

ENVIRONMENT AND CLIMATE CHANGE CANADA'S CANADIAN WILDLIFE SERVICE, ROYAL ONTARIO MUSEUM, ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY AND FORESTRY, BIRD STUDIES CANADA, MOOSE CREE FIRST NATION AND TRENT UNIVERSITY.



BIRD STUDIES
ÉTUDES D'OISEAUX CANADA



James Bay Shorebird Project

2015 Report

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Summer 2016



Photo: Longridge Point

Report summarizing 2015 shorebird survey results from three camps on the western James Bay coast.

Land Acknowledgment

We would like to begin by acknowledging that the work carried out and reported upon here was in Treaty 9 territory and the land on which the study sites are located is the traditional territory of Mushkegowuk (Cree), Ojibwe/Chippewa, Oji-Cree, Algonquin, and Métis Peoples.

Introduction

The Hudson Bay Lowlands are the third largest wetland complex on earth and the coastal ecosystems of south-western Hudson Bay and James Bay are a global hotspot for breeding and staging waterbirds, waterfowl, shorebirds and other migratory birds (Manning 1952, Ross *et al.* 2003, Abraham and Keddy 2005, Abraham and McKinnon 2011). For shorebirds, the Lowlands are known or believed to harbour significant proportions of the provincial breeding populations of Hudsonian Godwit (*Limosa haemastica*) and Whimbrel (*Numenius phaeopus hudsonicus*) (Manning 1952, Morrison 1987, Skeel and Mallory 1996, Peck and James 1983, Peck 2007, Peck and Sutherland 2007, Prett 1987, Walker *et al.* 2011). Several Arctic and sub-Arctic breeding shorebird species stage along the coast to add fat reserves and undertake partial moults (e.g., White-rumped Sandpiper (*Calidris fuscicollis*), Semipalmated Sandpiper (*C. pusilla*)) or complete moults (e.g., Dunlin (*C. alpina*)) in preparation for their migrations (Harrington *et al.* 1991, Parmelee 1992, Warnock and Gill 1996, Hicklin and Gratto-Trevor 2010, Abraham and McKinnon 2011).

Research on shorebirds throughout the Americas in the 1970s led to the establishment of the Western Hemisphere Shorebird Reserve Network (WHSRN) program in 1985 (Morrison 1983, 1984, Myers *et al.* 1987a, b). A site must meet two criteria to be considered for WHSRN designation: demonstrated importance to shorebirds and expressed landowner agreement. Three categories of WHSRN sites are recognised based on peak counts or use by a percentage of a population of a species: Sites

of Hemispheric Importance hosting at least 500,000 shorebirds annually, or at least 30% of the biogeographic population for a species; Sites of International Importance hosting at least 100,000 shorebirds annually, or at least 10% of the biogeographic population for a species; and Sites of Regional Importance hosting at least 20,000 shorebirds annually, or at least 1% of the biogeographic population for a species (WHSRN 2009). Landowners must agree in writing to the following three conditions: to make shorebird conservation a priority at the site; to protect and manage the site for shorebirds; and to update WHSRN annually about the status of the site (WHSRN 2009).

During the 1990s, Environment and Climate Change Canada's Canadian Wildlife Service (CWS) compiled an inventory of potential WHSRN sites along the coasts of both Hudson Bay and James Bay (Morrison *et al.* 1991, 1995, Ross *et al.* 2003). Despite meeting criteria demonstrating the importance to shorebirds, efforts to date have failed to secure a WHSRN designation for any of the James Bay sites, leading to a significant and recognized gap in the WHSRN program.

The James Bay shorebird project (hereafter: the project) began when the Royal Ontario Museum (ROM) and the Ontario Ministry of Natural Resources and Forestry (OMNRF) partnered to survey birds at sites along the James Bay coast in 2009. Since then, CWS, Bird Studies Canada (BSC), Nature Canada and the Moose Cree First Nation have joined this partnership in various capacities to continue surveys of southbound staging shorebirds. This work initially included bird surveys at sites known to support staging shorebirds, with an emphasis on Red Knot (*C. canutus rufa*) to enable identification of critical habitat, as well as species at risk surveys for Yellow Rail (*Coturnicops noveboracensis*) and Short-eared Owl (*Asio flammeus*). Additional work to collect natural heritage information by staff at the Natural Heritage Information Centre of the OMNRF has been conducted in concert with more recent surveys. Currently, the project

involves annual surveys of shorebirds staging at various sites along the south-western coast of James Bay.

Goals of the project are: to increase our ability to estimate population trends of shorebird species staging along the south-western James Bay coast; to understand movement patterns of these birds and their causes (local and flyway scale); and to obtain information that could be used to update the identification of important shorebird staging habitats as potential WHSRN sites based on recent research and traditional ecological knowledge. The intention is to use the results of this project to update information on Important Bird Areas and ultimately to protect habitat for the Endangered Red Knot¹ and other declining shorebird species by the nomination and eventual establishment of WHSRN site(s) for south-western James Bay. The objectives to meet these goals are to estimate the variability of migration phenology (both annually and among species) and length of stay of staging shorebirds; to estimate annual variation in abundance of staging shorebirds; to assess habitat and food resource availability for staging shorebirds; and to determine the minimum proportion of the global Red Knot, subspecies *rufa*, population that uses the south-western James Bay coast.

Three field camps operated on the south-western coast of James Bay in 2015. Little Piskwamish Point, Longridge Point, and Northbluff Point were operational between 15 July and 12 September (see Figure 1). From these field camps, dedicated volunteers and staff counted shorebirds during their southbound migration. The timing of these

¹ The Red Knot was listed as Endangered in Ontario in 2008 under the provincial Endangered Species Act 2007; in 2007 COSEWIC designated the Red Knot as Endangered; and in 2012 the *rufa* subspecies was listed as Endangered, *roselaari* subspecies was listed as Threatened, and the *islandica* subspecies was listed as Special Concern under Schedule 1 of the federal *Species at Risk Act* (SARA).

counts was driven by the tide cycle, in that birds are more easily counted when they concentrate because of the flooding (incoming) and ebbing (outgoing) tides.

Motus Wildlife Tracking System

The Motus Wildlife Tracking System (Motus; <http://motus-wts.org>) comprises a network of coordinated automated radio telemetry towers that track the movements of small organisms throughout terrestrial environments. The purpose of Motus is to facilitate landscape-scale research and education on the ecology and conservation of migratory animals. It is a program of Bird Studies Canada (BSC) in partnership with Acadia University, Western University, the University of Guelph and all collaborating researchers and organizations.

As of early 2016, the array is comprised of over 300 automated VHF radio receiving stations, positioned throughout the Western Hemisphere. A digital “nano-tag” tracking device is secured to an animal and they can be detected in real-time up to 15 km away from any station. When combined, this array can track animals across a diversity of landscapes covering thousands of kilometres.

The data, which will comprise millions of individual records, are stored locally, and (optionally) transmitted back to a centralized data management system at BSC’s National Data Centre where data are filtered, archived, visualized, and disseminated. Researchers, decisions makers, non-government organizations, and the public can then query those data and examine the movements and behaviours of any species being tracked. This state-of-the-art system is the first of its kind in the world and will be open to all researchers and organizations.

Banding took place at two of the sites with the objective of affixing 150 VHF radio tags (nanotags) to individuals of five target species: Semipalmated and White-rumped sandpipers, Dunlin, Red Knot, and Hudsonian Godwit.

Study Areas

The Longridge Point camp (51.798942°N, 080.69204°W) has been surveyed annually since 2009. It is located approximately 60 km northwest of Moosonee (Figure 1). The site is characterised by a prominent point that juts out into James Bay. Sheltered areas have formed on either side of the point, where fresh water tributaries flow out into the bay. These areas provide excellent roosting and feeding opportunities for migrant shorebirds. The gradient of the shoreline is very flat. The spruce forest is close to the high tide line, generally within 1 km, and opens to willow thickets and meadow marsh, eventually grading into brackish and saline tidal marshes. Based upon aerial surveys, and supported by ground surveys of this project, the area is known to host large concentrations of shorebirds (e.g., Semipalmated Sandpiper, Red Knot, Pectoral Sandpiper) during autumn migration.

The Little Piskwamish Point camp (51.683427°N, 080.565783°W) has been monitored since 2011. It is located approximately 45 km northwest of Moosonee, and about 20 km south-east of Longridge Point

(Figure 1). The habitat is similar to Longridge, except that there is no prominent point. Based upon aerial surveys, and supported by ground surveys of this project, the area is known to host large concentrations of shorebirds (e.g., Red Knots, Dunlin and White-rumped Sandpiper) during southern migration.

The Northbluff Point camp (51.4879571°N, 080.4398775°W) is the most southerly of the project's field camps surveyed in 2015 and has been surveyed in 2009, 2011 and 2014. Like the other two sites, the shoreline gradient is very flat. An old air strip remains inland, that used to service a no-longer-existent commercial goose hunt camp. From the spruce tree line, willow thickets and meadow marsh eventually grade to brackish and saline tidal marshes. Based upon aerial surveys, and supported by ground surveys of this project, the area is known to host large concentrations of shorebirds (e.g., Semipalmated Sandpiper, White-rumped Sandpiper) during southern migration.

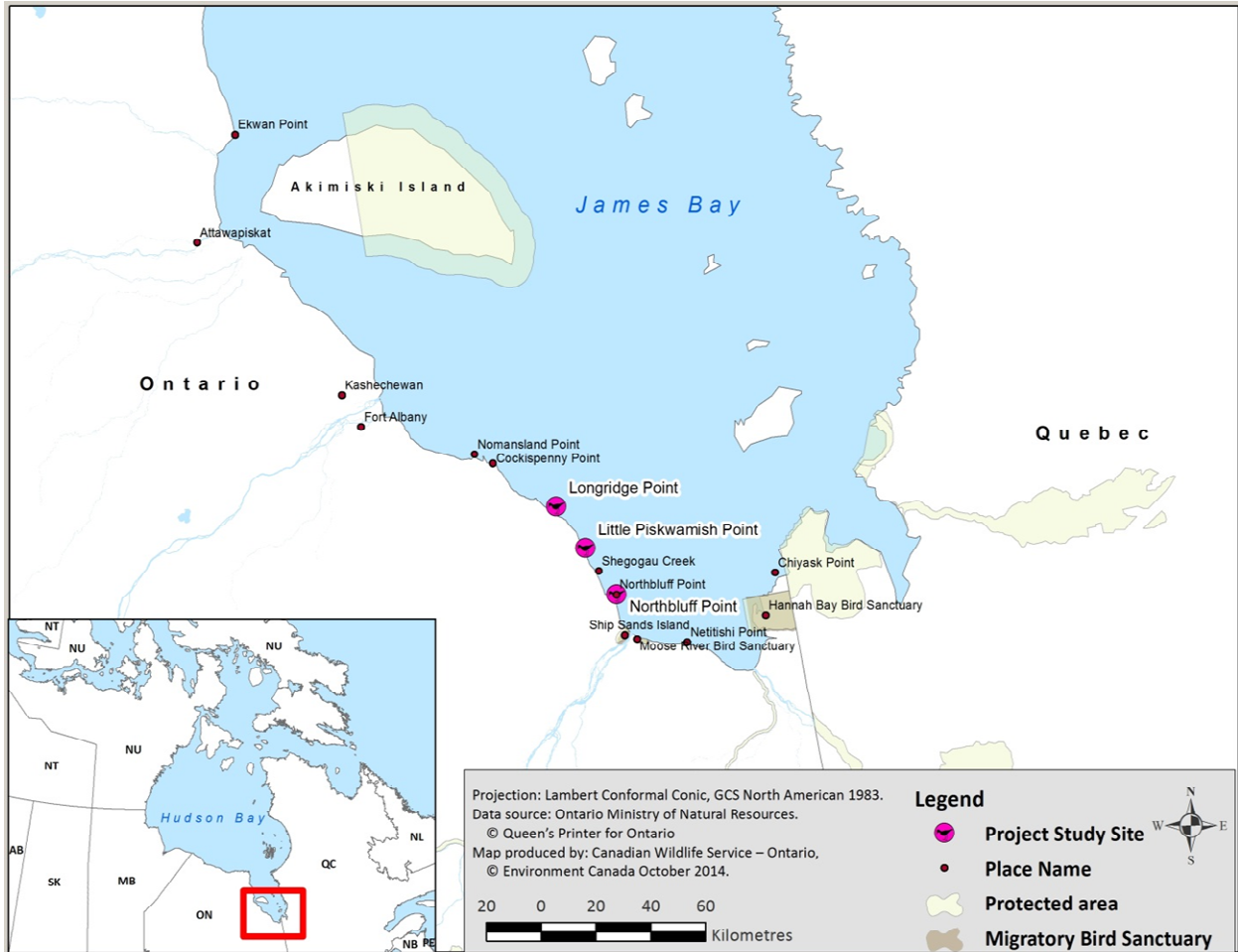


Figure 1. Field camp sites of the James Bay Shorebird Project, 2015.

Images of the most common species encountered at study sites along James Bay



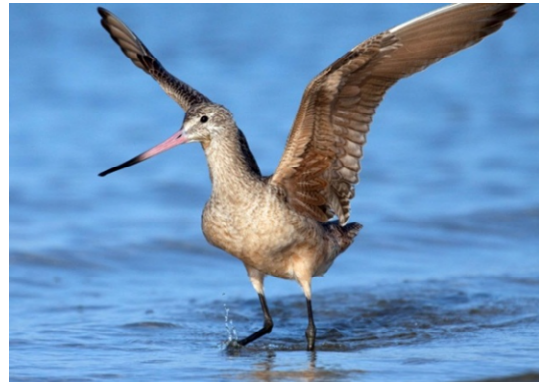
Semipalmated Plover



Hudsonian Godwit



Greater Yellowlegs



Marbled Godwit



Lesser Yellowlegs



Ruddy Turnstone

All Photos © Mark Peck



Red Knot – with individual colour marked flag banded in Argentina



Least Sandpiper



Sanderling



White-rumped Sandpiper



Semipalmated Sandpiper



Pectoral Sandpiper



Dunlin

Results and Discussion

Longridge Point

A maximum of eight people were stationed at Longridge Point during the season. The camp was active from 17 July to 12 September 2015. The period focused on daily surveys to generate estimated totals for the area, passive banding, and banding target species and affixing radio tags to these birds. A total of 199 birds was banded and 76 individuals of the target shorebird species were equipped with nanotags during the period. The radio tags send signals to strategically placed towers notifying researchers of each bird's arrival and departure.

During this season at Longridge Point a total of 533.5 hours was spent in the field,

which is 294 more hours than in 2014. This is due to the extended season at the site in 2015. There were 167 bird species recorded during this time, which is 34 more species than was recorded in 2014. Tables 1 and 2 show the top ten estimated high counts of bird species and shorebird species, respectively, encountered each month during the survey period. The Count for Black-bellied Plover is the highest recorded at any site since the start of the project. Counts for Hudsonian Godwit in August and September, and Greater Yellowlegs in July are the highest recorded at the site since the start of the project. Counts for Semipalmated Sandpiper were among the lowest recorded at the site since the start of the project.

Table 1. Top 10 estimated single-day high counts of bird species encountered at Longridge Point, 17 July to 12 September 2015, for a) July, b) August, and c) September.

a)		b)		c)	
Common Name	July High Count	Common Name	August High Count	Common Name	September High Count
Black Scoter	2500	White-rumped Sandpiper	8500	Canada Goose	9000
White-rumped Sandpiper	1563	Hudsonian Godwit	3295	Hudsonian Godwit	2400
Semipalmated Sandpiper	1150	Black Scoter	2960	White-rumped Sandpiper	1404
Bonaparte's Gull	562	Canada Goose	2200	Black-bellied Plover	1250
Red Knot	510	Bonaparte's Gull	2000	Semipalmated Sandpiper	700
Greater Yellowlegs	503	Semipalmated Sandpiper	1677	Northern Pintail	545
Lesser Yellowlegs	307	Red Knot	1390	Dunlin	460
Mallard	247	peep sp.	1265	American Pipit	350
Semipalmated Plover	164	Ruddy Turnstone	541	Ruddy Turnstone	270
Hudsonian Godwit	156	Dunlin	500	Snow Goose	200

Table 2. Top 10 estimated single-day high counts of shorebird species encountered at Longridge Point, 17 July to 12 September 2015, for a) July, b) August, and c) September.

a)		b)		c)	
Common Name	July High Count	Common Name	August High Count	Common Name	September High Count
White-rumped Sandpiper	1563	White-rumped Sandpiper	8500	Hudsonian Godwit	2400
Semipalmated Sandpiper	1150	Hudsonian Godwit	3295	White-rumped Sandpiper	1404
Red Knot	510	Semipalmated Sandpiper	1677	Black-bellied Plover	1250
Greater Yellowlegs	503	Red Knot	1390	Semipalmated Sandpiper	700
Lesser Yellowlegs	307	peep sp.	1265	Dunlin	460
Semipalmated Plover	164	Ruddy Turnstone	541	Ruddy Turnstone	270
Hudsonian Godwit	156	Dunlin	500	Red Knot	190
Ruddy Turnstone	117	Lesser Yellowlegs	482	Pectoral Sandpiper	175
Pectoral Sandpiper	104	Greater Yellowlegs	314	Sanderling	130
Least Sandpiper	71	Least Sandpiper	300	Semipalmated Plover	110

Little Piskwamish Point

A maximum of five people were stationed at Little Piskwamish Point. The camp was active from 16 July to 13 August 2015. During this period a total of 298 hours were spent in the field recording a total of 115 bird species. This is 5 more hours and 24 fewer species than in 2014.

Tables 3 and 4 show the top ten estimated high counts of bird species and shorebird species, respectively, encountered each month during the survey period. The Red Knot count is the highest recorded since the start of the project. Piskwamish represents the most important of our study sites for Red Knots.

Table 3. Top 10 estimated single-day high counts of bird species encountered at Little Piskwamish Point, 16 July to 13 August 2015, for a) July and b) August.

a)

Common Name	July High Count
Semipalmated Sandpiper	6600
Red Knot	1754
White-rumped Sandpiper	1625
Dunlin	854
Canada Goose	505
Mallard	476
Greater Yellowlegs	344
Pectoral Sandpiper	326
Lesser Yellowlegs	312
Hudsonian Godwit	272

b)

Common Name	August High Count
White-rumped Sandpiper	8050
Red Knot	5694
Semipalmated Sandpiper	2700
Black Scoter	845
Canada Goose	537
Dunlin	319
Hudsonian Godwit	310
Tree Swallow	275
Northern Pintail	225
Mallard	224

Table 4. Top 10 estimated single-day high counts of shorebird species encountered at Little Piskwamish Point, 16 July to 13 August 2015, for a) July and b) August.

a)

Common Name	July High Count
Semipalmated Sandpiper	6600
Red Knot	1754
White-rumped Sandpiper	1625
Dunlin	854
Greater Yellowlegs	344
Pectoral Sandpiper	326
Lesser Yellowlegs	312
Hudsonian Godwit	272
Least Sandpiper	73
Whimbrel	32

b)

Common Name	August High Count
White-rumped Sandpiper	8050
Red Knot	5694
Semipalmated Sandpiper	2700
Dunlin	319
Hudsonian Godwit	310
Lesser Yellowlegs	169
Greater Yellowlegs	128
Least Sandpiper	107
Pectoral Sandpiper	88
Black-bellied Plover	55

Northbluff Point

A maximum of 12 people were stationed at Northbluff Point. The camp was active from 15 July to 12 September 2015. During this period, a total of 385 hours was spent in the field. This is 204 more hours than 2014 due to the extended season at the site in 2015. The period focused on daily surveys to generate estimated totals for the area, banding target species and affixing radio tags to these birds. There were 161 bird species observed during this time, which is 19 more species than was recorded in 2014. A total of 280 birds was banded and 82 target shorebird species were

equipped with nanotags during the period. The radio tags send signals to strategically placed towers notifying researchers of each bird's arrival and departure.

Tables 5 and 6 show the top ten estimated high counts of bird species and shorebird species, respectively, encountered each month during the survey period. Counts for Semipalmated Plover and Least Sandpiper in August are the highest recorded since the start of the project. Counts for Hudsonian Godwit, Greater Yellowlegs, Ruddy Turnstone, and Dunlin are the highest recorded at the site since the start of project.

Table 5. Top 10 estimated single-day high counts of bird species encountered at Northbluff Point, 15 July to 12 September 2015.

a)

Common Name	July High Count
Semipalmated Sandpiper	4700
White-rumped Sandpiper	611
Canada Goose	500
Red-winged Blackbird	300
Hudsonian Godwit	250
Mallard	250
Whimbrel	200
Lesser Yellowlegs	147
Ring-billed Gull	120
Semipalmated Plover	85

b)

Common Name	August High Count
Semipalmated Sandpiper	12050
White-rumped Sandpiper	12000
peep sp.	2000
Canada Goose	1731
Least Sandpiper	1080
Hudsonian Godwit	870
Red-winged Blackbird	800
Greater Yellowlegs	760
Black-bellied Plover	605
Mallard	567

c)

Common Name	September High Count
White-rumped Sandpiper	3500
Canada Goose	3150
Dunlin	1501
Hudsonian Godwit	1116
Mallard	1100
Northern Pintail	785
Red Knot	400
American Pipit	296
Pectoral Sandpiper	278
Sanderling	272

Table 6. Top 10 estimated single-day high counts of shorebird species encountered at Northbluff Point, 15 July to 12 September 2015

a)

Common Name	July High Count
Semipalmated Sandpiper	4700
White-rumped Sandpiper	611
Hudsonian Godwit	250
Whimbrel	200
Lesser Yellowlegs	147
Semipalmated Plover	85
peep sp.	80
Red Knot	78
Pectoral Sandpiper	55
Greater Yellowlegs	50

b)

Common Name	August High Count
Semipalmated Sandpiper	12050
White-rumped Sandpiper	12000
peep sp.	2000
Least Sandpiper	1080
Hudsonian Godwit	870
Greater Yellowlegs	760
Black-bellied Plover	605
Red Knot	515
Lesser Yellowlegs	496
Semipalmated Plover	356

c)

Common Name	September High Count
White-rumped Sandpiper	3500
Dunlin	1501
Hudsonian Godwit	1116
Red Knot	400
Pectoral Sandpiper	278
Sanderling	272
Greater Yellowlegs	247
Semipalmated Sandpiper	205
Semipalmated Plover	126
Least Sandpiper	81

Motus towers, banding and tagging

In May 2015, five temporary Motus towers were set-up at sites on the southwestern coast of James Bay (Figure 2). These autonomous VHF receivers detect and store records of individual nanotagged birds. Individuals tagged at the study sites and elsewhere (either on northbound migration or on the breeding grounds), while in the vicinity of the tower, are recorded on a regular interval depending on the duty cycle of the nanotag (e.g., every nine seconds). These towers operated from 24 May to 3 November 2015.

Banding and tagging activities were focussed at Longridge Point and Northbluff Point; no trapping and banding took place at Little Piskwamish Point. Shorebird trapping followed a non-standardized approach using mist-nets; trapping was conducted both day and night and throughout the tidal cycle. Along with recording standard morphometrics (age, weight, exposed culmen, wing cord, flattened wing cord, fat score), each shorebird was marked with a uniquely coded alphanumeric leg flag and a uniquely coded USGS metal band.

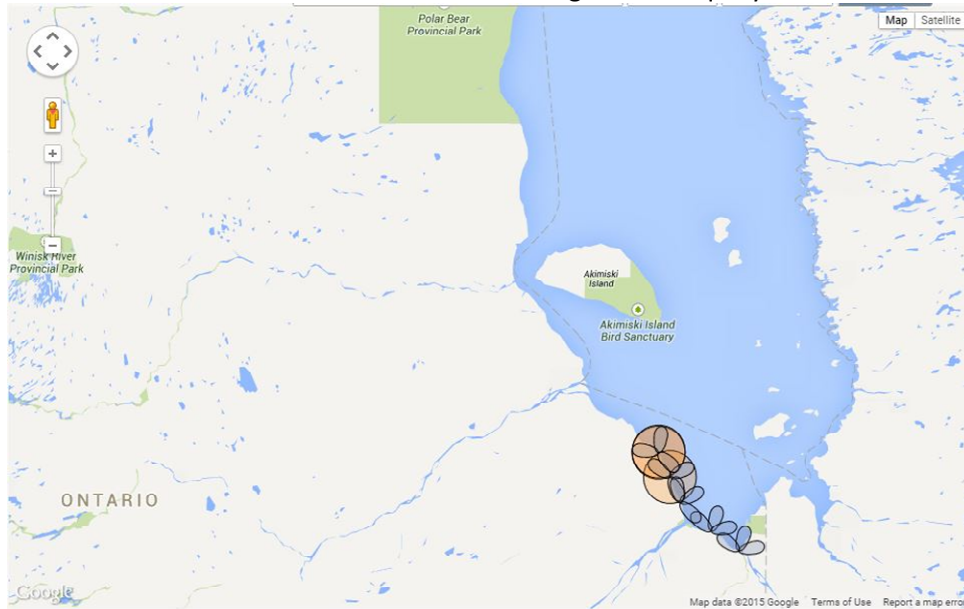


Figure 2. Locations of Motus towers, showing direction of antennas. Active 24 May to 3 November 2015.

Non-standard mist-netting was also conducted in a variety of habitats within each study site. Non-shorebird species were banded with a uniquely coded USGS metal band and standard morphometrics were recorded.

Nanotag efforts targeted five shorebird species (Semipalmated Sandpiper, White-rumped Sandpiper, Dunlin, Red Knot and Hudsonian Godwit). Species and age targets were established; there were no targets established for bird that were marked with a leg flag or a metal band only. Age and species targets for nanotags were revised during the season to account for changes in abundance of the target groups and to maximize data collection while birds were staging in the study

areas. In addition to affixing a nanotag, marking with a leg flag and metal band and recording standard morphometrics, blood samples (up to 200 μ L) were taken. Blood sampling is primarily for determining correlates of length of stay, condition related changes in fatty acids, DNA sex typing, and to establish diet through stable isotope analysis. A total of 158 nanotags were affixed to individuals of our target species (Table 7 & 8). Over 60% of the individuals tagged were after hatch-year (AHY) birds.

Figure 3 shows movements of tagged individuals from the 2015 season. For a visual representation of nanotagged birds departing James Bay in 2015, please go to <http://motus-wts.org/data/demo/sandpipers2015.html>

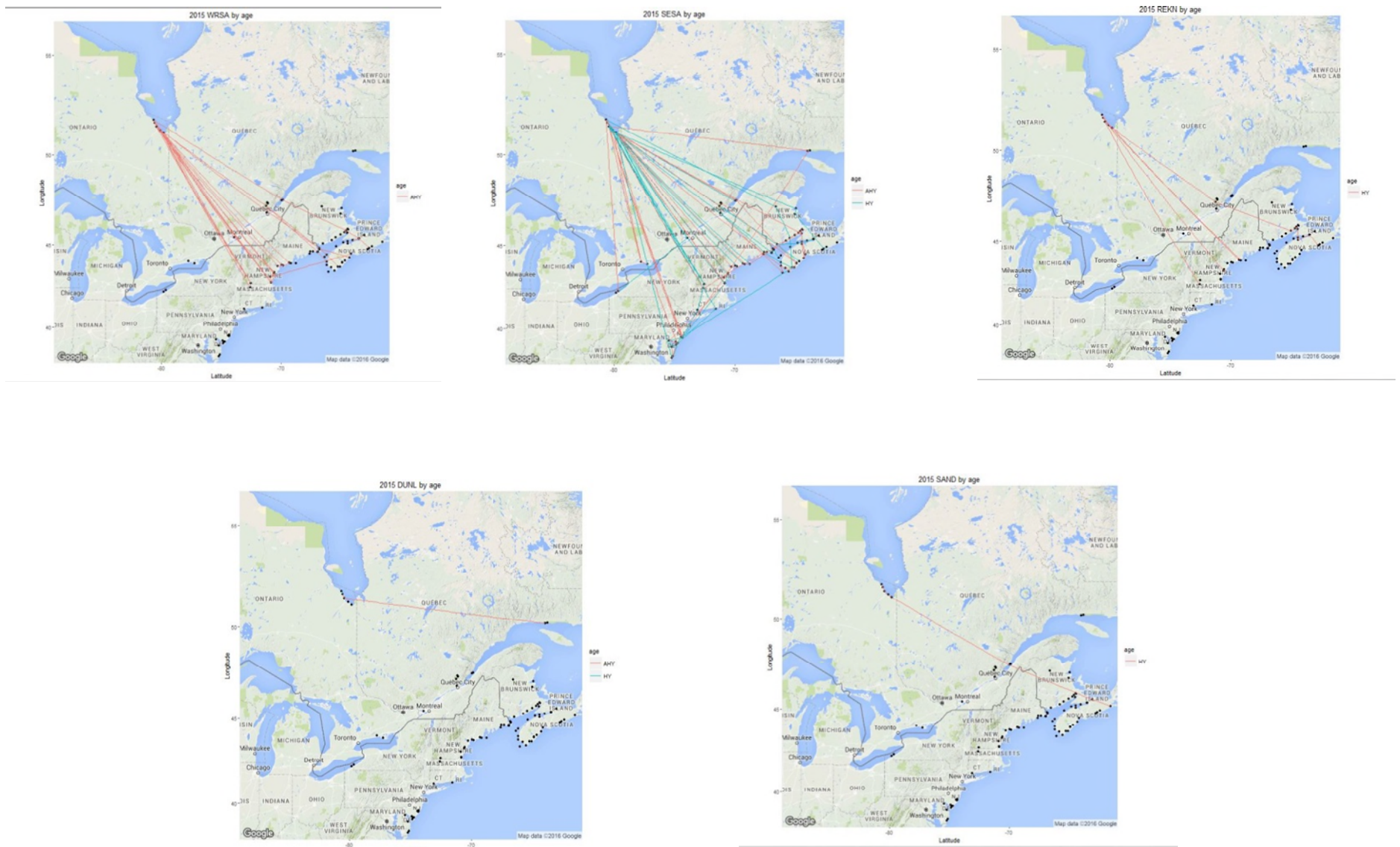


Figure 3. Movements by age of White-rumped (WRSA) and Semipalmated (SESA) sandpipers, Red Knot (REKN), Dunlin (DUNL) and Sanderling (SAND) based on nanotag data collected throughout the Motus network, 2015. Figures courtesy of Alexandra Anderson.

Table 7. Species and ages of shorebirds banded and affixed with a nanotag at Longridge Point.

Location	Species	Age ²	Count
Longridge Point	Dunlin	HY	9
Longridge Point	Dunlin	AHY	2
Longridge Point	Red Knot	HY	2
Longridge Point	Sanderling	HY	1
Longridge Point	Semipalmated Sandpiper	U	2
Longridge Point	Semipalmated Sandpiper	HY	16
Longridge Point	Semipalmated Sandpiper	AHY	20
Longridge Point	White-rumped Sandpiper	AHY	24
Total			76

Table 8. Species and ages of shorebirds banded and affixed with a nanotag at Northbluff Point.

Location	Species	Age ²	Count
Northbluff Point	Dunlin	HY	2
Northbluff Point	Dunlin	AHY	7
Northbluff Point	Least Sandpiper	HY	1
Northbluff Point	Red Knot	HY	4
Northbluff Point	Semipalmated Sandpiper	HY	20
Northbluff Point	Semipalmated Sandpiper	AHY	22
Northbluff Point	White-rumped Sandpiper	HY	1
Northbluff Point	White-rumped Sandpiper	AHY	25
Total			82

Other banding activities resulted in trapping and banding shorebirds and local breeding individuals and their young. Together with the shorebird trapping effort, 479 individuals of 19 species were banded. Over 95% of the individuals banded were shorebird species, accounting for 47% of the species banded (Table 9 & 10).

Table 9. Species and ages of birds banded at Longridge Point, 2015.

Location	Species	Age ²	Count
Longridge Point	Dunlin	HY	9
Longridge Point	Dunlin	AHY	3
Longridge Point	Least Flycatcher	HY	1
Longridge Point	Least Sandpiper	HY	22
Longridge Point	Least Sandpiper	AHY	1
Longridge Point	Pectoral Sandpiper	AHY	1
Longridge Point	Red Knot	HY	2
Longridge Point	Sanderling	HY	1
Longridge Point	Semipalmated Plover	HY	3
Longridge Point	Semipalmated Sandpiper	U	2
Longridge Point	Semipalmated Sandpiper	HY	77
Longridge Point	Semipalmated Sandpiper	AHY	43
Longridge Point	Swamp Sparrow	HY	1
Longridge Point	White-rumped Sandpiper	AHY	33
Total			199

² HY=Hatch-year (a bird in its first calendar year, hatched in the current breeding season), AHY=After hatch-year (a bird that is in at least its second calendar year), U=Unknown

Table 10. Species and ages of birds banded at Northbluff Point, 2015.

Location	Species	Age	Count
Northbluff Point	American Redstart	HY	1
Northbluff Point	Black-and-white Warbler	HY	2
Northbluff Point	Black-and-white Warbler	AHY	1
Northbluff Point	Black-capped Chickadee	HY	2
Northbluff Point	Black-capped Chickadee	AHY	1
Northbluff Point	Blackpoll Warbler	HY	1
Northbluff Point	Dunlin	HY	5
Northbluff Point	Dunlin	AHY	7
Northbluff Point	Least Sandpiper	HY	71
Northbluff Point	Magnolia Warbler	HY	1
Northbluff Point	Marbled Godwit	HY	2
Northbluff Point	Palm Warbler	HY	1
Northbluff Point	Pectoral Sandpiper	HY	1
Northbluff Point	Red Knot	HY	4
Northbluff Point	Red-eyed Vireo	HY	1
Northbluff Point	Red-eyed Vireo	AHY	1
Northbluff Point	Semipalmated Plover	HY	6
Northbluff Point	Semipalmated Sandpiper	HY	67
Northbluff Point	Semipalmated Sandpiper	AHY	62
Northbluff Point	White-rumped Sandpiper	HY	1
Northbluff Point	White-rumped Sandpiper	AHY	41
Northbluff Point	Yellow Warbler	HY	1
Total			280

Yellow Rail trapping

The Hudson Bay Lowlands represents a significant unknown part of Yellow Rail breeding range. With infrastructure in place, there is an excellent opportunity to learn more about this species in its breeding range. We proposed to monitor breeding and southbound migrant Yellow Rail, using daily counts and tracking of radiotagged individuals with mobile and an array of stationary receivers. Monitoring data will be used to estimate variability of migration phenology; estimate variation in annual abundance; assess habitat and food resource availability. Data from the project will be used to better understand Yellow Rail ecology. Taking blood is to determine condition related changes in fatty acids and for DNA sex typing.

Yellow Rail trapping was attempted at Longridge Point and Northbluff Point. We targeted vocal individuals within the meadow marshes in each study area, and followed a non-standardized approach using mist-nets and hand-held nets using playback; trapping was conducted both day and night. Vocalization begins to dissipate at the beginning of August, and efforts after the second week of August were opportunistic (i.e., when a bird vocalized). Unfortunately, we were unsuccessful in trapping any individuals, despite committing more than 20 hours to trapping.

Future Plans

Plans for the next two years include trapping and attaching nanotags to shorebirds at study sites as well as continuing deployment of temporary Motus towers at various sites along the coast that will be used to detect marked shorebirds. This project will contribute to a larger North America wide project, Motus. More information can be found at motus-wts.org.

Work is currently underway to determine the best path forward for continued surveying of staging shorebirds at sites along the western James Bay coast. Initial drafts have been developed and plans are to publish a formal sampling plan in 2017. In the meantime, surveys are expected to continue in an effort to maintain annual coverage at core sites, such as Longridge Point, while gaining new or updated information from other survey locations that are either new to the project or have been surveyed historically.

Finally, aerial surveys will be completed in 2016, following the same methodology as in previous aerial surveys of the James Bay coast. It is hoped that aerial surveys will take place periodically in the future as well.

Acknowledgements

The James Bay Shorebird Project is a cooperative effort spearheaded by Environment and Climate Change Canada's Canadian Wildlife Service, the Royal Ontario Museum, the Ontario Ministry of Natural Resources and Forestry, Bird

Studies Canada, and Trent University. Additional support received from the USFWS Neotropical Migratory Birds Conservation Act program. The OMNRF provided helicopter transport to and from field camps and accommodations in the staff house while crews were in Moosonee. Thanks to Rod Brook, Sarah Hagey, Kim Bennett and to the OMNRF pilots for providing logistical support. Ted Cheskey of Nature Canada and Bernie McLeod of Moose Cree First Nation coordinated logistics associated with the Moose Cree First Nation volunteers. Finally, without the many hours of dedicated volunteer support, this project would not have been possible. Many thanks to the volunteers who gave their time to the project this year.

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