

## 4.0 Plant Field Studies



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## 4.0 PLANT FIELD STUDIES

### 4.1 INTRODUCTION

The main objectives of vegetation field studies were to provide expanded baseline information in support of the Floodway Expansion Project environmental impact statement. The field studies obtained sufficient information to outline data deficiencies to assist in the ongoing definition of the Project and to assess environmental impacts. This involved conducting field investigations to evaluate plant communities within the Floodway right-of way (ROW) and West Dyke. The results of these investigations are discussed in Sections 6 and 7 of the environmental impact statement and outlined in detail in this Supplemental Documentation. The data contained in this report supplements the preliminary information found in Appendix 7B of the environmental impact statement. This supplemental documentation contains an updated and more comprehensive species list, as well as another round of surveys, which provides details on the extent of mowing operations and on the ongoing recovery of the vegetation found on the Floodway Base. This report also contains information on *Amorpha fruticosa*, a provincially rare species found on the Floodway Lower Slope.

The new information in this supplemental document has been reviewed by the environmental assessment team and does not change the assessment reported in the EIS.

### 4.2 METHODS

#### 4.2.1 HELICOPTER OVER-FLIGHT

To assist in the vegetation fieldwork planning, a helicopter flight occurred in September 2003 over the Floodway Channel, 100 metre (m) upstream and downstream of the Seine River Siphon and 1 km upstream and 2 km downstream of the outlet channel on the Red River. Global Positioning System (GPS) video obtained from the flight was used to develop aquatic and terrestrial maps that, in the Floodway Outlet, Floodway Channel and Seine River Syphon area, were further refined by ground-based surveys. Detailed Geographic Information System (GIS) maps of the Floodway Channel aided in the selection of representative sites for additional ground-based characterization studies.

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## 4.2.2 VEGETATION SURVEY

### 4.2.2.1 Sampling Areas

#### Floodway

Sampling of plant communities was conducted in five major sections of the Floodway. Sample locations (Figure 4.2-1) were chosen for each section during an overview of the entire Floodway that took place on May 6, 2004, and included:

- Location 1: the southwest area near the Seine River Siphon (Site 1 and 2).
- Location 2: the vicinity of the Trans-Canada Highway Bridge (Site 3 and 4);
- Location 3: near Gunn Road between the Canadian Pacific Railway (CPR) Keewatin Bridge and the Manitoba Hydro transmission line (Site 5 and 6);
- Location 4: the vicinity of Dunning Crossing (Site 7 and 8); and
- Location 5: an area just south of the Floodway Outlet structure at the northern end of the Floodway near a large wind turbine (Site 9 and 10);

Vegetation analysis took place on both sides of the Floodway Channel at each of the five sample locations. This resulted in a total of ten Sample Sites (5 locations x 2 sides). Three transects were sampled at each site in the first survey and two transects were sampled at each site in the second survey.

#### West Dyke

Sampling of plant communities was conducted at 18 sites situated at regular intervals along the entire West Dyke Right-of-Way (ROW) (Figure 4.2-2).

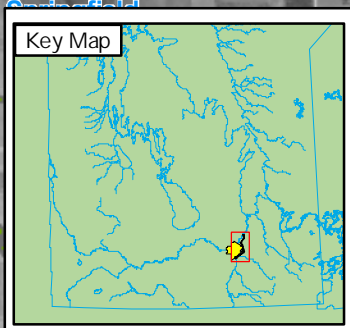
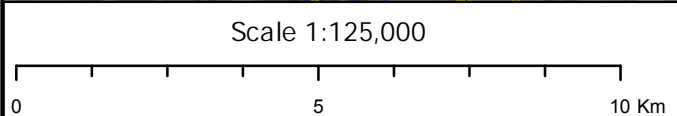
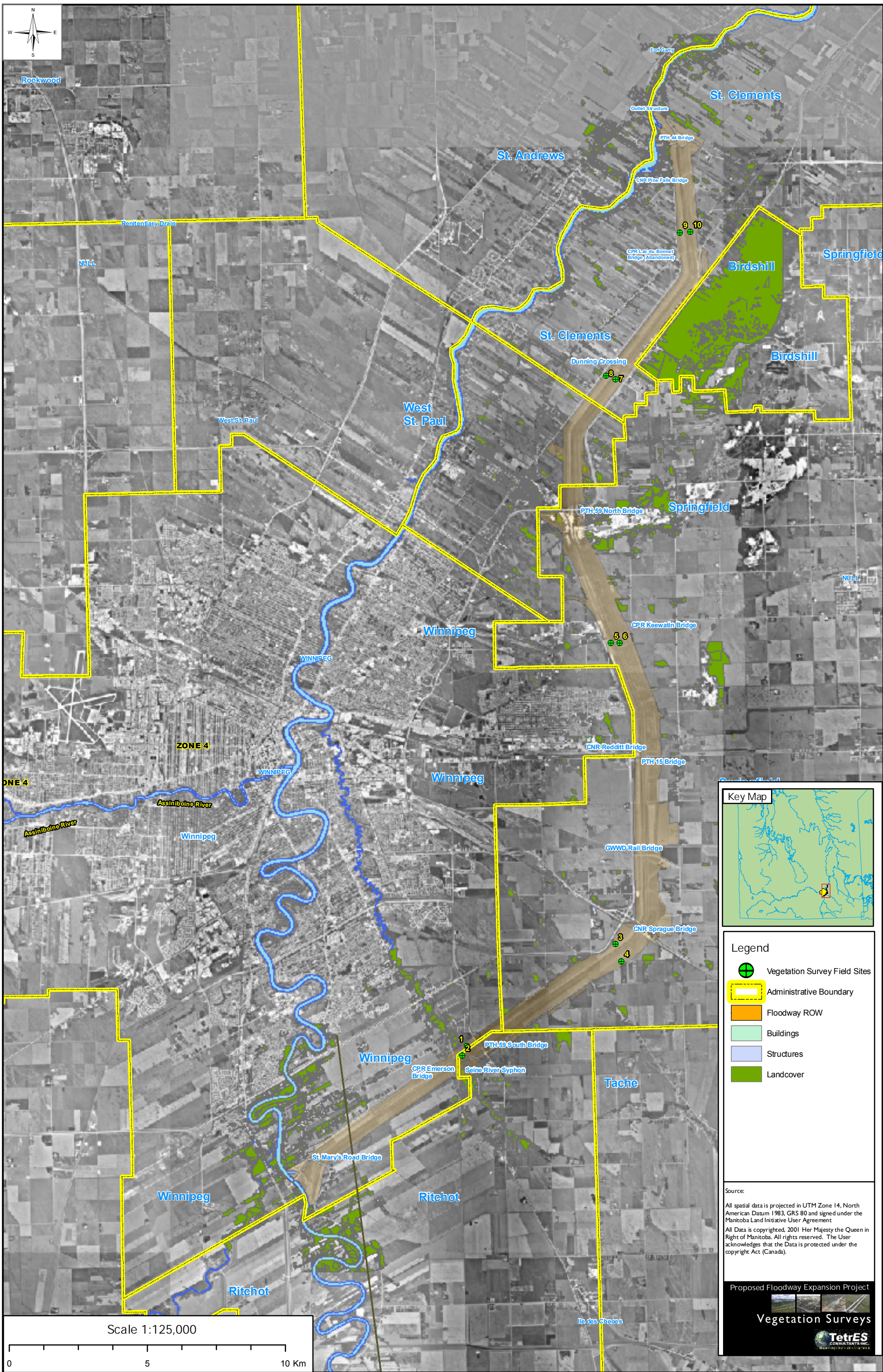
### 4.2.2.2 Sampling Methods

#### Floodway Slopes and Base

The first vegetation survey occurred June 28-July 12, 2004, and the second survey was carried out August 23-25, 2004. At each location, stratified random sampling was conducted within three definable zones (three moisture regimes):

- the Floodway Base up to the edge of the Low Flow Channel;
- the Lower Floodway slope (closest to the Floodway Base); and
- the Upper Floodway slope (where present).





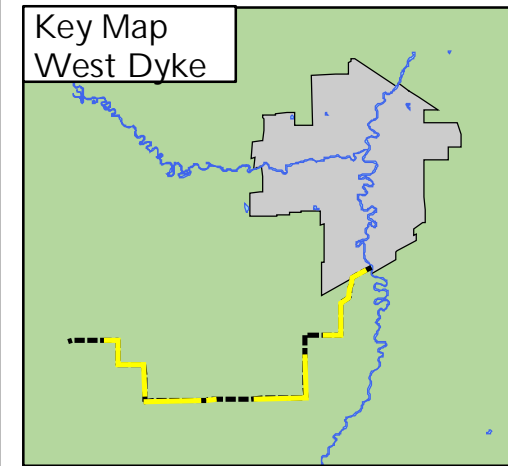
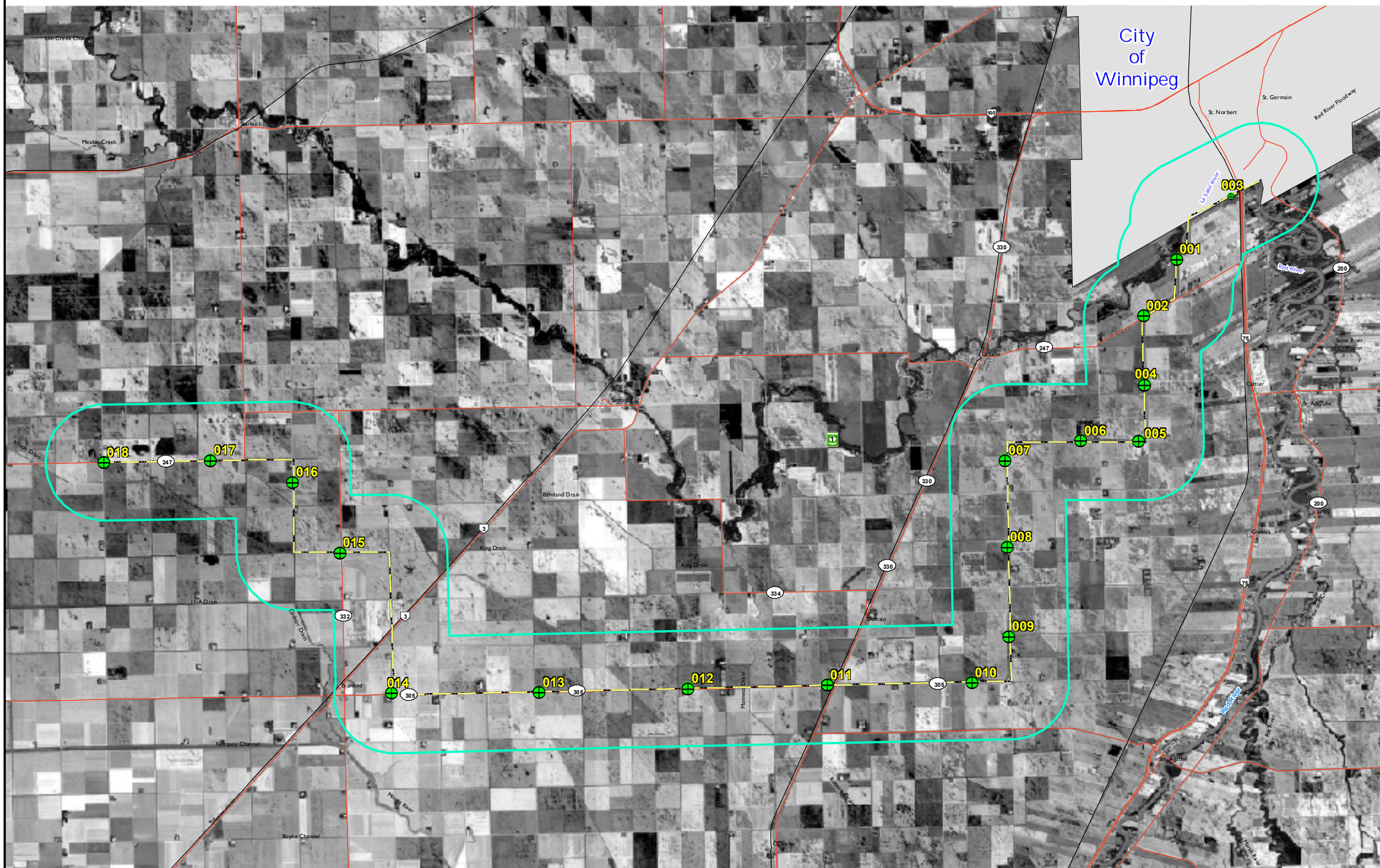
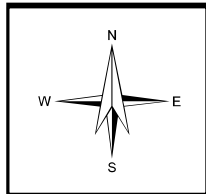
**Legend**

- Vegetation Survey Field Sites
- Administrative Boundary
- Floodway ROW
- Buildings
- Structures
- Landcover

Source:  
 All spatial data is projected in UTM Zone 14, North American Datum 1983, GRS 80 and signed under the Manitoba Land Initiative User Agreement  
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Proposed Floodway Expansion Project

**Vegetation Surveys**



### Legend

- Field Site Location
- West Dyke
- Major Roads
- Railway
- 4 Km. Band

### Source:

All spatial data is projected in UTM Zone 14, North American Datum 1983, GRS 80 and signed under the Manitoba Land Initiative User Agreement

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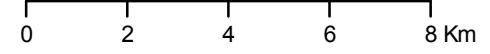
### Proposed Floodway Expansion Project



**West Dyke  
Vegetation Survey  
Field Site Locations**



Scale 1:150,000



Sampling was carried out using a line transect method (Smith 1996). Transects were located using the following procedure:

1. The starting point for each Sample Site on the top of the Floodway Slope was located using a GPS. From this point, a 100-m baseline transect ran parallel to the Low Flow Channel. Three line transects were then randomly located perpendicular to this baseline transect from the Upper Slope to the Low-Flow Channel.
2. For each of the two or three transects, within each of the three strata, five or six randomly-chosen 1-m transect intervals (Tables 4.2-1 and 4.2-2) were marked and the following tasks were completed:
  - a. A species list of plants both within transect intervals and in the vicinity of the line transect were compiled and confirmed by University of Manitoba herbarium staff.
  - b. Plant cover for each species within the transect interval was calculated as the total length of the 1-m transect interval intercepted by plants of each species. This included both basal cover (i.e.,

**Table 4.2-1  
Floodway Vegetation Survey Transect Locations (June 29–July 12, 2004)**

S	P (m)	Easting	Northing	S	P (m)	Easting	Northing	S	P (m)	Easting	Northing
1	BASE	640757	5517439								
1-4	U0	640761	5517444	1-35	U0	640788	5517460	1-49	U0	640800	5517473
1-4	U68/LO	640795	5517383	1-35	U68/LO	640824	5517402	1-49	U68/LO	640831	5517414
1-4	L42/BO	640817	5517344	1-35	L42/BO	640846	5517370	1-49	L42/BO	640860	5517378
1-4	B71	640860	5517290	1-35	B71	640884	5517309	1-49	B71	640905	5517322
2	BASE	640950	5517108								
2-18	U0	640969	5517121	2-51	U0	640990	5517141	2-62	U0	641004	5517152
2-18	U72/LO	640929	5517184	2-51	U72/LO	640954	5517199	2-62	U72/LO	640969	5517212
2-18	L42/BO	640907	5517212	2-51	L39/BO	640927	5517238	2-62	L38/BO	640945	5517245
2-18	B69	640845	5517257	2-51	B63	640903	5517239	2-62	B72	640901	5517292
3	BASE	646117	5521122								
3-47	U0	646165	5521143	3-61	U0	646180	5521152	3-73	U0	646188	5521158
3-47	U55/BO	646192	5521098	3-61	U56/BO	646208	5521102	3-73	U58/BO	646215	552113
3-47	B73	646235	5521039	3-61	B72	646254	5521054	3-73	B72	646255	5521055
4	BASE	646347	5520580								
4-47	U0	646389	5520876	4-78	U0	646414	5520895	4-96	U0	646435	5520907
4-47	U65/LO	646351	5520930	4-78	U65/LO	646381	5520948	4-96	U66/LO	646392	5520963
4-47	L57/BO	646317	5520987	4-78	L58/BO	646339	5521003	4-96	L65/BO	646358	5521016
4-47	B75	646645	5521043	4-78	B72	646301	5521037	4-96	B69	646325	5521071
5	BASE	645958	5531836								
5-22	U0	645957	5531856	5-56	U0	645943	5531887	5-85	U0	645929	5531917
5-22	U65/BO	646015	5531874	5-56	U65/BO	646004	5531911	5-85	U65/BO	645989	5531944
5-22	B71	646082	5531905	5-56	B74	646072	5531944	5-85	B63	646065	5531965
6	BASE	646278	5532038								
6-16	U0	646279	5532057	6-20	U0	646269	5532061	6-40	U0	646264	5532081
6-16	U72/LO	646209	5532038	6-20	U70/LO	646197	5532045	6-40	U70/LO	646195	5532053
6-16	L67/BO	646142	5532013	6-20	L70/BO	646138	5532020	6-40	L70/BO	646133	5532036
6-16	B72	646076	5532002	6-20	B62	646081	5532006	6-40	B71	646060	5532021
7	BASE	646130	5541577								
7-16	U0	646142	5541592	7-36	U0	646155	5541608	7-81	U0	646179	5541645
7-16	U72/LO	646084	5541635	7-36	U72/LO	646100	5541653	7-81	U73/LO	646123	5541689
7-16	L48/BO	646049	5541667	7-36	L48/BO	646057	5541684	7-81	L45/BO	646086	5541718
7-16	B43	646013	5541690	7-36	B43	646021	5541708	7-81	B49	646046	5541742
8	BASE	645779	5541699								
8-14	U0	645786	5541711	8-26	U0	645749	5541726	8-34	U0	645807	5541729
8-14	U72/LO	645845	5541664	8-26	U70/LO	645859	5541685	8-34	U72/LO	645861	5541689
8-14	L48/BO	645885	5541637	8-26	L49/BO	645896	5541653	8-34	L45/BO	645895	5541660
8-14	B36	645915	5541619	8-26	B53	645930	5541625	8-34	B52	645933	5541629
9	BASE	648458	5546891								
9-7	U0	648457	5546899	9-56	U0	648452	5546940	9-70	U0	648448	5546960
9-7	U75/LO	648533	5546913	9-56	U75/LO	648524	5546945	9-70	U80/LO	648522	5546961
9-7	L50/BO	648578	5546918	9-56	L50/BO	648575	5546948	9-70	L50/BO	648578	5546977
9-7	B50	648626	5546916	9-56	B52	648627	5546956	9-70	B52	648629	5546973
10	BASE	648827	5546914								
10-95	U0	648812	5547000	10-97	U0	648821	5547011	10-98	U0	648815	5547003
10-95	U79/LO	648730	5546986	10-97	U78/LO	648729	5546991	10-98	U72/LO	648740	5546994
10-95	L44/BO	648696	5546982	10-97	L47/BO	648693	5546990	10-98	L44/BO	648690	5546995
10-95	B57	648639	5546974	10-97	B51	648641	5546991	10-98	B52	648637	5546995

Notes: S = Site number with distance from baseline starting point, in metres P = Position along transect, in metres

**Table 4.2-2  
Floodway Vegetation Survey Transect Locations (August 23-25, 2004)**

S	P(m)	Easting	Northing	S	P(m)	Easting	Northing
1	BASE	640757	5517439				
1-44	U	640790	5517465	1-80	U	640823	5517482
1-44	U70/LO	640833	5517402	1-80	U66/LO	640861	5517414
1-44	L35/BO	640851	5517376	1-80	L35/BO	640873	5517390
1-44	B78	640896	5517307	1-80	B80	640917	5517325
2	BASE	640950	5517108				
2-46	U	640984	5517139	2-80	U	641007	5517154
2-46	U70/LO	640944	5517201	2-80	U72/LO	640968	5517213
2-46	L38/BO	640930	551727	2-80	L36/BO	640949	5517247
2-46	B74	640881	5517303	2-80	B73	640905	5517308
3	BASE	646117	5521122				
3-22	U	mowed		3-64	U	mowed	
3-22	BO	646167	5521081	3-64	BO	646204	5521103
3-22	B75	646216	5521023	3-64	B74	646250	5521040
4	BASE	646347	5520580				
4-26	U	mowed		4-94	U	mowed	
4-26	LO	646323	5520925	4-94	LO	646372	5520958
4-26	L50/BO	646306	5520958	4-94	L52/BO	646346	5521001
4-26	B76	646249	5521025	4-94	B80	646278	5521041
5	BASE	645958	5531836				
5-37	U	645951	5531872	5-63	U	645945	5531848
5-37	U61/BO	646014	5531892	5-63	U62/BO	646002	5531922
5-37	B77	646083	5531923	5-63	B73	646071	5531947
6	BASE	646278	5532038				
6-09	U	mowed		6-39	U	mowed	
6-09	LO	646206	5532039	6-39	LO	646136	5532042
6-09	L63/BO	646144	5532014	6-39	L63/BO	646191	5532064
6-09	B70	646086	5531994	6-39	B80		
7	BASE	646130	5541577				
7-18	U	mowed		7-74	U	mowed	
7-18	L	mowed		7-74	L	mowed	
7-18	BO	646051	5541665	7-74	BO	646082	5541704
7-18	B52	646007	5541690	7-74	54	646034	5541732
8	BASE	645779	5541699				
8-34	U	mowed		8-88	U	mowed	
8-34	LO	6451685	5541685	8-88	LO	645881	5541724
8-34	L48/BO	645894	5541649	8-88	L45/BO	645919	5541694
8-34	B36	645929	5541620	8-88	B45	645956	5541672
9	BASE	648458	5546891				
9-30	U	mowed		9-75	U	mowed	
9-30	LO/L50	648523	5546919	9-75	LO/L45	648526	5546971
9-30	L50/BO	648579	5546925	9-75	L45/BO	648581	5546973
9-30	B52	648632	5546929	9-75	B57	648630	5546976
10	BASE	648827	5546914				
10-24	U	mowed		10-56	U	mowed	
10-24	LO	648745	5546925	10-56	LO	648742	5546956
10-24	L44/BO	648701	5546925	10-56	L45/BO	648698	5546949
10-24	B55	648646	5546921	10-56	B55	648644	5546943

Notes: S = Site number with distance from baseline starting point, in metres; P = Position along transect, in metres

- those plants rooted in each interval), and aerial cover (i.e., those plants whose aerial foliage overlies the transect). Note that the total may be greater than 100%.
- c. Specimens of all unknown species were collected for identification by University of Manitoba herbarium staff.
3. If a Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Manitoba Endangered Species Act (MESA) listed species was observed in vicinity of transect, the following actions were taken:
- a. GPS location was recorded;
  - b. Population size and range was estimated; and
  - c. Plant habitat was described.

Species cover and frequency values were obtained from the transect data. Plant cover was defined as the total length of the transect interval intercepted by plants of each species, including those rooted at each interval and those whose aerial foliage overlay the transect. Since the basal and aerial coverage distances of various individual plants may overlap, the sum of the intercept lengths may be greater than the total transect length (Barbour *et al.* 1987; Smith 1996). Species frequency was estimated by dividing the number of transect intervals containing a particular species by the total number of transect intervals. The percentage of relative cover of each species was estimated as the proportion of the total transect length intercepted by each species, divided by the total cover of all species, multiplied by 100. Relative frequency was determined in a similar fashion (Barbour *et al.* 1987; Smith 1996).

The Upper Slope of 14 transects, and the Lower Slope of 2 transects were not sampled in the second survey due to having been mowed and harvested for hay.

#### Floodway Low Flow Channel

The Low Flow Channel was examined at the five locations used in the terrestrial vegetation survey and at one additional location situated at the Floodway Inlet. At each location, a 100-m segment of the Low-Flow Channel (LFC) was visually examined for aquatic plants and was sampled using a rake every 10 m within the 100-m segment. A species list was compiled and presence/absence was noted at each survey site.

#### West Dyke

An overview survey of plant communities was conducted at selected sites along the West Dyke (Figure 4.2-2). This coincided with botanical sampling of the Floodway. A list of vascular plant species was compiled and any COSEWIC/MESA-listed and rare plant species noted as described above. A DAFOR (Dominant, Abundant, Frequent, Occasional, Rare) dominance rating was assigned to each species noted at survey sites.

**Proposed Floodway Expansion Project  
Vegetation Survey July 2004**



Figure 4.3-1 The shrub *Amorpha fruticosa*, SIS2 species in Manitoba.



Figure 4.3-2 Grasslands on the floodway slopes.

## 4.3 RESULTS

### 4.3.1 Floodway Right-of-Way

Approximately 105 species were identified in the Floodway Upper Slope, Lower Slope, and Base (Table 4.3-1). This was far less than the 150 prairie species that have been found in the similar, but much smaller (12 ha) habitat of the Living Prairie Museum in Winnipeg (Museum staff, *pers. comm.* 2004).

One provincially rare species was found. This was the shrub *Amorpha fruticosa* (Figure 4.3-1). It was observed intermittently on the Lower Slope of the Floodway at Site 4 and 5 (Tables 4.2-1 and 4.2-2), and on the North shore of the Floodway Inlet. It is listed as S1/S2 both in Manitoba and Ontario, but is not a COSEWIC/MESA listed species (COSEWIC, 2003). Hence, there are no regulatory requirements to mitigate the loss of this species (CDC, *pers. comm.* Jason Greenall). The *Amorpha fruticosa* plants cannot be saved, since they are too large (2-5 m tall; Looman and Best 1987), to remain in the Floodway Channel due to hydraulic considerations, and they are too difficult to move because of a deep tap root and their specific habitat requirements. However, attempts could be made to preserve the genetic stock through the collection of seeds. These could be stored at a local nursery and made available for future revegetation efforts.

The Upper and Lower slopes of the Floodway were largely grasslands (Figure 4.3-2) dominated by smooth brome and bluegrass (Table 4.3-2), both of which were found in over 85% of the transect intervals on the Upper and Lower Slope. These two species accounted for 53-60% of the relative cover and 58-59% of the relative frequency on the Upper and Lower Floodway slopes (Tables 4.3-2 and 4.3-3). The amount of smooth brome was much the same in both the first survey and the second survey. In contrast, bluegrass continued to increase in cover over the summer (Table 4.3-2).

Another common species found on the Upper and Lower slopes was alfalfa, which in the first survey had a cover of over 10% (Table 4.3-2) and a frequency of almost 40% (Table 4.3-3). This was reduced slightly in the second survey, most likely because of the mowed Upper Slope sites, which tended to have higher amounts of alfalfa. Other species were rarer, often being found in only one or two transect intervals (see Tables 4.3-1, and 4.3-4 for a complete list).

Overall, diversity was low in the Floodway Upper and Lower Slopes during the first survey, with only a few species found on any given site (Table 4.3-4). The exceptions to this were the areas near Birds Hill Park (Dunning Crossing), which had the highest number of species per site (Table 4.3-4). Seed rain from the Provincial Park may be considerable in this area. Diversity was noticeably higher during the second survey (Table 4.3-5) but still less than what would be observed at sites such as the Living Prairie Museum.

Plant cover on the Floodway Slopes was also low, with an overall mean plant cover of 40-65% in the first survey and slightly higher than that in the second survey (Table 4.3-2). This compares to cover values



**Table 4.3-1  
Identified and Verified Species in the Floodway Channel**

Scientific Name	Common Name	Symbol	Scientific Name	Common Name	Symbol
<i>Acer negundo</i>	Manitoba Maple	AN	<i>Plantago major</i>	Common Plantain	PM
<i>Achillea millefolium</i>	Yarrow	AM	<i>Poa pratensis</i>	Bluegrass	PP
<i>Alisma triviale</i>	Water Plantain	AIT	<i>Polygonum lapathifolium</i>	Pale Persicaria	PoL
<i>Amelanchier alnifolia</i>	Saskatoon	AA	<i>Populus balsamifera</i>	Balsam Poplar	PB
<i>Amorpha fruticosa</i>	False Indigo	AF	<i>Populus deltoides</i>	Cottonwood	PD
<i>Agropyron repens</i>	Couch Grass	AR	<i>Populus tremuloides</i>	Trembling Aspen	PT
<i>Ambrosia trifida</i>	Ragweed	AmT	<i>Potamogeton pectinatus</i>	Sago Pondweed	PoP
<i>Anemone canadensis</i>	Canada Anemone	AC	<i>Potentilla anserina</i>	Silverweed	PoA
<i>Antennaria sp.</i>	Pussytoes	A?	<i>Potentilla norvegica</i>	Rough cinquefoil	PN
<i>Apocynum cannabinum</i>	Indian-hemp	ApC	<i>Rhus radicans</i>	Poison Ivy	RR
<i>Arabis glabra</i>	Tower Mustard	AG	<i>Rorippa islandica</i>	Marsh Yellow Cress	RI
<i>Arctium tomentosum</i>	Cotton Burdock	AT	<i>Rosa spp.</i>	Wild Rose	R?
<i>Artemisia biennis</i>	Biennial Wormwood	AB	<i>Rudbeckia hirta</i>	Brown-eyed Susan	RH
<i>Artemisia ludoviciana</i>	Prairie Sage	AL	<i>Rumex crispus</i>	Dock	RC
<i>Aster laevis</i>	Smooth Aster	AsL	<i>Sagittaria cuneata</i>	Arrowhead	SaC
<i>Aster lateriflorus</i>	Wood Aster	AstL	<i>Salix exigua</i>	Sandbar Willow	SE
<i>Aster pansus</i>	Many-flowered Aster	AP	<i>Salix lutea</i>	Yellow Willow	SL
<i>Asclepias speciosa</i>	Showy Milkweed	AS	<i>Scirpus fluviatilis</i>	River Bulrush	SF
<i>Asclepias verticillata</i>	Whorled Milkweed	AV	<i>Scirpus validus</i>	Great Bulrush	SV
<i>Astragalus goniatus</i>	Ascending Purple Milk Vetch	AG	<i>Sisyrinchium montanum</i>	Blue-eyed Grass	SM
<i>Bidens frondosa</i>	Common Beggarticks	BF	<i>Sium sauve</i>	Water-parsnip	SIS
<i>Brassica kaber</i>	Wild Mustard	BK	<i>Solidago gigantea</i>	Giant Goldenrod	SoG
<i>Bromus inermis</i>	Smooth Brome	BI	<i>Solidago canadensis</i>	Canada Goldenrod	SC
<i>Carex aquatilis</i>	Water Sedge	CaA	<i>Solidago rigida</i>	Rigid Goldenrod	SR
<i>Cirsium arvense</i>	Canada Thistle	CA	<i>Sonchus arvensis</i>	Perennial Sow Thistle	SA
<i>Cirsium flodmanii</i>	Flodman's thistle	CF	<i>Spartina pectinata</i>	Prairie Cord Grass	SP

Table 4.3-1 (cont'd)

Scientific Name	Common Name	Symbol	Scientific Name	Common Name	Symbol
<i>Convolvulus sepium</i>	Hege Bindweed	CS	<i>Stachys palustris</i>	Marsh Hedge-nettle	StP
<i>Echinocystis lobata</i>	Wild Cucumber	EL	<i>Taraxacum officinale</i>	Dandelion	TO
<i>Eleocharis erythropoda</i>	Spike Rush	EE	<i>Thalictrum venulosum</i>	Veiny Meadow Rue	TV
<i>Equisetum arvense</i>	Common Horsetail	EA	<i>Thlapsi arvense</i>	Stinkweed	TA
<i>Equisetum fluviatile</i>	Swamp Horsetail	EF	<i>Tragopogon dubius</i>	Goatsbeard	TD
<i>Erigeron asper</i>	Rough Fleabane	ErA	<i>Trifolium hybridum</i>	Alsike Clover	Tsp
<i>Erisimum cheiranthoides</i>	Wormseed Mustard	EC	<i>Trifolium pratense</i>	Red Clover	Tsp
<i>Fraxinus pennsylvanica</i>	Green Ash	FP	<i>Trifolium repens</i>	White Clover	Tsp
<i>Geranium bicknellii</i>	Bicknell's Geranium	GB	<i>Typha latifolia</i>	Cattail	TL
<i>Glycyrrhiza lepidota</i>	Wild Licorice	GL	<i>Vicia americana</i>	Wild Vetch	VA
<i>Grindelia squarrosa</i>	Curly-cup Gumweed	GS	<i>Vicia cracca</i>	Tufted Vetch	VC
<i>Helianthus maximiliani</i>	Narrow-leaved Sunflower	Hm	<i>Xanthium strumarium</i>	Cocklebur	XS
<i>Hordeum jubatum</i>	Foxtail Barley	HJ	<i>Zizia aptera</i>	Heart-leaved Alexander	ZA
<i>Lactuca pulchella</i>	Blue Lettuce	LP	<b>Species noted in the 2003 fall survey</b>		
<i>Lathyrus ochroleucus</i>	Cream-colored Vetchling	LO	<i>Atriplex patula</i>	Orache	AP
<i>Leucanthemum vulgare</i>	Oxeye Daisy	LV	<i>Bidens cernua</i>	Beggarticks	BC
<i>Linum lewisii</i>	Wild Blue Flax	LL	<i>Lactuca serriola</i>	Prickly Lettuce	LS
<i>Lotus corniculatus</i>	Bird's Foot Trefoil	LC	<i>Phragmites australis</i>	Common Reed Grass	PhA
<i>Lysimachia ciliata</i>	Fringed Loosestrife	LyC	<i>Polygonum coccineum</i>	Marsh Smartweed	PC
<i>Medicago lupulina</i>	Black Medick	ML	<i>Scirpus cyperinus</i>	Bulrush	ScC
<i>Medicago sativa</i>	Alfalfa	MS	<i>Senecio vulgaris</i>	Common Groundsel	SV
<i>Melilotus alba</i>	White Sweet Clover	MA	<i>Sisymbrium loesellii</i>	Tall Hedge Mustard	SIL
<i>Melilotus officinalis</i>	Yellow Sweet Clover	MO	<i>Smilacina stellata</i>	False Solomon's Seal	SS
<i>Oenothera biennis</i>	Yellow Evening Primrose	OB	<i>Sonchus asper</i>	Annual Sow Thistle	SoA
<i>Phalaris arundinacea</i>	Reed Canary Grass	PA	<i>Spartina gracilis</i>	Alkali Cord Grass	SG
<i>Phleum pratense</i>	Timothy	PhP	<i>Tanacetum vulgare</i>	Common Tansy	TaV
<i>Physostegia parviflora</i>	False Dragonhead	PhyP			

approaching 100% in the Living Prairie Museum, which is similar in habitat to the Floodway Slopes (Museum staff *per. comm.* 2004).

The dominant plant species on the Floodway Base was sandbar willow (Figure 4.3-3), which was found growing in extensive thickets over the length of the Floodway. It had a frequency of 24-27% (Table 4.3-3) on the Base, with an estimated cover of 15-20% (Table 4.3-2). This latter value is misleading, however, since the distribution of sandbar willow is not random, as it tends to form dense thickets with 100% cover. The most well-developed willow thickets were approximately 3-4 m in height (personal observation). Other notable species found on the Floodway Base included reed canary grass, couch grass, and fringed loosestrife. The diversity on the Floodway Base was generally higher than on the Floodway Slopes (Tables 4.3-4 and 4.3-5).

The Floodway Base was inundated between June 13 and June 28, 2004. The only species still green when the waters receded were two willow species (*Salix exigua* and *Salix lutea*) and the forb, fringed loosestrife (*Lysimachia ciliata*) (Figure 4.3-4). Initiation of plant growth was rapid; although there were considerably more plants in evidence by the end of two weeks; none covered extensive areas of the Floodway Base and all were stunted in their growth (Figure 4.3-5, Table 4.3-4). After eight weeks, the vegetation on the Base had expanded considerably. Plant cover increased from 37% to 94%, with reed canary grass and couch grass being predominant (Tables 4.3-2 and 4.3-3). Vegetation was also robust and green (Figure 4.3-6), perhaps in response to the natural fertilizer that had been applied during the flood event (personal observation).

One striking feature on the Floodway Base was the almost complete lack of plant litter, presumably as a response to flooding. On the slopes there was a thick layer of dead plant material, but on the Floodway Base this layer was gone – the bare ground was exposed and made up the most prevalent ‘cover’ in many areas (Table 4.3-2). Eight weeks later, there was still almost no plant litter on the Base, but the amount of Bare Ground had decreased due to an increase in vegetation as the recovery continued (Table 4.3-2).

The loss of vegetation and plant litter in response to flooding is of concern for two reasons:

- first, subsequent use of the Floodway in the summer has the potential for eroding the Floodway Base, and
- second, the exposed Base is the perfect habitat for the germination of willow seeds, which require bare mud and direct sun for germination (Karrenberg *et al.*, 2002).

#### 4.3.2 Floodway Low Flow Channel

There were almost no submerged aquatic plants in the low flow channel (Figure 4.3-7, Table 4.3-6). Also notable was the almost complete absence of an emergent aquatic community. The only location with even small amounts of aquatic plants was at the Floodway Inlet where there were a few clumps of *Potamogeton pectinatus* with *Sagittaria cuneata* and *Alisma triviale* growing on the shores. The lack of aquatic vegetation may have been due to the persistent and ongoing high water levels coupled with low water transparency, or it could be a regular feature of the Floodway Low Flow Channel.



Figure 4.3-3 Sandbar willow thicket on the floodway base.



Figure 4.3-4 Dead vegetation on floodway base after flooding.

**Table 4.3-2**  
**Cover Values (Percent ± Standard Deviation) for the the Most**  
**Common Species in the Floodway**

Species Common Name	DATE	Cover			Relative Cover	
		U	L	B	U/L	B
Plant Litter	J	40.8 ± 27.5	49.6 ± 31.2	14.4 ± 23.9	----	----
	A	37.9 ± 23.7	26.8 ± 26.3	<1	----	----
Bare Ground	J	0	10.1 ± 24.5	63.8 ± 31.6	----	----
	A	0	5.3 ± 18.7	22.2 ± 27.6	----	----
Smooth Brome	J	20.4 ± 14.7	14.9 ± 13.2	4.6 ± 8.5	33.2	12.4
	A	22.9 ± 20.6	17.9 ± 12.2	5.0 ± 15.6	28.6	5.3
Bluegrass	J	11.6 ± 7.8	9.5 ± 8.9	<1	19.6	<1
	A	24.2 ± 12.3	19.3 ± 17.5	1.2 ± 6.2	30.6	1.2
Alfalfa	J	16.8 ± 25.0	7.2 ± 17.0	0	23.1	0
	A	5.6 ± 11.8	10.1 ± 19.5	0	12.8	0
Dandelion	J	4.8 ± 10.5	<1	0	5.0	0
	A	0	<1	<1	<1	<1
Canada Thistle	J	2.7 ± 8.1	1.5 ± 5.0	0	4.1	0
	A	5.5 ± 10.0	4.4 ± 8.0	<1	7.0	1.0
Yellow Sweet Clover	J	2.1 ± 8.3	<1	0	3.0	0
	A	3.3 ± 12.2	2.0 ± 6.8	0	3.5	0
Couch Grass	J	<1	<1	<1	<1	<1
	A	0	<1	13.9 ± 28.5	<1	14.8
Sandbar Willow	J	0	<1	15.7 ± 33.0	<1	43.7
	A	0	<1	19.6 ± 36.6	<1	20.8
Reed Canary Grass	J	0	<1	4.6 ± 11.0	0	12.7
	A	0	2.0 ± 8.7	18.9 ± 31.4	2.9	20.1
Fringed Loosestrife	J	0	<1	3.0 ± 14.0	<1	8.1
	A	0	0	2.9 ± 15.0	0	3.1
Transect	J	64.1 ± 32.8	40.0 ± 27.1	37.3 ± 35.6		
	A	64.9 ± 32.4	66.8 ± 29.6	94.5 ± 39.4		

Notes:

U = Upper Slope of Floodway

U/L = Upper and Lower Slope of Floodway

L = Lower Slope of Floodway

B = Base of Floodway

J = First survey (June/July), A = Second survey (August)

Transect values do not include Plant Litter or Bare Ground

---- = Value not calculated

**Table 4.3-3  
Species Frequency (%) for the Most  
Common Species in the Floodway**

Species Common Name	DATE	Frequency		Relative Frequency	
		U/L	B	U/L	B
Smooth Brome	J	95	34	31	27
	A	100	13	31	5.2
Bluegrass	J	89	<1	28	<1
	A	89	6.7	28	2.6
Alfalfa	J	38	0	12	0
	A	31	0	10	0
Dandelion	J	14	0	4.4	0
	A	<1	<1	<1	<1
Canada Thistle	J	17	0	5.4	0
	A	31	6.7	10	2.6
Yellow Sweet Clover	J	7.4	0	2.5	0
	A	12	0	3.6	0
Couch Grass	J	7.4	1.3	2.5	1.0
	A	<1	25	<1	10
Sandbar Willow	J	<1	24	<1	19
	A	<1	27	<1	10
Reed Canary Grass	J	<1	24	<1	18
	A	<1	34	<1	13
Fringed Loosestrife	J	0	6.7	0	5.3
	A	0	4.2	0	1.6

Notes:

U/L = Upper and Lower Slope of Floodway

B = Base of Floodway

J = First survey (June/July), A = Second survey (August)

---- = Value not calculated



Figure 4.3-5 Vegetation recovery on the floodway base two weeks after flooding.



Figure 4.3-6 Robust revegetation on the floodway base eight weeks after flooding.



















Table 4.3-4 - June/July 2004 Survey of Terrestrial Floodway Vegetation Raw Data

Date Surveyed	Location	Site-T <sup>1</sup>	Position (m)	TH	BG	Vegetation Species <sup>2</sup>																																								
						BI	PP	AR	Tsp	AG	PhP	TD	AsL	MS	CA	MO	TO	SA	ML	LC	SC	AP	VA	VC	PB	AS	PM	EA	SE	PoA	PA	RC	EE	PN	TL	SL	LyC	CaA	AstL							
12-Jul-04	5	10-95	L39	0	80	8	5	0	0					0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0															
12-Jul-04	5	10-95	B0	0	75	0	0	10	0																	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0			
12-Jul-04	5	10-95	B2	0	70	0	0	30	0																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
12-Jul-04	5	10-95	B22	0	90	0	0	0	0																	0	0	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0			
12-Jul-04	5	10-95	B26	0	90	0	0	0	0																	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0			
12-Jul-04	5	10-95	B27	15	70	0	0	0	0																	0	0	0	0	10	0	0	0	0	5	0	0	0	0	0	0	0	0			
12-Jul-04	5	10-97	U1	70	0	15	10	0	0	0	0	0	2	0	0	4	0	0	0	0	0	0	0	0																						
12-Jul-04	5	10-97	U18	15	0	20	10	0	0	0	0	0	58	0	0	0	0	0	0	0	0	0	0																							
12-Jul-04	5	10-97	U40	40	0	25	10	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0																							
12-Jul-04	5	10-97	U42	50	0	20	5	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0																							
12-Jul-04	5	10-97	U52	50	0	15	10	0	0	0	0	0	12	0	0	13	0	0	0	0	0	0	0																							
12-Jul-04	5	10-97	L6	55	0	5	0	0	0				30	0	0	0	0	0	0	0	0	0	0	0	6	0	7	0	0	0																
12-Jul-04	5	10-97	L10	20	50	10	0	0	0				6	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0																
12-Jul-04	5	10-97	L13	50	0	10	2	0	0				15	0	0	0	0	0	0	0	0	0	0	0	0	8	9	0	0	0																
12-Jul-04	5	10-97	L36	0	45	10	30	0	0				6	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0																
12-Jul-04	5	10-97	L47	0	70	0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30															
12-Jul-04	5	10-97	B3	0	60	0	0	0	0																	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12-Jul-04	5	10-97	B11	0	25	0	0	0	0																	0	0	0	5	40	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	
12-Jul-04	5	10-97	B16	0	65	0	0	0	0																	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	15	0	0		
12-Jul-04	5	10-97	B21	0	75	0	0	0	0																	0	0	0	0	15	0	0	0	0	21	0	0	0	0	0	0	0	0	0		
12-Jul-04	5	10-97	B45	0	100	0	0	0	0																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12-Jul-04	5	10-98	U4	60	0	10	10	0	0	0	0	0	15	0	0	7	0	0	0	0	0	0	0																							
12-Jul-04	5	10-98	U33	30	0	40	20	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0																							
12-Jul-04	5	10-98	U40	5	0	30	10	0	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0																							
12-Jul-04	5	10-98	U57	60	0	25	10	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0																							
12-Jul-04	5	10-98	U60	40	0	15	10	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0																							
12-Jul-04	5	10-98	L3	75	0	10	0	0	0				0	0	0	0	0	0	0	0	0	0	13	0	0	0	5	0	0	0																
12-Jul-04	5	10-98	L8	0	90	5	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0																
12-Jul-04	5	10-98	L14	55	0	5	5	0	0				40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																
12-Jul-04	5	10-98	L22	0	0	20	15	0	0				100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																
12-Jul-04	5	10-98	L23	55	0	5	5	0	0				15	0	0	0	0	0	0	0	0	0	10	0	0	0	10	0	0	0																
12-Jul-04	5	10-98	B11	0	40	0	0	0	0																	0	0	0	20	5	0	0	30	5	0	0	0	0	0	0	0	0	0	0	0	
12-Jul-04	5	10-98	B29	40	30	0	0	0	0																	0	0	0	0	0	0	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0
12-Jul-04	5	10-98	B37	0	80	0	0	0	0																	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-04	5	10-98	B39	0	80	0	0	0	0																	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-04	5	10-98	B42	0	100	0	0	0	0																	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Notes:**  
<sup>1</sup>For site UTM coordinates, see Table 7B-1  
U = Upper Slope; L = Lower Slope; B = Base  
Location 1 = Seine River Outlet [Site 1 (Nearshore), Site 2 (Farshore)]  
Location 2 = HWY 1 [Site 3 (Nearshore), Site 4 (Farshore)]  
Location 3 = Gunn Road [Site 5 (Nearshore), Site 6 (Farshore)]  
Location 4 = Dunning Road [Site 7 (Farshore), Site 8 (Nearshore)]  
Location 5 = Turbine [Site 9 (Nearshore), Site 10 (Farshore)]

<sup>2</sup>For list of vegetation species see Table 7B-2















Figure 4.3-7 Aquatic macrophyte sampling along floodway channel.



Figure 4.3-8 West Dyke smooth brome grassland.

**Table 4.3-6 - Aquatic Vegetation in the Floodway Low-Flow Channel**

Site	UTM Position		Metres	Species <sup>1</sup>							
	northing	easting		AIT	LM	SV	CH	EE	PoP	SaC	SF
Inlet	635231	5512967	0					#			#
Inlet			10					#	#	#	
Inlet			20					#	#	#	
Inlet			30					#	#	#	
Inlet			40					#	#	#	
Inlet			50	#				#	#	#	
Inlet			60			#	#	#	#	#	
Inlet			70	#			#	#	#	#	
Inlet			80					#		#	
Inlet			90					#			#
Inlet			100					#	#		
1/2	640854	5517277	0		#						
1/2			10		#	#					#
1/2			20								#
1/2			30		#						
1/2			40			#					
1/2			50			#					#
1/2			60		#						#
1/2			70								#
1/2			80		#						
1/2			90			#					
1/2			100			#					
3/4	646204	5521016	0								
3/4			10								
3/4			20								
3/4			30								
3/4			40								
3/4			50								
3/4			60								
3/4			70								
3/4			80								
3/4			90								
3/4			100								
5/6	646091	5531887	0								
5/6			10			#					
5/6			20							#	
5/6			30								
5/6			40								
5/6			50								
5/6			60			#					
5/6			70								
5/6			80					#			
5/6			90			#					
5/6			100			#					
7/8	646051	5541778	0								
7/8			10								
7/8			20								
7/8			30								
7/8			40								
7/8			50								
7/8			60								
7/8			70								
7/8			80								
7/8			90								
7/8			100								
9/10	648635	5546907	0								
9/10			10								
9/10			20								
9/10			30								
9/10			40								
9/10			50								
9/10			60								
9/10			70								
9/10			80								
9/10			90								
9/10			100								

# = species presence

<sup>1</sup> for list of vegetation species, see Table 3

Table 4.3-7 - June 16, 2004 Survey of the West Dyke

UTM Coordinates		Sites																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
UTM easting		631942	630798	633870	630842	630634	628629	626018	626082	626145	624853	619853	615047	609887	604788	602992	601355	598505	594820
UTM northing		5509274	5507312	5512017	5504945	5502968	5503009	5502314	5499319	5496224	5494632	5494536	5494422	5494294	5494265	5499118	5501557	5502312	5502252
Species List		Abundance																	
Common Name	Scientific Names																		
Alfalfa	<i>Medicago sativa</i>	A	A	A	A	F	F	A	A	#	A	O	R	F					
Smooth Brome	<i>Bromus inermis</i>	D	D	D	D	D	D	D	D	#	D	D	D	D	D	D	D	D	D
Dandelion	<i>Taraxacum officinale</i>	F	A	F	A	F	O	F	O	#		R							O
Canada Thistle	<i>Cirsium arvense</i>	O	O	O	O	O	O	O	O	#	F	R				R			
Bluegrass	<i>Poa pratensis</i>	A	O	F	F	A	A	A	F	#	F	F	F	F	F	F	F	O	F
Clover	<i>Trifolium spp.</i>	O	R		O	O		O	O	#		R							
Purple Milk-Vetch	<i>Astragalus goniatus</i>	R	R			F	O	F	O		R	O		O		O			
Dock	<i>Rumex crispus</i>	O		R		R				#									
Saskatoon	<i>Amelanchier alnifolia</i>	R																	
Wild Rose	<i>Rosa sp.</i>	R								#			O		R	F	O	O	F
Blue-eyed Grass	<i>Sisyrinchium montanum</i>		R			O			R			O							O
Sow Thistle	<i>Sonchus spp.</i>	R	O		R														
Narrow-leaved Sunflower	<i>Helianthus maximiliana</i>		R				R								R		R		
Goats-beard	<i>Tragopogon dubius</i>		R				R												
Common Horsetail	<i>Equisetum arvense</i>				R														
Silverweed	<i>Potentilla anserina</i>			R	R														
Wild Vetch	<i>Vicia americana</i>					R	R		F								R		
Bugleweed	<i>Lycopus americanus</i>					R													
Goldenrod	<i>Solidago sp.</i>					R	R									O	R		R
Showy Milkweed	<i>Asclepias speciosa</i>								R								R		
Yellow Willow	<i>Salix lutea</i>						O												
Canada Anemone	<i>Anemone canadensis</i>						R			#	R						A	F	
Yellow Sweet Clover	<i>Melilotus officinalis</i>			O					A	#	O	O							R
Birds-Foot Trefoil	<i>Lotus corniculatus</i>								O		O			O					
Stinkweed	<i>Thlapsi arvense</i>									#				R			R		
Reed Canary Grass	<i>Phalaris arundinaceum</i>									#									
Northern Bedstraw	<i>Gallium borealis</i>									#							F		
Crested Wheatgrass	<i>Agropyron cristatum</i>										R								
Quack Grass	<i>Agropyron repens</i>			O								A	O						
Water Plantain	<i>Alisma sp. triviale</i>													R					
Snowberry	<i>Symphoricarpos occidentalis</i>																O		
Wild Strawberry	<i>Fragaria glauca</i>																		F
Meadow Rue	<i>Thalictrum venosum</i>																		R
Prairie Sage	<i>Artemisia ludoviciana</i>																		R

**Notes:**  
D = Dominant (>50%), A = Abundant (25-50%), F = Frequent (1-25%), O = Occasional (<1%), R = Rare (<<<1%)  
NV = No Value  
Clover includes *Trifolium repens*, *Trifolium pratense*, and *Trifolium hybridum*  
Portions of the West Dike in the RM of MacDonald are regularly sprayed with Tordon22k and Vanquish



Table 4.3-8 - July 22-23, 2004 Survey of the West Dyke

UTM Coordinates		Sites																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
UTM easting		631942	630798	633870	630842	630634	628629	626018	626082	626145	624853	619853	615047	609887	604788	602992	601355	598505	594820
UTM northing		5509274	5507312	5512017	5504945	5502968	5503009	5502314	5499319	5496224	5494632	5494536	5494422	5494294	5494265	5499118	5501557	5502312	5502252
Species List		Abundance																	
Common Name	Scientific Names																		
Alfalfa	<i>Medicago sativa</i>	#	A	#	A	O				O	#	R		F	F				
Smooth Brome	<i>Bromus inermis</i>	#	D	#	D	D				D	#	D	D	D	D	D			D
Dandelion	<i>Taraxacum officinale</i>		O	#	O	F				O		O		R					
Canada Thistle	<i>Cirsium arvense</i>	#	R	#	R	R				A		R	R			R			
Bluegrass	<i>Poa pratensis</i>	#	F		A							F	O		O				F
Alsike Clover	<i>Trifolium hybridum</i>			#	O	F				F		O		R					
Red Clover	<i>Trifolium pratense</i>		O			F													
Purple Milk-Vetch	<i>Astragalus goniatus</i>		R		R							R	O			O			
Dock	<i>Rumex crispus</i>									O									O
Saskatoon	<i>Amelanchier alnifolia</i>																		
Wild Rose	<i>Rosa arkansana</i>									O						O			O
Blue-eyed Grass	<i>Sisyrinchium montanum</i>		R																
Sow Thistle	<i>Sonchus arvensis</i>	#	R	#										R					
Narrow-leaved Sunflower	<i>Helianthus maximiliana</i>				R								R						
Goats-beard	<i>Tragopogon dubius</i>		R	#	R														
Common Horsetail	<i>Equisetum arvense</i>																		
Silverweed	<i>Potentilla anserina</i>																		
Wild Vetch	<i>Vicia americana</i>																		
Bugleweed	<i>Lycopus americanus</i>																		
Canada Goldenrod	<i>Solidago canadensis</i>															O			
Showy Milkweed	<i>Asclepias speciosa</i>		R		R					R									
Yellow Willow	<i>Salix lutea</i>																		
Canada Anemone	<i>Anemone canadensis</i>									R	#								F
Yellow Sweet Clover	<i>Melilotus officinalis</i>	#		#		O				O	#								R
White Sweet Clover	<i>Melilotus alba</i>	#				O				O						R			
Birds-Foot Trefoil	<i>Lotus corniculatus</i>		R												R				
Stinkweed	<i>Thlapsi arvense</i>																		
Reed Canary Grass	<i>Phalaris arundinacea</i>					O				R									
Northern Bedstraw	<i>Gallium borealis</i>																		O
Crested Wheatgrass	<i>Agropyron cristatum</i>																		
Quack Grass	<i>Agropyron repens</i>	#		#	R	O							A	O	A		R		F
Water Plantain	<i>Alisma sp.triviale</i>																		
Snowberry	<i>Symphoricarpos occidentalis</i>																		
Wild Strawberry	<i>Fragaria glauca</i>																		
Meadow Rue	<i>Thalictrum venulosum</i>																		R
Black Medick	<i>Medicago lupulina</i>			#											O				
Evening Primrose	<i>Oenothera biennis</i>		R																
Flodman's Thistle	<i>Cirsium floodmannii</i>		R																
Wild Licorice	<i>Glycyrrhiza lepidota</i>		R																
Foxtail Barley	<i>Hordeum jubatum</i>	#		#	R					O		F	O	O	A				
Ragweed	<i>Ambrosia trifida</i>				O														
Spanish Clover	<i>Lotus purshianus</i>												R						
Indian Hemp	<i>Apocynum cannabinum</i>															F			
Rough Cinquefoil	<i>Potentilla norvegica</i>									R									
Timothy	<i>Phleum pratense</i>										#								O
Prairie Cordgrass	<i>Spartina pectinata</i>												R		R				
Slough Grass	<i>Beckmannia syzigachne</i>														R				
Yarrow	<i>Achillea millefolium</i>														R	R			
Common Plantain	<i>Plantago major</i>													r	R				
Prairie Sage	<i>Artemisia ludoviciana</i>															O			

Sites 1, 3, and 10 had recently been mowed so that it was not possible to estimate abundance, though there was enough plant material to compile a species list.  
 Sites 6, 7, and 8 had recently been mowed. There was nothing left with which to compile a species list.  
 Sites 16 and 18 were not accessible due to wet road conditions on the dirt portion of the West Dyke.

### 4.3.3 West Dyke

The West Dyke is a fairly homogeneous grassland community (Figure 4.3-8). At the Western end it is a substantial structure rising above local roadways, while at the Eastern end it is indistinguishable from the other roads in the area. All of the sites examined in June were dominated by smooth brome. The other most abundant species were alfalfa, dandelion, Canada thistle, bluegrass, and clover. There were approximately 35 plant species found along the West Dyke in the first survey, but no rare or COSEWIC/MESA-listed plant species (Table 4.3-7).

Results for the July survey were similar. Smooth brome was once again the dominant plant, with alfalfa, dandelion, Canada thistle and sweet clover also in evidence. Fifty plant species were found in the first two surveys, but none were rare or endangered (Table 4.3-8).

The July survey was reduced in scope due to the widespread mowing of the West Dyke ROW. Mowing appeared to be an ongoing process between Site 1 and Site 10 (Figure 4.3-9). A species list was compiled for some of the mowed sites, but in other locations plants had been completely harvested and so it was not possible to gather any data.

## 4.4 CONCLUSIONS

- The Floodway vegetation surveys identified 105 species. The West Dyke vegetation surveys identified 50 species.
- One rare species of shrub, *Amorpha fruticosa*, was found on the Floodway Lower Slope. It is listed as S1/S2 in Manitoba, though it is not a COSEWIC/MESA-listed species.
- The Floodway slopes are grasslands dominated by smooth brome, bluegrass, alfalfa, Canada thistle, and sweet clover.
- The West Dyke slopes are grasslands dominated by smooth brome, alfalfa and bluegrass.
- The willow *Salix exigua* occurs as dense thickets on an estimated 25% of the Floodway Base.
- A two-week flood in June 2004 killed the aboveground biomass of all species on the Floodway Base except two willow species (*Salix exigua*, *S. lutea*) and the herb fringed loosestrife.
- Two weeks after the floodwaters had receded, some recovery of the vegetation was evident. Eight weeks after the floodwaters had receded, vegetation on the Floodway Base had largely recovered.
- A long-term effect of flooding was the removal of plant litter on the Floodway Base. This increases the potential for erosion, and also increases the potential for the successful germination of willow seeds.
- There is almost no aquatic vegetation, either emergent or submerged, in the Floodway Low-Flow Channel.



Figure 4.3-9 Mowed area of West Dyke adjacent to Figure 3.3-1.

#### 4.5 REFERENCES

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