Rare Plant Surveys and Stewardship Activities by the Manitoba Conservation Data Centre, 2008

Manitoba Conservation Data Centre Report No. 2008-04

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Cover image: Small white lady's-slipper (*Cypripedium candidum*) top left; Western silvery aster (*Symphyotrichum sericeum*) bottom left; Great Plains ladies'-tresses (*Spiranthes magnicamporum*) right.

Executive Summary

Information on 62 rare and uncommon plant species was documented by the Manitoba Conservation Data Centre (MBCDC) in 2008 through field surveys and acquisition of data from partners and reports submitted to the CDC by other sources. As a Habitat Stewardship Program project, field surveys conducted by CDC staff were focused on Canadian Species at Risk in Manitoba. Provincially rare species were surveyed as time permitted. The nine species targeted in 2008 were:

Rough agalinis (*Agalinis aspera*)

Gattinger's agalinis (*Agalinis gattingeri*)

Buffalograss (*Buchloë dactyloides*)

Small white lady's-slipper (*Cypripedium candidum*)

Riddell's goldenrod (*Solidago riddellii*)

Great Plains ladies'-tresses (*Spiranthes magnicamporum*)

Western silvery aster (*Symphyotrichum sericeum*)

Western spiderwort (*Tradescantia occidentalis*)

Culver's-root (*Veronicastrum virginicum*)

A total of 90 sites were surveyed for these species by the CDC, 26 of which were privately owned. Data on targeted species collected in the field by the CDC resulted in updates to 40 previously known occurrences and the documentation of 10 new occurrences. A summary of other species and occurrences surveyed by the CDC and associates are also included.

Highlights include the discovery of two new Gattinger's agalinis occurrences, bringing the number of known occurrences in Manitoba to three.

Acknowledgements

We would like to thank Cathy Foster for her assistance in planning the field season and Shawna Hewson and Alex Froese for their field assistance. Several other associates joined CDC staff in the field as well as providing habitat and rare species information. Richard Staniforth joined us in the field for surveys of ferns. Laura Reeves and Christie Borkowsky of the Tall Grass Prairie Preserve provided guidance in the field during surveys of Western silvery aster, Riddell's goldenrod and Great Plains ladies'-tresses and provided data on rare occurrences in and around the preserve. Roger Hurtubise showed us a new occurrence of Gattinger's agalinis. The Nature Conservancy of Canada (NCC) partnered with the CDC in surveys for Plains rough fescue (*Festuca hallii*) grassland.

We would also like to thank the following individuals for providing information on rare species occurrences and habitats: Doris Ames, Nancy Bremner, Dan Chranowski, Doug Collicutt, Nicole Firlotte, Jason Greenall, Cary Hamel, Helios Hernandez, Curtis Hullick, Derrick Ko Heinrichs, Todd Lawton, Tom Moran, John Morgan, Eugene Reimer, Dave Roberts, Richard Staniforth and Peggy Westhorpe. Elizabeth Punter provided assistance with the identification of fescue samples.

Our appreciation extends to all landowners who granted permission to access private land for rare species surveys.

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Introduction and Methods

This report summarizes rare plant surveys and stewardship activities conducted by the Manitoba CDC in 2008. As a Habitat Stewardship Program project, priority was given to species designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as nationally "at risk" (Environment Canada 2007; COSEWIC 2008). Information on provincially rare species was collected in the field as time permitted. Much of the information on provincially rare species was gathered from data submitted to the CDC from other sources.

CDC surveys of the nine target species were focused on searching for new occurrences as well as monitoring and expanding existing occurrences. Searches were conducted in appropriate habitat in the southwest (Buffalograss, Western spiderwort, Small white lady's-slipper), the southeast (Culver's-root, Western silvery aster, Riddell's goldenrod, Great Plains ladies'-tresses) and the southern Interlake region (Gattinger's agalinis, Rough agalinis) from June through September.

Information associated with previously documented rare plant occurrences and geospatial data such as aerial photographs, land use, water, elevation and land tenure were used to determine potential survey sites. Where required, landowners were contacted by telephone prior to surveys. Data collected while surveying an occurrence included location (mapped with a GPS), plant abundance, habitat characteristics, threats, photographs and specimens when necessary to confirm identification. For species tracked in the CDC's database, data was gathered in the field and from other sources were entered into the geographic information system (GIS) and associated database (Biotics) using NatureServe's standard methodology (NatureServe 2008). Data gathered on uncommon plants that are not tracked in the CDC database are kept on file. Information on negative search results was entered into a separate GIS theme.

Each species has been assigned global, national and subnational ranks (G, N and S ranks, respectively) to indicate the status of the species at each geographic scale. The rank is a number (1-5) following a letter (G, N or S) and the lower the number, the rarer the species. For more information on species ranks, see NatureServe's explanation of ranks (http://www.natureserve.org/explorer/ranking.htm) or that of the Manitoba CDC (http://web2.gov.mb.ca/conservation/cdc/info.php).

Results

The results of surveys of the nine rare plant species targeted by the CDC are summarized in Table 1.

Table 1. Summary of CDC surveys of priority rare species, 2008.

Scientific Name	Common Name	Sites* Surveyed	Private Land Parcels Surveyed	Known Occurrences** Monitored	New Occurrences** Documented
Agalinis aspera	Rough agalinis	6	0	3	0
Agalinis gattingeri	Gattinger's agalinis	3	1	1	2
Buchloë dactyloides	Buffalograss	8	7	2	0
Cypripedium candidum	Small white lady's-slipper	11	5	6	0
Solidago riddellii	Riddell's goldenrod	15	3	11	3
Spiranthes magnicamporum	Great Plains ladies'-tresses	16	1	4	5
Symphyotrichum sericeum	Western silvery aster	10	3	6	0
Tradescantia occidentalis	Western spiderwort	4	3	2	0
Veronicastrum virginicum	Culver's-root	17	3	5	0
Total		**90**	**26**	**40**	**10**

*Sites are defined as discrete sampling locations. Each parcel of private land was considered a site.

**A plant occurrence is generally defined as a plant population that is separated by 1 km from the next nearest population when the habitat between the two is not suitable OR by 2 km when the intervening habitat is suitable. An occurrence may be comprised of one or more sites.

Table 2. Summary of rare and uncommon plant occurrences updated or documented using data collected by or submitted to the CDC (other than the occurrences listed in Table 1).

Scientific Name	Common Name	Conservation Status	Known Occurrences Updated	New Occurrences Documented
Agalinis tenuifolia	Narrow-leaved gerardia	S2S3	2	5
Andropogon hallii	Sand bluestem	S2	2	0
Arethusa bulbosa	Arethusa	S2	0	1
Asarum canadense	Wild ginger	S3?	0	8
Astragalus neglectus	Milkvetch	S1	0	1
Astragalus pectinatus	Narrow-leaved milkvetch	S2S3	0	1
Botrychium campestre	Prairie moonwort	S1	1	0
Botrychium minganense	Mingan moonwort	S1S2	1	0
Botrychium multifidum	Leathery grape-fern	S3	0	1
Bouteloua curtipendula	Side-oats grama	S2	0	1
Calamagrostis deschampsioides	Reed grass	S2	0	3
Calamagrostis lapponica	Reed grass	S2?	0	1
Carex merritt-fernaldii	Merritt Fernald's sedge	S1	0	2
Carex tetanica	Rigid sedge	S2	0	1
Clematis ligusticifolia	Western virgin's-bower	S1	0	1
Coryphantha vivipara	Pincushion cactus	S2	0	2
Cyperus schweinitzii	Schweinitz's flatsedge	S2	0	2
Cypripedium arietinum	Ram's head lady's-slipper	S2S3	0	13
Cypripedium candidum	Small white lady's-slipper	S1	0	2
Dalea villosa var. *villosa*	Silky prairie-clover	S2	1	0
Desmodium canadense	Beggar's-lice	S2	0	2
Drosera anglica	Oblong-leaved sundew	S3	1	1
Drosera linearis	Slender-leaved sundew	S2	1	0
Dulichium arundinaceum	Three-way sedge	S2	0	2
Eurybia macrophyllum	White wood aster	S1	0	1
Festuca hallii	Plains rough fescue	S3	0	5
Fraxinus nigra	Black ash	S3	0	2
Gaultheria procumbens	Teaberry	S3S4	0	1
Glyceria canadensis	Rattlesnake grass	S1	0	1
Goodyera tesselata	Tesselated rattlesnake plantain	S1	1	2
Helianthus nuttallii var. *rydbergii*	Tuberous-rooted sunflower	S2	0	1
Krigia biflora	Cynthia	S2	1	3
Linum sulcatum	Grooved yellow flax	S3	0	1
Lomatium foeniculaceum	Hairy-fruited parsley	S3	0	1
Lomatium macrocarpum	Long-fruited parsley	S3	0	1
Lysimachia quardriflora	Whorled loosestrife	S2	3	4
Malaxis monophyllos	White adder's-mouth	S2?	0	3
Malaxis unifolia	Green adder's-mouth	S2?	0	4
Megalodonta beckii	Water-marigold	S3	0	2
Oenothera perennis	Sundrops	S1S2	0	2
Ophioglossum pusillum	Northern adder's-tongue	S1	1	0
Ostrya virginiana	Hop-hornbeam	S2	0	2
Pellaea glabella ssp. *occidentalis*	Cliff-brake	S2	0	5
Penthorum sedoides	Ditch-stonecrop	S1S2	0	1

Persecaria sagittata	Arrow-leaved tear-thumb	S3	0	1
Platanthera hookeri	Hooker's orchis	S2	1	2
Platanthera praeclara	Western prairie fringed orchid	S1	1	0
Populus grandidentata	Large-toothed aspen	S1S2	0	1
Spiranthes magnicamporum	Great Plains ladies'-tresses	S1	0	1
Solidago riddellii	Riddell's goldenrod	S2	2	3
Symphyotrichum sericeum	Western silvery aster	S2	0	3
Thermopsis rhombifolia	Golden bean	S2	0	4
Vaccinium caespitosum	Dwarf bilberry	S2	0	2
Verbena bracteata	Bracted vervain	S3	0	1
Veronicastrum virginicum	Culver's-root	S1	2	1
Vitis riparia	Riverbank grape	S3S4	0	2
Woodsia glabella	Smooth woodsia	S2	1	4
Woodsia oregano ssp. *cathcartiana*	Oregon woodsia	S1	0	1
Total			22	118

Rough Agalinis (*Agalinis aspera*)

Canada's *Species at Risk Act*: Endangered
NatureServe status: G5, N1, S1S2

Rough agalinis is very similar in appearance to two other agalinis species in Manitoba – Gattinger's agalinis (*A. gattingeri*; see below) and Slender agalinis (*A. tenuifolia*) - as all three have small pink flowers and slender stems with few leaves. Rough agalinis has the largest flowers (up to 25mm long) and its corolla is entirely pale pink, with darker pink/fuchsia dots in two lines inside the corolla (Figure 1). Gattinger's agalinis is similar in colour but smaller with long floral bracts (Foster 2008). The most distinct difference between the two species is the interior of the corolla, which, in Gattinger's agalinis, is white instead of pink and has purple spots distributed throughout the interior with two yellow lines radiating from the center. Gattinger's agalinis is a more slender plant overall and has very few leaves. Slender agalinis has flowers about the same size as Gattinger's agalinis but they are a dark fuchsia colour and tend to be more abundant. The plant is also leafier and more densely branched.

Figure 1. Photograph of a Rough agalinis (*Agalinis aspera*) flower.

Most Rough agalinis occurrences in Manitoba are in the south Interlake, though it has been found as far west as Brandon. Six known Rough agalinis occurrences were surveyed in 2008 between August 11 and 19 in roadside ditch habitat in the southern Interlake (Figure 2). No plants were observed at two locations and may be extirpated as it has not been seen at these locations since 2004. At the four sites where Rough agalinis was still present, the 2008 stem counts were higher than previous counts at three of the sites and lower at one of the sites. Agalinis plants are difficult to locate when not in flower, so stem counts at sites surveyed near the end of the flowering period may be somewhat low. Most of the sites were in peak flower by August 13. A lot of apparently appropriate habitat was observed in roadsides adjacent to one site and these should be surveyed more thoroughly next year. Previously known patches were located using GPS and most of them were mapped again to record patch extensions or slight changes in location. Overall the patches were in the same locations and were approximately the same size.

More suitable habitat appears to be present in the southern Interlake and should be surveyed to determine the extent of Rough agalinis in Manitoba. Additional surveys in the Brandon area may also find more populations.

The provision of maps of Rough agalinis right-of-way populations to the appropriate rural municipalities should also be a priority. A similar initiative with the Stuartburn and Franklin municipalities in southeastern Manitoba has been helpful.

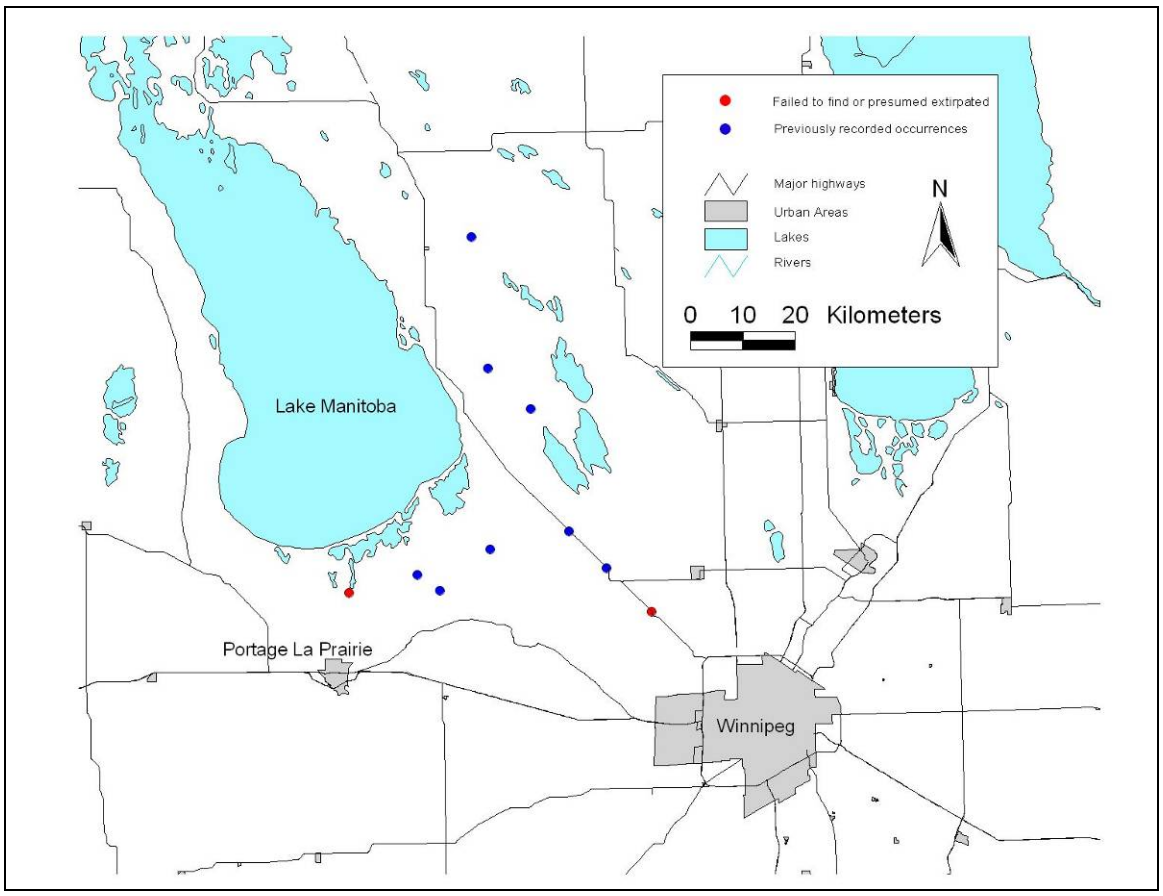

Figure 2. Map of Rough agalinis (*Agalinis aspera*) occurrences in the south Interlake, Manitoba.

Gattinger's Agalinis (*Agalinis gattingeri*)

Canada's *Species at Risk Act*: Endangered
NatureServe status: G4, N2, S1

Gattinger's agalinis is similar in appearance to several other agalinis species in Manitoba, but may be distinguished by the interior of the corolla which is white in this species (Figure 3) and usually pink in the others. The section of this report regarding Rough agalinis or Foster (2008) have more detailed descriptions. This species was first discovered in Manitoba in 2007.

Figure 3. Photograph of a Gattinger's agalinis (*Agalinis gattingeri*) flower.

In 2008, two additional occurrences were discovered (Figure 4). The first occurrence was along a right-of-way among Rough agalinis plants, which indicates there is some overlap in habitat requirements of the two species. The other two occurrences had no Rough agalinis growing in the immediate vicinity. The right-of-way was gravelly and sparsely vegetated with clumps of big bluestem. The privately owned site was a small meadow which supported over 100 stems. The occupied area had a variety of tall-grass prairie species but vegetation was not as tall, dense or vigorous as in the other tall-grass prairie meadows on the same property. There is potential for more occurrences to be found, especially near St. Laurent, in ditches were habitat is suitable. Specimens were collected to confirm identity and photos were taken of the plants prior to pressing them. The condition of the previously known occurrence had not changed from 2007, and was estimated to support over 100 plants. It was near the end of the flowering period so many stems were no longer in flower and a detailed count was not possible. The habitat of the occurrence from 2007 was not as open as the St. Laurent occurrences and there was no *A. aspera* in the immediate vicinity.

In future field seasons, all existing *A. aspera* and *A. gattingeri* occurrences will need to be revisited and some occurrences, especially the new ones, may be expanded. Extensive searches should be conducted in the rural municipality (RM) of Woodlands and adjacent municipalities. Since the majority of Agalinis occurrences are found in roadside ditches, maps should be prepared for the appropriate municipalities indicating ditches where disturbance should be limited. Similar maps of other species have proven useful for the municipalities of Franklin and Stuartburn.

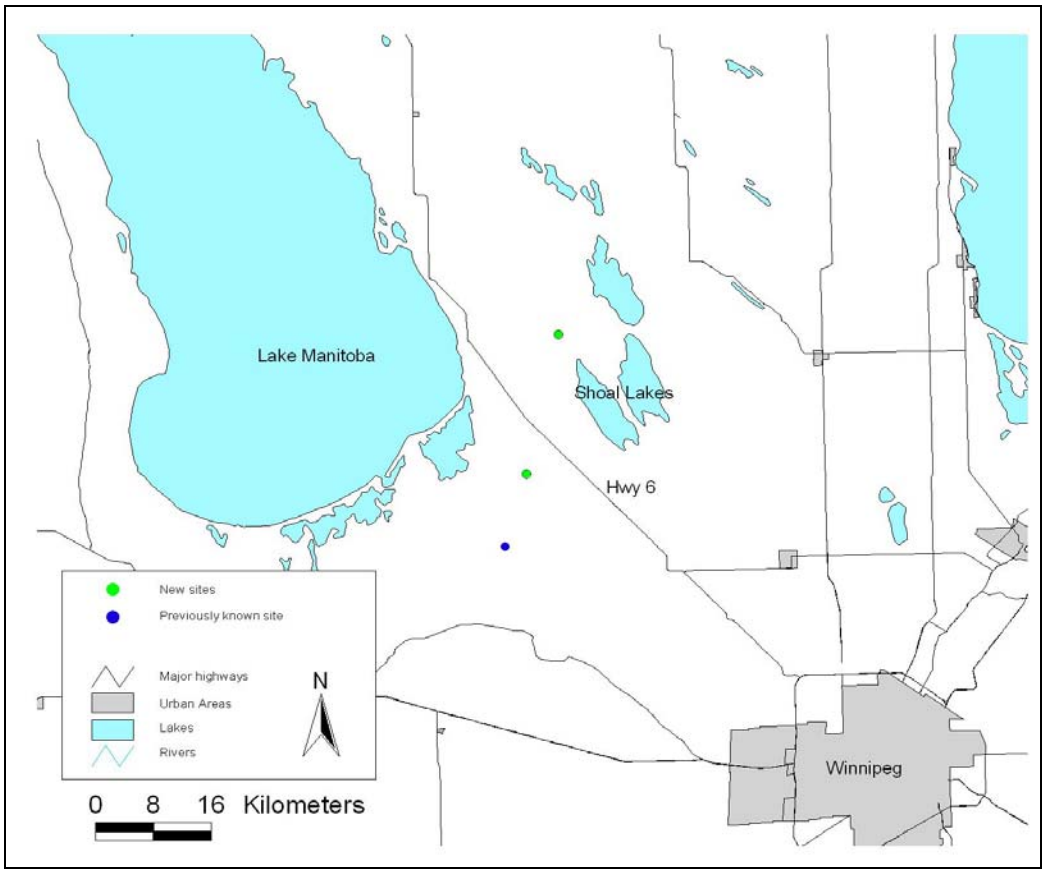

Figure 4. Map of Gattinger's agalinis (*Agalinis gattingeri*) occurrences in Manitoba.

Buffalograss (*Buchloë dactyloides*)

Canada's *Species at Risk Act*: Threatened
Manitoba's *Endangered Species Act*: Threatened
NatureServe Status: G4G5, N1, S1

Buffalograss is a low-growing grass found in the southwest corner of Manitoba. It is only found along the valleys of the Souris and Blind Rivers (Figure 5). It is a curly grass with distinct male and female flowering heads and tends to grow in dense mats on gentle slopes. Descriptions of the plant and details about previous Buffalograss surveys can be found in reports by Foster and Hamel (2006), Foster and Reimer (2007) and Foster (2008).

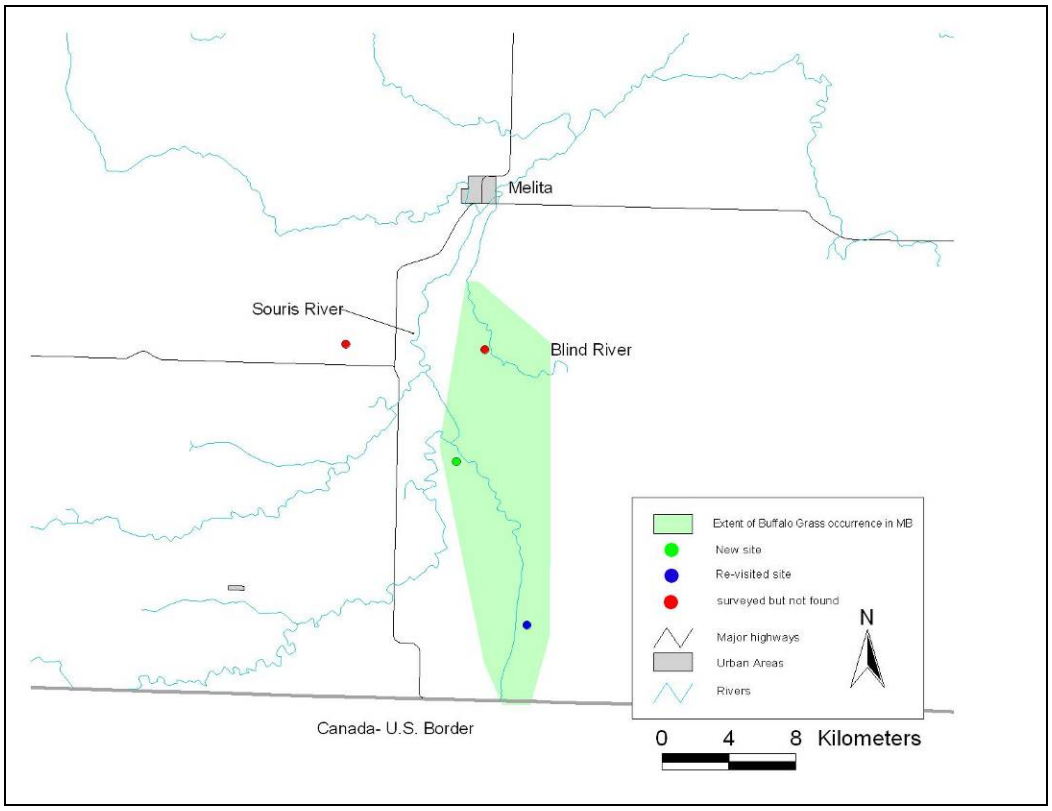

Figure 5. Map showing the range of Buffalograss (*Buchloë dactyloides*) in Manitoba.

Data collection in 2008 was focussed on finding new sites on private lands with existing conservation agreements. We surveyed three new quarter sections and revisited a half section that had been surveyed in the past. Buffalograss was observed on one new site and on the revisited site. The other quarter sections appeared not to have suitable habitat. The new site had an extensive area, extending the length of the half section from north to south, in which Buffalograss grew abundantly (Figure 6).

Buffalograss management is closely linked to grazing management and these surveys provide data to the Mixed Grass Prairie Grazing Project, which encourages farmers to use

twice-over rotational grazing. In the future, monitoring of grazing project properties for Buffalograss would be useful for determining long-term effects of grazing on the species. Determining an appropriate scale for mapping this species would be helpful as small-scale mapping may not be the most appropriate method for tracking such a patchy, locally abundant grass.

Figure 6. Photograph of Buffalograss (*Buchloë dactyloides*) patches at the foot of a slope in south western Manitoba.

Small White Lady's–slipper (*Cypripedium candidum)*

Canada's *Species At Risk Act*: Endangered
Manitoba's *Endangered Species Act*: Endangered
NatureServe Status: G4, N2, S1

Small white lady's-slipper (SWLS) is currently known from three areas of the province: south of Winnipeg near the Unites States border, north of Winnipeg in the southern Interlake, and the Brandon area (Figure 7). CDC staff surveyed occurrences in each of these regions in 2008. Detailed descriptions of botanical characteristics, habitat preferences, past survey efforts and management issues are discussed in Foster and Hamel (2006), Foster and Reimer (2007) and Foster (2008).

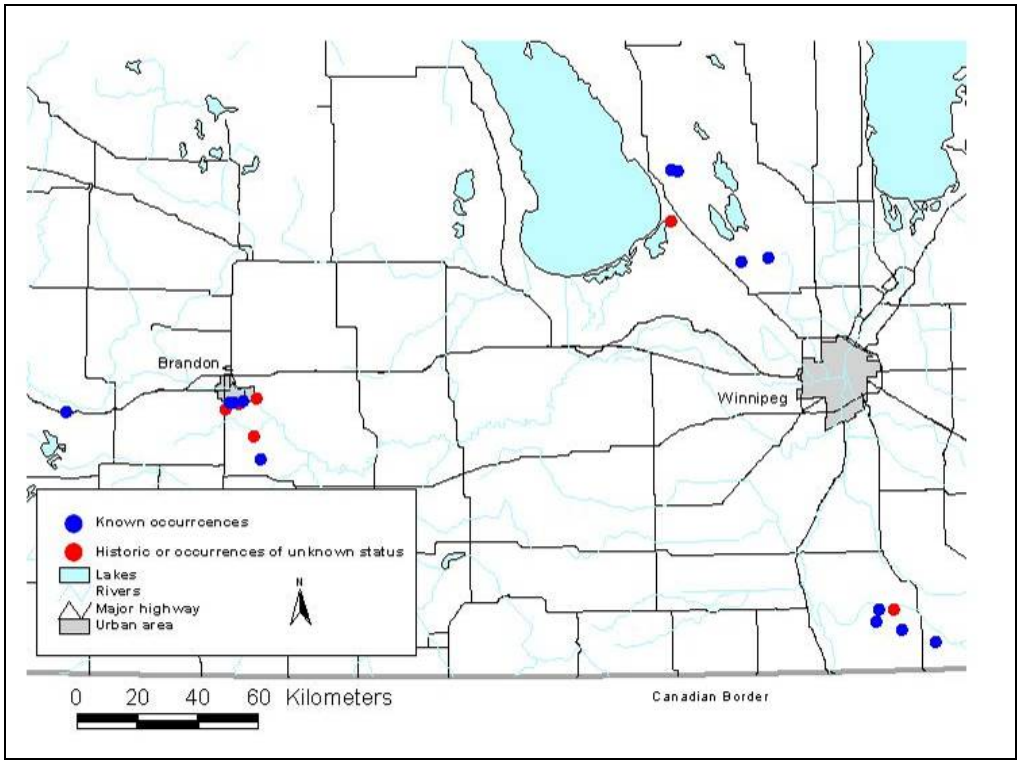

Figure 7. Map of Small white lady's-slipper (*Cypripedium candidum*) occurrences in Manitoba.

Two known occurrences – the trail and ditch sites (Foster and Hamel 2006; Foster 2008) - in the Interlake were surveyed on June 10. Detailed surveys of these sites were last done in 2005. The stem count at the ditch site was approximately 235% of the 2007 stem count, and 196% of the 2005 stem count. The reason for this dramatic increase is unclear, though 2008 seemed to be a good year generally for SWLS in Manitoba. Several holes which appeared recently dug suggest that clumps of SWLS had been illegally collected (Figures 8 and 9). The stem count at the trail site was approximately 66% of the 2005 count. The decrease at the trail site is likely due in part to shrub encroachment and thatch build-up. Concerns about these factors have been noted in previous surveys of this occurrence (Foster 2008). Regular mowing and/or burning in fall when the orchids are

not actively growing and reproducing would likely make this habitat more favorable for SWLS.

Figure 8. Photograph showing holes dug at a Small white lady's-slipper (*Cypripedium candidum*) site.

Figure 9. Photograph of a hole dug at a Small white lady's-slipper (*Cypripedium candidum*) site.

Two known occurrences in the RM of Franklin near the US border were surveyed on June 16. The stem count at one of the occurrences was somewhat higher than the last survey in 2006. Two private properties adjacent to this occurrence were also surveyed, but no SWLS were found and the habitat did not appear suitable. The size of the second occurrence was expanded as several clumps were found in the vicinity of the previously known location. Stems were last seen at the previously known location in 2001 despite surveys in 2006 and 2008. Thatch build-up is likely inhibiting SWLS growth at this location.

Three known occurrences in the Brandon area were surveyed from June 17-19, with the majority of time spent at a location being considered for residential development. There were hundreds of stems at each location surveyed, with over one thousand counted at one site. Two private properties in the Brandon area were also surveyed during this time but no SWLS stems were found as the habitat was not suitable. In the future, surveys should be conducted at a number of sites in the area known to have had SWLS in the past but have not been mapped in detail or surveyed for several years. In addition to these sites, the CDC received a credible report of SWLS, including a photo, from a site near Virden, which extends the Manitoba range of the species to the west by about 50 kilometres.

Hybridization with Yellow lady's-slippers (*Cypripedium parviflorum*) remains a threat to many SWLS populations in Manitoba. Yellow lady's-slippers grew at or near most SWLS sites surveyed in 2008, and hybrids were found at many of these.

Riddell's Goldenrod (*Solidago riddellii*)

Canada's *Species At Risk Act*: Special Concern
Manitoba's *Endangered Species Act*: Threatened
NatureServe Status: G5, N3, S2

This perennial species grows 40 to 100 cm tall on moist to wet calcareous sandy loam soils in relatively undisturbed roadsides, tall-grass prairie and open shrubby fens (Foster & Hamel 2006). This species can usually be distinguished from other goldenrods in Manitoba by its leaves which are smooth, folded along the midrib, and recurved (curved backward) (Figure 10) (Semple & Cook 2006). Detailed descriptions and past survey efforts of Riddell's goldenrod in Manitoba can be found in Foster & Hamel (2006) and Semple & Cook (2006). The range of Riddell's goldenrod in Manitoba is limited to an area extending from the United States border north to the Kleefeld/Giroux area (Figure 11).

CDC staff monitored 11 known occurrences and discovered three new occurrences in August and September of 2008. Another new occurrence was reported to the CDC. One quarter section surveyed by CDC staff had thousands of Riddell's goldenrod stems. Species commonly associated with Riddell's goldenrod included sedges (*Carex* spp.), willows (*Salix* spp.) and Flat-topped goldenrod (*Euthamia graminifolia*).

Figure 10. Photograph of Riddell's goldenrod (*Solidago riddellii*).

Most of the occurrences in Manitoba are located near the United States border in the rural municipalities of Franklin and Stuartburn. Within these municipalities, Riddell's goldenrod populations ranging in size from several to dozens of plants occur in roadside ditches and thus are subject to right-of-way maintenance activities such as mowing (Figure 12), herbicide use, and drainage work. The CDC is working with the municipalities to conserve these populations by providing them with maps of right-of-way occurrences along with management recommendations.

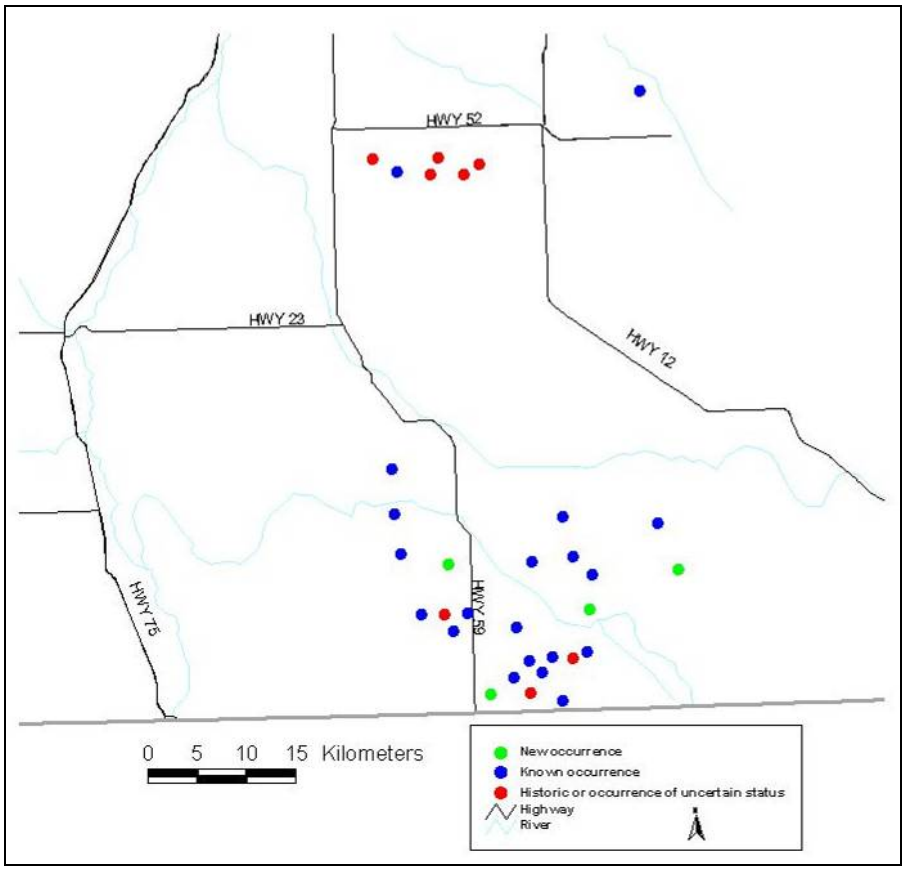

Figure 11. Map of Riddell's goldenrod (*Solidago riddellii*) occurrences in Manitoba.

Figure 12. Photograph of a mowed right-of-way with Riddell's goldenrod (*Solidago riddellii*).

Western Silvery Aster (*Symphyotrichum sericeum*)

Canada's *Species At Risk Act*: Threatened
Manitoba's *Endangered Species Act*: Threatened
NatureServe Status: G5, N2, S2

Western silvery aster (WSA) is a perennial species which grows on well-drained, gravelly or sandy, calcareous soils (Brouillet *et al.* 2006; Foster & Reimer 2007). It can be distinguished from similar Manitoba asters by its wiry appearance and hairy leaves which appear silvery (Foster & Reimer 2007). Flower heads range from rose-colored to purple and appear in late August (Brouillet *et al*. 2006; Foster & Reimer 2007) (Figure 13).

There are three main areas of WSA in Manitoba: northeast of Winnipeg (especially in and around Birds Hill Provincial Park), near Richer, and the area south of St. Pierre to the United States border (Figure 14).

Figure 13. Photograph of a Western silvery aster (*Symphyotrichum sericeum*) flower.

The CDC surveyed 10 sites for WSA in 2008, resulting in new information for six previously known occurrences. Survey efforts were focused on the rural municipalities of Franklin and Stuartburn near the United States border, though the Richer occurrence was also monitored. Three new occurrences were reported to the CDC.

In Manitoba, WSA is often found growing on gravelly soil. In a number of cases, areas supporting WSA were being, or had been, utilized for gravel extraction. The ability of WSA to re-colonize these disturbed areas is unknown. The development of best practice guidelines for landowners and gravel pit operators should be prioritized in order to preserve these vulnerable populations.

Additional threats to WSA in Manitoba include shrub encroachment into WSA habitat, heavy grazing where the species occurs in pastures, and right-of-way maintenance activities where WSA is found in ditches. The CDC is working with two rural municipalities to manage ditch populations of WSA.

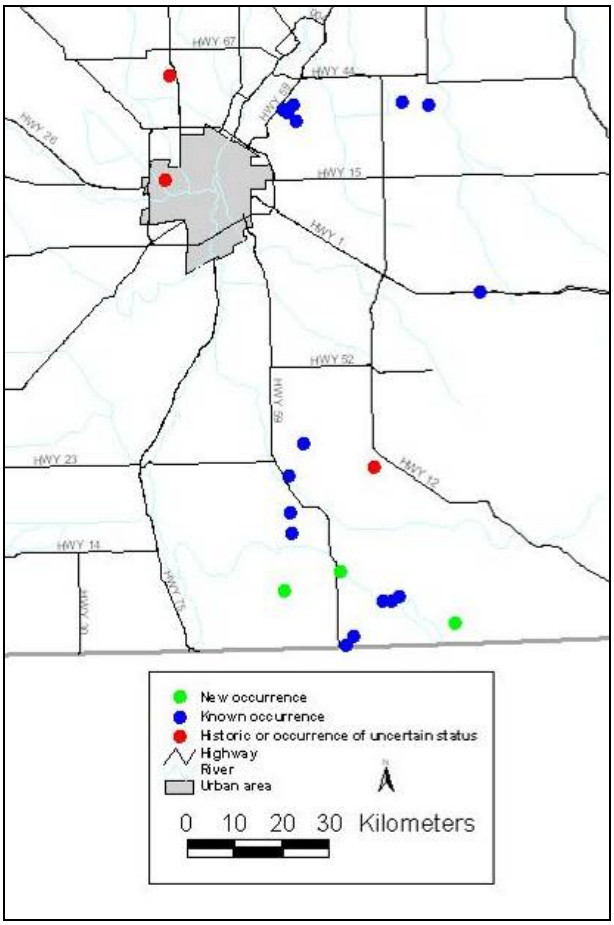

Figure 14. Map of Western silvery aster (*Symphyotrichum sericeum*) occurrences in Manitoba.

Great Plains Ladies'-tresses (*Spiranthes magnicamporum*)

Manitoba's *Endangered Species Act*: Endangered
NatureServe Status: G4, N3, S1?

The range of Great Plains ladies'-tresses (GPLT) in Manitoba is confined to a small area south of Winnipeg near the United States border (Figure 15). In Manitoba, GPLT is a species of the tall-grass prairie region, growing in thinly vegetated areas that range from wet to dry (Sheviak & Brown 2002; Ames *et al*. 2005) (Figure 16).

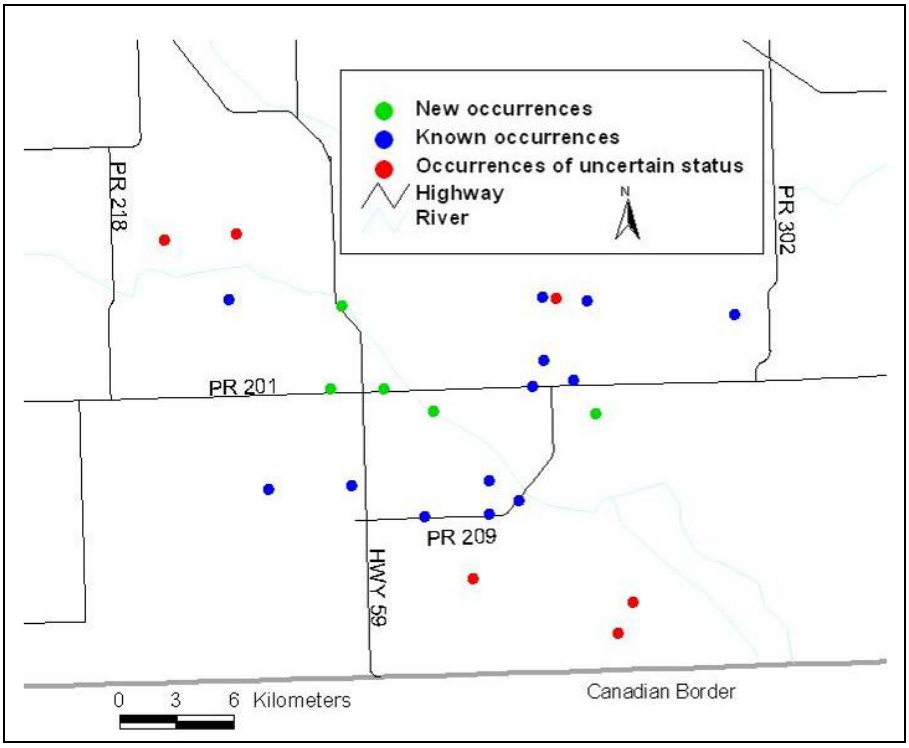

Figure 15. Map of Great Plains ladies'-tresses (*Spiranthes magnicamporum*) in Manitoba.

Flowering stems (1-5), growing up to 30 cm tall but often shorter, arise from a basal rosette of lanceolate leaves which often wither prior to flowering in late August and September (Sheviak & Brown 2002; Ames *et al*. 2005). The inflorescence is composed of 20-40 densely packed, spirally arranged, small white flowers (Ames *et al.* 2005) (Figure 17).

Between September 8 and 15, CDC staff surveyed portions of four known occurrences and discovered five new occurrences. Patches ranged from several flowering stems to hundreds of stems in size. Species commonly associated with GPLT included Big bluestem (*Andropogon gerardii*), Grass of Parnassus (*Parnassia palustris*) and Purple prairie-clover (*Dalea purpurea*). Many of these occurrences are in roadside ditches and thus are vulnerable to road and right-of-way maintenance activities. However, some of these activities, such as early season mowing or herbicide use, may minimize competition

and thatch buildup, thereby benefitting GPLT. The CDC is working with several rural municipalities to protect these ditch populations.

Figure 16. Photograph of Great Plains ladies'-tresses (*Spiranthes magnicamporum*) in typical habitat.

Figure 17. Photograph of the infloresence of Great Plains ladies'-tresses (*Spiranthes magnicamporum*).

Western Spiderwort (*Tradescantia occidentalis*)

Canada's *Species At Risk Act*: Threatened
Manitoba's *Endangered Species Act*: Threatened
NatureServe Status: G5, N1, S1

The distribution of Western spiderwort (WSW) in Manitoba is very limited - it is only known from the Routledge and Lauder Sandhills in the southwestern portion of the province (Figure 18). In Manitoba, this species grows on active and semi-stabilized sand dunes. Descriptions and past survey efforts of WSW in Manitoba can be found in Hamel and Foster (2005), Foster and Hamel (2006) and Foster and Reimer (2007). Portions of the two occurrences in the Lauder Sandhills were surveyed by CDC staff in 2008.

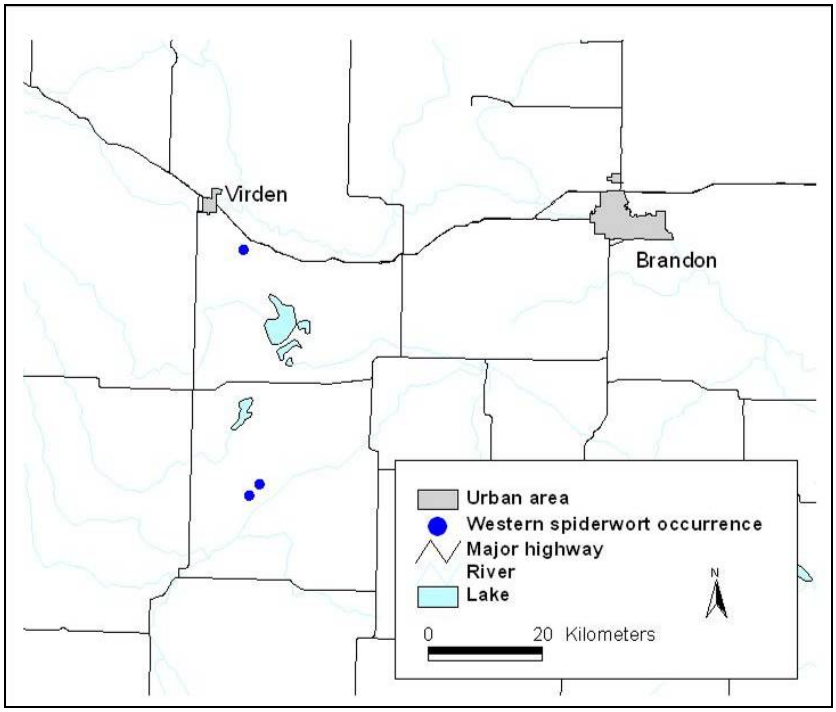

Figure 18. Map of Western spiderwort (*Tradescantia occidentalis*) occurrences in Manitoba.

One occurrence is limited to a property owned by Manitoba Habitat Heritage Corporation (MHHC) with the exception of one patch on a nearby property. A portion of the MHHC property which had not been surveyed for WSW in the past was surveyed on July 15 along with two adjacent properties on July 16. While additional suitable habitat was found on the MHHC property, no new patches of WSW were observed. No WSW was found on the adjacent properties, one of which had considerable areas of suitable substrate (open and partially vegetated sand) but was heavily grazed and infested with the invasive species Leafy spurge (*Euphorbia esula*). The habitat on the other property was not suitable for WSW, though another uncommon species – Pincushion cactus (*Coryphantha vivipara*) – was found on the property.

Part of one quarter section in the second Lauder occurrence was surveyed on July 15. Western spiderwort had been found in portions of this quarter in previous surveys, but part of the quarter remained to be surveyed for WSW. A number of additional WSW patches were found on the property. Hairy prairie-clover, a provincially and federally Threatened species, was also found on the property. There are several threats to these rare species on this property. A motocross track is located on the quarter and some patches of both rare species are located immediately adjacent to and in the partially developed area around the track (Figure 19). These patches are vulnerable to damage by both motorbike and foot traffic. Signs around the track indicated it had been used for competitive racing as recently as June 2008. The invasive Leafy spurge is also present on the property, and in some areas is growing in immediate association with WSW. In such areas, the WSW is unlikely to survive in the long-term as it is out-competed by the spurge. The disturbance associated with the motocross track is likely to favor the spread of Leafy spurge in the vicinity of the track.

Figure 19. Photograph of the motocross track with Western spiderwort (*Tradescantia occidentalis*) in the foreground.

Culver's-root (*Veronicastrum virginicum*)

Manitoba's *Endangered Species Act*: Threatened
NatureServe Status: S1, N2, G4

Figure 20. Photograph of Culver's-root (*Veronicastrum virginicum*).

Culver's-root is a tall perennial plant (up to 2m) with whorled leaves on a single stem. It has long, slim inflorescences of small white flowers that grow in singular spikes or in the shape of candelabra, with multiple spikes growing from a single point (Figure 20). It generally flowers in mid-July. In Manitoba it is an edge species, growing at the border of aspen bluffs and oak woodlands in south eastern Manitoba (Figure 21). It tends to grow in partially shaded, moist prairie fragments. Most of the existing populations are small and confined to roadside ditches and fence lines bordering agricultural fields. Details about previous surveys can be found in Hamel and Foster (2005) and Foster and Hamel (2006).

Data collected in 2008 was mainly from known roadside ditch occurrences. Five occurrences in the rural municipalities of Stuartburn and Franklin in south eastern Manitoba were surveyed in July and August. This data was collected primarily to update reference maps for these jurisdictions. The number of stems per site varied from one or two to over 100. One new occurrence was reported by staff of the Tall Grass Prairie Preserve. We also surveyed three privately-owned quarter sections. One of the quarter sections had been surveyed in 1995 for the Tall Grass Prairie Inventory and Culver's-root had been listed in the report but was not observed in 2008. Culver's-root was not observed on the other two quarters surveyed and neither had suitable habitat.

Threats to Culver's-root occurrences in south eastern Manitoba include right-of-way management activities, including herbicide application, mowing, and drainage work. Agricultural activities such as expansion of croplands onto prairie remnants and intensive grazing practices also threaten some occurrences. Updated maps will incorporate data from 2008 and be distributed to the Stuartburn and Franklin municipalities in order to better manage right-of-way populations.

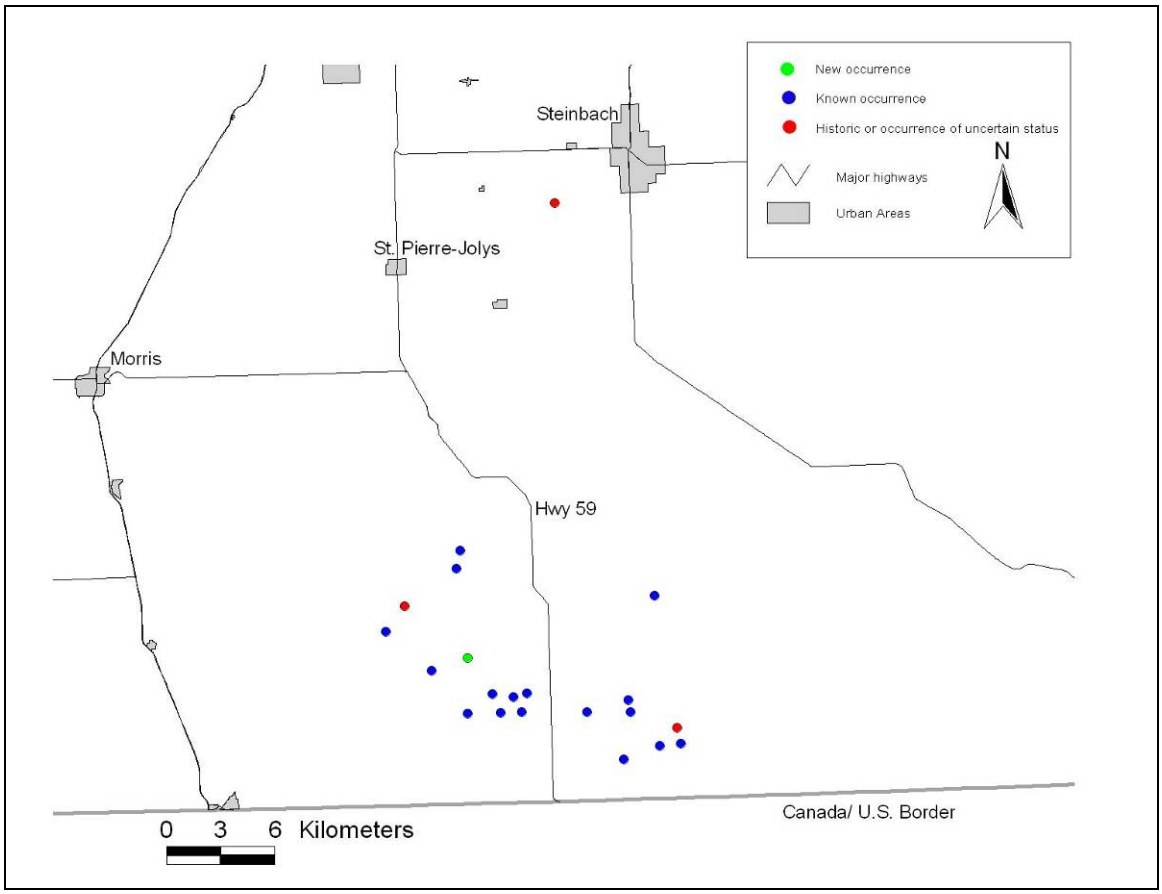

Figure 21. Map of Culver's-root (*Veronicastrum virginicum*) occurrences in Manitoba.

Rare Ferns

Prairie Moonwort (*Botrychium campestre*)
NatureServe Status: G3G4, N1, S1

Leathery Grape-fern (*Botryichium multifidum*)
NatureServe Status: G5, NNR, S3

Adder's tongue (*Ophiolglossum pusillum*)
NatureServe Status: G5, NNR, S1

Smooth Cliff-brake (*Pellaea glabella* ssp. *occidentalis)*
NatureServe Status: G5T4, N2, S2

Figure 22. Photograph of Smooth cliff-brake (*Pellaea glabella* ssp. *occidentalis*) in cracks of a limstone boulder (Photo courtesy of Richard Staniforth).

Three locations were surveyed for a variety of rare ferns in 2008. The surveys were completed with the help of Dr. Richard Staniforth.

In spring, the only known Manitoba occurrence of Prairie moonwort (*Boytrichium campestre*) was visited. This occurrence consists of a single plant in Birds Hill Provincial Park which was first discovered by Dr. Staniforth in 2005 and has reappeared each year since.

In early August a limestone ridge at the north end of the Sylvan-Dale Community Pasture, northwest of Arborg, was surveyed. The ridge was treed and well vegetated with few open rock faces. Two boulders were found which had Smooth cliff-brake (*Pellaea glabella* ssp. *occidentalis)* growing in fissures in the rock (Figure 22). We also noted Fragile fern (*Cystopteris fragilis*) and Bracken fern (*Pteridium aquilinum* var. *latiusculum*) along the ridge, both of which are common in MB. The Bracken fern sighting, however, marks the extreme northwest point of its range in the province (Richard Staniforth, pers. comm.).

At the beginning of September a Northern adder's-tongue (*Ophioglossum pusillum)* occurrence near Rennie in Whiteshell Provincial Park was surveyed. It is one of only three occurrences in Manitoba. Over 100 plants were found on both sides of a 250 m stretch of road. This is a considerable expansion of the occurrence in both area and number of plants. The habitat was wet, grassy and thickly vegetated. This species is small and difficult to find in the grasses and sedges and more plants may be found in the area where similar vegetation occurs. Associated species included bulrushes (*Scirpus* spp.) and other graminoids, Flat-topped goldenrod (*Euthamia graminifolia*), Canada goldenrod

(*Solidago canadensis*), willows (*Salix* spp.), Fireweed (*Chamerion angustifolium*), Fringed gentian (*Gentianopsis crinita*), Lady fern (*Athyrium filix-femina*), Crested shield fern (*Dryopteris cristata*) and Wood horsetail (*Equisetum sylvaticum*).

While surveying this *O. pusillum* occurrence, several moonwort (*Botrychium*) plants were found. Initially they were thought to be Blunt-lobed moonwort (*B. oneidense*), which has only been found in Manitoba once before - near Star Lake in 2001. Later consultation with experts on the genus suggested it may be Leathery grape-fern (*B. multifidum*), which is uncommon (S3) in Manitoba. Additional surveys, photographs and/or specimens are needed to confirm the identity of the plants.

Figure 23. Photograph of Northern adder's-tongue (*Ophioglossum pusillum*) near Rennie, Manitoba.

Partnerships

In 2008, the MBCDC partnered with the Nature Conservancy of Canada (NCC) to conduct surveys of potential fescue prairie habitat on private land in the corridor between Riding Mountain National Park (RMNP) and Duck Mountain Provincial Park (DMPP).

Plains rough fescue (*Festuca hallii*) is a native grass species of the northern Great Plains and the grassland-boreal forest transition zone. The Canadian portion of its range extends from the Rocky Mountains east to western Ontario. Plains rough fescue was once a dominant species throughout the northern portions of the Prairie Ecozone, in a band stretching from western Manitoba, through central Saskatchewan, into Alberta. Grassland dominated by Plains rough fescue (i.e. fescue prairie) has declined greatly in abundance as habitat has been destroyed by cultivation or degraded by grazing.

Plains rough fescue is considered to be Uncommon (S3) in Manitoba. Good quality fescue prairie communities are considered to be Very Rare (S1) in Manitoba. The best remaining known locations of the species and community type are found in RMNP, and to a lesser extent, in DMPP. However, little is known about the abundance of fescue prairie outside of these parks.

Fescue prairies were identified as a conservation target by NCC in its ongoing conservation efforts in the corridor between RMNP and DMPP. In addition, the need for better information on location, abundance and quality of remaining fescue prairie sites in the corridor was identified as an information gap by NCC.

Plains rough fescue was found on eight of the 18 quarter sections surveyed, though none of the eight properties contained a good example of a native fescue prairie community. Instead, Plains rough fescue was observed in small patches and was most often found in areas that were being used as cattle grazing. The results of these surveys will assist NCC in better understanding the importance of remaining Plains rough fescue populations in western Manitoba, and in setting regional conservation priorities for its habitat.

The MBCDC also cooperated with the Centre for Indigenous Environmental Resources (CIER) to conduct surveys for species-at-risk on First Nations Land. The three target species were Riddell's goldenrod, Western silvery aster and Hairy prairie clover (*Dalea villosa* var. *villosa*). The CDC provided CIER with information on known locations of these species near CIER's project sites, and assisted CIER's staff during project start-up, by visiting known locations in the field, and pointing out what to look for in candidate sites and how to identify the species when found there. Two of the three species – Riddell's goldenrod and Western silvery aster – were found. The detailed results of these surveys were not available from CIER at the time of publication.

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