New Niagara Falls Great Egret colony produces late nestlings

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Introduction

In 2011, Great Egrets (*Ardea alba*, henceforth egrets) nested for the first time at a mixed colony of Black-crowned Night-Herons (*Nycticorax nycticorax*, henceforth night-herons), Double-crested Cormorants (*Phalacrocorax auitus*, henceforth cormorants) and Herring Gulls (*Larus argentatus*) above Horseshoe Falls on the Canadian side of Niagara Falls in Ontario. Seasonally, this was a very late nesting; young egrets did not fledge until well into September. In this paper, I give details of the discovery of these egret nestings, compare egg, hatching and fledging dates with the currently accepted dates for these stages in New York and Ontario and speculate on the reasons for such late nesting.

Methods

The main nesting island (#3) is the largest of three islands (known locally as "Weseloh Rocks") located immediately downstream and medially of the large stranded barge on the Canadian side of Horseshoe Falls, approximately 400 m above the lip of the Falls (Figure 1). I made observations from Goat Island on the New York side of the Falls as well as from the Canadian shore near the Engineerium Building just opposite from the barge. I noted the numbers (and nests when visible) of night-herons, cormorants and egrets. Observations were made from one or both of these locations on 30 June, 29 July, 1, 17 and 26 August and 6 and 9 Sept. I also received observations from Celeste Morien (CM), Dave Van de Laar (DVL) and Chip Weseloh (CW).

Figure 1. Points of observation and nesting islands (Rocks #1, 2 and 3) at Niagara Falls, see text.

Results

2010: The main island was visited on 26 April by helicopter by CW *et al.* (pers. comm.); they reported 47 cormorant nests, 280 night-heron nests and 21 Herring Gull nests but no Great Egrets or their nests. On 5 May, from Goat Island I observed at least 140 night-herons and 22 of their nests and 124 cormorants and 51 cormorant nests on Rocks # 1, 2 and 3 above the Horseshoe Falls (distance and foliage obscured my view of the colony, and these counts represent only a fraction of the birds and nests in the colony). There were no reports of any egrets using any of these three islands in 2010.

2011: On 21 April, I counted 172 night-herons and 243 cormorants on the main island, but I saw no Great Egrets. On 1 May, CM *et al.* (pers. comm.) counted 40 night-herons there from Goat Island but also did not see any Great Egrets. On 3 May, CW *et al.* again visited the main island island by helicopter and reported 135 cormorant nests, 434 night-heron nests and 13 Herring Gull nests; still there were no egrets or their nests. Thus, on 20 May 2011, I was surprised to find 12 Great Egrets at the colony, four of which appeared to be sitting on nests! There were at least 61 night-herons, 168 cormorants and 86 cormorant nests.

Over the next 10 weeks, I confirmed that at least two of the egret nests continued to be active on 30 June and 8 July. Viewing from Goat Island on 29 July, I could see as many as seven Great Egrets and, more importantly, three of them were crouched on a nest and were nearly full-sized nestlings.

Returning at mid-day on 1 August, to Goat Island, I observed that the three Great Egret nestlings were very active with strong wing flaps combined with jumping up and down, but not showing the ability to hover over their nest. There was still some down on their heads. I drove to the Canadian side of the River and observed from just north of the Engineerium Building. I could see an adult Great Egret standing over a nest with what looked like about two inactive downy Great Egret nestlings. I also noticed another Great Egret nest with four medium-sized nestlings. Below this nest was a third Great Egret nest containing three smaller and very inactive downy nestlings. Although I realize that observational duplication is possible, I think (because of the numbers of young on each nest and ages of the nestlings) that I viewed four active Great Egret nests with a total of 12 nestlings.

Three weeks later, on 17 August, there appeared to have been a disruption in the colony; the birds were not in their normal positions. I observed four egrets on one nest (based on previous observations one of the four was probably an adult with three full size nestling). Through the foliage I observed two adults, one of which could be seen feeding a nestling. With other egrets between the two nesting locations, I observed as many as 11 Great Egrets (compared to only six seen on 1 August). However, when I observed the colony from the Canadian side I was disturbed, because I could not see any nests where I had observed four nests with a total 12 nestlings on 1 August. The maximum number of egrets observed on this day from the Canadian side was three adult Great Egrets. Perhaps the foliage was too great or the egrets had moved more into the interior of the woody vegetation.

On 26 August, observing from Goat Island and based on the egrets' feeding activity and position of various nests and nestlings, there appeared to be five egret nests on the islands (four on the main island and one on a smaller island to the west). On 6 September, DVL reported, "It appears that some of the egrets have left their nests above the Falls and moved to Dufferin Islands" where he spotted three egrets "roosting in the trees" (DVL pers. comm.) On 7 September, he again reported two egrets at Dufferin Islands and two "in the trees on the other island" (colony).

On the morning of 9 September there were no egrets on the island when I arrived at Goat Island. Within 15 minutes a single Great Egret appeared at the largest island where most of the night-herons and cormorants nested. Two more arrived shortly and there was a flurry of feeding and bill grabbing and pulling activity. The first egret (a parent?) flew from the island and was quickly pursued by the two (fledglings?)

egrets. It appeared that all of the nestling Great Egrets had fledged.

2012: In late March, a Great Egret was reported near the Niagara Falls colony, and on 31 March, I counted 23 Great Egrets and five occupied nests and witnessed copulation at the colony. A helicopter visit to the island on 25 April established that there were about 47 Great Egrets present with 17 nests on the main island and four more nests on the next island closer to Canada (CW, pers. comm.). On the very early date of 3 May, an adult Great Egret was observed feeding two half-grown nestlings. The final tally as seen from Goat Island (with vegetation obstruction) for 3 May was 25 adults, two nestlings, and thirteen nests. Obviously, observations are very limited from afar.

Discussion and Conclusions

Although foliage made observations difficult and individual nests were not always directly observed (*i.e.* some nest locations were only inferred when the nestlings were old enough to leave the nest and approach the adults during feeding), there were probably at least five nests and 13 nestlings. It appears that all the young Great Egrets fledged between 26 August and 9 September 2011. All 13 nestling Great Egrets were observed at the colony on 26 August and there were no indications then that any of them could yet fly. As there were two fledglings still returning to the colony to be fed by an adult on 9 September, the last of these nestlings probably had fledged fairly close to the 9 September date, perhaps 6 September (+ or – 3 days).

The seasonal lateness of this egret nesting, hatching and fledging can be put in perspective if we examine the stated phenology dates for Great Egrets in Ontario. LePage *et al.* (2007) states the early and late nest dates as 20 April and 1 August, respectively. Peck (2007) notes that "egg dates in Ontario range from 28 April to 24 June (peck and James 1993a). Incubation periods range from 23 to 27 days, and variable fledgling dates range from 21 to 34 days, with young leaving and returning to the nest to be fed. Young achieve flight ability at seven to eight weeks of age (McCrimmon *et al.* 2001)."

Across the border, New York atlas data from 2000–2005 provided revised early and late egg, nestling, and/or fledgling dates for nearly all species. Thus, for the Great Egret, McGowan and Corwin (2008) have revised egg dates ranging from 27 April to 7 July and revised nestling dates of 21 May to 11 August. The incubation period is 25 to 28 days, while the time for young to fly is much longer than reported in the Ontario Atlas at 35 to 42 days (Cadman *et al.* 2007).

Working backwards, if we assume a fledgling date of 6 September and the mean periods of 25 days for incubation and 27.5 days for a nestling period (LePage *et al.* 2007), we arrive at very late dates of approximately 15 July for egg laying and 9 August for egg hatching, which are well beyond the late egg date of 24 June (LePage *et al.* 2007).

However if we substitute seven to eight weeks (mean = 53 days) as the nestling period (McCrimmon *et al.* 2001), the egg laying date would be June 20. If we again use the assumed fledgling date of about 6 September and mean incubation and nestling periods of 26.5 and 38.5 days, respectively, the eggs were laid about 3 July and hatched about 29 or 30 July. Again, well beyond the late egg date for Ontario of 24 June. For the most part, they also exceed the late egg date of 7 July in the New York Atlas (McGowan and Corwin 2008).

What could cause these late egg, nestling and fledgling periods at the egret colony at Niagara Falls? Where did the egrets come from? If they came from a pre-existing egret colony, the most likely source is Motor Island, which is also on the Niagara River, about 20 km upstream and, on 24 April 2011, had 56 egret nests (pers. obs.). The next nearest breeding colonies of Great Egrets are at Tommy Thompson Park in Toronto Harbour (seven nests in 2011 (McDonald 2012)), 69 km north of Niagara Falls, and two larger colonies (> 60 nests) in southern Georgian Bay (at Collingwood) and eastern Lake Huron (at Southampton), about 150 km away (CW, pers. comm.). There are no other breeding colonies within 240 km in any other direction.

If the egrets came from Motor Island, what could have caused them to leave there so late in the breeding season and result in some of them forming a new egret colony above the Canadian Falls? A very likely factor was the

Great Egrets *Photo by Ann Brokelman*

cormorant control measures taken by the New York State Department of Environmental Conservation (NYSDEC) on Motor Island in May and June 2011. On six dates at approximately weekly intervals between 5 May and 14 June, several NYSDEC staff shot approximately 334 cormorants on Motor Island; .22 rifles with subsonic shot and 12 gauge shotguns were used. At the time of the shooting, there were at least 798 cormorants (399 nests) residing on

Motor Island. However, only 334 cormorants were killed, so at least 464 were frightened away. It is possible that the nesting Great Egrets, Black-crowned Night-Herons and Great Blue Herons (*Ardea heriodias*) on the colony were also frightened away by the human intrusion and discharge of firearms. (Since its inception in 1995, the Motor Island colony had steadily increased in size until 2011 when there were maximum counts of 56 nests (24 April) and 140 individuals (4 May); however, in 2012 the maximum counts were 43 nests and only 53 individuals.) The intrusion on Motor Island by the NYSDEC and firing of 250 .22 and 265 12 gauge rounds could possibly explain the decrease in Great Egrets there and why the Niagara Falls, Ontario, colony formed so late in the breeding season.

Re-nesting of disturbed species is not unusual; Watson and Adams (2006)

state: "It should be noted that NYS Department of Environmental Conservation has been attempting to minimize cormorant reproduction on the Reef Lighthouse and Strawberry Island sites (USFWS Public Resource Depredation Order 50 CFR 21.48), and these management efforts very likely have prompted repeated re-nesting attempts and the unusually late nesting dates reported here."

In 2012, the Niagara Falls colony produced record early nestlings, as contrasted with 2011 when it produced record late nestlings. The early dates are well before the early nestling date of 21 May in New York State and early nest date of 20 April in Ontario. Based on the large size of the nestlings, the eggs may have already been laid when the five occupied nests were observed 31 March.

Why were very early nestling dates occurring at the Niagara Falls colony, but not at the Motor Island colony until 21 May? Since both colonies are on the Niagara River and are fairly close to one another, one would expect similar breeding dates. I believe the answers to this question can be found in the species of colonial waterbirds found nesting at each colony. In 2012, at the Niagara Falls colony, where Great Blue Herons do not nest, Great Egrets nested on the south side of the island, away from co-nesting cormorants and the smaller night-herons. However, at the Motor Island colony, the Great Blue Heron is a predominant nesting species among the Great Egrets, Black-crowned Night-Herons, and, sometimes, Double-crested Cormorants. In a carefully detailed study (Watson 2001) to determine early egg dates of Great Egrets during the first six years of the existence of the Motor Island colony (1995 – 2000), aggression by Great Blue Herons towards nesting Great Egrets was observed on 5 May 1996, 23 April 1998 and 19 April 2000. The Great Egrets would build a nest and an adult would be sitting in an incubating position on that nest for a week or more, but then in the next day's observation the same nest would be occupied by a Great Blue Heron that would ultimately produce Great Blue Heron chicks and not Great Egret chicks. Later, it appeared as though the Great Egrets would suspend or delay their nesting until all of the Great Blue

Herons had established their nests. This behavior could explain why Great Egrets would nest earlier at Niagara Falls (where there were no nesting Great Blue Herons).

In conclusion, this observational study established the first nesting of Great Egrets on the Canadian side of the Niagara River just above the Horseshoe Falls in 2011. It also provides a rationale for the very late nesting in 2011 (*i.e.* human disturbance at another colony) and for the very early nesting in 2012 (*i.e.* the lack of co-nesting Great Blue Herons and any aggressive interactions with the egrets).

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Literature Cited

Cadman, M.D., **D.A. Sutherland**, **G.G. Beck**, **D. Lepage**, and **A.R. Couturier** (eds.). 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp.

LePage, D., **M. Peck** and **C. Francis**. 2005. Migration and nesting dates for Ontario bird species. Unpublished report from the Ontario Breeding Bird Atlas on the Ottawa Field Naturalists Club web site. Accessed at: www.ofnc.ca/birding/bbanestdates.html

McCowan, K.J. and **K. Corwin** (eds.). 2008. The Second Breeding Bird Atlas of New York State. Ithaca: Cornell University Press.

McCrimmon, D.A., **Jr.**, **J.C. Ogden**, and **G. T. Bancroft**. 2001. Great Egret (*Ardea alba*). *In* The Birds of North America, No. 570 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

McDonald, K. 2012. Colonial waterbird populations at the Leslie St. Spit/Tommy Thompson Park. Ontario Birds 30:2-12.

Peck, G. K. 2007. Great Egret. *In* Atlas of the Breeding Birds of Ontario, 2001 – 2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, 160 – 161 pp.

Peck, G.K. and **R.D. James**. 1993a. Breeding birds of Ontario: Nidiology and distribution. Volume 1:nonpasserines (first revision, part A: loons to ducks). Ontario Birds 11:18-22

Watson, B. and **C. Adams**. 2006. More Late Nesting Double-crested Cormorants. Kingbird 56:2:136.

Watson, W. 2001 Upstate New York First Great Egret Colony. Kingbird. 51:3:648 – 660.

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