



**RURAL
DEVELOPMENT
INSTITUTE**

**BUILDING MOMENTUM ON
LEAFY SPURGE BIO-CONTROL**

**HIGHLIGHTS FROM THE
LEAFY SPURGE BEETLE FORUM**

May 2009



**BRANDON
UNIVERSITY**

Founded 1899



Leafy Spurge Stakeholders Group

The Leafy Spurge Stakeholders Group (LSSG), a broad coalition of agricultural and conservation groups and all three levels of government, was formed in the fall of 1998 to examine the issues and impacts of leafy spurge. The long-term goals of the LSSG are:

1. to design a process whereby an integrated and comprehensive approach to a province-style strategy can be effectively and efficiently implemented. It is hoped that the RDI / LSSG partnership will result in the establishment of a centre of excellence for leafy spurge issues and research in the Province of Manitoba; and
2. to design a strategy or strategies to reduce levels of leafy spurge infestation in those areas of the province most severely affected.

Rural Development Institute, Brandon University

Brandon University established the Rural Development Institute in 1989 as an academic research centre and a leading source of information on issues affecting rural communities in Western Canada and elsewhere.



RDI functions as a not-for-profit research and development organization designed to promote, facilitate, coordinate, initiate and conduct multi-disciplinary academic and applied research on rural issues. The Institute provides an interface between academic research efforts and the community by acting as a conduit of rural research information and by facilitating community involvement in rural development. RDI projects are characterized by cooperative and collaborative efforts of multi-stakeholders.

The Institute has diverse research affiliations, and multiple community and government linkages related to its rural development mandate. RDI disseminates information to a variety of constituents and stakeholders and makes research information and results widely available to the public either in printed form or by means of public lectures, seminars, workshops and conferences.

For more information, please visit www.brandonu.ca/rdi.

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May 2009

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Acknowledgements

The Leafy Spurge Stakeholders Group would like to acknowledge the financial contributions of the Manitoba Cattle Producers Association and Agriculture and Agri-Food Canada.

Introduction

Leafy spurge (*Euphorbia esula* L.) is a threat to biodiversity in nature lands and agricultural lands, and costs Manitobans in excess of \$20 million per year. To assist producers and organizations in understanding and developing bio-control plans for leafy spurge management a one-day forum. The forum addressed pertinent topics and provided participants resource materials. Four guest speakers provided insight to leafy spurge beetle control, establishing harvest/nurse sites, and shared lessons learned from Manitoba and Saskatchewan experiences.

This document serves as a legacy for the *Leafy Spurge Beetle Forum*. The report contains copies of the presentations delivered, highlights the forum's discussions, outlines actions to be taken, and identifies resources and materials.

Approximately 30 individuals participated in the *Leafy Spurge Beetle Forum*, representing producers, provincial government departments, federal departments, and industry. A list of Forum participants is included in [Appendix A](#). The forum was held May 12, 2009 in Brandon, Manitoba. The *Leafy Spurge Beetle Forum* is co-hosted by the Leafy Spurge Stakeholders Group, Invasive Species Council of Manitoba, and the Agri-Environment Services Branch of Agriculture and Agri-Food Canada. A brief overview of each organization is listed below.

Invasive Species Council of Manitoba

The Invasive Species Council of Manitoba is a non-profit organization providing a centralized and coordinated province-wide leadership body adopting a collaborative approach to the prevention, early detection, management and potential eradication of invasive species in Manitoba. The ISCM is comprised of representatives from government, industry and organizations. Since its formation in December 2006 the council continues to grow, currently encompassing nearly 200 stakeholders.

For further information about the Invasive Species Council of Manitoba visit www.invasivespeciesmanitoba.com.

Agri-Environment Services Branch, Agriculture and Agri-Food Canada

The Agri-Environment Services Branch is an integration of three existing components – Prairie Farm Rehabilitation Administration, National Land and Water Information Service and Agri-Environmental Policy Bureau – to address Agriculture and Agri-Food Canada agri-environmental issues. The branch is committed to an integrated approach to sustainable agriculture in Canada which recognizes that environmentally responsible agriculture and competitive agriculture are part of an integrated system. The branch will bring ideas to the table and solutions to the sector, helping the sector make the best possible decisions for the environment. This includes finding new

opportunities and enabling innovation, favouring a voluntary stewardship approach, and improving the public image of the sector.

For further information about the Agri-Environment Services Branch, Agriculture and Agri-Food Canada visit <http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1187362338955&lang=eng>.

Leafy Spurge Stakeholders Group

The Leafy Spurge Stakeholders Group is a broad coalition of agricultural and conservation groups and all three levels of government. The Leafy Spurge Stakeholders Group was formed in the fall of 1998 to examine the issues and impacts of leafy spurge. The long-term goals of the LSSG are: to design a process whereby an integrated and comprehensive approach to a province-style strategy can be effectively and efficiently implemented; and to design a strategy or strategies to reduce levels of leafy spurge infestation in those areas of the province most severely affected.

For further information about the Leafy Spurge Stakeholders Group visit www.brandonu.ca/rdi/leafyspurge.html.

Experiences and Lessons Learned in Bio-Control Initiatives

To gain a greater appreciation for the use of bio-control agents in controlling leafy spurge infestation three speakers were invited to share their experiences and lessons learned. A copy of each presentation is listed below.

Saskatchewan

Presented by Nancy Gray and Harvey Anderson

Leafy Spurge Management in Saskatchewan

Nancy Gray P Ag
Invasive Alien Plant Species
Group Planning Advisor


What do you see?



The following is a picture taken directly above these camels in the desert of Sudan? It is considered one of the best pictures of the year. Look closely, the camels are the tiny white lines in the picture. The black you see are just the shadows!

Fotograf: George Steinmetz
© 2005 National Geographic Society. Her hakları saklıdır. National Geographic Türkiye, Şubat 2005. Dr. Doçent

Leafy Spurge



Leafy Spurge - Spread

Key Features

- Patches, green yellow bracts
- Latex, deep roots



Problem

- Dominates pastures
- Cattle refuse to eat

Weed Movement

- Lateral root spread
- Seed catapult 15 ft (satellite infestation)
- Human, animal assisted (source infestation)

Annual rate of loss for seed – 13%

Leafy Spurge Why do you control this weed?

- Highly invasive
- Very Difficult to control
- Roots and seeds very viable
- Waxy latex coating
- Takes over rangelands and riparian areas

Leafy Spurge's Happy Place



Strategy for LS

- Map now at the start of project
- Controlling LS is like fighting a range fire...
- Rule of Thumb....
 - For every year leafy spurge has been established in a location, two years of treatment will be needed for complete control.

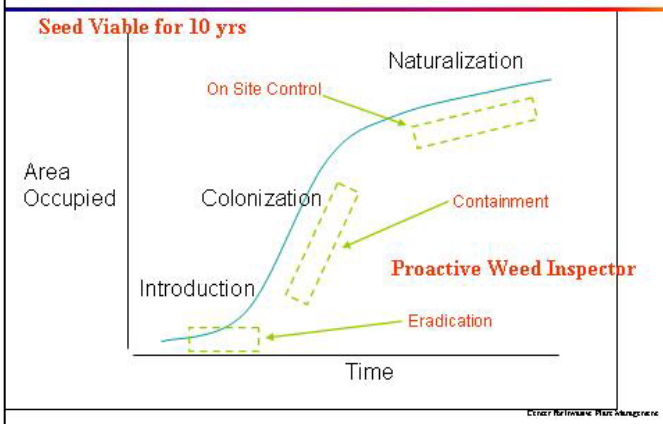
Weed Control Strategies

Weed Control is a reduction in the population of a weed to a level below its existing population

- ◆ **Exclusion** (quarantine at far away locations)
- ◆ **Eradication** (reduce population to zero)
- ◆ **Containment** (contain a population within a specific area)

Avall et al. 1987

The Invasion Process



Leafy Spurge Seed Problem

- ◆ Research: Lost of seed from soil is 13%/yr
- ◆ Research: Seed Rain, 4,500 seeds/m²
- ◆ Start Control Program
- ◆ 1 year later 3,915 seeds/m² in the soil
- ◆ After 10 yrs, no seed set, 970 seeds/m² in the soil
- ◆ If the patch was not controlled for 10 yrs
- ◆ Seed Rain 4,500 seeds/m²/yr
- ◆ After 10 years, 23,600 seeds/m² in the soil

Distribution of Plants by Animals

Ingesting and egesting seeds

- Birds and Rodents are effective transporters
- Crow dropping – 2 viable seeds/g

Predators feed on seed eaters, secondarily disperse seeds

Ruminant animals will pass a few seeds of nearly every species they consume

Rangeland Ecology & Management
H. F. Ready and R. D. Olin, 1964

Weed Control Methods

- Utilizing the methods to best meet your needs
- Your Needs:
 - Time
 - Costs
 - Land type

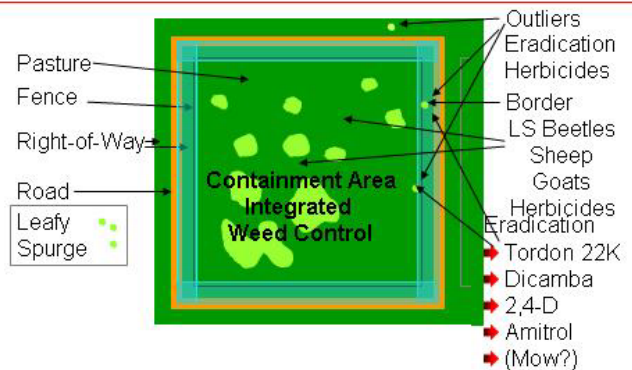
Integrated Weed Control:

Integrated Weed Control – Combination of non-conflicting control methods

Physical	– Manual	Kill the Plant
	– Mechanical	Prevent seed set
Chemical	– Herbicides	Kill the plant
Biological	– Insects	Suppress weed population ?
Ecological	– Plants	Suppress weed population
	– Animals	

Avall et al. 1997

Control of Leafy Spurge



Osney Barrow NWP

Physical Control Method

Mowing and Burning

- Burning reduces litter in the area and creates a more uniform stand for beetles and spray but by itself does not reduce leafy spurge populations
- Mowing eliminates seed set if done every 4 weeks from early flower on for the rest of summer. Also weakens plants and root development.

Road Right-of-Way Weed Control

What is happening to the Noxious Weeds ?

- ◆ Spreading seed or
- ◆ June herbicide treatment, no seed spread

Do You Need to Treat for Industrial Weed Control ?

- ◆ Yes, snow accumulation



Notice in the photograph

- ◆ Misty morning, wet vegetation
- ◆ Water act like a Post-it Note glue
- ◆ One of the best ways to move seeds

Garry E. Way, MVMPP

Grass Competition

- IF an infestation is in the field and you have sprayed and cultivated the best grasses to compete against LS is:
 - Brome esp Smooth 80% competitive
 - Western Wheatgrass 70%
 - Dahurian Wildrye 60%
 - Russian Wildrye 40%

Chemical Control

Herbicides

- Not a cure all
- Not an overnight solution
- Good planning
- FOLLOW THROUGH!!!
- No herbicide has ever been developed specifically for LS

Leafy Spurge Industrial Weed Control

Herbicide	Leafy Spurge		
Amitrol 240 \$6.40/L	Control Non-crop areas (non-selective)		
Vanquish \$33.00/L	Top-growth control Non-crop areas		
2,4-D amine \$5.50/L (Repeat 1-2x)	Top-growth control Pastures Non-crop areas		
Tordon 22K \$41.00/L	Control		

TORDON 22K

- Developed for in wheat control of weed in US
- 3.6 L rate most effective with 75% control in first year but if not treated again by third year most of control lost
- Using a second application 2-4 years later when required gives up to 95% control
- Late May to mid June or fall if new regrowth occurs

RM Tordon 22K control



Glyphosate

- Non selective kills everything including grass
- Alone give control for 1 year only must reapply every year.
- Best in Fall application or after seed production

2-4 D

- Little control by itself less than 20%
- Usually added to Tordon and Glyphosate to add bang for the buck..



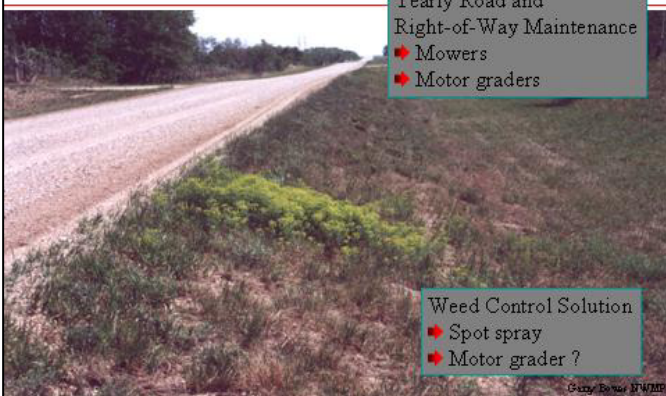
Leafy Spurge Control - Border



This is when Leafy Spurge should be found



Road Right-of-Way Weed Control



Road Right-of-Way Weed Control



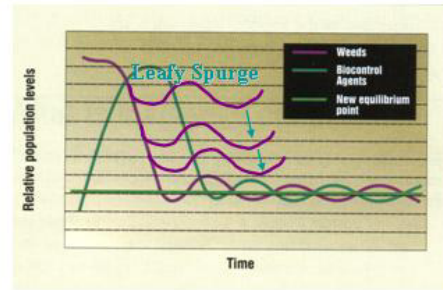
Biological Control

Biological control covers two key concepts:

- the deliberate use of a weed's "natural enemies" to suppress its population
- the use of these live organisms to maintain this lower population density

Biological Control of Weeds 2000

How Does Biological Control Work? Population Suppression



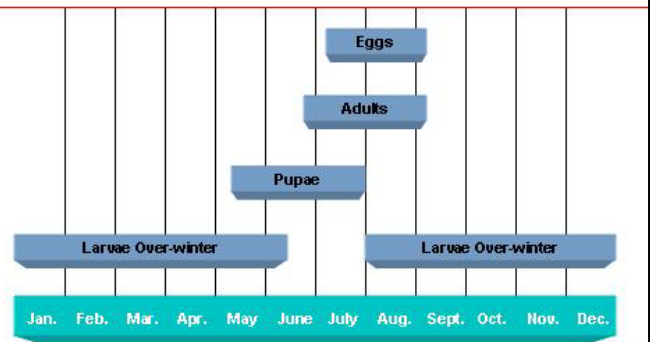
Biological Control of Weeds 2000

Types of Biocontrol Agents for Leafy Spurge

- -
 -
 -
 - Released in prairies 1965 (MT 1985?)
 -
 - Released in ON 1965
 - Since 2002, in southern AB, SK (from MT?), (US virus disease)
- brown rear upper leg
– black rear upper leg

Garry Barwa NWP

Leafy Spurge Beetles (*Aphthona*) Life Cycle



Garry Barwa NWP



Collection Site Information

Electronic Book can be sent to all Rural Municipalities

The 2000 U-Flick Leafy Spurge Flea Beetle Information Guide

By: Garry Barwa
David J. Gies
Prairie Weed Management Program
1811 - 11 Street SW, Calgary, Alberta, Canada
T2K 0K6, AB

Table 1. List of Sites for Collecting Spurge Flea Beetles

RMM	No. of Beetles / Sweep	Beetle Diameter (m)	No. of Flowering Stems / m ²	Height of Leafy Spurge (cm)	% Sand	% Clay	% Bare Ground
Argyle SW-7-2-31-W1 SK-N-80-0045	3 to 4	10 x 20	80	55	85.0	5.2	
Black Dail Beetle Release in 1990.				GPS:			
Comments: In 1997, lots of beetles on site. Contact Person, Val Olney, 1885-2010.							

Alberta Agriculture and Forestry

Garry Barwa NWP

Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection

[*Aphthona lacertosa*](#) (black with brown femurs)



[*Aphthona nigriscutis*](#) (brown with a black dot)

- *Aphthona* spp. adults emerge from the soil in late spring to early summer. Following emergence, adults feed on leafy spurge leaf tissue and mate. Females begin laying egg clusters of three to 15 eggs almost immediately. Egg laying continues every three to five days throughout the adult life stage. *Aphthona* spp. females produce an average of 220 to 280 eggs over a lifetime. Eggs are yellow and laid on the soil surface or slightly below, near the leafy spurge stem base. Larvae emerge from eggs in 12 to 19 days. The longevity of the beetles will vary from year to year depending on weather conditions. A hot, dry spring and summer will shorten the time adults are present while a cool, wet season will lengthen it. Generally, adults live for 1.5 to two months in the field. Most leafy spurge flea beetles have a single generation, egg to adult, each year.

A little more about beetles

- Although *Aphthona* spp. adults feed on leafy spurge foliage, the major damage to the plant occurs when the larvae feed on the roots. Larvae feed on both the fine feeder roots used by the plant to absorb water and nutrients and the storage tissue of the root crown. This feeding both destroys root tissue directly and causes the plant to be more susceptible to other methods of control, such as herbicides and infection from soil borne pathogens.

Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection

- Proper Net Technique for beetle collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Beetle Collection



Leafy Spurge Control - Ring



- ♦ Leafy spurge control in a ring around the release point
- ♦ Collect from 'hot spots'

Gary Stevens/MVP

Assessing Sites

- A successful release should result in 50 or more flea beetles in five sweeps, the summer following release. If densities are less than 50 flea beetles per five sweeps then re-infest the site with additional flea beetles of the same and/or different species.



Control of Leafy Spurge with Beetles (*Aphthona*) at Maxim SK.



Maxim July 2008



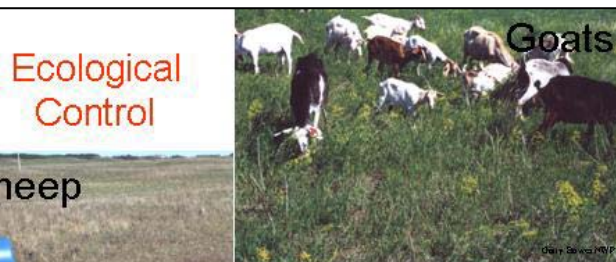
Maxim July 2008



Maxim July 2008



Ecological Control



Goats

Ecological Control

Sheep



Angora Goats and Sheep Control Leafy Spurge



Compare the amount of leafy spurge growing in the grazed and non-grazed areas

Continuous Sheep Grazing



Just doing things a little differently?



Creating Plans to Assess The Control Methods and Budgets

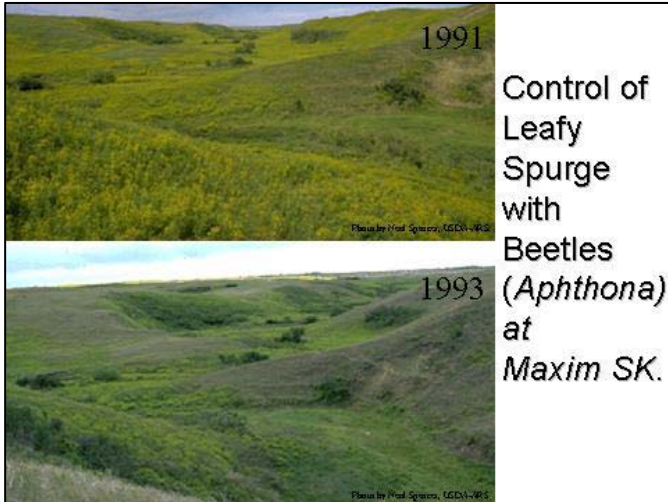
Long-term Management Planning

- Development of formal management plans for noxious weeds and Invasive Alien Plants (IAPS)
 - Collection of data on “IAPS” populations
 - Setting of priority species
 - Listing possible management strategies
 - Listing planned management activities
 - Setting follow-up dates
 - Setting communication goals
 - Etc.



Weed Management Area

- Cooperation
- Cost
- Budget
- Who does the work?
- Who is in charge?
- Committee
- The Common Good



Record of Noxious Weed Control Date: Month/Day/Year ERM No. and Name: _____ Page A (Max)

Weed Inspector Name: _____

Weed Site Information

Legal Description: _____ Address: _____

Legal Location: _____ GPS W applied No.: _____ M _____ W _____

Description and Size of the Weedy Area

Enter suitable information to describe the weedy area in Part B. This description is used for any programs. A grid which uses GPS reading helps to define the weedy area to the below. Call it Long Land Type, Weed Class and then it will be recommended as a good weed location. This information is critical for the regional management program. A GPS reading is helpful when a weed is applied. This read a log is using GPS to define the shape of the weedy area.

Record of Weed Control Treatments

Biological Control: _____ New Release(s): _____ Control: _____ Previous release and release date: _____

Enter the name(s) of post-spray release(s): _____

Herbicide Name and Application Details

Herbicide Name: _____ Application Date: _____

Mowing Treatment Date(s): _____

Other Treatments and Application Date(s): _____

Herbicide Application

Weed Inspector Name: _____ Application Name: _____

Treatment Record

Complete section below only when a Weed Inspector has applied a herbicide

Herbicide: _____ Active Ingredient: _____ Total P added (kg): _____ PCP No.: _____

Method of Application (public roads, roads, etc.): _____

Time to Complete: _____ Soil Type: _____

Weather at Application (temperature, wind speed, cloud cover, humidity, etc.): _____

Problem(s) Solved: _____

Results of Treatment: _____

X System: _____ S _____

Photograph the treatment as needed

X Chemical control used. Moderately patch treatment on a map of geographicality. For each patch that is marked on the map, enter or write the name of the landowner. For each patch, enter the name of the landowner.

Photograph the treatment as needed

Summary of Integrated Management

Integrated Pest Management (IPM)

Control Method	Growth		Flowering		Seed Dispersal		Growth	
	April	May	June	July	August	September	October	November
Herbicide								
Cultivation (every 2 weeks)								
Mowing								
Burning								
Multi-species grazing		rotational grazing						
Multi-species grazing			continuous grazing					
Beetles								
Forage competition								

Summary of integrated management techniques

Wanted Dead Plants

- Saskatchewan top 5 invasive weeds at the current time.

Field Bindweed (*Convolvulus arvensis*) Isolated sites in Saskatchewan

Identification

- Twining stems (counter-clockwise)
- Bongated arrow-shaped leaves with blunt tips
- Funnel-shaped flowers – 1 inch across
- White to pinkish flowers with long stalks

Biology and Ecology

- Deep-rooted perennial weed
- Spreads by seed and root fragments
- Buds on roots can send up shoots
- After 28 years in soil, seed can germinate

Location: _____

Field bindweed is found sporadically throughout the province but in higher numbers in the South Saskatchewan and Qu'Appelle rivers to a municipal office or a weed inspector

Wanted Dead Scentless Chamomile

Scentless Chamomile:

- is a noxious weed
- spreads rapidly
- can reduce wheat yields by 50%

If you see this weed report it to your:

- Weed Inspector or
- RM Administrator

For additional information on Noxious Weeds call: _____

This document is published in the Noxious Weed Control Specialist, Dec 1997

Wanted Dead to Prevent Spread

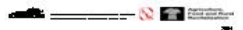


Immediately report small isolated patches to a Weed Inspector
 Control by eradication-contain methods are effective for small patches
 When this noxious weed covers 80% or more of the soil surface, no forage is available for cattle grazing

Plant contains white latex
 Flower has greenish-yellow bracts



If you find this weed report the location to a municipal office or a Weed Inspector

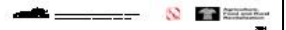


Wanted Dead to Prevent Spread

Displaces vegetation in pastures and native habitats
 Cattle do not graze
 Report small patches immediately to a Weed Inspector
 Control by eradication-contain is effective for small patches
 Bright yellow-orange flowers with a spur



If you find this weed report the location to a municipal office or a Weed Inspector



Common Tansy (*Tanacetum vulgare*)

isolated sites in Saskatchewan



Identification
 Leaves are fern-like, dark green and are aromatic when crushed
 Flowers are yellow in a flat-top cluster



Biology and Ecology
 Perennial herb
 Poisonous but unpalatable to livestock
 Invades disturbed sites
 Found along roadsides, fence lines, stream banks and waste areas

Location
 North east Saskatchewan and in isolated areas throughout the province

If you find this weed report the location to a municipal office or a Weed Inspector



Scentless Chamomile Gall Midge



SC Gall Midge



Scentless Chamomile Seed Weevil
Omphalapion hookeri



FOR SALE
John Deere A



**Runs good. Missing steering wheel and seat.
Ideal for the person who has lost his ass and
dont know which way to turn.**

Manitoba

Presented by Sherry Punak-Murphy



CFB Shilo
Biocontrol of Leafy Spurge

Sherry Lynn Punak-Murphy
Base Biologist

Carmen McNabb
Natural Resource Technician




Location of CFB Shilo





200 km west of Winnipeg...

...30 km east of Brandon




Leafy Spurge – the problem

- ◆ Native of Europe and temperate Asia
- ◆ First appearance of leafy spurge in North America was along new England coast in early 1800's.
- ◆ Likely a contaminant in ship ballasts
- ◆ Unfortunately, no European or Asian insects that feed on leafy spurge made the voyage.



Leafy Spurge – the problem

- ◆ In Canada – it was first recorded in Huron county, ON – 1889
- ◆ Then in Manitoba 1911 shortly after being recorded in North Dakota
- ◆ 3,000 ha in 1952
- ◆ 46,000 ha in 1982
- ◆ 54,600 ha in 1995



Leafy Spurge – the problem



- ◆ Reported leafy spurge in Shilo area before 1920
- ◆ He indicated the risk of it becoming a noxious weed!

Why we care about Leafy Spurge

- ◆ Schedule A of our leasehold agreement between Manitoba and Federal Government states we will have a noxious weed control program in place – and it particularly mentions leafy spurge
- ◆ The DND's environmental stewardship initiative in late 1980's
- ◆ Training area – native prairie binds the soils where the military trains – thus ensuring training land for years to come!

Biocontrol Program at CFB Shilo

- ◆ “Destruction of all noxious weeds” as stated in the Lease Agreement is not the goal at CFB Shilo
- ◆ Our goal is to control leafy spurge and allow native prairie plant species to again predominate in the training area

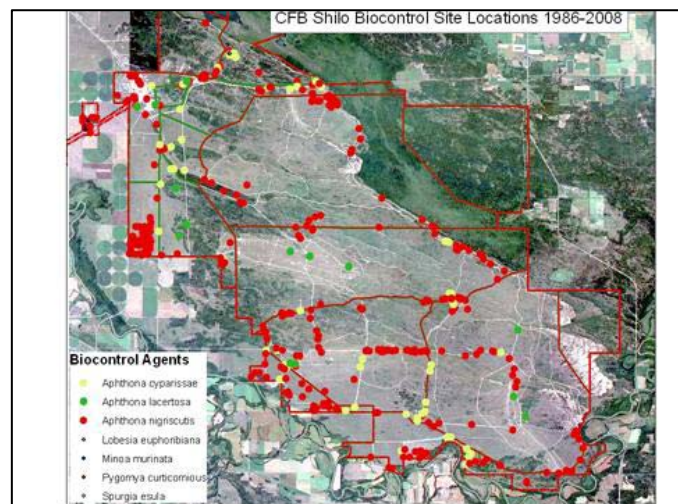
Leafy Spurge Control at CFB Shilo

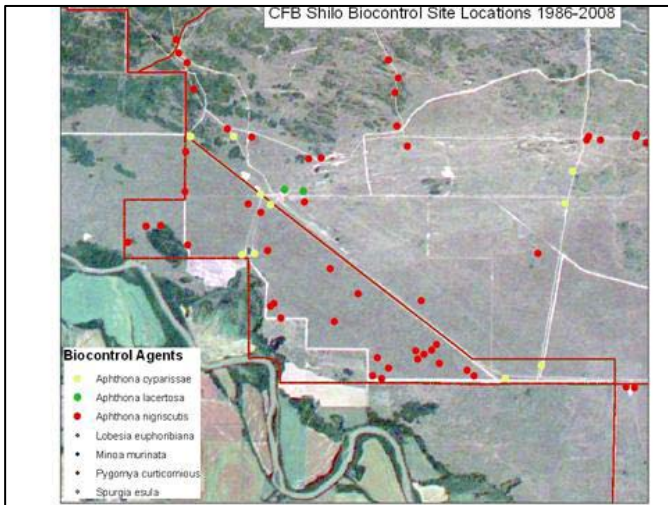
- ◆ It all started with Dr. Peter Harris from Agriculture Canada in 1984
- ◆ DND agreed to contribute to the research program to find natural agents to control leafy spurge (leafy spurge consortium)



Leafy Spurge Control at CFB Shilo

- ◆ DND provided \$450,000 in direct expenditures to the International Consortium between 1986-1996
- ◆ Personnel and materials ARE NOT included in this price
- ◆ In 1990 formalization of the biocontrol program at CFB Shilo and the creation of a SOP
- ◆ Now part of the Manitoba Leafy Spurge Stakeholders Group





Successes

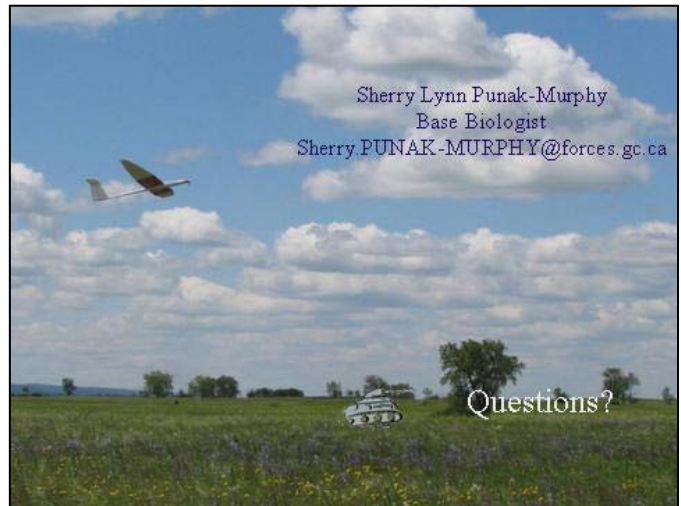
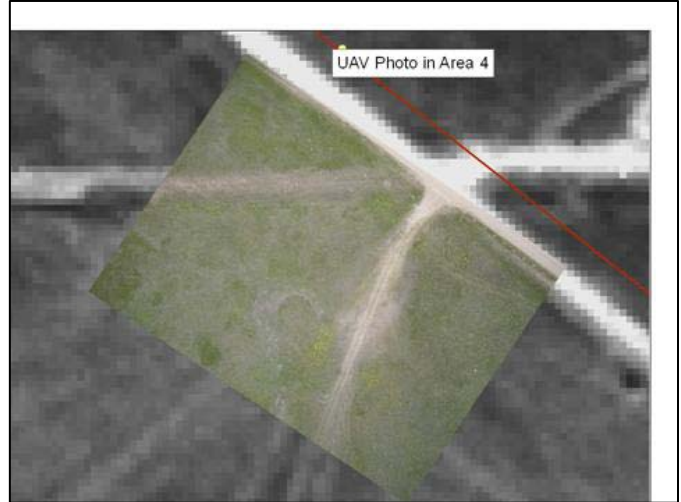
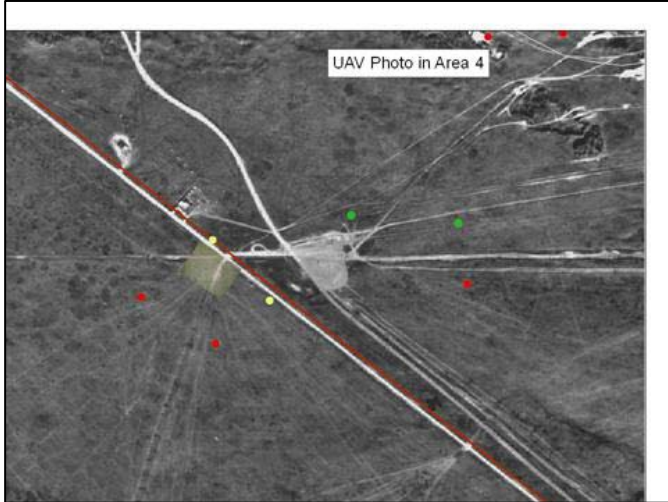
- ◆ Almost 200,000 insect agents released since 1989
- ◆ Over 370 established biocontrol sites
- ◆ After 5 years, harvesting of Base sites was done
- ◆ Almost 25,000 beetles have been harvested on the base!

New & Future Projects

- ◆ Creating large release sites
 - Started in 2006 with release of 30,000 *A. lacertosa* from Mino, ND
- ◆ Covering areas with biocontrol sites in fixed patterns
 - Started in 2006 in Area 1B
- ◆ Mapping leafy spurge plots year to year
 - Started in 2008 with the use of UAV
 - In conjunction with Brandon University Biology & Geography Departments

Loggerhead Shrike Force 1





Presented by Richard Warkentin

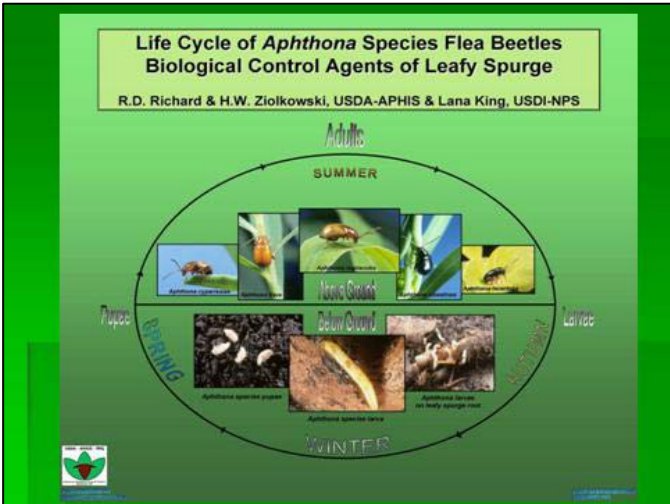
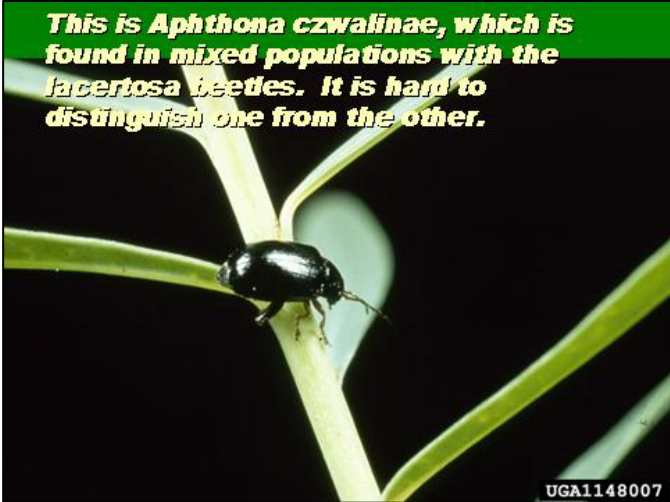


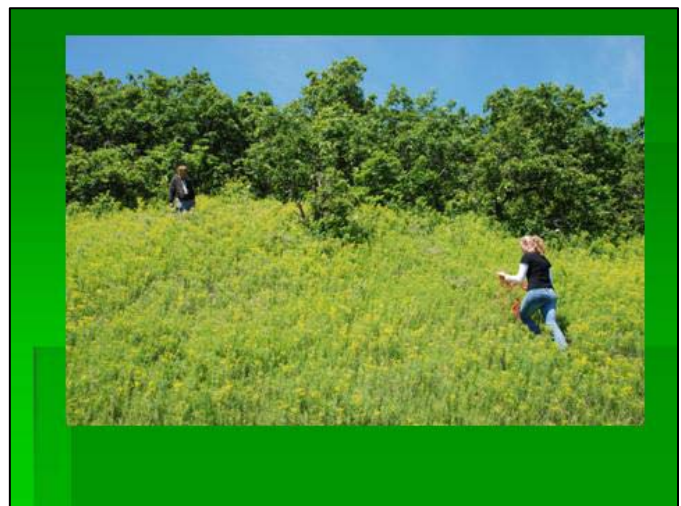
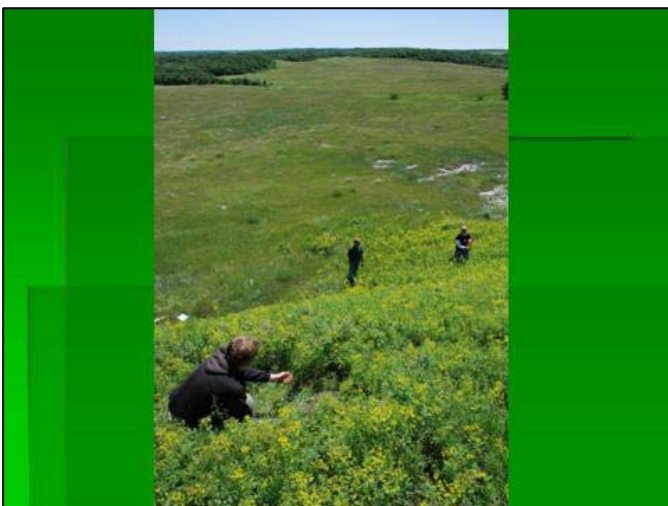
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**Biological Control of Leafy Spurge
In the R.M. of Stanley**

Presented by: Richard Warkentin
Technician, Stanley Soil Management Association











A passive insect sorting device for separating *Aphthona* spp. biological control agents of leafy spurge from larger insects, seeds and plant debris associated with crude insect sweep net collection.

H.W. Zolkowski and R.D. Richard
 USDA-APHIS-PPQ, Bozeman Biological Control Station,
 1648 S. 7th Ave., Bozeman, MT 59717-0278

In 1998, USDA-APHIS-PPQ, in support of Team Leafy Spurge activities on *Egobothra* weeds, developed a passive sorting device for the purpose of mass collecting and distributing large numbers of *Aphthona* species leaf beetles. Unfortunately some other and nonbiocontrol species had been previously utilized at various times, technicians at the Bozeman Biological Control Station produced a light, portable, and easily operated sorting unit from inexpensive and readily available materials. Dubbed the "Aphthona Accelerator", this device can be set up and operated in minutes. This passive sorting device is driven by the typical behavior of *Aphthona*. This behavior is to move upwards and away from light. (The flow beetles actually "swarm" themselves from the target insects, seeds and plant debris, that are also collected in field net coverage, by moving through a fine mesh located in a slack funnel and eventually into a collection jar. It is possible to sort several thousand *Aphthona* leaf beetles with this device in just a few hours, leaving nearly all of the extraneous material behind. The "Aphthona Accelerator" can easily be operated by non-technicians, freeing up everyone else to sweep up more leaf beetles!



2007



2008



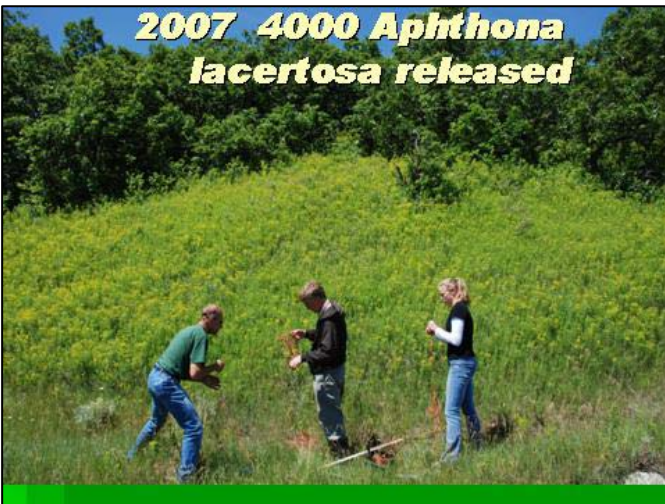
2007 Roadside release



2008 The same site



2007 4000 *Aphthona lacertosa* released



2008



Challenges and Future Needs of Leafy Spurge Bio-Control

The afternoon of the *Leafy Spurge Beetle Forum* provided the opportunity for a round-table discussion on the challenges and future needs of leafy spurge bio-control. The discussion has been summarized below under each of the headings.

Challenges

- Leafy spurge infestations continue to grow.
- Permits required for import/export of *Aphthona* beetles can be cumbersome and the process is continually changing.
- The reorganization of federal and provincial government departments and agencies has created uncertainty for financial and human resource support.
- Single fiscal year funding does not permit beetle monitoring or follow up field work required to measure the success of beetle release sites.
- Beetle monitoring is often neglected due to other organizational commitments.
- Keeping the momentum within organizations for leafy spurge bio-control can be difficult
- Maintaining a robust Leafy Spurge Stakeholders Group without annual operating funding.

Future Needs

- Continue the efforts of the Leafy Spurge Stakeholders Group for education, awareness, and coordination.
- Create additional opportunities for education and awareness presentation to organizations throughout Manitoba, such as municipalities.
- Creation of bio-control nurseries in Manitoba to increase the availability of beetles to Manitobans and decrease the distance the beetles move.
- Establish a provincial bio-control specialist that could provide information and training to interested producers, organizations, and departments. This position could serve as the central contact for producers, conservation groups, and government departments.
- Increased training opportunities to create awareness of how beetles work, how to collect, how to distribute, and how to monitor.
- Increased knowledge of Manitoba-based collection sites and beetle releases.

- Encourage leafy spurge bio-control research among universities and government departments.
- Increased communication with all stakeholders regarding leafy spurge efforts and initiatives.
- Revive the annual bio-control collection trip to North Dakota conducted by the provincial government.
- Renew the leafy spurge economic impact study for Manitoba.
- Encourage conservation districts to adapt invasive species management like Saskatchewan counterpart

Moving to Action

Based on discussions of the challenges and future requirements for robust leafy spurge bio-control initiatives in Manitoba, the following four themes emerged for moving to action.

Continued Coordinated Approach of Leafy Spurge Bio-Control Initiatives

- Maintain the momentum of the collective discussions. Hold regular opportunities for dialogue among producers, conservations organizations, industry and government departments involved and interested in leafy spurge bio-control.
- Organize an annual organized bio-control collection trip to North Dakota.
- Lobby for a provincial bio-control specialist to serve as a central contact and source of information.
- Explore opportunities for a mentorship program for people wishing to start leafy spurge bio-control initiatives.

Explore Bio-Control Nurseries for Manitoba and Rearing Tents

- Explore the idea of creating leafy spurge bio-control nurseries in Manitoba to increase accessibility for Manitobans and to decrease the distance transported.
- Examine the effectiveness of rearing tents to increase the survival of the *Aphthona* beetles.

Maintain Education and Awareness

- Explore opportunities for education and training sessions on topics such as site selection and beetle monitoring.
- Host regular field tours to demonstration sites and successful leafy spurge bio-control site to promote best practices.

- Develop a generic presentation/slide deck and speaking notes on leafy spurge, its impact, and control methods that could be delivered to diverse audiences.
- Develop and produce relevant educational materials on topics such as when and how to use each leafy spurge control methods.

Encourage a Research Agenda on Leafy Spurge

- Renew the economic impact study on Manitoba's leafy spurge infestation.
- Build a list of key leafy spurge research questions to be circulated among university and government researchers.
- Encourage dialogue among the research community and producers, conservation organizations, industry, and government departments.

Over the course of the next year, the Leafy Spurge Stakeholders Group will work with partners to move forward on suggestions discussed at the *Leafy Spurge Beetle Forum*.

Resource Materials and Websites

During the meeting, a number of resources, publications, and fact sheets were distributed to participants. Throughout discussion additional materials were mentioned and are listed below.

Publications and Fact Sheets

Best Management Practices for Industry: Top Invasive Plant Concerns for Rights-of-Way Manual. Available online –

www.brandonu.ca/rdi/Publications/AgroEnviro/LeafySpurgeBMPManual2007.pdf

Implementing a Bio-Control Program for Leafy Spurge/ Multi-Species Grazing of Leafy Spurge Fact Sheet. Available online –

www.brandonu.ca/rdi/LSSG/Documents/CNG-ImplementingBiocontrol-factsheet2007.pdf

Increasing the Productivity of Range and Pastures: An Integrated Pest Management Strategy for Leafy Spurge Fact Sheet. Available online –

www.brandonu.ca/rdi/Publications/AgroEnviro/IncreasingTheProductivityOfRangePastures.pdf

Integrated Pest Management: Leafy Spurge Prevention and Control Manual Available online –

www.brandonu.ca/rdi/Publications/AgroEnviro/IPM_Manual2007.pdf

Leafy Spurge and Gravel Pits/Leafy Spurge Identification and Prevention Fact Sheet

Available online – www.brandonu.ca/rdi/LSSG/Documents/FACTSHEET-GravelPit-IDPrevention-2007Final.pdf

Leafy Spurge and Species Diversity Fact Sheet. Available online – www.brandonu.ca/rdi/LSSG/Documents/SAR-SpeciesDiversity-factsheet2007.pdf

Leafy Spurge: The Silent Invader Fact Sheet. Available online - www.brandonu.ca/rdi/LSSG/Documents/LeafySpurge-TheSilentInvaderFactsheet.pdf

Websites

- Agriculture and Agri-Food Canada
www.agr.gc.ca
- Bioquip Products
www.bioquip.com
- Fred Provenza
www.behave.net
- Invasive Species Council of Manitoba
www.invasivespeciesmanitoba.com
- Leafy Spurge Stakeholders Group
www.brandonu.ca/rdi/leafyspurge.html
- Manitoba Agriculture, Food and Rural Initiatives
www.gov.mb.ca/agriculture
- Manitoba Forage Council
www.mbforagecouncil.mb.ca
- Manitoba Cattle Producers Association
www.mcpa.net

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The role of the RDI Advisory Committee is to provide general advice and direction to the Institute on matters of rural concern. On a semi-annual basis the Committee meets to share information about issues of mutual interest in rural Manitoba and foster linkages with the constituencies they represent.