



The return of breeding Piping Plovers to the Ontario shores of Lake Ontario

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Photos by Glenn Coady

Introduction

The Piping Plover (*Charadrius melodus*) is an endangered species of shorebird that inhabits wide, open beaches of the Atlantic coast, as well as alkali flats and wide expanses of sandflats inland along rivers, lakes and wetlands of the Canadian Prairies, northern Great Plains and the Great Lakes Basin. There are two subspecies described: the nominate subspecies *C. m. melodus* breeds exclusively along the Atlantic coast from southwestern Newfoundland to North Carolina and winters from North Carolina to the southern Atlantic coast of Florida with smaller numbers in the Bahamas and Greater Antilles. The second subspecies *C. m. circumcinctus* breeds primarily

at inland sites from southern Alberta eastward to the Lake-of-the-Woods area of Ontario and Minnesota and south to Kansas, Colorado and western Oklahoma. However, a much smaller, disjunct population of this subspecies is found in the Great Lakes Basin. This subspecies winters along the coast of the Gulf of Mexico from northeastern Mexico and across the Gulf states to the west coast of southern Florida (Elliott-Smith and Haig 2004) and on the Atlantic coast from North Carolina to Georgia (Gratto-Trevor *et al.* 2012). Band recoveries have shown minimal mixing between the Prairie/Great Plains and the Great Lakes populations.

Despite intensive management resources devoted to this species, efforts aimed at recovering its populations have met with mixed success (Haig *et al.* 2005). The species is managed in three management units: 1) the nominate subspecies of the Atlantic coast, 2) *C. m. circumcinctus* of the Prairies/Great Plains and 3) *C. m. circumcinctus* of the Great Lakes. Recent estimates have put the population of *C. m. melodus* at 3648 individuals (averaged over 2006-2010), a steady increase from 1580 in 1986 (Andres *et al.* 2012). The Prairie/Great Plains population of *C. m. circumcinctus* was estimated at 4662 individuals (Elliott-Smith *et al.* 2009). Population estimates fluctuate substantially based on the habitat-related detection rates during oscillations of wet/dry periods throughout the region, but on the whole this population is thought to be stable. The Great Lakes population of *C. m. circumcinctus* has rebounded from an all-time

low of 12 breeding pairs in 1981 to a greatly improved 75 pairs in 2015 (Maz-zocchi and Truskowski 2015). A detailed review of the history of the Piping Plover as a breeding bird in Ontario has recently been published (Toews *et al.* 2008) and its province-wide status from 2007-2016 is reviewed by Brett (2016).

From the 1930s, the numbers of Piping Plovers rapidly declined until they were extirpated from the Ontario shores of all the Great Lakes: Lake Ontario by the mid-1930s, Lake Huron by the early 1970s and Lake Erie by 1978, after the last known nesting attempt at Long Point in 1977 (Toews *et al.* 2008). Factors implicated in their dramatic decline include habitat loss, increased disturbance by human usage of preferred beaches, increased predation by rising populations of gulls and mammalian predators benefitting from human food subsidies, poor water level management practices, reduced water quality and increased environmental contaminants (Elliott-Smith and Haig 2004).

After 1978, the Piping Plover was not recorded as a breeder on the Canadian shores of the Great Lakes until 2007, when a pair nested at Sauble Beach (Toews *et al.* 2008). Until 2015, the last confirmed breeding on the Ontario shore of Lake Ontario was in 1934, when George North and Ott Devitt found a successful nest on Van Wagners Beach in Hamilton and G. Hubert Richardson located a successful nest on Hanlan's Point Beach at the Toronto Islands (Baillie and Harrington 1936). Anecdotal evidence suggests that Piping Plovers continued to be seen regularly on beaches at

Presqu'île Provincial Park into the 1950s and early 1960s (D. McRae, pers. comm.); however, no nesting was ever confirmed. With a species that has such obvious courtship behaviours and such conspicuous fledged young, it would seem a remote possibility that active nesting occurred undetected at a site with such a busy human presence. The purpose of this paper is to document the return of the Piping Plover as a confirmed nesting species on the Ontario shores of Lake Ontario.

First nesting attempt at Toronto in 2015

Following its extirpation as a nesting species on Lake Ontario, migrant Piping Plovers, presumably from a small Michigan population, continued to stop over at favourable beach habitats on Lake

Ontario, being seen at Hamilton, Toronto Islands, Darlington Provincial Park and Presqu'île Provincial Park, among other sites, throughout the years. Over the past ten years, sightings increased to the point where they were observed nearly annually at Toronto Islands and occurred every spring at the beaches of Darlington Provincial Park, where in some years multiple birds were detected by Tyler Hoar (pers. comm.) and others (G. Coady and R. Smith, unpublished data).

On 24 May 2015, Gavin Platt (Ont-Birds, 24 May 2015) discovered three Piping Plovers (2 males and 1 female) on the beach at Hanlan's Point on Toronto Islands, immediately southwest of the Toronto Islands Airport. His assessment was that one of the males was displaying



Figure 1: Adult female Piping Plover protecting its first egg during a rain shower on 31 May 2015.

territorial aggression behaviour toward the other male. On 26 May, Norm Murr (OntBirds, 26 May 2015) found two birds and felt that they may be acting like a mated pair.

The next day, 27 May, I went to Hanlan's Point Beach in hopes I might find that these birds were about to nest in Toronto for the first time in 81 years. Upon arriving at the beach, I was surprised to find four Piping Plovers: two banded males, one banded female and one unbanded female. Even more intriguing was that two of the birds were observed copulating and they also demonstrated pronounced territorial aggression to the other two plovers, vigorously chasing them from a section of the beach. In very short order, personnel from the Toronto and Region Conservation Authority (TRCA), Ontario Ministry of Natural Resources and Forestry (OMNRF) and the Canadian Wildlife Service (CWS) came together to cordon off a large section of the beach with stakes and ropes, snow fences and interpretive signage to keep beach-goers from disturbing a potential nest.

When I returned to Hanlan's Point on 31 May 2015, I could only find three of the plovers at the site and no fourth bird was seen again in 2015. Two of the birds were conspicuously paired and defending an obvious territory from the third bird, often driving it away great distances. The male of this pair was banded as a chick in Michigan in 2014. The female was not banded. Between bouts of aggression against the third Piping Plover and a nearby pair of Killdeer (*Charadrius vociferous*), these paired birds

were repeatedly seen copulating. Using the areas and directions where aggression displays were occurring, I attempted to back-project to a putative nest location. Just as I was about to make a search of an area that I strongly suspected as being a potential nest location, a brief rain shower began. I watched the female from a long distance as she slowly traveled back toward the area I had been watching. Within a minute she settled on what appeared to be a nest scrape, presumably to keep any eggs from being rained upon (Figure 1). This female stayed in this spot until the rain ceased after about 20 minutes and then left again to resume foraging. When she was more than 50 metres away, I left some cover and made a direct trip over to where she had presumably been incubating an egg or eggs. I found the one egg nest quickly (Figure 2) and by the time I got my camera on the nest to document it, the female was back and performing a vigorous distraction display. I took two quick photographs of the nest and left the area. Once I was more than 100 metres away, I looked back to find the pair copulating once again.

That evening I called John Brett at CWS to tell him that I had found a nest and gave him directions to find it so that a predator enclosure could be installed over it as quickly as possible to give this nest the best chance possible for success. The next day (1 June) personnel from TRCA, OMNRF and CWS set up a roughly rectangular perimeter fence (and more signage) around the nesting area and put a small predator enclosure on the nest (a temporary enclosure that is used before a clutch is complete). Within a



few days, a Plover Guardian Team was formed to provide added protection for the birds and interpretive services for the public. By 5 June, it was confirmed that a complete clutch of four eggs had been laid and the small predator enclosure was removed and replaced with a larger enclosure (J. Brett, pers. comm.).

The birds diligently incubated this clutch of eggs and defended the area from nearby Killdeer and the ever-present Ring-billed Gulls (*Larus delawarensis*) for more than three weeks and all concerned were looking forward to the hatching within another week. Unfortunately, on the evening of 22-23 June, the birds had



Figure 2: First egg of a Piping Plover on the Canadian shore of Lake Ontario since 1934. Photo taken on 31 May 2015.

from the nest site (J. Brett, pers. comm.) and within a few days, both adults of the pair abandoned the area.

Interestingly, just days later, on 1 July, the banded male and an unbanded bird assumed to be the female of the Hanlan's Point pair, were seen in the company of a lone Piping Plover in Oswego County, New York, on the southeast shore of Lake Ontario but no nesting occurred there (Mazzocchi and Truskowski 2015). However, a different pair of Piping Plovers nested in nearby Jefferson County, New York, in 2015. It was the first successful breeding pair on the New York shore of Lake Ontario (Mazzocchi and Truskowski 2015) since a pair had nested in 1984 at Sandy Pond in Oswego County after an absence of 29 years (Levine 1998).

Successful nesting at Darlington Provincial Park in 2016

Nest 1

On 10 May 2016, Charmaine Anderson and Betsy Smith (pers. comm.) found three banded Piping Plovers on the beach at Darlington Provincial Park. Two of these birds appeared to be territorial as they seemed to be working together to aggressively drive off the third bird. On 11 May, when Tyler Hoar, John Brett and I visited the site, all three birds were present and the presumed territorial pair had

to deal with a threat that simply could not be defended against. On that evening, a torrential rain storm with lightning and high winds lashed the Toronto area for hours and the beach was inundated with waves from the west which eroded the beach, flooded the nest and scattered the eggs which were later found roughly 5m



Figure 3: Adult male Piping Plover from the first nest at Darlington Provincial Park on 11 May 2016.

begun copulating and the male had started making nesting scrapes all over the beach. Both birds of this pair continued to chase away the third bird which was a banded female.

Because all of the birds were banded, it was possible to obtain some of their histories. The male of this pair had been hatched and banded at Wasaga Beach, Ontario, in 2015 (Figure 3). The female of the pair (Figure 4) had been banded as a breeding adult at Sleeping Bear Dunes National Lakeshore near Traverse City, Michigan, in 2012. The third bird was a female that had been hatched and banded at Manistee, Michigan, in 2015. The male made nesting scrapes and copulated with the female for five days (11-15 May) and the third bird stayed around on the periphery of their territory throughout this time. On the afternoon

of 16 May, I discovered the first nest at Darlington Provincial Park at the one egg stage. I informed John Brett of the find and the next day Ontario Parks and CWS cordoned off a large section of beach around the nest as a no entry zone and a predator enclosure was placed over the nest to protect the eggs from mammalian predators. By 22 May, this pair had a complete clutch of four eggs and undertook incubation for the next four weeks. A full size predator enclosure (Figure 5) was set up on 24 May (J. Brett, pers. comm.). A Plover Guardian Team of over 40 volunteers was assembled and trained to protect the area and educate beach users. Additionally, they began to condition locally loafing Ring-billed Gull flocks by routinely but gently scaring them if they entered the cordoned zone around the nest. It was hoped that



Figure 4: Adult female Piping Plover from the first nest at Darlington Provincial Park on 26 June 2016.



Figure 5: Nest enclosure over the first Piping Plover nest at Darlington Provincial Park on 31 May 2016.



Figure 6: Eleven day-old Piping Plover chick from the first nest at Darlington Provincial Park, 26 June 2016.



Figure 7: Thirty-eight day-old juvenile Piping Plover from the first nest at Darlington Provincial Park, 24 July 2016.

the gulls would recognize that they would be left undisturbed if they loafed well down the beach away from the nest. The guardian team rarely noted a serious threat of gull predation throughout the rest of the summer.

On the evening of 16 June, Joachim Floegel discovered that two chicks had hatched and when I visited at dawn on the morning of 17 June, all four chicks had hatched and shortly thereafter they began roaming the beach (Figure 6). On the afternoon of 20 June, only three chicks could be found and we presumed one was lost to the heavy shoreline wave action on this very windy day. The remaining three chicks were banded on 28 June. Both adults continued to watch over these young for the next week, but soon after this the female began leaving them in the care of the male alone. It is possible that she was concentrating on feeding in advance of her departure, as she was last seen feeding on the beach on the evening of 4 July. The three juvenile birds attained sustained flight by 16 July (Figure 7), but they remained under the protection of the adult male almost until the time they left. By 28 July, all three 42 day-old juveniles had fledged and were making periodic flights outside of the park where the guardians could no longer monitor them; however, they were still coming back to the natal beach to roost for the night through 1 August. Although none were seen at the evening roost on 2 August, on 3 August one of these 48 day-old juveniles was found freshly dead. Preliminary necropsy results from the Canadian Wildlife Health Cooperative revealed that it was

emaciated and presumed to have died of starvation. It was not determined if this might be secondary to a pathogen such as Type E botulism or salmonella. Last seen on 7 August, the two other chicks produced from this nest apparently survived to undertake their post-hatch dispersal and subsequent migration.

Nest 2

On 21 May 2016, Audrey Nowicki and I were following the third banded Piping Plover at Darlington Provincial Park as it continued to encroach on the nesting pair's territory. Suddenly, it flew well out over the lake and to the west several hundred metres and as we followed to where we thought it had landed, we noticed there were two Piping Plovers about 700 metres to the west of the first nest. Both of these birds were banded with colour combinations that were different from the birds from the pair that had already initiated a nest. These two birds were behaving like a pair and appeared to be performing courtship displays.



Figure 8. Adult male from the second nest at Darlington Provincial Park, 17 June 2016.



Figure 9: Cordoned nest area of the second Piping Plover nest at Darlington Provincial Park on 31 May 2016.

By 22 May, the male (Figure 8) was initiating nest scrapes and the pair began frequent copulation. From their band combinations, we learned that the male was hatched and banded in 2015 at Whitefish Point in the Upper Peninsula of Michigan and that the female was hatched and banded in 2015 in Manistee, Michigan (see page 243, this issue). I found this pair's nest at the one egg stage on 27 May. Ontario Parks and CWS fenced a large perimeter exclusion zone on 28 May (Figure 9); a small predator enclosure was placed over the nest mid-day 29 May and a full-sized predator enclosure was installed 3 June (J. Brett, pers. comm.). The four egg clutch was complete by 3 June (Figure 10) and full-time incubation by both adults proceeded over the next four weeks.

On the morning of 28 June, I discovered that all four chicks from this nest had hatched and as soon as they were all dry they began exploring and feeding along the beach. The male from this nest was present on this day for the hatch of the chicks but was never seen thereafter. Failing a band recovery or a re-observation, we may never learn what happened to this bird. Speculatively, the possibilities include that this second-year, first time breeder could have simply lacked the parental motivation to stay with the brood, it could have been killed by a predator while feeding at Oshawa Second Marsh where it had earlier been observed, or perhaps it met up with another female and initiated another nest that was not found. In any event, the female was forced to be a single parent to this brood

for a month of brood rearing activity. By six days old, all four of these chicks were observed feeding at the algae mats near the shoreline zone of wave action. One of the greatest threats to these chicks actually turned out to be intra-specific aggression. When these chicks were only about a week old, I twice observed the adult male from the first nest seizing one of the young from the second nest by the neck. I presumed ill intent and rushed the adult bird, forcing it to drop the chick in each case.

At nine days old, the young from this second nest were banded (Figure 11). They attained sustained flight capability by 27 July. These birds did very well and all four chicks were still present as 40 day-old juveniles on 7 August. On 8 August,

one of the 41 day-old juveniles was found freshly dead on the beach. As with the 48 day-old juvenile from the first nest that died, the necropsy showed this bird was emaciated, either due to a lack of food or possibly secondarily to a pathogen. Three of the four juvenile Piping Plovers from the second nest survived long enough to initiate their migration: they were last seen at Darlington two days apart (on 11 and 13 August) and two of them were seen together on 17-21 August on a Lake Ontario beach in Burlington in Halton Regional Municipality.

Below, Figure 10: Second nest of Piping Plovers at Darlington Provincial Park with a full clutch of four eggs on 8 June 2016.

Right, Figure 11: Nine day-old Piping Plover chick from the second nest at Darlington Provincial Park being banded on 7 July 2016.



Successful nesting at Presqu'ile Provincial Park in 2016

A nesting pair of Piping Plovers formed at Presqu'ile Provincial Park about the same time as the second pair at Darlington Provincial Park (18 May). A nest was discovered at the one egg stage on 27 May 2016 (J. Brett, pers. comm.). Three chicks hatched on 28 June. The chicks at this nest attained an average weight of 18 g at nine days old and grew at a faster rate than the chicks at Darlington. The chicks in the first Darlington brood did not attain the 18 g weight until 12 days of age. The chicks from the second nest at Darlington only attained a weight of 14 g at nine days old. The three Presqu'ile chicks apparently survived to begin their post-hatch dispersal in mid August. All three were observed on 15 August, only one on 16 August, and none on 17-18 August.

Conclusion

The three nests in 2016 on Lake Ontario at Darlington and Presqu'ile parks successfully fledged ten juvenile birds, of which eight survived and dispersed from their natal area. Since Great Lakes Piping Plovers have demonstrated a range of natal dispersal distances of 2-430 km (Price 2002) and annual adult survival rate is on the order of 73% (Wemmer *et al.* 2001), it is likely that these birds will help the Great Lakes population to continue to grow and to reclaim more nesting beaches on Lake Ontario and to resume nesting at sites like Long Point, Rondeau and Point Pelee on Lake Erie. After an absence of 81 years in the Greater Toronto Area and 100 years at Presqu'ile Provincial Park, the Piping Plover has once again been well-documented as

a breeding species. This is an example of a conservation success story for an Ontario endangered species.

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More information on the nesting of Piping Plover at Darlington Provincial Park in 2016 is available in a video produced by Winnie Poon which is available at: <https://vimeo.com/195213709/757b118f92>