History of spring migration in the GTA

Taverner (1941): "Of the Toronto region Fleming (1906) says: 'Regular migrant, not common, May 27-July 2'. J.A. Munroe (in Bent, 1929) reports a flight of passing flocks near Toronto totaling over a thousand birds May 24-26, 1910." The TOC archives lists Whimbrel records for six years during the 1930s, the largest of 75 at Ashbridges Bay on 29 May 1929. These modest numbers may suggest that the eastern North American Whimbrel population was still recovering from rapid decline in the 1800's from heavy market hunting along the Atlantic coastline (Bent 1929).

Saunders (1947) included records within a 30-mile radius of down town Toronto; the season by season or month by month accounts date back to 1939 but migration tables cover a period of 13 years of Saunder's and 27 years (back to about 1920) for James J. Baillie, Jr, (a Zoologist for Royal Ontario Museum and 'one of the most active field men in the region'). The migration chart (ibid) included Whimbrel records for Baillie in 7 years and Saunders in 8 years. The average early spring migration for both was 24 May; late spring departure: Saunders: 31 May, Baillie: 29 May. Both list the earliest date as 20 May. Locations varied east to the Eastern Gap and Ashbridge's Bay to Sunnyside and Ellis Avenue near the mouth of the Humber River west to Lorne Parke (now part of Mississauga). Eighty (24 May 1942 at Ashbridge's Bay) was largest number reported. In 1942 at Lorne Park, Mississauga, D. Perks (p.c.) there were 65 on 23 May 1942 (D. Perks, p.c.) and. 150 on May 23 (J.Baillie). The TOC archives listed 80 in Toronto on 24 May 1943 (R. Saunders). In 1945, T.Smith (TOC archives) recorded 40-60 on 24-26 May passing Toronto's eastern gap.

Saunder's (1947) gave the most thorough account "Prolonged Curlew Migration" for 1946 with the migration extending from 20 to 31 May: 19 "feeding at the water's edge" at Sunnyside. "The flock foraged the bit of sand, in pools, and amongst the grass tussock, evidently finding no lack of food." On 21 May, eight at York Downs flew in and landed in a ploughed field and rested quietly without feeding. Fifty flying past the Eastern Gap at 11:00 am on 28 May. Fifteen on 31 May heading south over Sunnyside at 6:30 am. This data suggests the species was neither regular nor common but, as stated " … come through each year with almost mechanical regularity at the expected time … May 24-26" (Sanders 1947). Two years after Saunder's book was published, a flock of 117 was seen recorded in Toronto on 29 May (Baillie 1949).

Throughout the 1950s increasingly larger numbers were reported: 300 in Pickering 24 May 1950 (J.Saunders); 300 at Fenchman's Bay 24 May 1956 (A Bunker), 600 at Willow Beach/Pickering 25 May 1957 (ibid)(TOC archives). Peaking with 1000 in Toronto on 24 May 1959 (300 also reported from Port Dover and Toronto[(Gunn 1959) and an impressive count of 1575 taken at Rockhouse Point, Lake Erie on 23 May 1957 (Gunn 1957)].

Sizeable flocks have been recorded in visible migration occur near Oshawa (average of 17 years—max. 470 on 22 May 1961/Tozer and Richards 1974). On 1964 at Pickering beach, 250 and 150 were counted on 25 and 27 May (C. Long/TOC archives). In 1966 a "heavy flight westward (was seen) at Pickering (just east of Toronto) on May 21-23" (with no associated numbers)(Goodwin and Roche 1966). The 1970s were in contrast relatively quiet with the largest numbers reported at Pickering Beach (265 on 24 May 1970/Fairfield/TOC archives); Whitby (287 on 24 May 1970/G.Bellerby/TOC archives); Pickering (350 on 21 May 1973/D.Scovell/TOC archives) and Mimico Creek Landfill (100 on 24 May 1979/K.Kelley/TOC archives).

In the 1980 Whimbrel numbers really started to ramp up. "On 26 May 1983 500+ were counted Toronto including … two large flocks of 50-100 flying West" (B. Jefferson, p.c.). In 1984 600 were recorded in Humber Bay West Park on 22 May (B.Yukich/TOC archives). In 1985 the peak number was 256 in the Eastern Headland on 22 May (A. Jamanillo/TOC archives). In 1987: 2500 at Toronto 15-27 May (Clive Goodwin, p.c.); "May 28, Fourth and Lake: Flocks of 30, then 35 around 4:30 pm. Sixty flew south and west at dusk" (B. Jefferson, p.c.); 331 at Thickson Woods, Whitby on 24 May (TOC archives); 200 at Whitby on 24 May (ibid). Then 3000 in the Eastern Gap (just of east Toronto Harbour Islands) on 24 May 1988 (Weir 1988). The following year, the highest number reported in American Birds for this area was a modest 230 in the Eastern Gap on 22 May (Goodwin 1989).

In 1991, 115 were seen in Colonel Samuel Smith Park (B. Jefferson, p.c.). On 24 May 1992, over a period of several hours, Jerry Guild et al. found the largest number ever recorded here, 2000 on the ground and additional 3000+ migrating through during several hours of observation with total estimated of 5000+ (J. Guild et al, p.c.; B. Jefferson, p.c.); this, during a time of construction when the park was banned from public access. In an annotated Checklist of bird for the Lakeshore Psychiatric Hospital Ground for the Metropolitan Regional Conservation Authority Beth Jefferson (p.c.) listed Whimbrel as "Regular Spring Migrant; 50 - 400 seen daily on days either side of 24th." In 1994, Ridout (1994) reported 2000 in Toronto.

Since about 2000 the species seems to have become more regular and increasingly larger numbers in spite of the fact this sub-species numbers continue to decline at an alarming rate.

On 20 May 2001, C. McLauchlan reported 92 Whimbrels in 1.5 hrs (Ontbirds: Toronto Whimbrel, Brant, Great Egret). 2002: 40 on 20 May (B.Bailey, Ontbirds); 40+ on 23 May (D.Salter, Ontbirds); 68 in three groups on 24 May (T.Dobko & L.Green, Ontbirds)); 37 in two groups on 25 May (B.Bailey, Ontbirds). On 25 May 2003: C. McLauchlan counted 103 in three flocks (Ontbirds: Whimbrel Colonel Sam Smith Park). 2004: 11 flocks totally 500 on 20 May (W.Renaud D. Hallett, Ontbirds); 7 flocks totally 254 on 21 May (W. Renaud, Ontbirds); [TTP: 22 May: 78 in two groups (Frank Butson: Great Day at Leslie St Sp., Outdoorontio.net/birds/OLDBIRD); 27 May: four (P.Venditti: Lots of Warblers at LLS: Outdoorontio.net/birds/OLDBIRD); 29 May; one (Frank Butson, outdoorontario.net/birds/OLDBIRD); 2005: 2643 between 5:15 and 8:30 am on 23 May (W.Renaud, Ontbirds); 23 May; 26 on 29 May (C.Horner, Ontbirds); 700 on 28 May (W.Renaud & D. Hallett, Ontbirds). 2006: three flocks totalling 314 on 21 May (W.Renaud, Ontbirds); two flocks totaling 37 on 22 May (C.McLauchlan et al, Ontbirds);118 in early morning on 24 May (F.Pinella; D.Deuckworth and D. Perks, Ontbirds) 120 in three flocks in late morning on 24 May (W.Renaud et al, Ontbirds); 33 in two groups on 26 May (N.Murr, Ontbirds); [MISSISSAUGA; Rattray Marsh, 500 in 9 flocks on 24 May; Port Credit: flock of 250 on May 24]. In May 2007, 9047 were recorded along a 12-km-stretch of shoreline on nw Lake Ontario, peaking with 3269 (86% at CSSP) on 23 May (Ont.birds: many observers). Large numbers again were reported in 2008: 86 in two flocks on 22 May (D.Perks, Ontbirds); 1151 in ten flocks on 24 May (m. obs.; W. Renaud Ontbirds).

In 2009, a more intensive study of Whimbrel migration was launched by volunteers of the Toronto Ornithological Club (see section below). The numbers taken over the four years expectedly varied greatly, the largest for 2012 of 4693. Combined with other counts take outside of the TOC survey time (2 on 12 May/J. Giraud@ebird; 70 on 28 May/B.Wilkinson; 100 on 28 May/D.Bell cf B. Wilkinson; 7 off Rosetta McLain Garden 4:50 pm 30 May/A.Brokelman, p.c.); Tommy Thompson Park (flocks of 36 and 33 on 30 May/G. Segler, p.c., photos); 5 circling over CSSP

Sailing Club 1:45-2:20 pm 31 May/J. Vieira, p.c., the GTA totals for 2012 is 4948. Assuming a breeding population of 17,000 this number represents 29% of the total. Clearly this park is of high importance to this threatened subspecies.

Staging and staging habitats

The Whimbrel is primarily a shorebird of ocean/land interface habitats except for a brief 2-3 months during the breeding season. Skeel and Mallory (1996) indicated, of the Atlantic population, "staging is rare". Variable numbers have been found resting on rocky headlands, beaches and lawn areas in GTA occasionally in large numbers (Table 2). Along the north shore of Lake Erie, Whimbrels staging may be more frequent (eg.; 435 in two flocks on a beach at Rondeau Provincial Park, 24 May 2011/C. Friis, Ontbirds; 100 on east beach pier, Port Stanley on 23 May 2009/K.Janssens: Whimbrels in Port Stanley/Ontbirds). On Lake Ontario more regularly at Presqu'ile Provincial Park and Oshawa Second Marsh (Table 2). Weir (2008) stated that "The Whimbrel's preference for habitat on Amherst I. during the spring since founding of the KFN in 1949 is not new. Beaupre found the rock bar and adjacent property at the east end of the island … to be a favourite stopping place in spring (Taverner 1942)."

In the central flyway up to 1500 Whimbrels stage (and feed) each spring in "freshly worked soil or short flooded alfalfa fields" in sw Alberta (great Taber area)(Lloyd Bennett, p.c.). The Pacific population is known to also stage regularly in irrigated fields in the central valleys of southern California. Examples of Whimbrels feeding in fields in Ontario: 550 on the cultivated fields of Holland Marsh north of Toronto 550 on 27 May 1942 (Devitt 1987) and 150 on 22 May 1991 (Weir 1991) and five with 30 Black-bellied Plovers in a field on Amherst Island, 24 May 2002 (B. Sachs: Kingston Field Naturalists Regional Sightings for Week ender May 25, '02/Ontbirds). In these cases it quite likely the Whimbrels were feeding, not merely resting. I have twice observed Whimbrels feeding while resting on lawns back from the CSSP near the adjacent filtration plant (Table 1). Rarely are Whimbrels reported from a single location in spring migration over period of more that a single day. At Oshawa 2nd Marsh Hoar (Ontbirds) noted: "Several flocks of Whimbrel have been seen daily between the 21st and the 26th. Most flocks arrived in the marsh in the late morning and only stayed for a short period."

The GTA and specifically CSSP include two of the largest counts of resting Whimbrel ever reported in Ontario. Particularly significant are J. Guild's (p.c.) diary entries from 24 May 1992: "There had been reports of Whimbrel earlier at the Island by Luc Fazio and his group. I went down 23rd St. and rounded the Filtration Plant and --- wow!! It was hard to believe. The sky was full of Whimbrels. I got out of the car, the noise was unbelievable. As I had only seen 3 previously and most reports talk about 100 as a large number flying by. I had never associated a large noise with this bird—However, I had never heard of numbers around here exceeding 100-200 flying by over the spit or Island. As I stood watching I noticed many many hundreds of birds sitting on the shore opposite the new (first weekend) marina. The birds in (the) air flew around in large numbers and off in the distance. Somewhat reminded me of Chimney Swifts, the air was filled, then greatly reduced. It was not possible to say the flew east, west, south or up – they just disappeared and returned. After about 10 minutes and since nobody there, I went to the phone on 23rd and Lakeshore and called Joe to bring me a camera. I returned and waited for Joe. The birds were somewhat diminished in numbers but very noisy. I tried to estimate the total and getting the idea of 100 came to a conclusion there had to be 20-30 times that many (ie. 2000-3000). About an hour

after I arrived the numbers started to drop. Which direction they left I am not sure, possible west/possibly south because of re-circling. Also assumption made that they were leaving and reappearing and not continuous additions."

The second record was taken on 23 May 2005 between 5:15 and 8:30 am: "When I arrived large numbers (1000+) were resting on the rocks of both peninsulas, possibly from an overnight flight, and for next hour flocks of various sizes continued to fly over, most at fairly high altitudes, some being up to km or more off shore. The last two flocks were seen around 7:15 am and I left the area around 8:30 am. My final total was a remarkable 2,643!!!." (W. Renaud, Ontbirds). Records of smaller numbers found reported in the park are included in Table 2. So it seems entirely probably that this area encompassed a major resting area for large numbers of Whimbrel during pre-settlement and early settlement times.

The majority of the Whimbrels counted in rapid directional flight behaviour on the TOC study were arriving from the east or east-southeast over Lake Ontario south of the lighthouse of TTP which marks the most south-westerly part of the park. It is possible that some of these originate as flocks that staged in TTP over night. Table 2 suggests that they will use this area as a resting place. To date, Whimbrel counts, including migrants passing by in flight only, have been relative modest: 180 in four flocks from 6:00 to 8:00 am on 24 May 2010 (P.Prior: Whimbrels flyover at the Spit in Toronto/Ontbirds); one flock of 140-175 + one 'distant large flock' (with no estimate) on 24 May 2009 (OFO Outing: The Spit/V.Carley et al, Ontbirds); 200 on 24 May 2009 (M. Strimas-Mackey, e.bird). There are two reasons for this. The park is closed to the public except on weekends and holidays: open from 9:00 am to 6:00 pm (in summer) and 4:30 in winter. (www.tommythompsonpark.ca). Because of on-going construction, the most southerly peninsula is closed off to pedestrian traffic even during weekend and holidays. During ideal migration weather, calm days or days with light breezes from sw to sw, heavy fog sometimes lasting until noon or later severely impacts visibility of migrating or staging flocks of Whimbrel.

TABLE 2. List of staging Whimbrel and associated habitat in the GTA [Colonel Samuel Smith Park (CSSP), Tommy Thompson Park (TTP), Oshawa Second Marsh (OSM) and adjacent areas. Rip-rap = boulders packed close together, often at an angle].

Date	Location	Qu.	Habitat	Source
25 May 1992	CSSP	2000+	Beach/rip-rap	J.Guild, B.Jefferson, p.c.
23 May 2005	CSSP	1000+	On rocks	W.Renaud (Ontbirds)
21 May 2005	OSM	307	On sw side of marsh	T.Hoar & D.Lockrey (Ontbirds)
21 May 2006	CSSP	250	Rip-rap/briefly landed	W.Renaud (Ontbirds)
28 May 2005	CSSP	200	Lawn	W.Renaud/D.Hallett (Ontbirds)
24 May 2004	OSM	155	In the marsh	G. Carpentier (Ontbirds)
28 May 2005	CSSP	150	Rip-rap on headlands	D.Hallett, p.c.
22 May 1998	CSSP	110	'flew in and landed'	B.Jefferson (Ontbirds}
25 May 2009	CSSP	110	Sandy beach	TOC Whimbrel Watch
28 May 2012	CSSP	100	Rip-rap on headlands	TOC Whimbrel Watch
29 May 2005	TTP	85	Brick shingle beach	OFO field trip
19 May 2008	OSM	85	-	T.Hoar (Ontbirds)

22 May 2012	CSSP	60	Rip-rap (landed three times)	TOC Whimbrel Watch
26 May 2008	CSSP	50+4	Rocks	D.Milson (Ontbirds)
23 May 2002	CSSP	40+	'on rocks'	D.Salter (Ontbirds)
28 May 2007	CSSP	37	Rocky beach	TOC Whimbrel Watch
24-24 May 2003	OSM	13-36	In marsh	T.Hoar (Ontbirds)
22 May 2004	OSM	34	Mudflats	J.Dixon (Ontbirds)
24 May 2005	CCSP	33	Beach	W.Renaud (Ontbirds)
21 May 2007	CCSP	27	Rip-rap	W.Renaud (Ontbirds)
29 May 2005	CSSP	17	Lawn	W.Renaud, (Ontbirds)
23 May 2004	OSM	16	On marsh	C.&C.Richardson (Ontbirds)
20 May 2005	CSSP	15	Rip-rap	P.Bulman (Ontbirds)
23 May 2002	OSM	14	Muddy spit	T.Hoar (Ontbirds)
23 May 2003	OSM	13	-	T.Hoar (Ontbirds)
25 May 2003	OSM	13	-	G.Carpentier (Ontbirds)
21 May 2002	Whitby Harbor	12	Resting on rocks	C.Horner (Ontbirds)
28 May 2005	TTP	12	Resting on shoreline	G. Riley (Ontbirds)
26 May 2007	CSSP	7+3	Rip-rap	W.Renaud (Ontbirds)
22 May 2003	CSSP	6	Rocks	J.Giraud (Ontbirds)
30 May 2005	Ajax: Hall Road	5	Feeding in field	G.Carpentier (Ontbirds)
18 May 2008	Darlington P.P.	5	Touched down	T.Hoar (Ontbirds)
23 May 2004	OSM	4	On marsh	T.Hoar (Ontbirds)
21 May 2004	CCSP	4	On boulders	W.Renaud (Ontbirds)
27 May 2004	TTP	4	In the mudflats	P.Venditti (outdoorontario/birds/OLDBIRD)
28 May 2007	Darlington P.P.	3	Gravel beach	J.Iron/www.jeaniron.ca
21 May 2004	OSM	3	Exposed mud/sand/rock	T.Hoar (Ontbirds)
24 May 2002	CSSP	3	Flushed off rocks	T.Dobko (Ontbirds)
25 May 2002	CSSP	2	Flushed off the rocks	B.Bailey (Ontbirds)
22 May 2008	Darlington P.P.	2	Beach barrier	T.Hoar (Ontbirds)
26 May 2009	CSSP	1	Main rock jetty	TOC Whimbrel Watch

The Toronto Ornithology Club Whimbrel Watch (2009-2012)

The Whimbrel watch by the TOC was launched in 2009, partnering with the Center for Conservation Biology at The College of William and Mary/Virginia, Commonwealth University (CCB) and The Virginia Coast Reserve of The Nature Conservancy (TNC) which was conducting long term monitoring of migration and conservation work with the Whimbrel on the Atlantic coast of Virginia. In 2009 CCB and TNC deployed four satellite transmitters and 40 radio transmitters and surveyed the population of Whimbrel using the seaside marsh ecosystem in Virginia. Data from these tagged Whimbrel and from aerial surveys have shown that migration and stopover

locations that these birds use are critical to the success of the migration, up to 5000 km each spring (http://www.ccb .wm.edu/programs/migration/Whimbrel/whimbrel_mapping.htm).

The TOC was informed each evening of the watch by Fletch Smith of the approximate number of Whimbrel which departed staging area on the southern Delmarva Peninsula at dusk to alerted us of how many we could expect in the GTA the following morning.

Whimbrels flying just sse east of Whimbrel Point, Colonel Samuel Smith Park 2012 (Wayne Renaud)

Data recorded: time, flock size, height, direction of movement, speed of movement; hourly conditions: barometric pressure; direction of change in barometric pressure; wind speed and direction; temperature. Duration each year: 19 to 30 May. Observations started at 5:00 to 5:30 am EST and lasted most days until 3:00 to 6:00 pm; later on days with heavy flights. Periods of dense fog, high winds or rain great affected coverage on one or more days each year. Don Barnett, TOC was data recorder with Don, the author and Jean Iron being the principle observers although a host of other volunteers joined in on mornings of the days of heavy flights. After four years there still is gap in the data from late afternoon to dusk due to shortage of volunteers and hence fewer regular observation hours.

The large movement in early morning clearly reflects the fact that most Whimbrels stage on the Delmarva Peninsula, Virginia and typically gather in large flocks and depart for their breeding

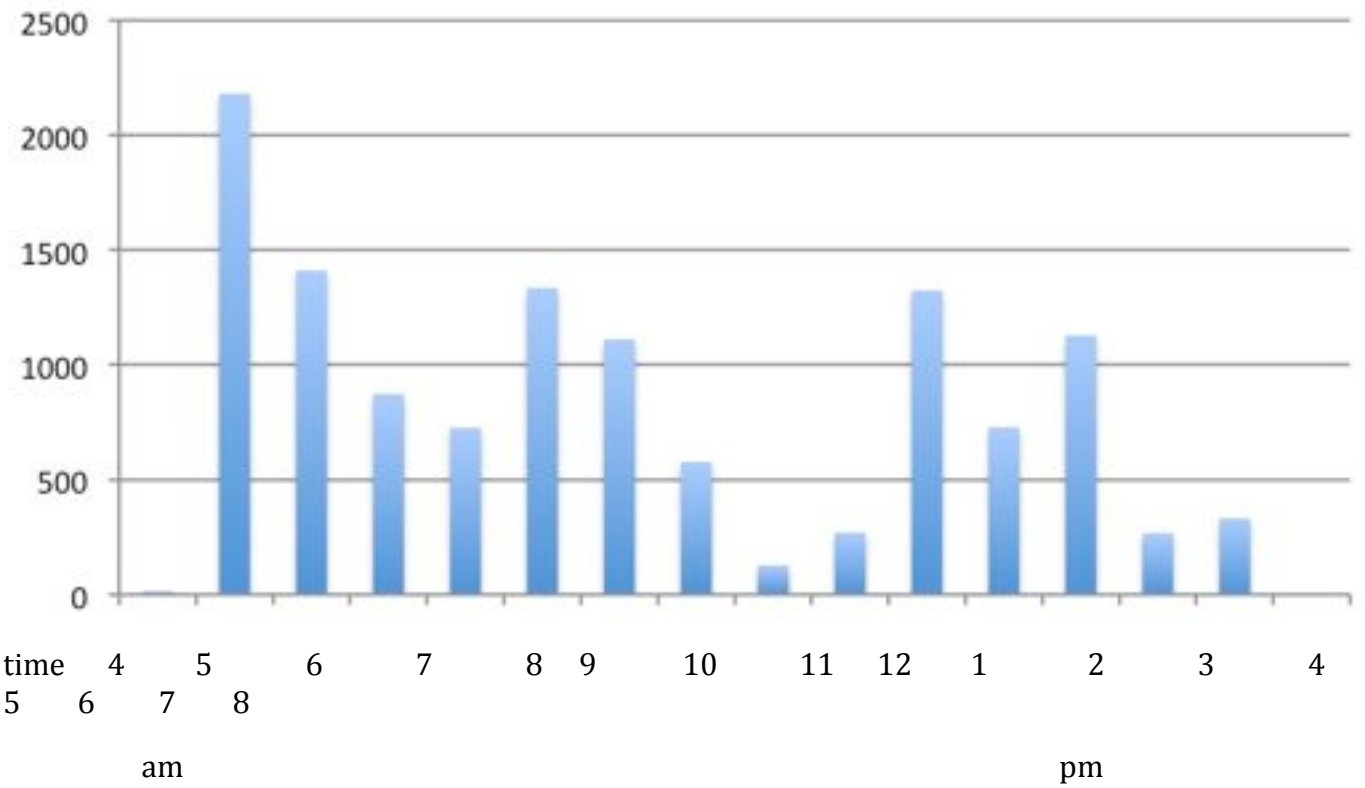
grounds in the Canadian central sub-arctic at dusk (Fletcher Smith, p.c.); given ideal conditions (ie. no fog or precipitation and with light e, se or s winds) Whimbrels take 10 to 12 hours to arrive the GTA (max. flight speed 75 km/hr/Castro and Myers 1989). Birds representing late morning and afternoon spikes may be leaving from staging areas in Georgia or have been grounded somewhere southeast of the GTA.

Table 3 summarizes daily total; Figure 7 summarizes totals for each hourly increment.

Table 3. Summary of the TOC Whimbrel Watch 2009 and 2012

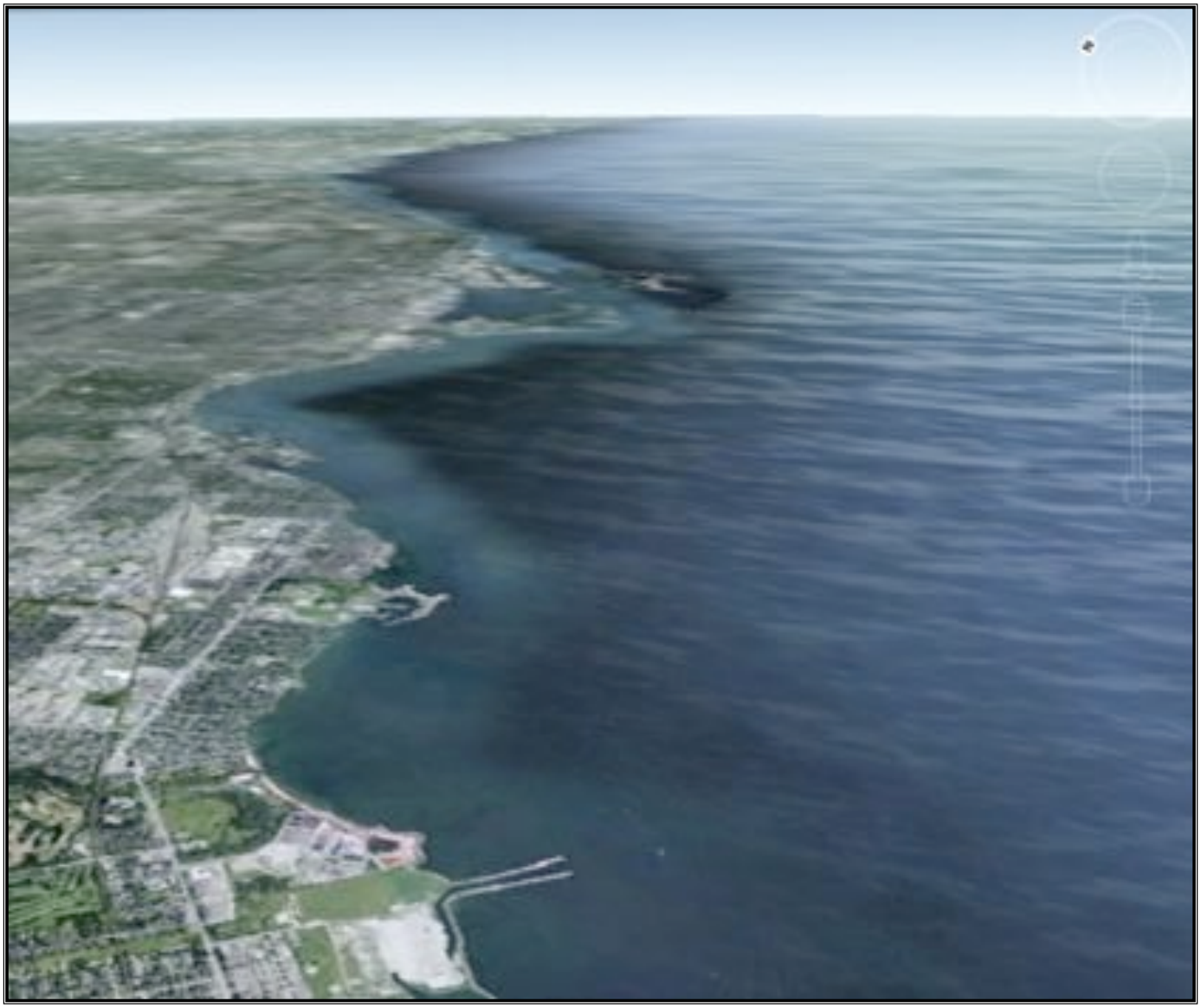
Date Year	18	19	20	21	22	23	24	25	26	27	28	29	30	Total numbers	Total flocks	Median flock size	Total hrs.
2009	0	0	27	29	509	67	1814	300	1	3	955	1	1	3705	63	30	118.45
2010	0	0	8	0	59	624	48	0	0	0	618	196	0	1701	55	27	115.0
2011	0	0	59	0	306	59	1553	0	0	0	79	16	0	2610	45	22	80.0
2012	0	0	9	0	625	202	413	749	2284	9	297	1	30	4693	72	50	114.5

Figure 7. Hourly totals (eastern standard time) from the Toronto Ornithological Club 2009-2012 Whimbrel Watch at Colonel Samuel Smith Park, Toronto, Ontario.



Summary

Both historically and currently the main migration through the Great Lakes basin is through western Lake Ontario (most prominently the GTA), and Lake Erie (most prominently through Long Point and Port Ryerse west to Pt. Mouilee, Michigan). Whimbrel passing north through western Lake Ontario track likely follow the Humber/Credit River valley and Niagara escarpment to Manitoulin Island, then onto to the west shore of James Bay (ie, Moosonee) and sw Hudson in nw Ontario and ne Manitoba. The Lake Erie stream likely takes the birds north and nnw through Lakes Huron and northern L. Michigan to the east end of Lake Superior (eg., Whitefish Point) then onto sw Hudson Bay. Even some the Lake Erie and Ontario Whimbrels may stream thorough eastern Lake Superior (ie. Whitefish Point Bird Observatory) given the consistency of large numbers recorded there each spring. Those further west (ie Duluth, Thunder Bay, Nipigon) likely originated from staging areas in Louisiana.



View of GTA looking ene. Whimbrel Point, CSSP is located on the right of the crescent-peninsula (lower left); Toronto Islands and TTP are beyond; the concrete piers of the decommissioned hydro plant near the bottom the photo. Most whimbrels arrive to right of the Toronto Islands/TTP traveling west of wsw. (Google Earth).

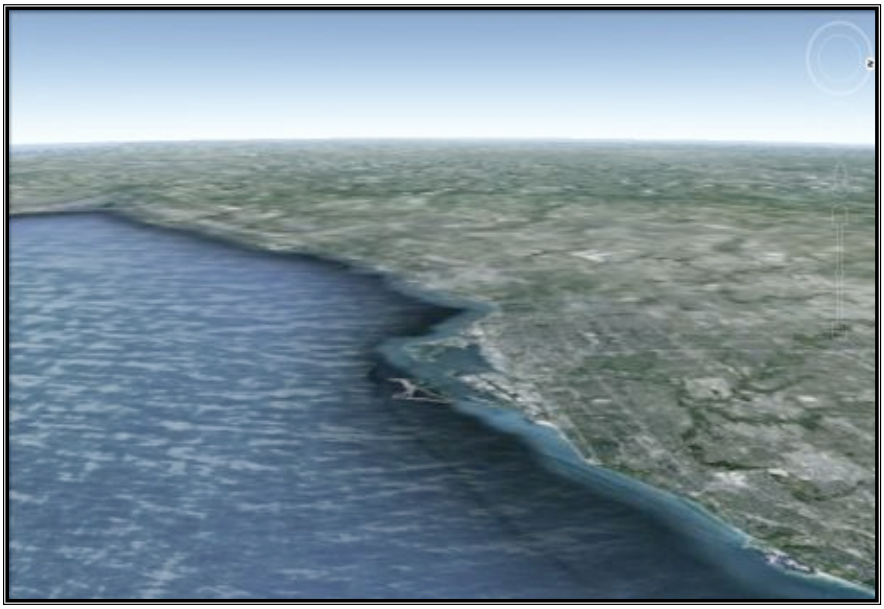
The highest Whimbrel counts from the GTA remain the highest counts ever taken in an inland North America (eg., Texas: east of Houston 2676 Anuhuac NWR 5 May 2012; California: 2500 1 May 2012 nnw of Bakersfield/all ebird; Taber area sw Alberta: 1458 12 May 2007/'Albertabird/message/10451'). This location is geographically located near the middle of the direct route between major modern staging areas in Virginia, primarily the Delmarva Peninsula, and intertidal shorelines on the sw coastlines of Hudson Bay, which Whimbrels are physically capable of flying to in 24 to 30 hours. This location appears to be the only location in the great lake basin where flocks gather into 'superflocks' and spiral upward, in most cases, almost or entirely out of visible range, and embark on a direct flight heading nnw from Lake Ontario.

This behavior is very typical of the massive departure of flocks from the Del Marva Peninsula, Virginia after several weeks of staging and putting on weight: "Here in Virginia, we see small flocks of birds take off from the marsh, and as they are flying they are giving constant "contact" calls, presumably to keep in flock formation and also to let other flocks know where they are so that the other flocks can join them. We see smaller flocks join together forming "superflocks" of up to a couple hundred birds. This happens over the course up a couple hours at most, as most of the whimbrels leave Coastal Virginia in a short two hour window." (Fletcher Smith, pers. com.).

Photograph of a typical Whimbrel flock in string configuration when flocks are flying to great heights shortly before turning north heading towards James and Hudson Bays (9:39 am/26 May 2012/Toronto TOC Whimbrel watch/Wayne Renaud)

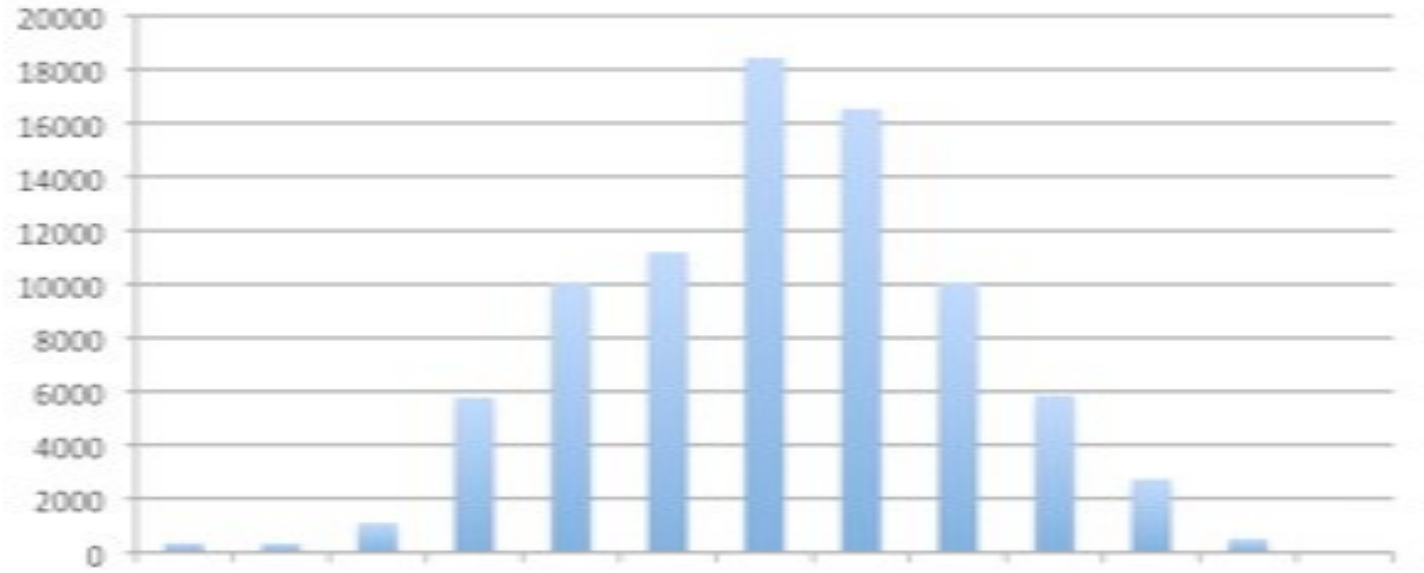
Bob Curry's (Ontbirds, 24 May 2007 'Whimbrel at Port Credit') remarks on the Great Lakes migration are indeed enlightening: "It is interesting that only on occasion do small numbers of Whimbrel stray as far as the western end of Lake Ontario at Hamilton, generally when conditions are foggy or there are strong easterlies. The much reduced numbers at Port Credit fit this pattern. Their tradition is to head off to the NW from about Toronto. My sense, although I have no specific data to back this up, is that those birds that move west along the north shore of Lake Erie also head

NW before or at Point Pelee and that they are much scarcer at the extreme west end of that lake also". The highest Whimbrel count in Hamilton study area, which extends west to Port Credit, is at Lorne Park, Mississauga (just west of Port Credit) of 600 on 23 May 1942 (Curry 2006). The highest count to east in the Oshawa area was take at Whitby, 470 on 22 May 1961 (C. Goodwin, p.c.). The shoreline configuration of north shore of Lake Ontario changes direction marked around CSSP, swinging wsw, possible forcing the Whimbrels migrating west to take change in trajectory, moving inland north or north-northwest direction.



Photograph of nw Lake Ontario looking west over the Toronto Island and Tommy Thompson Park toward CCSP. Note the change in the direction of shoreline just west of CCSP. (Google Earth)

Figure 8. Bar scale depicting the spring migration phenology for the Great Lakes basin region based on the data presented in Table 1 (84,851 Whimbrels).



May 18 19 20 21 22 23 24 25 26 27 28 29 30

Spring migration extreme early and late records span 23 March to the second week of June (on average mid May to late May; but highly compressed from 21-27 May). This paper confirms the generally accepted peak movement: 24-25 May (42.2% of the counts in Table 1). The 600 at Moosonee, James Bay on 27 May 1984 (Weir 1984) further suggests that migration through the Great Lakes basin is swift and, for the most part, direct and Whimbrels may take only 24 to 30 hours to move from Virginia to James Bay. Given the fact that most flocks are moving from east to west, after crossing Lake Ontario a significant number follow the shoreline towards the GTA. No large numbers have ever been recorded on Lake Ontario east of the GTA, but occur instead to the north on Georgian Bay and to the sw on Lake Erie, suggests that the GTA lies on the east edge of main corridor of spring migration. The location of the GTA indisputably channels the highest proportion of the eastern North American population. As such steps must be taken by the appropriate authorities to ensure that staging areas and habitats are maintained for Whimbrels (and other endangered and non-endangered migrant shorebirds). This includes minimizing disturbance by 'of-leash' dogs and people during the window of peak migration.

The data from four years of the TOC Whimbrel Watch does not give a significant amount of data to do a statistical analysis on how migration is affected by any particular environmental condition like wind speed and direction, cloud cover, changes in air pressure or temperature.

But after four seasons certain patterns have emerged. The largest movements of Whimbrels often coincide with significant movements of other species of shorebirds which typically represent the last major wave of north-bound shorebirds (eg. Black-bellied Plovers, Dunlin, Sanderling, Semipalmated Sandpipers and Ruddy Turnstones). Flocks in first big peak tend to Whimbrels moving at a faster pace and less often circle around than do flocks which occur later in the day. The largest flocks which circle around and gather into large flocks are most often occur from mid afternoon to early eaving. String flocks, often involving up to 200-250 Whimbrels and occasionally up 500 also occur during this latter period.

The map shown below shows the routing of Whimbrels fitted with satellite tags in coastal areas of Virginia and Georgia. This pattern of tracking also enforces the narrowness of the corridor through the Great Lakes basin. The fact that a significant number move to the nesting areas in nw sub-arctic Canada suggest that at least two subspecies maybe using the Great Lakes corridor both in spring and fall migration (F. Smith, p.c.).

"In Tommy Thompson Park@ 13:30hrs on 23rd a flock flew over, circled a few times; rather wary before and for few minutes after landing. One had radio antenna and pale green leg flag on L leg, with yellow band above; metal band on R leg and was the only marked one in this flock. Another report around the same time was of 30 at Cell #2, LSS @ 13:30hrs on 23rd (anon fide OUTON), and included a photo of some in flight, showing the bird with the radio antenna. " [Toronto Birds 4(6) 91].

Figure 9.
Map showing tracks of 19 Whimbrels fitted with satellite transmitters: 20 May 2008 to 6 June 2012.
[http://www.seaturtle.org/tracking/index.shtml?project_id=369]

ACKNOWLEDGMENTS

This paper has been through several phases of development for the past seven years.

The information contained there was the result of an intensive literature search as well as sorting through reams of records from the TOC archives dating back to 1934; ebird; ontbirds; and unpublished and anectodal records. Mark Peck provided me with the list of Whimbrel specimens and associated information in the ROM bird collections. Jerry Guild made his extensive library available and assisted in the search published summaries of the status and distribution of the Whimbrel in Ontario and Canada.

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