Leafy Spurge in Manitoba

The Newsletter of the Leafy Spurge Stakeholders Group

Winter 2006/2007

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LSSG

New Project: On The Ground

The Leafy Spurge Stakeholders Group (LSSG) has received funding under the federal Invasive Alien Species Partnership Program for a one-year project commencing October 2006 and ending March 2008. The Rural Development Institute (RDI) will house the project on behalf of the LSSG.

The overall goal of the project, *On the Ground: Leafy Spurge Surveillance and Management and Towards Establishing an Invasive Plant Council for the Province of Manitoba*, is twofold: 1) to prevent the spread of and enhance management efforts for leafy spurge in Manitoba and 2) to provide a forum whereby stakeholders can discuss the formation of and add their support to an Invasive Plants Council for the Province of Manitoba.

Major objectives of the project include providing support to frontline staff of local jurisdictions to monitor leafy spurge infestations and existing biocontrol sites by collecting data and feeding it into the Prairie Region Noxious Weed Survey and Mapping System database. These objectives and associated activities complement the submission by RDI, *Establishment of the Prairie Region Noxious Weed Survey and Mapping System*.

In order for the survey and mapping system to be effective, the data collected needs to be as comprehensive and complete as possible. Local jurisdictions require human resources support in order to collect, input and analyze the data. Maps produced from this database will then assist local jurisdictions in reviewing and revising their weed management plans for leafy spurge and other invasive plants.

Canadian Invasive Plant Strategy

There is a need for a Canadian Invasive Plant Strategy that enhances collaboration among governments, economic sectors, stakeholders, and the international community. The Canadian Food Inspection Agency (CFIA) will provide leadership and coordination throughout the overall development of the Strategy.

Partner agencies include Department of Fisheries and Oceans, Natural Resources Canada, Agriculture and Agri-Food Canada, Department of Northern and Indian Affairs, Environment Canada, Parks Canada, and provincial ministries responsible for weeds or invasive plants.

Stakeholder groups will include non-governmental organizations, municipalities, importers and exporters, brokers, conservation authorities, fishing and hunting organizations, industry, master gardeners, the seed industry, the horticultural and aquarium trade, universities and colleges, interested landowners and individuals.

Canadians will be engaged throughout the development of a Canadian Invasive Plant Strategy through regional workshops and a strategy website. It is anticipated that regional workshops will commence in late February of 2007. The target date for official release of the Canadian Invasive Plant Strategy is October 2007 at the North American Plant Protection Organization (NAPPO) annual

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A halo in a patch of spurge with a circle of dead and thinning stems

Manitoba Biocontrol Harvest Sites

Currently most beetles for use in Manitoba are collected outside of Canada, mainly in North Dakota. Although this is not a great distance to travel or of great expense, it is hoped that beetle harvest sites in Manitoba will be populated enough in the future for local collection. There are a few harvest sites within Canada, but populations are not stable as yet.

As a part of the *Managing Invasive Species: Leafy Spurge Control* project funded under ARDI, two beetle harvest or nurse sites were established and local area groups are monitoring their progress. In future years it is hoped that the population of these sites is established and healthy and that local organizations will be able to collect beetles within the province.

Biocontrol involves the use of insects to control leafy spurge. *Aphthona* flea beetles are a natural enemy of leafy spurge native to Europe. The adult flea beetle feeds on the leaves of the plant; however, it is the root boring larvae that cause the plant the most stress.

These beetles prefer south facing slopes with direct sunlight, and work best in sandy loam soils. Beetles will take a few years to establish a thriving population; however, as they begin to work, evidence will appear in the form of halos. It takes a long time to get a successful beetle population, but it is necessary to establish these nurse sites in order to distribute beetles here in Manitoba.

Careful monitoring of beetle populations is required to determine if the population needs boosting or whether the beetles are surviving. If the beetles are successful and remove spurge from an area, it is critical that they be collected and moved to another infested area or they will die out.

Note: For more information on the long-term impact of biocontrol agents, see the reports available at: www.team.ars.usda.gov/v2/publications/WyoReport%20Marrs2.pdf and www.team.ars.usda.gov/v2/publications/WyoReport%20Marrs2.pdf

Prepared by Jennifer McKinnon, Research Assistant, RDI

Strategy - continued from page 1

general meeting in St. John's, Newfoundland. Public consultation will be broad with at least four regional consultation workshops, face-to-face interviews, conference calls, general mail, a website, and focus group meetings.

An invasive plant is a harmful organism whose introduction or spread threatens the environment, the economy, or society including human health. Undesirable invasive plants are also referred to as noxious weeds. The number of new plant incursions and their impacts have increased each year, accelerating in the last 30 years due to exponential increases in air travel, the increased speeds at which commodities and people traverse the globe, increased ports of entry, expanded exports and imports into new international markets, increased interest in the use of exotic plants in gardening and water gardening, and increased access to foreign ecosystems. It is estimated that invasive plants cost the Canadian economy millions of dollars annually.

Prepared by Cory Lindgren, CFIA - Alien Invasive Species

Leafy Spurge

Prairie Region Survey and Mapping System

In 2006, RDI received approval under the Invasive Alien Species Partnership Program (IASPP) of Environment Canada for the establishment of an invasive noxious weed survey and mapping system for the Prairie region. This project is aimed at achieving three overarching goals. Firstly, the project will build and enhance a weed survey inventory and mapping system for the Prairie Region that can be used by and is accessible to rural municipalities, organizations, government agencies and individuals. Secondly, it will help encourage the sharing of resources and information across the Prairie Region and link with the database proposed under the Action Plan for Invasive Alien Terrestrial Plants and Plant Pests. Thirdly, it is aimed at provincial organizations and agencies to build capacity at the provincial and local levels.

Weed surveying and mapping are necessary to accurately identify pathways, delineate land, understand the biology of the invasive weeds, and develop and implement weed management plans. This project builds on the initial efforts of RDI, through a Greencover Canada Technical Assistance Project on leafy spurge, to develop a platform and framework for a prairie region weed survey database.

The 'lessons learned' from RDI's work to date indicates that (a) no comprehensive, standardized and sustained database of noxious weeds in the prairie region currently exists in any single agency or location; (b) a tangible product i.e. map of infestation has a considerable impact on helping to identify pathways and levels of infestation; (c) mapping and monitoring are necessary components of effective weed management plans; and (d) there is a strong desire for weed management plans but a considerable range of resources and expertise.

This project is aimed at addressing these lessons learned by using the framework developed as part of the Greencover Canada project to (1) expand the database; (2) enhance the functionality to include an interactive, user-friendly mapping system that accommodates all levels of resources and expertise; and (3) provide workshops and training opportunities to other organizations from across Western Canada to use the database and weed mapping survey.

Karen Rempel, Research Affiliate with RDI, will manage the project with input from a pan-Western working group of representatives from Manitoba, Saskatchewan and Alberta. In late 2006, a representative from British Columbia joined the working group. A major partner in the project is the Canada Rural Economy Research Lab at the University of Saskatchewan. Over the two-year period the overall value of the project is estimated at more than $100,000.

Fertilizer: A Control Technique for Spurge

In 2004, the Greencover Canada Technical Assistance Program, Agriculture and Agri-Food Canada awarded RDI with funding support for a three-year project aimed at increasing the use of integrated pest management (IPM) strategies for leafy spurge.

One of the most promising outcomes of the project is found in the plot and demonstration site work east of Brandon. The aim of the site was to demonstrate within the growing season how landowners can weaken the spurge stand while increasing the biomass of desirable plant species, in this case, bluegrass and brome grass. The objectives were to (a) increase the competitiveness of the grass component through fertilization; and (b) encourage the development of more surface level feeder roots of spurge plants in order to increase the vulnerability of spurge plants to herbicide.

This demo trial used a simple block design with four rates of fertilizer application in the spring (zero, 40, 80, and 120 kg/ha actual N) crossed with four herbicide treatments (none applied, half and full rate of 2,4-D, and low rate of Grazon™) applied in the fall.

Fertilization was used to increase competitiveness of the grass component and to encourage the development of more surface level feeder roots of spurge plants. The plots were mowed in early July to remove spurge top growth and

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Showy lady slipper

Native mixed-grass prairie species thrive

Holistic Approach to Managing Leafy Spurge

Gord Beddome and Patti Green of Douglas purchased a mixed grass prairie ranch along the Assiniboine River in 1987 and have taken a holistic and innovative approach to leafy spurge management since that time. The couple and their three children know that their property, which overlies the Assiniboine Delta Aquifer, requires a long-term approach and careful management to maintain their species bio-diversity while trying to address a heavy invasion of spurge.

Over the years they have worked with a wide range of interagency groups including the Manitoba Habitat Heritage Corporation (MHHC), the Nature Conservancy of Canada (NCC) and the Mid Assiniboine River Conservation District (MARCD). In 2003 the Beddomes established a mixed species grazing program in partnership with the MARCD. This was a logical progression from involvement on the NCC Yellow Quill Grazing Project and followed a MHHC twice-over rotational grazing course in 2002.

Additionally, a variety of biocontrols have been used over the years including leafy spurge beetles and leaf tier moths. The family began their grazing control program with sheep then later switched to goats due to better ease of handling and less disease issues. After many years of combined education and effort, they are starting to see a decrease in weed density and spread as well as an increase in native mixed-grass prairie species. The property supports a wide variety of native flora and fauna including showy lady slipper, sand bluestem, prairie lily, eastern bluebird and loggerhead shrike among others.

The ranch has a wide variety of livestock including horses, beef cattle and goats with guardian dogs. Additionally, the former PMU barn has been converted to a chicken operation for fertilized egg production. All grazing livestock are rotationally grazed on a twice-over system for optimum pasture response and weed impact. They have also established numerous shelterbelts on the fragile sands and use some mowing for weed management, avoiding both fire and herbicides. Leading ecological livestock and rangeland managers, the Beddomes exemplify integrated management and long-term goals for leafy spurge recognizing that it is a permanent part of their landscape.

Prepared by Kim Poppel, Manager, Mid Assiniboine River Conservation District #15

Fertilizer

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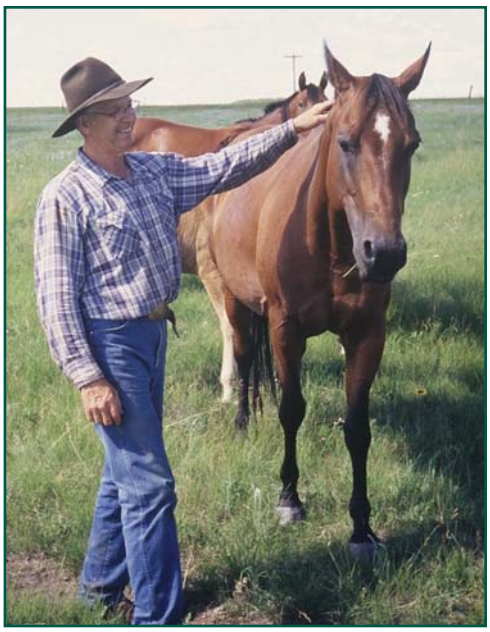
inhibit seed set of spurge. Herbicide treatments were applied in the fall.

Initial observations and measurements indicate that this management approach has merit, especially in the Grazon™-treated plots. Early-season development of spurge plants in these plots was severely retarded. Mid-season shoot development and stand recovery was significant but the very healthy appearance of the spurge shoots growing in these plots indicated that their root system is present in the shallow layer of applied nutrients near the surface.

Assuming that the spurge plants in these plots are using all available reserves to produce new growth, and the indication that the main root system of these plants is indeed very close to the surface, there is a possibility that fall herbicide application could have significant impacts on the overall health of the spurge component in these treatments.

Submitted by Karen Rempel, Research Affiliate, RDI



Gord Beddome

Pasturing Sheep and Goats: Worth the Work

Pastures in many areas of the province suffer varying degrees from leafy spurge. Landowners with severe infestations of leafy spurge on grazing land may face decreased land values, reduced cattle stocking rates and a reduced income. As of 1999, 225,000 acres of grazing land is infested with leafy spurge, costing Manitobans $16 million annually. A 40% infestation decreases carrying capacity of cattle by 50% (LSSG).

Cattle and horses will not consume leafy spurge and will

Multi-species grazing for spurge

often avoid patches entirely. This is because the latex of the plant irritates their mouths. Leafy spurge can also make cattle and horses very sick. Adding sheep or goats to a grazing system helps to

Cashmere goats having an impact on spurge

balance forage resources in the pasture. Sheep overlap the diet of cattle by 20 to 40% and goats overlap it by 5 to 20%, which indicates that adding sheep or goats to an existing system will not greatly reduce cattle or horse stocking rates. Stocking rates should be based on actual infested acreage. A good place to start would be from 1 to 3 infested acres per sheep or goat. As leafy spurge decreases, the number of sheep or goats will also need to be decreased.

When it comes to protecting your pasture against leafy spurge, introducing sheep or goats to graze with your existing cattle operation is one of the most effective control methods. Remember, grazing sheep and goats is the only leafy spurge control method that is revenue-neutral or even revenue-generating.

Purchasing feeder sheep or goats is a viable option for the busy producer. Purchase the animals in the spring, let them feed on your leafy spurge throughout the season and sell them in the fall. Some producers have been known to lease goats or sheep from nearby producers to graze their infestations for them. This is an excellent way for them to have their animals grazed and for you to get rid of some of your spurge.

Predator control is one challenge facing sheep or goat producers. But there are options available. Electric fencing is one of the ways to protect sheep and goats from predators. Five to eight strands of wire are often adequate. With a bottom wire charged 6 inches from the ground and the next 2 wires spaced at 5-inch intervals, predators will have a difficult time entering the pasture. Often adding a couple of strands is all that is needed. There is also a mesh electric fence that is excellent protection from predators.

Purchasing a guardian animal is an excellent investment. Guardian dogs such as Great Pyrenees, Maremma and Akbash can be used effectively to protect against coyotes, dogs, black bears and mountain lions.

Pyrenees livestock guardian dog

A donkey's natural herding instinct means if properly bonded with the sheep or goats, it will stay with them most of the time. This instinct to herd and its inherent dislike and aggressiveness towards coyotes and dogs can make the donkey an effective guardian animal if managed properly. The donkey's loud brays and quick pursuit will scare away predators and may alert the shepherd.

Llamas are also aggressive towards members of the canine family. The llama often stands away from the flock/herd overlooking the group and territory. Llama responses include alert attention, alarm calls, walking or running toward the predator, chasing, kicking or pawing at the predator, herding the sheep or goats and positioning itself between the flock or herd and predator.

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LSSG Member Profile: Manitoba Weed Supervisors Association

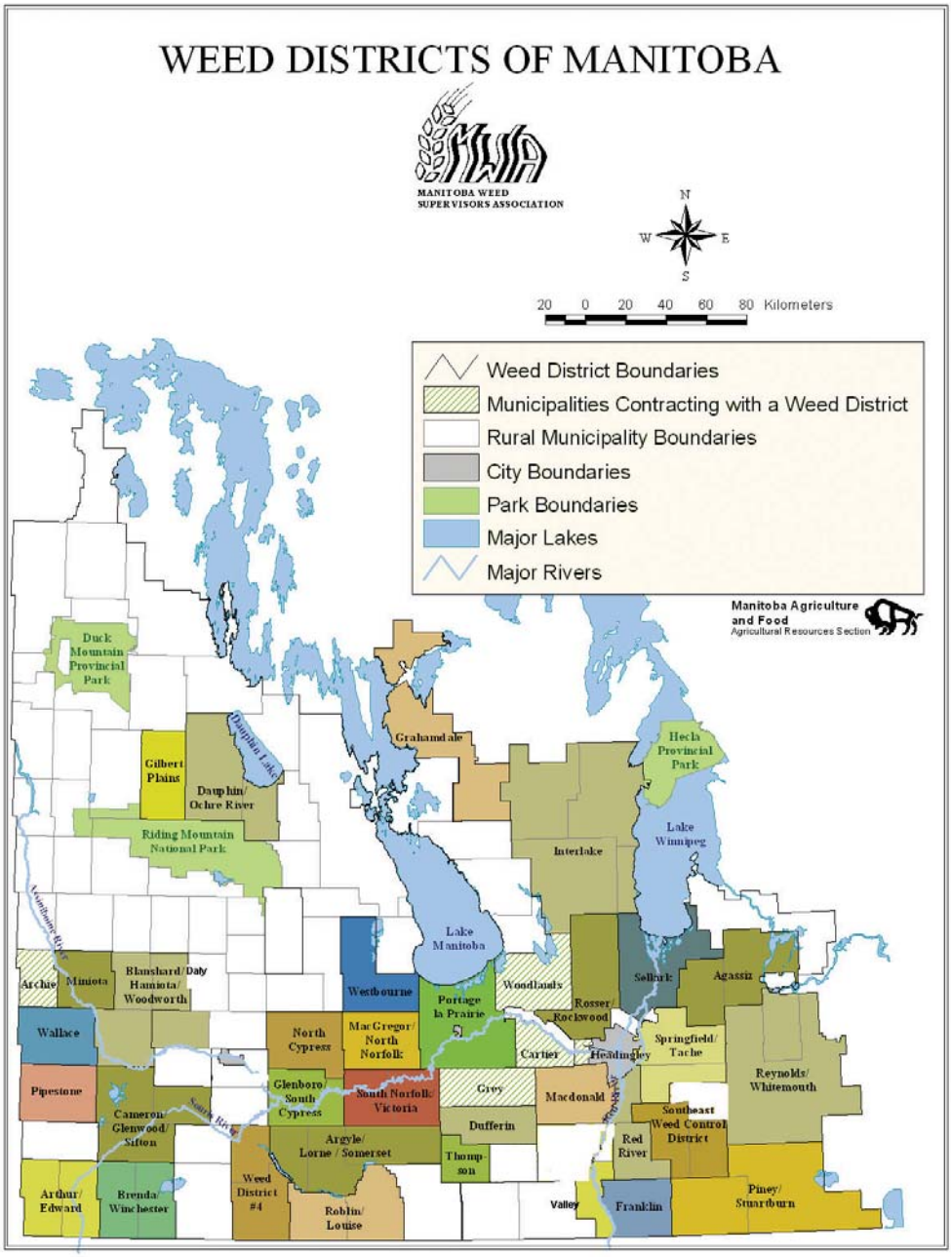
The Manitoba Weed Supervisors Association (MWSA) currently represents 32 weed districts (comprised of about 70 municipalities) as well as some individual municipal weed inspectors. We are well represented in terms of geographic and political boundaries, which lead to individual supervisors' duties to vary from district to district, but generally our members are responsible for the enforcement of the provincial Noxious Weeds Act, and the management of weed control programs on public property within their respective districts. Our duties also include day-to-day activities such as record keeping, administration (budgets, billing, permits, licenses, etc.), inventory control, equipment maintenance, and extension for local council and residents.

The main mandate of our association is to provide our members with the latest technical weed control information, assisting them in providing effective, cost-efficient and environmentally sustainable weed control programs in their respective districts. To this end, each year we organize two training sessions as well as a summer tour to keep ourselves technically updated.

We maintain ongoing memberships in various related associations such as the ManSask Industrial Vegetation Management Association, The North American Weed Management Association, The Manitoba Leafy Spurge Stakeholders Group, and The Purple Loosestrife Committee. New projects we have become involved in include the Invasive Species Council of Manitoba, and developing an Invasive Plants Calendar for Manitoba.

We are ongoing participants at Manitoba Ag Days, and organize an annual Municipal Weed Control Issues Seminar to provide relevant information directly to our weed board and municipal council representatives. We also meet with other organizations interested and involved in weed control including the Minister of Agriculture, Manitoba Highways and Transportation and liaison with Railways to encourage more coordinated weed control efforts provincially.

We welcome new members and weed inspectors from any municipality to the MWSA and to our various events throughout the year.



Working Towards an Invasive Species Council for Manitoba

Early in 2006, representatives of the LSSG and the Purple Loosestrife Project met in Brandon to discuss the possibility of forming an Invasive Plants Council for Manitoba. The meeting was hosted by RDI who then agreed to facilitate discussions with various stakeholders on the feasibility of forming the Invasive Species Council of Manitoba.

The first facilitated discussion to explore the possibility of creating a provincial group to serve as an umbrella organization for invasive plants occurred on June 19, 2006 in Portage la Prairie. Several LSSG member organizations sent representatives to this meeting. The LSSG Coordinator also attended.

Stakeholders identified a number of opportunities and challenges for a Council and agreed that the formation of a provincial council was worth pursuing. It was important to all in attendance that grassroots support be fully endorsed.

A working group was charged with drafting the following to present to the large group at the next meeting:

- a mission and mandate
- an administrative and funding structure
- a way to house the group and
- a communication strategy.

The large group met for a second time on December 8th with RDI again facilitating the discussion. It was agreed to broaden the focus to invasive species. The group discussed the council's next steps for the Working Group, as follows:

1. Obtain non-profit status
2. Frame out by-laws, objectives, and mission statement
3. Send back revised set of operational objectives and mandate for the entire group to consider and comment
4. Begin considering a communication strategy (e.g. a press release of the new organization; RDI volunteered to provide assistance)

Working Group

- **Garth Ball**, Manitoba Conservation and member of the Purple Loosestrife Project
- **Cheryl Heming**, City Naturalist, City of Winnipeg
- **John Johnston**, Member of the Manitoba Weed Supervisor's Association
- **Ron Moss**, Technology Transfer Manager, Prairie Farm Rehabilitation Administration Brandon and board member of the Industrial Vegetation Weed Management Association (Man/Sask)
- **Beth Peers**, Coordinator, Leafy Spurge Stakeholders Group
- **Pat Rakowski**, Wildlife Biologist, Canadian Wildlife Service
- **Lisette Ross**, Ducks Unlimited / Oak Hammock Marsh
- **Jane Thornton**, Forage and Pasture Specialist, Manitoba Agriculture, Food and Rural Initiatives

Worth the Work - *continued from page 5*

There may still be losses to predators even with the proper fencing and a guardian animal. However, the Manitoba wildlife damage compensation program reimburses producers for losses to domestic livestock due to predation up to 80% of the animal's commercial value (maximum of $2000). For more information, visit www.masc.mb.ca or your local Manitoba Agricultural Services Corporation (MASC) office.

Prepared by April Peers, Research Assistant, RDI

For more information about leafy spurge and multi-species grazing, goats or sheep:

www.brandonu.ca/rdi/leafyspurge.html (multi-species grazing fact sheet)
www.mbsheep.ca
www.manitobagoats.ca

North American Weed Management Association (NAWMA) 2007 Conference

September 24-27, 2007
Suncoast Hotel, Las Vegas, NV
Visit www.nawma.org/ for more information

North American Plant Protection Organization (NAPPO) Annual Meeting 2007

October 22-25, 2007
St. John's, Newfoundland
Contact: Steve Côté
E-mail: cotest@inspection.gc.ca
Tel.: 613-221-4546
Fax: 613-228-6602

Resources

New Release: PFRA (Land Management & Range & Biodiversity), MWSA and MFARI have developed an Invasive Plants Calendar for 2007. The calendar features a weed of concern in Manitoba each month and some information about the plant. Invasive plants of concern include those spread throughout Manitoba, those currently only in isolated areas and those that are approaching our borders from other jurisdictions. To access the calendar please contact your local GO Team, Weed Supervisor or PFRA.

Team Leafy Spurge
Visit:wwww.team.ars.usda.gov/v2/publications/leafyspurgenews.html for publications, newsletters and resources.

Available for download: Leafy Spurge Awareness Materials and Publications Visit: www.brandonu.ca/rdi/leafyspurge.html

A variety of awareness materials: Posters, placemats, manuals, factsheets, pens, notepads, keychains. Available by contacting the LSSG coordinator at peers@brandonu.ca or 204-571-8551.

Leafy Spurge Stakeholders Group

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