GroupeHemispheres

Migrating Birds Survey for the LabMag Project Mine Site, Spring and Fall 2011

NEW MILLENNIUM IRON

TATA

Technical Report

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Your order: NML-00-2064

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(Refer also to the list of personal communications in the References section)

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS AND SYMBOLS

^{0}C	Degrees Celsius
AOU	American Ornithologists' Union
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWS	Canadian Wildlife Service
DSO	Direct Shipping Ore
GHI	Groupe Hémisphères
GPS	Global Positioning System
GIS	Geographic Information System
hr	Hour
km	Kilometer
km/hr	Kilometer per hour
m	Meter
min	Minute
MRNF	Ministère des Ressources naturelles et de la Faune
NML	New Millennium Iron Corp.

1 INTRODUCTION

Groupe Hémisphères (GHI) was mandated by New Millennium Iron Corp (NML) to conduct environmental studies on a future taconite mine, called the LabMag Project, located in Labrador west of Schefferville. This report describes the bird communities that were encountered there during the spring and fall migrations of 2011.

1.1 Birds Potentially Found in the Study Area

In order to properly prepare inventories, the birds potentially found in the study area need to be known. Birds are typically classified in three categories: terrestrial birds, aquatic birds and birds of prey. A brief description of these classes, including their presence in Labrador, is presented below. The study area is described in Section 2.3.

1.1.1 Terrestrial Birds

Terrestrial birds include songbirds and woodpeckers, as well as cuckoos, hummingbirds, Galliformes (partridges, grouse and ptarmigan), pigeons, doves, nighthawks, kingfishers and swifts. A total of 99 species of terrestrial birds are typically found in Labrador (AVIBASE, 2011).

1.1.2 Aquatic Birds

This group comprises the Anatidae family, including ducks, swans and geese, as well as other taxonomic groups considered aquatic birds, namely loons, grebes, cormorants, herons, cranes, rails, shorebirds, gulls and terns. AVIBASE list 96 species of birds in this category for Labrador, but 26 of them are exclusively found in marine habitats or close to the coast, so they will not be found in the study area.

1.1.3 Birds of Prey

This group comprises many taxonomic groups. Among diurnal birds of prey (Falconidae), 12 species are found regularly in Labrador. Among nocturnal birds of prey (Strigidae), 6 species of owls can be spotted in Labrador.

1.2 Species with Status

There are four species with status the distribution of which covers the study area (Table 1) (Environment and Conservation, October 2010). Some biotopes in the study area may be suitable for migrating stopovers. The survey techniques used are also designed to detect species of concern that may be present in the study area during their migrations. Eagles no longer have status under Federal legislation but they still do under Quebec legislation.

Table 1. Species with Status Potentially Found in the Study Area

COMMON NAME	SCIENTIFIC NAME	STATUS	
		Newfoundland and Labrador	Canada
Golden Eagle	*Aquila chrysaetos*	_	None
Harlequin Duck	*Histrionicus histrionicus*	Vulnerable	Special Concern
Peregrine Falcon	*Falcon peregrinus*	Endangered	Special Concern
Short-eared Owl	*Asio flammeus*	Vulnerable	Special Concern
Bald Eagle	*Haliaeetus leucocephalus*	_	None
Rusty Blackbird	*Euphagus carolinus*	_	Special Concern

1.3 Documents Consulted

The survey was designed in accordance with the current Canadian guidelines and with knowledge of the site being studied. The level of effort is considered sufficient to comply with survey requirements (Hanson *et al.*, 2009).

The following sources were consulted:

- Lists of bird species with status potentially found in the study area:
  - The federal species at risk list (COSEWIC, 2011);
  - the list of species protected under the *Endangered Species Act* of Newfoundland and Labrador (Environment and Conservation, 2011);
- Previous bird studies conducted in the vicinity of the study area:
  - *Breeding Bird Data Collection in the Howells River Basin of Labrador* (Golder Associates Ltd. and Global Environment, 2005);
  - *LabMag Iron Ore Project Waterfowl Breeding Pair Surveys* (Minaskuat Limited Partnership, 2008);
  - *Inventaire 2008 et 2009 des oiseaux nicheurs du futur site DSO* (Groupe Hémisphères, 2009);
- Previous bird studies in Labrador:
  - The Waterfowl Component Study Trans Labrador Highway (Happy Valley-Goose Bay to Cartwright Junction) report by Jacques Whitford (January 2003);
  - The Timing of Waterfowl Arrival and Dispersion during Spring Migration in Labrador, a scientific article by Chaulk and Turner (2007).

These sources gave information on:

- Species with status that may use the study area during their migrations;
- Species that are present regionally;
- Potential dates of migration for the aquatic birds.

The survey methodology took into account the information found in these sources.

2 METHODOLOGY

2.1 Validation Method

The proposed survey methodology was submitted to the Government of Newfoundland and Labrador and to the Canadian Wildlife Service (CWS) division of Environment Canada.

2.2 Classification

The English, French and Latin names of birds are based on the 7th edition and 52nd supplement to the list of birds North America (AOU, 2011).

2.3 Study Area

The NML LabMag claims area plus a buffer 3 km wide around its perimeter constitutes the study area.

2.4 Spring and Fall Migrations: Detailed Survey Techniques

Three types of surveys were performed: overland flights, short transects and adapted visits. The last two types are ground surveys done by walking. The overland flight paths and the locations of the ground surveys can be found respectively in Figures 1 and 2. Because the fall migration lasts much longer than the spring migration (Bauchinger and Klaassen, 2005), two separate visits were made in fall. The first visit, in August, targeted passerines and shorebirds, while the second, in late September, targeted geese and ducks.

A sighting refers to a bird that was heard or seen. For some groups, such as birds of prey, the number of sightings certainly overestimates the number of individuals present in the study area, because the same bird can be observed repeatedly throughout the survey period. An effort was made not to count an individual more than once on the same day.

2.4.1 Overland Flights

In the spring, waterfowl were surveyed by helicopter in a two-phase survey: one on May 21 and another on May 28, for a total of 10 hr 23 min of flight. During the fall season, waterfowl surveying by helicopter took place over three consecutive days, from September 27 to 29, for a total flight time of 6 hr 32 min. The overland flights targeted waterfowl, but all birds that could be identified were noted, including birds of prey, other aquatic birds (gulls, shorebirds, loons) and terrestrial birds.

The crew was composed of four members:

- The pilot;
- An observer-navigator, seated next to the pilot, who was responsible for maintaining the flight path. The observer-navigator recorded the GPS coordinates and entered all of the relevant bird sightings on a data observation sheet;
- An observer-identifier, seated behind the pilot, who was responsible for making bird sightings and providing information to the observer/navigator on the species, number, sex and maturity, when possible, of all birds observed on that side of the aircraft;
- A fourth observer-identifier, seated behind the observer-navigator, who was in charge of locating birds, and providing information to the observer-navigator on the species, number, sex and maturity, when possible, of all birds observed on that side of the aircraft.

On completion of the survey, the GPS coordinates unique numbers were loaded into a GIS program and merged with the observation data spreadsheets to produce a single spreadsheet combining all of the

location and sighting data. When different species were observed at the same GPS unique number, a decimal number was added to the unique number for each species seen.

Overland flights also included the following:

- All open waterbodies and wetlands were overflown to locate waterfowl and other birds near the shorelines;
- Airspeed varied between 70 and 150 km/hr and flight altitude above ground level was between 20 and 50 m (Bordage *et al.,* 1992; Guérette *et al.*, 2009);
- The number of individuals, species, sex (if possible) and age (if possible) were recorded;
- The habitats of species with status were given special attention. These include rapids for Harlequin Ducks, cliffs for Golden Eagles and Peregrine Falcons and large open boggy habitats for Short-eared Owls;
- Date and time, weather and biotope were also noted.

2.4.2 Short Transects

Short transects are used to survey terrestrial birds, mostly songbirds and woodpeckers. They are conducted as follows:

- The survey is done in the morning, in the first five hours of light, if minimum weather requirements are met;
- The survey starts at least 5 min after the helicopter has shut down its engine;
- Two observers, spaced at least 150 m apart, walk 500 m in opposite directions and observe birds while doing so;
- Distance categories from the transect centre line (0 to 50 m, 50 to 100 m, more than 100 m) are recorded;
- The survey lasts about 30 min;
- The following data are recorded: number of bird observations, species and distance from the transect (category);
- Other recorded data are: date and time, weather, biotope, human or natural disturbances.

Transect locations were determined in a manner ensuring that each biotope surveyed (i.e., coniferous forest, shrubland and tundra) would be represented proportionately to its occurrence in the study area. During the spring survey, the songbird surveys were conducted between the two phases of the helicopter survey, namely on May 23 and 26. Ten short transects were each surveyed twice. These surveys took 12 hr and 12 min of effort. During the fall survey, short transects were carried out only once, on August 20, 21, 22 and 25, and took 6 hr and 32 min of effort.

Short Transects, Adapted Visits and Overland Flights
Spring

Virées courtes, visites adaptées et survols
Printemps

New Millennium Iron Corp.

LEGEND/LÉGENDE

Methodology/méthodologie

- Adapted visit/visite adaptée
- Short transect/virée courte
- Study area/aire d'étude
- Airborne route/trajet aéroporté

Infrastructure and mining components
infrastructures et composantes minières

- Labmag claim/ titres miniers Labmag

Map base/fond de carte

- Road/route
- Border/frontière
- Watercourse/cours d'eau
- Contour interval/courbe de niveau
- Waterbody/plan d'eau

*Hydronyms are oriented along the direction of water flow
*Les hydronymes sont orientés selon le sens d'écoulement de l'eau

0 1 2 3 4
Kilometers/Kilomètres

SCALE/ÉCHELLE: 1:105,000 UTM 19N NAD 83

FILE, VERSION, DATE, AUTHOR/
FICHIER, VERSION, DATE, AUTEUR:
GH-0271-a-01, 2012-03-02, P.L et L.B.

SOURCES:
Government of Canada, BNDT, 1:250,000, 1979
Government of Canada, CanVec, 1:50,000, 2002
Government of NL and government of Quebec, Boundary used for claims
New Millennium Capital Corp., Mining sites and roads

Gouvernement du Canada, BNDT, 1/250 000, 1979
Gouvernement du Canada, CanVecT, 1/50 000, 2002
Gouvernement de T-N-L et gouvernement du Québec, frontière utilisée pour les titres miniers
New Millennium Capital Corp., gisements et routes

GroupeHemispheres

Figure 1

Short Transects, Adapted Visits and Overland Flights
Fall

Virées courtes, visites adaptées et survols
Automne

New Millennium Iron Corp.

LEGEND/LÉGENDE

Methodology/méthodologie

- Adapted visit/visite adaptée
- Short transect/virée courte
- Study area/aire d'étude
- Airborne route/trajet aéroporté

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infrastructures et composantes minières

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Gouvernement de T-N-L et gouvernement du Québec, frontière utilisée pour les titres miniers
New Millennium Capital Corp., gisements et routes

GroupeHemispheres

Figure 2

2.4.3 Adapted Visits

Migratory staging areas, such as shallow ponds, lakeshores and herb fens, were identified during overland flights and were then revisited to survey for shorebirds using the adapted visits protocol. This protocol is similar to that of the short transects. It was developed to survey shorebirds that cannot be identified and counted from the air and is conducted as follows:

- The survey can be done at any time when there is sufficient daylight. The shorebirds are identified by sight and they might rest all day at the same place, so this survey is not restricted to the morning hours;
- The helicopter lands at a minimum distance of 100 m from the selected habitat;
- The survey starts at least 5 min after the helicopter has shut down its engine;
- Distance categories of sightings from the transect centre line (0 to 50 m, 50 to 100 m, more than 100 m) were recorded;
- The survey lasts between 20 and 40 min, depending on the size of the wetland;
- The following data are recorded: number of individuals, species and distance from the transect (category);
- Other recorded data are: date and time, weather, biotope, human or natural disturbances.

Five adapted visits in wetlands were carried out on foot, each visited twice in spring from May 21 to 28. In the fall, they were carried out only once, on August 20, 22 and 25 respectively, but the same five transects used in spring were visited. The total effort for these visits was 3 hr and 36 min in May, and 1 hr and 40 min in August. The total helicopter travel time during the short transects and adapted visits was 6 hr and 35 min in the spring, and 4 hr and 2 min in the fall.

3 RESULTS AND DISCUSSION

In spring 2011, 51 identified species of birds were recorded, while 39 species were recorded in fall. Both counts included species spotted in transit to and from the survey areas (Appendix I). For both seasons combined, 65 bird species were recorded. Four different biotopes were surveyed for migrating birds: coniferous forest, shrubland, tundra and wetland (Appendix II). The wetlands demonstrated the greatest diversity of birds in the spring, though the number of sightings was much lower in fall. A complete list of the bird species observed, both seasons combined, showing the survey code and the English, French and Latin names can found in Appendix III. Some pictures of birds taken during the surveys can be seen in Appendix IV.

3.1 Survey Conditions

Observation conditions varied from average to excellent, but the majority of the surveys were carried out in good or excellent conditions. May 24 was the only field day cancelled due to bad weather (rain and snow). Cloud cover was variable during the rest of the survey period, but no fog was encountered. The temperature varied between -5°C and 13°C during the survey period. Environment Canada's daily meteorological data for the survey months are available in Appendix V.

3.2 Effort

Tables 2 and 3 show the effort for the short transects and the adapted visits.

Table 2. Survey Effort in Short Transects and Adapted Visits, Spring 2011

BIOTOPE	CONIFEROUS FOREST	SHRUBLAND	TUNDRA	WETLAND (ADAPTED VISITS)
Transects per biotope	6	3	1	5
Amount of Time Per biotope	7 h 38	2 h 59	0 h 55	3 h 36
Transect Name	VC1, VC2, VC3, VC4, VC7, VC8	VC6, VC9, VC10	VC5	VA1, VA2, VA3, VA4, VA5

Table 3. Survey Effort in Short Transects and Adapted Visits, Fall 2011

BIOTOPE	CONIFEROUS FOREST	SHRUBLAND	TUNDRA	WETLAND (ADAPTED VISITS)
Transects per biotope	11	3	1	5
Amount of Time Per biotope	4 h 12	1 h 02	0 h 20	1 h 40
Transect Name	VC1, VC2, VC3, VC4, VC7, VC8, VC11, VC12, VC 13, VC14, VC15, VC16	VC6, VC9, VC10	VC5	VA1, VA2, VA3, VA4, VA5

3.3 Overland Flights

3.3.1 Spring

Figure 3 shows the sightings of waterfowl in spring. The most abundant species were the Green-winged Teal (*Anas crecca*) (81 sightings), Surf Scoter (*Melanitta perspicillata*) (61 sightings), Common Goldeneye (*Bucephala clangula*) (29 sightings), Common Merganser (*Mergus merganser*) (28 sightings) Canada Goose (*Branta canadensis*) (26 sightings) and American Black Duck (*Anas rubripes*) (26 sightings). Despite the high number of sightings of Canada Geese (26), Abraham Chemaganish, a Naskapi from Kawawachikamach, reported that local hunters had found it hard to find Canada Geese in the Schefferville and Kawawachikamach vicinity. They had had to drive as far as Menihek Dam.

Wilson's Snipe *(Gallinago delicata*) (45 sightings) and Short-billed Dowitchers (*Limnodromus griseus*) (22 sightings) were also encountered numerous times during the overland flights.

The birds of prey that were recorded included two sightings of Ospreys (*Pandion haliaetus*), one of Bald Eagle (*Haliaeetus leucocephalus*), one of Sharp-shinned Hawk (*Accipiter striatus*), two of Red-tailed Hawks (*Buteo jamaicensis*) and one of Northern Hawk Owl (*Surnia ulula*).

The detailed list of the birds seen during the spring overland flights, including GPS coordinates, species name, number of sightings, sex (if noted) is available in Appendix VI.

3.3.2 Fall

Figure 4 shows the sightings of waterfowl in fall. The most common species were the Hooded Merganser (*Lophodytes cucullatus*) (38 sightings), Common Merganser (32 sightings.) and Common Goldeneye (27 sightings). Other species observed included Green-winged Teal (5 sightings), Common Loon (*Gavia immer*) (4 sightings), Lesser Scaup (*Aythya affinis*) (3 sightings), Surf Scoter (2 sightings), Northern Pintail (*Anas acuta*) (1 sighting) and Red-breasted Merganser (*Mergus serrator*) (1 sighting).

Birds of prey were well represented, with three sightings of Bald Eagles, three of Rough-legged Hawks (*Buteo lagopus*) and one of Red-tailed Hawk.

The complete list of birds seen during the fall overland flights is available in Appendix I.

3.4 Short Transects

Three different biotopes were surveyed during the short transects. The bird list per biotope is presented in Appendix II. In general, birds were more abundant in spring than in fall.

3.4.1 Coniferous Forest

In spring, 244 sightings belonging to 24 species were made during the 6 short transects carried out in the coniferous forest. In descending order of importance, the most common species were Common Redpoll (*Acanthis flammea*) (59 sightings), White-crowned Sparrow (*Zonotrichia leucophrys*) (28 sightings), Ruby-crowned Kinglet (*Regulus calendula*) (26 sightings), American Robin (*Turdus migratorius*) (25 sightings) and Dark-eyed Junco (*Junco hyemalis*) (16 sightings). The coniferous forest was the only biotope where Spruce Grouse (*Falcipennis canadensis*), Northern Hawk Owl, American Three-toed Woodpecker (*Picoides dorsalis*), Brown Creeper (*Certhia americana*) and Boreal Chickadee (*Poecile hudsonicus*) were found.

In fall (late August), 120 sightings belonging to 20 species were made during the 11 short transects carried out in the coniferous forest. In descending order of importance, the most common species were the Common Redpoll (50 sightings), Gray Jay (*Perisoreus canadensis*) (18 sightings), Yellow-rumped

Warbler (*Setophaga coronata*) (8 sightings), White-crowned Sparrow (7 sightings), Dark-eyed Junco (6 sightings) and Blackpoll Warbler (*Setophaga striata*) (6 sightings). The Gray-cheeked Thrush (*Catharus minimus*), Black-backed Woodpecker (*Picoides arcticus*), Northern Shrike (*Lanius excubitor*), Wilson's Warbler (*Cardellina pusilla*), Blackpoll Warbler and Northern Waterthrush (*Parkesia noveboracensis*) were found exclusively in fall.

The coniferous forest biotope is the most extensive habitat in the study area. As a result, much more effort was spent there than in any other biotope.

3.4.2 Shrubland

In spring, 79 sightings belonging to 13 species were made during the 3 short transects carried out in the shrubland biotope. In descending order of importance, the most common species were the Common Redpoll (21 sightings), White-crowned Sparrow (16 sightings), American Robin (12 sightings), Willow Ptarmigan (*Lagopus lagopus*) (11 sightings) and American Tree Sparrow (*Spizella arborea*) (5 sightings).

In fall, 13 sightings belonging to 4 species were made during the 3 short transects. The Willow Ptarmigan was the most common species (8 sightings), while the other species encountered were the American Tree Sparrow (2 sightings), White-crowed Sparrow (2 sightings) and Common Redpoll (1 sighting).

3.4.3 Tundra

In spring, 34 sightings belonging to 7 species were made during the single transect carried out in the tundra biotope. The most common species were the White-crowned Sparrow (10 sightings), American Robin (9 sightings), Common Redpoll (6 sightings) and Willow Ptarmigan (4 sightings).

In fall, a lone Common Redpoll was the only bird seen during the single transect carried out.

Overland Flight Results
Spring

Observations du survol
Printemps

New Millennium Iron Corp.

LEGEND/LÉGENDE

Observations

Other species/autres espèces

Waterfowl/Sauvagine

Anatidae/anatidé

Wader/limicole

Species with status/Espèce à statut précaire

Bald Eagle/pygargue à tête blanche

Rusty Blackbird/quiscale rouilleux

Harlequin Duck/arlequin plongeur

Multiple observations - single point/ observations multiples - point unique

Study area/aire d'étude

91.2: GPS unique number/ no. unique du GPS

Infrastructure and mining components
infrastructures et composantes minières

Labmag claim/ titres miniers Labmag

Map base/fond de carte

Road/route

Border/frontière

Watercourse/cours d'eau

Contour interval/ courbe de niveau

Waterbody/ plan d'eau

Wetland/milieu humide

*Hydronyms are oriented along the direction of water flow
*Les hydronymes sont orientés selon le sens d'écoulement de l'eau

0 1 2 3 4
Kilometers/Kilomètres

SCALE/ÉCHELLE: 1:90,000 UTM 19N NAD 83

FILE, VERSION, DATE, AUTHOR/
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Gouvernement de T-N-L et gouvernement du Québec, frontière utilisée pour les titres miniers
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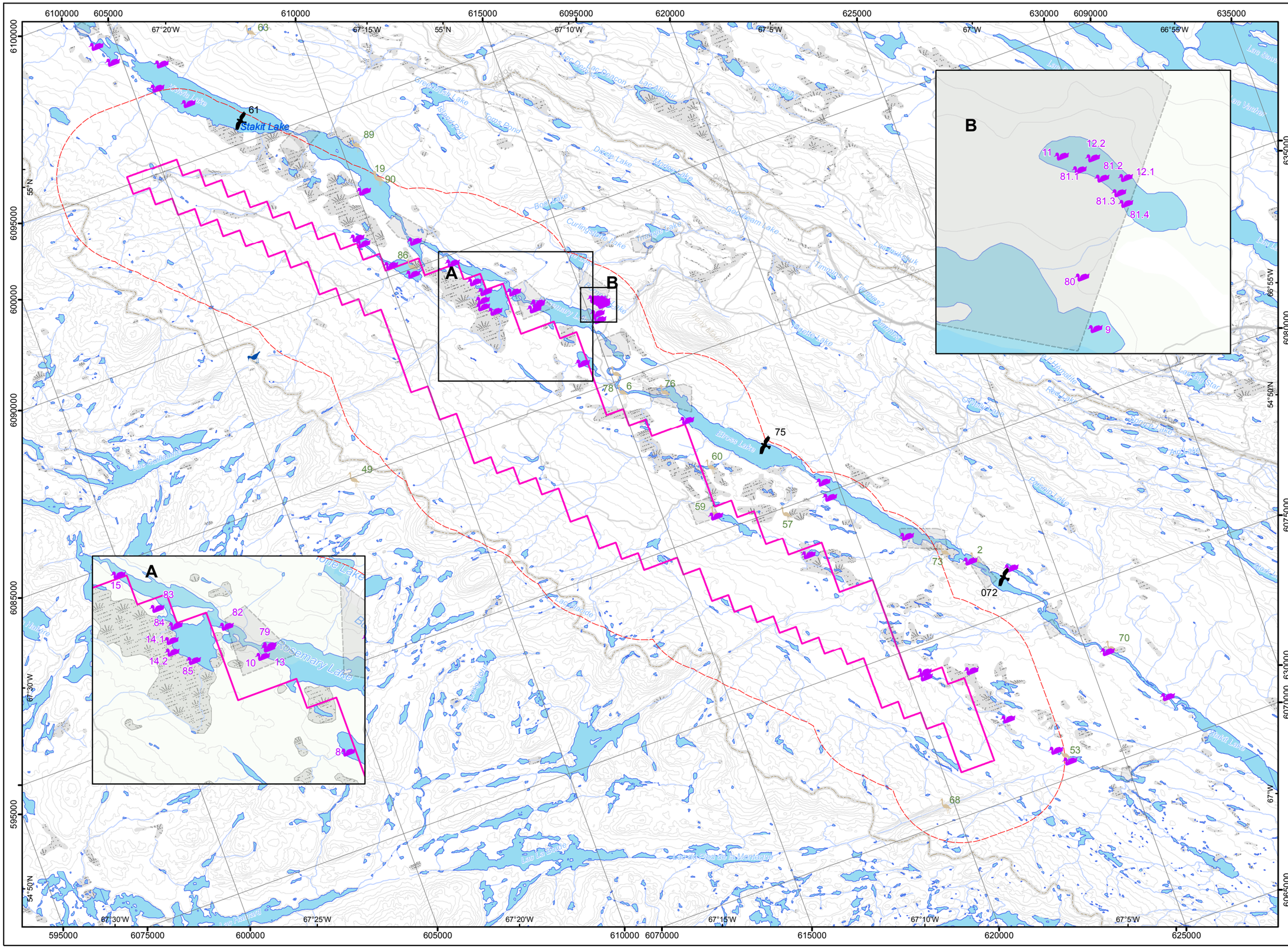
GroupeHemispheres

Figure 3

Overland Flight Results
Fall

Observations du survol
Automne

New Millennium Iron Corp.



LEGEND/LÉGENDE

Observations

- Other species/autres espèces

Waterfowl/Sauvagine

- Anatidae/anatidé
- Wader/limicole

Species of status/Espèce à statut

- Bald Eagle/pygargue à tête blanche

- Study area/aire d'étude
- Multiple observations - single point/ observations multiples - point unique

12.2: GPS unique number/ no. unique du GPS

Infrastructure and mining components
infrastructures et composantes minières

- Labmag claim/ titres miniers Labmag

Map base/Fond de carte

- Road/route
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- Waterbody/ plan d'eau
- Wetland/milieu humide

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0 1 2 3 4
Kilometers/Kilomètres

SCALE/ÉCHELLE: 1:100,000 UTM 19N NAD 83

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Gouvernement de T-N-L et gouvernement du Québec, frontière utilisée pour les titres miniers
New Millennium Capital Corp., gisements et routes

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Figure 4

3.5 Adapted Visits

3.5.1 Spring

In spring, the wetland was the richest biotope for bird diversity, with 32 species and 140 sightings (Appendix II), confirming its importance as a migration stopover. Bird diversity in this ecosystem was probably enhanced by the fact that, at this time of the year, there is less snow cover in wetlands than in any other biotope.

American Robin (30 sightings), American Pipit (*Anthus rubescens*) (21 sightings) and Rusty Blackbird (16 sightings) were the most abundant species. The Rusty Blackbird is a species with status and is fully presented in section 3.6.3.

For shorebirds, the Semipalmated Plover (*Calidris pusilla*) (5 sightings) was the most common species, followed by the Wilson's Snipe (4 sightings), Least Sandpiper (*Calidris minutilla*) (3 sightings), Greater Yellowlegs (*Tringa melanoleuca*) (2 sightings), Solitary sandpiper (*Tringa solitaria*) (2 sightings), and Lesser Yellowlegs (*Tringa flavipes*) (2 sightings).

3.5.2 Fall

In the fall, the wetlands were not as rich as in the spring. Only 22 sightings from 9 species were made. Gray Jay (5 sightings), Herring Gull (*Larus argentatus*) (5 sightings) and White-crowned Sparrow (3 sightings) were the most common species encountered. The observation of a single Red-breasted Nuthatch (*Sitta canadensis*) was noteworthy that far north. The only Lincoln Sparrow (*Melospiza lincolnii*) found in August was also in a wetland.

The only aquatic species seen other than the Herring Gull was a Common Loon. No shorebirds were found during this period. It appears that shorebirds probably use a different migration path and different staging areas in fall, most of them avoiding this region. Most species of shorebirds do not use the same staging areas in fall as in spring (Myers, 1983).

3.6 Species with Status

3.6.1 Harlequin Duck

A pair of Harlequin Ducks (*Histrionicus histrionicus*) was found along Howells River on May 21 (Figure 3). Eastern North American populations are listed as vulnerable in Canada (COSEWIC, 2011) and in Newfoundland and Labrador (Environment and Conservation, 2011). Considering that individuals, pairs or small groups tend to head directly from wintering grounds to breeding grounds (Kuchel, 1977), it appears likely that these birds were breeding in the study area. Smith (1998) observed that males were not found near nests 4–10 days after females began incubating. Considering that the eggs of Harlequin Ducks hatch in the last 10 days of July in northern Labrador (Rodway, 1998), it appears that the beginning of August would be the best time to confirm breeding for this species by attempting to spot the females with ducklings. Harlequin Ducks may prefer swift-moving sections of river early in the breeding season, and slower-moving stretches during brood-rearing (Kuchel, 1977).

3.6.2 Bald Eagle

A single adult Bald Eagle was seen in flight along Howells River near a waterfowl concentration area on May 28 (Figure 3). There were six sightings during overland flights in late September (Figure 4). Bald Eagles typically breed in forested areas adjacent to large bodies of water (less than 2 km from a suitable foraging waterbody) (Buehler, 2000). However, no nest structure was found near the lakes or anywhere

else in the study area The Bald Eagle is not considered a species of special concern in Canada or in Newfoundland and Labrador, but it is in Québec which is quite close.

3.6.3 Rusty Blackbird

There were 29 sightings of Rusty Blackbirds (*Euphagus carolinus*) during the spring survey. Most of them (16) were seen during adapted visits in the wetland biotope (VA1, VA2, VA3 and VA5). Nine were reported during short transects (VC2, VC3, VC6, VC7 and VC8) (Figure 1). Four sightings were noted in overland flights (Figure 3). Some of the Rusty Blackbirds observed were still in flocks, which suggests that some of them were still in migration, and their breeding density in the study area should not be expected to be very high. The Rusty Blackbird was also observed in fall, in August, with one on short transect VC7 and two in adapted visits (one in VA1 and another in VA5).

NML developed a mitigation plan to protect the riparian habitat used by the Rusty Blackbird for breeding (Groupe Hémisphères, 2011). It is based on protecting all plant strata (herbaceous species, shrubs and trees) adjacent to a watercourse, lake or wetland (Gagnon and Gangbazo, 2007).

3.7 Species of interest

Some unexpected species of birds were encountered in the study zone: in some cases the literature suggests that they are rare in the study area, while in other cases they have not previously been recorded so far north.

3.7.1 Hooded Merganser

There were 38 sightings of Hooded Mergansers in fall, but none in spring. The northern breeding limit of Hooded Merganser in Canada is poorly defined (Godfrey, 1986; Dugger *et al.*, 2009). Most recent maps of Hooded Merganser distribution do not include Labrador as part of the breeding range, but it appears that this species is probably more common in the north than what was previously thought. Recent studies have shown that this species breeds at low densities (2.3 pairs per 100 km²) in Quebec between the 51st and 58th parallels (Berthiaume *et al.*, 2009). Considering that the sightings of Hooded Mergansers in the study area were made in fall, it is possible that they migrate north to moult after the breeding season.

3.7.2 Short-billed Dowitcher

There were 22 sightings of Short-billed Dowitcher in spring during the overland flight, but none in fall. The Short-billed Dowitcher is a distinct subspecies (*Limnodromus griseus griseus*) that nests in north-central Quebec and western Labrador, from approximately the 52nd parallel north to Ungava Bay and from James Bay and south-eastern Hudson Bay east to central Labrador (Godfrey 1986; Cotter, 1995). Few nesting confirmations are known and David (1996) considers this species a rare migrant in Quebec.

3.7.3 Northern Hawk-Owl

There were two sightings of Northern Hawk-Owl in spring. Ranked as of “Medium” concern (85th of 297 birds considered) among the Canadian birds evaluated for setting conservation, research, and monitoring priorities (Dunn 1997), the species is considered as a low-density breeding bird, with 0–6 pairs/100 km² in the Yukon (Rohner *et al.,* 1995). It is considered as a rare bird and one of the least studied birds in North America (Duncan *et al.*, 1998).

3.7.4 Brown Creeper

There were three sightings of Brown Creeper in spring, all in mature coniferous forest in the Howells River valley. The northernmost confirmed breeding records for this species in Quebec/Labrador come from Lac

Mistassini (Harrap and Quinn, 1995) and Harrington Harbour (Shaffer and Alvo, 1996). There have been no previous sightings of this species in Labrador, even though it does breed in Newfoundland (Tyler, 1948). The three sightings in the study area were made at two different locations and included a pair observed foraging together and a single singing male.

4 CONCLUSION

GHI was mandated by NML to conduct bird surveys during the 2011 spring and fall migrations. Three techniques were used in order to properly evaluate each group of birds: overland flights were used to count waterfowl, short transects were used for terrestrial birds in forest, shrubland and tundra biotopes while adapted visits were done in wetlands to identify shorebirds.

The study area was used by more species in spring (51 species) than in fall (39 species). Sixty-five (65) species were recorded in spring and fall combined. The overland flights showed the greatest difference in use between seasons; with a similar effort, there were 423 bird sightings in the spring compared to 131 in the fall.

The wetland biotope was the richest habitat in terms of bird diversity. Small numbers of shorebirds were found in wetlands in spring, but none in fall. Shorebird species, beginning with the most frequent all methods combined, were Wilson's Snipe, Short-billed Dowitcher, Semipalmated Plover, Least Sandpiper, Greater Yellowlegs, Solitary sandpiper and Lesser Yellowlegs.

The Rusty Blackbird, a species with status, uses the wetland habitat for foraging during its spring migration (16 sightings), but it was also found in the coniferous forest and shrubland habitats during the short transects. A total of 29 sightings of Rusty blackbird was recorded in spring.

A pair of Harlequin Ducks (also a species with status) was also found during an overland flight in an apparent breeding habitat along Howells River.

The Bald Eagle, not a species with status in Newfoundland and Labrador or in Canada, was observed both in spring (1 sighting) and fall (6 sightings).

The survey revealed the presence of four species of interest. These are rare species such the Short-billed Dowitcher and the Northern Hawk-Owl or species north of their known distribution, such as the Hooded Merganser and the Brown Creeper.

In general, spring was the season when the study area was most critical as a staging area. In general fewer birds were found in fall. Despite the fact that the scientific community agrees that the migration routes of birds are poorly known in Canada, we can still say that, in a regional context, the study area is located within a valley that seems to act as an important corridor for the spring migration.

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APPENDICES

Appendix I

Bird Species Observed in Migration, by Season

Bird Species Observed during the Migration Season - Fall

*** indicates the species is listed as federally or provincially at risk

Site / Survey	Group	Code & Name	Number of observations: overland flight	short transect	long transect*	adapted visit	travel	TOTAL
TACONITE - LABMAG PROJECT			**139**	**134**		**22**	**49**	**344**
MIGAULM11			**139**	**134**		**22**	**49**	**344**
BIRDS OF PREY			**7**	**1**				**8**
	*** PYTB	Bald Eagle	3					3
	BUQR	Red-tailed Hawk	1	1				2
	BUPA	Rough-legged Hawk	3					3
AQUATIC BIRDS			**120**	**3**		**6**		**129**
	PLHU	Common Loon	4			1		5
	SPAN	Anatid (Duck or Swan)	3					3
	SAHI	Green-winged Teal	5					5
	CAPI	Northern Pintail	1					1
	PEFU	Lesser Scaup	3					3
	SPMA	Scoter sp.	1					1
	MAFB	Surf Scoter	2					2
	GAOO	Common Goldeneye	27					27
	HACO	Hooded Merganser	38					38
	GRHA	Common Merganser	32					32
	HAHU	Red-breasted Merganser	1					1
	SPOR	Shorebird	1					1
	CHSO	Solitary Sandpiper		1				1
	GOAR	Herring Gull	2	2		5		9
LANDBIRDS			**4**	**130**		**16**	**49**	**199**
	TECA	Spruce Grouse	1				7	8
	LASA	Willow Ptarmigan		8				8
	SPPI	Woodpecker		1				1
	PIDR	American Three-toed Woodpecker		1			1	2
	PIDN	Black-backed Woodpecker		1				1
	MECA	Gray Jay		18		5		23
	GRCO	Common Raven	2			1		3
	METB	Boreal Chickadee		1			6	7
	SIPR	Red-breasted Nuthatch				1		1
	ROCR	Ruby-crowned Kinglet		1				1
	GRJG	Gray-cheeked Thrush		3				3
	MEAM	American Robin		6		1		7
	PGGR	Northern Shrike		1				1
	PAJA	Yellow Warbler					1	1
	PACJ	Yellow-rumped Warbler		8			7	15
	PARA	Blackpoll Warbler		6				6
	PARU	Northern Waterthrush		1				1
	PACN	Wilson's Warbler		1			1	2
	BRHU	American Tree Sparrow		5				5
	BRFV	Fox Sparrow					2	2
	BRLI	Lincoln's Sparrow				1	1	2

Project : Taconite Project (NML & TSMC)
Query : 01-02-2012

Bird Species Observed during the Migration Season - Fall

*** indicates the species is listed as federally or provincially at risk

Site / Survey	Group	Code & Name	Number of observations: overland flight	short transect	long transect	adapted visit	travel	TOTAL
	BRCB	White-crowned Sparrow		9		3		12
	JUAR	Dark-eyed Junco		6			2	8
***	QURO	Rusty Blackbird		1		2	20	23
	SIFL	Common Redpoll		52				52
	TAPI	Pine Siskin					1	1
	SPPS	Passerine				2		2
	SPSP	Bird	1					1
MAMMALS			**8**					**8**
	CASTH	North American Beaver lodge	6					6
	SPMAM	Mammal	2					2

* method not use in this project

Bird Species Observed during the Migration Season - Spring

*** indicates the species is listed as federally or provincially at risk

Site / Survey	Group	Code & Name	Number of observations: overland flight	short transect	long transect*	adapted visit	travel	TOTAL
TACONITE - LABMAG PROJECT			**424**	**357**		**140**	**1**	**922**
MIGPRLM11			**424**	**357**		**140**	**1**	**922**
BIRDS OF PREY			**6**	**1**		**1**	**1**	**9**
	BAPE	Osprey	2			1		3
	*** PYTB	Bald Eagle	1					1
	EPBR	Sharp-shinned Hawk	1					1
	BUQR	Red-tailed Hawk	2					2
	CHEP	Northern Hawk Owl		1			1	2
AQUATIC BIRDS			**407**	**10**		**20**		**437**
	PLHU	Common Loon	5					5
	BECA	Canada Goose	26	2		1		29
	SAHI	Green-winged Teal	81			1		82
	CANO	American Black Duck	26					26
	CACO	Mallard	1					1
	CAPI	Northern Pintail	4			1		5
	SPFU	*Aythya sp.*	3					3
	PEFU	Lesser Scaup	17					17
	*** ARPL	Harlequin Duck	1					1
	HAKA	Long-tailed Duck	5					5
	MANO	Black Scoter	4					4
	MAFB	Surf Scoter	61					61
	GAOO	Common Goldeneye	29					29
	GRHA	Common Merganser	28					28
	HAHU	Red-breasted Merganser	13					13
	SPOR	Shorebird	20					20
	PLSE	Semipalmated Plover				5		5
	GRCH	Greater Yellowlegs	9	1		2		12
	CHSO	Solitary Sandpiper	4			2		6
	BEMI	Least Sandpiper				3		3
	BERO	Short-billed Dowitcher	22					22
	BEWI	Wilson's Snipe	45	5		4		54
	GOAR	Herring Gull	3	2		1		6
LANDBIRDS			**10**	**346**		**119**		**475**
	TECA	Spruce Grouse	3	2				5
	LASA	Willow Ptarmigan	2	15				17
	SPPI	Woodpecker		1				1
	PIDR	American Three-toed Woodpecker		1				1
	PIFL	Northern Flicker				1		1
	ALHC	Horned Lark		2				2
	HIBI	Tree Swallow		1				1
	MECA	Gray Jay		10		12		22
	METB	Boreal Chickadee		9		1		10
	GRBR	Brown Creeper		3				3

Project : Taconite Project (NML & TSMC)
Query : 01-02-2012

Bird Species Observed during the Migration Season - Spring

*** indicates the species is listed as federally or provincially at risk

Site / Survey	Group	Code & Name	Number of observations: overland flight	short transect	long transect	adapted visit	travel	TOTAL
	ROCR	Ruby-crowned Kinglet		27		8		35
	MEAM	American Robin		46		30		76
	PIAM	American Pipit		2		21		23
	JABO	Bohemian Waxwing		5		5		10
	PGGR	Northern Shrike	1					1
	SPPA	Warbler		2				2
	PACJ	Yellow-rumped Warbler		12		1		13
	SPBR	Sparrow		2				2
	BRHU	American Tree Sparrow		15		3		18
	BRPR	Savannah Sparrow				1		1
	BRFV	Fox Sparrow		12		1		13
	BRLI	Lincoln's Sparrow		3				3
	BRGB	White-throated Sparrow		1				1
	BRCB	White-crowned Sparrow		54		7		61
	JUAR	Dark-eyed Junco		18		1		19
***	QURO	Rusty Blackbird	4	9		16		29
	DUSA	Pine Grosbeak		7				7
	SIFL	Common Redpoll		86		11		97
	SPPS	Passerine		1				1
MAMMALS			**1**					**1**
	OURSN	American black bear	1					1

* method not use in this project

Appendix II

Bird Species by Biotope vs Ground Survey

Bird Species Observed during the Migration Season - Biotope vs Ground Survey

Site / Survey	Code & Name		Number of observations
TACONITE - LABMAG PROJECT			**497**
SPRING BIRD MIGRATION LABMAG PROJECT - MINE SITE			497
SHRUBLAND			79
	BECA	Canada Goose	2
	LASA	Willow Ptarmigan	11
	BEWI	Wilson's Snipe	1
	GOAR	Herring Gull	1
	ALHC	Horned Lark	2
	ROCR	Ruby-crowned Kinglet	1
	MEAM	American Robin	12
	PIAM	American Pipit	2
	BRHU	American Tree Sparrow	5
	BRCB	White-crowned Sparrow	16
	JUAR	Dark-eyed Junco	2
	QURO	Rusty Blackbird	2
	SIFL	Common Redpoll	21
	SPPS	Passerine	1
CONIFEROUS FOREST			244
	TECA	Spruce Grouse	2
	GRCH	Greater Yellowlegs	1
	BEWI	Wilson's Snipe	4
	GOAR	Herring Gull	1
	CHEP	Northern Hawk Owl	1
	SPPI	Woodpecker	1
	PIDR	American Three-toed Woodpecker	1
	HIBI	Tree Swallow	1
	MECA	Gray Jay	10
	METB	Boreal Chickadee	9
	GRBR	Brown Creeper	3
	ROCR	Ruby-crowned Kinglet	26
	MEAM	American Robin	25
	JABO	Bohemian Waxwing	3
	SPPA	Warbler	2
	PACJ	Yellow-rumped Warbler	12
	SPBR	Sparrow	1
	BRHU	American Tree Sparrow	8
	BRFV	Fox Sparrow	12
	BRLI	Lincoln's Sparrow	3
	BRGB	White-throated Sparrow	1
	BRCB	White-crowned Sparrow	28

Bird Species Observed during the Migration Season - Biotope vs Ground Survey

Site / Survey	Code & Name		Number of observations
	JUAR	Dark-eyed Junco	16
	QURO	Rusty Blackbird	7
	DUSA	Pine Grosbeak	7
	SIFL	Common Redpoll	59
WETLAND			140
	BECA	Canada Goose	1
	SAHI	Green-winged Teal	1
	CAPI	Northern Pintail	1
	BAPE	Osprey	1
	PLSE	Semipalmated Plover	5
	GRCH	Greater Yellowlegs	2
	CHSO	Solitary Sandpiper	2
	BEMI	Least Sandpiper	3
	BEWI	Wilson's Snipe	4
	GOAR	Herring Gull	1
	PIFL	Northern Flicker	1
	MECA	Gray Jay	12
	METB	Boreal Chickadee	1
	ROCR	Ruby-crowned Kinglet	8
	MEAM	American Robin	30
	PIAM	American Pipit	21
	JABO	Bohemian Waxwing	5
	PACJ	Yellow-rumped Warbler	1
	BRHU	American Tree Sparrow	3
	BRPR	Savannah Sparrow	1
	BRFV	Fox Sparrow	1
	BRCB	White-crowned Sparrow	7
	JUAR	Dark-eyed Junco	1
	QURO	Rusty Blackbird	16
	SIFL	Common Redpoll	11
TUNDRA			34
	LASA	Willow Ptarmigan	4
	MEAM	American Robin	9
	JABO	Bohemian Waxwing	2
	SPBR	Sparrow	1
	BRHU	American Tree Sparrow	2
	BRCB	White-crowned Sparrow	10
	SIFL	Common Redpoll	6

Bird Species Observed during the Migration Season - Biotope vs Ground Survey

Site / Survey	Code & Name		Number of observations
TACONITE - PROJET LABMAG			**156**
FALL BIRD MIGRATION LABMAG PROJECT - MINE SITE			156
SHRUBLAND			13
	LASA	Willow Ptarmigan	8
	BRHU	American Tree Sparrow	2
	BRCB	White-crowned Sparrow	2
	SIFL	Common Redpoll	1
CONIFEROUS FOREST			120
	BUQR	Red-tailed Hawk	1
	CHSO	Solitary Sandpiper	1
	GOAR	Herring Gull	2
	SPPI	Woodpecker	1
	PIDR	American Three-toed Woodpecker	1
	PIDN	Black-backed Woodpecker	1
	MECA	Gray Jay	18
	METB	Boreal Chickadee	1
	ROCR	Ruby-crowned Kinglet	1
	GRJG	Gray-cheeked Thrush	3
	MEAM	American Robin	6
	PGGR	Northern Shrike	1
	PACJ	Yellow-rumped Warbler	8
	PARA	Blackpoll Warbler	6
	PARU	Northern Waterthrush	1
	PACN	Wilson's Warbler	1
	BRHU	American Tree Sparrow	3
	BRCB	White-crowned Sparrow	7
	JUAR	Dark-eyed Junco	6
	QURO	Rusty Blackbird	1
	SIFL	Common Redpoll	50
WETLAND			22
	PLHU	Common Loon	1
	GOAR	Herring Gull	5
	MECA	Gray Jay	5
	GRCO	Common Raven	1
	SIPR	Red-breasted Nuthatch	1
	MEAM	American Robin	1
	BRLI	Lincoln's Sparrow	1
	BRCB	White-crowned Sparrow	3
	QURO	Rusty Blackbird	2
	SPPS	Passerine	2

Bird Species Observed during the Migration Season - Biotope vs Ground Survey

Site / Survey	Code & Name		Number of observations
TUNDRA			1
	SIFL	Common Redpoll	1

Appendix III

Complete List of Bird Species

Bird Survey - Migration - Taconite - LabMag Project

Code		English Name	French Name	Latin Name
PLHU		Common Loon	Plongeon huard	*Gavia immer*
SPAN		Anatid (Duck or Goose)	Anatidés sp. (canard ou oie)	-
BECA		Canada Goose	Bernache du Canada	*Branta canadensis*
SAHI		Green-winged Teal	Sarcelle d'hiver	*Anas crecca*
CANO		American Black Duck	Canard noir	*Anas rubripes*
CACO		Mallard	Canard colvert	*Anas platyrhynchos*
CAPI		Northern Pintail	Canard pilet	*Anas acuta*
SPFU		*Aythya* sp.	Fuligule sp.	*Aythya* sp.
PEFU		Lesser Scaup	Petit Fuligule	*Aythya affinis*
ARPL	***	Harlequin Duck	Arlequin plongeur	*Histrionicus histrionicus*
HAKA		Long-tailed Duck	Harelde kakawi	*Clangula hyemalis*
SPMA		Scoter sp.	Macreuse sp.	*Melanitta* sp.
MANO		Black Scoter	Macreuse à bec jaune	*Melanitta americana*
MAFB		Surf Scoter	Macreuse à front blanc	*Melanitta perspicillata*
GAOO		Common Goldeneye	Garrot à oeil d'or	*Bucephala clangula*
HACO		Hooded Merganser	Harle couronné	*Lophodytes cucullatus*
GRHA		Common Merganser	Grand Harle	*Mergus merganser*
HAHU		Red-breasted Merganser	Harle huppé	*Mergus serrator*
BAPE		Osprey	Balbuzard pêcheur	*Pandion haliaetus*
PYTB	***	Bald Eagle	Pygargue à tête blanche	*Haliaeetus leucocephalus*
EPBR		Sharp-shinned Hawk	Épervier brun	*Accipiter striatus*
BUQR		Red-tailed Hawk	Buse à queue rousse	*Buteo jamaicensis*
BUPA		Rough-legged Hawk	Buse pattue	*Buteo lagopus*
TECA		Spruce Grouse	Tétras du Canada	*Falcipennis canadensis*
LASA		Willow Ptarmigan	Lagopède des saules	*Lagopus lagopus*
SPOR		Shorebird	Oiseau de rivage sp.	-
PLSE		Semipalmated Plover	Pluvier semipalmé	*Charadrius semipalmatus*
GRCH		Greater Yellowlegs	Grand Chevalier	*Tringa melanoleuca*
CHSO		Solitary Sandpiper	Chevalier solitaire	*Tringa solitaria*
BEMI		Least Sandpiper	Bécasseau minuscule	*Calidris minutilla*
BERO		Short-billed Dowitcher	Bécassin roux	*Limnodromus griseus*
BEWI		Wilson's Snipe	Bécassine de Wilson	*Gallinago delicata*
GOAR		Herring Gull	Goéland argenté	*Larus argentatus*
CHEP		Northern Hawk Owl	Chouette épervière	*Surnia ulula*
SPPI		Woodpecker	Picidé sp. (pic)	-
PIDR		American Three-toed Woodpecker	Pic à dos rayé	*Picoides dorsalis*
PIDN		Black-backed Woodpecker	Pic à dos noir	*Picoides arcticus*
PIFL		Northern Flicker	Pic flamboyant	*Colaptes auratus*
ALHC		Horned Lark	Alouette hausse-col	*Eremophila alpestris*
HIBI		Tree Swallow	Hirondelle bicolore	*Tachycineta bicolor*
MECA		Gray Jay	Mésangeai du Canada	*Perisoreus canadensis*
GRCO		Common Raven	Grand Corbeau	*Corvus corax*
METB		Boreal Chickadee	Mésange à tête brune	*Poecile hudsonicus*

Bird Survey - Migration - Taconite - LabMag Project

Code	English Name	French Name	Latin Name
SIPR	Red-breasted Nuthatch	Sittelle à poitrine rousse	*Sitta canadensis*
GRBR	Brown Creeper	Grimpereau brun	*Certhia americana*
ROCR	Ruby-crowned Kinglet	Roitelet à couronne rubis	*Regulus calendula*
GRJG	Gray-cheeked Thrush	Grive à joues grises	*Catharus minimus*
MEAM	American Robin	Merle d'Amérique	*Turdus migratorius*
PIAM	American Pipit	Pipit d'Amérique	*Anthus rubescens*
JABO	Bohemian Waxwing	Jaseur boréal	*Bombycilla garrulus*
PGGR	Northern Shrike	Pie-grièche grise	*Lanius excubitor*
SPPA	Warbler	Paruline sp.	-
PAJA	Yellow Warbler	Paruline jaune	*Setophaga petechia*
PACJ	Yellow-rumped Warbler	Paruline à croupion jaune	*Setophaga coronata*
PARA	Blackpoll Warbler	Paruline rayée	*Setophaga striata*
PARU	Northern Waterthrush	Paruline des ruisseaux	*Parkesia noveboracensis*
PACN	Wilson's Warbler	Paruline à calotte noire	*Cardellina pusilla*
SPBR	Sparrow	Bruant sp.	-
BRHU	American Tree Sparrow	Bruant hudsonien	*Spizella arborea*
BRPR	Savannah Sparrow	Bruant des prés	*Passerculus sandwichensis*
BRFV	Fox Sparrow	Bruant fauve	*Passerella iliaca*
BRLI	Lincoln's Sparrow	Bruant de Lincoln	*Melospiza lincolnii*
BRGB	White-throated Sparrow	Bruant à gorge blanche	*Zonotrichia albicollis*
BRCB	White-crowned Sparrow	Bruant à couronne blanche	*Zonotrichia leucophrys*
JUAR	Dark-eyed Junco	Junco ardoisé	*Junco hyemalis*
QURO ***	Rusty Blackbird	Quiscale rouilleux	*Euphagus carolinus*
DUSA	Pine Grosbeak	Durbec des sapins	*Pinicola enucleator*
SIFL	Common Redpoll	Sizerin flammé	*Acanthis flammea*
TAPI	Pine Siskin	Tarin des pins	*Spinus pinus*
SPPS	Passerine	Passereau sp.	-
SPSP	Bird	Oiseau sp.	-
OURS	American black bear	Ours noir	*Ursus americanus*
CASTH	North American Beaver lodge	Hutte de castor du Canada	*Castor canadensis*
SPMA	Mammal	Mammifère sp.	

*** indicates the species is listed as federally or provincialy threatened

Appendix IV

Pictures of Birds Taken at LabMag Mine Site during Surveys

Semipalmated Plover in frozen wetland, LabMag, May 2011

Rusty Blackbird, wetland, LabMag, May 2011

Male Willow Ptarmigan in tundra, LabMag, May 2011

Harlequin Ducks, male and female, Howells River, LabMag, May 2011

Appendix V

Daily Meteorological Data Report for May, August and September 2011 from Environment Canada

Environment Canada Environnement Canada

Canada

Daily Data Report for May 2011

SCHEFFERVILLE A
QUEBEC

Latitude: 54°48'00.000" N Longitude: 66°48'00.000" W Elevation: 521.00 m

Climate ID: 7117827 WMO ID: 71828 TC ID: YKL

Daily Data Report for May 2011

Day	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days °C	Cool Deg Days °C	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01†	11.6	0.3	6.0	12.0	0.0	M	M	0.0		26	33
02†	9.7	0.5	5.1	12.9	0.0	M	M	3.0		21	59
03†	1.6	-7.9	-3.2	21.2	0.0	M	M	4.5		33	35
04†	3.8	-9.6	-2.9	20.9	0.0	M	M	0.0			<31
05†	2.7	-8.8	-3.1	21.1	0.0	M	M	0.0			<31
06†	2.5	-5.9	-1.7	19.7	0.0	M	M	2.0		12	46
07†	5.8	-1.2	2.3	15.7	0.0	M	M	1.0			<31
08†	2.3	-5.4	-1.6	19.6	0.0	M	M	0.0		35	37
09†	0.1	-10.0	-5.0	23.0	0.0	M	M	0.0		34	33
10†	5.2	-12.1	-3.5	21.5	0.0	M	M	0.0			<31
11†	9.4	-4.3	2.6	15.4	0.0	M	M	0.0			<31
12†	5.4	-5.2	0.1	17.9	0.0	M	M	0.0			<31
13†	3.7	-6.8	-1.6	19.6	0.0	M	M	0.0			<31
14†	5.3	-4.7	0.3	17.7	0.0	M	M	0.0		33	39
15†	0.5	-5.4	-2.5	20.5	0.0	M	M	0.5		35	48
16†	4.1	-4.0	0.1	17.9	0.0	M	M	0.0		2	44
17†	11.8	1.0	6.4	11.6	0.0	M	M	0.5		25	54
18†	15.1	0.2	7.7	10.3	0.0	M	M	0.0		26	48
19†	6.6	-4.8	0.9	17.1	0.0	M	M	0.0		7	35
20†	7.6	-4.9	1.4	16.6	0.0	M	M	0.0			<31
21†	6.9	-7.1	-0.1	18.1	0.0	M	M	0.0			<31
22†	13.3	-3.8	4.8	13.2	0.0	M	M	0.0		22	37
23†	6.3	-0.6	2.9	15.1	0.0	M	M	5.5			<31
24†	2.5	-3.4	-0.5	18.5	0.0	M	M	18.0		36	48
25†	1.7	-4.1	-1.2	19.2	0.0	M	M	1.5		33	32
26†	6.3	-6.1	0.1	17.9	0.0	M	M	0.5		25	37
27†	6.5	-4.5	1.0	17.0	0.0	M	M	0.0			<31
28†	14.9	-5.2	4.9	13.1	0.0	M	M	0.5			<31
29†	12.1	3.0	7.6	10.4	0.0	M	M	7.0		24	41
30†	8.0	-0.2	3.9	14.1	0.0	M	M	1.0		35	41
31†	8.4	-1.2	3.6	14.4	0.0	M	M	0.5			<31
Sum				**523.2**	**0.0**	**0.0***	**0.0***	**46.0**			
Avg	**6.5**	**-4.3**	**1.1**								
Xtrm	**15.1**	**-12.1**								**21**	**59**

Legend
[empty] = No data available

Environment Canada Environnement Canada

Canada

Daily Data Report for August 2011

SCHEFFERVILLE A
QUEBEC

Latitude: 54°48'00.000" N Longitude: 66°48'00.000" W Elevation: 521.00 m

Climate ID: 7117827 WMO ID: 71828 TC ID: GKL

Daily Data Report for August 2011

Day	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01†	20.9	10.8	15.9	2.1	0.0	M	M	0.0		14	37
02†	22.9	11.5	17.2	0.8	0.0	M	M	0.0		17	33
03†	22.9	12.0	17.5	0.5	0.0	M	M	0.0		19	33
04†	23.7	14.4	19.1	0.0	1.1	M	M	2.5			<31
05†	24.3	13.8	19.1	0.0	1.1	M	M	1.5		22	48
06†	22.7	12.8	17.8	0.2	0.0	M	M	1.0		24	32
07†	17.8	10.6	14.2	3.8	0.0	M	M	1.0		29	32
08†	18.4	7.9	13.2	4.8	0.0	M	M	4.0			<31
09†	19.5	5.9	12.7	5.3	0.0	M	M	0.0			<31
10†	21.6	10.2	15.9	2.1	0.0	M	M	0.5		17	44
11†	14.6	11.7	13.2	4.8	0.0	M	M	0.0		17	35
12†	18.6	11.5	15.1	2.9	0.0	M	M	8.0			<31
13†	20.3	11.1	15.7	2.3	0.0	M	M	1.0		30	37
14†	16.1	6.6	11.4	6.6	0.0	M	M	0.0		30	35
15†	17.0	9.0	13.0	5.0	0.0	M	M	6.5		21	39
16†	15.1	7.1	11.1	6.9	0.0	M	M	1.0		32	35
17†	13.0	7.3	10.2	7.8	0.0	M	M	0.0		30	33
18†	17.3	5.7	11.5	6.5	0.0	M	M	0.0			<31
19†	17.6	10.0	13.8	4.2	0.0	M	M	3.0			<31
20†	22.3	13.2	17.8	0.2	0.0	M	M	3.5			<31
21†	20.5	9.5	15.0	3.0	0.0	M	M	3.0			<31
22†	16.6	8.5	12.6	5.4	0.0	M	M	27.5		14	56
23†	14.5	8.5	11.5	6.5	0.0	M	M	2.0		30	46
24†	16.9	7.5	12.2	5.8	0.0	M	M	3.5		18	52
25†	16.9	8.8	12.9	5.1	0.0	M	M	14.0		33	44
26†	17.3	7.7	12.5	5.5	0.0	M	M	0.5		33	41
27†	16.7	8.3	12.5	5.5	0.0	M	M	2.5		20	50
28†	12.6	7.1	9.9	8.1	0.0	M	M	0.0		29	35
29†	11.8	6.5	9.2	8.8	0.0	M	M	4.0		6	33
30†	15.2	7.1	11.2	6.8	0.0	M	M	2.5			<31
31†	15.4	6.4	10.9	7.1	0.0	M	M	2.5		33	35
Sum				**134.4**	**2.2**	**0.0***	**0.0***	**95.5**			
Avg	**18.1**	**9.3**	**13.7**								
Xtrm	**24.3**	**5.7**								**14**	**56**

Summary, average and extreme values are based on the data above.

Environment Canada Environnement Canada

Canada

Daily Data Report for September 2011

SCHEFFERVILLE A
QUEBEC

Latitude: 54°48'00.000" N Longitude: 66°48'00.000" W Elevation: 521.00 m

Climate ID: 7117827 WMO ID: 71828 TC ID: GKL

Daily Data Report for September 2011

Day	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01†	18.4	7.4	12.9	5.1	0.0	M	M	0.0		27	37
02†	22.6	11.9	17.3	0.7	0.0	M	M	4.0		3	74
03†	15.0	3.5	9.3	8.7	0.0	M	M	1.0		27	80
04†	9.2	2.3	5.8	12.2	0.0	M	M	0.0		31	35
05†	10.7	-0.7	5.0	13.0	0.0	M	M	0.0			<31
06†	15.0	-1.7	6.7	11.3	0.0	M	M	0.0			<31
07†	17.8	6.6	12.2	5.8	0.0	M	M	0.5		25	56
08†	9.8	2.8	6.3	11.7	0.0	M	M	7.5		24	56
09†	8.3	2.4	5.4	12.6	0.0	M	M	6.0		2	35
10†	7.3	2.0	4.7	13.3	0.0	M	M	0.5		33	37
11†	13.8	3.4	8.6	9.4	0.0	M	M	6.0		25	56
12†	8.2	1.4	4.8	13.2	0.0	M	M	1.0		31	50
13†	9.4	0.3	4.9	13.1	0.0	M	M	9.0		16	50
14†	7.6	-2.8	2.4	15.6	0.0	M	M	0.0		30	56
15†	7.2	-3.1	2.1	15.9	0.0	M	M	1.5			<31
16†	3.9	0.1	2.0	16.0	0.0	M	M	12.0		33	61
17†	9.3	0.5	4.9	13.1	0.0	M	M	4.0		32	50
18†	15.0	7.0	11.0	7.0	0.0	M	M	0.0		26	44
19†	17.3	6.4	11.9	6.1	0.0	M	M	0.0		25	46
20†	11.6	4.5	8.1	9.9	0.0	M	M	0.0		20	37
21†	10.7	2.6	6.7	11.3	0.0	M	M	0.5		28	41
22†	6.2	1.6	3.9	14.1	0.0	M	M	0.0			<31
23†	12.8	2.4	7.6	10.4	0.0	M	M	0.5			<31
24†	12.8	9.0	10.9	7.1	0.0	M	M	0.5		3	67
25†	12.8	4.3	8.6	9.4	0.0	M	M	0.0		29	61
26†	6.6	1.2	3.9	14.1	0.0	M	M	0.0		32	46
27†	9.0	0.4	4.7	13.3	0.0	M	M	0.0		35	32
28†	17.2	5.8	11.5	6.5	0.0	M	M	0.0		24	46
29†	17.7	4.7	11.2	6.8	0.0	M	M	9.0			<31
30†	4.7	-1.0	1.9	16.1	0.0	M	M	27.5		35	46
Sum				**322.8**	**0.0**	**0.0***	**0.0***	**91.0**			
Avg	**11.6**	**2.8**	**7.2**								
Xtrm	**22.6**	**-3.1**								**27**	**80**

Summary, average and extreme values are based on the data above.

Legend

[empty] = No data available
M = Missing
E = Estimated
A = Accumulated
C = Precipitation occurred, amount uncertain
L = Precipitation may or may not have occurred
F = Accumulated and estimated
N = Temperature missing but known to be > 0
Y = Temperature missing but known to be < 0
S = More than one occurrence
T = Trace
* = The value displayed is based on incomplete data
† = Data for this day has undergone only preliminary quality checking

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We'd like to hear from you! Please click "Contact Us" to share your comments and suggestions.

Date Modified: 2012-01-11

Appendix VI

Birds Observed during Overland Flights

Birds Observed during Overland Flights

*** indicates the species is listed as federally or provincially at risk

Site/Survey GPS	Date	Code & Name		Number of observations Undifferentiated	Male	Female
TACONITE - LABMAG PROJECT						
SPRING BIRD MIGRATION LABMAG PROJECT - MINE SITE						
001	21-05-2011	QURO	Rusty Blackbird	3		
002	21-05-2011	CACO	Mallard		1	1
003	21-05-2011	OURS	American black bear	1		
004	21-05-2011	BEWI	Wilson's Snipe	2		
005	21-05-2011	BEWI	Wilson's Snipe	2		
006	21-05-2011	BEWI	Wilson's Snipe	3		
007	21-05-2011	BEWI	Wilson's Snipe	4		
008	21-05-2011	BEWI	Wilson's Snipe	1		
009	21-05-2011	CANO	American Black Duck	2		
010	21-05-2011	GAOO	Common Goldeneye	2		
011	21-05-2011	GRHA	Common Merganser	1		
012	21-05-2011	BECA	Canada Goose	2		
013	21-05-2011	SAHI	Green-winged Teal	4		
014	21-05-2011	SAHI	Green-winged Teal	3	4	4
014	21-05-2011	CACO	Mallard		1	1
015	21-05-2011	BECA	Canada Goose	2		
016	21-05-2011	BEWI	Wilson's Snipe	6		
017	21-05-2011	SAHI	Green-winged Teal		6	6
018	21-05-2011	SAHI	Green-winged Teal	3		
019	21-05-2011	ARPL	Harlequin Duck	1	1	1
020	21-05-2011	CANO	American Black Duck	6		
020	21-05-2011	CACO	Mallard		1	1
021	21-05-2011	SAHI	Green-winged Teal	2		
021	21-05-2011	PEFU	Lesser Scaup		1	1
023	21-05-2011	GOAR	Herring Gull	2		
024	21-05-2011	BECA	Canada Goose	1		
024	21-05-2011	SAHI	Green-winged Teal	6		
025	21-05-2011	EPBR	Sharp-shinned Hawk	1		
026	21-05-2011	SAHI	Green-winged Teal	2		
026	21-05-2011	MAFB	Surf Scoter		1	1
026	21-05-2011	GAOO	Common Goldeneye	6		
027	21-05-2011	SAHI	Green-winged Teal		2	2
027	21-05-2011	GAOO	Common Goldeneye	2		
028	21-05-2011	SAHI	Green-winged Teal	7		
028	21-05-2011	GAOO	Common Goldeneye		1	1
029	21-05-2011	SAHI	Green-winged Teal		1	1
030	21-05-2011	MAFB	Surf Scoter		2	2
031	21-05-2011	SAHI	Green-winged Teal		3	3
031	21-05-2011	CAPI	Northern Pintail		1	1
032	21-05-2011	CANO	American Black Duck	1		
032	21-05-2011	GAOO	Common Goldeneye		1	1
033	21-05-2011	BECA	Canada Goose	8		
034	21-05-2011	GAOO	Common Goldeneye		1	1

Birds Observed during Overland Flights

*** indicates the species is listed as federally or provincially at risk

Site/Survey GPS	Date	Code & Name		Number of observations Undifferentiated	Male	Female
035	21-05-2011	SAHI	Green-winged Teal		1	1
035	21-05-2011	GAOO	Common Goldeneye		1	1
036	21-05-2011	SAHI	Green-winged Teal		1	1
038	21-05-2011	BEWI	Wilson's Snipe	4		
039	21-05-2011	BEWI	Wilson's Snipe	2		
040	21-05-2011	BECA	Canada Goose	1		
041	21-05-2011	QURO	Rusty Blackbird	1		
042	21-05-2011	BEWI	Wilson's Snipe	1		
044	21-05-2011	BUQR	Red-tailed Hawk	1		
045	21-05-2011	BEWI	Wilson's Snipe	1		
046	21-05-2011	TECA	Spruce Grouse	1		
047	21-05-2011	SAHI	Green-winged Teal	19		
047	21-05-2011	SAHI	Green-winged Teal	4		
047	21-05-2011	CANO	American Black Duck	4		
047	21-05-2011	CAPI	Northern Pintail	2		
047	21-05-2011	GAOO	Common Goldeneye	2		
048	21-05-2011	BEWI	Wilson's Snipe	1		
050	21-05-2011	PEFU	Lesser Scaup	2	1	1
050	21-05-2011	GAOO	Common Goldeneye	4	2	2
051	21-05-2011	BEWI	Wilson's Snipe	3		
052	21-05-2011	LASA	Willow Ptarmigan	1		
087	28-05-2011	GAOO	Common Goldeneye	2	1	1
087	28-05-2011	GAOO	Common Goldeneye	2	1	1
088	28-05-2011	PEFU	Lesser Scaup	2	1	1
089	28-05-2011	SPOR	Shorebird	2		
090	28-05-2011	GAOO	Common Goldeneye	1	1	1
091	28-05-2011	SAHI	Green-winged Teal	8		
091	28-05-2011	CANO	American Black Duck	4		
091	28-05-2011	CAPI	Northern Pintail	2	2	2
091	28-05-2011	PEFU	Lesser Scaup	2	1	1
091	28-05-2011	GAOO	Common Goldeneye	2	1	1
092	28-05-2011	BAPE	Osprey	2	1	1
093	28-05-2011	GRHA	Common Merganser	2	1	1
094	28-05-2011	HAHU	Red-breasted Merganser	2	1	1
095	28-05-2011	MAFB	Surf Scoter	16		
096	28-05-2011	GRHA	Common Merganser	1	1	1
097	28-05-2011	SAHI	Green-winged Teal	2	1	1
098	28-05-2011	MAFB	Surf Scoter	6		
098	28-05-2011	HAHU	Red-breasted Merganser	2	1	1
099	28-05-2011	BECA	Canada Goose	1		
099	28-05-2011	SPFU	*Aythya* sp.	1		
099	28-05-2011	GRHA	Common Merganser	3	3	3
100	28-05-2011	PYTB	Bald Eagle	1		
101	28-05-2011	MANO	Black Scoter	4	2	2
101	28-05-2011	MAFB	Surf Scoter	1	1	1
102	28-05-2011	SAHI	Green-winged Teal	2	1	1

Birds Observed during Overland Flights

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Site/Survey GPS	Date	Code & Name		Number of observations Undifferentiated	Male	Female
102	28-05-2011	GRHA	Common Merganser	4		
103	28-05-2011	GRCH	Greater Yellowlegs	2		
104	28-05-2011	CANO	American Black Duck	2	1	1
104	28-05-2011	GRHA	Common Merganser	1		
105	28-05-2011	GRHA	Common Merganser	2	1	1
106	28-05-2011	PEFU	Lesser Scaup	8	4	4
106	28-05-2011	GRHA	Common Merganser	2	1	1
107	28-05-2011	HAHU	Red-breasted Merganser	2	1	1
108	28-05-2011	HAHU	Red-breasted Merganser	3	2	2
108	28-05-2011	GOAR	Herring Gull	1		
109	28-05-2011	BUQR	Red-tailed Hawk	1		
110	28-05-2011	BEWI	Wilson's Snipe	1		
111	28-05-2011	SAHI	Green-winged Teal	1		
111	28-05-2011	CANO	American Black Duck	6		
111	28-05-2011	BERO	Short-billed Dowitcher	5		
112	28-05-2011	BERO	Short-billed Dowitcher	2		
113	28-05-2011	BERO	Short-billed Dowitcher	1		
114	28-05-2011	SPOR	Shorebird	7		
115	28-05-2011	HAKA	Long-tailed Duck	3	1	1
116	28-05-2011	PLHU	Common Loon	1		
117	28-05-2011	MAFB	Surf Scoter	6	3	3
117	28-05-2011	HAHU	Red-breasted Merganser	2	1	1
118	28-05-2011	BECA	Canada Goose	2		
119	28-05-2011	SPFU	*Aythya* sp.	2	1	1
119	28-05-2011	HAKA	Long-tailed Duck	2		
119	28-05-2011	GAOO	Common Goldeneye	2	1	1
119	28-05-2011	HAHU	Red-breasted Merganser	2	1	1
120	28-05-2011	BERO	Short-billed Dowitcher	3		
120	28-05-2011	BEWI	Wilson's Snipe	2		
121	28-05-2011	TECA	Spruce Grouse	1		
122	28-05-2011	GRHA	Common Merganser	9		
123	28-05-2011	GAOO	Common Goldeneye	1	1	1
123	28-05-2011	GRHA	Common Merganser	1		
124	28-05-2011	PLHU	Common Loon	2		
124	28-05-2011	BECA	Canada Goose	4		
124	28-05-2011	MAFB	Surf Scoter	30		
124	28-05-2011	GAOO	Common Goldeneye	2	1	1
125	28-05-2011	SAHI	Green-winged Teal	2	1	1
126	28-05-2011	SPOR	Shorebird	1		
127	28-05-2011	PLHU	Common Loon	2		
128	28-05-2011	SAHI	Green-winged Teal	2		
128	28-05-2011	GRHA	Common Merganser	1	1	1
129	28-05-2011	BEWI	Wilson's Snipe	2		
130	28-05-2011	BEWI	Wilson's Snipe	1		
131	28-05-2011	CHSO	Solitary Sandpiper	2		
132	28-05-2011	SPOR	Shorebird	4		

Birds Observed during Overland Flights

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Site/Survey GPS	Date	Code & Name		Number of observations Undifferentiated	Male	Female
132	28-05-2011	BEWI	Wilson's Snipe	1		
133	28-05-2011	BEWI	Wilson's Snipe	1		
134	28-05-2011	CHSO	Solitary Sandpiper	1		
135	28-05-2011	BERO	Short-billed Dowitcher	4		
136	28-05-2011	BECA	Canada Goose	2		
137	28-05-2011	BERO	Short-billed Dowitcher	3		
138	28-05-2011	SAHI	Green-winged Teal	2		
139	28-05-2011	GRCH	Greater Yellowlegs	1		
140	28-05-2011	GAOO	Common Goldeneye	1		
141	28-05-2011	GRCH	Greater Yellowlegs	2		
142	28-05-2011	GRCH	Greater Yellowlegs	1		
143	28-05-2011	MAFB	Surf Scoter	2	1	1
144	28-05-2011	SPOR	Shorebird	3		
144	28-05-2011	GRCH	Greater Yellowlegs	2		
145	28-05-2011	SAHI	Green-winged Teal	2	1	1
146	28-05-2011	SAHI	Green-winged Teal	2	1	1
147	28-05-2011	GRHA	Common Merganser	1	1	1
148	28-05-2011	CANO	American Black Duck	1	1	1
148	28-05-2011	CACO	Mallard	1	1	1
149	28-05-2011	PEFU	Lesser Scaup	3	2	2
150	28-05-2011	TECA	Spruce Grouse	1		
151	28-05-2011	SAHI	Green-winged Teal	6		
152	28-05-2011	PGGR	Northern Shrike	1		
153	28-05-2011	SPOR	Shorebird	1		
154	28-05-2011	GRCH	Greater Yellowlegs	1		
154	28-05-2011	CHSO	Solitary Sandpiper	1		
154	28-05-2011	BERO	Short-billed Dowitcher	1		
155	28-05-2011	SAHI	Green-winged Teal	1	1	1
155	28-05-2011	BEWI	Wilson's Snipe	1		
156	28-05-2011	SAHI	Green-winged Teal	1	1	1
157	28-05-2011	SPOR	Shorebird	1		
158	28-05-2011	BECA	Canada Goose	1		
159	28-05-2011	BECA	Canada Goose	2		
160	28-05-2011	SPOR	Shorebird	1		
160	28-05-2011	BEWI	Wilson's Snipe	1		
163	28-05-2011	BEWI	Wilson's Snipe	1		
164	28-05-2011	BEWI	Wilson's Snipe	1		
165	28-05-2011	BEWI	Wilson's Snipe	1		
166	28-05-2011	BERO	Short-billed Dowitcher	3		
166	28-05-2011	BEWI	Wilson's Snipe	2		
167	28-05-2011	LASA	Willow Ptarmigan	1	1	1
AUTUMN BIRD MIGRATION LABMAG PROJECT - MINE SITE						
001	27-09-2011	HAHU	Red-breasted Merganser	1		
002	27-09-2011	GRCO	Common Raven	1		
003	27-09-2011	MAFB	Surf Scoter	2		

Birds Observed during Overland Flights

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Site/Survey GPS	Date	Code & Name		Number of observations Undifferentiated	Male	Female
004	27-09-2011	GRHA	Common Merganser	5		
005	27-09-2011	PLHU	Common Loon	1		
006	27-09-2011	SPSP	Bird	1		
006	27-09-2011	CAST	North American Beaver lodge	1		
008	27-09-2011	HACO	Hooded Merganser	2		
009	27-09-2011	GRHA	Common Merganser	2	1	1
010	27-09-2011	GAOO	Common Goldeneye	1	1	1
011	27-09-2011	HACO	Hooded Merganser	4	2	2
012	27-09-2011	SAHI	Green-winged Teal	2	1	1
012	27-09-2011	GAOO	Common Goldeneye	3		
013	27-09-2011	GAOO	Common Goldeneye	1	1	1
014	27-09-2011	GAOO	Common Goldeneye	1	1	1
014	27-09-2011	HACO	Hooded Merganser	2	2	2
015	27-09-2011	GAOO	Common Goldeneye	1	1	1
016	27-09-2011	HACO	Hooded Merganser	1	1	1
017	27-09-2011	HACO	Hooded Merganser	2		
018	27-09-2011	GAOO	Common Goldeneye	2		
019	27-09-2011	GOAR	Herring Gull	1	1	1
020	27-09-2011	GAOO	Common Goldeneye	1	1	1
021	27-09-2011	GAOO	Common Goldeneye	3	3	3
022	27-09-2011	HACO	Hooded Merganser	3	3	3
023	27-09-2011	HACO	Hooded Merganser	1	1	1
048	27-09-2011	SPOR	Shorebird	1		
049	27-09-2011	BUPA	Rough-legged Hawk	1		
050	27-09-2011	SPMA	Scoter sp.	1		
050	27-09-2011	HACO	Hooded Merganser	4	4	4
051	27-09-2011	HACO	Hooded Merganser	2		
052	28-09-2011	PLHU	Common Loon	1		
053	28-09-2011	CAST	North American Beaver lodge	1		
054	28-09-2011	HACO	Hooded Merganser	1	1	1
055	28-09-2011	HACO	Hooded Merganser	2		
056	28-09-2011	PEFU	Lesser Scaup	1		
057	28-09-2011	BUPA	Rough-legged Hawk	1		
058	28-09-2011	SPAN	Anatid (Duck or Goose)	2		
059	28-09-2011	SPMA	Mammal	1		
060	28-09-2011	TECA	Spruce Grouse	1		
061	28-09-2011	PYTB	Bald Eagle	1		
062	28-09-2011	PEFU	Lesser Scaup	2		
063	28-09-2011	SPMA	Mammal	1		
068	28-09-2011	GRCO	Common Raven	1		
069	29-09-2011	GRHA	Common Merganser	1		
070	29-09-2011	BUQR	Red-tailed Hawk	1		
071	29-09-2011	GAOO	Common Goldeneye	1		
072	29-09-2011	PYTB	Bald Eagle	1		
073	29-09-2011	CAST	North American Beaver lodge	1		
074	29-09-2011	GRHA	Common Merganser	5	5	5

Birds Observed during Overland Flights

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Site/Survey				Number of observations		
GPS	Date	Code & Name		Undifferentiated	Male	Female
075	29-09-2011	PYTB	Bald Eagle	1		
076	29-09-2011	CAST	North American Beaver lodge	1		
077	29-09-2011	GAOO	Common Goldeneye	7	5	5
078	29-09-2011	CAST	North American Beaver lodge	1		
079	29-09-2011	GRHA	Common Merganser	8	6	6
080	29-09-2011	HACO	Hooded Merganser	2	2	2
081	29-09-2011	SAHI	Green-winged Teal	3		
081	29-09-2011	CAPI	Northern Pintail	1		
081	29-09-2011	GAOO	Common Goldeneye	2		
081	29-09-2011	HACO	Hooded Merganser	2	2	2
082	29-09-2011	GRHA	Common Merganser	7		
083	29-09-2011	GRHA	Common Merganser	1	1	1
084	29-09-2011	SPAN	Anatid (Duck or Goose)	1		
085	29-09-2011	HACO	Hooded Merganser	5	5	5
086	29-09-2011	BUPA	Rough-legged Hawk	1		
087	29-09-2011	HACO	Hooded Merganser	5	2	2
088	29-09-2011	GAOO	Common Goldeneye	4	2	2
089	29-09-2011	CAST	North American Beaver lodge	1		
090	29-09-2011	GOAR	Herring Gull	1		
091	29-09-2011	GRHA	Common Merganser	3	3	3
092	29-09-2011	PLHU	Common Loon	2		