

**Appendix E:
Wildlife Technical Report**



**Technical Report on Wildlife Study
at Sylvia Lake**

Final Report
Stantec Consulting Ltd.
October 2010

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1.0 Introduction

Tim Horton Children's Foundation (THCF) is proposing to develop a youth leadership camp at Sylvia Lake (herein referred to as the "Project"), within the Whiteshell Provincial Park, across the Winnipeg River and due south (<1 km) of Pinawa, MB (Figure 1-1). The proposed camp facility will occur within a lease area (herein referred to as the "Project Site") of 17.2 ha and consist of: a main lodge, bunkhouses, other buildings, sports and recreational facilities, on-site services, docks along the shoreline and an internal road network. Collateral developments to be completed by Manitoba Conservation prior to development of the Project include an approximately 3.65 km (11.0 ha) entry road from Highway 307, and an approximately 2.2 km hydro distribution line connecting to the existing distribution line west of the Project Site.

Baseline wildlife surveys were conducted to support an environmental assessment of the proposed Project. Information on the wildlife and wildlife habitat present at the Project Site assisted in determining potential effects of the Project and were conducted to provide information on the presence of any sensitive wildlife species and/or habitat in the vicinity of the Project Site.

2.0 Study Area

The Project Site is located within the Whiteshell Provincial Park, on the shores of Sylvia Lake, across the Winnipeg River from the community of Pinawa, Manitoba (Figure 1-1). The Project Site is within the Lake of the Woods Ecoregion in a transition zone between three Ecodistricts; rugged lake-dominated landscape occur to the east and low-lying, glaciolacustrine and peatland predominate to the west (Smith *et al.* 1998). The vicinity of the Project Site is generally characterized by primarily mature moist mixedwood dominant land cover with frequent low-lying wet areas such as beaver floods and occasional areas of sedge/willow wetland.

Near the shoreline of Sylvia Lake are the highest elevation areas with occasional bedrock outcrops adjacent to the shoreline. The shoreline is generally steeply banked and tree-lined, with some sandy beach areas that can be very narrow and infrequent during higher lake water levels as observed in late June 2010.

3.0 Methods

3.1 FOCUS OF WILDLIFE STUDIES

Wildlife surveys focused on species of concern that had some potential to occur in the vicinity of the Project Site such as Species at Risk and wildlife that were indicated through the public communication process as being of local concern (e.g., bald eagle nests). Species at risk in Manitoba are listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), the federal *Species at Risk Act* (SARA) and the provincial *Manitoba Endangered Species Act* (MESA). Of the wildlife groups of species, bird Species at Risk (e.g., the threatened golden-winged warbler) represent the wildlife group with the highest probability of Species at Risk occurrence at the Project Site. Therefore, wildlife surveys focused on birds, with a reconnaissance level of investigation for other wildlife species.

3.2 BREEDING-BIRD SURVEYS

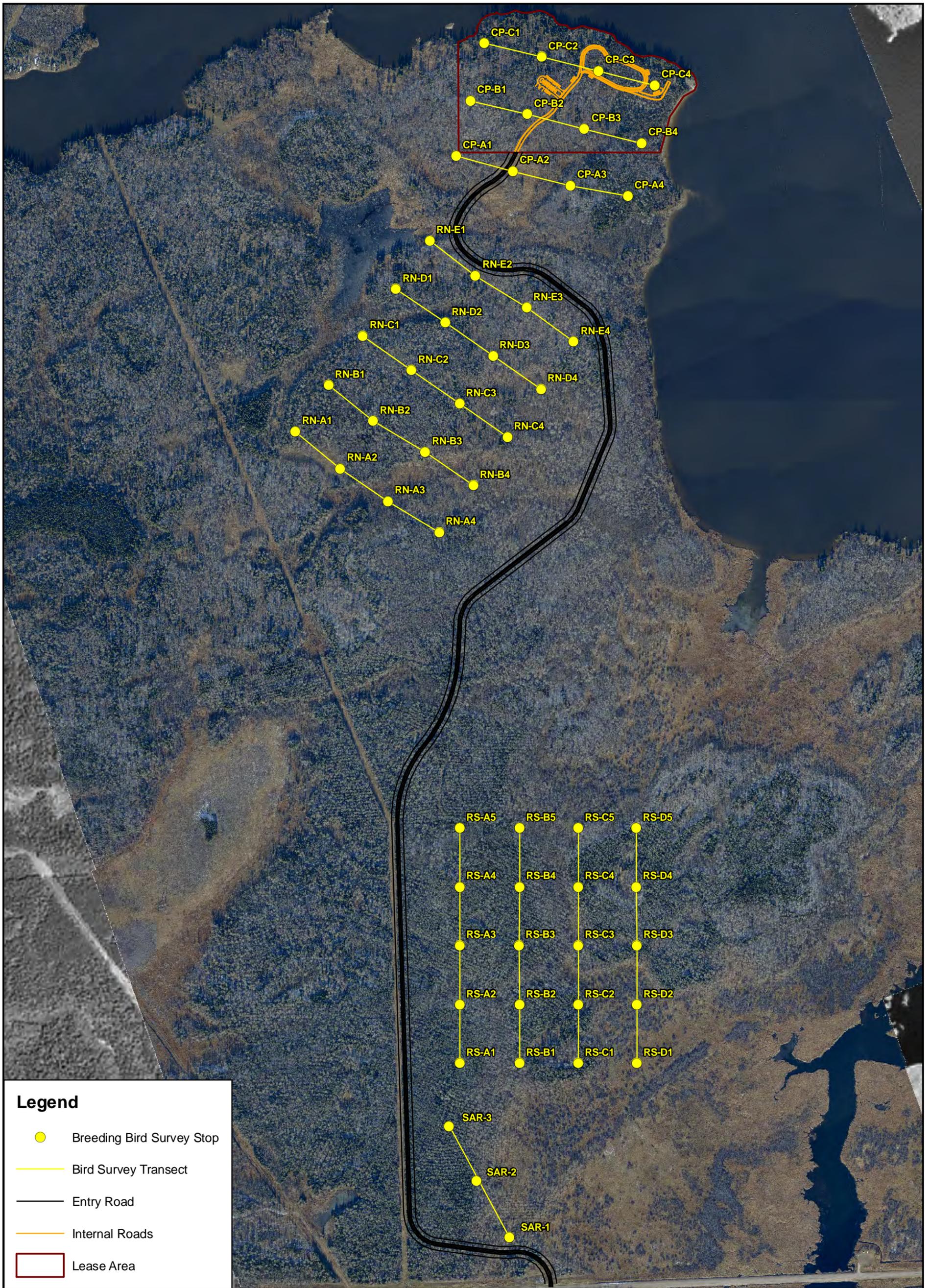
Birds were surveyed on June 22, 23 and 24, 2010, between 05:30 hours and 11:30 hours using a Fixed-Distance Point-Count method along transect lines within areas expected to be disturbed by project development and within adjacent habitat types representative of the Project Site and associated infrastructure (Figure 3-1). Bird counts were recorded during a five-minute time interval at a total of 55 point-count stops. Along each transect line illustrated in Figure 3-1, point count stops were located 150 metres (m) apart. The fixed-distance counts were limited to counts of birds within a 75-m radius of each transect line stop. Birds counted at distances greater than 75 m, or observed flying over and not landing within plots, were recorded separately.

Habitat/land cover was described at each breeding bird point count survey stop. Overstory was characterized according to the Forest Resource Inventory (FRI) coding system (Manitoba Conservation 1998) and ground cover abundance was described based on the DAFOR (i.e., dominant, abundant, frequent, occasional, rare) scale.

3.3 WILDLIFE AND WILDLIFE HABITAT RECONNAISSANCE

During bird surveys, wildlife sign (e.g., tracks, scat) were recorded when observed. Photos of representative wildlife habitats were taken and written descriptions of wildlife habitat were documented at each bird survey stop.

Reconnaissance for nesting birds also occurred enroute to bird survey stops and along the shoreline areas adjacent to the Project Site, with emphasis on searching for bald eagle nests.

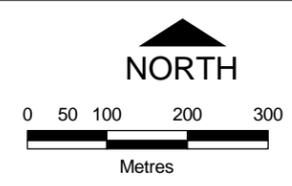


Legend

- Breeding Bird Survey Stop
- Bird Survey Transect
- Entry Road
- Internal Roads
- Lease Area



Locations of Breeding Bird Survey Stops



Acknowledgements:
 Data provided by ATLI's Geomatics (Imagery),
 Stantec (BBS Locations) and THCF
 (project lease area and proposed road)
 Projection: NAD83 Zone 14N

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4.0 Results

4.1 BIRDS

A total of 499 birds were observed within 55 point-count stops comprising a sampling area equivalent to 97 ha (or approximately 1 km²) (Appendix A, Table A-1). The mean density of birds was 5.1 + 1.8 (standard deviation) birds/ha and mean diversity of species was 7.2 species/survey stop (Appendix A, Table A-2).

Of the 54 species observed during spring surveys, 45 were passerines, three were raptors (i.e. merlin, cooper's hawk, barred owl), three were woodpeckers (i.e., pileated woodpecker, hairy woodpecker, northern flicker), and three were waterbirds¹ (i.e., Wilson's snipe, common loon, mallard) (Appendix A, Table A-1). None of the species observed are considered at risk by SARA, MESA or COSEWIC.

The four most common land cover/habitat types surveyed supported a similar average density and diversity of birds (Figure 4-1).

4.1.1 Passerines

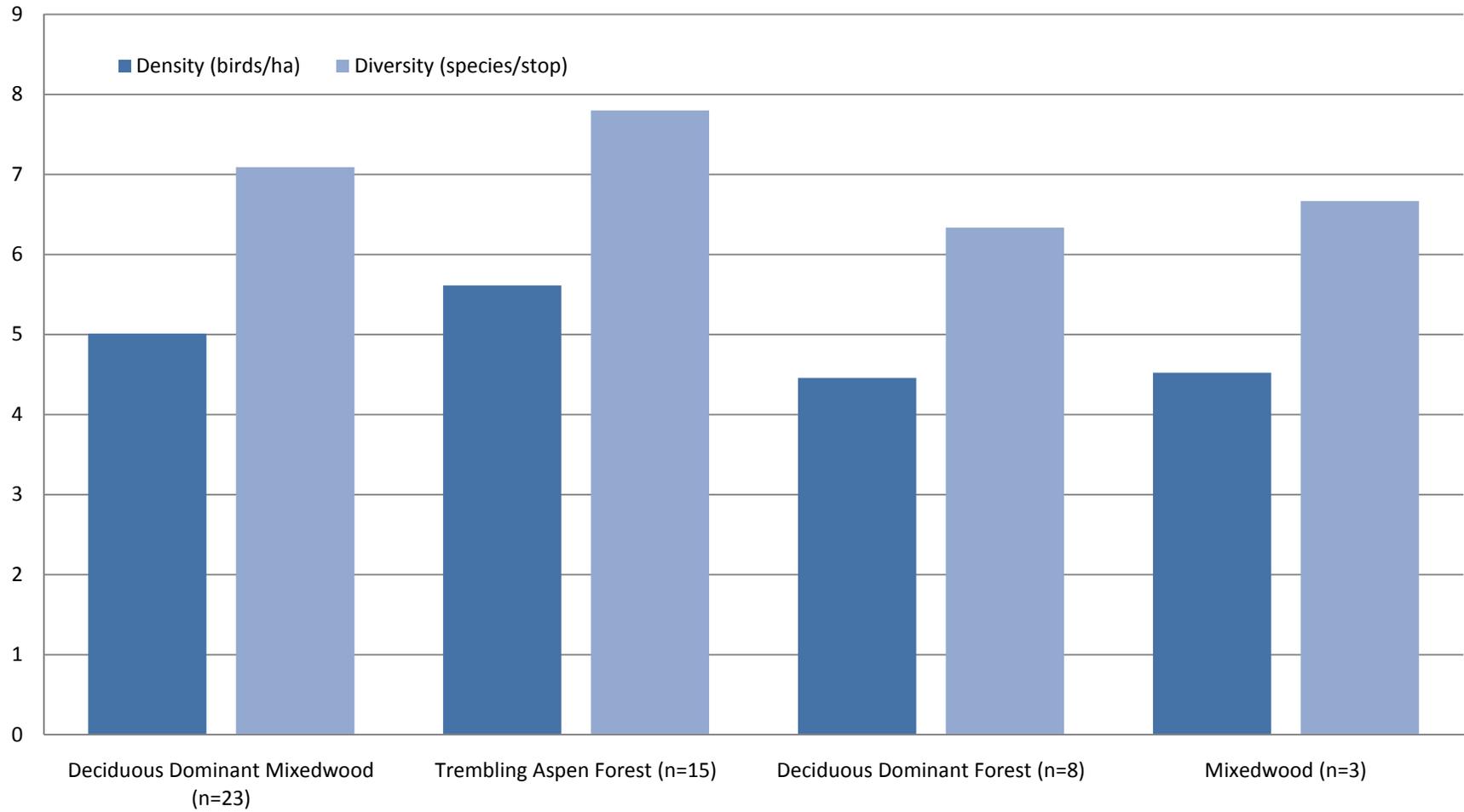
The most common and abundant birds observed during spring surveys were passerines or 'songbirds.' Nine of the 45 species of songbirds observed are resident species, 20 are neotropical migrants (overwintering in central and/or South America) and the remaining 16 species are short distance migrants, overwintering in the United States and/or Mexico (Appendix A, Table A-1).

White-throated sparrow was the most common and abundant songbird observed occurring at 91% of all stops surveyed and within all habitats surveyed (Appendix A, Table A-3). The average density of white-throated sparrow was 0.8 individuals/ha (Appendix A, Table A-1). Red-eyed vireo and ovenbird were also common, occurring within 89% and 82% of all stops surveyed, respectively. Densities of red-eyed vireo and ovenbird were similar, occurring at approximately 0.7 individuals/ha (Appendix A, Table A-1). Red-eyed vireo occurred within all habitats surveyed while ovenbird occurred within all but the willow/shrub habitat. The fourth most common species detected was the black-and-white warbler. Occurring at nearly half of all survey stops (44%), the density of black-and-white warblers was 0.27 individuals/ha (Appendix A, Table A-1). Black-and-white warblers occurred within all but the balsam fir habitat (Appendix A, Table A-3).

Most of the common and abundant species observed during surveys are species that rely upon the habitat types representative of the area (i.e., deciduous-dominated forests with a well-

¹ Waterbirds includes ducks, geese, swans, gulls, terns, grebes, herons, cormorants, pelicans, cranes, rails, bitterns, kingfishers and shorebirds

Figure 4-1: Average Diversity and Density of Birds within Representative Habitats



n= number of point count stops surveyed

Results

October 19, 2010

developed shrub understory). Both red-eyed vireo and ovenbird require large tracts of deciduous-dominated forests for breeding. Within this type of forest, presence of a well developed shrub understory is important for red-eyed vireo while canopy closure ranging between 60-90% is crucial for ovenbirds (Van Horn and Donovan 2010). Black and white warblers also breed within deciduous dominated forests, preferring mid-late successional stages (i.e., mature forest) where shrubs are well-developed (Kritcher 2010). Like red-eyed vireo and ovenbird, black-and-white warblers are more abundant within forest interiors as opposed to forest edge habitats (Kritcher 2010).

Uncommon bird species were those that were detected in only one habitat type and occurred at overall average densities below 0.02 individuals/ha (Appendix A, Tables A-1 and A-3). Their low abundance is generally attributed to the lack of suitable or preferred breeding habitat in the area. Uncommon species include:

- Connecticut warbler, a species that breeds within wet conifer-dominated habitats
- Boreal chickadee, a species that breeds within mature conifer forests
- American robin, a species that breeds within young spruce forest, riparian area
- Nelson's sharp-tailed sparrow and savannah sparrow, species that breed within grassland habitats
- Wilson's warbler, a species that breeds within mesic (moderately moist) shrub thickets associated with wetlands and other riparian areas

Wet meadow/grassland and conifer-dominated forest types are uncommon in the area. As expected, birds that require these habitat types for breeding are also less common.

4.1.2 Woodpeckers

Three species of woodpeckers, pileated woodpecker, hairy woodpecker and northern flicker, were observed during spring surveys (Appendix A, Table A-1). While all three species breed within the mature woodlands typical of the area only the pileated and hairy woodpeckers are considered resident. Northern flicker likely migrate in the late fall, overwintering within areas just south of Manitoba (MB Naturalist Society 2003). The density of pileated woodpecker was 0.04 birds/ha while hairy woodpecker and northern flicker occurred at densities averaging 0.01 individuals/ha (Appendix A, Table A-1).

4.1.3 Raptors

Three species of raptors, Cooper's hawk, barred owl and merlin, were observed during spring surveys (Appendix A, Table A-1). Barred owl is a year-round resident while Cooper's hawk and Merlin, like most hawks and falcons breeding in Manitoba, migrate to southern parts of their

range for the winter. Each of the three raptor species observed occurred at low densities (i.e., 0.01 individuals/ha) (Appendix A, Table A-1). While no bald eagles were observed during the course of spring surveys, they are known to occur locally.

4.1.4 Waterbirds

Three species of waterbirds, Wilson's snipe, mallard and common loon were observed during spring surveys (Appendix A, Table A-1). Wilson's snipe, an inland shorebird, is a common breeder in Manitoba, nesting on grassy hummocks in or near marshes and bogs (MB Naturalists Society 2003). Mallard, a dabbling duck, nest in upland areas and rear broods on wetlands, ponds and lakes where emergent vegetation (e.g., sedge) is present. Common loons are fish-eating birds that nest along the shores of lakes and rivers, usually in secluded areas alongside an island or marshy bay (MB Naturalist Society 2003). Although breeding bird surveys targeted the terrestrial songbird community, the presence of shorebirds, ducks, loons and other waterbirds in the area is expected given the presence of Sylvia Lake, beaver floods and other nearby wetlands.

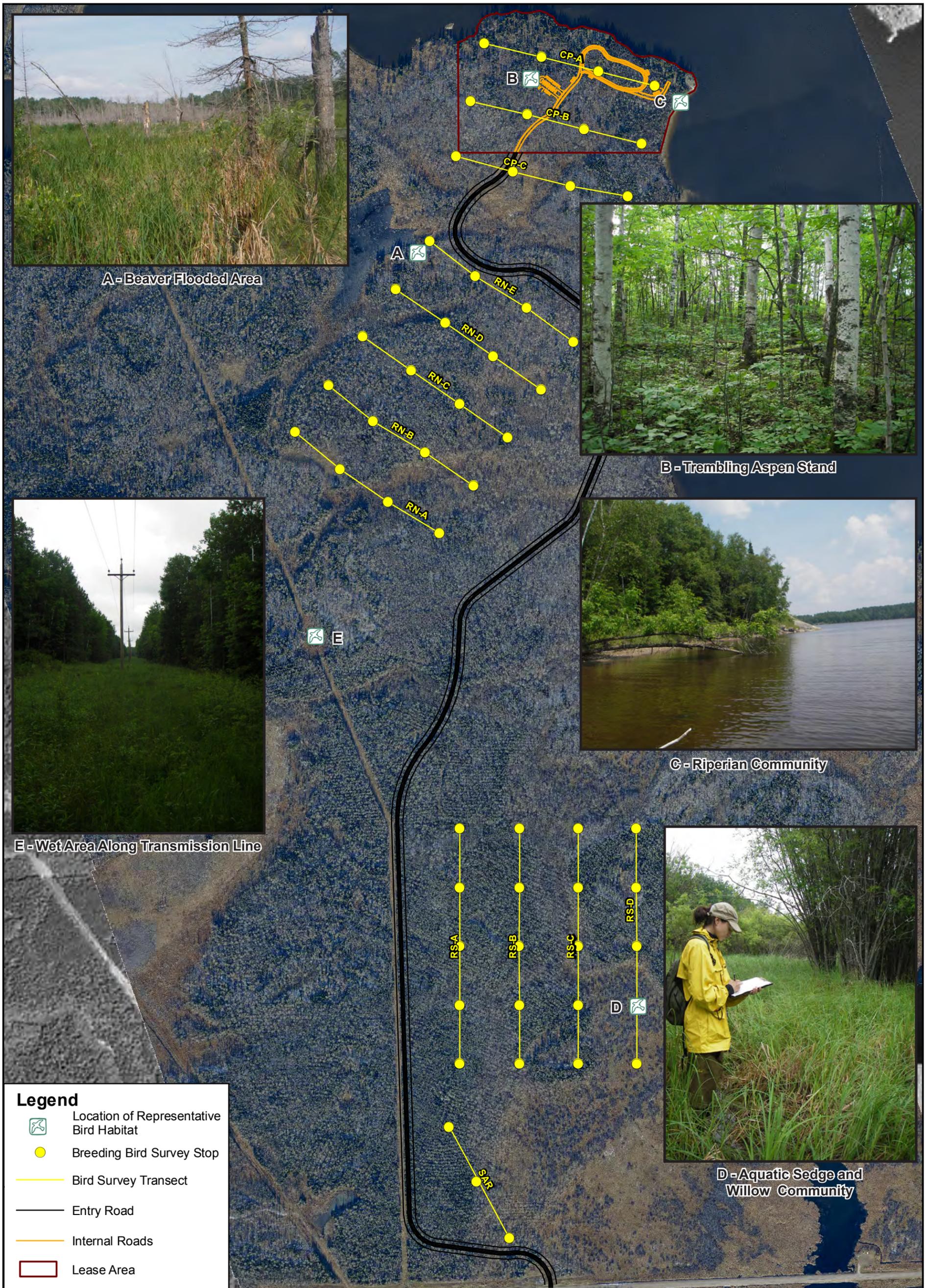
4.2 WILDLIFE AND WILDLIFE HABITAT

Representative photos of wildlife habitat taken during birding bird surveys illustrate that the majority of the Project Site and the vicinity of the proposed access road consisted of primarily moist to wet mature mixedwood forest (Figure 4-2). A description of representative wildlife habitats at those survey stops is provided in Appendix B. Dominant overstory tree species included trembling aspen, white spruce, green ash, balsam fir and white birch. Pools of standing water within the forested areas were frequent with low areas containing understory plants associated with moist to wet forests (e.g., aquatic sedges, equisetum, fern, strawberry, and willow).

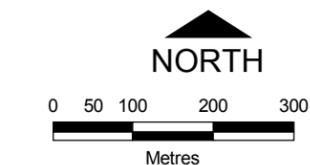
Habitat along the existing hydro distribution line along which the majority of the access road will follow, is primarily low and wet with grasses and aquatic sedges and other aquatic plants being the dominant vegetation within the transmission line right-of-way (ROW). One area approximately 150 m in length along the ROW is a wetland approximately 80 cm deep with evidence of muskrat (a muskrat house and trail) occurring in that wetland (Figure 4-2).

Other inland waterbody areas of note, in the vicinity of the Project Site, were an approximately 4.0 ha beaver flooded area and a large sedge and willow wetland (Figure 4-2).

The majority of wildlife sign encountered during bird surveys and reconnaissance was abundant white-tailed deer sign (tracks, trails) including the skull of a young fawn (Figure 4-3). Red squirrels were heard and seen occasionally during breeding bird surveys, but were not particularly abundant. River otter scat was present along the bedrock outcrop shoreline area at the proposed camp site. Recent beaver activity was observed near the shoreline south of the proposed Project Site.



Representative Habitat at Bird Survey Stops



Acknowledgements:
 Data provided by ATLAS Geomatics (Imagery),
 Stantec (BBS Locations) and THCF
 (project lease area and proposed road)
 Projection: NAD83 Zone 14N

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MAP SCALE		DATA SCALE	
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A - Otter Scat along Shoreline



B - Deer Tracks along Shoreline



C - Recent Beaver Activity



D - Fish fry Among Cattails



E - Red-Eyed Vireo Nest in White Birch



F - Young White-Tailed Deer Skull



F

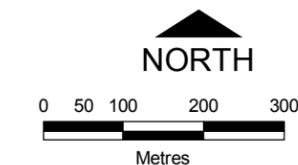
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Legend

-  Wildlife Sign
-  Black Bear Scat Observed
-  Entry Road
-  Internal Roads
-  Lease Area



Wildlife Signs Observed During Reconnaissance at the Project Site



Acknowledgements:
Data provided by ATLAS Geomatics (Imagery),
Stantec (Wildlife Signs) and THCF
(project lease area and proposed road)
Projection: NAD83 Zone 14N

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MAP SCALE
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5.0 Key Observations

The following are key observations made during surveys and reconnaissance:

- The proposed Project Site and surrounding environs do not contain wildlife habitat that is rare or unique to the Ecodistricts that encompass the study area.
- No wildlife Species at Risk were observed during surveys or reconnaissance.
- No bald eagles or their nests were observed.
- Species observed during bird surveys were common to the Lake of the Woods Ecoregion (USGS Patuxent Wildlife Research Centre 2010).
- There was abundant old and recent beaver sign in the study area, especially near the lake shoreline south of Project Site and the largest flooded area near the proposed Project Site.
- Otter sign was observed along the bedrock outcrop shoreline area at the proposed Project Site.
- A muskrat house and sign of recent activity occurred in the lowest wet area along the existing transmission line.
- The area generally consists of moist-to-wet mature mixedwood forest dominated by trembling aspen, white spruce, green ash, balsam fir and white birch (surveys for rare plants were outside the scope of this study).

6.0 Closure

This report was prepared on behalf of Tim Horton Children's Foundation. The report may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd. and Tim Horton Children's Foundation.

Any use which a third party makes of this report, or any reliance on decisions made based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The information, results and discussion contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The discussion presented represents the best judgment of Stantec Consulting Ltd. based on the data obtained from the work and on the site conditions encountered at the time the work was performed at the specific sampling, testing, and/or observation locations.

This report was prepared by Marlene Gifford, Angele Watrin-Prodaehl and Leane Wyenberg, and was reviewed by Blair McMahon.

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**Appendix A:
Breeding-Bird Survey Data**

Table A-1: Species Observed During Spring Breeding-Bird Surveys

Species	Migratory Status ¹	Number of Birds	Density/ha	Number of Stops Species was Detected	Frequency (%) of Occurrence ²
Songbirds					
White-throated Sparrow	SD	77	0.79	50	91
Red-eyed Vireo	NM	67	0.69	49	89
Ovenbird	NM	66	0.68	45	82
Black-and-white Warbler	NM	26	0.27	24	44
Common Yellowthroat	NM	20	0.21	18	33
Hermit Thrush	SD	19	0.20	17	31
Least Flycatcher	NM	27	0.28	17	31
Nashville Warbler	NM	18	0.18	17	31
Blue Jay	R	14	0.14	13	24
American Redstart	NM	15	0.15	11	20
Chestnut-sided Warbler	NM	9	0.09	9	16
Veery	NM	10	0.10	9	16
Black-capped Chickadee	R	9	0.09	8	15
Rose-breasted Grosbeak	NM	8	0.08	8	15
Swamp Sparrow	SD	9	0.09	8	15
Chipping Sparrow	SD	7	0.07	7	13
Winter Wren	SD	7	0.07	7	13
Blackburnian Warbler	NM	6	0.06	6	11
American Crow	R	8	0.08	5	9
American Goldfinch	SD	5	0.05	5	9
Eastern Wood-Pee-wee	NM	5	0.05	5	9
Great Crested Flycatcher	NM	5	0.05	5	9
Common Raven	R	5	0.05	3	5
Cedar Waxwing	R	4	0.04	3	5
Brown Creeper	SD	3	0.03	3	5
Grasshopper Sparrow	SD	3	0.03	3	5
Gray Jay	R	3	0.03	3	5
Eastern Kingbird	NM	3	0.03	2	4
Red-breasted Nuthatch	R	3	0.03	2	4
Red-winged Blackbird	SD	3	0.03	2	4
Mourning Warbler	NM	2	0.02	2	4
Palm Warbler	NM	2	0.02	2	4
Black-throated Green Warbler	NM	2	0.02	2	4
Sedge Wren	SD	2	0.02	2	4
Vesper Sparrow	SD	2	0.02	2	4
White-breasted Nuthatch	R	2	0.02	2	4
Yellow Warbler	NM	2	0.02	2	4
Common Grackle	SD	2	0.02	1	2
Wilson's Warbler	NM	1	0.01	1	2
Song Sparrow	SD	1	0.01	1	2
American Robin	SD	1	0.01	1	2
Boreal Chickadee	R	1	0.01	1	2
Nelson's Sharp-tailed Sparrow	SD	1	0.01	1	2
Connecticut Warbler	NM	1	0.01	1	2
Savannah Sparrow	SD	1	0.01	1	2
Woodpeckers					
Pileated Woodpecker	R	4	0.04	3	5
Hairy Woodpecker	R	1	0.01	1	2

Table A-1: Species Observed During Spring Breeding-Bird Surveys

Species	Migratory Status¹	Number of Birds	Density/ha	Number of Stops Species was Detected	Frequency (%) of Occurrence²
Northern Flicker	SD	1	0.01	1	2
<i>Waterbirds</i>					
Wilson's Snipe	SD	1	0.01	1	2
Mallard	SD	1	0.01	1	2
Common Loon	SD	1	0.01	1	2
<i>Raptors</i>					
Cooper's Hawk	SD	1	0.01	1	2
Barred Owl	R	1	0.01	1	2
Merlin	SD	1	0.01	1	2
Total # of Birds Observed					499
Total # of Point Count Stops Surveyed					55
Total Species Count					54

¹ NM= neotropical migrant (overwintering in central and south america); SD= short distant migrant (overwintering in the United States and/or Mexico); R= resident

² % of survey points within which species was detected

**Table A-2: Mean Breeding-Bird Density and Diversity within Representative Habitat Types
Sylvia Lake, Manitoba 2010**

Habitat Type¹	Sample Size (# stops surveyed)	Number of Birds (excluding fluffers)	Density (75m radius)	StDev	Average Species Count	StDev
Deciduous Dominant Mixedwood	23	195	5.0	2.1	7.1	2.7
Trembling Aspen Forest	15	149	5.6	1.9	7.8	2.9
Deciduous Dominant Forest	8	71	4.5	0.9	6.3	1.7
Mixedwood	3	24	4.5	1.5	6.7	1.5
Willow/Shrub	2	25	7.1	2.8	11.5	3.5
Balsam Fir Forest	1	9	5.1	-	6.0	-
Conifer Dominant Mixedwood	1	8	4.5	-	5.0	-
Green Ash Forest	1	8	4.5	-	6.0	-
White Birch Forest	1	10	5.6	-	9.0	-
Grand Total	4	499	5.1	1.8	7.3	2.6

¹ Habitat characterization based on Manitoba's Forest Resource Inventory codes (Manitoba Conservation 1998)

Appendix B: Representative Habitat Descriptions

Table B-1: Representative Habitat¹ Descriptions, Sylvia Lake Camp Project Site: June 22-24, 2010

Transect	Stop #	Easting	Northing	Date	Overstory Description	% TA	% GA	%WB	% Spruce	% BF	% BP	% Elm	Age Class	Understory ²	Groundcover ²	Comments
CP	A1	722922	5558320	24-Jun-10	Aspen Dominant Hardwood Forest	80		20					4	Hazel (F), Rose (F), Goldenrod (A), Willow (O)	Grasses (A) to (D)	Ranging from grassy openings to dense understory
CP	A2	723067	5558281	24-Jun-10	Aspen Forest	100							2-3	Goldenrod (F), Raspberry (O), Anemone (O)	Grasses (D)	Edge of grass meadow with occasional Willow clumps and young Trembling Aspen along the periphery
CP	A3	723213	5558245	24-Jun-10	Aspen Dominant Mixedwood	75	15		10				3-4	Hazel (D), Raspberry (A), Sasparilla (F)	Deadfall (F), Grasses (A)	Edge of forest with Willow-bordered Sedge and Willow wetland nearby (approx. 20m to the NW); dense understory
CP	A4	723360	5558218	24-Jun-10	Balsam Fir Dominant Mixedwood	20 (very old)	10 (most younger)			70 (many younger)			Variable 3-5	Sasparilla (O)	Leaf litter (D), Moss (F), Deadfall (O)	Dense overstory and sparse understory
CP	B1	722958	5558462	24-Jun-10	Aspen Forest	90	5	5					3-4	Young Green Ash (F), Fern (F), Coltsfoot (F), Strawberry (A), Sasparilla (F), Rose (F)		Some more open areas nearby but mostly canopy closure of 75%
CP	B2	723103	5558427	24-Jun-10	Aspen Dominant Hardwood Forest	85	10		5				3-4	Willow (F), young Green Ash (F), Strawberry (A), Raspberry (F), Dewberry (O), Northern Bedstraw (F)	Grasses (D)	Wet
CP	B3	723249	5558389	24-Jun-10	Aspen Dominant Hardwood Forest	65		35					4	Sasparilla (F), Poison Ivy (O), Ferns (D), Hazel (F), young Green Ash (O)		

Table B-1: Representative Habitat¹ Descriptions, Sylvia Lake Camp Project Site: June 22-24, 2010

Transect	Stop #	Easting	Northing	Date	Overstory Description	% TA	% GA	%WB	% Spruce	% BF	% BP	% Elm	Age Class	Understory ²	Groundcover ²	Comments
CP	B4	723394	5558353	24-Jun-10	Variable Species Hardwood Forest	30	40	30					4-3	Young White Spruce (O), young Balsam Fir (O), young Green Ash (O), young Trembling Aspen (O), Sasparilla (F), Poison Ivy (O)	Leaf litter (F)	Dryer (moist woods, not wet), but very wet areas nearby within 50m)
CP	C1	722994	5558609	24-Jun-10	Variable Species Mixedwood	30	10	30	20	10			Variable 2-4	Young Green Ash (F), Strawberry (A), young Trembling Aspen (A), tall Willows (F)	Grasses (A)	Frequent low wet areas
CP	C2	723140	5558573	24-Jun-10	Aspen Dominant Mixedwood	50		20	15	15			Variable 2-4	Saskatoon (O), Goldenrod (F) to (O), Bunchberry (O), young Trembling Aspen (F)	Grasses (F)	On a bedrock outcrop (sparsely treed with dense forest around), with low, wet area to the N (approx. 25m away)
CP	C3	723285	5558537	24-Jun-10	White Birch Dominant Mixedwood Forest			85	5	10			3-4	Raspberry (A), Goldenrod (F), Hazel (F)	Grasses (F)	On a bedrock outcrop 8m x 4m in size (others nearby); one oak
CP	C4	723428	5558501	24-Jun-10	Variable Species Hardwood Forest	35	30	30		5			Variable 3-5	Hazel (F), Sasparilla (A), Raspberry (F), young Trembling Aspen (F), Goldenrod (O)		Dryer bedrock outcrop covered with vegetation

Table B-1: Representative Habitat¹ Descriptions, Sylvia Lake Camp Project Site: June 22-24, 2010

Transect	Stop #	Easting	Northing	Date	Overstory Description	% TA	% GA	%WB	% Spruce	% BF	% BP	% Elm	Age Class	Understory ²	Groundcover ²	Comments
RN	A1	722512	5557617	23-Jun-10	Aspen Dominant Hardwood Forest	60		30		10			4	Sasparilla (A), young Green Ash (F), Strawberry (F), Northern Bed Straw (F)	Grasses (F)	1 Oak tree; low, wet areas nearby
RN	A2	722627	5557522	23-Jun-10	Aspen Forest	100							2-3	Snowberry (F) to (O), young Balsam Fir (O)	Grasses (D)	At edge of damp meadow (approx. 100m x 60m) with Canada Anemone, grasses, sedges, Solidego sp.
RN	A3	722749	5557438	23-Jun-10	Green Ash Dominant Hardwood Forest	25	45	30					Variable 2-4	Alder (D), Willow (F)	Sedges (D)	In a wet Alder thicket with aquatic sedges and Willow, surrounded by Green Ash
RN	A4	722879	5557360	23-Jun-10	Green Ash Dominant Hardwood Forest	30	55	15					3-4	Sasparilla (A), Strawberry (F), young Balsam Fir (O)	Grasses (A), Deadfall (F)	
RN	B1	722597	5557735	23-Jun-10	Aspen Dominant Mixedwood	65		5	15	15			Variable with old growth 3-5	Hazel (O), Goldenrod (F), Strawberry (F), young Trembling Aspen (F), Coltsfoot (A), Bunchberry (F)	Grasses (F)	
RN	B2	722711	5557644	23-Jun-10	Aspen Dominant Mixedwood	55		30	10	5			Variable 2-4	Strawberry (A), Hazel (F), Fern (O), young Green Ash (O)		

Table B-1: Representative Habitat¹ Descriptions, Sylvia Lake Camp Project Site: June 22-24, 2010

Transect	Stop #	Easting	Northing	Date	Overstory Description	% TA	% GA	%WB	% Spruce	% BF	% BP	% Elm	Age Class	Understory ²	Groundcover ²	Comments
RN	B3	722844	5557564	23-Jun-10	Aspen Forest	90	5	5					Variable 2-4	Strawberry (F), young Balsam Fir (O), Water Hemlock (O), Willow (O)	Grasses (D)	Wet
RN	B4	722966	5557479	23-Jun-10	Aspen Forest	90	10						3-4	Willow (F), young Green Ash (F), Gooseberry (O), young Balsam Fir (O)	Sedges (D)	Wet area
RN	C1	722684	5557861	23-Jun-10	Aspen Dominant Hardwood Forest	80		10			10		2-3	Coltsfoot (F), Bunchberry (F), Sasparilla (F), young dead Balsam Fir	Leaf litter (F)	
RN	C2	722808	5557773	23-Jun-10	Aspen Dominant Hardwood Forest	60		30		5 (most young and dead)		5	Variable 2-4	Coltsfoot (F), Bunchberry (F), Sasparilla (F), young dead Balsam Fir	Leaf litter (F)	
RN	C3	722931	5557688	23-Jun-10	Aspen Dominant Mixedwood	85				15			Variable 4-2	Bunchberry (F), Strawberry (F), young Green Ash (O)	Grasses (F), Deadfall (F)	Frequent open areas
RN	C4	723053	5557602	23-Jun-10	Aspen Dominant Mixedwood	85			15				3-4 (mostly small)	Willow (F), young Green Ash (O), Strawberry (F), Water Hemlock (O)	Sedges (A), Grasses (A)	Mostly small, wet, grassy openings with Willow
RN	D1	722769	5557981	23-Jun-10	Variable Species Mixedwood	40		30		30			Variable 3-4	Ferns (A), young Green Ash (O), Strawberry (F)		Low, wet areas nearby

Table B-1: Representative Habitat¹ Descriptions, Sylvia Lake Camp Project Site: June 22-24, 2010

Transect	Stop #	Easting	Northing	Date	Overstory Description	% TA	% GA	%WB	% Spruce	% BF	% BP	% Elm	Age Class	Understory ²	Groundcover ²	Comments
RN	D2	722894	5557895	23-Jun-10	Variable Species Mixedwood	15	10	40	20	15			Variable	Young Green Ash (F), Strawberry (A), Coltsfoot (O)	Deadfall (F)	Small wet sedge and willow meadow nearby (approx. 30m x 30m)
RN	D3	723016	5557810	23-Jun-10	Aspen Dominant Hardwood Forest	75	25						4-3	Young Green Ash (F), Willow (A), young Trembling Aspen (F), some standing dead	Sedges (D)	At a wet Willow and Sedge opening surrounded by Green Ash and Trembling Aspen forest
RN	D4	723138	5557725	23-Jun-10	Aspen Dominant Hardwood Forest	85	15						Variable 2-4	Willow (O), Currant (O), Gooseberry (O)	Grasses (D)	Near a wet meadow (approx. 40m x 20m)
RN	E1	722855	5558104	23-Jun-10	Variable Species Mixedwood	50		30	20				Variable	Standing dead stumps (A), Willow (A), Alder (F), Hazel (F)	Sedges (D)	At edge of large beaver flood area; abundant standing dead stumps in water; periphery is Sedges, bordered by Willow, Alder and Hazel
RN	E2	722972	5558015	23-Jun-10	Aspen Dominant Mixedwood	60		20	10	10			Variable 2-4	Strawberry (A), Rose (O), Raspberry (O), Sasparilla (O)	Grasses (D)	
RN	E3	723102	5557933	23-Jun-10	Aspen Dominant Mixedwood	75		15		10			Variable 2-5	Young Trembling Aspen (F), Willow (F), Strawberry (O)	Grasses (D)	Wet

Table B-1: Representative Habitat¹ Descriptions, Sylvia Lake Camp Project Site: June 22-24, 2010

Transect	Stop #	Easting	Northing	Date	Overstory Description	% TA	% GA	%WB	% Spruce	% BF	% BP	% Elm	Age Class	Understory ²	Groundcover ²	Comments
RN	E4	723222	5557846	23-Jun-10	Variable Species Mixedwood	45		40	5	10			Variable 3-4	Young Green Ash (O), young Elm (R), Saskatoon (O), Fern (O), Hazel (O), Poison Ivy (O), young Trembling Aspen (F)		
RS	A1	722932	5556004	22-Jun-10	Aspen and Baslam Fir Mixedwood	40	10			50			3-4	Strawberry (O), Violet (O), Sasparilla (O)	Leaf litter (A), Deadfall (F), Moss (O)	80% canopy closure
RS	A2	722932	5556154	22-Jun-10	Variable Species Mixedwood	20	30			20	30		3-4	Fern (O), Sasparilla (F), High Bush Cranberry (O), Strawberry (F)	Deadfall (F)	Moist and dense with openings
RS	A3	722932	5556305	22-Jun-10	Aspen and Baslam Fir Mixedwood	50	10	10		30			3	Rubus sp. (O), Bunchberry (F), Sasparilla (F), Strawberry (F)	Leaf litter (A)	Wet forest
RS	A4	722932	5556454	22-Jun-10	Aspen Dominant Mixedwood	80		10		10			3	Sasparilla (F)	Leaf litter (A), Moss (F)	80% canopy closure
RS	A5	722932	5556604	22-Jun-10	Variable Species Mixedwood	20	40			10	30		3-4	Strawberry (O), Fern (F), Rubus sp. (O)	Deadfall (F), Grass/Sedge (F)	Frequent water pools
RS	B1	723083	5556004	22-Jun-10	Aspen Dominant Mixedwood	60	10		30				3-4	Sasparilla (A), young Green Ash (F)	Grass/Sedge (A)	Frequent small ponds (approx. 20m x 10m); very wet

Table B-1: Representative Habitat¹ Descriptions, Sylvia Lake Camp Project Site: June 22-24, 2010

Transect	Stop #	Easting	Northing	Date	Overstory Description	% TA	% GA	%WB	% Spruce	% BF	% BP	% Elm	Age Class	Understory ²	Groundcover ²	Comments
RS	B2	723083	5556154	22-Jun-10	Aspen Dominant Mixedwood	70	10			20			3-4	Sasparilla (F), Rubus sp. (F), young Green Ash (O)	Leaf litter (A)	
RS	B3	723082	5556305	22-Jun-10	Aspen Dominant Mixedwood	70	10			20			3-4	Wild Lily of the Valley (A), Sasparilla (F), Strawberry (F)	Leaf litter (A), Grass (O)	
RS	B4	723083	5556454	22-Jun-10	Aspen Dominant Mixedwood	75		10		15			3-4	Sasparilla (O), Rose (O), Strawberry (O) to (F)	Leaf litter (A)	
RS	B5	723083	5556604	22-Jun-10	Green Ash Forest		95			5			3-4	Young Ash (F)	Wet Sedge (D), Equisetum (O), approx. 1/2" water	More open understory
RS	C1	723232	5556004	22-Jun-10	Aspen Forest	90			10				4-3	Hazel (A) - in more open areas, young Green Ash (F), Fern (O) to (F), Strawberry (A)		Low, wet areas nearby; shrubby understory
RS	C2	723232	5556154	22-Jun-10	Aspen Dominant Mixedwood	65	10		25				Mixed age 2-4	Hazel, Sasparilla (A)	Leaf litter (A)	Wet sedge meadow within 50 metres north; land rising here to the SE
RS	C3	723232	5556305	22-Jun-10	Aspen Dominant Hardwood Forest	70	30						4-3	Young Green Ash (F), Dogwood (O)	Sedges (D)	At wet meadow (approx. 25m x 15m)
RS	C4	723233	5556454	22-Jun-10	Balsam Fir Dominant Mixedwood	40				60			4-3	Sasparilla (F), Rubus sp. (O), young Fir (F)	Leaf litter (A)	
RS	C5	723233	5556604	22-Jun-10	Green Ash Dominant Hardwood Forest	(very matu	65	10					Variable 2-4	Fern (F)	Sedges (A), Equisetum (F)	Very wet

Table B-1: Representative Habitat¹ Descriptions, Sylvia Lake Camp Project Site: June 22-24, 2010

Transect	Stop #	Easting	Northing	Date	Overstory Description	% TA	% GA	%WB	% Spruce	% BF	% BP	% Elm	Age Class	Understory ²	Groundcover ²	Comments
RS	D1	723382	5556004	22-Jun-10	Sedge & Willow Wetland									Dense clumps of mature Willow (D) approx. 7m tall	Open Sedge (D) area	Willow/sedge wetland; approx. 3" of water; occasional aspen forest; aspen forest approx. 60m E
RS	D2	723382	5556154	22-Jun-10	Sedge & Willow Wetland									Dense clumps of mature Willow (D) approx. 7m tall	Open Sedge (D) area	Calm, overcast day; birds singing later in the morning; habitat change - willow/sedge wetland; approx. 3" of water
RS	D3	723382	5556305	22-Jun-10	Variable Species Mixedwood	45	5		50				4-3	Sasparilla (A), Hazel (A)	Leaf litter (F), Grasses (F)	
RS	D4	723381	5556454	22-Jun-10	Aspen Forest	90			5	5			4-5	Hazel (D), Sasparilla (A), Saskatoon (O)	Deadfall (F)	50m to N is a raised bedrock outcrop
RS	D5	723381	5556604	22-Jun-10	Variable Species Mixedwood	40	40		20				Variable 3-5	Young Green Ash (F)	Sedges (A), Equisetum (F)	Wet; approx. 1" water
SAR	1	294075	5554870	22-Jun-10	Aspen Forest	90	10						4	Willow (F), Deadfall (F)	Sedge (D) in nearby meadow	At edge of wet sedge meadow
SAR	2	294003	5555021	22-Jun-10	Aspen Dominant Mixedwood	75			25				3-4	Sasparilla (F), Strawberry (F), Young Balsam Spruce (O)		At edge of aspen moist forest and spruce forest
SAR	3	293945	5555165	22-Jun-10	Aspen and Spruce Mixedwood	50	5		45				3	Sasparilla (O), Strawberry (O), Violet (D)	Wet moss (O)	

¹ Habitat descriptions based on the Forest Resource Inventory (FRI) classification system

TA = Trembling Aspen, GA = Green Ash, spruce = White Spruce, WB = White Birch, BF = Balsam Fir, BP = Balsam Poplar, Elm = American Elm

² DAFOR scale was used to assess abundance of vegetation types: D=Dominant; A=Abundant; F=Frequent; O=Occasional; R=Rare