



Volume 4  
Issue 4  
Winter 2011

# Unwanted Invaders

## Inside this issue:

European Buckthorn	1
NAWMA Planning	2
Pembina Valley Project	2
Gypsy Moth Surveys	3
Invasive <i>Phragmites</i>	4
2010 AGM Summary	4
Upcoming Events	5
What's in Your Watershed? & Keep A Look-out Posters	5
Funding Sources & Partners	6
BROCHURE	7-8

**Invasive Species Council of Manitoba**  
c/o 5006 Roblin Blvd. Winnipeg, MB R3R 0G7  
Ph: (204) 232-6021 Fax: (204) 986-7236  
Email: [info@invasivespeciesmanitoba.com](mailto:info@invasivespeciesmanitoba.com)

## European Buckthorn Control Using a Novel Biological Herbicide

By Rob Au, Nature Manitoba

European buckthorn (*Rhamnus cathartica* L.) is an undesirable invasive exotic shrub to small tree (up to 6 m) in North America that possesses a long growing season (early spring – late autumn) accompanied by aggressive growth and reproduction. The plant colonizes following any disturbance quickly establishing itself on overturned soil.

First introduced in the City of Winnipeg as an ornamental shrub for hedgerows in parks and neighbourhoods during the late-1800s, European buckthorn is now commonly found along riverbanks and other habitats shading-out native plant species and threatening plant diversity in the process. There has also been a speculation that European buckthorn may produce a substance that inhibits the growth of neighbouring plants. This plant can readily be observed throughout all areas of Assiniboine Park forming dense thickets of continuous cover.

In a joint effort to eliminate European buckthorn from the park, a study was initiated at the City of Winnipeg Naturalist Services Branch in partnership with Nature Manitoba to test the effectiveness of the novel herbicide, Chontrol Peat Paste, on European buckthorn.

Chontrol Peat Paste is a naturally-occurring fungal plant pathogen that colonizes on the cut stems of undesirable plants. The effectiveness of both Chontrol Peat Paste and a conventional chemical herbicide were tested within the study consisting of 142 European buckthorn plants. Despite the late-season herbicide application this fall in early-November, the weather was very cooperative as tempera-



Top: Application of Chontrol Peat Paste (CPP) on a freshly cut European Buckthorn stump. Photo credit: ISCM.

Bottom: The stump has absorbed Chontrol Peat Paste and the fungus has colonized the treated area (photo taken 2 weeks following application). Photo credit: Rob Au.

tures remained in the high single-digits for much of each day.

Treated trees will be evaluated in the spring of 2011 to determine the success of Chontrol Peat Paste compared to a conventional herbicide in controlling this forest invader. This trial investigation will have implications for future management of European buckthorn in an urban setting.

## GROW ME INSTEAD



Brochure for Manitoba Gardeners

Email ISCM for a free copy:

[info@invasivespeciesmanitoba.com](mailto:info@invasivespeciesmanitoba.com)

With funding by Shell Environmental Fund



# 19<sup>th</sup> Annual North American Weed Management Association (NAWMA) Conference, Winnipeg, September 19-22, 2011

**By: Cheryl Heming, ISCM Coordinator**

ISCM and its partner groups, Integrated Vegetation Management Association of Manitoba and Saskatchewan, Manitoba Weed Supervisors Association, Saskatchewan Invasive Species Council and of course NAWMA are looking forward to the first ever NAWMA conference in Manitoba this fall 2011 and only the third NAWMA Conference ever held in Canada.

The 19th Conference will be held at the Canad Inns Fort Garry in the south end of Winnipeg, close to the University of Manitoba. A block of rooms has been set aside at the Conference rate under the NAWMA Conference block (Confirmation #: 162675 NAWMAC1; or Confirmation #: 162676 NAWMAC2). To book rooms, conference attendees have three options: 1. online at [www.canadinns.com](http://www.canadinns.com); 2. call the Toll Free Number at 1-888-332-2623; or 3. call the Hotel directly at 1-204-261-7450.

Special features for this year include an evening reception, optional dinner theatre evening at Celebrations and Beef Barbeque Banquet offsite. Two or more field tour options will be offered on the 21st.

The conference committee of Cheryl Heming, Robin Hamilton, Wanda McFayden, John Johnston, and Michelle Ammeter are hard at work on the program content. Relevant invasive species abstracts can be submitted to ISCM at [info@invasivespeciesmanitoba.com](mailto:info@invasivespeciesmanitoba.com).

Registration packages will be available for download from the NAWMA and ISCM websites in the upcoming months.

Participants expected from near include: Manitoba, Saskatchewan, Alberta, North Dakota and far include: Invasive Species Councils representatives across Canada, and NAWMA members from across the mid-western United States.

## Mark Your Calendars!

### September 19-22 2011



# NAWMA's 19th Annual Conference

## Winnipeg, Manitoba Canada

**Partner Hosts:**

Invasive Species Council of Manitoba	Integrated Vegetation Management Association Manitoba/Saskatchewan	Manitoba Weed Supervisor Association	Saskatchewan Invasive Species Council
--------------------------------------	--	--------------------------------------	---------------------------------------



[www.invasivespeciesmanitoba.com](http://www.invasivespeciesmanitoba.com) 204-232-6021

**Canad Inns Fort Garry, Winnipeg**

## ISCM creates new partnerships for Pembina Valley Awareness Project

**By: Cheryl Heming, ISCM Coordinator**

The Invasive Species Council of Manitoba (ISCM) is partnering with the Pembina Valley Conservation District, the MAFRI Go Team and A Rocha to create an awareness and survey project with producers and landowners in the Pembina Valley watershed area. The Pembina Valley region, by virtue of its location along the border with North Dakota, has long been susceptible to first invasions by invasive and noxious weeds moving northward.

These include Diffuse Knapweed (near Morden), Nodding Thistle, Tansy, Scent-

less Chamomile, Toadflax species and Leafy Spurge. In addition, multiple rural municipalities in the region do not have Weed Supervisors - a first line of defense against noxious weeds.



Nodding thistle (left) and Scentless Chamomile (right) along the Pembina River. Photo credit: S. Faber Routley, ISCM.

The Pembina Valley Awareness Project will send out material to 4500 landowners across the region and encourage them to report these target invasives. The data collected will develop a inventory of these species for the area, which will enable the team to work to develop a first stage response plan for the region.

The project will be using a local telephone reporting line (MAFRI office in Somerset, MB): 1-204-825-8025 or the online reporting option on the Invasive Species Council of Manitoba website at [www.invasivespeciesmanitoba.com](http://www.invasivespeciesmanitoba.com).

Further information or posters are available from the Invasive Species Council of Manitoba at 204-232-6021.

# Province Successfully Suppresses European Gypsy Moth Outbreak in La Salle and St. Germain

By Kyla Maslaniec, Forest Health Extension Technician, Manitoba Conservation

European Gypsy moth (*Lymantria dispar*) is an invasive forest pest (native of Europe, North Africa and Asia) that eats leaves during the caterpillar (larval) stage. It was first introduced to North America in 1869 and is established in Canada in Ontario, Quebec and the Maritimes.

Gypsy moth will feed on hardwoods or conifers and prefer oak, poplar, elm, maple and birch. Trees may be nearly completely stripped of their leaves, and this can stress the trees leaving them vulnerable to attack by other insects and diseases. Repeated severe feeding by the Gypsy moth can cause the tree to die.



Gypsy Moth adults. Photo credit: John H. Ghent, USDA Forest Service, Bugwood.org

Trees that have had their leaves removed provide less shade, and all of the frass (fecal matter) created by the caterpillars is messy and aesthetically displeasing. The hairs released into the air by the Gypsy moth can also cause respiratory problems in some people.

The Canadian Food Inspection Agency (CFIA) monitors for European Gypsy moth in many areas of Manitoba by deploying adult male moth traps. Occasionally male moths are caught in these traps but not in sufficient numbers to indicate a permanent population. However, after an increase in male moth captures in 2006 in La Salle and St. Germain (near Winnipeg), the CFIA began monitoring these areas more intensively.

Male moth captures increased in 2007 in La Salle and St. Germain, and as a result,

fall egg mass surveys were conducted by the CFIA and Manitoba Conservation, Forestry Branch. Egg masses were found and destroyed, and in 2008, after more male moth captures, another egg mass survey was completed in the fall. A significant number of egg masses were found indicating a population of Gypsy moth was becoming established in those areas.

Not only can Gypsy moth populations intensify to a level that can have serious impacts on affected trees, forests and people, but an established population would mean the CFIA would have to regulate Manitoba for this invasive pest by restricting movement of material out of affected areas.

Manitoba Conservation, Forestry Branch had to develop a plan to respond to the newly detected infestation. Different options, including a recommended plan, were presented to residents in the affected areas during several open houses in the spring of 2009.

After the consultations, the province proceeded with a plan that included the aerial spraying of the biological pesticide Foray 48B containing *Bacillus thuringiensis* kurstaki (Btk). This formulation is certified organic and is listed with the Organic Materials Review Institute, for use in organic production and food processing.

Parts of St. Germain, St. Norbert and the Kingswood Golf Course subdivision in the Rural Municipality of MacDonald were aerially sprayed with Foray 48B in the early hours of June 16, 19 and 25. The spraying had to be conducted in low wind conditions, which required vigilant monitoring by Forestry staff, and residents were given 24 hours notice before each application.

Intensive male moth trapping and egg mass surveys followed in these areas in 2009 and 2010, and the results of this monitoring have shown the province's eradication efforts were successful. As a result, the CFIA has not placed Manitoba on regulatory status for European Gypsy moth.

Monitoring for European Gypsy moth continues in Manitoba. Gypsy moths can spread into new areas through natural migration or



Gypsy moth 2007 survey. *Top*: Survey 3, Pheromone trap; *Bottom*: Survey 7, CFIA rep gives survey brief: Photo Credit: Manitoba Conservation, Forestry Branch.

through the through the long distance movement of their egg masses, which can be laid on a variety of surfaces, including vehicles, trailers, boats and outdoor furniture and equipment. The public can help stop the introduction of this invasive pest by inspecting their vehicles and personal items before returning to Manitoba from infested areas.

For more information on European Gypsy moth or to report a sighting please visit:

**Manitoba Conservation, Forestry Branch:**

<http://www.gov.mb.ca/conservation/forestry/health/gypsy-moth.html#gypsymothcontrolplan2009>

**Canadian Food Inspection Agency:**

<http://www.inspection.gc.ca/english/plav/eg/pestrava/lymdis/lymdisee.shtml>

# Invasive Phragmites, a new aquatic invasive threat in Manitoba!

By Sandi Faber Routley, ISCM Project Technician

Manitoba is on early detection alert for a wetland invader recently discovered in the province called Invasive Phragmites (*Phragmites australis* subspecies *australis*). This invasive subspecies was accidentally introduced to North America in the 1700s from Europe. It is commonly confused with native *Phragmites*, which has a nearly worldwide distribution. The invasive subspecies has now spread throughout the United States and Canada, preferring disturbed wetland areas. Plants form thick stands which out-compete native plants, alters habitat for wildlife, changes nutrient cycling, and impacts hydrology of the land.

Two stands were first reported to ISCM in the Winnipeg area in 2010. They were positively identified by ISCM staff in late August 2010 during initial flowering. Immediate action by a few of ISCM's Early Detection Rapid Response (EDRR) members involved removing the seed heads in attempt to prevent further spread of this plant. Since that time a total of 6 sites (8 stands) have been confirmed to be invasive *Phragmites* in the vicinity of Winnipeg, and an additional 2-3 suspected sites are yet to be confirmed.



Top: A tall stand of Invasive *Phragmites* along a railway in Winnipeg. Bottom: Showing the large-sized seed heads. Photo credit: S. Faber Routley, ISCM.



Above left: A Native *Phragmites* stand in fall showing red 'sunburn' colour on lower stalks. Above right: Stalk of native (L) and invasive (R) *Phragmites* in fall. Photo credit: C. Parks, Manitoba Water Stewardship.

At ISCM's Annual Meeting in December, a workshop on control and management of invasive *Phragmites* was given by Dr. Janice Gilbert, an ecologist with Ontario Parks. Dr. Gilbert is dealing with widespread infestations of this plant in Ontario. Following the workshop, an Invasive *Phragmites* response team was set up for Manitoba with members from ISCM, Manitoba Water Stewardship and City of Winnipeg Naturalist Services Branch. Using Dr. Gilbert's recommendations, one invasive *Phragmites* ditch site in Winnipeg will be used as a test site by the response team. It is scheduled to be flattened and burned in early March 2011. Follow-up action will occur in spring 2011 pending water levels of the site.

Invasive *Phragmites* (other common

names: Ditch reed, giant reed, yellow cane) is a tall, semi-aquatic perennial grass that can grow to heights of 4.6 m (15 ft) or more and form dense monocultures. It has green leaves 1-4 cm (1-1.5 in) wide and 75cm (30 in) long. Unlike native *Phragmites* (subspecies *americanus*), leaf sheaths remain attached and are difficult to remove. It is also much taller than the native species and has longer, darker flowering heads. Native *Phragmites* has a 'sunburn look' to the lower stalks in the fall. Invasive *Phragmites* remains green and growing when all the native plants have already died-back for the winter.



Native *Phragmites* seed head (left) and darker seed head of invasive *Phragmites* (right) beside 30 cm ruler. Photo credit: C. Parks, Manitoba Water Stewardship.

Please report any suspected sightings of invasive *Phragmites* to ISCM at [www.invasivespeciesmanitoba.com](http://www.invasivespeciesmanitoba.com) or call Manitoba Water Stewardship at 1-87-STOP AIS-0 (1-877-867-2470).

## ISCM's 3RD ANNUAL MEETING & STAKEHOLDER WORKSHOP A SUCCESS!



**December 1st, 2010**, ISCM held their Annual General Meeting during the Manitoba Weed Supervisors Association Fall Seminar at the Holiday Inn Airport West, Winnipeg. This year's meeting featured various early detection workshops on local invasive species topics, including an informative presentation by Janice Gilbert of Ontario Parks on invasive *Phragmites*, followed by ISCM's business meeting.

We wish to thank the **70+ members** from our stakeholder groups and the general public who made this event such a great success! Topics & Speakers are already being lined up for ISCM's 2011 AGM.

**Mark your calendars** for the 2011 AGM to be held in late November or early December (date TBC in the Fall "Unwanted Invaders" Newsletter)!

## Upcoming Invasive Species Events

### March/April 2011

- March 6-8 Mid-Canada Boat Show, Winnipeg Convention Centre, Winnipeg, MB. [midcanadaboatshow.com](http://midcanadaboatshow.com)
- March 10 Ecological Effects of Invasive Plants Symposium, DoubleTree City Center Hotel, Spokane, Washington. Contact Phil Banks at 575-527-1888 or [wsws@marathonag.com](mailto:wsws@marathonag.com).
- March 14-18 Environmental Awareness Week, Fort Garry Campus, University of Manitoba, Winnipeg, MB.
- March 16 Manitoba Weed Supervisors Association Municipal Issues Seminar, 8:30-3:00 PM, Carberry Community Hall, Carberry, MB.
- March 17 Manitoba Rural Adaptation Council Annual Meeting, Canad Inns, Portage La Prairie, MB. [www.mrac.ca](http://www.mrac.ca)
- March 17 Whiteshell Cottagers Association Annual Meeting, Club Regent Casino, Winnipeg, MB.
- March 26 Gardening Saturday, Canadian Mennonite University, Winnipeg, MB. [www.friendsconservatory.com](http://www.friendsconservatory.com)
- April 5-8 Manitoba Weed Supervisors Association Spring Training Seminar, Russell, MB.
- April 18-21 Noxious Weed Short Course, The Western Society of Weed Science, Sylvan Dale Guest Ranch, Loveland, Colorado. Contact Sandra McDonald at 970-266-9573 or [Sandra@MountainWestPEST.com](mailto:Sandra@MountainWestPEST.com). To register: [www.wsweedscience.org/Shortcourse/shortcourse.asp](http://www.wsweedscience.org/Shortcourse/shortcourse.asp).

### July 2011

- July 6-8 Noxious and Invasive Plant Ecology and Management Course, University of Nebraska-Lincoln West Central Research and Extension Center, North Platte, Nebraska. Contact Dr. Stephen Young at 308-696-6712 or [syoung4@unlnotes.unl.edu](mailto:syoung4@unlnotes.unl.edu).

### August 2011

- August 3-4 MAFRI Provincial Pasture Tour, southwest Manitoba region. For more information or to register on-line, go to the [www.mbforagecouncil.mb.ca](http://www.mbforagecouncil.mb.ca) website or call Linda Ryckman at 483-2153.

### September 2011

- Sept 19-21 2011 North American Weed Management Annual Conference, Canad Inns Fort Garry, Winnipeg, MB. [www.invasivespeciesmanitoba.com](http://www.invasivespeciesmanitoba.com).

### August 2012

- August 6-10 North American Prairie Conference, University of Manitoba Fort Garry Campus, Winnipeg, MB.

**Invasive Species**  
**What's in your watershed?**

Invasive species cause millions of dollars of damage to Manitoba landscapes each year. Report unwanted invaders to the Invasive Species Council of Manitoba

Flowering rush    Nodding thistle    Himalayan balsam    Yellow flag iris    Salt cedar (Tamarisk)    Water hyacinth    Purple loosestrife

Invasive Species Council of Manitoba  
 c/o 5006 Roblin Boulevard, Winnipeg, Manitoba R3R 0G7  
[www.invasivespeciesmanitoba.com](http://www.invasivespeciesmanitoba.com) (204) 232-6021  
 Contact us for a free email newsletter at [info@invasivespeciesmanitoba.com](mailto:info@invasivespeciesmanitoba.com)

**Keep a Lookout**

**For Invasive Plants in the Pembina Valley**  
These species may be on your land - early detection and reporting can prevent their spread

Diffuse Knopweed    Nodding Thistle    Common Tansy  
*Centaurea diffusa*    *Carduus nutans*    *Taraxacum vulgare*

Yellow Toadflax    Delphinium Toadflax    Co-eye Daisy    Scourflood    Scirpus    Leafy Spurge  
*Linaris vulgaris*    *Lina. almita*    *Lactuca vulgaris*    *Helianthus annuus*    *Elymus repens*    *Euphorbia esula*

Pembina Valley Conservation District    A. M.    Invasive Species Council of Manitoba

Please report these species: Phone: (431) 224-6300 or (508) 734-0200 Website: <http://www.invasivespeciesmanitoba.com> Email: [info@invasivespeciesmanitoba.com](mailto:info@invasivespeciesmanitoba.com)

### ISCM's latest awareness posters.

"Invasive Species: What's In Your Watershed?" (left); and "Keep a Lookout For Invasive Plants in the Pembina Valley" (right), sent to landowners, conservation groups and newspapers in the region (See pg 7 & 8 for full brochure).

**Who we are...**

*The Invasive Species Council of Manitoba (ISCM) is a non-profit organization providing a centralized and coordinated province-wide leadership body adopting a collaborative approach to invasive species in Manitoba.*

**Vision...**

*Maintain a healthy, bio-diverse landscape through the prevention, early detection, and education and awareness of invasive alien species management practices in order to eradicate or limit further spread.*

**ISCM Executive Board\* 2011**

**Cheryl Heming**  
ISCM Coordinator

**Jane Thornton, Vice-Chair**  
MAFRI

**Glen Campbell**  
Manitoba Cattle Producers Association

**John Johnston**  
Manitoba Weed Supervisors Association

**Ron Moss**  
Agri-Environment Services Branch

**Beverly Dunlop**  
Agri-Environment Services Branch

**Linda Christianson**  
Manitoba Conservation

Leafy Spurge Stakeholders Group

**Doug Cattani, Chair**  
University of Manitoba

**Lisette Ross, Secretary-Treasurer**  
Ducks Unlimited Canada

**Wybo Vandershuit**  
Riding Mountain National Park

**Julie Sveinson Pelc**  
Nature Conservancy of Canada- Manitoba Region

**Wendy Ralley/ Candace Parks**  
Manitoba Water Stewardship

**Bill Gardiner**  
MAFRI

**Laurie Wesson**  
Fisheries & Oceans Canada

\*Other Executive members to be confirmed.

### The ISCM would like to thank our funding sources and partners, without whom we would not exist:

- Agriculture & Agri-Food Canada, Agri-Environment Services Branch (formerly Prairie Farm Rehabilitation Administration)
- Agriculture Sustainability Initiative, Manitoba Agriculture, Food and Rural Initiatives
- Assiniboine Watershed Network
- Centric Productions
- City of Winnipeg
- Ducks Unlimited Canada
- Dow Agrosiences Canada
- ECO Canada
- Environment Canada, Science Horizons
- Fisheries Enhancement Fund
- Fisheries & Oceans Canada
- Integrated Vegetation and Management Association Manitoba/ Saskatchewan
- Leafy Spurge Stakeholders Group
- Manitoba Agriculture, Food and Rural Initiatives (MAFRI)
- Manitoba Cattle Producers Association
- Manitoba Conservation
- Manitoba Purple Loosestrife Project
- Manitoba Rural Adaptation Council
- Manitoba Urban Green Team, Province of Manitoba
- Manitoba Water Stewardship
- Manitoba Weed Supervisors Association
- Nature Conservancy of Canada, Manitoba Region
- Riding Mountain National Park
- Service Canada Summer Jobs, Government of Canada
- Shell Environmental Fund
- Sustainable Development Innovations Fund, Manitoba Conservation
- University of Manitoba
- Winnipeg Airports Authority



For more information Contact:

**Invasive Species Council of Manitoba**

c/o 5006 Roblin Blvd. Winnipeg, Manitoba R3R 0G7

Ph: (204) 232-6021 Fax: (204) 986-7236

E-mail: [info@invasivespeciesmanitoba.com](mailto:info@invasivespeciesmanitoba.com)

# Keep a Lookout

## For Invasive Plants in the Pembina Valley

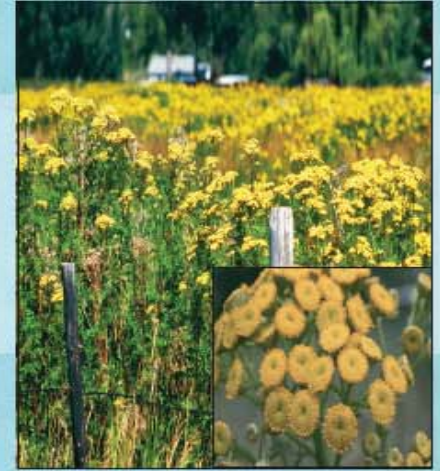
These species may be on your land - early detection and reporting can prevent their spread



**Diffuse Knapweed**  
*Centaurea diffusa*



**Nodding Thistle**  
*Carduus nutans*



**Common Tansy**  
*Tanacetum vulgare*



**Yellow Toadflax**  
*Linaria vulgaris*



**Dalmatian Toadflax**  
*Linaria dalmatica*



**Ox-eye Daisy**  
*Leucanthemum vulgare*



**Scentless Chamomile**  
*Matricaria perforata*



**Leafy Spurge**  
*Euphorbia esula*



**Pembina Valley  
Conservation District**



**A ROCHA**

*Christians in Conservation*



**Invasive Species  
Council of Manitoba**

Please report these species: Phone: MAFRI 1-204-825-8025 or ISCM 1-204-232-6021  
Website: <http://www.invasivespeciesmanitoba.com> Email: [info@invasivespeciesmanitoba.com](mailto:info@invasivespeciesmanitoba.com)

# Invasive Plants in the Pembina Valley

Invasive Species Council of Manitoba  
c/o 5006 Roblin Blvd.  
Winnipeg, MB  
R3R 0G7  
Phone: 204-232-6021  
Fax: 204-986-7236  
Email: [info@invasivespeciesmanitoba.com](mailto:info@invasivespeciesmanitoba.com)



---

Invasive species are plants, animals or other organisms that are growing outside of their country or region of origin and are out-competing or even replacing native organisms. Since they come from ecosystems in other parts of the world, "unwanted invaders" escape their natural enemies. They have a distinct advantage over our native species whose populations are kept in check by native predators, competitors, or disease.

---

## **Diffuse Knapweed (*Centaurea diffusa*)**

Annual, biennial to short-lived perennial. Reproduces by seed. The stems are erect, 50-80 cm tall, dull greyish-green, and highly branched. The lower leaves are finely, pinnately divided, alternate and form a rosette. The upper leaves are reduced in size, alternate, and often not divided. The flower heads are numerous, 3 mm in diameter and narrow into stiff spines; creamy white or occasionally purple in colour. Threatens rangeland, native grasslands and meadows.

## **Nodding Thistle (*Carduus nutans*)**

Biennial in first year forms rosettes; second year can grow up to 2.5 m tall. Lower stems have spiny, lengthwise ridges. One or many stems can grow from one root crown. Alternating, deep green leaves with light green mid-vein and waxy surface. Flower heads are solitary at the end of stems and composed of hundreds of tiny reddish-purple flowers. Reproduces only by seed and dies after seeding. Threatens rangeland, native grasslands and meadows.

## **Common Tansy (*Tanacetum vulgare*)**

Aromatic perennial that can grow to be 1.5 to 2 m tall. Deeply divided, fern-like leaves. Strongly aromatic when leaves crushed. Extensive root system. Produces numerous button-shaped, bright yellow flowers in dense clusters at the top of the plant. Threatens pastureland, roadsides, river banks, abandoned fields and natural areas. Reproduces through seeds and root fragments.

## **Ox-eye Daisy (*Leucanthemum vulgare*)**

Smooth stems are multiple, unbranched and can grow up to 1 m tall. Lower leaves are lance-shaped with tooth margins. Upper leaves are alternate, narrow and stalkless with wavy margins. Flowers can be 5 cm in diameter, yellow centres with 20 – 30 white petals and notched tip. Reproduce through seeds and are viable upon dispersal. Threatens croplands, rangelands and natural areas. Often found in 'wildflower' seed mixes.

## **Yellow Toadflax (*Linaria vulgaris*)**

Perennial plant that can grow to 1 m tall. Can contain 1 to 25 unbranched erect stems. Numerous pale green, soft lance-shaped leaves that alternate on stem. Bright yellow flowers, arranged alternately in dense spikes at the end of stems. Snapdragon-like flowers that can have orange colouring on throat. Reproduces through seeds, as well as creeping roots (rhizomes). Threatens rangeland, cultivated fields, and native grasslands.

## **Dalmatian Toadflax (*Linaria dalmatica*)**

Perennial plant grows up to 1.2 m tall. Leaves are broad and clasp the stem. Flowers are bright yellow and resemble snapdragons. Similar to Yellow Toadflax flowers, but leaves are broadly heart-shaped. Reproduces from seed and horizontal roots. Threatens disturbed sites, cultivated fields, and native grassland.

## **Leafy Spurge (*Euphorbia esula*)**

Perennial herb grows 0.5 -1 m. Milky sap in stem and leaves. Leaves alternate, narrow with pointed tips, smooth and hairless. Flowers on paired, yellowish-green, cup-shaped bracts. Bracts in clusters of 7-10 at top of stem, bloom late spring to mid summer. Seed pods attach to centre of paired bracts. Threatens prairies, pastures, roadsides, ditches, agricultural lands and open woodlands.

**Scentless Chamomile (*Matricaria perforata*)** Annual or biennial up to 1 m tall. Fern-like leaves, finely divided. Many white and yellow flowers on a branching stem. Reproduces only by seed. Threatens croplands, rangelands and natural areas.

---

Funding is provided by Growing-Forward and federal-provincial-territorial initiative.

---

For control management of these species please visit the following website:  
<http://www.invasivespeciesmanitoba.com/site/index.php?page=brochures>

---

Photos courtesy of Bugwood.org