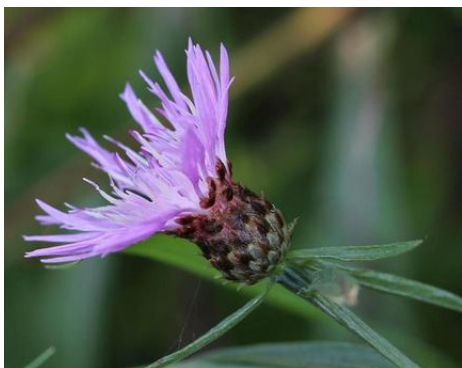
Russian Knapweed - Pg. 52



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Brown Knapweed - Pg. 21



Black Knapweed - Pg. 20



Tyroll Knapweed - Pg. 60



Yellow Star Thistle - Pg. 62



# QUICK ID GUIDE

## BURDOCKS



Great Burdock - Pg. 77



Lesser Burdock - Pg. 82



Woolly Burdock - Pg. 88



Side by side comparison

Nicole Kimmel, Alberta Agriculture and Rural Development



# QUICK ID GUIDE

## THISTLES



Nodding Thistle - Pg. 44



Plumeless Thistle - Pg. 47



Canada Thistle - Pg. 67



Marsh Thistle - Pg. 39





# QUICK ID GUIDE

## HAWKWEEDS



Meadow Hawkweed - Pg. 40



Mouse Ear Hawkweed - Pg. 43



Orange Hawkweed - Pg. 45



## OTHER HAWKWEEDS OF CONCERN:

- |                        |                                |
|------------------------|--------------------------------|
| • Whiplash Hawkweed    | <i>Hieracium flagellare</i>    |
| • Kingdevil Hawkweed   | <i>Hieracium floribundum</i>   |
| • Yellowdevil Hawkweed | <i>Hieracium glomeratum</i>    |
| • Smooth Hawkweed      | <i>Hieracium laevigatum</i>    |
| • Common Hawkweed      | <i>Hieracium lachenalii</i>    |
| • Spotted Hawkweed     | <i>Hieracium maculatum</i>     |
| • Wall Hawkweed        | <i>Hieracium murorum</i>       |
| • Tall Hawkweed        | <i>Hieracium piloselloides</i> |
| • Queendevil Hawkweed  | <i>Hieracium praealtum</i>     |
| • European Hawkweed    | <i>Hieracium sabaudum</i>      |
| • Showy Hawkweed       | <i>Hieracium vulgatum</i>      |





Spotted Knapweed

# PROHIBITED NOXIOUS WEEDS

*Prohibited Noxious weeds pose a serious threat and must be eradicated. These weeds spread rapidly and are highly competitive. Weeds in this category are restricted to prevent establishment in Alberta.*



# AUTUMN OLIVE

*Elaeagnus umbellata* Provincial Designation: Prohibited Noxious



Autumn Olive is a member of the Elaeagnaceae (Oleaster) Family, native to Asia. It is tolerant of a wide range of conditions and can be easily spread by birds who eat the fruit. It is interesting in that it can fix its own nitrogen. Also known as Japanese Silverberry.

**CONCERN** it out competes and displaces native plants.

**LIFE CYCLE** Perennial shrub.

**ERADICATION** hand pulling seedlings and avoidance are the most effective means of control, herbicide and mechanical control may be effective if done repeatedly.

## IDENTIFICATION

**FLOWER** Tube/bell shaped, creamy white to yellow flowers, very fragrant.

**LEAVES** Simple, silver-grey-green in color, with scales on the underside, wavy leaf margins, alternately arranged on the stem, thorns can grow to 2.6 cm long.

**STEM** Multi-stems, up 6m tall.

**ROOT** Nitrogen fixing, woody root.

**SEED/FRUITS** Small, fleshy, red, egg shaped with scales. It can produce up to 200,000 seeds each year.



# BIGHEAD KNAPWEED

*Centaurea macrocephala* Provincial Designation: Prohibited Noxious



Bighead Knapweed is a member of the Asteraceae (Sunflower Family) and is also known as Armenian basketflower, or golden thistle. It was introduced as an ornamental from Europe and has been cultivated as an ornamental for over 200 years. It is the largest flower in its genus *Centaurea*, earning its common name.

**CONCERN** produces lots of seed which can germinate in disturbed areas. Eradication efforts in Washington have been conducted for 25 years.

**LIFE CYCLE** Perennial.

**ERADICATION** Early control before

seed set. Grazing, cultivation, herbicide and mowing may be effecting means of control. Avoid this plant as an ornamental.

## IDENTIFICATION

**FLOWER** Large, single, showy yellow flowers, fringed bracts below the flowers.

**LEAVES** Broad, lance shaped, pointed tips, rough/hairy, large.

**STEM** Up to 1.5m tall.

**ROOT** Woody taproot, woody crown.

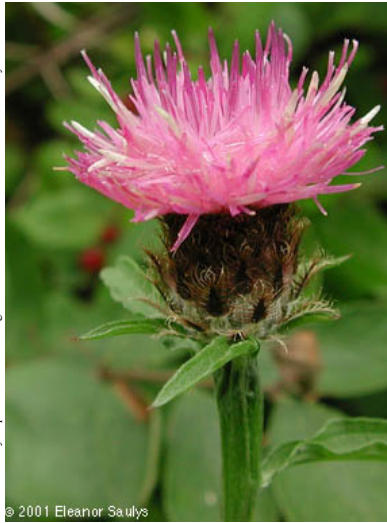
**SEED/FRUITS** Reproduces by seed which can be spread by wind, animals, humans, and vehicles.



# BLACK KNAPWEED

*Centaurea nigra* Provincial Designation: Prohibited Noxious

Bruce Ackley, The Ohio State University, Bugwood.org



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Black Knapweed is a member of the Asteraceae (Sunflower) family and was introduced from Europe. It is weed of disturbed areas, and tolerates a wide range of conditions. Meadow Knapweed is a hybrid of Black and Brown Knapweeds.

**CONCERN** Can out compete native vegetation and reduce forage production, allelopathic (toxic) towards other plants.

**SIMILAR SPECIES** Brown Knapweed, Meadow Knapweed

**LIFE CYCLE** Perennial.

**ERADICATION** Long term as control is difficult, hand pick in rosette stage, chemical control before seed has set.

## IDENTIFICATION

**FLOWER** Pink, purple, flowers are composed of 40-100 purple tubular florets, comb-like bracts below flowers, bracts are black in the center with long black fringes.

**LEAVES** Basal leaves have stalks, stem leaves are stalkless and become smaller and narrower moving up the stem, leaf edges are slightly toothed or smooth, not highly divided like many knapweeds.

**STEM** 20-150cm, branching mid stem, covered in hairs

**ROOT** Woody crown, woody taproot.

**SEED/FRUITS** short black, unequal bristles on one end.



# BROWN KNAPWEED

*Centaurea jacea* Provincial Designation: Prohibited Noxious



Brown Knapweed is a member of the Asteraceae (Sunflower) family and was introduced from Europe. It prefers cool, moist habitats. Meadow Knapweed is a hybrid of Black and Brown Knapweeds.

**CONCERN** Can out compete native vegetation and reduce forage production, allelopathic (toxic) towards other plants.

**SIMILAR SPECIES** Black Knapweed, Meadow Knapweed.

**LIFE CYCLE** Perennial.

**ERADICATION** Long term as control is difficult, hand pick in rosette stage, chemical control before seed has set.

## IDENTIFICATION

**FLOWER** Pink-purple-white, 2.5cm wide, composed of around 400 florets, flower heads are solitary, at the end of the branch. Bracts are overlapping, brown and irregularly torn looking.

**LEAVES** Basal leaves are up to 15 cm long, tapering at both ends with the broadest part above the middle of the leaf. Stem leaves are lance-shaped, shallowly-lobed and stalkless, not highly divided like many knapweeds.

**STEM** 30-150cm tall, branching mid stem.

**ROOT** Woody crown, woody taproot.

**SEED/FRUITS** Small, tan, no pappus.

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Rob Routledge, Sault College, Bugwood.org

Bruce Ackley, The Ohio State University, Bugwood.org



# COMMON BARBERRY

*Berberis vulgaris* **Provincial Designation:** Prohibited Noxious



Sarah Schumacher, Wheatland County



Sarah Schumacher, Wheatland County



Sarah Schumacher, Wheatland County



Nicole Kimmel, Alberta Agriculture and Rural Development



Nicole Kimmel, Alberta Agriculture and Rural Development



Sarah Schumacher, Wheatland County



Nicole Kimmel, Alberta Agriculture and Rural Development

Common Barberry is a member of the Berberidaceae (Barberry) Family and was introduced from Europe and Asia as an ornamental. It was used initially for hedges, jam and yellow dye. This weed is tolerant of a wide range of conditions and has been found growing in Alberta.

**CONCERN** Alternate host for stem rust fungus.

**LIFE CYCLE** Perennial shrub.

**ERADICATION** Manual control, treat stumps in autumn, early control.

## IDENTIFICATION

**FLOWER** Hanging cluster of yellow flowers, 10-20 flowers per raceme

(inflorescence). Have an unpleasant smell.

**LEAVES** Alternately arranged, spines occur at the base of each leaf, leaf margins are finely toothed, dull green in color, 2-5cm long.

**STEM** 1-3m tall, bushy shrub, yellow-grey in color, spines occur in groups of 3. The wood is yellow.

**ROOT** Woody and creeping.

**SEED/FRUITS** Red clusters of berries, individual berries are 1cm long, and there are 1-3 black seeds per berry. Wildlife feed on fruit and seeds can remain viable through digestion.



# COMMON BUCKTHORN

*Rhamnus cathartica* Provincial Designation: Prohibited Noxious



Common Buckthorn is a member of the Rhamnaceae family. It originated from Eurasia and was introduced as an ornamental plant. It is tolerant of a wide range of conditions and was once valued for its ease of propagation.

**CONCERN** Out-completes with native plants.

**LIFE CYCLE** Perennial woody shrub.

**ERADICATION** Mechanical, basal bark treatment.

## IDENTIFICATION

**FLOWER** Yellow/ yellow-green, small, inconspicuous, 4 petals, male and female

flowers occur on separate plants.

**LEAVES** Dark green, glossy, oval shaped, pointed tip, 3-4 veins, slightly jagged edges. Remains green late into the fall.

**STEM** Shrub or small tree, trunk up to 25cm in diameter and up to 7m tall, grey-brown bark, yellow in color beneath the surface, rough texture, branches can be opposite or alternate, smaller branches often end in thorns.

**ROOT** Woody root.

**SEED/FRUITS** Small round black fruit, 3-4 seeds within.



# COMMON CRUPINA

*Crupina vulgaris* Provincial Designation: Prohibited Noxious



Common Crupina is a member of the Asteraceae (Sunflower Family). It is also considered a Prohibited Noxious weed under the Canadian Seeds Act.

**CONCERN** It has invaded more than 25,000 ha of rangeland and non-crop areas in the US. It is not in Canada yet, but BC, AB and SK are vulnerable.

**LIFE CYCLE** Winter annual.

**ERADICATION** Herbicide and repeated hand pulling can be effective means of control.

## IDENTIFICATION

**FLOWER** 1-5 flowers can occur per flower head which are 1.5cm long. flower

heads occur at the branch tips or in the upper leaf axil. Narrow (length three to four times greater than width) rose-purple petals.

**LEAVES** Fleshy oval seedling leaves widest near the tip, with distinct purple midrib. Rosette and stem leaves pinnately lobed with short stiff spines, alternate and smaller toward the apex.

**STEM** One main stem 30-90cm tall, and has several branches, rigid and covered with short stiff spines.

**ROOT** Short taproot.

**SEED/FRUITS** A ring of dark, stiff bristles (pappus) encircle the seed, barrel shaped.



# COMMON ST. JOHNSWORT

*Hypericum perforatum* Provincial Designation: Prohibited Noxious



Nicole Kimmel, Alberta Agriculture and Rural Development



All: Sarah Schumacher, Wheatland County

Common St. Johnswort is a member of the Clusiaceae family. Widely cultivated as a medicinal and ornamental plant, it was introduced from Eurasia and North Africa.

**CONCERN** Toxic to livestock.

**LIFE CYCLE** Perennial.

**ERADICATION** Limited options for control, chemical control may be effective.

## IDENTIFICATION

Has unique glands on leaves and flowers. Looks similar to native species.

**FLOWER** Numerous five-petaled yellow flowers form flat-topped clusters, flowers are up to 2.5cm in diameter, black

glands can be seen along petal margins.

**LEAVES** Oval-shaped, up to 2.5cm long, opposite, lack stalks, darker green above, tiny transparent dots on the leaf surface.

**STEM** 30-90cm tall, black glands, erect, with two opposite longitudinal ridges, may branch many times near the top.

**ROOT** Extensive taproot and lateral roots.

**SEED/FRUITS** Rust colored seeds pods are 5mm long and contain numerous seeds in three-pointed capsules. A single plant may produce up to 30,000 seeds per year.



# DIFFUSE KNAPWEED

*Centaurea diffusa* Provincial Designation: Prohibited Noxious



Diffuse Knapweed is a member of the Asteraceae (Sunflower Family). It was introduced from Eurasia and is an extremely tough plant, tolerant of drought and trampling.

**CONCERN** Poses a threat to pastureland and native areas in Alberta.

**SIMILAR SPECIES** Spotted Knapweed, Hybrid Knapweed.

**LIFE CYCLE** Biennial or short-lived perennial.

**ERADICATION** Long term monitoring, hand pick, chemical, and biological agents.

## IDENTIFICATION

Plants are shorter, stiffer, prickly and are

grey-green unlike its look-a-likes.

**FLOWER** White or pink flower head, located at the tip of a branch. Bracts form stiff, cream to brown coloured spines divided into comb-like teeth. Bracts are yellow with sharp rigid sharp spines.

**LEAVES** Seedlings have finely divided leaves with small hairs. Mature leaves are divided into linear segments, broadly lance-shaped, grayish-green, covered with woolly hairs, and alternate.

**STEM** Up to 60cm tall and highly branched.

**ROOT** Deep taproot, may be phytotoxic.

**SEED/FRUITS** Brown or grayish, small. Thousands of seeds per plant.



# DYER'S WOAD

*Isatis tinctoria* Provincial Designation: Prohibited Noxious



All: Montana State University Invasive Plant Identification Guide

Dyer's Woad is a member of the Brassicaceae (Mustard Family), native to Russia. It was traditionally used as a source of indigo dye and as a medicinal herb.

**CONCERN** poses a threat to rangelands and native areas because of its rapid growth rate and prolific seed production.

**LIFE CYCLE** Winter annual, biennial or short-lived perennial.

**ERADICATION** Hand pulling can be very effective or chemical control before seed production, and biological agents.

## IDENTIFICATION

**FLOWER** Flower cluster occur on upper

stem in a flat-topped inflorescence. Flowers have 4 bright yellow petals 3mm long.

**LEAVES** All leaves bluish-green with white midrib. Rosette (first form) leaves have long slender stalks, are widest near the tip and covered with soft hairs. Stem leaves lack hairs, are alternate, lance shaped, and clasp the stem. Cream colored mid rib and powdery white film on the upper leaf surface are distinct features.

**STEM** 30 - 120cm tall, multi-branching.

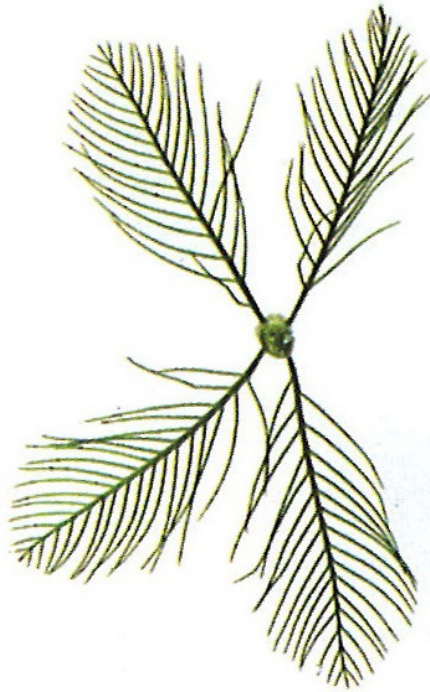
**ROOT** Fleshy taproot and lateral roots.

**SEED/FRUITS** Purplish brown, tear drop shaped seed pods hang from small stalks. Plants can produce on average 350 to 500 seeds.



# EURASIAN WATER MILFOIL

*Myriophyllum spicatum* Provincial Designation: Prohibited Noxious



Eurasian Water Milfoil is a member of the Haloragaceae (Water Milfoil Family). Similar to other milfoil species. It is an aquatic weed which can be transported by recreational boats and is a target for ESRD's Clean, Drain, Dry Campaign.

**CONCERN** Forms mats and prevents sunlight from entering a waterbody. A single segment of stem or leaf can form a new colony. Tolerant of a wide range of conditions

**LIFE CYCLE** Aquatic perennial.

**ERADICATION** Prevention.

## IDENTIFICATION

**FLOWER** Rigid, pink flowering spike, 5 to 20cm long, held erect above water

surface. Small, yellow, four petaled flowers are arranged in clusters.

**LEAVES** Three to four bright-green leaves, 3cm long with 12 to 48 threadlike divisions are whorled around stem at each joint. Leaves rarely extend above water surface and mat when removed from water.

**STEM** Slender, hairless, leafless toward base, 3m long or longer and 2mm thick. Grow to water surface then branch forming dense floating mats. Somewhat whitened when dry.

**ROOT** Numerous at base and along stem.

**SEED/FRUITS** Hard, segmented capsule contains four seeds.



# FLOWERING RUSH

*Butomus umbellatus* Provincial Designation: Prohibited Noxious



All: Sarah Schumacher, Wheatland County



Kendra Tippet, Rocky View County



Nicole Kimmel, Alberta Agriculture and Rural Development

Flowering Rush is a member of the Flowering Rush Family (Butomaceae) and is the only plant in its plant family. It is a aquatic/semi-aquatic invasive plant which was sold as an ornamental.

**CONCERN** Thrives in moist areas and has been found in lakes, rivers, streams and irrigation canals in Alberta. Challenging to remove once established.

**LIFE CYCLE** Perennial.

**ERADICATION** Prevention is most effective, few control measures exist, chemical control during drier seasons and careful mechanical control (so as to not spread the bulblets) may be effective.

## IDENTIFICATION

**FLOWER** Umbrella-shaped clusters of flowers, pink to white flowers have three petals 2-3cm in diameter, below the petals are 3 purplish brown bracts.

**LEAVES** Erect or floating leaves, opposite, 90cm long and 1-1.5cm wide with smooth edges, triangular cross section, and twisted ends.

**STEM** Leafless, green and have a round cross section. May be upright in shallow water but floating in deeper water.

**ROOT** Spreads by thick creeping rhizomes and pea sized bulblets.

**SEED/FRUITS** Inflated, dark brown beaked fruits 1-1.5cm long.



# GARLIC MUSTARD

*Alliaria petiolata* Provincial Designation: Prohibited Noxious



Garlic Mustard is of the Brassicaceae (Mustard Family) and was introduced as a food plant from Europe. It grows in moist, woodland areas and can establish in dense shade.

**CONCERN** Allelopathic (toxic) towards other plants and inhibits mycorrhizal fungi needed for tree growth. Found in Alberta.

**LIFE CYCLE** Herbaceous biennial,

**ERADICATION** Hand pick before seed set (making sure to get the entire root), chemical control may be needed for large infestation, not palatable to livestock.

## IDENTIFICATION

**FLOWER** Small white flowers, 4 petals.

**LEAVES** Rosette leaves (first) are heart shaped and dark. Mature (second) leaves are spade shaped with a jagged, toothed edge and fuzzy. Leaves are alternately arranged on the stem and have a garlic odor when crushed.

**STEM** Plant can grow from 1-1.5m tall.

**ROOT** White, slender taproot, has a crook just below ground level (or s bend).

**SEED/FRUITS** 150-850 seeds per plant, pods. Seeds are small and easily spread on animals, people, vehicles and water.



# GIANT HOGWEED

*Heracleum mantegazzianum* Provincial Designation: Prohibited Noxious



Giant Hogweed is of the Apiaceae (Carrot Family) and was introduced as an ornamental plant from Asia. It grows in moist areas similar to many native look-alikes but is differentiated by its height.

**CONCERN** The sap produced by this plant can cause a severe rash, blisters, blindness (in the case of eye contact) and scarring.

**SIMILAR SPECIES** Cow Parsnip (native)

**LIFE CYCLE** Tall herbaceous biennial.

**ERADICATION** Dig up seedlings, chemical stump treatment, deadhead. Use safe handling practices and cover skin when dealing with this weed.

## IDENTIFICATION

**FLOWER** Umbel (umbrella shaped) flower head, up to 75cm wide. flowers are small, white, 5 petaled.

**LEAVES** Compound leaves 10-15cm wide, palmate, underside is covered in coarse white hairs.

**STEM** 2-6m tall, hollow stem, 5-10cm wide, covered in bristles and purple mottles. Differs from native look a likes in its height.

**ROOT** Large deep taproot.

**SEED/FRUITS** 2 wings, flat, each contains 1 seed, Each plant can produce up to 120,000 seeds (typically 50,000).



# GIANT KNOTWEED

*Fallopia sachalinensis* Provincial Designation: Prohibited Noxious



Kelly Cooley



Nicole Kimmel, Alberta Agriculture and Rural Development



Montana State University Invasive Plant Identification Guide



Kelly Cooley

Giant Knotweed is a member of the Polygonaceae (Buckwheat or Smartweed) Family. This plant is the largest of the Knotweeds. It thrives in moist environments and grows in dense stands. It is considered an invasive plant in many other countries around the world.

**CONCERN** Can outcompete native vegetation and is fast spreading.

**SIMILAR SPECIES** Japanese and Hybrid Knotweed.

**LIFE CYCLE** Herbaceous creeping perennial.

**ERADICATION** Long term herbicide control.

## IDENTIFICATION

**FLOWER** Small greenish white flowers branched clusters from leaf axils near the ends of the stems.

**LEAVES** Giant knotweed leaves are generally twice the size of the other 2 species. Leaves are 20-40 cm long, and heart shaped at base. Hairs on the leaf underside are long, thin and wavy.

**STEM** Hollow, smooth, weakly woody, jointed, swollen at nodes, 3.5m or taller, base surrounded by membranous sheath. Stems can grow 4-5 cm per day.

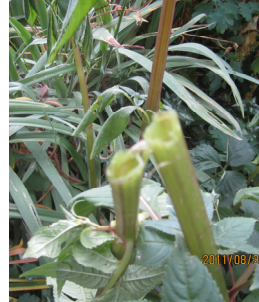
**ROOT** Rhizomatous.

**SEED/FRUITS** The fruit is <sup>3</sup>-sided, black and shiny.



# HIMALAYAN BALSAM

*Impatiens glandulifera* Provincial Designation: Prohibited Noxious



Himalayan Balsam is a member of the Balsaminaceae (*Impatiens*) family, and was introduced from India as an ornamental. Other common names include Policeman's Helmet, *Impatiens*, and Touch-me-not.

**LIFE CYCLE** Annual herb.

**CONCERN** Himalayan Balsam is a weed of concern because of its potential impact on aquatic habitats (riparian and wetland areas). Can out compete native vegetation.

**ERADICATION** Do not plant as an ornamental, it can be easily controlled by hand pulling.

## IDENTIFICATION

**FLOWER** Showy, irregular, pink-purple-white, 5 petals, resembles an old fashioned policeman's helmet.

**LEAVES** Simple, oblong, large, serrated edge, oppositely arranged on the stem.

**STEM** Large, hollow, 4 sided (square), the plant can grow up to 120cm tall. Stems have various shades of red, from all red to hints of red.

**ROOT** Shallow and fibrous.

**SEED/FRUITS** Pods are explosive when ripe, seeds can shoot up to 10m, and can float. A single plant can produce up to 800 seeds.



# HOARY ALYSSUM

*Berteroa incana* Provincial Designation: Prohibited Noxious



Hoary Alyssum is a member of the Brassicaceae (Mustard) Family. It can be found on sand and gravel soils and establishes on roadsides, railway lines and heavily grazed pastures.

**CONCERN** Found in Alberta. Abundant in BC and SK, Toxic to horses in both fresh and in cured hay.

**LIFE CYCLE** Annual, biennial or short-lived perennial.

**ERADICATION** Hand pick.

## IDENTIFICATION

**FLOWER** 4 small, White, deeply notched petals (making it appear as though there are 8 petals), on slender

stalks, hairy sepals.

**LEAVES** greyish-green with tiny star shaped hairs. Basal leaves are 2-8cm long with slender stalks. Stem leaves face upward, pressed to stem. Lower leaves have short stalks, upper leaves lack stalks.

**STEM** 30-90cm tall, erect, sometimes branched, covered with tiny star-shaped hairs. Up to 10 stems may form per taproot.

**ROOT** Taproot.

**SEED/FRUITS** Flattened oval seed pods, with star-shaped hairs close to stem, pod chambers contain 3 to 7 seeds.



# HYBRID KNOTWEED

*Fallopia × bohemica* Provincial Designation: Prohibited Noxious



All: Sarah Schumacher, Wheatland County

Hybrid Knotweed is a member of the Polygonaceae (Knotweed) Family and is also known as Bohemian Knotweed. It is a hybrid cross between Japanese Knotweed and Giant Knotweed, it can have characteristics of both species and is able to backcross with either one.

**CONCERN** It can be more vigorous and persistent than either of its parents at out competing native vegetation.

**SIMILAR SPECIES** Japanese and Giant Knotweed.

**LIFE CYCLE** Herbaceous perennial.

**ERADICATION** Herbicide control.

## IDENTIFICATION

**FLOWER** The flowers are small, creamy

white to greenish white, and grow in showy plume-like, branched clusters from leaf axils near the ends of the stems. Flower clusters are generally about the same length as the adjacent leaf, unlike the shorter flower clusters found on giant knotweed and the longer clusters found on Japanese knotweed.

**LEAVES** Leaf shape can be variable, alternate, stalked, hairs on the underside.

**STEM** Hollow, smooth, weakly woody, jointed, swollen at nodes, base surrounded by membranous sheath.

**ROOT** Rhizomatous (creeping).

**SEED/FRUITS** The fruit is 3-sided, black and shiny.



# HYBRID KNAPWEED

*Centaurea × psammogena* Provincial Designation: Prohibited Noxious



Spotted Knapweed +



Diffuse Knapweed =



Hybrid Knapweed

Hybrid Knapweed is a member of the Asteraceae (Sunflower) Family and is a hybrid of Spotted and Diffuse knapweeds.

**CONCERN** Poses a threat to native areas in Alberta pastureland.

**SIMILAR SPECIES** Spotted Knapweed, Diffuse Knapweed

**LIFE CYCLE** Biennial or short lived perennial.

**ERADICATION** Long term monitoring, hand pick, chemical, and biological agents.

## IDENTIFICATION

Traits are variable and will share traits from both Spotted and Diffuse Knapweeds.

**FLOWER** Purple or white, Bracts have a dark tip (similar to Spotted Knapweed) and long bristles on the margins (similar to Diffuse Knapweed).

**LEAVES** Finely divided, covered with fine hairs.

**STEM** 20-80cm tall, branched.

**ROOT** Woody taproot.

**SEED/FRUITS** Prolific seed producer.



# JAPANESE KNOTWEED

*Fallopia japonica* Provincial Designation: Prohibited Noxious



Edwin Knox - Parks Canada

Japanese Knotweed is a member of the Polygonaceae (Buckwheat or Smartweed) family and was introduced from Asia as an ornamental landscape hedge.

**CONCERN** Can outcompete native vegetation and is fast spreading.

**SIMILAR SPECIES** Hybrid Knotweed, Giant Knotweed

**LIFE CYCLE** Perennial.

**ERADICATION** Early control

## IDENTIFICATION

**FLOWER** The flowers are small, creamy white to greenish white, and grow in showy plume-like, branched clusters

from leaf axils near the ends of the stems. The Japanese knotweed flower head is larger than that of giant knotweed.

**LEAVES** Alternate, stalked, ovate with a flat base, reaching 7-15cm long by 5-12 cm wide, pointed tips.

**STEM** Hollow, smooth, weakly woody, jointed, swollen at nodes, base surrounded by membranous sheath, 1-3 m tall.

**ROOT** Rhizomatous (creeping), may extend out as far as 10 m and can reproduce from a single piece of root.

**SEED/FRUITS** The fruit is small and white and the seeds are black and shiny.



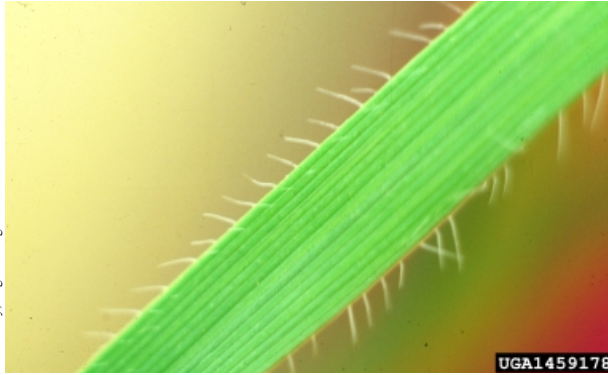
# JOINTED GOATGRASS

*Aegilops cylindrica* Provincial Designation: Prohibited Noxious



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Phil Westra, Colorado State University, Bugwood.org

Jointed Goatgrass is a member of the Poaceae (Grass) Family and it originated in Russia. It was introduced as a seed contaminant in wheat and is also considered Prohibited Noxious Weed in the Canada Seeds Act.

**LIFE CYCLE** Winter annual.

**CONCERN** It is genetically related to Winter Wheat and can hybridize with it, lower yields and compete for resources.

**ERADICATION** Use clean seed, request a certificate of seed analysis, destroy plants before seed set. Will require long term integrated management in a cropping situation.

## IDENTIFICATION

**FLOWER** Narrow spike, long awns, glumes on upper spikelets, 2-4 flowers per spikelet.

**LEAVES** Evenly spaced hairs at a 90-degree angle to the leaf edge, narrower than wheat leaves.

**STEM** Erect 40-80cm tall, hairy auricles present.

**ROOT** Fibrous root.

**SEED/FRUITS** 2 seeds per spikelet, and has similar sized seeds as wheat making it difficult to clean out.



# MARSH THISTLE

*Cirsium palustre* Provincial Designation: Prohibited Noxious



Marsh Thistle is a member of the Asteraceae (Sunflower) Family. May hybridize with Canada Thistle and native marsh thistles. Prefers moist, undisturbed habitat, can be a problem in cut blocks.

**SIMILAR SPECIES** Canada Thistle, Plumeless Thistle, and native thistles.

**LIFE CYCLE** Biennial, rosette in the first year, flowers in the second.

**CONCERN** Can outcompete native vegetation in moist/wet environments.

**ERADICATION** Control in first year (rosette stage) or before seed set.

## IDENTIFICATION

**FLOWER** Many flowers per plant, purple, bracts spineless. Few to many

flower heads are borne in dense clusters at branch tips.

**LEAVES** Covered with long sticky hairs, lobed, 15-20cm long, woody veins on underside.

**STEM** distinguished from other thistles by its slender, un-branched stem with spiny wings, branched at top, thick, reddish in color, covered in long sticky hairs, 1-1.5m tall, can grow up to 3m in moist forest openings.

**ROOT** Fibrous root system.

**SEED/FRUITS** Small, hard, elongated, tuft of bristles (pappus) for seed dispersal. Produce 2 types of seed, one for near parent plant and one for new sites.



# MEADOW HAWKWEED

*Hieracium caespitosum* Provincial Designation: Prohibited Noxious



Montana State University Invasive Plant Identification Guide



Sarah Schumacher, Wheatland County

Meadow Hawkweed is a member of the Asteraceae (Sunflower) family and was introduced from Europe. It is tolerant of a wide range of conditions but prefers moist habitats. It is capable of producing seed without sexual reproduction.

**CONCERN** Quick spreading, may be allelopathic (toxic to other plants), forms dense stands, difficult to control.

**SIMILAR SPECIES** Mouse-ear Hawkweed and other Hawkweed species.

**LIFE CYCLE** Perennial.

**ERADICATION** Chemical.

## IDENTIFICATION

**FLOWER** Has a dandelion - like flower,

5 to 30 bright yellow flower heads per plant, flowers can mature from closed bud to seed within 1 day

**LEAVES** Basal rosettes have hairy, narrow, spatula-shaped leaves, dark green above and light green below. Mostly leafless stems.

**STEM** Rosettes produce 10 to 25 flowering stems up to 90cm tall (taller than Mouse-ear Hawkweed), covered in short, stiff hairs and few, if any, leaves. The entire plant contains a milky juice.

**ROOT** Shallow fibrous roots, stolons (above ground) and rhizomes allow the plant to reproduce vegetatively.

**SEED/FRUITS** Black, tiny, and plumed.



# MEADOW KNAPWEED

*Centaurea moncktonii* Provincial Designation: Prohibited Noxious



Meadow Knapweed is a member of the Asteraceae (Sunflower) family. It is a weed of disturbed areas and tolerates a wide range of conditions although prefers moister and cooler conditions.

**LIFE CYCLE** Perennial.

**SIMILAR SPECIES** Meadow knapweed is a hybrid of black and brown knapweed.

**CONCERN** Can out compete native vegetation and reduce forage production, allelopathic (toxic) towards other plants.

**ERADICATION** Long-term control, hand pick, chemical.

## 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, Brown Knapweed has brown bracts, and the tips of Black Knapweed bracts are black. Meadow knapweed can be either.

**LEAVES** Not highly divided like many of the other knapweeds. Basal leaves are up to 15 cm long, stem leaves are stalk-less.

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

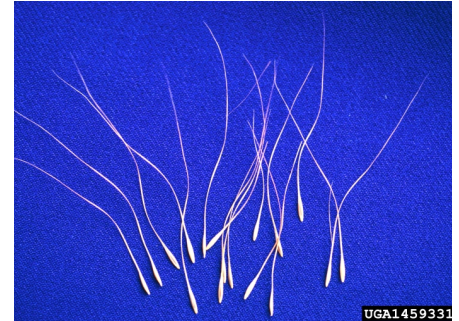
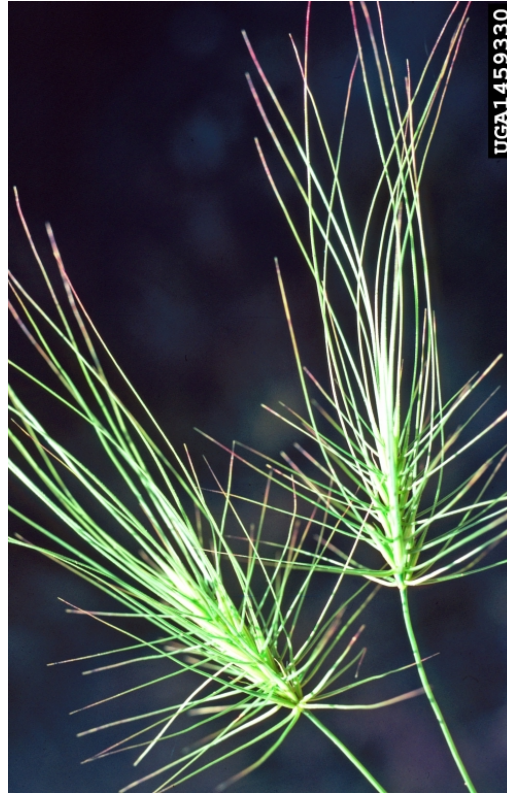
**ROOT** Deep-rooted perennial.

**SEED/FRUITS** Reproduces by seed.<sup>41</sup>



# MEDUSAHEAD

*Taeniatherum capu-medusae* Provincial Designation: Prohibited Noxious



Medusahead is a member of the Poaceae (Grass) Family and was introduced from the Mediterranean. It is a weed of forage and pastureland and has been known to out compete Downy Brome. Unpalatable to livestock.

**LIFE CYCLE** Annual.

**CONCERN** Barbed awns can cause injury to grazing animals.

**ERADICATION** Mowing, early grazing and cultivation.

## 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 it does not break apart.

**LEAVES** Produces tillers but very few leaves, narrow, sometimes hairy, auricles are present as well as a membranous ligule

**STEM** Hairy.

**ROOT** Fibrous.

**SEED/FRUITS** Seed twists as fruit matures, reproduces by seed, doesn't shatter, 7 seeds per spike.



# MOUSE-EAR HAWKWEED

*Hieracium pilosella* Provincial Designation: Prohibited Noxious



Mouse-ear Hawkweed is a member of the Asteraceae (Sunflower) Family that was introduced from Europe.

**CONCERN** Fast spreading, creates dense mats.

**SIMILAR SPECIES** Meadow Hawkweed, Orange Hawkweed and native hawkweeds.

**LIFE CYCLE** Perennial.

**ERADICATION** Long-term control, hand pick, chemical.

## IDENTIFICATION

**FLOWER** Yellow, flower heads are solitary at the end of each leafless stalk. (unlike meadow hawkweed). Yellow ray

flowers will usually have red stripes underneath, sepals are covered in star shaped hairs.

**LEAVES** Basal rosettes have hairy, narrow, spatula-shaped leaves, dark green above and light green below. Noticeably white under the leaf due to hairs.

**STEM** Shorter than Meadow Hawkweed, up to 40 cm tall.

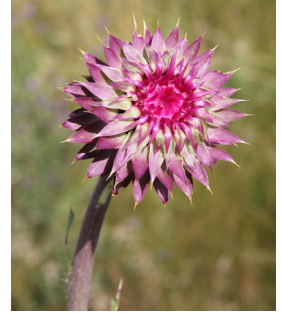
**ROOT** Shallow fibrous roots, stolons and rhizomes.

**SEED/FRUITS** Black, tiny, and plumed.



# NODDING THISTLE

*Carduus nutans* Provincial Designation: Prohibited Noxious



Nodding Thistle is a member of the Asteraceae (Sunflower) Family and is Native to Europe. It is also commonly known as Musk Thistle. It has a long history of being a rangeland pest.

**CONCERN** High seed production and can outcompete native vegetation.

**SIMILAR SPECIES** Plumeless Thistle, Marsh Thistle and native thistles.

**LIFE CYCLE** Biennial, large rosette leaves in the first years growth, flowers in the second.

**ERADICATION** hand picking is very effective, chemical control before seed set.

## IDENTIFICATION

**FLOWER** Large, nodding, purple. Large thorny bracts occur below the flower. Flowers are 3-5 cm in diameter.

**LEAVES** Clasping, alternately arranged on the stem, spines along edge, hairy, sometimes pinkish, wavy edge, can be up to 25 cm long

**STEM** Spines along stem, hairy, 20cm to 2.5m tall.

**ROOT** Fleshy taproot.

**SEED/FRUITS** Pappus present, each flower head may produce up to 1200 seeds.



# ORANGE HAWKWEED

*Hieracium aurantiacum* Provincial Designation: Prohibited Noxious



Orange Hawkweed is a member of the Asteraceae (Sunflower) Family and was introduced from Europe as an ornamental. Also known as devil's paintbrush. Unpalatable.

**CONCERN** Highly invasive.

**SIMILAR SPECIES** Meadow Hawkweed, Mouse-ear Hawkweed and native hawkweeds.

**LIFE CYCLE** Perennial.

**ERADICATION** Chemical

## IDENTIFICATION

**FLOWER** 5 to 30 brilliant orange flowers form a compact umbrella-like

inflorescence at top of the stem, petals have notched tips. The bracts are green and are covered with distinct black, gland-tipped hairs. The bracts are green and are covered with distinct black, gland-tipped hairs.

**LEAVES** Rosette leaves are narrow, spatula-shaped, hairy, 10-15cm long

**STEM** 30-90cm tall with bristly hairs and 0 - 3 small leaves. The entire plant contains a milky juice.

**ROOT** Shallow, fibrous, creeping. Differs from natives in that it produces stolons.

**SEED/FRUITS** Dark brown or black with ridges and bristly plumes.



# PALE YELLOW IRIS

*Iris pseudacorus* Provincial Designation: Prohibited Noxious



Pale Yellow Iris is of the Iridaceae (Iris) Family and is native to Europe. It is an escaped ornamental that has become an aquatic/ semi-aquatic invasive plant. Buyer beware - this plant may still be sold as an ornamental.

**CONCERN** May be toxic to livestock. Thrives in moist areas such as wetlands, ponds and irrigation canals.

**LIFE CYCLE** Creeping perennial.

**ERADICATION** Early, hand pick, chemical

## IDENTIFICATION

**FLOWER** Large pale to deep yellow flowers have three downward - and three upward-pointing petals, some with light-

brown to purple veins or flecks. Distinctive from other similar plants by brown/purple veins on the sepals.

**LEAVES** Long, linear, dark green, emerge from the ground in a fanlike arrangement, smooth edged, basal leaves are mostly flattened, sword-like with a pointed tip and raised midrib.

**STEM** 90 -150cm tall, round to flattened.

**ROOT** Has tuberous roots and spreads by bulbs and rhizomes.

**SEED/FRUITS** Three-angled cylindrical capsule 2-10cm long, contains many flat brown seeds. Seed has a hard seed coat beneath there is a gas space allowing seeds to float in water.



# PLUMELESS THISTLE

*Carduus acanthoides* Provincial Designation: Prohibited Noxious



Plumeless Thistle is a member of the Asteraceae (Sunflower Family) and may also be called Bristly Thistle or Spiny Plumeless Thistle.

**CONCERN** Highly invasive.

**SIMILAR SPECIES** Marsh Thistle, Canada Thistle, Nodding Thistle, native thistles.

**LIFE CYCLE** Herbaceous biennial, or winter annual. Rosette leaves in the first years growth, flowers in the second.

**ERADICATION** Hand pull, chemical control before seed set. Not usually grazed due to the amount of spines.

## IDENTIFICATION

**FLOWER** Purple, small, erect, spine tipped bracts, smaller flower head than Nodding Thistle. Flowers are mostly solitary at stem and branch ends.

**LEAVES** Clasping, alternately arranged on the stem, spines along edge and at leaf tip, hairy, lobed. Rosette leaves can be very large.

**STEM** 3 - 5 mm spines along the stem, stems covered in winged ridges bearing up to 2m tall.

**ROOT** Taproot, large and fleshy.

**SEED/FRUITS** Spread by seed, pappus attached to seed, wind dispersal.



# PUNCTUREVINE

*Tribulus terrestris* Provincial Designation: Prohibited Noxious



Puncturevine is a member of the Zygophyllaceae (Caltrop) Family and was introduced from the Mediterranean and Africa in sheep wool. In some places people have used it as a tonic despite it having toxins that can harm humans.

**CONCERN** Poisonous to livestock. Seeds can stick in tires and attach to clothing, fur and feathers.

**LIFE CYCLE** Perennial, summer annual in colder climates.

**ERADICATION** Hand pick, chemical.

## IDENTIFICATION

**FLOWER** Yellow, 5 petals, 4-10mm wide. Flowers open in morning and close and shed their petals in the afternoon.

**LEAVES** Opposite, 8-16 leaflets, hairy, pinnately compound, leaflets less than 1cm wide.

**STEM** Branched, hairy stems radiate from the crown, prostrate (on the ground) from 10cm to over 1m long.

**ROOT** Woody taproot.

**SEED/FRUITS** Pod, 2 - 3 sharp spines (10mm long) 4 - 5 single seeded nutlets, hard.



# PURPLE LOOSESTRIFE

*Lythrum salicaria* Provincial Designation: Prohibited Noxious



All: Sarah Schumacher, Wheatland County

Purple Loosestrife is a member of the Lythraceae (Loosestrife Family) and is native to Europe, Asia and Africa. It was introduced as an ornamental and has become a significant aquatic/semi-aquatic invasive plant. A Purple Loosestrife eradication program in Alberta in the 1990's was been successful in reducing the numbers in the province.

**CONCERN** Poses a threat to riparian/wetland habitats.

**LIFE CYCLE** Perennial.

**ERADICATION** Handpick, chemical.

## IDENTIFICATION

**FLOWER** Clustered on vertical terminal

spike extending 5cm to 90cm down stem, one or more flowering branches; rose to purple with four to eight petals.

**LEAVES** Clasping, lance-shaped leaves have a notched base and smooth margins, opposite or whorled on the stem.

**STEM** 1.5 - 3m tall, square-ish or octagonal, woody, covered in a downy hair.

**ROOT** Short rhizomes and taproot, clump forming.

**SEED/FRUITS** Small brown capsules with many seeds, can produce up to 2 - 3 million seeds/plant, which can remain viable up to 20 years.



# RED BARTSIA

*Odontites vernus* Provincial Designation: Prohibited Noxious



Red Bartsia is a member of the Scrophulariaceae (Figwort/ Snapdragon) family and originated from Europe. It is a weed of pastureland, hayland and roadside ditches and is unpalatable to livestock. It is also a Prohibited Noxious Weed under the Canada Seeds Act.

**CONCERN** May be parasitic to other plant species, able to outcompete forage plants and native vegetation.

**LIFE CYCLE** Annual.

**ERADICATION** Avoid contaminated feed sources, sanitize equipment to prevent spread. Control with cultivation, and chemical control before seed set .

## IDENTIFICATION

**FLOWER** Has a Snapdragon -type flower which is reddish, purple and hairy.

**LEAVES** Narrow and hairy with a toothed edge. Leaves are oppositely arranged and clasp the stem.

**STEM** Upright, branching, 15-30cm tall, hairy

**ROOT** Taproot

**SEED/FRUITS** 1400 seeds per plant, can float, covered in coarse hairs that allows them to attach to things.



# RUSH SKELETONWEED

*Chondrilla juncea* Provincial Designation: Prohibited Noxious



Photo courtesy of Weeds of the West <http://nwrow.org/rush-skeletonweed.html>



Montana State University Invasive Plant Identification Guide



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



Montana State University Invasive Plant Identification Guide



Steve Dewey, Utah State University, Bugwood.org

Rush Skeletonweed is a member of the Asteraceae (Sunflower) Family and is native to Europe, Asia and Africa. Other names include Gum Succory, Devils Grass and Nakedweed.

**CONCERN** Can outcompete native and forage vegetation, huge seed production.

**LIFE CYCLE** Perennial.

**ERADICATION** Long term management with hand pulling and early grazing can be effective, chemical control needs to occur during the rosette stage.

## IDENTIFICATION

**FLOWER** Small (5mm in diameter), yellow, scattered on the stems and branch

tips, flowers occur in single or clusters of two to five, healthy plants can produce up to 1,500 flower heads.

**LEAVES** Sharp, deeply toothed rosette leaves wither as the stem bolts, occasional narrow leaves on stem, milky juice.

**STEM** Downward bent, reddish, coarse hairs occur on the lower 10-15cm of the green stems. A mass of wiry stems with barely visible narrow leaves, produces a milky juice, can grow up to 1.2 m tall.

**ROOT** Taproot.

**SEED/FRUITS** Light brown to black, ribbed, and with white bristles, can produce up to 20,000 seeds.



# RUSSIAN KNAPWEED

*Acroptilon repens* Provincial Designation: Prohibited Noxious



Russian Knapweed is a member of the Asteraceae (Sunflower) family and is native to Eurasia. It is so different from other knapweeds that it has its own genus.

**CONCERN** It forms dense, long lived stands, very persistent. Can cause chewing disease in horses.

**SIMILAR SPECIES** Spotted Knapweed, Black Knapweed, Brown Knapweed, Meadow Knapweed, Squarrose Knapweed

**LIFE CYCLE** Perennial.

**ERADICATION** Long term, hand pick before seed set, chemical control late in the season.

## IDENTIFICATION

**FLOWER** One purple flower head per branch tip, 1.2 cm in diameter. Bracts are green, rounded and have papery edges

**LEAVES** Basal leaves may or may not be lobed, are covered with fine hairs, grayish - green, 5-10 cm long. Lower stem leaves can be as long as 15cm, and narrow, maybe lobed. Upper stem leaves are narrow, un-lobed, and are significantly shorter.

**STEM** One or more stems up to 1 m tall.

**ROOT** Rhizomatous with black or dark brown with scales.

**SEED/FRUITS** Oval, grey or ivory with long white bristles.



# SALT CEDAR

*Tamarix ramosissima* Provincial Designation: Prohibited Noxious



Saltcedar is a member of the Tamaricaceae (Tamarisk ) family and was introduced as an ornamental. It is an aggressive plant that has invaded many parts of the USA. Buyer beware - this plant may still be sold as an ornamental (“Pink Cascade”).

**CONCERN** Potential impact on aquatic/semi-aquatic environments. A single, large plant can consume up to 750 litres of water a day.

**SIMILAR SPECIES** Chinese Tamarisk, Smallflower Tamarisk.

**LIFE CYCLE** Perennial deciduous or evergreen shrub or small tree, weed of waterways.

**ERADICATION** Do not plant, remove from garden,

## IDENTIFICATION

**FLOWER** Small, pink to white, 5 petaled flowers borne in finger like clusters on terminal and lateral branches.

**LEAVES** Small, alternate, overlapping, and appear scale-like, foliage is salty to taste as salt accumulates among leaf scales during evapo-transpiration, deciduous; leaves turn yellow-orange in autumn.

**STEM** up to 8m tall, highly branched, smooth, dark brown to reddish brown bark.

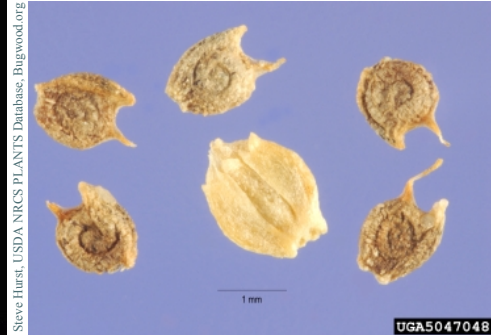
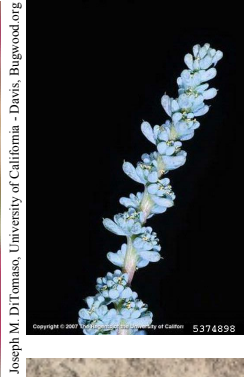
**ROOT** Deep taproot and adventitious roots of stems and branches.

**SEED/FRUITS** Extremely small, tuft of hairs on tip, contained in capsules.<sup>53</sup>



# SALTLOVER

*Halogeton glomeratus* Provincial Designation: Prohibited Noxious



Saltlover is of the Chenopdiaceae (Goosefoot) family, another common name is Halogeton. It is tolerant of saline and alkaline soils and is mostly found on disturbed sites and overgrazed rangeland. It grows quickly taking advantage of infrequent precipitation. It also tumbles like other members of this family.

**CONCERN** It is poisonous to livestock and can lead to salt accumulation on the soil surface.

**LIFE CYCLE** Summer/ winter annual.

**ERADICATION** Competition, and mechanical control are effective. Chemical control may not be effective.

## IDENTIFICATION

**FLOWER** 2 types, the large flower is 2-3mm wide, the smaller flowers have toothed sepals, small, inconspicuous, occurs in leaf axil, light yellow-green, pink-ish in the centre.

**LEAVES** Small hair at the end of each leaf, small, alternate, simple, fleshy, tubular, blue-green.

**STEM** 8-30cm tall, branched, red when young, yellow-white at maturity.

**ROOT** Taproot, up to 5m deep.

**SEED/FRUITS** Early germination, reproduced from 2 types of seeds, viable for up to 10 years. Produces 35 seeds/cm of stem.



# SPOTTED KNAPWEED

*Centaurea stoebe* Provincial Designation: Prohibited Noxious



All: Sarah Schumacher, Wheatland County



Spotted Knapweed is a member of the Asteraceae (Sunflower) family and was introduced from Europe in ship's ballast or as a contaminant in alfalfa. It covers vast areas of land in Canada and in the USA, and is tolerant of a wide range of conditions.

**CONCERN** Control is difficult, and is allelopathic (toxic towards other plants).

**SIMILAR SPECIES** Russian Knapweed, Black Knapweed, Brown Knapweed, Meadow Knapweed, Diffuse Knapweed, Squarrose Knapweed, Hybrid Knapweed

**LIFE CYCLE** Perennial.

**ERADICATION** Long term as control is difficult, hand pick in rosette stage,

chemical control before seed has set.

## IDENTIFICATION

**FLOWER** One pinkish-purple flower head on each branch. Bracts have dark spot on the tip and short fringed edges.

**LEAVES** Rosette leaves are deeply lobed, grayish green, and up to 15cm long. Stem leaves are finely divided into linear segments, alternate, bitter taste

**STEM** Up to 120cm tall and highly branched.

**ROOT** Taproot.

**SEED/FRUITS** Black, 2mm long, can produce up to 2000 seeds/year/plant.



# SQUARROSE KNAPWEED

*Centaurea virgata* Provincial Designation: Prohibited Noxious



Squarrose knapweed is a member of the Asteraceae (Sunflower) Family and was introduced from Eastern Mediterranean/Asia. It is a weed of range, pasture, and open habitats.

## CONCERN

**SIMILAR SPECIES** It looks similar to Diffuse Knapweed in growth form but has pink flowers.

**LIFE CYCLE** Perennial (long lived).

**ERADICATION** Early detection, hand picking, chemical control before flowering, grazing.

## IDENTIFICATION

**FLOWER** Pink, smaller than the other

pink/purple knapweeds, composed of 10 to 14 pink or pale purple florets. Bracts below the flowers have curved spines with 4-6 pairs of lateral spines. Can have as many as 100 flower heads/plant.

**LEAVES** Rosette leaves in first years growth, deeply divided leaves on the lower portion of the plant, spine-like leaves on the top, green-grey in color.

**STEM** 30-50cm tall, stiff, highly branched. Under tough conditions will remain as a rosette for several years.

**ROOT** Taproot.

**SEED/FRUITS** Reproduces by seed, remains viable for many years.



# SULPHUR CINQUEFOIL

*Potentilla recta* Provincial Designation: Prohibited Noxious



All: Sarah Schumacher, Wheatland County



Sulphur Cinquefoil is a member of the Rosaceae (Rose) family. It has plenty of native “look a likes” making identification difficult.

## CONCERN

**SIMILAR SPECIES** Tall Buttercup, native cinquefoil species.

**LIFE CYCLE** Annual, biennial or perennial. Long term infestations have documented 20 year old plants.

**ERADICATION** Do not mow, repeated cultivation over a long time, or chemical.

## IDENTIFICATION

**FLOWER** Five light yellow petals with deeply notched tips and a yellow center.

**LEAVES** Palmately compound with 5-7 toothed leaflets, relatively few basal leaves, most leaves grow along an upright stem, leaf stalk length and size decreases toward top. Unlike native species the underside of the leaf is green not silvery.

**STEM** One to several erect stems 30-60cm tall, may be branched with terminal, multi-flower inflorescence. Stems have hairs perpendicular to stem and leaf-stalks.

**ROOT** Fibrous spreading roots. Shoots re-emerge from woody root stalks

**SEED/FRUITS** Comma-shaped, brownish purple, covered with net-like ridges.



# TAMARISK

*Tamarix spp.* Provincial Designation: Prohibited Noxious



There are 2 Tamarisk species from the Tamaricaceae (Tamarisk) family listed under Act, Chinese Tamarisk (*Tamarix chinensis*) and Small Flower Tamarisk (*Tamarix parviflora*). They were introduced as an ornamental from Eurasia.

**CONCERN** Dense stands can significantly reduce stream flow and groundwater reserves, weed of waterways.

**SIMILAR SPECIES** Saltcedar.

**LIFE CYCLE** Perennial deciduous or evergreen shrub or small tree,

**ERADICATION** Do not plant, remove from garden.

## IDENTIFICATION

**FLOWER** Small pink to white with five petaled flowers borne in finger like clusters on terminal and lateral branches.

**LEAVES** Small leaves on green stems are alternate, overlapping, and appear scale-like. Foliage salty to taste.

**STEM** 1.5-6m tall, highly branched, smooth, dark brown to reddish brown bark. Shrub/ tree

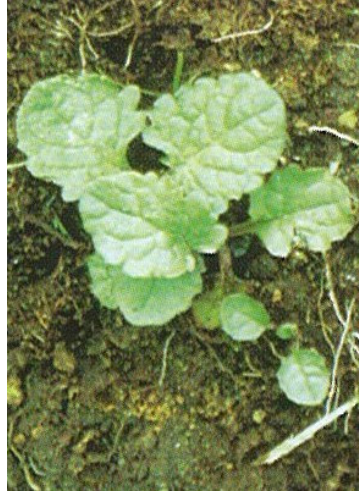
**ROOT** Deep taproot and adventitious roots of stems and branches.

**SEED/FRUITS** capsules 3-5mm long

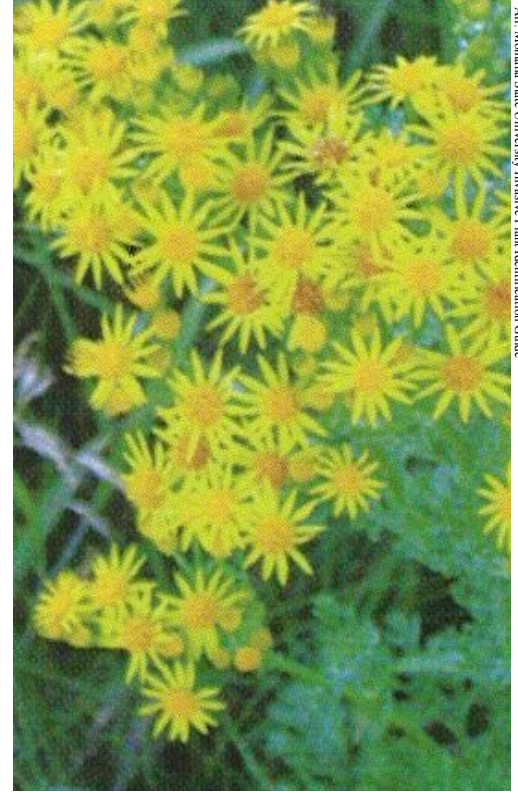


# TANSY RAGWORT

*Senecio jacobaea* Provincial Designation: Prohibited Noxious



[http://www.co.stevens.wa.us/weedboard/image\\_weeds/tr2.jpg](http://www.co.stevens.wa.us/weedboard/image_weeds/tr2.jpg)



All: Montana State University Invasive Plant Identification Guide

Tansy Ragwort is a member of the Asteraceae (Sunflower) family and is native to Eurasia and is also known as Stinking Willie. It prefers dry open areas.

**CONCERN** Toxic to horses, cattle, sheep, goats, humans, causing irreversible liver damage.

**LIFE CYCLE** Biennial or short-lived perennial.

**ERADICATION** Hand pulling, good pasture management and chemical control.

## IDENTIFICATION

**FLOWER** Daisy-like flower heads, yellow petals, yellow center, less than 2.5cm diameter, clustered on terminal stem. Bracts surrounding the flower head are black-tipped.

**LEAVES** Rosette has 10 - 20 leaves with web-like hairs. Basal leaves 5cm-25cm long, lobed into leaflets and leaflets lobed again. Stem leaves alternate, evenly distributed, lower leaves larger, strong odour when crushed. Leaves are deeply indented and blunt toothed lobes give them a ruffled appearance.

**STEM** Commonly 30-90cm tall but up to 1.8m, several or solitary stems may branch near the top of the flower head. Stems and leaf stalks often purplish and have cobwebby hairs.

**ROOT** Taproot.

**SEED/FRUIT** Tiny and tipped by hair-like plumes.



# TYROL KNAPWEED

*Centaurea nigrescens* Provincial Designation: Prohibited Noxious



Tyrol Knapweed is a member of the Asteraceae (Sunflower) family and is native to Europe. It has a larger leaf than the other Knapweed species.

**CONCERN** Invades pastures and natural areas, competing with native plants and forage.

**SIMILAR SPECIES** The flower is similar to other Knapweed (*Centaurea*) species.

**LIFE CYCLE** Perennial.

**ERADICATION** Long term, hand pick (making sure to get all the root), chemical.

## IDENTIFICATION

**FLOWER** Pink-purple, bracts present, composed of 40-100 purple florets, the outer ring of florets is usually larger than the inner ring. Bracts are dark brown-black, tipped with a dark fringe of tooth-comb like wiry lobes in 6-8 pairs.

**LEAVES** Basal leaves have stalks, stem leaves get smaller towards the top of the plant, smooth edges, sometimes lobed, sometimes narrow.

**STEM** 30-150cm, erect, branching, hairy.

**ROOT** Taproot.

**SEED/FRUITS** Reproduces by seed and root.



# YELLOW NUTSEDGE

*Cyperus esculentus* Provincial Designation: Prohibited Noxious



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Yellow Nutsedge is a member of the Cyperaceae (Sedge) family. Its origin is unknown but has been found on all continents.

**CONCERN** It grows in wet habitat and can become troublesome in irrigated soils. It is difficult to control because of its aggressive root system.

**LIFE CYCLE** Perennial.

**ERADICATION** Cultivation may increase distribution but if done at the right time of year and repeatedly cultivation can be an effective method of control.

## IDENTIFICATION

**FLOWER** Umbrella shaped cluster of

straw-colored or golden-yellow flower heads.

**LEAVES** Most leaves grow from the base of the stem, alternate, grass-like, waxy, narrow, linear, folded, 10–30cm long by 0.2–1cm wide, bright green to yellow-green foliage.

**STEM** Triangular stem (3 sided). Stem are triangular in cross section, 15cm to 75cm tall.

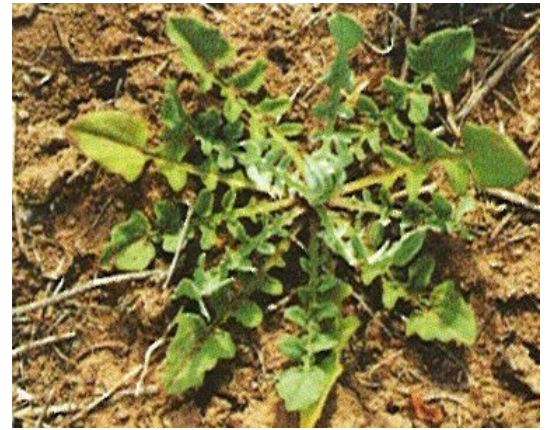
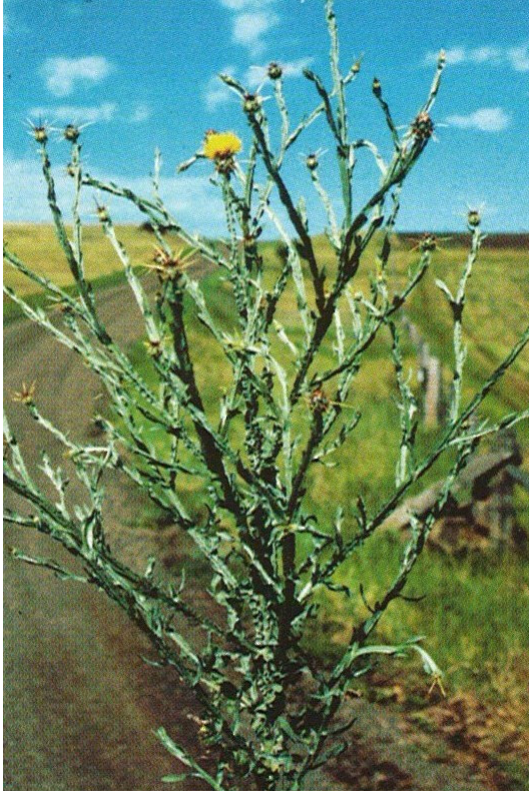
**ROOT** Fibrous, creeping roots and reproductive tubers. Within a single growing season, one tuber can produce hundreds of shoots.

**SEED/FRUITS** Low viability.



# YELLOW STAR-THISTLE

*Centaurea solstitialis* Provincial Designation: Prohibited Noxious



All: Montana State University Invasive Plant Identification Guide

Yellow Star-thistle is a member of the Asteraceae (Sunflower) family and is native to Europe and Asia.

**CONCERN** Ingestion causes a fatal nervous disorder known as chewing disease in horses. It can outcompete native vegetation and reduce forage production. Can monopolize soil moisture.

**LIFE CYCLE** Winter annual.

**ERADICATION** Can graze early in the season by livestock (with the exception of horses), hand pulling, mowing or chemical control can be effective before seed set.

## IDENTIFICATION

**FLOWER** One yellow flower head per branch, sharp straw-colored spines up to 2cm long radiate from the bracts.

**LEAVES** Rosette leaves are deeply lobed with pointed tip. Stem leaves are vertical, flat extensions along the stem and covered with cottony hairs.

**STEM** Up to 200cm tall, rigid, branched, covered with hairs.

**ROOT** Taproot, can be up to 1m deep.

**SEED/FRUITS** 2 types of achenes, both smooth and about 2 to 3 mm long. Most seeds (75-90%) have a short (2-5 mm), stiff pappus the remainder are darker in color and have no pappus (plumeless).





# NOXIOUS WEEDS

*Noxious Weeds have the ability to spread rapidly, cause severe crop losses and economic hardship. These weeds must be controlled to prevent further establishment and spread.*



# BLACK HENBANE

*Hyoscyamus niger* Provincial Designation Noxious



Black Henbane is a member of the Solanaceae (Nightshade) family and was introduced from the Mediterranean. It is commonly a weed of disturbed areas such as roadside ditches, new developments and field edges.

**CONCERN** All parts of this plant are poisonous to livestock and humans.

**LIFE CYCLE** Biennial or annual depending on local conditions.

**CONTROL** Chemical control in the first years basal growth or cut stem at the base of the plant before the flowering stage. Cultivation, mowing or hand pulling can be effective.

## IDENTIFICATION

**FLOWER** Bell shaped with 5 lobes, yellowish, large, many purple veins, purple centre, multiple flowers per stem.

**LEAVES** large, slightly sticky, slight offensive odor, toothed margin, 15cm wide, 20 cm long, stalk-less and hairy. Basal rosette leave occur in the first stage of growth and flowers in the second.

**STEM** Up to 1m tall, branched upright, hairy, robust

**ROOT** Taproot.

**SEED/FRUITS** Reproduces by prolific seed production. Seeds are found in a hairy capsule, and are poisonous. 64



# BLUEWEED

*Echium vulgare* Provincial Designation Noxious



Blueweed is a member of the Boraginaceae (Borage) family and is also known as Viper's Bugloss, it was introduced from Africa as an ornamental. It increases in overgrazed pastures and grows in well drained soils ie. gravel pits, riparian gravels.

**CONCERN** Invades pastures, it may be toxic to humans and livestock and the seeds can stick to fur. The stiff hairs may cause skin irritation.

**LIFE CYCLE** Biennial or short lived perennial. Basal rosette leaves occur in the first stage of growth, flowering in the second.

**CONTROL** Hand pick, dig out roots or chemical control in rosette stage.

## IDENTIFICATION

**FLOWER** Flowers can be blue, purple or

pink, numerous, 1-2cm long, 5 fused petals, irregular funnel shape, short stems, alternately arranged on the stem.

**LEAVES** Basal leaves are narrow, 1-15cm long, stalked. Stem leaves are alternate, smaller and stalk-less near the top of the plant, covered with stiff hairs, small reddish glands occur on the underside.

**STEM** Up to 90cm tall, covered with short and long stiff hairs, often has swollen reddish spots.

**ROOT** Black, deep taproot with fibrous lateral roots.

**SEED/FRUIT** Nutlets are clustered in groups of four, greyish brown, angular, roughened, and wrinkled. Can reproduce up to 2800 seeds per plant.



# BROAD LEAVED PEPPER GRASS

*Lepidium latifolium* Provincial Designation Noxious



Broad Leaved Pepper Grass is a member of the Brassicaceae (Mustard) family and is also known as Perennial Pepperweed, Tall Whitetop, Giant Whiteweed and Ironweed. This weed is very tolerant of saline soils.

**CONCERN** Spreads vigorously from root structures to form large populations can impact wetlands, riparian areas, rangelands, and roadsides.

**LIFE CYCLE** Creeping perennial.

**CONTROL** Herbicide can be effective, hand pulling or digging is not recommended.

## IDENTIFICATION

**FLOWER** Small, less than 1cm wide with four white petals, flowers occur on rounded clusters at the end of the braches.

**LEAVES** Bright green to gray-green, alternately arranged on the stem, broadest at base and tapering to a pointed tip, prominent whitish mid-vein. Basal leaves are up to 40cm long and 10cm wide with long stalks, covered with a waxy layer. Stem leaves are smaller with shorter stalks.

**STEMS** 30-90cm tall but can be up to 1.5m tall, branched.

**ROOT** Deep spreading roots, up to 40% of plant biomass.

**SEED/FRUIT** Flat, rounded, slightly hairy, 2-3mm long, reddish brown capsule, can produce large quantities of seed.



# CANADA THISTLE

*Cirsium arvense* Provincial Designation Noxious



All Sarah Schumacher, Wheatland County



Canada Thistle is a member of the Asteraceae (Sunflower) family and was introduced from northern Europe. It is now found across most of Alberta, commonly in overgrazed pastures, roadside ditches and riparian areas.

**CONCERN** Competes with and displaces native vegetation and impacts agricultural production.

**SIMILAR SPECIES** Plumeless Thistle, marsh thistle and other native thistles.

**LIFE CYCLE** Creeping perennial

**CONTROL** Chemical (using fall rosette treatment), grazing.

## IDENTIFICATION

**FLOWER** Purple, pink or white with

diameter of 1.5 - 2cm, clusters form at branch ends, bracts have weak prickles (no spines), male and female flowers occur on separate plants, sweet smelling when in bloom.

**LEAVES** Alternately arranged on the stem, wavy edge, lobed, lance shaped, spine-tipped, lack stalks, upper leaves smaller than lower leaves.

**STEMS** 30-120cm tall, no spines, erect, ridged, branched, slightly hairy.

**ROOT** Horizontal and vertical creeping root, white, may be very deep.

**SEED/FRUIT** Long, flattened seeds with tufts of white hairs, spread by seed is relatively rare.



# COMMON MULLEIN

*Verbascum Thapsus* Provincial Designation Noxious



Common Mullein is a member of the Scrophulariaceae (Figwort/ Snapdragon) family and was introduced from Europe as a medicinal plant. It is also known as Candlestick Plant, or Velvet Dock or “cowboy toilet paper”. It has been used as a piscicide (for control of fish).

**CONCERN** It is a weed of disturbed areas, roadsides, gravel pits and railway lines. It can overtake and displace native species.

**LIFE CYCLE** Biennial, perennial or, rarely, an annual.

**CONTROL** Hand pick or use mechanical control methods before flowering.

## IDENTIFICATION

**FLOWER** Flowers in the second stage of growth. Dense spike, yellow flowers, 5 petals. Plants die after flowering.

**LEAVES** Large leaves, very woolly, oppositely arranged on the stem, larger leaves at the base of the plant, smaller towards the top. In the first stage plants develop a basal rosette of felt-like leaves.

**STEMS** Up to 2.5 m tall, woolly.

**ROOT** Deep taproot.

**SEED/FRUITS** Small seeds, capsule, hairy. Each plant can produce over 100,000 - 300, 000 seeds, long term viability (100 years).



# COMMON BABY'S BREATH

*Gypsophila paniculata* Provincial Designation Noxious



All Sarah Schumacher, Wheeland County

Common Baby's Breath is a member of the Caryophyllaceae (Pink) family and was introduced from Europe as an ornamental, other names include *Gypsophila* and Maiden's-Breath.

**CONCERN** Is commonly found growing in roadside ditches, pastures and as an ornamental and in floral displays. It is most aggressive in dry, sandy soils.

**LIFE CYCLE** Perennial.

**CONTROL** Chemical control before flowering.

## IDENTIFICATION

**FLOWER** Numerous small white flowers, 5 petals, star shaped, sweet scent.

**LEAVES** Opposite, long and narrow 3-10cm long, have a prominent mid vein, not conspicuous when in bloom.

**STEMS** Can grow up to 1m tall, numerous branches, nodes occur at the base of the leaves.

**ROOT** Large woody root

**SEED/FRUITS** This plant is a highly productive seed producer. The seed is black, kidney shaped, and bumpy.



# COMMON TANSY

*Tanacetum vulgare* Provincial Designation Noxious

All Sarah Schumacher, Wheatland County



Common Tansy is a member of the Asteraceae (Sunflower) Family and was introduced as an ornamental. It is commonly found across much of Alberta in river valleys and roadside ditches.

**CONCERN** Common along roadsides, and river banks may be mildly toxic to humans and livestock.

**LIFE CYCLE** Perennial.

**CONTROL** Chemical control can be effective, although may be limited by an infestations proximity to water.

## IDENTIFICATION

**FLOWER** Numerous (20 to 100) yellow-orange, button-like flower heads appear

in a flat-topped, dense clusters at the end of the stem. Flowers lack long (ray) petals.

**LEAVES** Alternate, consistent in size, deeply divided into leaflets with toothed margins (fern-like). Leaves have a strong odour when crushed.

**STEMS** 30cm -1.8m tall, often purplish red, woody, robust, erect.

**ROOT** Rhizomatous, woody.

**SEED/FRUIT** small yellowish-brown seeds have five toothed ridges. Seeds can remain viable for up to 25 years

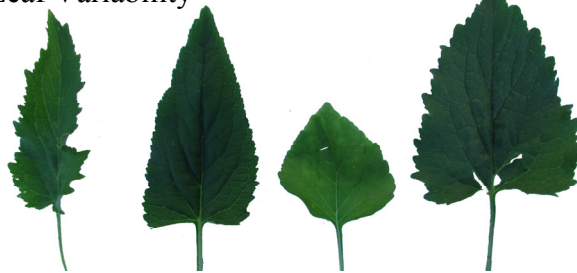


# CREeping BELLFLOWER

*Campanula rapunculoides* Provincial Designation Noxious



Leaf Variability



All Sarah Schumacher, Wheatland County

Creeping Bellflower is a member of the Boraginaceae (Borage) family, it was introduced as an ornamental from Europe, other names include Creeping Bellflower, or Creeping Bluebell.

**CONCERN** Aggressive root system, extremely difficult to control.

**SIMILAR SPECIES** Native bluebells.

**LIFE CYCLE** Creeping perennial.

**CONTROL** Long term, hand pull before seed set (although its difficult to get the entire root), resistant to some chemicals, mowing will not kill this plant, but will prevent flowering.

## IDENTIFICATION

**FLOWER** Purple, bell shaped, 5 lobes

**LEAVES** Alternately arranged on the stem, heart shaped with jagged edges (variable), lower leaves have longer stems (petiole), upper leaves have little to no stem.

**STEMS** No branching, 20 - 60cm tall.

**ROOT** Thick creeping rhizomes make this plant very aggressive and difficult to control.

**SEED/FRUIT** One plant can produce thousands of seeds per year, seeds are small and light brown.



# DALMATIAN TOADFLAX

*Linaria dalmatica* Provincial Designation Noxious



Dalmatian Toadflax is a member of the Scrophulariaceae (Figwort/ Snapdragon) family and was introduced from Europe as an ornamental. It is tolerant of dry sandy or gravelly soils.

**CONCERN** It is often a weed of pasture, rangelands, roadsides and railways. Distasteful, or mildly poisonous to livestock.

**SIMILAR SPECIES** Yellow Toadflax

**LIFE CYCLE** Short lived Perennial.

**CONTROL** Prevent seed production, deplete root reserves, and remove seedlings before vegetative reproduction begins, sheep may graze, chemical control may be effective.

## IDENTIFICATION

**FLOWER** Develops at base of the upper leaves, snapdragon-like, bright yellow with an orange throat and a long spur.

**LEAVES** waxy, pale green to bluish green, heart-shaped, alternate with smooth edges, clasps the stem.

**STEMS** Up to 90cm tall, robust, waxy.

**ROOT** Taproot and horizontal roots with adventitious buds, woody. Can reach depths of up to 3m.

**SEED/FRUIT** Irregular angled seeds in two-celled capsule.



# DAME'S ROCKET

*Hesperis matronalis* Provincial Designation Noxious



Dame's Rocket is a member of the Brassicaceae (Mustard) family and was introduced from Europe as an ornamental it is also known as Dames Violet. It is often found growing as an escaped ornamental plant in moist habitats.

**CONCERN** May be spread by wild flower mixes.

**LIFE CYCLE** Perennial

**CONTROL** Hand picking or chemical control before flowering.

## IDENTIFICATION

**FLOWER** 4 showy purple-pink-white petals.

**LEAVES** Stalkless, alternately arranged on the stem, small hairs on both sides, toothed edges. Rosette leaves can be as long as 15cm and stem leaves are 5-15cm (smaller towards the top of the plant).

**STEMS** Up to 1.2m tall, branched, covered with small hairs.

**ROOT** Shallow root.

**SEED/FRUITS** Reproduces by seed, thin, wiry seedpods that are 5-10cm long, each plant can produce up to 20,000 seeds.



# DOWNY BROME

*Bromus tectorum*, Provincial Designation Noxious

All Sarah Schumacher, Wheatland County



Downy Brome is a member of the Poaceae (Grass) family, other names include downy chess, and cheatgrass.

**LIFE CYCLE** Annual or winter annual, blooms early in the growing season.

**CONCERN** This weed can reduce agricultural production and is a fire hazard in roadside ditches. Awns can also irritate livestock mouths.

**SIMILAR SPECIES** Japanese Brome.

**CONTROL** Early spring, chemical, hand pick.

## IDENTIFICATION

**FLOWER** Nodding Panicle, often reddish-purple when mature, covered with soft hairs, long awns.

**LEAVES** Leaf blades are 2- 4 mm wide, 5-12 cm long and covered with soft hairs. The ligule is present; toothed, 1-3 mm long.

**STEMS** Covered with soft hairs, 5 - 60cm tall.

**ROOT** Fibrous roots.

**SEED/FRUITS** Aggressive seed producer.



# FIELD BINDWEED

*Convolvulus arvensis* Provincial Designation Noxious



Ron Bartholow, Wheatland County



All Sarah Schumacher, Wheatland County



Field Bindweed is a member of the Convolvulaceae (Morning Glory) Family native to Africa, Asia and Europe. It was most likely introduced as a contaminant in crop seed.

**LIFE CYCLE** Perennial vine.

**CONCERN** Can tolerate a wide range of conditions, often found on roadsides or growing on fence lines. It can outcompete native species, and may be mildly toxic to livestock.

**CONTROL** Chemical, hand pick before flowering and seed set.

## IDENTIFICATION

**FLOWER** 2.5cm in diameter, tubular or

bell-shaped, and white to pinkish. Two bracts on stem below flower.

**LEAVES** Dark green, arrow head shaped with sharp pointed lobes are alternate and grow on one side of the stem.

**STEMS** Up to 1.5m long, growing horizontally or climbing, often has a twist.

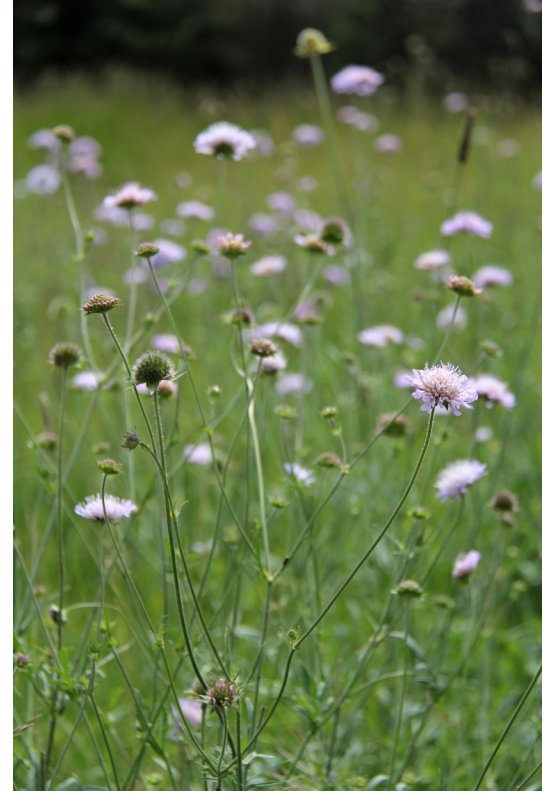
**ROOT** Deep Taproot with lateral creeping roots.

**SEED/FRUIT** Four seeds per fruit, small round. One plant can produce up to 500 seeds which can remain viable for up to 20 years.



# FIELD SCABIOUS

*Knautia arvensis* Provincial Designation Noxious



Field Scabious is a member of the Dipsacaceae (Teasel) Family and was introduced from Europe as an ornamental.

**LIFE CYCLE** Perennial.

**SIMILAR SPECIES** There are many similar ornamental species in the Teasel family.

**CONCERN** Can invade pasture, range-land and native areas and is difficult to control once established.

**CONTROL** Prevent seed set by mowing or spraying before flowering.

## IDENTIFICATION

**FLOWER** Pink-purple, occur at the end of the stem, 4cm wide. Below the flower head is a ring of narrow green bracts.

**LEAVES** Large leaves are oppositely arranged on the stem, deeply divided (upper stems are lobed) and hairy.

**STEMS** Up to 1.5m tall, erect, several stems per plant, covered by coarse stiff hairs, and black dots.

**ROOT** Taproot.

**SEED/FRUITS** Hairy, pappus, small. One plant can produce 2000 seeds which can remain viable in the soil for many years.



# GREAT BURDOCK

*Arctium lappa* Provincial Designation Noxious



Great Burdock is a member of the Asteraceae (Sunflower) family and was introduced from Europe. It can be found in disturbed areas.

**LIFE CYCLE** Biennial; basal leaves in the first year of growth, flowers in the second.

**CONCERN** Seed pods (“burs”) can stick to clothing and animals.

**SIMILAR SPECIES** Lesser Burdock, Woolly Burdock,

**CONTROL** Control in the rosette stage (first years growth) before bolting and flowering.

## IDENTIFICATION

**FLOWER** Clusters of purple-pink flowers, hooked bracts below the flower.

**LEAVES** Large leaves, heart shaped, woolly underneath, larger leaves are closer to the ground, alternately arranged on the stem.

**STEMS** Plant can be as large as 3m tall, stems are thick and hollow.

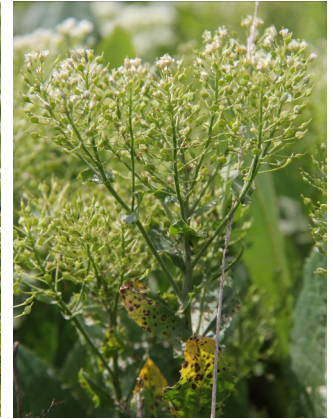
**ROOT** Taproot.

**SEED/FRUITS** Large seed pods with hooks attach themselves to clothing and fur, a mature plant can produce from 6,000 to 16,000 seeds.



# HOARY CRESS

*Lepidium spp.* Provincial Designation Noxious



Hoary Cress is of the Brassicaceae (Mustard) family. There are 3 similar species are listed under the Weed Control Act which includes: Globe podded (*Lepidium appelianum*), Lens podded (*Lepidium chalepense*), and Heart podded (*Lepidium draba*). These species may also be know as Whitetop or pepper-grass.

**CONCERN** Can form large infestations that can displace native species and reduce grazing quality.

**SIMILAR SPECIES** Perennial Pepper Grass

**LIFE CYCLE** Creeping perennial

**CONTROL** Chemical, cultivation or mowing may increase populations.

## IDENTIFICATION

**FLOWER** Numerous white flowers with 4 petals borne on 1cm long stalk. Dense clusters create a white, flat-top appearance.

**LEAVES** Blue green to gray green leaves are alternate, covered with soft white hairs, and lance to arrow head shaped. Lower leaves stalked; upper leaves clasp stem.

**STEMS** Up to 60cm tall.

**ROOT** Aggressive, rhizomatous, deep.



# HOUND'S TONGUE

*Cynoglossum officinale* Provincial Designation Noxious



All Sarah Schmecker, Wheatland County

Hound's Tongue is a member of the Boraginaceae (Borage) Family, it may have been introduced as a crop seed contaminant from Europe. It is tolerant of a wide range of conditions.

**CONCERN** Can establish rapidly and form dense monocultures in disturbed habitats, it is also considered toxic to livestock.

**LIFE CYCLE** Biennial or short lived perennial.

**CONTROL** Spray rosette, mow before flowering and seed set, use weed free hay sources.

## IDENTIFICATION

**FLOWER** Five petals, reddish purple Small-ish.

**LEAVES** Rosette leaves (form in first years growth) are up to 30cm long, velvety, lack teeth or lobes. Stem leaves alternate and smaller toward the top of the plant, "Hound's Tongue" - like.

**STEMS** 60cm to 1.2m tall with branches near the top of the plant.

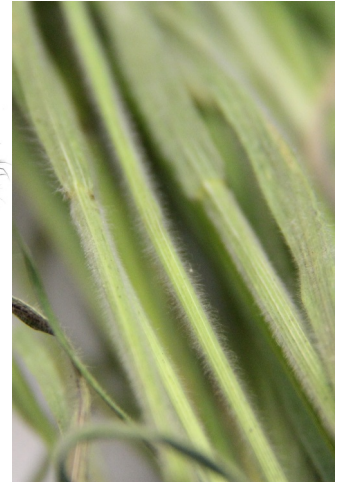
**ROOT** Taproot.

**SEED/FRUIT** Four bur-like nutlets are covered in hooks which catch onto clothing and fur.



# JAPANESE BROME

*Bromus japonicas* Provincial Designation Noxious



Japanese Brome is a member of the Poaceae (Grass) Family and is also known as Japanese Chess.

**CONCERN** This weed can reduce agricultural production and is a fire hazard in roadside ditches. Awns can also irritate livestock mouths.

**LIFE CYCLE** Annual or winter annual.

**SIMILAR SPECIES** Downy Brome

**CONTROL** Graze early before seed set, chemical, hand pick.

## IDENTIFICATION

**FLOWER** Panicles droop to one side, spikelet flattened, shorter awns than

downy brome and not as drooping.

**LEAVES** Leaf blades are flat 2 - 4 mm wide, covered with soft white hairs. Ligules are about 1.5mm long, membranous and hairy with ragged edges.

**STEMS** Covered with soft hairs, 30 to 60cm tall, bent at base and nodes are swollen.

**ROOT** Shallow fibrous roots.

**SEED/FRUITS** Aggressive seed producer. Awns are 8-10 mm long and straight to bent/twisted at maturity and tan colored (Downy Brome has a twisted awn and is reddish).

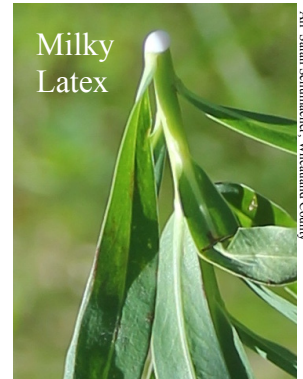


# LEAFY SPURGE

*Euphorbia esula* Provincial Designation Noxious



No leaflets  
in between  
the main  
leaves and  
the stem



Milky  
Latex



Leafy Spurge is a member of the Euphorbiaceae (Spurge) family and was introduced from Eurasia likely as a seed contaminant. It is similar to ornamental varieties and is related to the Christmas Poinsettia. It is commonly found in pastures and river valleys.

**CONCERN** The milky sap from the plant is an irritant to most livestock and may cause severe skin rashes or irritation in humans.

**SIMILAR SPECIES** Looks similar to Yellow Toadflax before flowering.

**LIFE CYCLE** Creeping Perennial

**CONTROL** Chemical control and targeted grazing (i.e. sheep) can be effective. Biological control agents are available.

## IDENTIFICATION

**FLOWER** Yellowish green flowers in small clusters, inconspicuous, small, lacks petals or sepals, 2 showy heart-shaped yellow leafy bracts below.

**LEAVES** Alternate, narrow, 2-10cm long. Stems and leaves contain a white milky sap (similar to Dandelions).

**STEMS** Up to 90cm tall, pale green, smooth, milky sap,

**ROOT** Deeply rooted, spreads by brownish rhizomes with pink buds.

**SEED/FRUIT** Oblong, grayish to purple, 3 seeded capsule.



# LESSER BURDOCK

*Arctium minus* Provincial Designation Noxious



Lesser Burdock is a member of the Asteraceae (Sunflower) family and was introduced from Europe. It can be found in disturbed areas.

**CONCERN** Seed pods (“burs”) can stick to clothing and animals.

**SIMILAR SPECIES** Great Burdock, Woolly Burdock.

**LIFE CYCLE** Biennial; basal leaves in the first year of growth, flowers in the second.

**CONTROL** Control in the rosette stage (first years growth) before bolting and flowering.

## IDENTIFICATION

**FLOWER** Clusters of purple-pink flowers, flowers have hooked bracts (similar to Velcro).

**LEAVES** Large, heart shaped, woolly underneath, larger leaves are closer to the ground, alternately arranged on the stem.

**STEMS** 1-2m tall, stems are thick and hollow, branched, reddish tinge, may be grooved or angular.

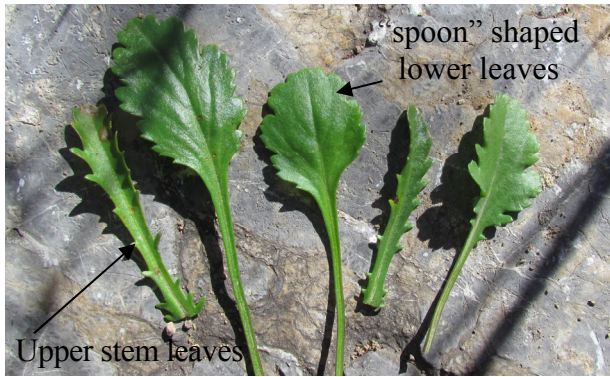
**ROOT** Taproot.

**SEED/FRUITS** Large seed pods with hooks attach themselves to clothing and fur, a mature plant can produce from 6,000 to 16,000 seeds.



# OXEYE DAISY

*Leucanthemum vulgare* Provincial Designation Noxious



Oxeye Daisy is a member of the Asteraceae (Sunflower) family and was introduced from Europe as an ornamental. It is often found growing as an ornamental and along roadways.

**CONCERN** Can outcompete native vegetation

**SIMILAR SPECIES** Scentless Chamomile.

**LIFE CYCLE** Short-lived perennial.

**CONTROL** Chemical, mowing or deadhead (pull the flower off when bloom is finished) to prevent seed set, don't share daisies with your friends and neighbors! Be wary of wildflower seed mixes.

## IDENTIFICATION

**FLOWER** 2 - 5cm diameter flower head

per, one flower per stem, white outer petals (ray florets) and a yellow center (disk florets). May have an unpleasant odour.

**LEAVES** Variable. Basal and lower stem leaves have long narrow stalks, rounded teeth, spoon shaped. Upper stem leaves are smaller towards the top, no stalk, and are toothed.

**STEMS** 20-80cm tall, simple or once branched, smooth, grooved, hairless.

**ROOT** Shallow, branched rhizomes (slightly creeping).

**SEED/FRUIT** Numerous, small, black with ribs.



# PERENNIAL SOW THISTLE

*Sonchus arvensis* Provincial Designation Noxious



Perennial Sow Thistle is a member of the Asteraceae (Sunflower) family and was introduced from Europe and Asia. Other names include; Creeping Sow Thistle, and Field Milk Thistle.

**CONCERN** It is tolerant of a wide range of habitats and can become a serious problem in riparian (wetland) areas.

**LIFE CYCLE** Creeping perennial.

**CONTROL** Chemical, repeated mowing can control seed production.

## IDENTIFICATION

**FLOWER** Yellow flowers (dandelion-like), grouped in loose clusters at the ends of stems. The bracts of the flower

heads are often covered with sticky hairs. One plant may have up to 20 flower heads.

**LEAVES** Alternate, prickles on the edges, may be lobed, usually on the lower portion of the plant, A milky sap flows from the stem when the flower is picked or damaged.

**STEMS** 30cm - 1.5m tall, upright, hollow, branched at the top portion of the plant, milky sap.

**ROOT** Creeping rhizomatous root.

**SEED/FRUITS** Small seed, wings (pappus), dispersed by wind.



# SCENTLESS CHAMOMILE

*Tripleurospermum perforatum* Provincial Designation Noxious



Scentless Chamomile is a member of the Asteraceae (Sunflower Family) it was introduced from Eurasia and is also known as Mayweed and False Chamomile. Unlike other chamomile species, this plant does not have a sweet smell.

**CONCERN** Often found in moist areas and is tolerant of a wide range of conditions.

**SIMILAR SPECIES** Ox Eye Daisy

**LIFE CYCLE** Annual, biennial, or short lived perennial.

**CONTROL** Hand pick before flowering, if the root is not removed it will still bloom. This plant will also respond to chemical control before flowering.

Biological agents are available. Cultivation of rosettes may be effective.

## IDENTIFICATION

**FLOWER** Flowers occur at the end of the stem, yellow centre (disk florets), and white petals (ray florets). Sometimes the petals point downwards like a badminton “birdie”.

**LEAVES** Fern-like leaves are highly branched, glossy and scentless.

**STEMS** Stems are branched, and can be up to 1m tall or as small as 5cm.

**ROOT** Fibrous roots.

**SEED/FRUIT** Prolific seed production



# TALL BUTTERCUP

*Ranunculus acris* Provincial Designation Noxious



Tall Buttercup is a member of the Ranunculaceae (Buttercup/ Crowfoot) family, it was introduced from Europe, and it often found in moist pastures.

**CONCERN** Contains a bitter, irritating oil called protoanemonin that is toxic to livestock.

**SIMILAR SPECIES** Sulfur Cinquefoil and looks similar to native buttercup species.

**LIFE CYCLE** Creeping perennial.

**CONTROL** Chemical control can be effective, for prevention maintain pasture health.

## IDENTIFICATION

**FLOWER** Glossy yellow flowers in

clusters, up to 3cm in diameter with greenish center, 5 petals, 10-14mm long.

**LEAVES** Hairy, leaves are deeply lobed (nearly to the base) into three to five segments with each segment lobed again. Leaves decrease in size toward the top of the plant, uppermost leaves have three to four narrow segments.

**STEMS** Up to 100cm tall, branched in the upper part of the plant, sometimes hairy.

**ROOT** Hairy, fibrous, rhizomatous.

**SEED/FRUIT** Small, black brown, each plant produces about 250 seeds, the seed clusters have a hook which can catch fur and clothing.



# WHITE COCKLE

*Silene latifolia* Poiret ssp. Provincial Designation Noxious



White Cockle is a member of the Caryophyllaceae (Pink) family, it was introduced from Eurasia, other names include White Campion, and Campion.

**CONCERN** Often found in tame pasture or hay land causing economic losses.

**LIFE CYCLE** Annual, biennial, short lived perennial.

**CONTROL** hand pick, bale hay before or mow before flowering, purchase weed free hay, chemical.

## IDENTIFICATION

**FLOWER** White, male flowers have a 5 veined calyx, female flowers have 20

veins (found on different plants), veins may be green or redish-brown, flowers are hairy and sometimes slightly sticky.

**LEAVES** Opposite, sometimes covered with slightly sticky hairs, prominent centre line.

**STEMS** Hairy, slightly sticky, 20-120cm tall, branched, swollen nodes.

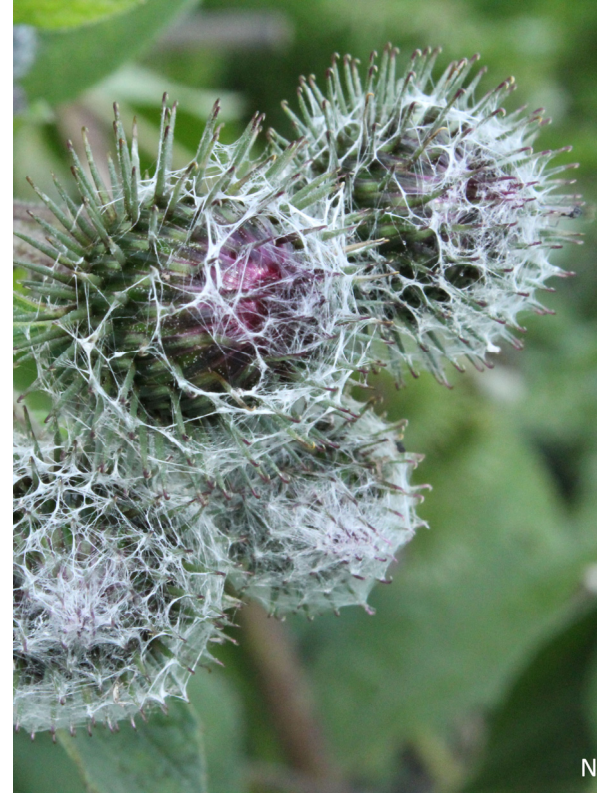
**ROOT** Deep tap root.

**SEED/FRUITS** Aggressive seed producer, seeds are kidney shaped, grey and bumpy. Fruit has 10 teeth.



# WOOLLY BURDOCK

*Arctium tomentosum* Provincial Designation Noxious



Woolly Burdock is a member of the Asteraceae (Sunflower) family and was introduced from Eurasia as a herbal plant. It can be found in disturbed areas.

**CONCERN** Seed pods (“burs”) can stick to clothing and animals.

**SIMILAR SPECIES** Great Burdock, Lesser Burdock

**LIFE CYCLE** Biennial; basal leaves in the first year of growth, flowers in the second.

**CONTROL** Control in the rosette stage (first years growth) before bolting and flowering.

## IDENTIFICATION

**FLOWER** Clusters of purple-pink flowers, flowers have hooked bracts (similar to Velcro).

**LEAVES** Large, heart shaped, woolly underneath, larger leaves are closer to the ground, alternately arranged on the stem.

**STEMS** Plant can be as large as 3m tall, stems are thick, hollow and hairy.

**ROOT** Taproot.

**SEED/FRUITS** Large seed pods with hooks attach themselves to clothing and fur, a mature plant can produce from 6,000 to 16,000 seeds.



# YELLOW CLEMATIS

*Clematis tangutica* Provincial Designation Noxious



Sarah Schumacher, Wheatland County



Ron Bartholow, Wheatland County

Yellow Clematis is a member of the Ranunculaceae (Buttercup/Crowfoot) family and was introduced as an ornamental from Asia. It is also known as Golden Clematis, Virgins Bower or Helios. It is often found in urban areas growing on fences.

**CONCERN** Very aggressive and is tolerant of a wide range of conditions. Buyer be aware - it is still available as an ornamental plant.

**LIFE CYCLE** Perennial vine. It reproduces both by seed and vegetatively from stem pieces.

**CONTROL** Repeated hand pulling, chemical.

## IDENTIFICATION

**FLOWER** Yellow, 4 petals, nodding, bell shaped. Flowers occur at the ends of stems or in leaf axils.

**LEAVES** Leaf tips are pointed and edges are coarsely toothed. Leaves may be slightly hairy on the underside and are deciduous.

**STEMS** Branched, 3-4 m long, leaves will grow on new and old woody stems.

**ROOT** Creeping root.

**SEED/FRUITS** Numerous seeds, long silky tail (5-6cm long).



# YELLOW TOADFLAX

*Linaria vulgaris* Provincial Designation Noxious



Yellow Toadflax is a member of the Scrophulariaceae (Figwort/Snapdragon) family and was introduced from Europe as an ornamental and is often called “butter and eggs”. It is found in roadside ditches and rangelands.

**CONCERN** The ability of this plant to form large colonies allows it to out compete other vegetation.

**SIMILAR SPECIES** Dalmatian Toadflax, Looks similar to leafy spurge before flowering.

**LIFE CYCLE** Perennial.

**CONTROL** Long term, chemical (mid august), repeated cultivation.

## IDENTIFICATION

**FLOWER** Yellow, snapdragon-like flowers

with orange throat, 2.5 - 3cm long with downward spur/ tail (2.5 cm long), on short stalks in dense clusters at top of stems. Has a pleasant sweet smell.

**LEAVES** Numerous, alternate, pale green to gray-green, individually connected to the stem, 6 - 10cm long and narrow, smooth edges and slightly rubbery to touch. Smaller leaves are present in the axis of the stem and main leaf (not present on Leafy Spurge).

**STEMS** 15cm - 1m tall, not usually branched, can have multiple stems.

**ROOT** Creeping rhizomes.

**SEED/FRUIT** 2 compartment capsule, seeds are dark brown to black, less than 4cm in diameter, oval, flattened, with a papery circular wing.



# GLOSSARY

**Adventitious Roots** Roots appearing in an unusual or unexpected place on a plant.

**Alternate** Referring to a leaf or bud arrangement in which there is one bud or one leaf at a node.

**Annual** A plant that lives one year or less. A winter annual germinates late one growing season and produces seed and dies during the next growing season.

**Basal** Refers to the base of the plant.

**Biennial** A plant that lives for two growing seasons, normally producing a basal rosette the first year and the flower and fruit the second year.

**Bract** A small leaf-like structure surrounding or enclosing the flower, usually below the petals.

**Capsule** Dry fruit with more than one seed.

**Clasping** Partly surrounding the stem.

**Fibrous Roots** Root system with many, fine, diffuse roots.

**Flower Head** A cluster of individual flowers in one compact unit, usually referring to compound flower of the Sunflower Family members.

**Inflorescence** One or more flowers which comprise the flowering part of the plant.

**Lobed** Divided less than one-half the distance to the base or mid-vein, usually rounded or obtuse.

**Midrib** The central axis or vein of the leaf blade or leaflet.

**Noxious Weeds** Invasive plant which a landowner has a legal responsibility to control, based on the Alberta Weed Act

**Nutlet** Hard, small, one-seeded fruit, usually referring to fruits of the Boraginaceae members.

**Opposite** Term applied to leaves or buds occurring in pairs at a node.

**Palmate** Leaflets, lobes, or veins which arise from the same point at the tip of the stalk.

**Perennial** Plants which live two or more years.

**Pinnate** Leaflets or lobes developing from several different points on the main leaf axis.

**Plume** A hair-like or featherlike structure, often on a seed.

**Rhizomatous** Having rhizomes.

**Rhizome** A horizontal stem growing beneath the ground which can develop roots or sprouts at the joints.

**Rosette** A cluster of leaves radiating out from the base of the plant.

**Sepal** One of the outermost flower structures, usually enclosing the other flower parts in the bud.

**Spur** Any long, narrow (sometimes tubular) extension of a petal.

**Stolon** A horizontal stem growing above the ground, which can develop roots or sprouts at the joints.

**Taproot** The primary descending root along the vertical axis of the plant which is larger than the branching roots.

**Terminal** Borne at or belonging to the extremity or summit.

**Umbelliform Inflorescence** A many flowered inflorescence in which the flowers' stems arise from a common point, ascend in all directions, and form a relatively level topped flower cluster.



# RESOURCES

## ALBERTA INVASIVE SPECIES COUNCIL

[www.abinvasives.ca](http://www.abinvasives.ca)

BOOK: WEEDS OF CANADA  
Lone Pine Publishing

BOOK: WEEDS OF THE PRAIRIES  
Alberta Agriculture and Rural Development

BOOK: WEED SEEDLING GUIDE  
Alberta Agriculture and Rural Development

ALBERTA ENVIRONMENT & SUSTAINABLE RESOURCE DEVELOPMENT  
Report Invasive Species to 1-855-336-BOAT (2628) or visit [esrd.alberta.ca](http://esrd.alberta.ca)

ASSOCIATION OF ALBERTA AGRICULTURE FIELDMEN  
[www.aaaf.ab.ca](http://www.aaaf.ab.ca)  
Download the AAAF Weed ID App for Apple or Android devices

PLAY.CLEAN.GO.  
[www.playcleango.org](http://www.playcleango.org)

INVASIVE.ORG  
[www.invasive.org/](http://www.invasive.org/)

CENTRE FOR INVASIVE SPECIES & ECOSYSTEM HEALTH  
[www.bugwood.org](http://www.bugwood.org)  
[Wiki.bugwood.org](http://Wiki.bugwood.org)

USDA NATIONAL INVASIVE SPECIES INFORMATION CENTRE  
[www.invasivespeciesinfo.gov](http://www.invasivespeciesinfo.gov)

FOR MORE INFORMATION CONTACT YOUR LOCAL  
COUNTY, MUNICIPAL AGRICULTURAL FIELDMAN OR  
WEED INSPECTOR



# RESOURCES

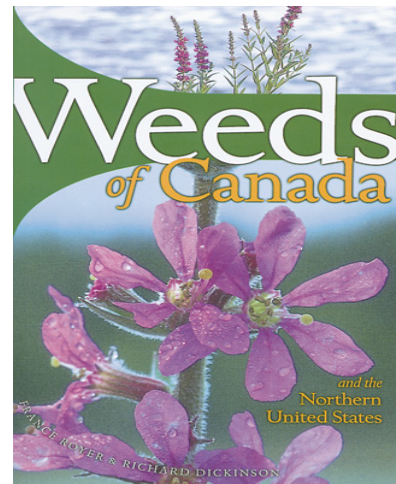
## WEEDS OF CANADA AND THE NORTHERN UNITED STATES

This impressive, richly illustrated field guide identifies more than 150 noxious weeds and another 100 related species. Colour photographs show the weeds at five critical stages. Information on weed legislation by province and state is also listed. A first of its kind, this book is an extraordinary resource for a multitude of users, whether farmer, landscaper, weed specialist or gardener.

Authors Royer and Richard Dickinson

Published by Lone Pine Publishing

\*Can be purchased at many book stores in Alberta



## WEEDS OF THE PRAIRIES

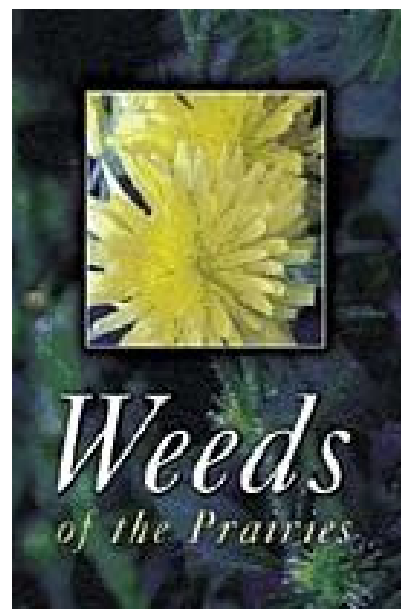
This book is a comprehensive field guide to the common weeds across the Canadian prairie provinces. With 112 weeds detailed, this book gives you full color photos of the weeds at different growth stages. Weeds are color-coded by flower color for easy reference, and the full index lets you find the species you want by common, scientific or family name. Charts on life cycle and habitat provide valuable information while the maps help you see how widespread these weeds are. An opening section on weed identification gives tips on what to look for. And the handy coil binding lets you open the book out flat, so you can work with it in the field.

**Alberta Agriculture Agdex 640-4 \$25.00**

Copies of this book may be purchased by

Calling 1-800-292-5697 (toll-free in Canada) or (780) 427-0391

Completing an order form and sending it to the Publications Office.



## WEED SEEDLING GUIDE

Early identification of grass and broad-leaved weeds saves time and money! This convenient pocket size booklet helps farmers and others correctly identify weed seedlings. Proper identification allows you to take appropriate measures to deal with weeds. This publication features over 60 coil-bound pages of information on 40 broad-leaved weeds and 10 grasses; a table of contents organized by cotyledon (seed-leaf) shape to make identification easier; 49 drawings of cotyledon (seed-leaf) shapes; 50 large full-color photos of weed seedlings and a helpful glossary of terms.

**Alberta Agriculture Agdex 640-9  
\$10.00**

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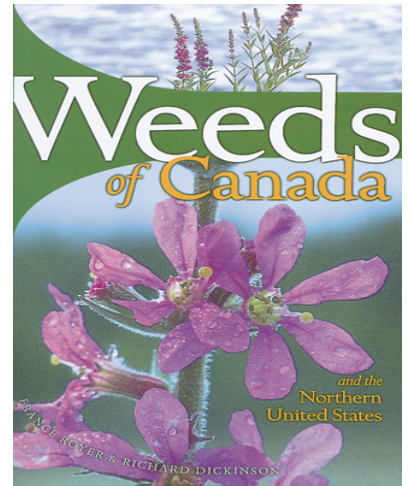
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## WEEDS OF THE PRAIRIES

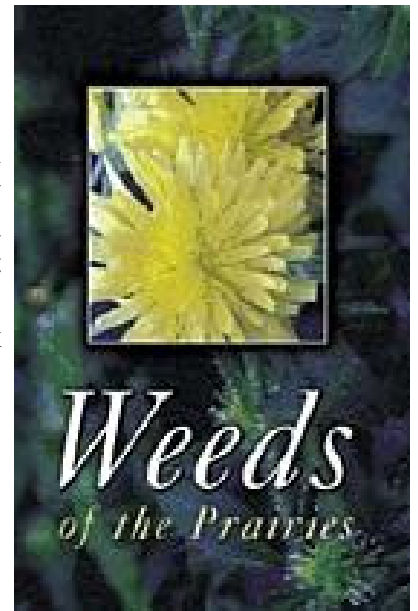
This book is a comprehensive field guide to the common weeds across the Canadian prairie provinces. With 112 weeds detailed, this book gives you full color photos of the weeds at different growth stages. Weeds are color-coded by flower color for easy reference, and the full index lets you find the species you want by common, scientific or family name. Charts on life cycle and habitat provide valuable information while the maps help you see how widespread these weeds are. An opening section on weed identification gives tips on what to look for. And the handy coil binding lets you open the book out flat, so you can work with it in the field.

**Alberta Agriculture Agdex 640-4 \$25.00**

Copies of this book may be purchased by

Calling 1-800-292-5697 (toll-free in Canada) or (780) 427-0391

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## WEED SEEDLING GUIDE

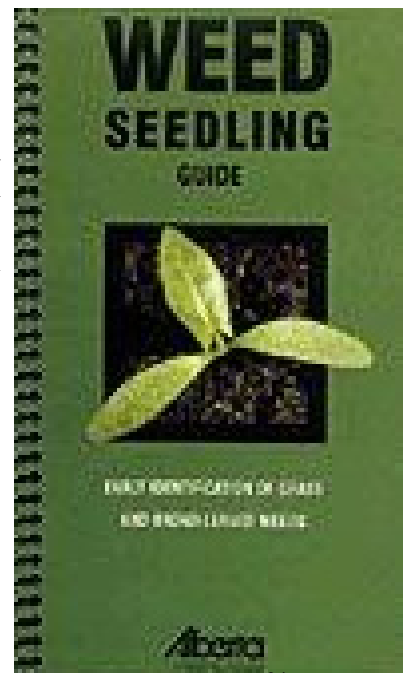
Early identification of grass and broad-leaved weeds saves time and money! This convenient pocket size booklet helps farmers and others correctly identify weed seedlings. Proper identification allows you to take appropriate measures to deal with weeds. This publication features over 60 coil-bound pages of information on 40 broad-leaved weeds and 10 grasses; a table of contents organized by cotyledon (seed-leaf) shape to make identification easier; 49 drawings of cotyledon (seed-leaf) shapes; 50 large full-color photos of weed seedlings and a helpful glossary of terms.

**Alberta Agriculture Agdex 640-9  
\$10.00**

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