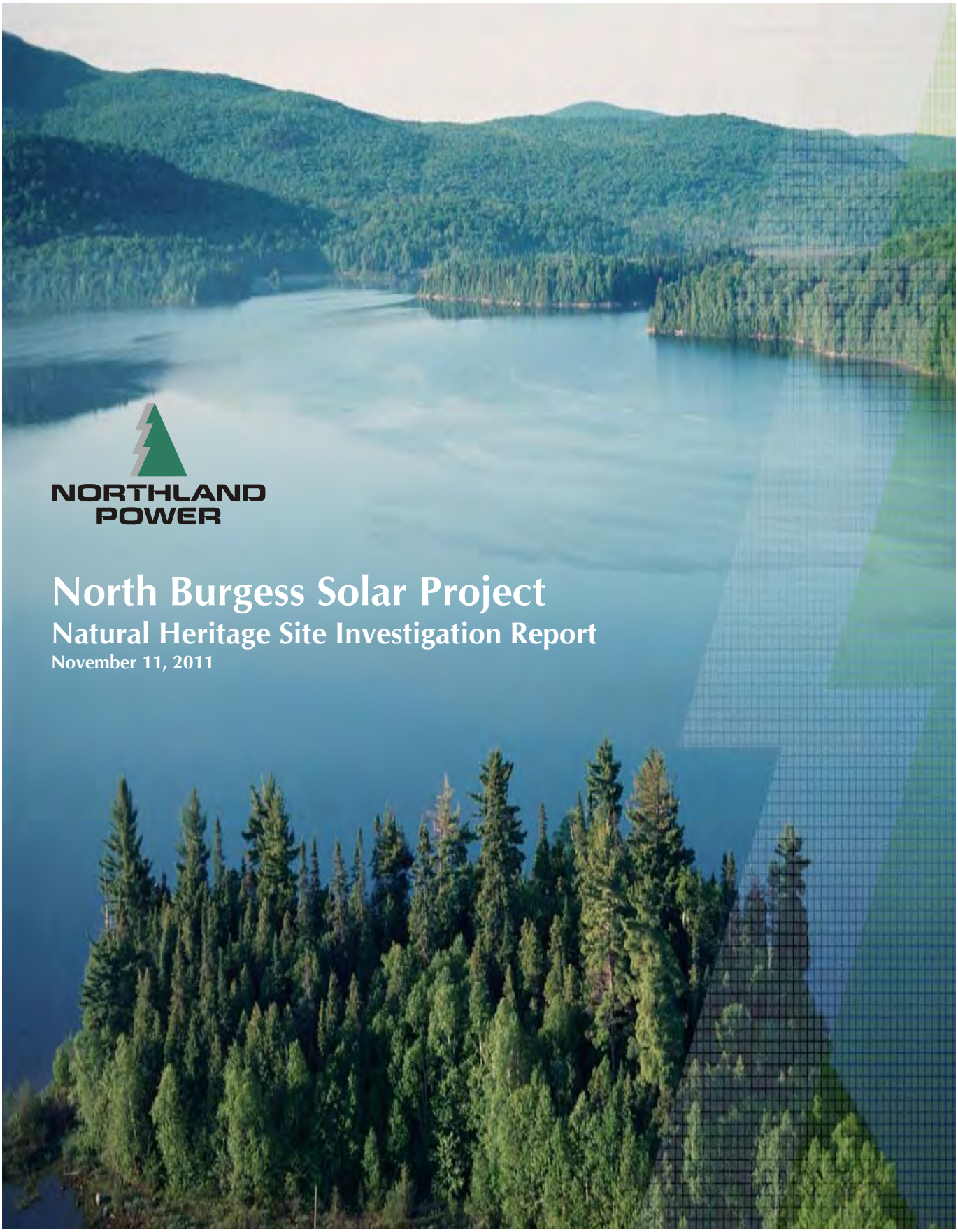


NORTHLAND POWER

North Burgess Solar Project

Natural Heritage Site Investigation Report

November 11, 2011

Northland Power Inc.
on behalf of
Northland Power Solar
North Burgess L.P.
Toronto, Ontario

Natural Heritage
Site Investigation Report

North Burgess Solar Project

H334844-0000-07-124-0109
Rev. 1
November 11, 2011

Project Report

November 11, 2011

Northland Power Inc.

North Burgess Solar Project

Natural Heritage Site Investigation Report

Table of Contents

List of Tables

List of Figures

Blank back

1. Introduction

1.1 Project Description

Northland Power Inc. on behalf of Northland Power Solar North Burgess L.P. (hereinafter referred to as "Northland") is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled North Burgess Solar Project (hereinafter referred to as the "Project").

The Project is located on a property approximately 78 hectares (ha) in size and is situated on Narrows Lock Road near the intersection with Scotch Line, within the Township of Tay Valley, within Lanark County (Figure 1.1).

1.2 Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the REA Regulation) made under the *Environmental Protection Act* identifies the Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario. Per Section 4 of the REA Regulation, ground mounted solar facilities with a name plate capacity greater than 10 kilowatts (kW) are classified as Class 3 solar facilities and do require a REA.

Section 26 of the REA Regulation requires proponents of Class 3 solar projects to undertake a natural heritage site investigation for the purpose of determining

- whether the results of the analysis summarized in the (natural heritage records review) report prepared under Subsection 25 (3) are correct or require correction, and identifying any required corrections
- whether any additional natural features exist, other than those that were identified in the Natural Heritage Records Review) report prepared under Subsection 25 (3)
- the boundaries, located within 120 m of the project location, of any natural feature that was identified in the records review or the site investigation; and
- the distance from the project location to the boundaries determined under Clause (c).

Natural Features are defined in Section 1.1 of the REA Regulation to be all or part of

a) an area of natural and scientific interest (ANSI) (earth science)

b) an ANSI (life science)

c) a coastal wetland

d) a northern wetland

e) a southern wetland

f) a valleyland

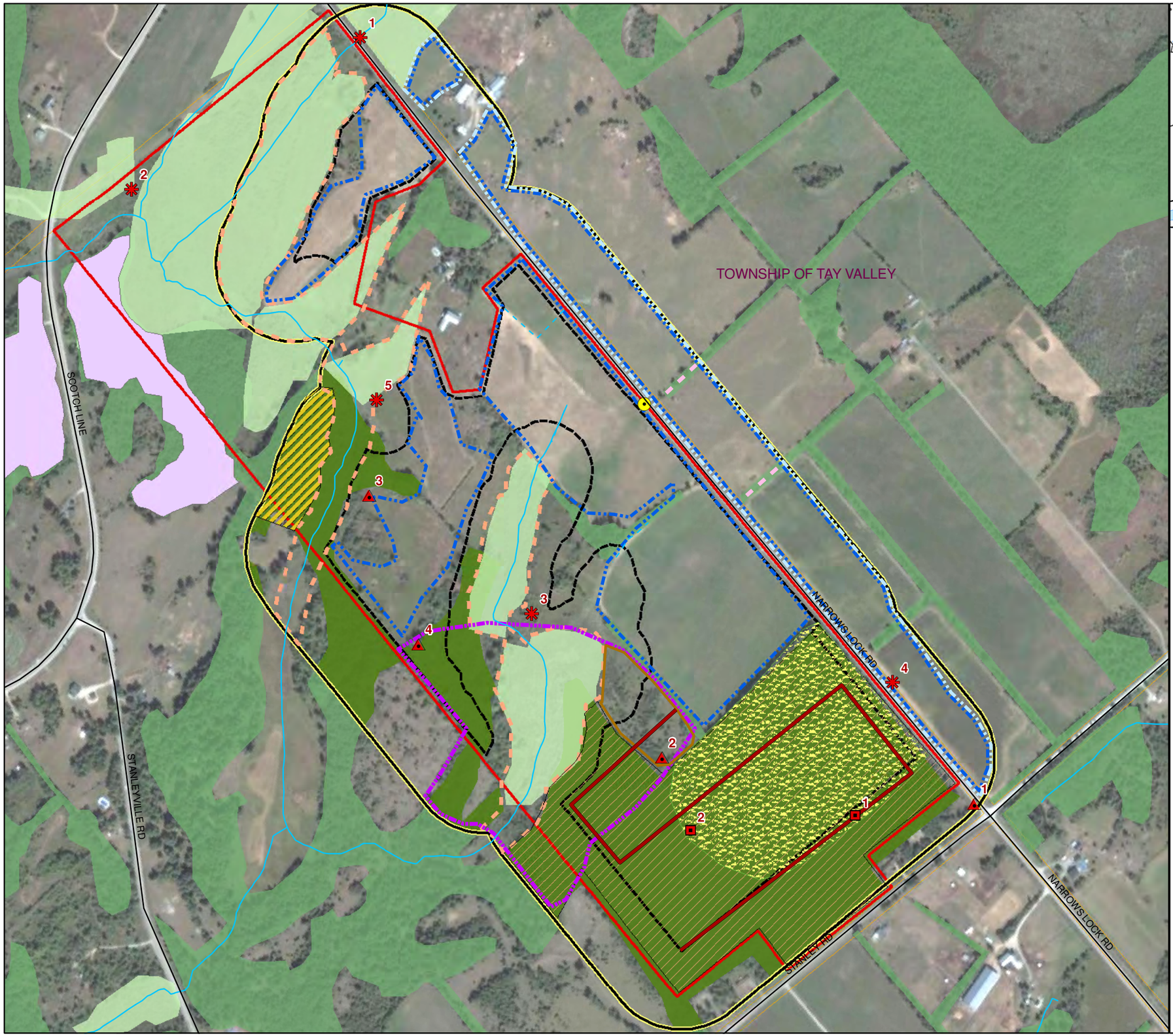
g) a wildlife habitat, or

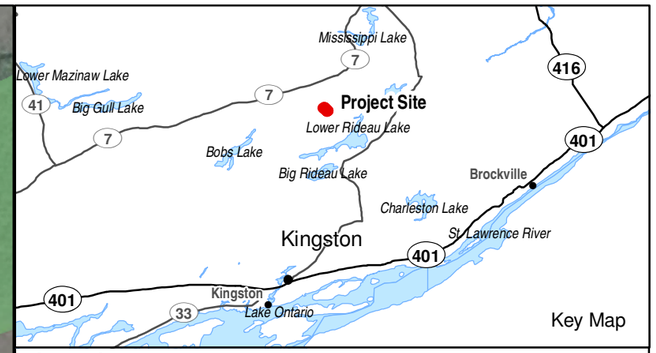
h) a woodland.

Subsection 3 of Section 26 of the REA Regulation requires the proponent to prepare a report setting out the following:

1. A summary of any corrections to the report prepared under Subsection 25 (3) and the determinations made as a result of conducting the site investigations under Subsection (1).
2. Information relating to each natural feature identified in the records review and in the site investigations, including the type, attributes, composition and function of the feature.
3. A map showing
    i. the boundaries mentioned in Clause (1) (c)
    ii. the location and type of each natural feature identified in relation to the project location
    iii. the distance mentioned in Clause (1) (d).
4. The dates and times of the beginning and completion of the site investigation.
5. The duration of the site investigation.
6. The weather conditions during the site investigation.
7. A summary of methods used to make observations for the purposes of the site investigation.
8. The name and qualifications of any person conducting the site investigation.
9. Field notes kept by the person conducting the site investigation.

This Natural Heritage Site Investigation Report has been prepared to meet these requirements.





Legend

- Amphibian Point Count Location
- Raptor Playback Location
- Breeding Bird Point Count Location
- Breeding Bird Area Search Transect
- Road
- Grassed Waterway
- Watercourse
- Project Site
- Parcel

Candidate Significant Natural Features

- Wetland / Amphibian Breeding Habitat
- Woodland
- Forest Providing a High Diverstiy of Habitat / Animal Movement Corridor
- Old Growth or Mature Forest
- Old Growth Forest (as identified by MNR)
- Animal Movement Corridor / Western Chorus Frog Habitat / Eastern Ribbonsnake Habitat / Snapping Turtle Habitat / Northern Map Turtle Habitat
- Black and White Warbler / Ovenbird / Magnolia Warbler American Redstart / Eastern Wood-Pewee Habitat
- Brown Thrasher Habitat
- Eastern Meadowlark / Field Sparrow Habitat
- Northern Flicker / Baltimore Oriole Habitat
- Raptor Winter Feeding and Roosting Area / Milksnake Habitat / Highly Diverse Areas
- Savannah Sparrow / Northern Harrier Habitat
- Veery Habitat
- White Breasted Nuthatch / Pileated Woodpecker / Blackburnian Warbler Habitat

Project Components

- Connection Point With Existing Distribution Line
- Project Location
- 120 m from Project Location

NORTH

0 50 100 200 Meters

1:6,000

Notes:
1. OBM and NRVIS data downloaded from LIO, with permission.
2. Old Growth Forest data based on information by Information Management & Planning Kemptville District.
3. Spatial referencing UTM NAD 83.
4. Satellite imagery from Google Earth Pro.

Figure 1.1
Northland Power Inc.
North Burgess Solar Project
Project Location and Natural Heritage Features

HATCH

P:\\NiaDATA2\Projects\NORTHLAND\333751\DATABASES\334844\GIS\NBurgess\North Burgess - landSite Investigation_SI.mxd Last updated Thursday, August 11, 2011

Back Figure 1.1

2. Summary of Results of Records Review

Table 2.1 summarizes the results of the records review (Hatch, 2010).

Table 2.1 Summary of Records Review Determinations

Determination to be made	Yes/No	Description
Is the Project in a natural feature?	Yes	There are woodlands identified on the Project location.
Is the Project within 50 m of an ANSI (earth science)?	No	The nearest earth science ANSI is located several kilometres from the Project location.
Is the Project within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	There are woodlands and wetlands located within 120 m of the Project location

Therefore, some components of the Project will be located within 120 m of a natural feature.

3. Site Investigation Methodology

3.1 Hatch Site Visits

3.1.1 Site Investigation 1

3.1.1.1 Date, Time, and Duration of Site Investigation

- Date: June 23, 2010
- Start Time: 0830
- End Time: 1730
- Duration: approximately 9 hours

3.1.1.2 Weather Conditions During Site Investigation

- Temperature: 22ºC
- Beaufort Wind: 2
- Cloud Cover: 100%

3.1.1.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Martine Esraelian.

Martine Esraelian, B.Sc. is an Environmental Scientist specializing in species at risk and terrestrial ecosystems. She has a B.Sc. from Trent University where she specialized in Conservation Biology and Ecological Management and an Ecosystem Management Technician diploma from Sir Sandford Fleming College. During her time at Trent University, she completed a 1-yr internship with the MNR, which involved developing a genetic-based protocol for the extraction of DNA from unknown turtle eggshells to assist with species identification. The project entailed extensive molecular

genetics research and intensive lab work to develop a protocol able to supplement existing conservation management practices.

She offers expertise across the full breadth of the field from environmental assessments and technical analysis of environmental data to conservation management, corporate and government consulting, and community outreach. Martine has liaised with all levels of government, the community, and a portfolio of clients that includes consulting firms, planners, and high-profile developers. She has both technical and hands-on experience conducting site investigations (terrestrial and aquatic), evaluations of significance, environmental and agricultural impact studies, constraint analyses, water quality and soil assessments, species at risk, wildlife management and fisheries studies to meet regulatory requirements.

Martine has a wide range of field experience related to terrestrial and aquatic ecosystems and species at risk. She has conducted reptile and amphibian surveys, small-mammal trapping, benthic invertebrate monitoring and fisheries inventories (seine netting and electrofishing). She has conducted detailed natural areas inventories which involve species identification of flora and fauna, vegetation community mapping, identifying rare vegetation communities and significant wildlife habitats.

Martine has project management and fieldwork experience for a number of species at risk monitoring projects. Some of the species she has been involved with include: fowler's toad, eastern massasauga rattlesnake, eastern ratsnake, queensnake, eastern ribbonsnake, milksnake, blanding's turtle, map turtle, spotted turtle, snapping turtle, Jefferson salamander, northern dusky and mountain alleghany dusky salamander, butternut, flowering dogwood, swamp rose mallow and spoon-leaved moss.

Martine is a certified Butternut Health Assessor and also holds a certificate in the Ecological Land Classification (ELC) system.

3.1.1.4 Survey Methods

The purpose of this site visit was to identify natural heritage features. To do so, the entire site was searched by the observer on foot in order to document natural features. Photographs of the site were taken. Any observations of wildlife, vegetation, or natural features were noted.

A copy of the field notes kept by the observer is provided in Appendix A.

3.1.2 Site Investigation 2

3.1.2.1 Date, Time, and Duration of Site Investigation

- Date: October 8, 2010
- Start Time: 1205
- End Time: 1705
- Duration: approximately 5 hours

3.1.2.2 Weather Conditions During Site Investigation

- Temperature: 18ºC
- Beaufort Wind: 2

3.1.2.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Caleb Coughlin.

Caleb is an environmental technologist with experience in fisheries and fish habitat assessments. Recent projects have included spawning surveys (Muskoka and Trout Lake rivers), Riverine Index Netting (White Lake and Mattagami River), Fall Walleye Index Netting (Mattagami River), forage fish collection, Brook Trout mark and recapture studies and Ontario Broad-scale Monitoring (OBM). A recent study required a complete fish community inventory involving electrofishing, trap netting and seine netting (Shickluna Hydro Development). He has participated in a number of other resource management studies focusing on aquatic and terrestrial ecosystems including assessments of natural heritage features, aquatic invasive species, avian populations, large mammals, furbearers and sustainable forestry practises.

3.1.2.4 Survey Methods

The purpose of this site visit was to further characterize the woodland on the southern portion of the Project location. Transects through the woodland were walked and characteristics of the woodland community noted. Any observations of wildlife, vegetation, or natural features were noted.

A copy of the field notes kept by the observer is provided in Appendix A.

3.1.3 Site Investigation 3

3.1.3.1 Date, Time, and Duration of Site Investigation

- Date: May 7, 2011
- Start Time: 0815
- End Time: 1330
- Duration: approximately 5.25 hours

3.1.3.2 Weather Conditions During Site Investigation

- Temperature: 14ºC
- Beaufort Wind: 2
- Cloud Cover: 0%

3.1.3.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Caleb Coughlin and Norm Bolton.

Caleb is an environmental technologist with experience in fisheries and fish habitat assessments. Recent projects have included spawning surveys (Muskoka and Trout Lake rivers), Riverine Index Netting (White Lake and Mattagami River), Fall Walleye Index Netting (Mattagami River), forage fish collection, Brook Trout mark and recapture studies and Ontario Broad-scale Monitoring (OBM). A

recent study required a complete fish community inventory involving electrofishing, trap netting and seine netting (Shickluna Hydro Development). He has participated in a number of other resource management studies focusing on aquatic and terrestrial ecosystems including assessments of natural heritage features, aquatic invasive species, avian populations, large mammals, furbearers and sustainable forestry practises.

Norm Bolton is a Fish and Wildlife Technologist with 5 years experience of multi disciplinary contracts with the Bancroft District Ministry of Natural Resources and as a Hatch Contract staff specializing in a variety of fish and wildlife technical studies. Norm has extensive knowledge of aquatic systems with lead roles in the Ontario broadscale monitoring programs, spawning assessments, aquatic inventory and wetland evaluations. He is also well versed in wildlife and terrestrial studies acting as forestry compliance technician, wildlife technician, marsh monitoring program participant and an assistant instructor to the Ontario Fur Harvester Management Course.

3.1.3.4 Survey Methods

The purpose of this site investigation was to:

- conduct a snake emergence survey. The survey was conducted by completing transects of lands on and within 120 m of the Project location. Transects were spaced 20 m apart within wooded or shrubby areas, and 50 m apart in open areas. Surveys commenced at 0940 and were completed by 1330
- conduct a raptor nesting survey. Four call playback stations were used and are shown in Figure 1.1. Playbacks consisted of 3 minutes of passive observations, followed by alternating 30 second playback of raptor calls and 30 seconds of passive observation. Raptor species whose calls were broadcast included species whose observation would contribute towards identification of significant woodland raptor nesting habitat; Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Broad-winged Hawk and Merlin. Following the call playbacks, 3 minutes of passive observation was completed.

A copy of the field notes kept by the observers is provided in Appendix A.

3.1.4 Site Investigation 4

3.1.4.1 Date, Time, and Duration of Site Investigation

- Date: May 7, 2011
- Start Time: 2010
- End Time: 2330
- Duration: approximately 3.5 hours

3.1.4.2 Weather Conditions During Site Investigation

- Temperature: 10ºC
- Beaufort Wind: 2

3.1.4.3 *Name and Qualifications of Person Conducting Site Investigation*

The site investigation was completed by Caleb Coughlin and Norm Bolton. Qualifications for these individuals have been previously provided.

3.1.4.4 *Survey Methods*

The purpose of this site investigation was to:

- conduct an amphibian calling survey. The survey was conducted in accordance with the protocols of the marsh monitoring program, i.e. 180° degree, 3 minute surveys. Five survey locations were used, these locations are identified within Figure 1.1.
- conduct an owl nesting survey. Four call playback stations were used and are shown in Figure 1.1. Playbacks consisted of 3 minutes of passive observations, followed by alternating 30 second playback of owl calls and 30 seconds of passive observation. Owl species whose calls were broadcast included species whose observation would contribute towards identification of significant woodland raptor nesting habitat; Northern Saw-whet Owl, Long-eared Owl and Barred Owl. Following the call playbacks, 3 minutes of passive observation was completed.

A copy of the field notes kept by the observers is provided in Appendix A.

3.1.5 Site Investigation 5

3.1.5.1 *Date, Time, and Duration of Site Investigation*

- Date: June 1, 2011
- Start Time: 1638
- End Time: 1830
- Duration: approximately 1 hour 50 minutes

3.1.5.2 *Weather Conditions During Site Investigation*

- Temperature: 27ºC
- Beaufort Wind: 4
- Cloud Cover: 10%

3.1.5.3 *Name and Qualifications of Person Conducting Site Investigation*

The site investigation was completed by Caleb Coughlin and Sean K. Male. Qualifications for these individuals have been previously provided.

3.1.5.4 *Survey Methods*

The purpose of this site visit was to commence Ecological Land Classification (ELC) according to the ELC for Southern Ontario for the woodlands on the Project location. Representative points were selected within the woodland communities; locations are shown in Figure 1.1. ELC data sheets were completed and are provided in Appendix A.

3.1.6 Site Investigation 6

3.1.6.1 Date, Time, and Duration of Site Investigation

- Date: June 1, 2011
- Start Time: 2045
- End Time: 2130
- Duration: approximately 45 minutes

3.1.6.2 Weather Conditions During Site Investigation

- Temperature: 21ºC
- Beaufort Wind: 4
- Cloud Cover: 20% at start to 80% at end.

3.1.6.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Caleb Coughlin and Sean K. Male. Qualifications for these individuals have been previously provided.

3.1.6.4 Survey Methods

The purpose of this site investigation was to conduct an amphibian calling survey. The survey was conducted in accordance with the protocols of the marsh monitoring program, i.e. 180° degree, 3 minute surveys.

Five survey locations were used, these locations are identified within Figure 1.1.

A copy of the field notes kept by the observers is provided in Appendix A.

3.1.7 Site Investigation 7

3.1.7.1 Date, Time, and Duration of Site Investigation

- Date: June 2, 2011
- Start Time: 0600
- End Time: 0930
- Duration: approximately 3 hours 30 minutes

3.1.7.2 Weather Conditions During Site Investigation

- Temperature: 18ºC
- Beaufort Wind: 3/4
- Cloud Cover: 50%

3.1.7.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Caleb Coughlin and Sean K. Male. Qualifications for these individuals have been previously provided.

3.1.7.4 Survey Methods

The purpose of this site visit was to:

- complete Ecological Land Classification (ELC) according to the ELC for Southern Ontario for the woodlands on the Project location. Representative points were selected within the woodland communities; locations are shown in Figure 1.1. ELC data sheets were completed and are provided in Appendix A.
- conduct a breeding bird survey within the woodland community on the southern portion of the Project location. The breeding bird survey consisted of a combination of area searches and point counts. Area searches consisted of running a series of transects through the woodland to document bird species, while point counts consisted of two, 10-minute, unlimited distance point count surveys within the woodland. Locations of transects and point count surveys are shown within Figure 1.1.

3.2 Natural Resource Solutions Inc. Site Investigation

Natural Resource Solutions Inc. (NRSI) conducted a site investigation in order to determine boundaries and evaluate significance of wetland communities.

3.2.1 Site Investigation 1

Names, qualifications and survey methodologies are identified within their report provided in Appendix B.

3.2.1.1 Date, Time, and Duration of Site Investigation

- Date: August 11, 2010
- Start Time: 0830
- End Time: 1630
- Duration: 8 hours

3.2.1.2 Weather Conditions During Site Investigation

- Temperature: 30°C
- Beaufort Wind: 1 (1 to 5.6 km/h)
- Cloud Cover: 5%

3.2.2 Site Investigation 2

Names, qualifications and survey methodologies are identified within their report provided in Appendix B.

3.2.2.1 Date, Time, and Duration of Site Investigation

- Date: August 12, 2010
- Start Time: 0830
- End Time: 1630

- Duration: 8 hours

3.2.2.2 Weather Conditions During Site Investigation

- Temperature: 21°C
- Beaufort Wind: 1
- Cloud Cover: 60%

3.2.3 Site Investigation 3

Names, qualifications and survey methodologies are identified within their report provided in Appendix C.

3.2.3.1 Date, Time, and Duration of Site Investigation

- Date: May 13, 2011
- Start Time: 1145
- End Time: 1430
- Duration: 2 hours 45 minutes

3.2.3.2 Weather Conditions During Site Investigation

- Temperature: 25°C
- Beaufort Wind: 3
- Cloud Cover: 80%

4. Results of Site Investigation

The majority of the Project location is comprised of agricultural lands used for the production of hay. The agricultural fields occur on poorly drained soils and exposed bedrock at the surface was observed along the northern portion of the Project location. The fields were predominantly comprised of grasses, sedges and herb species. A photograph showing a portion of the Project location is provided in Figure 4.1.

Figure 4.1 View of the Agricultural Fields Along the Northeast Boundary of the Project Location

4.1 Vegetation Observations

The vegetation communities identified on the Project location are generally described following the Ecological Land Classification (ELC) System and include woodlands, wetlands, cultural hedgerows and plantations. A complete list of vegetation species observed during the site investigation, including common and scientific names, is found in Table 4.1.

Table 4.1 List of Vegetation Species Observed on the Project Location

Type	Scientific Name	Common Names	Global (GRank)	Provincial (SRank)
Tree	*Acer rubrum*	Red Maple	G5	S5
Tree	*Acer saccharum ssp. saccharum*	Sugar Maple	G5T5	S5
Tree	*Betula alleghaniensis*	Yellow Birch	G5	S5
Tree	*Betula papyrifera*	White Birch	G5	S5
Tree	*Carya cordiformis*	Bitternut Hickory	G5	S5
Tree	*Fagus grandifolia*	American Beech	G5	S4
Tree	*Fraxinus americana*	White Ash	G5	S5
Tree	*Fraxinus nigra*	Black Ash	G5	S5
Tree	*Fraxinus pennsylvanica*	Green Ash / Red Ash	G5	S5
Tree	*Juniperus virginiana*	Eastern Red Cedar	G5	S5
Tree	*Larix laricina*	Tamarack	G5	S5

Type	Scientific Name	Common Names	Global (GRank)	Provincial (SRank)
Tree	*Ostrya virginiana*	Ironwood	G5	S5
Tree	*Pinus resinosa*	Red Pine	G5	S5
Tree	*Pinus strobus*	Eastern White Pine	G5	S5
Tree	*Populus grandidentata*	Largetooth Aspen	G5	S5
Tree	*Populus tremuloides*	Trembling Aspen	G5	S5
Tree	*Prunus serotina*	Black Cherry	G5	S5
Tree	*Quercus macrocarpa*	Bur Oak	G5	S5
Tree	*Quercus rubra*	Red Oak	G5	S5
Tree	*Robinia pseudo-acacia*	Black Locust	G5	SNA
Tree	*Tilia americana*	Basswood	G5	S5
Tree	*Ulmus americana*	American Elm	G5?	S5
Tree	*Ulmus thomasii*	Rock Elm	G5	S4?
Shrub	*Alnus incana ssp. rugosa*	Speckled Alder	G5	S5
Shrub	*Cornus alternifolia*	Alternate-leaved Dogwood	G5	S5
Shrub	*Cornus foemina ssp. racemosa*	Grey Dogwood	G5	S5
Shrub	*Cornus stolonifera*	Red-osier Dogwood	G5	S5
Shrub	*Juniperus communis*	Common Juniper	G5	S5
Shrub	*Rhamnus cathartica*	Common Buckthorn	GNR	SNA
Shrub	*Spiraea alba*	Narrow-leaved Meadowsweet	G5	S5
Shrub	*Zanthoxylum americanum*	Prickly-ash	G5	S5
Shrub	*Crataegus sp*	Hawthorn Species	-	-
Shrub	*Rubus sp*	Raspberry Species	-	-
Shrub	*Salix sp*	Willow Species	-	-
Herb	*Achillea millefolium*	Common Yarrow	G5T5?	SNA
Herb	*Actaea rubra*	Red Baneberry	G5	S5
Herb	*Apocynum androsaemifolium*	Spreading Dogbane	G5	S5
Herb	*Aralia nudicaulis*	Wild Sarsaparilla	G5	S5
Herb	*Asarum canadense*	Wild Ginger	G5	S5
Herb	*Asclepias syriaca*	Common Milkweed	G5	S5
Herb	*Chrysanthemum leucanthemum*	Ox-eye Daisy	GNR	SNA
Herb	*Clinopodium vulgare*	Wild Basil	G5	S5
Herb	*Daucus carota*	Wild Carrot	GNR	SNA
Herb	*Epipactis helleborine*	Helleborine	GNR	SNA
Herb	*Erigeron annuus*	Daisy Fleabane	G5	S5
Herb	*Fragaria virginiana*	Common Strawberry	G5	S5
Herb	*Galium triflorum*	Fragrant Bedstraw	G5	S5
Herb	*Hieracium aurantiacum*	Orange Hawkweed	GNR	SNA
Herb	*Hydrocharis morsus-ranae*	Frog's-bit	GNR	SNA
Herb	*Iris versicolor*	Blueflag	G5	S5
Herb	*Linaria vulgaris*	Butter-and-eggs	GNR	SNA
Herb	*Lotus corniculatus*	Bird's-foot Trefoil	GNR	SNA
Herb	*Maianthemum canadense*	Canada Mayflower	G5	S5
Herb	*Maianthemum racemosum*	False Solomon's Seal	G5	S5
Herb	*Medicago lupulina*	Black Medick	GNR	SNA
Herb	*Potentilla recta*	Rough-fruited Cinquefoil	GNR	SNA

Type	Scientific Name	Common Names	Global (GRank)	Provincial (SRank)
Herb	*Prunella vulgaris*	Selfheal / Heal-all	G5T5	S5
Herb	*Ranunculus acris*	Tall Buttercup	G5	SNA
Herb	*Rhus radicans*	Poison Ivy	G5	S5
Herb	*Rudbeckia hirta*	Black-eyed Susan	G5	S5
Herb	*Rumex crispus*	Curly Dock	GNR	SNA
Herb	*Sanguinaria canadensis*	Bloodroot	G5	S5
Herb	*Silene latifolia*	Bladder Campion	GNR	SNA
Herb	*Trifolium agrarium*	Hop Clover	GNR	SNA
Herb	*Trifolium hybridum ssp. elegans*	Alsike Clover	GNR	SNA
Herb	*Trifolium pratense*	Red Clover	GNR	SNA
Herb	*Trifolium repens*	White Clover	GNR	SNA
Herb	*Typha latifolia*	Broad-leaved Cattail	G5	S5
Herb	*Verbascum thapsus*	Common Mullein	GNR	SNA
Herb	*Aster sp*	Aster Species	-	-
Herb	*Solidago sp*	Goldenrod Species	-	-
Vine	*Vicia cracca*	Cow Vetch	GNR	SNA
Woody Vine	*Parthenocissus quinquefolia*	Virginia Creeper	G5	S4?
Woody Vine	*Solanum dulcamara*	Bittersweet Nightshade	GNR	SNA
Woody Vine	*Vitis riparia*	Riverbank Grape	G5	S5
Graminoid	Poacea Family	Grass Species	-	-
Sedge	Cyperaceae Family	Sedge Species	-	-
Sedge	*Carex bebbii*	Bebb's Sedge	G5	S5
Sedge	*Carex intumescens*	Bladder Sedge	G5	S5
Sedge	*Carex viridula*	Greenish Sedge	G5?	S5
Sedge	*Carex vulpinoidea*	Fox Sedge	G5	S5
Sedge	*Eleocharis sp*	Spike-rush Species	-	-
Sedge	*Scirpus cyperinus*	Wool Grass	G5	S5
Sedge	*Scirpus microcarpus*	Small-fruited Bulrush	G5	S5
Rushes	*Juncus sp*	Rush Species	-	-
Fern	*Equisetum arvense*	Field Horsetail	G5	S5
Fern	*Onoclea sensibilis*	Sensitive Fern	G5	S5
Fern	Dryopteridaceae Family	Fern Species	-	-

Acronyms/Definitions

Global

G5 – **Very common** (demonstrably secure under present conditions)

GNR - Denotes that the species does not have a Global Ranking

T – Denotes that the rank applies to a subspecies or variety.

Provincial

S5 – **Secure** (Common, widespread, and abundant in the nation or state/province)

S4 – **Apparently Secure** (Uncommon but not rare; some cause for long-term concern due to declines or other factors)

SNA – **Not Applicable** (A conservation status rank is not applicable because the species is not a suitable target for conservation activities)

NAR – Not at Risk

4.1.1 Cultural Vegetation Communities (CU)

Cultural vegetation communities are described in the ELC system as areas formed as a result of anthropogenic and cultural disturbances. These communities are typically dominated by non-native species. The following cultural communities were identified on the Project location.

Cultural Hedgerows (CUH)

Cultural hedgerow communities are described as linear corridors dominated by shrub and tree species and are common in rural landscapes. These communities are often found along property lines, roadsides and within agricultural fields to separate one piece of land from another. Hedgerow communities not only serve a purpose for farmers (e.g., shelterbelts), but provide wildlife habitat for a variety of species.

There were two different types of cultural hedgerow communities identified on the Project location. These included hedgerows commonly found on agricultural fields to separate one piece of land from another and hedgerows that were planted for ornamental purposes.

The tree and shrub species observed within the hedgerow communities commonly found within the rural landscape include American elm, bur oak, basswood, sugar maple, ash species, common buckthorn, prickly-ash, raspberry sp., and hawthorn species. These hedgerows were generally connected to a larger woodland community.

The ornamental hedgerow areas were found near the homestead and agricultural structures along the northeast portion of the Project location. These included a hedgerow comprised entirely of amur maple and coniferous hedgerows dominated by red pine and red cedar with some white spruce and tamarack observed. The coniferous hedgerows appeared to be planted for ornamental purposes. Although the trees were planted in a row, the large spacing between each of the trees do not provide suitable windbreaks or are characteristic of typical hedgerows used to separate one field from another.

Figure 4.2 View of the Red Pine Hedgerow

Cultural Plantations (CUP)

There were four woodland plantations identified on the Project location: two along the northwest boundary and two within the southern woodland. This included 3 coniferous plantations, 1 dominated by white spruce (CUP3-8), and 2 dominated by red pine (CUP3-1), and a deciduous plantation dominated by black locust (no corresponding ELC code). Location of these features is shown in Figure 1.1.

Conifer plantations were all described as mid-aged communities, with no sub-canopy, understorey or groundcover. The Black Locust plantation was described as a young forest community with sparse sub-canopy and ground cover with no understorey.

4.1.2 Woodland Communities

The Land Information Ontario (LIO) mapping identified woodlands on and within 120 m of the Project location. A general description of these woodlands is provided below.

Woodland 1

The woodland located along the southeast boundary originates as a hedgerow with the western portion exhibiting characteristics of a woodland. The substrate within this woodland appear to be shallow with several large boulders and rock outcrops observed. Although this woodland is small, it is described as a mid-aged Dry-Fresh Poplar Deciduous Forest (FOD3-1). The tree species observed within this woodland include bur oak, American elm, green ash, black ash, largetooth aspen,

basswood, white ash, bitternut hickory, sugar maple, yellow birch, ironwood and black cherry. The shrub species observed included common buckthorn, prickly-ash, white ash, prickly gooseberry, hawthorn sp., willow sp., dogwood sp., and raspberry sp. Groundcover vegetation includes a mix of grasses, sedges, vines, and herb species. The dominant vegetation species observed include blue cohosh, false solomon's seal, Virginia creeper, trillium species, fragrant bedstraw and red baneberry.

Woodland 2

Located along Narrows Lock Rd., between the northern and southern portions of the Project location, this woodland community is consistent with that described or Woodland 1

Woodland 3

This woodland is a large woodland community occurring both on, within 120 m of, and more than 120 m from the Project location. This woodland is composed of several community types, with those on and within 120 m of the Project location described below.

Southern portion of woodland

This portion of the woodland is located along the southern boundary of the Project location and consists of red pine plantation (CUP3-1), white spruce plantation (CUP3-8), and a mixture of immature and mature Dry-Fresh Sugar Maple Deciduous Forest (FOD5-1). Canopy cover was $\geq$80% and downed debris and leaf litter was abundant. The dominant species included sugar maple and American beech with trembling aspen, basswood, American elm, red oak, green ash, white ash, largetooth aspen, ironwood, white birch and yellow birch associates. Shrubs such as gray dogwood, common buckthorn, and prickly-ash were found along the edge of this woodland. The dominant groundcover vegetation observed includes sugar maple saplings, wild sarsaparilla, wild ginger, fragrant bedstraw, starflower and fern species.

Northwest portion of woodland

There were different vegetation communities identified within the woodlands located along the northwest and western boundaries of the Project location. These included cultural plantations (discussed in Section 4.1.1) and deciduous woodland communities.

The deciduous woodland community along the western boundary is described as a mid-aged Dry-Fresh Sugar Maple – Ironwood Deciduous Forest (FOD5-4). The tree species observed included sugar maple, red maple, ironwood, black cherry, American elm, ash species, white birch, largetooth aspen and basswood. Immature white pine and red pine were observed along the edge of the woodland and within the open field area.

4.1.3 Wetland Communities

The Land Information Ontario (LIO) mapping shows two unevaluated wetlands on the Project location, along the north and southwest boundaries. The presence of these wetland communities was confirmed during the site investigation. These wetland communities are described in detail within a separate report, included in this report as Appendix B. Photographs of portions of the wetland communities are shown in Figures 4.3 to 4.6 below.

Figure 4.3 View of a Willow Thicket Swamp within the Southwest Wetland Community (tsS9 on mapping provided in Appendix B)

Figure 4.4 View of a Shallow Marsh Community in the North Wetland (reM20 on mapping provided in Appendix B)

Figure 4.5 View of a Shallow Marsh Community in the Southwest Wetland (reM15 on mapping provided in Appendix B)

Figure 4.6 View of a Shallow Water Community within the Southwest Wetland (fM19 on mapping provided in Appendix B)

4.2 Wildlife Observations

Evidence of wildlife and wildlife species observed on the Project location during the site investigation were recorded and are provided in Table 4.2.

Table 4.2 Wildlife Species Observed During the Site Investigation

Scientific Name	Common Name	Provincial (SRank)	COSSARO	Declining Species	Area-Sensitive Species
Mammals					
Canis latrans	Coyote	S5			
Procyon lotor	Raccoon	S5			
Erethizon dorsatum	Porcupine	S5			
Castor canadensis	Beaver	S5			
Ondatra zibethicus	Muskrat	S5			
Sciurus carolinensis	Eastern Gray Squirrel	S5			
Tamiasciurus hudsonicus	Red Squirrel	S5			
Odocoileus virginianus	White-tailed Deer	S5			
Tamias striatus	Eastern Chipmunk	S5			
Birds					
Anas discors	Blue-winged Teal	S4			
Anas platyrhynchos	Mallard	S5			
Aix sponsa	Wood Duck	S5			
Branta canadensis	Canada Goose	S5			
Ardea herodias	Great Blue Heron	S4			
Botaurus lentiginosus	American Bittern	S4B			
Porzana Carolina	Sora	S4B			
Gallinago gallinago	Common Snipe	S5B			
Charadrius vociferous	Killdeer	S5B			
Bonasa umbellus	Ruffed Grouse	S5			
Meleagris gallopavo	Wild Turkey	S5			
Cathartes aura	Turkey Vulture	S5B			
Buteo jamaicensis	Red-tailed Hawk	S5			
Circus cyaneus	Northern Harrier	S4B	NAR		Yes
Malleagris gallopavo	Wild Turkey	S5			
Picoides pubescencs	Downy Woodpecker	S5			
Sphyrapicus carious	Yellow-bellied Sapsucker	S5B			
Dryocopus pileatus	Pileated Woodpecker	S5			Yes
Colaptes auratus	Northern Flicker	S4B		Yes	
Sitta carolinensis	White-breasted Nuthatch	S5			Yes
Corvus brachyrhynchos	American Crow	S5			
Cyanocitta cristata	Blue Jay	S5			
Zenaida macroura	Mourning Dove	S5			

Scientific Name	Common Name	Provincial (SRank)	COSSARO	Declining Species	Area-Sensitive Species
Archilochus colubris	Ruby-throated Hummingbird	S5B			
Hirundo rustica	Barn Swallow	S4B			
Tachycineta bicolor	Tree Swallow	S4B			
Vireo olivaceus	Red-eyed Vireo	S5B			
Vireo gilvus	Warbling Vireo	S5B			
Contopus virens	Eastern Wood-Pewee	S4B		Yes	
Sayornis phoebe	Eastern Phoebe	S5B			
Empidonax traillii	Willow Flycatcher	S5B			
Myiarchus crinitus	Great Crested Flycatcher	S4B			
Poecile atricapillus	Black-capped Chickadee	S5			
Turdus migratorius	American Robin	S5B			
Toxostoma rufum	Brown Thrasher	S5B		Yes	
Dumetella carolinensis	Gray Catbird	S4B			
Hylocichla mustelina	Wood Thrush	S5B			
Catharus fuscescens	Veery	S5B			Yes
Setophaga ruticilla	American Redstart	S5B			Yes
Dendroica petechia	Yellow Warbler	S5B			
Mniotilta varia	Black-and-white Warbler	S5B			Yes
Dendroica pensulvanica	Chestnut-sided Warbler	S5B			
Vermivora peregrina	Tennessee Warbler	S5B			
Dendroica coronata	Yellow-rumped Warbler	S5B			
Seiurus aurocapilla	Ovenbird	S5B			Yes
Dendroica fusca	Blackburnian Warbler	S5B			Yes
Dendroica magnolia	Magnolia Warbler	S5B			Yes
Geothlypis trichas	Common Yellowthroat	S5B			
Carduelis tristis	American Goldfinch	S5B			
Pheucticus ludovicianus	Rose-breasted Grosbeak	S4B			
Agelaius phoeniceus	Red-winged Blackbird	S4			
Icterus galbula	Baltimore Oriole	S5B		Yes	
Quiscalus quiscula	Common Grackle	S5B			
Sturnus vulgaris	European Starling	SE			
Sturnella magna	Eastern Meadowlark	S5B		Yes	
Spizella passerine	Chipping Sparrow	S5B			
Spizella pusilla	Field Sparrow	S5B		Yes	
Passerculus sandwichensis	Savannah Sparrow	S4B			Yes
Melospiza melodia	Song Sparrow	S5B			

Scientific Name	Common Name	Provincial (SRank)	COSSARO	Declining Species	Area-Sensitive Species
Melospiza georgiana	Swamp Sparrow	S5B			
Amphibians					
Bufo americanus	American Toad	S5			
Rana pipiens	Northern Leopard Frog	S5	NAR		
Rana clamitans	Green Frog	S5			
Hyla versicolor	Gray Tree Frog	S5			
Reptiles					
Chrysemys picta bellii	Midland Painted Turtle	S5			
Thamnophis sirtalis	Eastern Garter Snake	S5			
Nerodia sipedon sipedon	Common Water Snake	S5	NAR		
Insects					
Danaus plexippus	Monarch	S2N,S4B	SC		

Acronyms/Definitions

Global
G5 – **Very common** (demonstrably secure under present conditions)
Provincial
S5 – **Secure** (Common, widespread, and abundant in the nation or state/province)
S4 – **Apparently Secure** (Uncommon but not rare; some cause for long-term concern due to declines or other factors)
B - Denotes that the ranking applies to Breeding
NAR – Not at Risk

4.2.1 Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000) identifies four main types of wildlife habitat that can be classified as significant:

- habitat for seasonal concentrations of animals
- rare or specialized habitats for wildlife
- habitat for species of conservation concern
- wildlife movement corridors.

Each of these types of wildlife habitat is considered further below and how they were considered during the site investigations.

4.2.1.1 Habitats of Seasonal Concentrations of Animals

There are many different kinds of seasonal concentration areas, with the likelihood of occurrence of one of these areas depending on the characteristics of the study location. Those that were considered during the site investigations, and the discussion of their potential occurrence on the Project location, are discussed below.

- Winter deer yards – Winter deer yards are sheltered areas where white-tailed deer congregate during the winter months. As white-tailed deer are not adept at moving through deep snow, a

key component of a winter deer yard is a core area predominantly composed of coniferous trees with a 60% canopy cover. The Ecoregion Criteria document identifies several ELC codes for which winter deer yards may be associated, of which only one was recorded on or within 120 m of the Project location (CUP – Cultural Coniferous Plantation). The locations of the plantations are shown within Figure 1.1. Plantation communities have been described further within Section 4.1.1. Plantation communities were described as mid-aged with >60% canopy cover. Though abundant vegetation available for browse is found within the area, no evidence of deer browse was noted within this feature. The Township of Tay Valley, which overlaps the Project location, has identified significant wildlife habitats, including deer wintering yards; no significant wildlife habitats are identified on or within 120 m of the Project location on Schedule A2 of the Official Plan. In addition, consultation with the public did not identify presence of a known deer yard within the woodlands on or within 120 m of the Project location. Based on the known occurrence of other significant winter deer yards within the area, the small size of the conifer plantations, and the absence of use of candidate habitats, this location does not meet the requirements of a candidate significant winter deer yard.

- Moose late winter habitat – The study area is outside of the core range of moose, and therefore this habitat type cannot be found on or within 120 m of the Project location.
- Colonial bird nesting sites – Colonial bird nesting sites are locations where colonial species, such as herons, gulls, terns, and swallows traditionally nest in colonies of varying size. Great Blue Heron and American Bittern were recorded during the site investigation. Great Blue Heron nest in colonies, typically in tall snags in open water areas or on island communities offering protection from predation. No heronries were observed during area searches of lands on and within 120 m of the Project location. A single calling male American Bittern were recorded within the large marshland located within 120 m north of the Project location during both 2010 and 2011 site investigations. No American Bittern nest was identified during area searches of the wetland community, and no other American Bitterns were recorded. Therefore, though a colonial species was recorded, there is no evidence to support colonial breeding within the wetland community. No other colonial nesting species, such as terns or herons, were observed during surveys of the wetland communities, and the marshland was determined to not provide suitable habitat for colonial nesting terns. No suitable gull or tern colony locations (islands or peninsulas within Otter Creek) were noted on or within 120 m during area searches along the river. Potential swallow colonial breeding locations such as eroding banks, sandy hills, pits, steep slopes, rock faces or piles were not recorded during area searches on or within 120 m of the Project location.
- Waterfowl stopover and staging areas – Waterfowl traditionally congregate in larger wetlands, complexes of smaller wetlands in close proximity to one another, and relatively undisturbed shorelines with vegetation during spring and fall migration. Further, during the fall migration, waterfowl may commonly congregate in feeding or roosting ponds. Though a complex of smaller wetland communities is found within 120 m of the Project location, communities were not found to contain large areas of open water capable of supporting significant numbers of migratory waterfowl. In addition, the presence of large lakes and waterbodies with shoreline wetland complexes within the larger area around the Project location make the wetlands on and within 120 m of the Project location unlikely to be used by migratory waterfowl. As a result,

though a complex of smaller wetland communities has been identified, the relatively low importance of this community and habitat characteristics indicate that it would not be suitable candidate significant waterfowl stopover and staging habitat.

- Waterfowl nesting – Waterfowl nesting sites can consist of relatively large, undisturbed upland areas with abundant ponds and wetlands, while other species nest within tree cavities in swamps or on the shorelines of waterbodies. Wood Duck, Canada Goose, and Mallard were recorded during the site investigation. No waterfowl nests or evidence of waterfowl nesting (e.g., alarm behaviour) was recorded during the site investigation. No areas of suitable habitat for Wood Duck nesting, i.e. forest with mature cavity trees, were identified on or within 120 m of the Project location. Nesting of Mallard and Canada Geese would be occurring within the hayfields adjacent to the wetland communities; however, area searches of these features failed to detect waterfowl nests, and no alarm behaviour from waterfowl was observed that would suggest nesting was occurring.
- Shorebird migratory stopover areas – Shorebird migratory stopover areas are found along the shorelines of the Great Lakes and James Bay, as the Project location is located more than 120 m away from these areas, this habitat type cannot occur on the Project location.
- Landbird migratory stopover areas – Landbird stopover areas are found along the shorelines of the Great Lakes and contain a variety of habitat types from open fields to large woodlands. As the Project location is located greater than 120 m away from these areas, this habitat type cannot occur on the Project location.
- Raptor winter feeding and roosting areas – This combined habitat type features suitable raptor roosting sites in proximity to winter feeding areas. For most raptor species, roosting sites are traditionally mature mixed or coniferous woodlands, a habitat type which is found associated with the conifer plantations in the northwestern and southern portions of the Project location. This habitat type will be evaluated for significance.
- Wild turkey winter range – Similar to winter deer yards, wild turkey rely on coniferous forest stands for winter protection. Such habitat is found associated with the pine plantations in the northwestern and southern portions of the Project location, however no seepage areas or areas that would provide open water during the winter were identified during the site investigation, which is an essential component of wild turkey winter habitat. As a result, this area does not meet the criteria of candidate significant wildlife habitat.
- Turkey Vulture summer roosting areas – Turkey vulture summer roosting areas traditionally consist of cliff ledges and large snags. No cliff ledges were noted during the site investigation, and there were few large dead or partially dead trees present within the area. Further, the dead trees that were observed on or within 120 m of the Project location did not show signs of white-washing, which would indicate occurrence of a Turkey Vulture summer roost. While a Turkey Vulture was recorded during the site investigations, it was noted foraging over the area and roosting behaviour was not detected. Foraging Turkey Vultures are a common observation within southern Ontario during this time of year. As a result, this habitat type is not identified within 120 m of the Project location.

- Reptile hibernacula – Reptile hibernacula are commonly found in animal burrows and rock crevices. A fox den, bedrock fissures, and old fencerows were observed during the site investigation. The fencerow communities were generally too small to provide sufficient protection from frost. Though the fox den and bedrock fissures may provide sufficient frost protection, transect surveys of lands on and within 120 m of the Project location, as previously described in Section 3.1.3 and 3.2.3 did not detect occurrences of any snakes on or within 120 m of the Project location. Therefore, though these features may provide suitable habitat characteristics, the features are not presently in use. Therefore, there are no candidate significant reptile hibernacula found on or within 120 m of the Project location.
- Bat hibernacula – Bat hibernacula are found in caves, abandoned mines, or areas with karst habitat. These features were not identified on or within 120 m of the Project location during the site investigation. Further, the Project location is also not within an area of known karst habitat (Brunton and Dodge, 2008).
- Bullfrog concentration areas – Bullfrog concentration areas are predominantly found in areas of marsh habitat. Marsh habitat was recorded on and within 120 m of the Project location, however no bullfrogs were heard calling during amphibian surveys conducted at suitable times of year for detection (see Sections 3.1.4 and 3.1.6 for details of survey methodology). Further, no bullfrogs were observed during area searches of the wetland community. In addition, there is an overall absence of deep water areas within the marsh community; deep water areas are necessary for the support of bullfrog concentration areas. As a result, suitable habitat is not present on or within 120 m of the Project location.

Therefore, only one candidate significant wildlife habitat were identified on or within 120 m of the Project location, raptor winter feeding and roosting areas.

4.2.1.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare vegetation communities include alvars, tall-grass prairies, savannahs, rare forest types, talus slopes, rock barrens, sand barrens and Great Lakes dunes. None of these vegetation communities were identified during the site investigation. Vegetation communities that were observed during the site investigation have been previously described in Section 4.1; none of these communities are considered to be rare or uncommon within the local or provincial area.

Specialized wildlife habitats include

- areas that support species that have highly specific habitat requirements
- areas with high species and community diversity
- areas that provide habitat that greatly enhances species survival.

There are many habitat types that may meet these definitions; those that were considered during the site investigations as they had the potential to be present in the area, and the discussion of their potential occurrence on the Project location, are addressed below:

- Habitat for area-sensitive species – Appendix C of the SWHTG lists area-sensitive species. Of these species, several were recorded during the site investigation, Northern Harrier (*Circus cyaneus*), White-breasted Nuthatch (*Sitta carolinensis*), Pileated Woodpecker (*Dryocopus*

pileatus), American Bittern (*Botaurus lentiginosus*), Veery (*Catharus fuscescens*), American Redstart (*Setophaga ruticilla*), Black-and-white Warbler (*Mniotilta varia*), Ovenbird (*Seiurus aurocapilla*), Blackburnian Warbler (*Dendroica fusca*), Magnolia Warbler (*Dendroica magnolia*), and Savannah Sparrow (*Passerculus sandwichensis*). These species are discussed below. None of the other area-sensitive species identified from the Records Review were recorded during area searches of available habitats completed in association with the site investigations.

- Northern Harrier/Savannah Sparrow – Suitable habitat is found on the agricultural grasslands present on and within 120 m of the Project location, and the observation consisted of an individual foraging over the agricultural fields
- White-breasted Nuthatch/Pileated Woodpecker/Blackburnian Warbler – White-breasted Nuthatch and Pileated Woodpecker were recorded from a woodland community within 120 m west of the Project location. Portions of the woodland community more than 120 m from the Project location have been identified as containing old-growth forest necessary to support populations of these species
- American Bittern – American Bittern were observed calling from the marshland community within 120 m of the Project location.
- Black-and-white Warbler/Ovenbird/Magnolia Warbler/American Redstart – These species were recorded from the woodland community on the Project location. Ovenbird were common throughout the woodland community, Black-and-white Warbler were recorded along the edge of the pine plantation, an American Redstart was recorded at the southern end of the woodland, and a single Magnolia Warbler was recorded within the extreme southwestern edge of the Project location
- Veery – Veery were recorded from portions of the woodland community around the wetland within 120 m of the Project location. 3 Veery were observed calling, 1 from a portion of woodland on the Project location, and 2 from areas of woodland more than 120 m from the Project location.

- Forests providing a high diversity of habitats – Characteristics of forest communities on and within 120 m of the Project location are discussed further below. Based on these characteristics, it is determined that the woodland communities on and within 120 m of the Project location provide a high diversity of habitats given that they encompass a watercourse and a wetland, and contains an area of mature forest.
  - The woodlands were described as having several forest communities. Pine, spruce and locust plantations were all identified on or within 120 m of the Project location, while deciduous forest communities were also recorded. A diversity of shrub species was not recorded in the communities, and ground cover was considered to be generally sparse in most communities. No rare species were noted.
  - Woodlands on and within 120 m of the Project location were identified as predominantly mid-aged, though an area of mature forest community is present within the woodland south of the Project loction.

- No cavity trees were observed within the mature forest community on or within 120 m of the Project location.
- A watercourse and associated wetland community occurs between portions of the woodland communities.
- Soil conditions on the Project location were predominantly identified as sandy to sandy loam.
- There is no known history of forest management from these woodlands. No evidence of logging activities from within the woodlands was noted.

- Old-growth or mature forest stands – An old growth forest stand is identified within the woodland located more than 120 m from the Project location southeast of Scotch Line (MNR, 2010). Portions of the woodland on the southern portion of the Project location were identified as containing a mature forest community (see Section 4.1.2). Other woodlands on the Project location were not identified as having old growth or mature characteristics, and were generally characterized as young to mid-aged (see Section 4.1.2). As a result, this habitat type is found on and within 120 m of the Project location.
- Foraging areas with abundant mast – This habitat type is found within Ecoregion 6E only in relation to foraging areas with abundant mast present on the Bruce Peninsula (EcoDistrict 6E-14). As the Project location is more than 120 m from this area, within EcoDistrict 6E-11 (MNR, 2009). As a result, this habitat type is not found on the Project location.
- Woodlands supporting amphibian breeding ponds – In addition to the large areas of wetland communities found present within 120 m of the Project location, two vernal pools were noted within the southern woodland on the Project location. These features are considered to be a candidate significant wildlife habitat.
- Turtle nesting habitat – Turtle nesting sites are areas where soft substrates, such as sand or fine gravel, are found that permit turtles to excavate their nests, and are located in open, sunny areas. Such substrate was not recorded on or within 120 m of the Project location during the site investigation, with the exception of road surfaces, which do not meet the requirements for consideration as candidate significant wildlife habitat.
- Specialized raptor nesting habitat – Northern Harrier and Red-tailed Hawk were recorded during the site investigation, however no evidence of raptor nesting (stick nests) were observed. A red-tailed Hawk was observed displaying alarm behaviour over the woodland on the southern portion of the Project location, however a thorough search of the woodland prior to leaf out did not identify any occurrences of suitable stick nests. Further, Red-tailed Hawk are not a species that is identified as contributing to specialized raptor nesting habitat (MNR, 2009). Therefore, specialized raptor nesting habitat were not identified on or within 120 m of the Project location.
- Mink, otter, marten, and fisher denning sites – Denning sites for these members of the weasel family were not recorded on or within 120 m of the Project location during the site investigation.

- Moose calving areas/aquatic feeding areas/mineral licks – The Project location is situated outside of the core range for moose, and therefore this area does not meet the criteria for candidate significant wildlife habitat.
- Highly diverse areas – The habitats present on and within 120 m of the Project location were considered in respect of diversity. The Project location is situated in the Frontenac axis, an area that is identified as having high diversity. Characteristics of the areas are described further below in relation to highly diverse areas. Based on the diverse community types and species diversity on and within 120 m of the Project location, this habitat feature is identified.
    - Natural community diversity – Woodlands, wetlands, and agricultural fields were recorded on and within 120 m of the Project location. Several woodland and wetland community types were identified.
    - Species diversity – Though a complete species inventory of the various communities was not completed, given that many of the communities extend several hundred meters beyond 120 m from the Project location, a diversity of species within the communities within 120 m of the Project location was noted, with up to 12 tree species recorded within the individual woodland communities on and within 120 m of the Project location. This represents a high level of diversity within a woodland community.
    - Presence of rare species – No rare species were noted during the site investigation.
    - Size of site – The Project location is situated on a portion of a 78 ha parcel of land.
- Cliffs and caves – These features were not identified on or within 120 m of the Project location during the site investigation.
- Seeps and springs – No seeps or springs were identified in the vicinity of the Project location during the site investigation (see Hatch Ltd., 2010b).

As a result, habitat for area-sensitive species (Northern Harrier, White-breasted Nuthatch, Pileated Woodpecker, American Bittern, Black-and-white Warbler, Ovenbird, Magnolia Warbler and Savannah Sparrow), forest providing a high diversity of habitats, highly diverse areas, old growth or mature forest stands, woodlands supporting amphibian breeding ponds are considered to be candidate significant specialized habitats for wildlife on or within 120 m of the Project location.

4.2.1.3 Habitat of Species of Conservation Concern

Species of conservation concern that were considered during the site investigation include the following:

- Olive-sided Flycatcher – Suitable breeding habitat, natural or man-made opening featuring tall trees for perching, were not recorded on or within 120 m of the Project location. Though open areas are present associated with the agricultural fields, these areas do not contain tall live trees to provide foraging perches for the species. Further, no Olive-sided Flycatchers were recorded during the breeding bird survey conducted in June 2011 (see Section 3.1.7 for details).
- Common Nighthawk – There is very little bare ground present on or within 120 m of the Project location, with locations of bare ground restricted to field entrances. These areas were searched

during the site investigations in the breeding season and no Common Nighthawk were observed. Further, during the crepuscular survey conducted during the breeding season in association with Site Investigation 6, no Common Nighthawk were observed. As a result, of the limited amount of suitable nesting habitat in non-ideal (i.e., roadside) areas, and the absence of observations during the breeding season, it is determined that Common Nighthawk do not breed on or within 120 m of the Project location.

- Golden-winged Warbler/Black-billed Cuckoo – Though a limited amount of suitable breeding habitat was identified on the Project location, extensive area searching of this habitat during the breeding season failed to identify any presence of these species. Therefore, suitable habitat for this species is not found on or within 120 m of the Project location.
- Eastern Meadowlark/Field Sparrow – Though grassland habitats were present on the Project location in 2010, these species were not detected. During the site investigations in 2011, grassland habitats were no longer present on the Project location, however they remained present within 120 m of the Project location. Eastern Meadowlark and Field Sparrows were recorded from the fields within 120 m east of the Project location during site investigations in 2011.
- Canada Warbler – Suitable habitat, interior mixedwood forests with closed canopy and shrubby undergrowth, was not identified on or within 120 m of the Project location.
- American Kestrel/ Eastern Kingbird Black-billed Cuckoo/Belted Kingfisher – Though suitable habitat was identified on or within 120 m of the Project location, these species were not recorded during area searches completed in the breeding season in 2010, or during ongoing site investigations in 2011. Therefore, suitable habitat is not found on or within 120 m of the Project location.
- Northern Flicker – Northern Flicker were recorded calling from the hedgerows within the agricultural fields within 120 m east of the Project location. Therefore, suitable breeding habitat is found within 120 m of the Project location.
- Eastern Wood-Pewee – Eastern Wood-Pewee were recorded within the woodland on the southern end of the Project location. Therefore, suitable breeding habitat is found on the Project location.
- Brown Thrasher – A Brown Thrasher was observed within a small area of scrubland at the edge of the southern woodland community on the Project location. Therefore, confirmed habitat for this species is found on the Project location.
- Eastern Towhee – Suitable habitat, dense brushy cover with leaf litter, abandoned fields or pastures with developing young trees or shrubs, and woodland edges with dense undergrowth, were not recorded on or within 120 m of the Project location.
- Vesper Sparrow - Suitable habitat, areas with dry, short-grass with scattered shrubs and small trees, were not identified on or within 120 m of the Project location.
- Savannah Sparrow – Savannah Sparrow were recorded breeding within the grasslands on and within 120 m of the Project location during area searches of suitable habitat in 2010.

- Grasshopper Sparrow – Suitable habitat, well-drained grassland or prairie with low cover of grasses and taller weeds on sandy soil, were not identified on or within 120 m of the Project location.
- Baltimore Oriole – Baltimore Oriole were recorded calling from the hedgerows within the agricultural fields within 120 m east of the Project location. Therefore, suitable breeding habitat is found within 120 m of the Project location.
- Milksnake – As Milksnake are habitat generalists, suitable habitat is present on and within 120 m of the Project location. Though they were not detected during the site investigation, it is assumed that they are present.
- Eastern Ribbonsnake – Waterbodies of the Project location represent suitable habitat for Eastern Ribbonsnake. Though they were not detected during the site investigation, it is assumed that they are present.
- Five-lined Skink – Areas of suitable habitat (woodlands with rocky outcrops near permanent bodies of water) were not found on or within 120 m of the Project location. Further, Five-lined Skink were not recorded; as a result, suitable habitat is not present.
- Western Chorus Frog – Western Chorus Frogs were recorded calling from the wetlands within 120 m of the Project location during amphibian surveys conducted in association with Site Investigation 4. Chorus Frogs were recorded at Stations 2 and 5, as shown in Figure 1.1. Therefore, suitable breeding habitat is found within 120 m of the Project location.
- Northern Map/Snapping Turtle – Though it was determined that suitable nesting habitat is limited on and within 120 m of the Project location (see Section 4.2.1.2), turtle species may be found within the waterbodies and wetlands present on and within 120 m of the Project location. As a result, candidate significant wildlife habitat for Northern Map Turtle and Snapping Turtle will be considered.
- Monarch – A monarch butterfly was recorded during the site investigation in 2010. Milkweed, an important associate species for Monarch for egg-laying was commonly observed in waste areas at the edges of the Project location and within 120 m of the Project location.

Based on the results of the site investigation, potential habitat for Eastern Wood-Pewee, Brown Thrasher, Savannah Sparrow, Eastern Meadowlark, Field Sparrow, Northern Flicker, Baltimore Oriole, Western Chorus Frog, Milksnake, Eastern Ribbon Snake, Northern Map Turtle, Snapping Turtle and Monarch will be considered during the evaluation of significance.

4.2.1.4 Animal Movement Corridors

The SWHTG (MNR, 2000) defines animal movement corridors as "elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another". Animal movement corridors were considered during the site investigation. Such features were found to be present within the hedgerows, wetlands, and woodlands on and within 120 m of the Project location.

These features will be further assessed in the Evaluation of Significance report.

5. Conclusions

Based on the results of the site investigation, there are some minor changes to the Records Review report required based on extensions of wetland communities within the area. In addition, several candidate significant wildlife habitats have been identified that were previously unrecorded.

The following natural features are present on and within 120 m of the Project location and will require an Evaluation of Significance in order to determine whether an Environmental Impact Study is required:

- wildlife habitat, specifically
  - raptor winter feeding and roosting
  - habitat for area sensitive species (Northern Harrier, American Bittern, White-breasted Nuthatch, Pileated Woodpecker, Veery, Black-and-white Warbler, Ovenbird, Magnolia Warbler and Savannah Sparrow)
  - old growth or mature forest stands
  - highly diverse areas
  - forest providing a high diversity of habitat
  - woodlands supporting amphibian breeding pond
  - habitat for species of conservation concern (Eastern Wood-Pewee, Brown Thrasher, Savannah Sparrow, Eastern Meadowlark, Field Sparrow, Northern Flicker, Baltimore Oriole, Western Chorus Frog, Milksnake, Eastern Ribbonsnake, Northern Map Turtle, Snapping Turtle, Monarch)
  - animal movement corridors
- wetlands
- woodlands.

6. References

Brunton, F.R. and J.E.P. Dodge. 2008. Karst map of Southern Ontario, including Manitoulin Island; Ontario Geological Survey, Groundwater Resource Study 5.

COSEWIC. 2005. COSEWIC Assessment and Update Status Report on the Blanding's Turtle *Emydoidea blandingii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 40 pp. Available on-line at www.sararegistry.gc.ca/status/status_e.cfm.

COSEWIC. 2002a. COSEWIC Assessment and Status Report on the Stinkpot *Sternotherus odoratus*. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 18 pp.

COSEWIC. 2004. COSEWIC Assessment and Status Report on the Spotted Turtle *Clemmys guttata* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.

Hatch Ltd. 2010. North Burgess Solar Project – Natural Heritage Records Review. Prepared for Northland Power Inc. on behalf of Northland Power Solar North Burgess L.P. August 2010.

Ministry of Natural Resources (MNR). 2010. Personal communication from H. Zurbrigg (MNR Kemptville) with S. Male (Hatch) during a meeting on September 17, 2010.

Appendix A

Site Investigation Field Notes

Woodlot Located in Center of Farm.

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Burgess		POLYGON:	
SURVEYOR(S): Caleb + Sean	DATE: June 1	TIME: start	
		finish	
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Large toothed Aspen, Basswood, Black Cherry
2	SUB-CANOPY	3	3	Buckthorn, White Ash
3	UNDERSTOREY			
4	GRD. LAYER	7	4	Grasses.

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	O	25 - 50	N	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy - loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: unk		(cm)

COMMUNITY CLASSIFICATION: ELC CODE

COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FOD3-1

North End / Eglund western Field.

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Burgess - 2 | POLYGON:

SURVEYOR(S): Caleb + Sean | DATE: June 1 | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
SITE		G TALUS	COVER	G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
G OPEN WATER		G ALVAR	G OPEN		G PRAIRIE
G SHALLOW WATER		G ROCKLAND	G SHRUB		G THICKET
G SURFICIAL DEP.		G BEACH / BAR			G SAVANNAH
G BEDROCK		G SAND DUNE	G TREED		G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	3	Locust - Black, Bucktheen
2	SUB-CANOPY	4	1	Bucktheen, Black Locust
3	UNDERSTOREY			
4	GRD. LAYER	5	1	Raspberry - Purple + Red, Golden Rod, Virginia Creeper

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 6 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand Loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:

POLYGON:

DATE:

SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

South End of Western Field

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Bwoss - 3 | POLYGON:

SURVEYOR(S): Caleb + Sea | DATE: Jun 1 | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
SITE	G BASIC BEDRK.	G VALLEY SLOPE	COVER	G FORB	G MARSH
G OPEN WATER	G CARB. BEDRK.	G TABLELAND	G OPEN	G LICHEN	G SWAMP
G SHALLOW WATER		G ROLL. UPLAND	G SHRUB	G BRYOPHYTE	G FEN
G SURFICIAL DEP.		G CLIFF	G TREES	G DECIDUOUS	G BOG
G BEDROCK		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	Hard Maple, Ironwood, Black Cherry
2	SUB-CANOPY	4	3	Hard Maple, Ironwood.
3	UNDERSTOREY			
4	GRD. LAYER	7	3	Grasses, Horsetail, Sugarcane Moss.

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	A	< 10	O	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	O	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 1cm		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: 15		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:
POLYGON:
DATE:
SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FODS-4

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - South Woodlot	POLYGON:	
SURVEYOR(S):	DATE:	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Hard maple, White Birch, Yellow Birch, Beech
2	SUB-CANOPY	2	3	Ironwood, Hard maple.
3	UNDERSTOREY			
4	GRD. LAYER	7	1	Ferns, moss.

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	N	< 10	R	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	O	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy-Loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry-fresh	DEPTH OF ORGANICS: 3-4		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown.		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR:

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FOD 5-1

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - Spruce Plantation	POLYGON:	
SURVEYOR(S): Caleb + Sean	DATE: June 1	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	White Spruce.
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	R	< 10	A	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	R	< 10	N	10 - 24	N	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC-CUP3-8

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - Red Pine Plant	POLYGON:	
SURVEYOR(S): Caleb + Sam.	DATE:	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
SITE		G TALUS	COVER	G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
G OPEN WATER		G ALVAR	G OPEN		G PRAIRIE
G SHALLOW WATER		G ROCKLAND	G SHRUB		G THICKET
G SURFICIAL DEP.		G BEACH / BAR	G TREED		G SAVANNAH
G BEDROCK		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Red Pine
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	N	< 10	A	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	O	< 10	V	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 1		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC-CWP3-1

No Occanon – Narrows Lock Rd, CR 14
Date ..... Twp. Township ..... Page .....
Project: North Burgess

Date: June 23, 2010
Time: 0830 – 1730 (9.0 hrs)
% O.C: 100% overcast morning / 70% afternoon sunny
Beaufort Wind Scale: 2
Temp: 22°C
Observers: Martine Espelian
Caleb Caughlin

Several Bobolink ♀♂ porcupine
red-winged blackbird chipmunk
American toad
common grackle rose-breasted grosbeak
Northern Flicker eastern phoebe
common crow
tree swallow
Savannah sparrow
northern harrier
great-crested flycatcher
Mallard
great-blue heron

No .....
Date ..... Page .....

SW Field

Low-lying poor drainage
sedges
smartweed - fringed bindweed
Joe-pye weed
goldenrod
bulrush
reed canary grass
cow vetch
common milkweed
false dandelion curly dock
spotted St. wild basil
hardhack
[illegible] poison ivy
grasses
meadowsweet
[illegible]
[illegible]
[illegible]
yarrow
[illegible]
fox sedge
bebb's sedge
hop clover
rough-fruited cinquefoil

No
Date Page

Hedgerow / Scrub / small wooded area (SW of property, east of large woodland
Red oak
Bur oak
common Buckthorn (A)
riverbank grape (A)
Eastern red cedar (on tree)
bittersweet nightshade
prickly ash (A)
black-eyed Susan (A)
goldenrod sp. (A)
American Elm (A)
virginia creeper

No
Date Page

Wooded Area 90% CVR
Black Ash
Largetooth Aspen
Basswood (A)
Elm
poison ivy laying on basswood tree
Black Cherry (A)
White Ash
dogwood
hawthorn
Bitternut hickory (A)
rock pile, exposed bedrock, hollow
prickly ash
prickly gooseberry
ash sapling
bloodroot
virginia creeper
buckthorn
Solomon seal
sweet cicely
blue cohosh
white snakeroot (A)
grass, sedges
ironwood
bladder sedge
greenish sedge

No
Date Page

Bitternut Hickory 48½ DBH

Basswood 32 & 42 DBH, 28 DBH, 28½
Bitternut Hickory, 29½ DBH
Trembling Aspen - 48, 48½
Black cherry - 28½, 33½
Yellow birch
fragrant bedstraw
Dense flowered rose
canada mayflower
raspberry sp.
connected to woodland
Scrub area North of forest wooded area
- prickly ash (A) & grape
hawthorn
dogwood
Trembling aspen
bur oak (D)
Sugar maple (A)
Elm (D)
Ash
Bitternut hickory
Basswood
Black cherry
Willow sp.
red bancberry
hickory saplings

Leopard Frogs calling

Wetland extends into field NE of woodland
very poor drainage
- sedges, grasses, rushes (D)
- willow sp.
- small pools to open water in drought
Field area near barn
- exposed bed
- butter & eggs / Toadflax
cow vetch
Canada goldenrod
raspberry sp.
common milkweed
Red elm
bedstraw
white pine
bladder campion
knapweed
tree bands
common mullein
black cherry
tall buttercup

No
Date Page

Chipmunk

"fill" piled of loose rocks with some area / hedgerow + exposed bedrock
- prickly ash
yarrow
wild carrot

Spruce coniferous area near barn
red cedar (D)
red pine hedgerow
larch/tamarack Fo
Spruce

predominant mixed
understory lichen

NE Field Fenceline

- Sapling (D)
- elm
- Ash
- basswood
- eastern dogwood (D)
- alternate leaved dogwood?
- Black cherry

Thicket Swamp
- Grey dogwood
- narrow leaved meadowsweet
- speckled alder (copse) Fo
- red pine
- black raspberry
- exposed bedrock
- Bur oak

Swamp sapling?
- Black Ash (R)

No
Date Page

Ash
prickly-ash
Smooth sp
Blue ash
Sugar maple
Buckthorn
Rock elm
hawthorn
Basswood

Hedgerow
- Amur maple

wildland area
yellow-throated warbler
ogrochill
white pine

No
Date Page

western - mesic Field

shrub/sapling
- prickly-ash
- Elm
- Sugar maple
- Black Locust (D) Plantation?
- common juniper
- Ash
- white pine sapling
- hungarian-cleaved meadowsweet
- hop hornbeam (declared)
Sugar maple (D)
Red Maple (D)
Elm
Green ash
Black locust
Tree of heaven
White pine (D)
White Ash
Buckthorn -
white pine (R)
Large tooth Aspen - possible shelterbelt
Basswood
Field / woodland

No
Date Page

South Woodlot

Groundcover - Sparse	CVR - 80%		
Trembling Aspen		wood chucks	
Sugar maple			
Blackthorn		American toad	
Spr, dogwood			
Green ash			
Basswood			
Prickly-ash (S)	understorey		
Blackgum	sapl		
White pine			
Ironwood			
[illegible] (A)			
<10 (A)			
downed decay (A)			
[illegible] (A)			
Red oak			
American Beech			
Elm			
Largetooth Aspen			
wild ginger			
fragrant bedstraw			
Stickflower ?			
Wild sarsaparilla			

No
Date Page

Sugar maple (D)
Yellow birch (D)
American beach (D)
Ironwood
White ash
groundcover
- ferns
- sugar maple saplings

Point Count Data Form

Observer: S/LV	Site: NB Loads	Date: June 2 '11
Station ID: PC01	Visit #: 1	Start Time (HH:MM): 07:06
Beaufort Wind Scale: B3-4	Cloud Cover (%): 75	Temperature (°C): 18
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

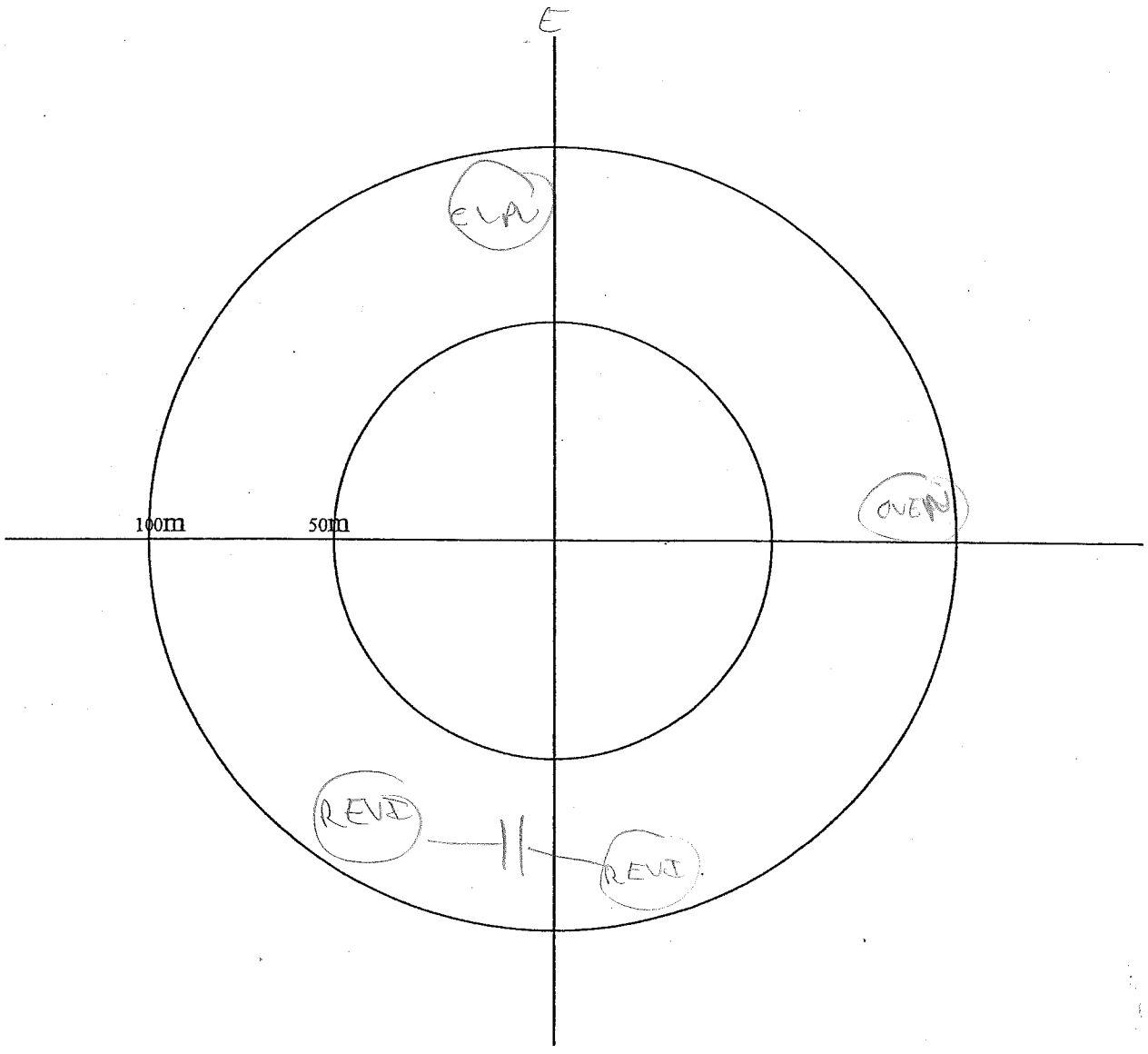
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - V BS
4 - WABS

Outside/Flythru
EWPW
OVEN
AMCR



Point Count Data Form

Observer:	Site:	Date:
Station ID: PCO7	Visit #:	Start Time (HH:MM): 07:45
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

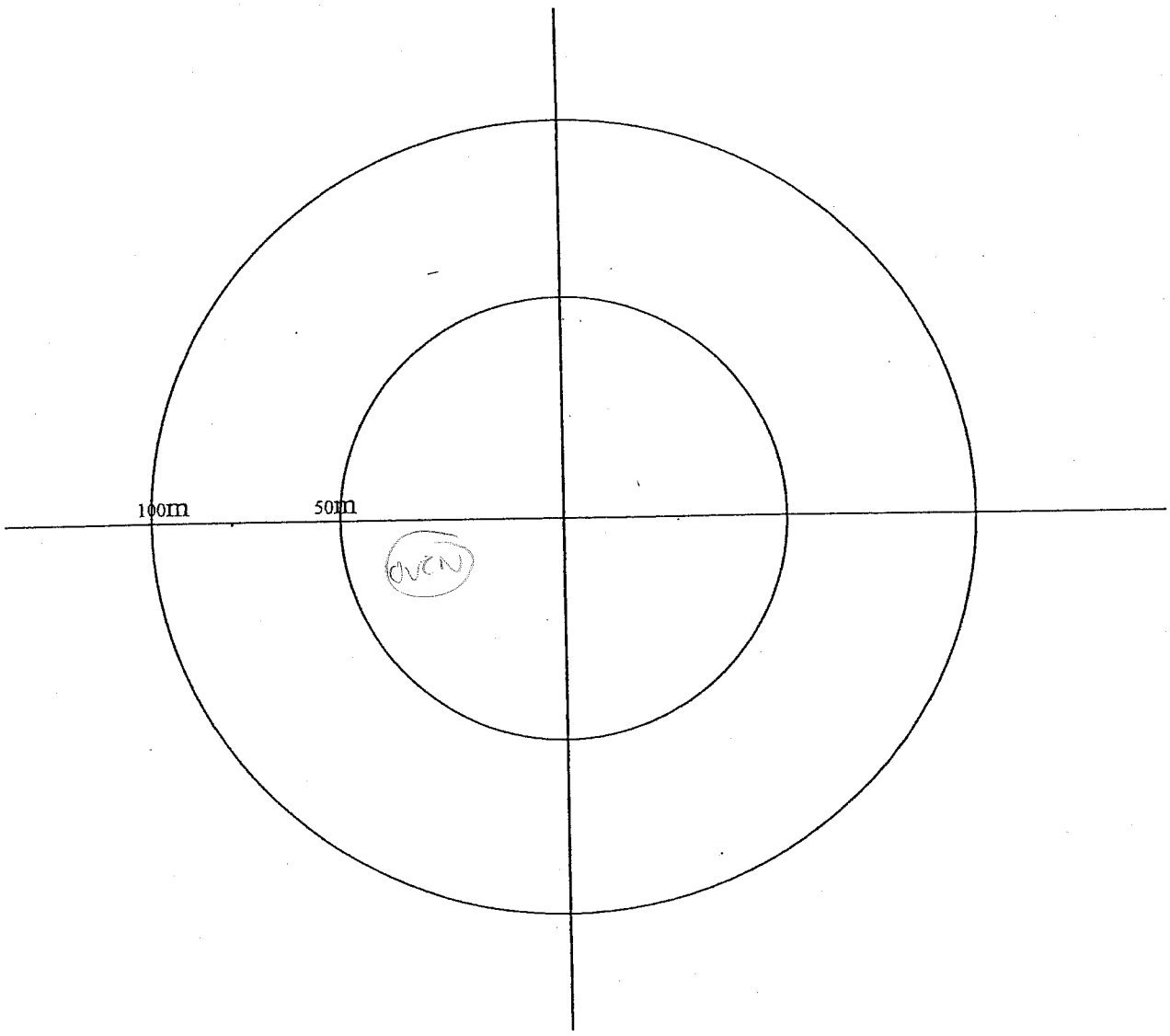
Symbols

- (RWBL) Single bird, singing/calling
- (RWBL) ← (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - UBS
4 - WABS

Outside/Flythru
RWBA II
ELPA
AMER
OVEN



Wetland Point Count Data Form

Observer: Shin	Site: ~~[illegible]~~ NB	Date: June 1/11
Station ID: PT3	Visit #: 2	Start Time (HH:MM): 2045
Beaufort Wind Scale: B4	Cloud Cover (%): 20	Temperature (°C): 21
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

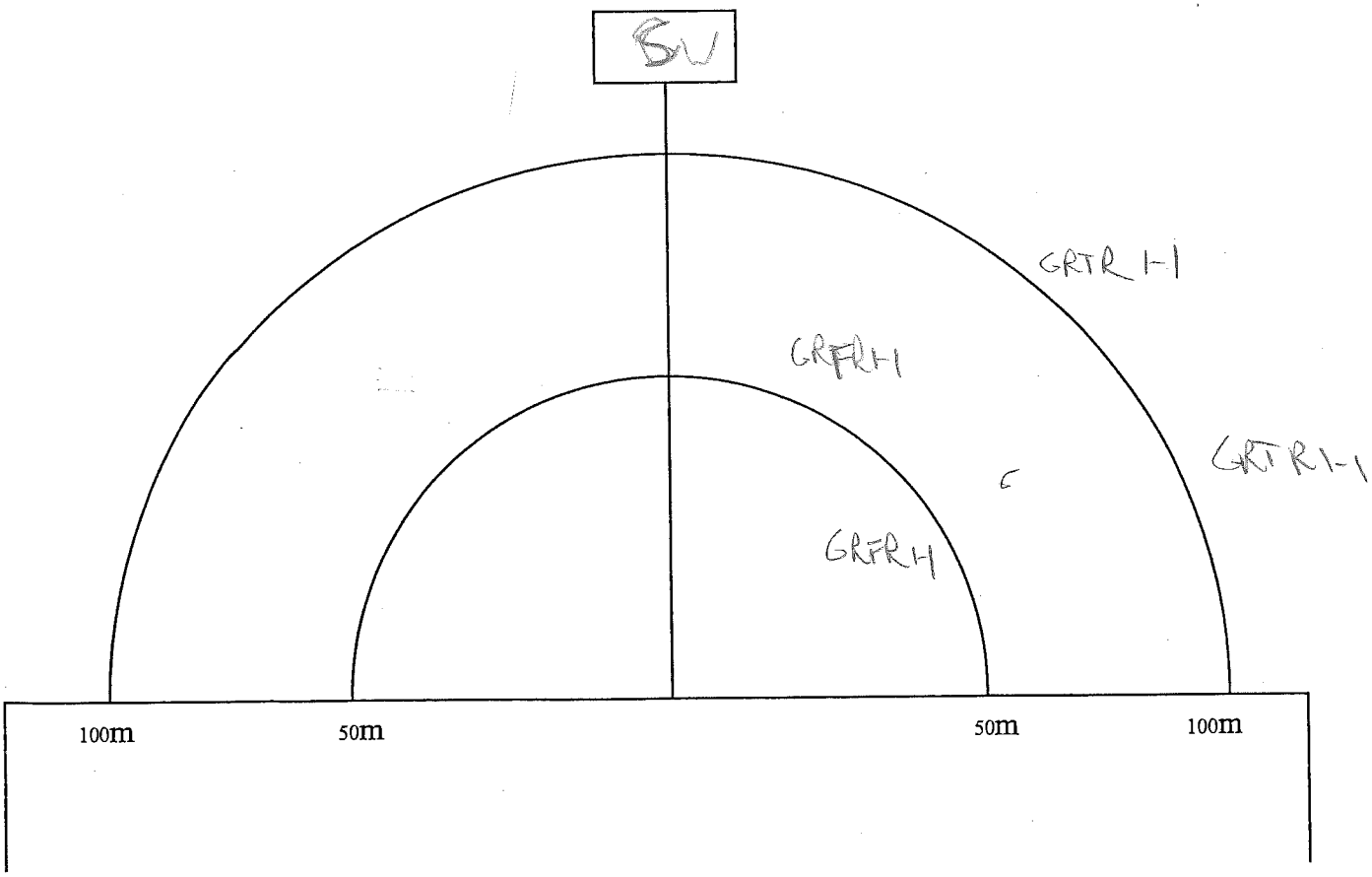
Known change in position. RWBL → RWBL

Nest ☆ TRES

Outside/Flythru	

SOSP

RWBL



Wetland Point Count Data Form

Observer: SKM	Site: N/B	Date: June 1/11
Station ID: WT 5	Visit #: 2	Start Time (HH:MM): 21:01
Beaufort Wind Scale: B3	Cloud Cover (%): 50	Temperature (°C): 21
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL RWBL

Pair together SWSP

Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

Known change in position. RWBL → RWBL

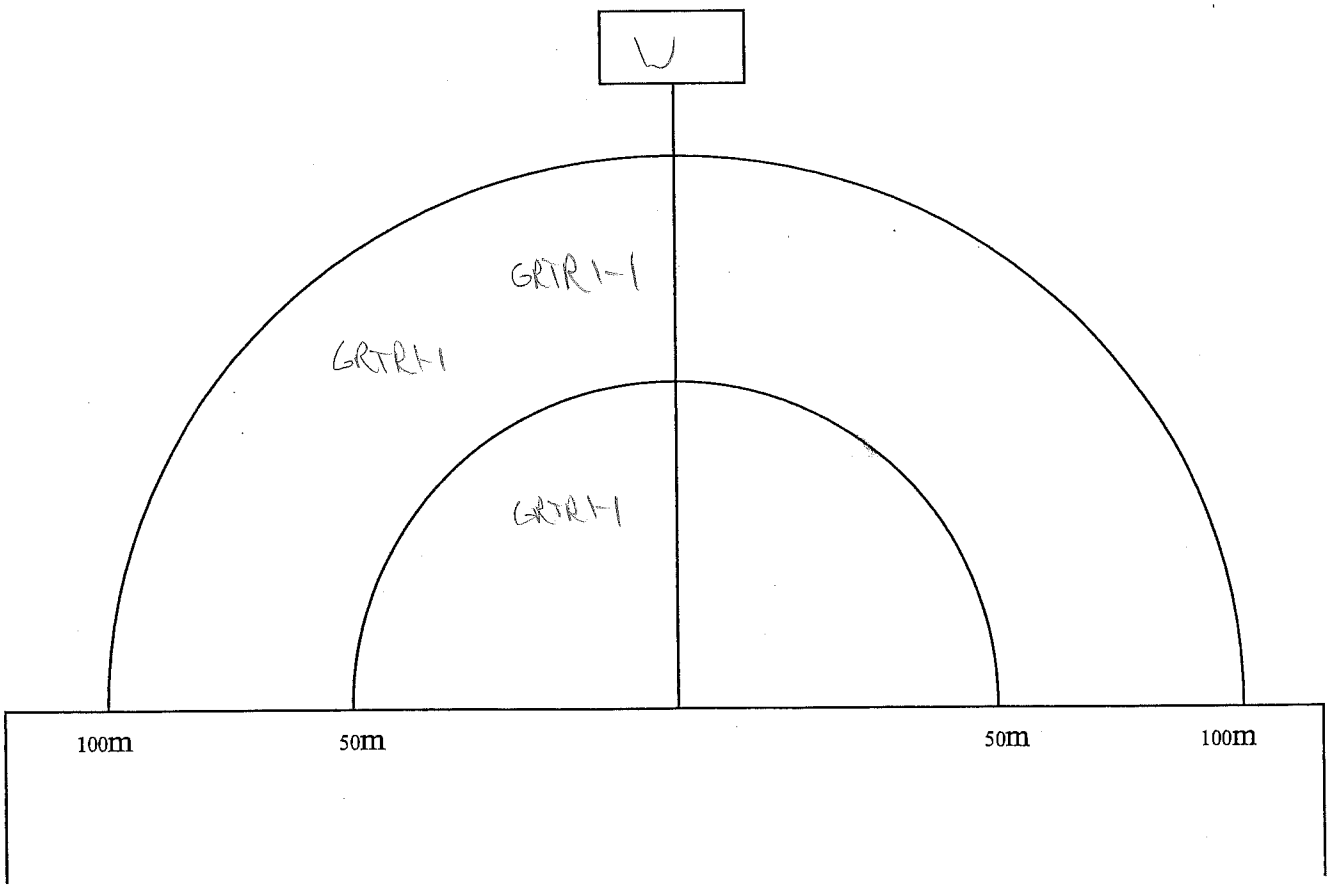
Nest ☆ TRES

Outside/Flythru	

GRHE Flyg USL

SORA

WOOD - P - 50



Wetland Point Count Data Form

Observer: Shin	Site: NB	Date: June 1/11
Station ID: P14	Visit #: 2	Start Time (HH:MM): 9:13
Beaufort Wind Scale: B 1	Cloud Cover (%): 75%	Temperature (°C): 25
Precipitation: —	Visibility: clear	
Remarks: occ. car noise, curious passerby		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

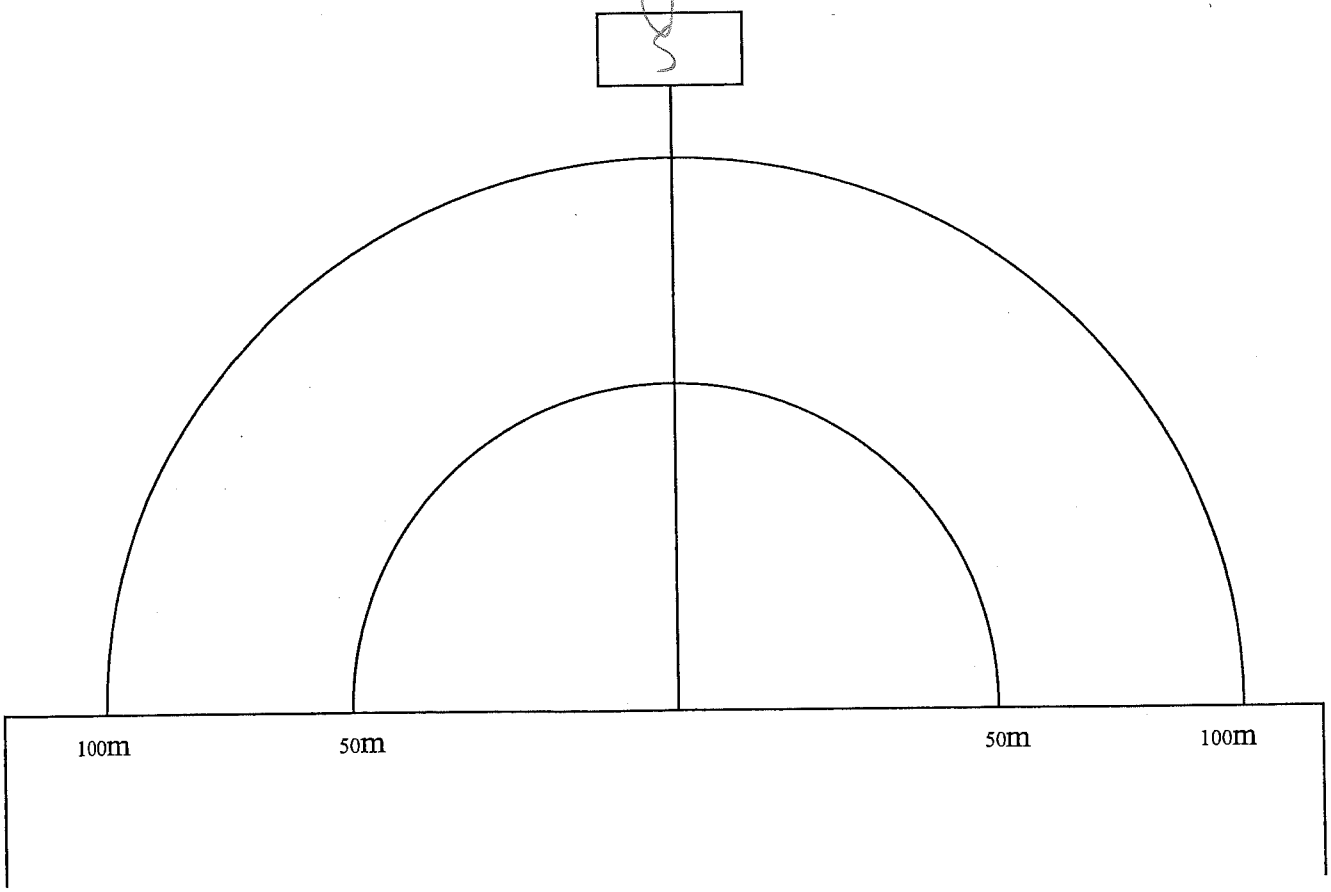
Known change in position. RWBL → RWBL

Nest TREES

Outside/Flythru	

no frogs

S



Wetland Point Count Data Form

Observer: Skm	Site: NB	Date: June 1
Station ID: PT 1	Visit #: 2	Start Time (HH:MM): 2:19
Beaufort Wind Scale: B4	Cloud Cover (%): 80	Temperature (°C): 21
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

Known change in position. RWBL → RWBL

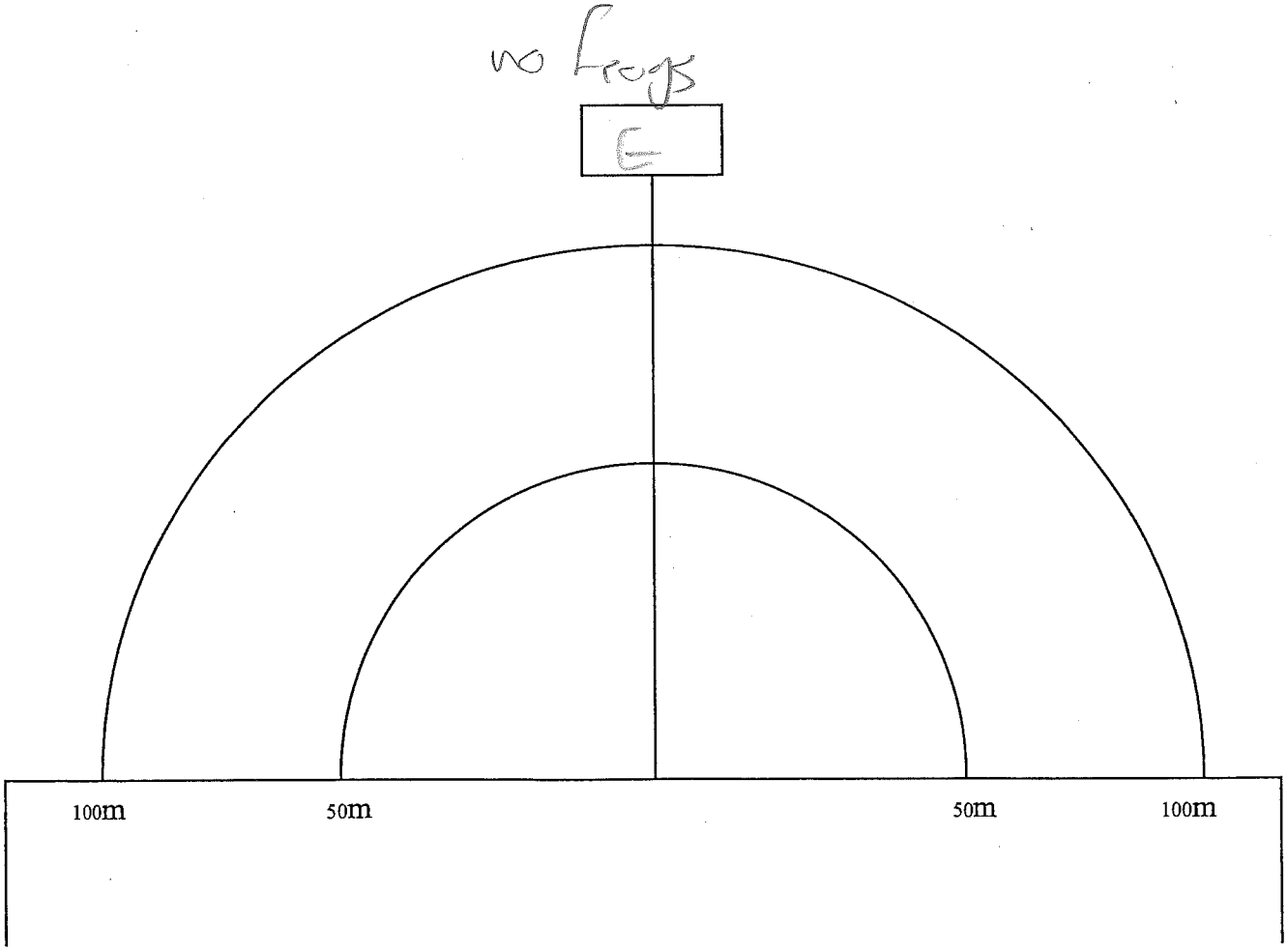
Nest TRES

Outside/Flythru	

Skype in wetland

no frogs

E



Wetland Point Count Data Form

Observer: SKH	Site: NB	Date: June 1 '11
Station ID: pt 2	Visit #: 2	Start Time (HH:MM): 21'25
Beaufort Wind Scale:	Cloud Cover (%): 80	Temperature (°C): 19
Precipitation:	Visibility:	
Remarks: reg. road noise; backshore cleared out beaver dam; impacted other		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

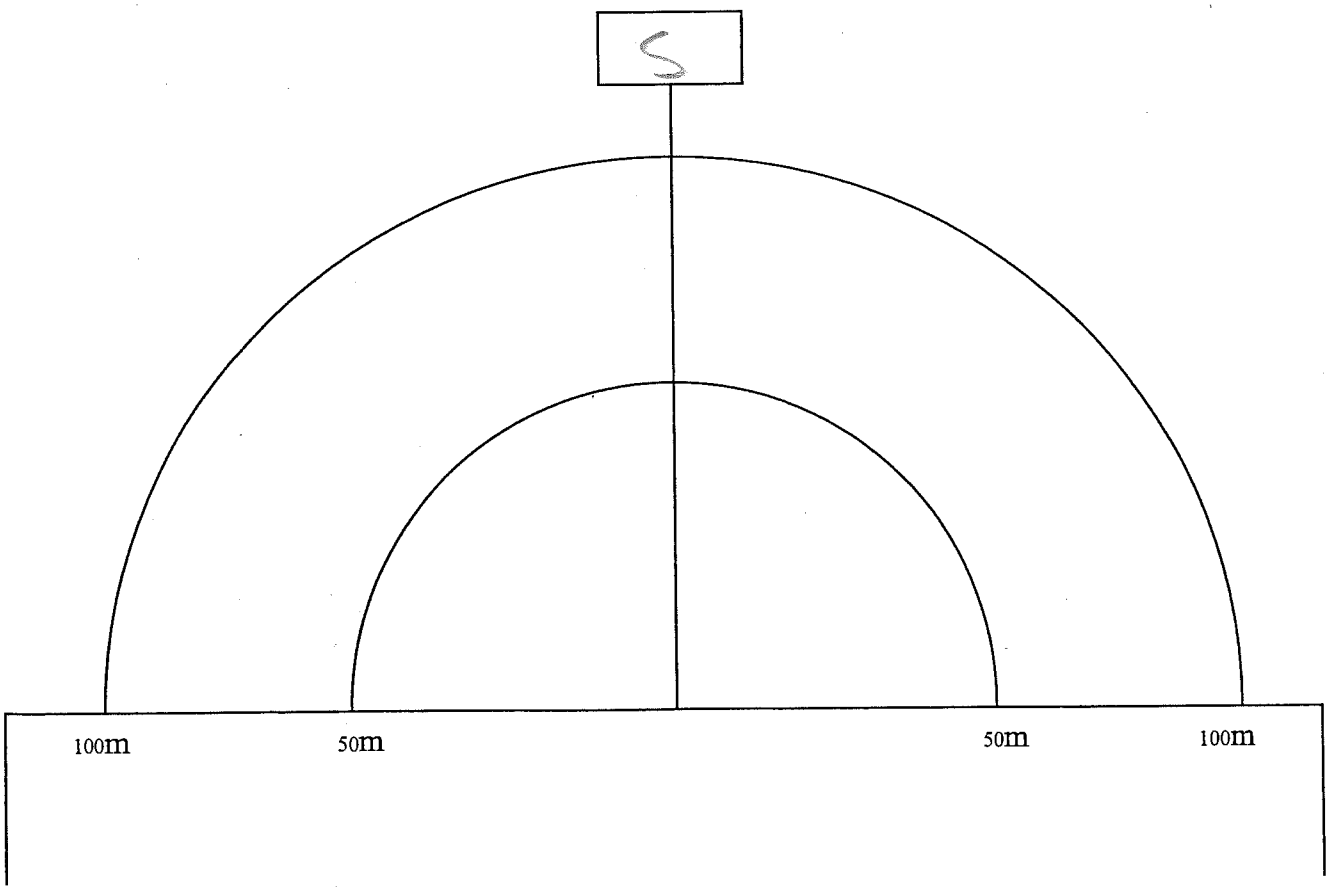
Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

Known change in position. RWBL → RWBL

Nest TRES

Outside/Flythru	



Amphibian Point Count Data Form

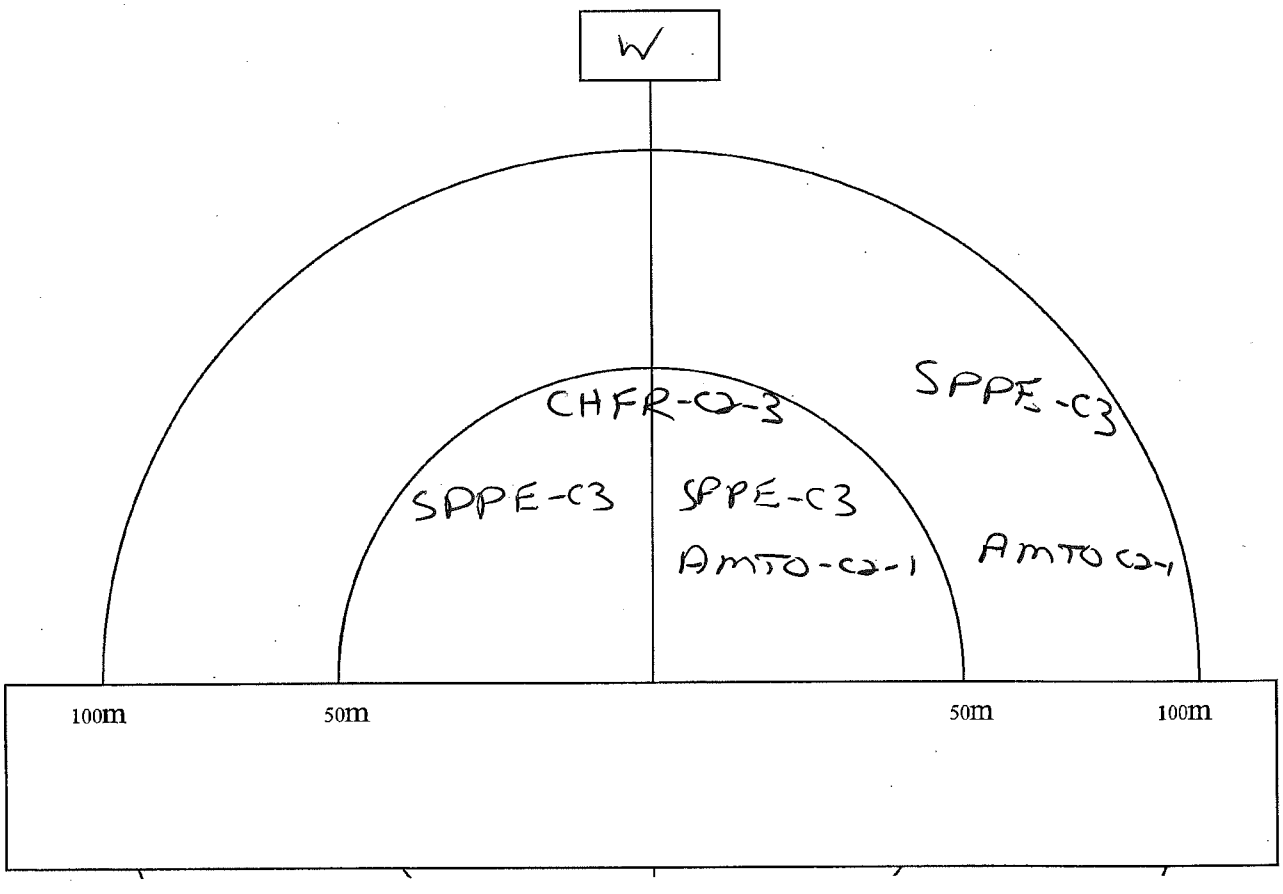
Observer: Caleb + Noam	Site: No. 7a Bulsecs	Date: May 7
Station ID: 5	Visit #:	Start Time (HH:MM): 9:45
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 9:48
Precipitation: 0	Visibility: Ex	Temperature (°C): 10
Remarks:		
Behind old Barns to the west - Field Edge.		
Wetland begins. 5m then open water.		

Aerial Foragers		
Species	**IN***	**OUT****
AMTO	✓	✓
BCFR		
BULL		
CHFR	✓	✓
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	✓
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**



Amphibian Point Count Data Form

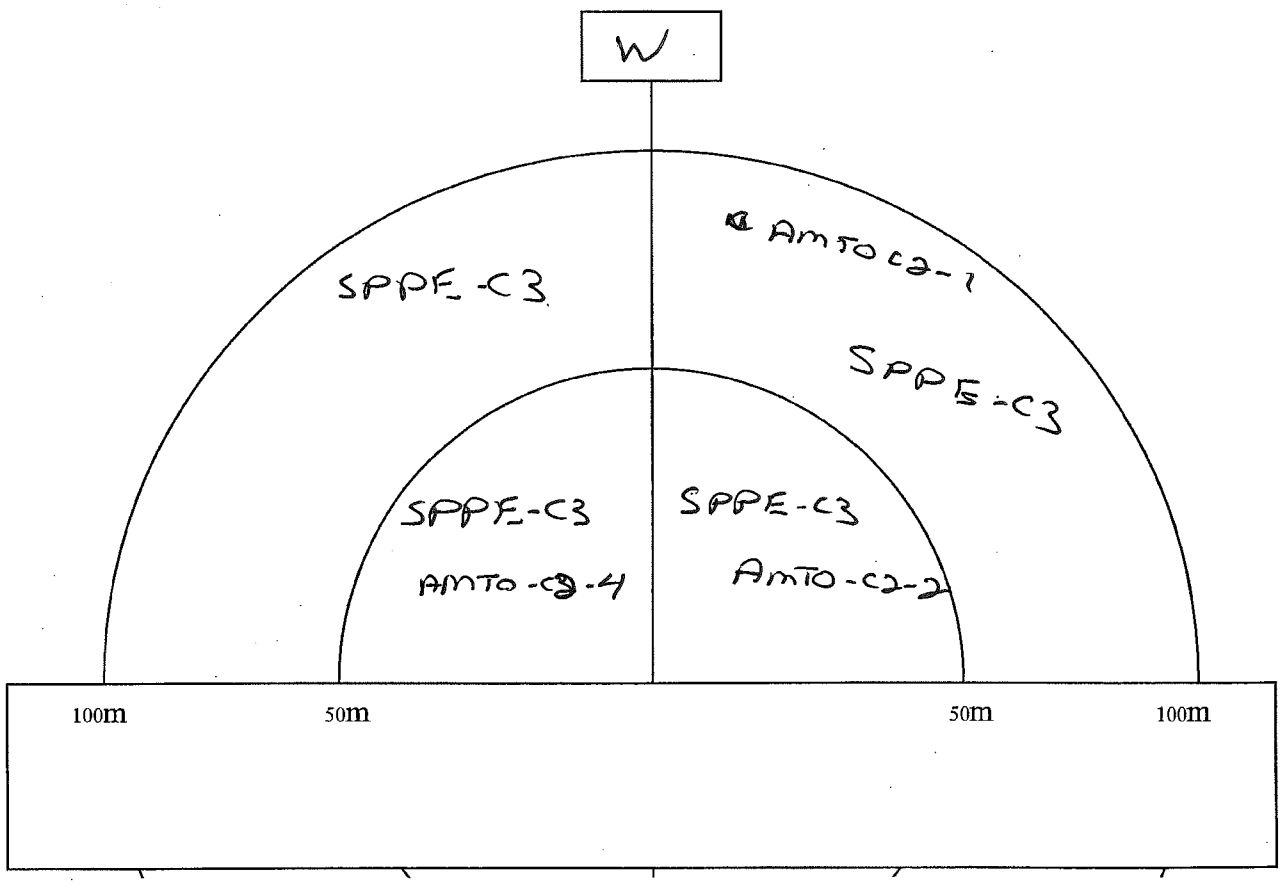
Observer: Caleb + Noam	Site: North Burgess	Date: May 7th
Station ID: 3	Visit #:	Start Time (HH:MM): 9:00
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 9:03
Precipitation: 0	Visibility: Ex	Temperature (°C): 10
Remarks: Edge of Planted Field - Open Water.		
10m in Flat Flooded Grass in first 10m		

Aerial Foragers		
Species	**IN***	**OUT****
AMTO	✓	✓
BCFR		
BULL		
CHFR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	✓
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**



Amphibian Point Count Data Form

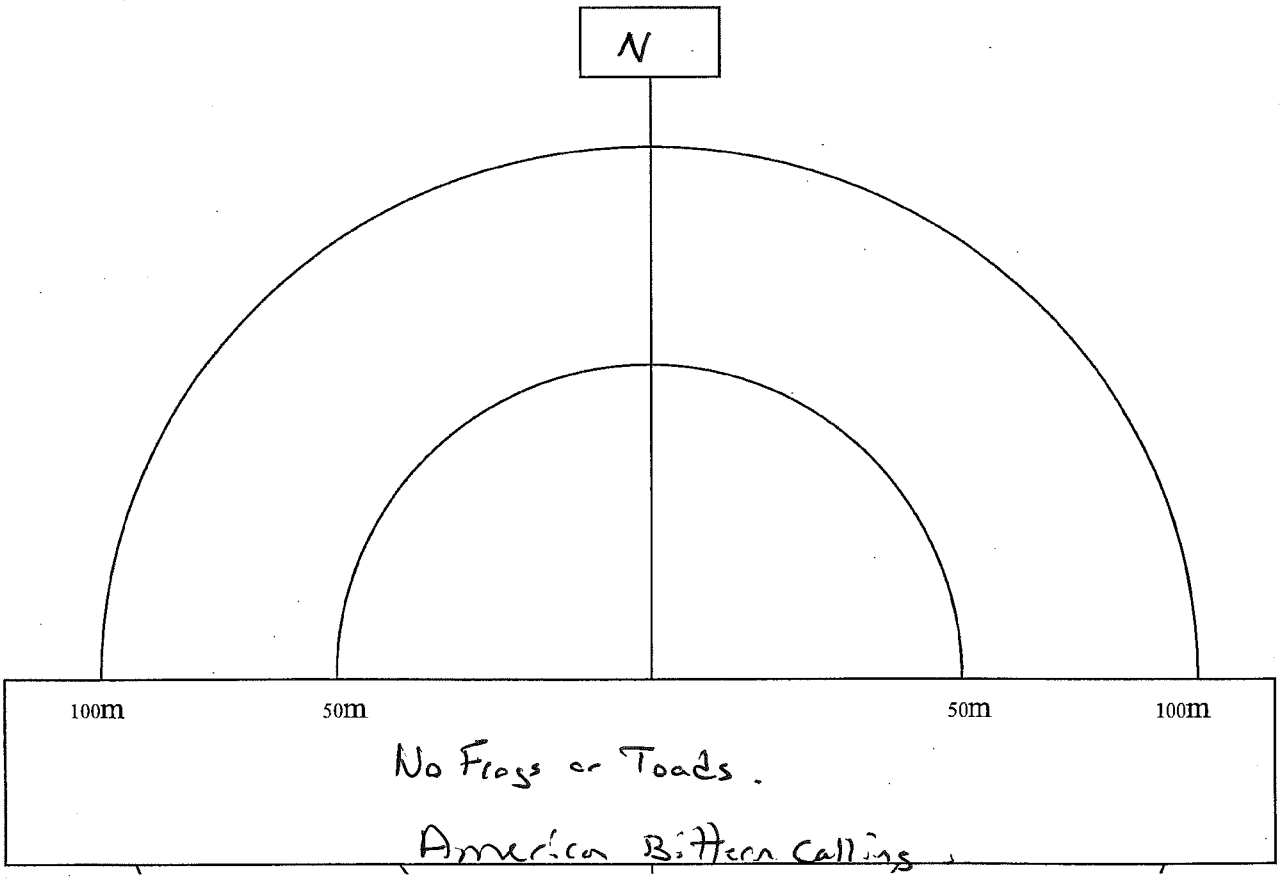
Observer: Caleb + Norm	Site: NB-1 North Burgess	Date: May 7th
Station ID: 1	Visit #:	Start Time (HH:MM): 8:10
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 8:13
Precipitation: 0	Visibility: Ex	Temperature (°C): 10°C
Remarks:		
Roadside - Narrows Lock Road. cattail marsh		
with some of Road - No Frogs / American Bittern Seen and Heard		

Aerial Foragers		
Species	**IN***	**OUT****
AMTO		✓
BCFR		
BULL		
CHFR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		✓
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**



Amphibian Point Count Data Form

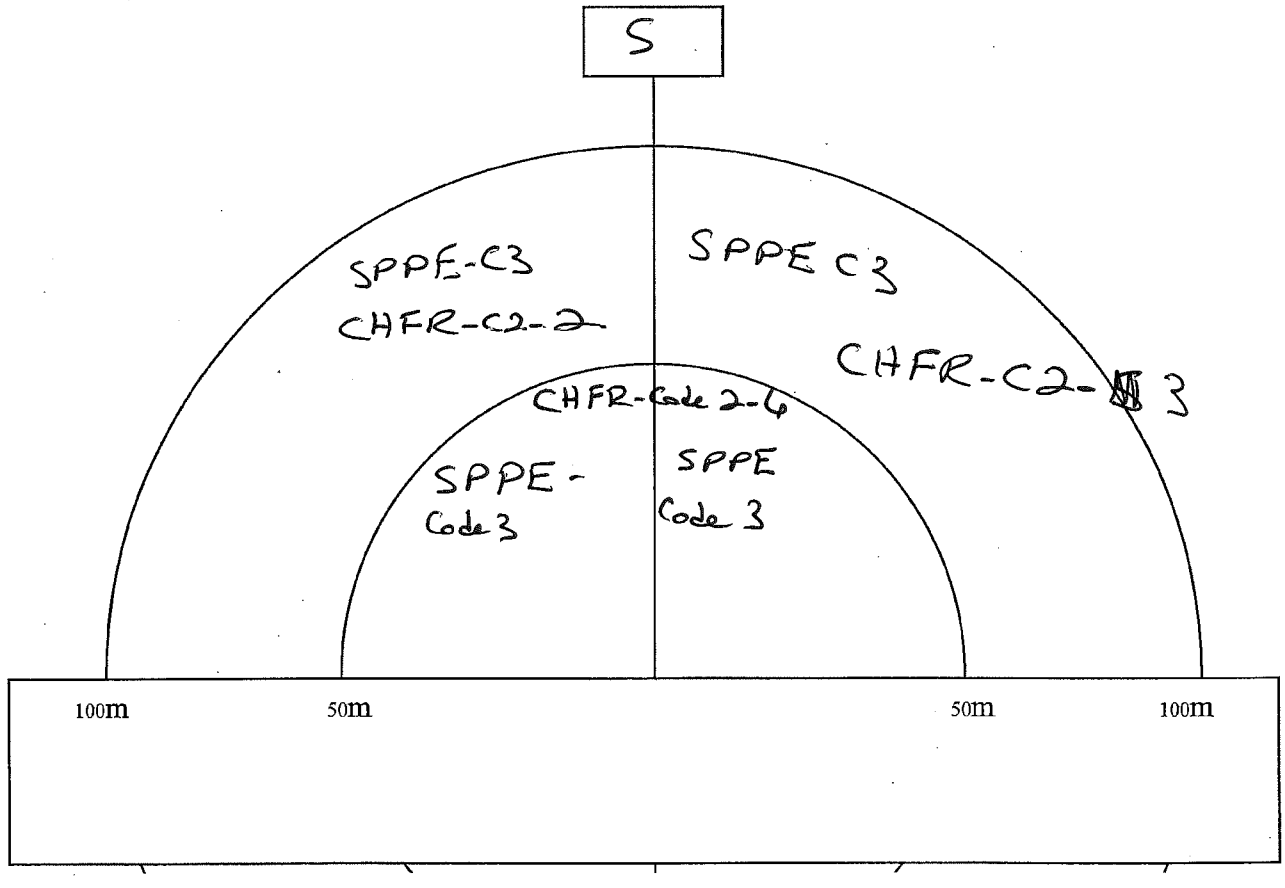
Observer: Caleb + Noem	Site: North Bulgess	Date: May 7th
Station ID: 2	Visit #:	Start Time (HH:MM): 8:25
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 8:28
Precipitation: 0	Visibility: Ex	Temperature (°C): 10°C
Remarks:		
Approx 30m off Road. open water in Front + to the West. Beaver dam		

Aerial Foragers		
Species	**IN***	**OUT****
AMTO	✓	✓
BCFR		
BULL		
CHFR	✓	
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	✓
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**



Amphibian Point Count Data Form

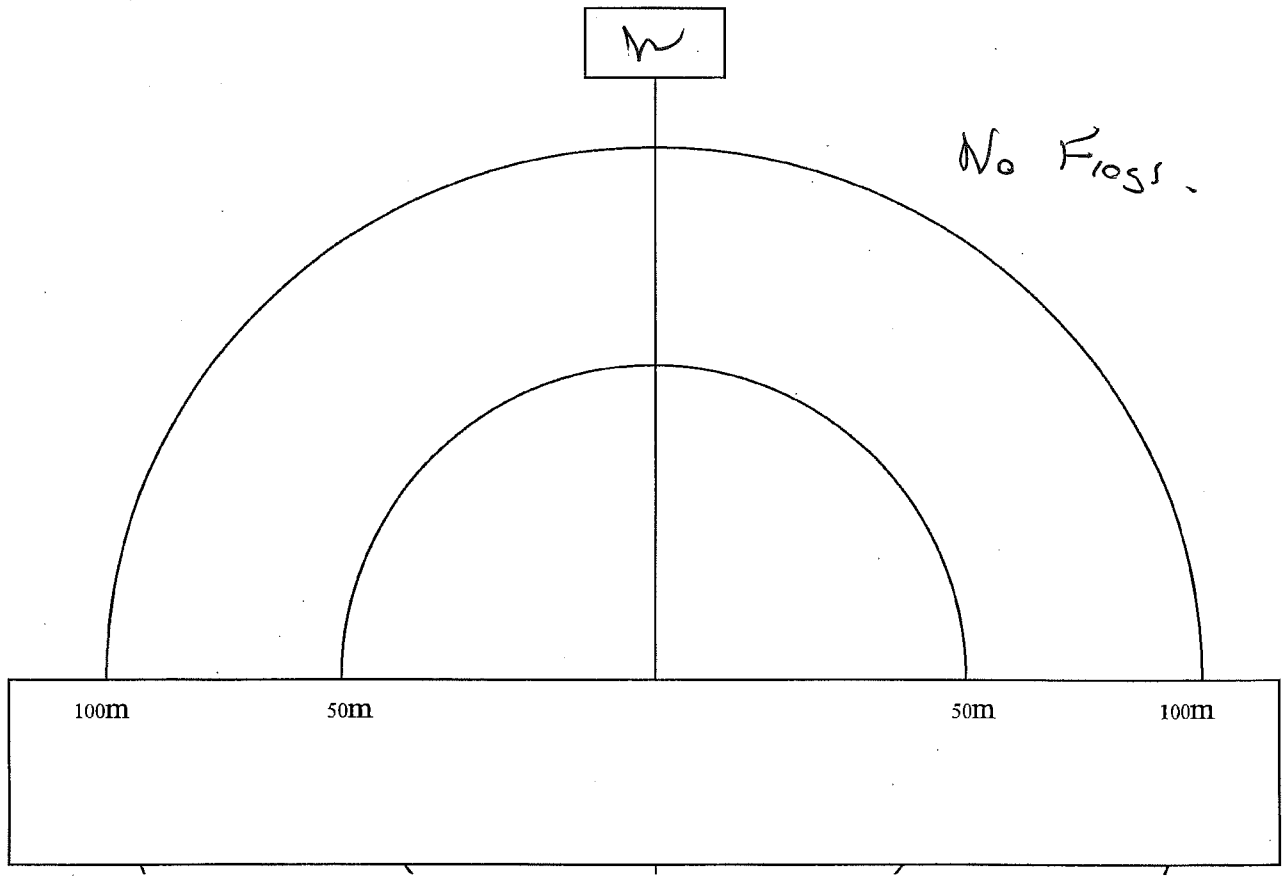
Observer: Caleb + Norm	Site: North Bulgess	Date: May 7th
Station ID: 4	Visit #:	Start Time (HH:MM): 9:20
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 9:23
Precipitation: 0	Visibility: Ex	Temperature (°C): 10
Remarks:		
Roads: 2e Woodland - Vernal Pools		
No Calls		

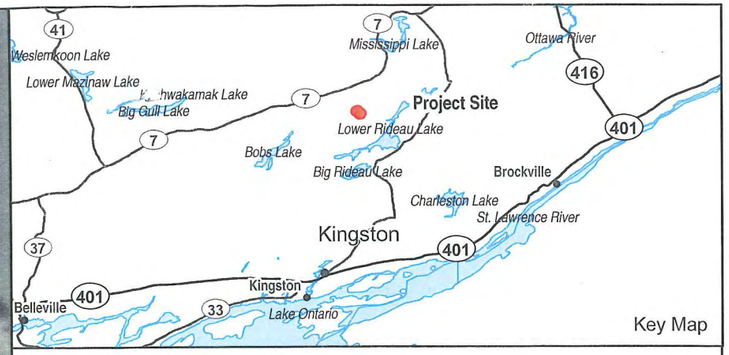
Aerial Foragers		
Species	**IN***	**OUT****
AMTO		
BCFR		
BULL		
CHFR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**





Legend

- Roads
- Grassed Waterways
- Watercourse
- Average Annual High Water Mark
- 30m Setback From High Water Mark
- Project Site
- Study Area
- Parcels
- Unevaluated Wetland
- Unevaluated Wetland Noted During Site Investigation

Project Components

- Connection Point With Existing Distribution Line
- Project Footprint Boundary
- Path Walked

0 30 60 120 Meters

1:3,008

NORTH

Notes:
1. OBM and NRVIS data downloaded from LIO, with permission.
2. Spatial referencing UTM NAD 83, August 2010.
3. Satellite imagery from Google Earth Pro.

Figure 4.1
Northland Power Inc.
North Burgess Solar Project
Water Body and Project Boundaries

HATCH™

P:\NORTHLAND\333751\DATABASES\334844\GIS\NBurgess\North Burgess - waterSiteInvestigation.mxd

May 7th
North Burgess.
Least B: Hen - Call Back 8:15 am - No call
Rat Snake - Transects 9:40 am
Temp 14°C, Sunny,

Red Tail Hawk observed - Large white - Pine - Nest protection Behaviour.

Transects Completed. 1:30 - No Snake Seen -
Raptor Call Backs Played.
14 Location See Map - No response
Red tail Nest Search. 2 old Nests - Possibly unfinished constructions, GPS would not work in Forest See map for Nest Locations

Amphibian See Data Sheets -

Owls Playback Same Points as Raptors - 10:15 pm - 11:30 pm
No Owls Heard/Seen

Scale: 1 square = _____

North Bur...
Woodlot Evaluation
12:05 pm Friday Oct 8th
5:45 pm
Small Game trail ...
North east corner ...
Raccoon ...

Only one large white ...
... canopy ...
... pileated ...

Turkey Vulture ... circling ...

Small Game Trail ... middle ... Red Squirrel ... at Neighbors ... Raccoon ... Porcupine ... Empty ... Deer ... Norway ... Tamias ... White Birch ...

Planted
along

Approx 20m of Low lying Pool - Sensitive few majority of the 30's - Pool

NLR Forest
Few mature
Scatter then 12inches. DBH -

Abund. t
Sapp. to DBH.

Sparse

Less the 1%
100% leaf litter

A lot of Browse Available
None Seen.

American Beach

Canopy 

Sub Canopy 

85m of [illegible] Start increas
[illegible]m in age a few [illegible]
Wind Apples - most leader
Dying - excellent cavity
Trees. Pines - GPS Con-[illegible]

Black Cherry Canopy


Sub Canopy

Pecan Trees Increase Productivity
Sweet Gum, Ash, Photo
Yellow Birch [illegible]

No Sign of Bear use

40m West of Pool 2

Transition Area more open

45m of Buckthorn

Space Hard Mesic

No evidence of Disturbance

South Side Conifer bedding

Into Red Pine plantation

GPS - Trans

Photos East - West

On outer East Side of marsh

Bush - Dahoon Spruce - Young

plantation road.

Resume

Space Iron Wood.

Flagging Tape - Forest Property line - White Spruce plantation, become Red Pine plantation
CPS WS-RP

North Edge of Beech
Deciduous portion of Beech
Red Pine mostly young
trees less the 4in DBH
too many to count ~~exactly~~
approximately 75.
visible from one location
Only 3 would be in sample

Beech Hall or Pasture Edge
change to only include
~~same~~ possible Mast producers

Beech mast producer
~~at~~ 23 + Li

Marking West of Beech Stand
Resumes back to maple with
Spruce Iron Wood.

Red Pine Plantation — Approx 40 years
Regeneration of old fence line
Stone Piles -
GPS OLD Fence - RP
Red cherries canopy

Western side of RP plantation
old Stone fence
GPS - Stone fence
- photo's

Western side of fence
- Buckthorn
- Norway maple

Red Pine Plantation Trees
& White Spruce plantation
towards Eastern property
boundary
GPS - RP-WS
Photo's

7

No

- Eastern Chipmunk
- Red Squirrel
- Wild turkey Scratchings
- Coyote tracks in plowed field
No fresh scat or sign

Elc - Red Pine ~~Forest~~ CUP3-1

- Hemlock - FOD5
within stands Pockets of FOD5-2

White Spruce Cup 2-2

VB Vessel BWS

June 1

Start 08:00
End 09830

WEFL → Vessel
RIVER → Shoreline
BRTH → Shoreline
OVEN → Vessel
BWA → Shoreline
COVE - Shoreline / Vessel

Green Buoys calling in vessel → ~5

Vessel

BWA
OVEN III
COVE
BECH II
EWPV III
AMCR I
REVE III
BLUA

MAWA

VP. 44.81584
-76.3033

edge of spruce E
44.81449
-76.30262

S edge of pine
Lat. 44.81391
Long -76.3059

edge of spruce W
44.81408
-76.30388

HATCH™

Woodlot Located in Center of Farm.

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Burgess		POLYGON:	
SURVEYOR(S): Caleb + Sean	DATE: June 1	TIME: start	
		finish	
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Large toothed Aspen, Basswood, Black Cherry
2	SUB-CANOPY	3	3	Buckthorn, White Ash
3	UNDERSTOREY			
4	GRD. LAYER	7	4	Grasses.

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	O	25 - 50	N	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy - loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: unk		(cm)

COMMUNITY CLASSIFICATION: ELC CODE

COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FOD3-1

North End / Eglund western Field.

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Burgess - 2 | POLYGON:

SURVEYOR(S): Caleb + Sean | DATE: June 1 | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
SITE		G TALUS	COVER	G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
G OPEN WATER		G ALVAR	G OPEN		G PRAIRIE
G SHALLOW WATER		G ROCKLAND	G SHRUB		G THICKET
G SURFICIAL DEP.		G BEACH / BAR			G SAVANNAH
G BEDROCK		G SAND DUNE	G TREED		G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	3	Locust - Black, Bucktheen
2	SUB-CANOPY	4	1	Bucktheen, Black Locust
3	UNDERSTOREY			
4	GRD. LAYER	5	1	Raspberry - Purple + Red, Golden Rod, Virginia Creeper

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 6 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand Loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:

POLYGON:

DATE:

SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

South End of Western Field

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Bwoss - 3 | POLYGON:

SURVEYOR(S): Caleb + Sea | DATE: Jun 1 | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
SITE	G BASIC BEDRK.	G VALLEY SLOPE	COVER	G FORB	G MARSH
G OPEN WATER	G CARB. BEDRK.	G TABLELAND	G OPEN	G LICHEN	G SWAMP
G SHALLOW WATER		G ROLL. UPLAND	G SHRUB	G BRYOPHYTE	G FEN
G SURFICIAL DEP.		G CLIFF	G TREES	G DECIDUOUS	G BOG
G BEDROCK		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	Hard Maple, Ironwood, Black Cherry
2	SUB-CANOPY	4	3	Hard Maple, Ironwood.
3	UNDERSTOREY			
4	GRD. LAYER	7	3	Grasses, Horsetail, Sugarcane Moss.

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	A	< 10	O	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	O	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 1cm		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: 15		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:
POLYGON:
DATE:
SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FODS-4

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - South Woodlot	POLYGON:	
SURVEYOR(S):	DATE:	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Hard maple, White Birch, Yellow Birch, Beech
2	SUB-CANOPY	2	3	Ironwood, Hard maple.
3	UNDERSTOREY			
4	GRD. LAYER	7	1	Ferns, moss.

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	N	< 10	R	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	O	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy-Loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry-fresh	DEPTH OF ORGANICS: 3-4		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown.		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR:

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FOD 5-1

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - Spruce Plantation	POLYGON:	
SURVEYOR(S): Caleb + Sean	DATE: June 1	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	White Spruce.
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	R	< 10	A	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	R	< 10	N	10 - 24	N	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC-CUP3-8

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - Red Pine Plant	POLYGON:	
SURVEYOR(S): Caleb + Sam.	DATE:	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
SITE		G TALUS	COVER	G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
G OPEN WATER		G ALVAR	G OPEN		G PRAIRIE
G SHALLOW WATER		G ROCKLAND	G SHRUB		G THICKET
G SURFICIAL DEP.		G BEACH / BAR	G TREED		G SAVANNAH
G BEDROCK		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Red Pine
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	N	< 10	A	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	O	< 10	V	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 1		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC-CWP3-1