ENVIRONMENT CANADA, CANADIAN WILDLIFE SERVICE; ROYAL ONTARIO MUSEUM; ONTARIO MINSTRY OF NATURAL RESOURCES; AND BIRD STUDIES CANADA.

Western James Bay Shorebird Project

2012 Report

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Spring 2013

Photo: Longridge Point

Report summarizing 2012 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 is 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, Prevett 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 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 western James Bay shorebird project (hereafter: the project) began when the Royal Ontario Museum (ROM) and the Ontario Ministry of Natural Resources (OMNR) 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 work on 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 OMNR 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 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 Knot[1] by the nomination and eventual establishment of WHSRN site(s) for south-western James Bay. The objectives to meet these goals are to estimate 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 2012; Little Piskwamish Point, Longridge Point, and Chickney Channel between 15 July and 13 September (see Figure 1). From these field camps, dedicated volunteers and staff counted shorebirds during their southbound migration. The timing of these 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.

Study Areas

The Chickney Channel camp (52.462063°N, 081.628790°W) was the most northerly of the project's three field camps in 2012 and was surveyed for the first time in 2012. It was located north of Chickney Channel (Albany River) roughly 30 km north of Fort Albany, 45 km directly south of Akimiski Island and about 150 km north-northwest of Moosonee (Figure 1). Extensive mudflats in the region, fuelled with nutrients from the Albany River, its tributaries and the innumerable smaller creeks, provided excellent conditions for staging shorebirds and waterfowl (Abraham and Miyasaki 1994, Morrison *et al.*1995, BSC and Nature Canada 2012). The extremely shallow gradient shoreline in the area is vegetated by dense tall willow (e.g., *Salix bebbiana*, *S. planifolia)* thickets, which gives way to vast supratidal graminoid meadow-marshes (e.g. *Carex paleacea*, *Calamagrostis inexpansa*, *Juncus balticus*) interspersed with low willow thickets, which grades finally to brackish and saline tidal marshes (e.g., *Puccinellia* spp., *Hippuris tetraphylla*, *Plantago maritima*, *Salicornia* spp.) dissected by myriad small ponds, drainage channels, tidal inlets and exposed mudflats. The spruce forest (e.g., *Picea glauca*, *P. mariana*) begins five to six kilometres inland from the high tide line. Previous aerial surveys of this region have shown large concentrations of shorebirds (e.g., Hudsonian Godwits) during autumn migration (Morrison *et al.* 1995).

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. Like Chickney, the gradient of the shoreline is very shallow. The spruce forest is closer 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., Red Knot) during autumn migration.

[1] The Red Knot was listed as Endangered in Ontario in 2008 under the provincial Endangered Species Act; in 2007 COSEWIC designated 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).

The Little Piskwamish Point camp (51.683427°N, 080.565783°W) was the most southerly of the project's three camps in 2012, and has been surveyed in one other season, 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., White-rumped Sandpiper) during southern migration.

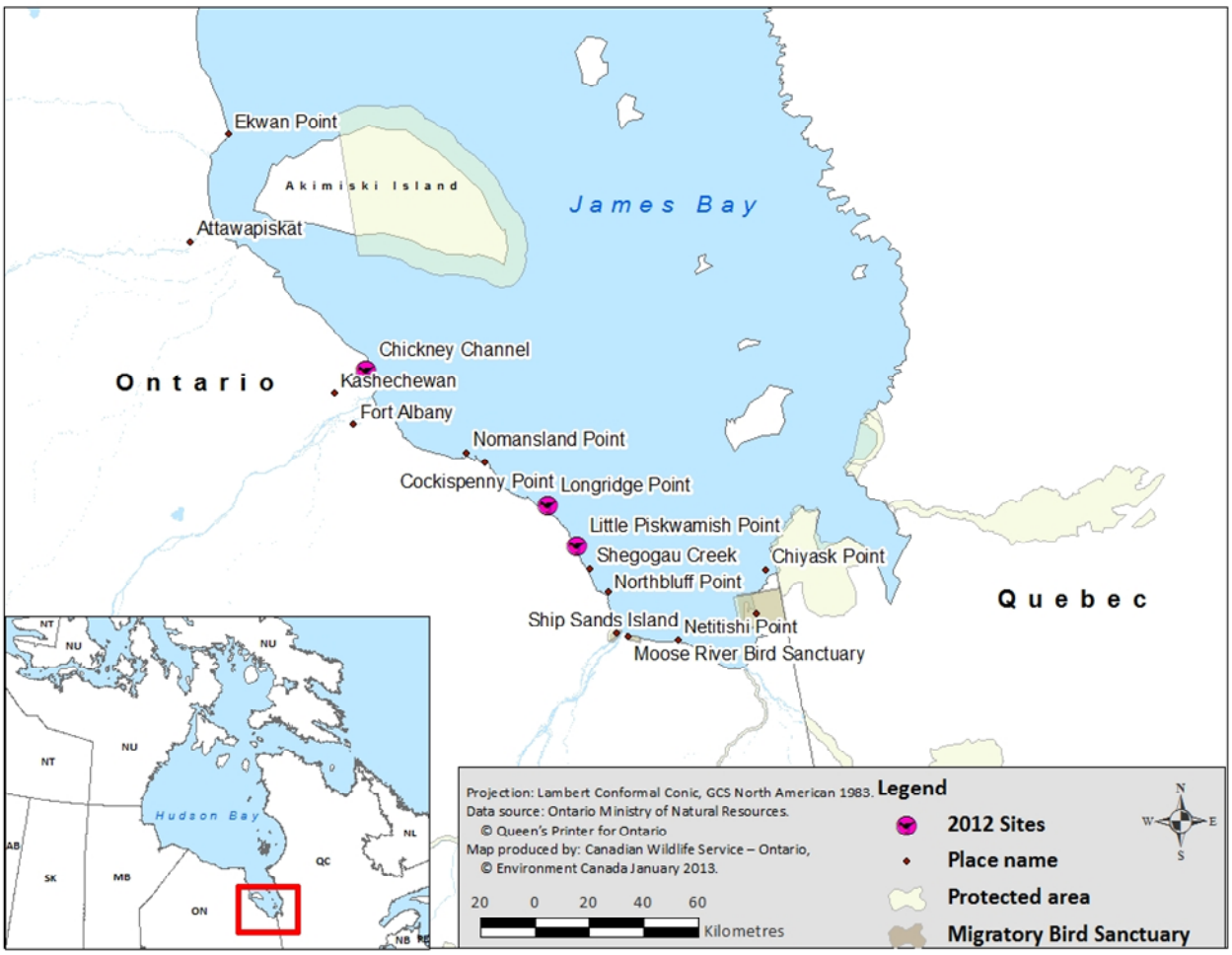

Figure 1. Field camp sites of the western James Bay Shorebird Project, 2012.

Images of the most commons species encountered at south-west James Bay

Semipalmated Sandpiper

Greater Yellowlegs

Lesser Yellowlegs

Hudsonian Godwit

Marbled Godwit

Ruddy Turnstone

Red Knot – with individual colour marked flag banded in Argentina

Sanderling

Semipalmated Sandpiper

Least Sandpiper

White-rumped Sandpiper

Pectoral Sandpiper

Dunlin

Results and Discussion

Chickney Channel

A total of seven people were stationed at Chickney Channel, consisting of two, four-person crews. The camp was active from 15 July to 16 August 2012. During this period, a total of 193 hours was spent in the field. There were 122 bird species observed during this time. Tables 1 and 2 show the top ten estimated high counts of bird species and shorebird species encountered each month during the period, respectively. Significant concentrations of Semipalmated and White-rumped sandpipers, not to mention the concentrations of Marbled and Hudsonian godwits were notable.

Table 1. Top 10 estimated high counts of bird species encountered at Chickney Channel, 15 July to 16 August 2012.

Species	July High Count
Semipalmated Sandpiper	88,130
Calidris sp.*	42,000
White-rumped Sandpiper	28,570
Dunlin	19,420
Hudsonian Godwit	1,876
Lesser Yellowlegs	1,734
Marbled Godwit	1,182
Greater Yellowlegs	901
Snow Goose	685
Mallard	617

Species	August High Count
Semipalmated Sandpiper	63,750
White-rumped Sandpiper	28,605
Dunlin	19,850
Calidris sp.*	10,232
Snow Goose	7,000
Hudsonian Godwit	5,088
Canada Goose	2,025
Limosa sp.+	2,000
Red-winged Blackbird	1,000
Greater Yellowlegs	714

****Calidris* sp. are unidentified small shorebirds, primarily Dunlin, Semipalmated Sandpiper, or White-rumped Sandpiper.**
+ *Limosa* sp. are unidentified Marbled or Hudsonian godwits.

Table 2. Top 10 estimated high counts of shorebird species encountered at Chickney Channel, 15 July to 16 August 2012.

Species	July High Count
Semipalmated Sandpiper	88,130
Calidris sp.*	42,000
White-rumped Sandpiper	28,570
Dunlin	19,420
Hudsonian Godwit	1,876
Lesser Yellowlegs	1,734
Marbled Godwit	1,182
Greater Yellowlegs	901
Least Sandpiper	585
Limosa sp.+	500

Species	August High Count
Semipalmated Sandpiper	63,750
White-rumped Sandpiper	28,605
Dunlin	19,850
Calidris sp.*	10,232
Hudsonian Godwit	5,088
Limosa sp.+	2,000
Greater Yellowlegs	714
Pectoral Sandpiper	442
Least Sandpiper	438
Lesser Yellowlegs	290

****Calidris* sp. are unidentified small shorebirds, primarily Dunlin, Semipalmated Sandpiper, or White-rumped Sandpiper.**
+ *Limosa* sp. are unidentified Marbled or Hudsonian godwits.

Longridge Point

A maximum of eight people were stationed at Longridge Point during the season. Individuals from this camp were also stationed at the Little Piskwamish camp during the same periods. The camp was active from 15 July to 13 September 2012. During this period a total of 344 hours was spent in the field, where 164 bird species were recorded. Tables 3 and 4 show the top ten estimated high counts of bird species and shorebird species encountered each month during the period, respectively. Fewer Red Knots were recorded this year, as compared to previous years at Longridge. This could be related to the early spring and poor breeding year in the eastern Arctic.

Four participants from Moose Factory participated in the camp at Longridge in 2012. George Cheechoo and Ross Trapper were scheduled at the camp from 15 to 22 August, and Minni Sutherland and Nancy Corston were stationed at the camp from 22 to 29 August.

Table 3. Top 10 estimated high counts of bird species encountered at Longridge Point, 15 July to 13 September 2012.

Species	July High Count
Semipalmated Sandpiper	5,430
White-rumped Sandpiper	3,810
Canada Goose	970
Lesser Yellowlegs	737
Pectoral Sandpiper	736
Bonaparte's Gull	659
Mallard	360
Red Knot	326
Ruddy Turnstone	307
Hudsonian Godwit	279

Species	August High Count
White-rumped Sandpiper	10,288
Semipalmated Sandpiper	6,465
Bonaparte's Gull	2,164
Hudsonian Godwit	1,975
Canada Goose	1,540
Pectoral Sandpiper	1,186
Black Scoter	1,101
European Starling	800
Ruddy Turnstone	688
Red Knot	616

Species	September High Count
Canada Goose	2,000
Dunlin	1,733
Bonaparte's Gull	1,650
Black Scoter	1,500
White-rumped Sandpiper	893
European Starling	600
Northern Pintail	420
Pectoral Sandpiper	338
Mallard	307
Semipalmated Sandpiper	304

Table 4. Top 10 estimated high counts of shorebird species encountered at Longridge Point, 15 July to 13 September 2012.

Species	July High Count
Semipalmated Sandpiper	5,430
White-rumped Sandpiper	3,810
Lesser Yellowlegs	737
Pectoral Sandpiper	736
Red Knot	326
Ruddy Turnstone	307
Hudsonian Godwit	279
Greater Yellowlegs	236
Sanderling	159
Semipalmated Plover	120

Species	August High Count
White-rumped Sandpiper	10,288
Semipalmated Sandpiper	6,465
Hudsonian Godwit	1,975
Pectoral Sandpiper	1,186
Ruddy Turnstone	688
Red Knot	616
Greater Yellowlegs	477
Semipalmated Plover	314
Dunlin	305
Least Sandpiper	285

Species	September High Count
Dunlin	1,733
White-rumped Sandpiper	893
Pectoral Sandpiper	338
Semipalmated Sandpiper	304
Sanderling	218
Greater Yellowlegs	177
Ruddy Turnstone	104
Black-bellied Plover	97
Red Knot	80
Semipalmated Plover	72

Little Piskwamish Point

A total of 10 people were stationed at Little Piskwamish Point, consisting of one four-person, one two-person, and 2 three-person crews. Crews were made up of individuals from the Longridge Point camp who hiked down to the Piskwamish camp to conduct surveys. The camp was active sporadically: 30 July-3 August, 16-19 August, 27-28 August, 31 August-3 September, and 10-13 September. Piskwamish was operated on a sporadic schedule due to logistic considerations. During these periods a total of 135 hours were spent in the field recording a total of 119 bird species. Tables 5 and 6 show the top ten estimated high counts of bird species and shorebird species encountered each month during the period, respectively.

Table 5. Top 10 estimated high counts of bird species encountered at Little Piskwamish Point on various dates between 15 July and 13 September 2012. See text for specific periods of coverage.

Species	July High Count
White-rumped Sandpiper	9,600
Semipalmated Sandpiper	2,400
Red Knot	900
Bonaparte's Gull	250
Canada Goose	190
Hudsonian Godwit	148
Lesser Yellowlegs	40
Northern Pintail	35
Redhead	34
Savannah Sparrow	30

Species	August High Count
White-rumped Sandpiper	35,000
Dunlin	4,575
Northern Pintail	2,722
Semipalmated Sandpiper	2,400
Canada Goose	1,400
European Starling	1,000
Red Knot	950
teal sp.	500
American Black Duck	450
Mallard	300

Species	September High Count
Dunlin	12,700
White-rumped Sandpiper	5,900
Northern Pintail	3,075
Semipalmated Sandpiper	1,060
Canada Goose	1,011
Blue-winged Teal	363
European Starling	300
Red Knot	280
American Black Duck	212
Mallard	200

Table 6. Top 10 estimated high counts of shorebird species encountered at Little Piskwamish Point on various dates between 15 July and 13 September 2012. See text for specific periods of coverage.

Species	July High Count
White-rumped Sandpiper	9,600
Semipalmated Sandpiper	2,400
Red Knot	900
Hudsonian Godwit	148
Lesser Yellowlegs	40
Greater Yellowlegs	25
Least Sandpiper	20
Pectoral Sandpiper	14
Semipalmated Plover	9
Black-bellied Plover	5

Species	August High Count
White-rumped Sandpiper	35,000
Dunlin	4,575
Semipalmated Sandpiper	2,400
Red Knot	950
Hudsonian Godwit	130
Greater Yellowlegs	120
Pectoral Sandpiper	87
Semipalmated Plover	70
Least Sandpiper	60
Black-bellied Plover	55

Species	September High Count
White-rumped Sandpiper	5,900
Semipalmated Sandpiper	1,060
Red Knot	280
Greater Yellowlegs	80
Least Sandpiper	65
Pectoral Sandpiper	49
Sanderling	38
Semipalmated Plover	16
Lesser Yellowlegs	12
Black-bellied Plover	11

Future Plans

Work is currently underway to determine the best path forward for continued surveying of staging shorebirds at sites along the western James Bay coast. Part of this work entails drafting a sampling plan. The timeline for a first draft of this plan is estimated for winter 2014. In the meantime, and given adequate funding, surveys are expected to continue in the coming years. Specifically, we hope to maintain annual coverage at our core sites, such as Longridge Point, while gaining new or updated information from a survey location that is either new to the project or has been surveyed historically.

Acknowledgements

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