Summer 2003
Volume 1, Issue 2

Leafy Spurge in Manitoba

- The newsletter of the Leafy Spurge Stakeholders Group -

Highlights:

LSSG

LSSG Receives CNG Funding

The LSSG received funding from Manitoba Agriculture & Food's Covering New Ground (CNG) program this season to carry out a two-part project to combat leafy spurge in rural municipalities. One component of the project is the development of two integrated pest management plans for rural municipalities. A plan will be developed in partnership with the Little Saskatchewan River Conservation District (LSRCD) and the Rural Municipality of Daly, and a second plan will be developed in partnership with the Rural Municipalities of North Cypress and South Cypress.

These rural municipalities are concerned about the negative effects of leafy spurge in their jurisdictions and realize that a more coordinated, long-term approach is needed to be successful in managing it. Management plans will also assist these rural municipalities in determining priorities and allocating funds for future control methods in their areas. The LSSG will provide technical assistance and guidance in the process of developing these two integrated pest management plans.

A second component of this project is to work with the LSRCD in establishing and monitoring demonstration sites to measure the effectiveness of various leafy spurge control methods. Control methods may include grazing, bio-control, mechanical and chemical application.

Myles Kopytko, LSRCD Manager, said that conservation district board members from the Rural Municipality of Daly were interested in having some on-the-ground demonstrations in their area to create further awareness of the increasing problem of leafy spurge.

Applied demonstration is a very effective way in helping producers see the value of trying a variety of control methods on their

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Bromley Chair of LSSG

Don Bromley

As of April 2003, Don Bromley represents the LSSG as chairperson. Don has been an active LSSG member since 1998, representing Keystone Agricultural Producers. Don owns and operates a grain farm in the RM of Daly.

Outgoing chairperson Wayne Digby will be taking the opportunity to establish a national and regional agricultural extension program in the Ukraine over the next two years.

The LSSG welcomes Don to his new position and wishes the best of luck to Wayne.

Wayne Digby

Detection of Leafy Spurge Infestations

This summer the West Souris River Conservation District (WSRCD) will embark on a research project to determine the feasibility of detecting leafy spurge infestations using remote sensing methods and geographic information systems (GIS).

Conventional methods of mapping and monitoring leafy spurge infestations either by GPS-collected data or by visual observation are time-intensive and costly. Remote sensing methods will provide faster and cheaper results compared to the conventional methods.

The study area is located in the Rural Municipality of Cameron covering a total area of 92 square kilometers. Conventional methods of visually detecting and mapping leafy spurge have shown this region to be heavily infested by leafy spurge.

High-resolution satellite imagery and aerial photographs will be acquired at the end of June and early July and will be analyzed using PCI Geomatica remote sensing software to detect the leafy spurge infestations. Arcview 8.x GIS software will be used to create digital and hardcopy maps of the study area illustrating the leafy spurge infestations.

The deliverables generated from this research project will provide valuable baseline data for future projects or research in this field. If the results prove to be positive, the data will be of great interest to the Leafy Spurge Stakeholders Group and government agencies. The long-term goal is to expand the project to other areas of agro-Manitoba to determine the number of leafy spurge acres.

If the number of leafy spurge acres can be accurately determined, more effective economic models could be developed. Thereby, decisions on curbing and controlling leafy spurge infestations could be better developed, and producers could improve the management of their livestock and forage operations.

The WSRCD would like to acknowledge the assistance of Natural Resources Canada Sustainable Communities Initiative, Manitoba Department of Agriculture & Food, Leafy Spurge Stakeholders Group, Rural Municipality of Cameron, Glenwood, and Sifton Weed District and US Geological Survey/ Center for Biological Informatics Information Technology & Services.

If you would like further information, please contact the WSRCD at 204 877-3020 or by email at dean.wsrcd@rfnow.com. Or visit the web site at www.wsrcd.com.

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farms. The LSSG will provide technical support and assistance.

CNG is a Manitoba Agriculture and Food initiative. It provides funding to Manitoba producer groups and provincial commodity organizations to carry out sustainable agriculture demonstration or technology transfer projects throughout the province.

The program's goal is to improve the health of the agricultural ecosystems, supporting our industry. CNG focuses on projects related to sustainable crop management, livestock and forage management and integrated pest management.

Erinn Heinrichs
Rural Development Institute
Brandon University

Species at Risk 2003

Dalea villosa var. *villosa*

Tradescantia occidentalis

Summer 2003 will see the continuation of the third year of the project, *Bio-Control of Leafy Spurge in Support of Recovery of Species at Risk,* funded by Environment Canada's Habitat Stewardship Program for Species at Risk. Project partners are the Leafy Spurge Stakeholders Group, the Manitoba Weed Supervisors Association, the West Souris River Conservation District, as well as participating property owners.

This project is a fieldwork, demonstration and outreach project concerned with identifying effective biological control methods for leafy spurge to reduce the negative impact on species diversity and species at risk. Originally, the species at risk targeted in this project included the western spiderwort (*Tradescantia occidentalis*), but has now expanded to include the hairy prairie clover (*Dalea villosa* var. *villosa*).

The western spiderwort and hairy prairie clover are species that are restricted to growing in areas of sandy soils in open to partially destabilized sand dunes. The main threat to this species comes from encroachment of vegetation onto the dune systems. With changes in land management practices, especially suppression of burning and grazing, vegetation will stabilize and overtake areas of open sand.

Vegetative succession from the mixed grass prairie/open sand dune habitat to aspen parkland is becoming evident in all of the properties involved in the project. Hastening the process of dune stabilization is the invasion of leafy spurge onto the sites.

Bio-control for this project involves two beetle species, the black leafy spurge flea beetle, *Aphthona lacertosa* and the black dot leafy spurge flea beetle, *Aphthona nigriscutis.* Biological control is an attractive means of reducing leafy spurge densities in these ecologically sensitive sites, as it is host specific. There is no danger of the *Aphthona* beetles preying upon or affecting other plant species. Biological control is also useful in areas where land managers may be limited by the types of controls (such as herbicide application) that can be used.

Year I and II of this project included two properties: the Manitoba Habitat Heritage Corporation site near Lauder, as well as a section of privately owned property in the Routledge area. (Reports are available at http://www.brandonu.ca/rdi/leafyspurge.html).

Prior to beetle release, vegetation is sampled in plot areas to provide baseline information from which to work. A release site and a control site are prepared on each property. Among the data collected at each site are leafy spurge heights and densities. Data collected in subsequent years will be compared to the original information collected, allowing measurement of beetle impact on leafy spurge.

Two properties in the Lauder area have been added to the project in 2003. Leafy spurge flea beetle releases will be conducted on these properties, following surveys for site suitability and collection of baseline vegetative information.

Project partners will develop a plan to establish a nurse site of leafy spurge flea beetles. Once established, the nurse site will provide local producers with a readily accessible supply of biological control agents.

Project personnel, with the support of the West Souris River Conservation District, will also develop, produce and distribute a fact sheet on leafy spurge, bio-control and species diversity. Outreach and education is an important element of the Habitat Stewardship Program for Species at Risk.

Jennifer Pachkowski
Field Technician
Rural Development Institute
Brandon University

Leafy Spurge Forum 2003

"Leafy spurge is a real nightmare," said Dean Bangsund, an economist from North Dakota State University. "It's difficult to control and impossible to eradicate." Manitoba's leafy spurge problem will continue to escalate and it is necessary to take immediate steps to address this growing problem, according to a group of experts who recently gathered to made presentations about this issue.

"It's going to continue to spread," said Wayne Digby, chairperson of the Leafy Spurge Stakeholders Group (LSSG) during Day Two of the Forum held at the Brandon Research Station. "It's a costly weed and its competitiveness really presents a problem." More must be done to control the spread, he says, much more.

The LSSG recently brought in a group of leading authorities from across Canada and the United States to address a group of municipal leaders, agriculture, conservation and government agencies. Their purpose was to share their knowledge and find ways to control the spread.

Leafy spurge already infests many parts of agro-Manitoba and the problem continues to worsen. "It's starting to spread into Riding Mountain National Park," Digby said. "Duck Mountains is one we're going to have to watch. There's also movement into the sandy soils east and southeast of Winnipeg."

Garry Bowes is in charge of noxious weed control in Saskatchewan.

John Johnston, Supervisor — Cameron Glenwood Sifton Weed District

Fattaneh Zehtab-Jadid, Brandon University and Dean Bangsund, North Dakota State University

"Eradication may be practical where the weed infestation is recent or if distribution is limited," he said.

"Once it becomes established you will need to use control methods for as long as you own the land. Seeds remain viable in the soil for eight to ten years," Bowes said. "It's hard to eradicate."

"A key concept in controlling leafy spurge is preventing further spread," said Bangsund. There are two strategies to prevent spread — eradication and containment. Containment targets specific areas and keeps it from spreading further.

"You must overcome the mindset of eradicating leafy spurge versus managing or controlling the weed," he said. "Eradication is likely improbable. The problem is going to be around forever."

"It is important to develop and demonstrate an effective and affordable integrated pest management strategy (IPM)." Studies in the U.S.A. show that ranchers lack knowledge on how to properly use or integrate leafy spurge controls. Bangsund says they often misuse and over-rely on herbicides. Some distrust other control methods, such as grazing sheep.

An IPM strategy involves a variety of control methods including herbicides, insects, grazing with sheep or goats and other strategies. A cohesive plan for dealing with the problem is necessary.

"Goats are phenomenally effective

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Pauline Morton, Rural Development Institute

Garry Bowes, Saskatchewan Integrated Noxious Weed Management Program

Heather Felskie, Agriculture & Agri-Food Canada-Prairie Farm Rehabilitation Administration

in grazing leafy spurge," said Kevin Sedivic, a professor at NDSU. They are also one of the options in IPM that includes grazing, herbicides, bio-control (flea beetles) and fire.

"Bio-control is not a short term fix. It takes about six years to start to show results," he said. "In the meantime don't give up other forms of treatment after releasing the bugs."

Leafy spurge now infests more than 225,000 acres of grazing land in Manitoba, according to Digby. "We're losing the capacity of grazing another 16,500 cattle in Manitoba." The total impact in Manitoba is now more than $19-million annually.

Various initiatives are being tried, according to Pauline Morton, a research assistant with the Rural Development Institute (RDI) of Brandon University. RDI co-ordinates the LSSG, a coalition of agricultural and conservation groups and government agencies.

Beetles have been released at about 150 sites and several nursery sites have been established. These are places where large numbers of beetles are released so their numbers can increase for harvesting and re-location to other infestations.

Morton has conducted research to determine the survival rates of the beetles and to learn which bugs are best under our climatic and geographic conditions. Her research also investigates beetle effectiveness.

Bill Stilwell
Neepawa

Congratulations

Ellen Blain (Glenboro), John Johnston (Oak Lake), Gordon Claeys (Carberry) and Jim Elliot (Carberry) each won a limited edition Burrowing Owl Print by Fred Lahrman. Heather Felskie (AAFC-PFRA) donated the prints to the Leafy Spurge Forum.

Leafy Spurge Control Elbow, Saskatchewan

On Saturday, August 25th, 1148 hard-working ewes in the corrals at the Prairie Farm Rehabilitation (PFRA) Project Community Pasture near Elbow, SK, were sorted into their 22 flocks and sent home for the winter. Under the care of shepherd Don O'Brien and relief shepherd Ruth Anderson, the ewes have been grazing leafy spurge on 32 square miles of the pasture since their arrival in mid-May. I had the opportunity to travel to the pasture with Colleen Sawyer, from the Saskatchewan Sheep Development Board, and project participant Hazel Kinzie, to see the sheep and meet the flock owners. Like virtually every day on the prairies this summer, it was hot and dry, but cloudy conditions before noon did allow for sorting sheep into separate pens for each flock without undue stress on the sheep (or the shepherds).

The project began ten years ago, when the PFRA introduced sheep to control the leafy spurge that was spreading on the cattle pasture. Two years later, the Saskatchewan Sheep Development Board took over the project and since then the grazing capacity of the pasture has increased by approximately 200 cow-calf pairs to its present 2300, as a result of the range improvement made by the sheep.

Ewes must be weaned, sheared and foot-trimmed on arrival at the pasture, and are culled for lameness, age or thinness on entry. Flock owners participating in the project pay $10 per head for a minimum 100 days of grazing; the exact length of time the sheep are left on the pasture varies with the year and the availability of feed. The fees go back into the sheep, in colour-coded plastic eartags bearing the owners' initials, applied to the sheep on entry to the pasture, and other entry-day procedures that include worming, treatment for keds and vaccination with Glanvac. A portable sheep handling system was purchased to process the sheep into the pasture at the beginning of each summer. There is less handling of the sheep in the fall, so the existing cattle corrals are used and seem to work very well.

Careful shepherding is required, not only to protect the sheep from predators and other losses, but to ensure that the sheep concentrate their efforts on the leafy spurge, rather than competing with the cattle for available grass. Don O'Brien and his wife Sandra live right across the road from the pasture. During the time the sheep are on pasture, Don is with them day and night, herding the sheep during the day with the aid of a horse and two Border Collies; he also stays with them at night in a camper on the back of a pickup truck. Relief shepherd Ruth Anderson gives Don every other weekend off; Ruth is a veteran to such projects, having worked for several years grazing sheep on the forestry cutblocks in British Columbia.

Rolls of portable electric fencing are used to night-pen the sheep and this, combined with the efforts of three livestock guardian dogs, keeps the predators at bay. The pen is moved every week or two, and is usually set up in an area with some leafy spurge or buck brush for the sheep to work on if they feel like eating at night. Trace-mineralized salt and mineral is provided to the sheep all summer, and animals are watered at dugouts two or three times daily. Sick animals are isolated and treated as necessary.

All of the walking takes a toll on the sheep, and some of them suffer foot injuries that result in lameness. In mid-July, all of the ewes were brought into the corrals and run through a zinc

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sulfate footbath. Lame animals were treated and penned until they recovered, when they were returned to the flock.

On take-out day, most ewes were in an acceptable body condition score of 3.0 - 3.5, and could easily be taken home, flushed and bred successfully. Ewes that were very thin on entry to the pasture usually gained weight, but were still thinner than average on leaving. After the flocks were sorted into pens for each owner, there was still considerable variation in the breeds and crosses in each pen, and variation in the body condition of these different types of sheep within each flock. One flock owner commented that it was a learning process and she was learning which of her sheep would perform well at the pasture and which of them she should keep at home.

Although producers are discouraged from bringing lambs to the project, a few lambs were present this year. The conditions on the project, probably in combination with the lambs' lack of grazing experience, resulted in the lambs appearing generally small and under-conditioned at the end of the summer, at least to my eyes.

A small sample consisting of one ewe from each flock was given a special ear tag and these ewes were weighed on entry and again on take-out to monitor weight changes in the ewes. The average weight gain of these animals was 15 lb., with only one animal losing weight (a loss of three lb.). With 22 participants and 1148 ewes, the average flock size of the participants is only 52 ewes - too few for the owners to hire a shepherd themselves, or to devote much time to pasture management and predator control. For most participants, bringing their sheep to Elbow means freedom from worrying about predators, a chance to own more sheep than they have pasture for, and death losses that are lower than many of them would achieve at home. Losses on the pasture are surprisingly low, with only eight ewes dying in 2001 (less than 1%). Most of these deaths occurred in flocks whose ewes arrived at the pasture in low body condition scores, and some of these ewes were simply unable to adapt to the change in feed supply and the distance traveled by the flock.

Transportation may be a factor limiting greater participation in the program - even small flocks require two or more trips that may take several hours each, and hiring a larger truck may not be practical if the flock isn't large enough to make up a complete load. The Saskatchewan Sheep Development Board has recently started a second project on 320 acres south of Saskatoon, where 175 ewes guarded by a llama are being used to control leafy spurge on privately owned land. Colleen reports that the SSDB is receiving inquiries about using sheep for spurge control from other municipalities. Hopefully this will lead to the establishment of multiple projects around the province so that producers can participate without transporting their sheep so far, and more cattle producers will benefit from having sheep on their range. Sheep producers interested in participating in this project should contact Colleen Sawyer at the Saskatchewan Sheep Development Board.

Cathy Gallivan, PhD

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LSSG / RDI Publications

Leafy Spurge Forum 2003: Conference Proceedings (In press)

Leafy Spurge: The Silent Invader (reprinted in 2003, with the Mixed Grass Prairie Stewardship Project)

Best Practice: Environmental Stewardship by a Private Landowner (2002)

Bio-control of Leafy Spurge in Support of Recovery of Species at Risk: Year II (2002)

Leafy Spurge Newsletter, Issue One (2002. Available at: www.brandonu.ca/rdi/leafyspurge.html)

Leafy Spurge Prevention and Control: Integrated Pest Management Manual (2002. Available at: www.brandonu.ca/rdi/leafyspurge.html)

Increased Forage Production through the Bio-control of Leafy Spurge (2002. Available at: www.brandonu.ca/rdi/leafyspurge.html)

Bio-Control of Leafy Spurge in Support of Recovery of Species at Risk (2001)

Impact of Biological Control Agents on Leafy Spurge in Manitoba (2000)

Leafy Spurge Field Work – Jiggens Bluff (2000. Ducks Unlimited)

Economic Impact Assessment (1999. Available at: www.brandonu.ca/rdi/leafyspurge.html)

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