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# The Verdant Element

## WHAT IS LURKING IN YOUR BACKYARD?

The year that I was a weed inspector was truly eventful. Driving endless miles of roads, fields, pastures and gardens in the pursuit of weeds created endless opportunities for misadventures. That year I was shot at, assaulted, threatened and chased with a rake. It was loads of fun, and led me to question people's sanity and sometimes my own. Some of the most surprisingly threatening people were elderly ladies when you tell them that the beautiful flowers in their gardens are actually noxious weeds that they must get rid of. Aside from the random instances of terror, the job had a lot of great aspects such as having the opportunity to work with landowners, to educate them and help control their weeds. However, to this day there is no such thing as taking a leisurely drive through the country as all I ever seem to notice is weeds.

Not surprisingly, the majority of noxious and prohibited noxious weeds have been imported for ornamental reasons and can unfortunately still be found in many greenhouses and seed catalogs. In this area, Himalayan Balsam is one of the prohibited noxious weeds that can be found in gardens and regrettably now in riparian areas of several lakes. Jessie Lake by Bonnyville, has large infestations where the storm sewer pipes into the lake, coming in from someone's garden in town. The past two summers, the MD of Bonnyville, Town of Bonnyville, LARA, BRWA and residents have spent days picking the weed from the lake shore. According to Don Davidson, from Pigeon Lake, who has been working on eradicating Himalayan Balsam from their shores, it will take over seven years to get control of the weed. It is a daunting battle, but not controlling it will result in the loss of native vegetation, wildlife habitat, nesting grounds for birds and will increase erosion of the shoreline. It is best to detect and work on removal as early as possible.

Before spring planting or for more information on what weeds are listed in the weed act and need to be controlled or eradicated visit the Alberta Weed Monitoring Network at:

[http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/All/prm13875](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/All/prm13875)





# HIMALAYAN BALSAM

(POOR MAN'S ORCHID, POLICEMAN'S  
HELMET, INDIAN BALSAM, ORNAMENTAL  
JEWELWEED, TOUCH-ME-NOT)

**Himalayan Balsam** is a prohibited noxious weed, which means that you must eradicate them. They have the potential to take over native vegetation, forming a monoculture and destroying wildlife habitat and waterfowl breeding grounds. They can outcompete cattails, rushes and sedges in riparian areas and due to shallow roots allow for erosion and destruction of shorelines.



Himalayan Balsam is an annual, which grows at an impressive rate, achieving heights of 1 to 3 meters. It has a hollow bamboo-like stem with prominent ridges. When under stress, it can grow in a spindly grass-like fashion, flowering close to the ground. The leaves and stem are tinged reddish purple colour, with whorls of three leaves twirling up the stem. Leaves are lance shaped and have prominent veins and serrated edges. The flowers can come in a multitude of shades from white to pink to dark purple. Flowers are heavy with nectar and can attract bees away from native species. Seed capsules can contain up to 16 seeds and explode, shooting seeds up to 10 meters away, and can stay viable for seven years. An average sized plant can produce 700-800 seeds in total.

Control: Hand pulling works best but needs to be done early in the season before seeds form. Disposal by bagging and burning is recommended however for large patches this is ineffective. At Pigeon Lake they have used the "pick, break and drop" method which is pulling out the plant and breaking it apart a few inches above the roots and dropping them on drier lands where they dry out and die. After August, you should bag the tops to prevent seed dispersal. Some herbicides are effective, however sprayed flowering plants can still produce viable seed.



Example of how Himalayan Balsam can outcompete native riparian vegetation.



## Western Water Hemlock and Cow Parsnip



**Western water hemlock** is a very toxic native member of the parsnip family. Its toxins are concentrated in the hollow rootstock,

but are also found in the leaves and stem. It can easily be mistaken for Cow Parsnip as both grow in marsh areas such as wetlands and along roadsides with moist ditches and have umbel flowers. Western water hemlock can be distinguished by its compound pinnate leaves with coarse teeth. Flowers are white or greenish in color. It takes very little of the toxin to be lethal and can cause death in as little as 15 minutes after consumption. Symptoms include: stomach pain, nausea, vomiting, diarrhea, fever, labored breathing, tremors, convulsions, and weak and rapid pulse.

**Cow parsnip**, part of the carrot family, can grow to 1 to 2 meters tall. It has large hairy heart-shaped leaves with small white flowers that grow in flat-topped clusters and produce flat seed pods. The leaves can cause skin irritation and blisters in humans and livestock. Cow parsnip can also be confused with Giant Hogweed, an introduced ornamental which contains phytotoxins.



Above: Cow Parsnip. Top Right: Cow Parsnip flowering. Below (from right, clockwise): Western Water Hemlock flower, Water Hemlock leaves, Water Hemlock entire plant.





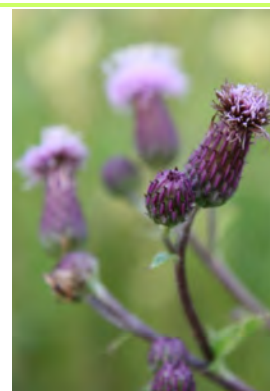


## CANADA THISTLE

**Canada thistle** has been on the weed control act since 1907. It is an aggressive perennial with an extensive root system that has been found to go down to depths of 6 meters. It is a diecious plant meaning it has both male and female flowers. It spreads primarily by creeping roots to form colonies that can be found in a variety of habitats.

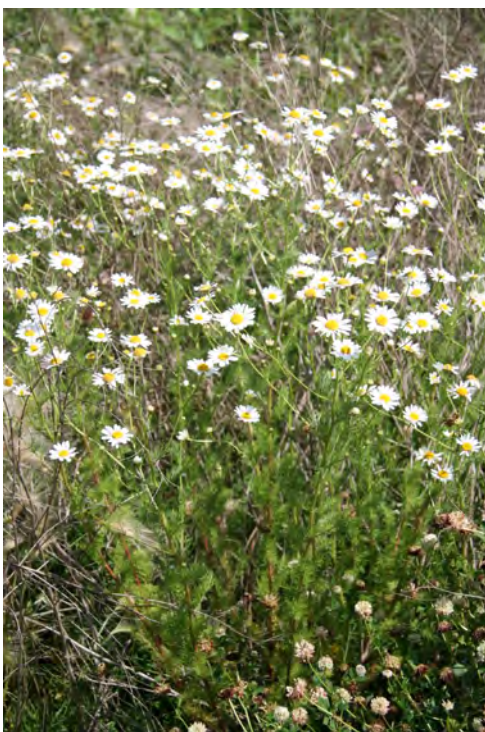
Prevention is the best in non-cropland areas by maintaining healthy plant cover and re-seeding disturbed areas as soon as possible with desired species. Avoid overgrazing of pastures to prevent thistle establishment.

Control: most of the Canada thistle biomass is in the root system so the only effective control is to kill the roots. Cultivation spreads small root pieces around, allowing for the establishment of new plants from those roots. Repeated mowing will eventually deplete root energy reserves, however this will take several years to be effective. There are over 280 registered herbicides for Canada thistle, however one with a residual would be more effective. The best time to spray is when the plant is in early bud stage (such as the picture above), or in the fall when the plant is moving energy into the root system.



This year, as part of a new provincial protocol, LARA released 1260 Canada thistle Stem Mining Weevils (*Hadropontus litura*) to determine if the weevils can establish native populations for Canada thistle suppression. The weevils are host specific to Canada thistle, and as adults, feed on the leaves of plants and when reproducing the eggs are laid in the stem and the larvae mine down in the stem to the roots feeding on plant tissue.

## SCENTLESS CHAMOMILE



**Scentless Chamomile** is easily confused with pineapple weed and German chamomile, both of which have distinct scents. Scentless chamomile has very fine smooth leaves, which are scentless when crushed. Flowers are daisy-like, yellow disk centered flowers with white ray petals. It reproduces by seed, and can have one million seeds per plant per year. The seeds can remain viable and dormant for 7—10 years. These plants can grow quite tall and without competition can cover a 1 meter squared area. Scentless Chamomile grows indeterminate which means it will continue to flower and go to seed continually over the growing season. It is a poor competitor, but can establish quickly on disturbed sites.

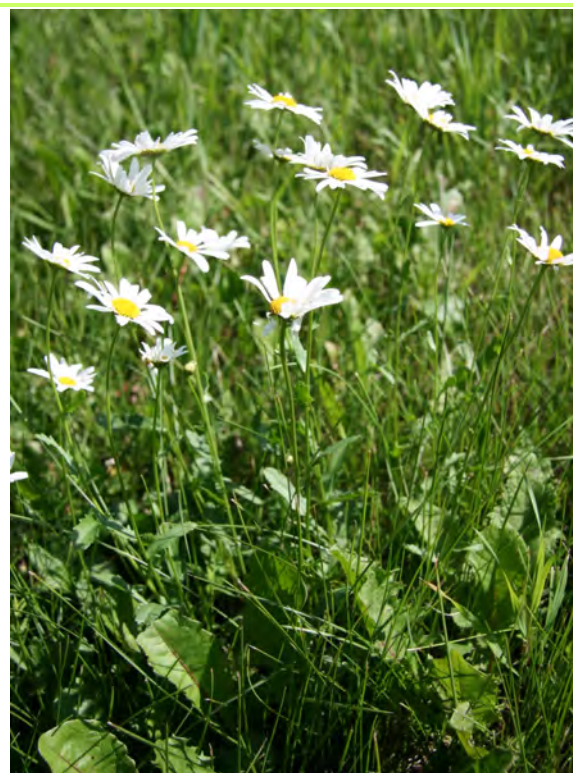
Control: DO NOT mow. These plants will adjust to mower height and flower closer to the ground and can re-sprout from the crown. Hand pulling small patches can provide effective control. Picked plants should either be burned or double bagged and sent to the landfill. Several chemical control methods are available. Biological control methods are available and include a seed-head feeding weevil (*Omphalapion hookeri*), and a gall midge (*Rhopalomyia tripleurospermi*).







**Ox-eye daisy** is similar to scentless chamomile. It tends to have larger flowers than scentless chamomile and spoon-shaped lobed basal leaves, with its upper leaves being linear (narrow and long). It reproduces by rhizomes and seeds. Each plant produces hundreds of seeds. Ox-eye daisy has an unpleasant odour.



## OX EYE DAISY

are supposed to be sterile but can revert back to ox-eye parentage and become invasive.

Control: Do not mow as it can spread the seed, and can cause the stems to re-sprout. Cultivation can be used as ox-eye has shallow roots. Several herbicides are registered to control ox-eye daisy.

Greenhouses and nurseries may sell Shasta daisy, which originated from ox-eye and



Below Left: One of the Canada thistle weevil release sites  
Below Center: Weevils arrive in containers with 105 weevils for release  
Below Right: Canada thistle weevil (*Hadropontus litura*)



## ENVIRONMENTAL FARM PLANS

The environment is becoming a more prominent issue. It is a large factor in marketing agriculture and food products in today's global markets: consumers are demanding greater transparency and high quality and safe products. Reputation of food safety is critical to retain and gain access to domestic and international markets.

Environmental Farm Plans (EFP) provide a tool for producers to self analyze their operation and identify environmental risks, current standards, areas for improvement and also highlight what they are doing well.

Having a completed EFP allows producers to access different funding opportunities, such as the Growing Forward Stewardship Program. It is also useful in product branding that demonstrates specific environmental standards.

### The EFP Process

An EFP can be completed through workshops or one-on-one sessions. The EFP first identifies the soil and farm site characteristics. Following this, the producer completes only the relevant chapters that apply to their operation, such as wintering sites, fertilizer, pesticides, crop management etc. Upon completion the EFP is submitted to a Technical Assistant for review. Once reviewed the EFP will be returned along with a letter of completion.

The EFP is a living document and should be reviewed and updated periodically.

If you wish to complete an EFP or have any questions regarding EFP please contact the LARA office at 780-826-7260.





**Tansy** is a creeping perennial that reproduces by both seeds and short rhizomes.

Leaves are fern-like and tend to be aromatic. Flowers occur in dense yellow button-like clusters. It grows in a variety of conditions, from pastures, fence lines and riparian areas with full sun.

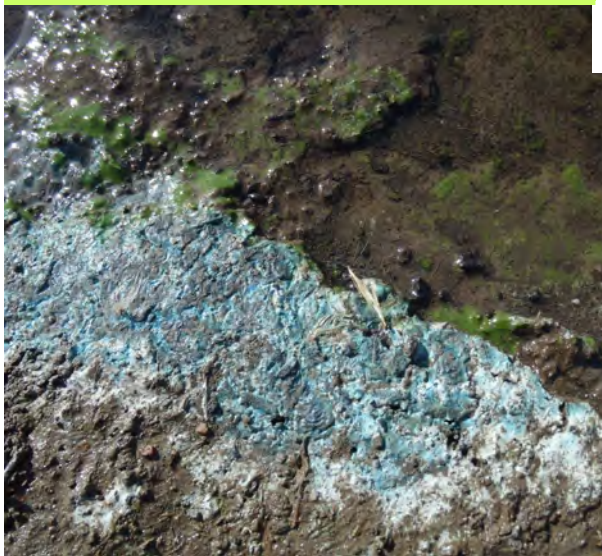
Control Options: cultivation is not recommended as re-growth can occur from severed roots. Regular mowing can reduce the amount of seed produced, but works best with the inclusion of a chemical control method. Encourage competitive growth from native species.

This plant contains pyrrolizidine alkaloids which are poisonous to humans and livestock. It can cause liver damage and reproductive issues in cattle.

## Tansy

## Blue Green Algae

*Strains of Cyanobacteria have been found in lake bottoms that are over 300 years old. These strains are still viable and can be cultured within a few days.*







Blue Green Algae on the shoreline

**Blue Green Algae** are a unique group of bacteria (cyanobacteria) that have the ability to photosynthesize. There are more than 100 species of cyanobacteria in Alberta, with many being able to out compete algae in a growing season. Many of Alberta's lakes are naturally nutrient rich to support cyanobacteria growth, but this can be exacerbated by extensive watershed development (industrial, urban and agricultural), and shoreline disturbance such as the removal of shoreline vegetation. Blooms are also weather dependant, so the occurrence, severity and persistence of the bloom can not be predicted .

When the cyanobacteria decompose, oxygen is often depleted from the water and ammonia is produced. Also, certain strains of cyanobacteria can produce nerve and liver toxins during decomposition, which can pose a serious health risk to humans and animals .

Control: in dugouts, bluestone can be used to kill blue green algae; however it is recommended that you wait two weeks after treatment before use for livestock. The best long term solution for lakes is to reduce nutrient loading from the watershed such as sewage effluent, industrial effluent and agricultural runoff.

**Toad flax** has a snap dragon-esque yellow flower that may have orange coloration on the throat of the flower. Leaves are pale green, very soft, long and narrow. This plant primarily spreads by its extensive creeping root system to create large colonies, but does have some seed production. Toadflax can grow up to one meter tall.

Control: Once established, toadflax is very difficult to eradicate. Repeated cultivation can be effective. Chemical control can be used for management, but is much more effective if used with other suppression methods such as repeated mowing or cultivation.



## Toad Flax





# Lakeland Agricultural Research Association

**LARA**  
**Box 7068**  
**Bonnyville Alberta**  
**T9N 2H4**

**Phone: 780-826-7260**  
**Fax: 780-826-7099**  
**Kellie Nichiporik**  
**E-mail: [sustainag.lara@mcsnet.ca](mailto:sustainag.lara@mcsnet.ca)**

**<http://www.lara.areca.ab.ca>**

Sustainable farming encompasses a wide range of practices and principles; combining environmental stewardship with profitability and ensuring that the family farm will be there for generations to come.



Like us on Facebook: <https://www.facebook.com/pages/Lakeland-Agricultural-Research-Association/316266591732449>

## Resources:

- ♦ **Alberta Weed Monitoring Network** [http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/All/prm13875](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/All/prm13875)
- ♦ **Alberta Invasive Plant Council** [www.invasiveplants.ab.ca](http://www.invasiveplants.ab.ca)



## White Cockle

**White cockle** is commonly found in hay fields, fence lines and orchards. Leaves are opposite, hairy with prominent veins on mature leaves. There can be several stems per plant growing up to 120 centimeters tall, turning purplish when flowering. The plants are dioecious with the flowers having five white notched petals. The male flowers have 10 veins at the base, whereas the female has 20 veins which inflate when the seeds are ripe.

White cockle produces large quantities of small seeds that are similar to clover and often are found to be in forage seed.

White cockle is commonly mistaken for night-flowering catchfly (which is sticky to touch and hairy) and bladder campion (hairless and smooth).

Control: cultivation is not recommended as white cockle can re-sprout from root pieces. Frequent mowing will prevent the plants from producing seed, but white cockle is a perennial, so will continue to grow from the root system. Herbicide options are usually limited due to occurrence in pastures and hay fields. There is some herbicide resistance with white cockle. Cutting and fertilizing to get grass and other species to compete is another possible control method.

