The Great Egret Roost at Muddy Creek, Essex County Autumn 2006

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The Great Egret (*Ardea alba*, henceforth egret) is a large, all white-plumaged heron which is an uncommon summer resident in southern Ontario. Currently (2009) it nests at several sites in southern Ontario: East Sister, Middle Sister and Middle islands in western Lake Erie, Toronto Harbour and High Bluff Island on Lake Ontario and Chantry and Nottawasaga islands, Cedar Point and Chimney Reefs in Lake Huron (Blokpoel and Tessier 1998, CWS unpubl. data). Some of these sites have been active for several years (Peck 1987, 2007). In the 2000s, egrets are known to have abandoned previous nesting sites on the Humber River in Toronto, Barrier Island in Georgian Bay and Bergin Island in the St. Lawrence River (G. Coady, S. Elliott, DVCW, respectively, unpubl. data). It has previously nested on/near Walpole Island in Lake St. Clair (DVCW, A. Woodliffe, unpubl. data) but its current status there is uncertain. Close to Ontario's borders, it also nests on West Sister, Green and Sandusky Turning Point islands on the Ohio side of Lake Erie (Shieldcastle and Martin 1999, M. Shieldcastle, pers. comm.), on Motor and Strawberry islands on the New York side of the Niagara River (Watson 2001, C. Adams, pers. comm.) and at Stony Island and Point Mouillee in the Detroit River and western Lake Erie waters of Michigan, respectively (Cuthbert, in press). Hence, in 2007-2009, there were at least 16 active Great Egret colonies in and close to southern Ontario.

After the breeding season, herons and egrets are known to leave their breeding colonies and wander widely (especially northward) prior to their southward autumn migration (Townsend 1931, Coffey 1943, McCrimmon *et al.* 2001). In the evenings, during this

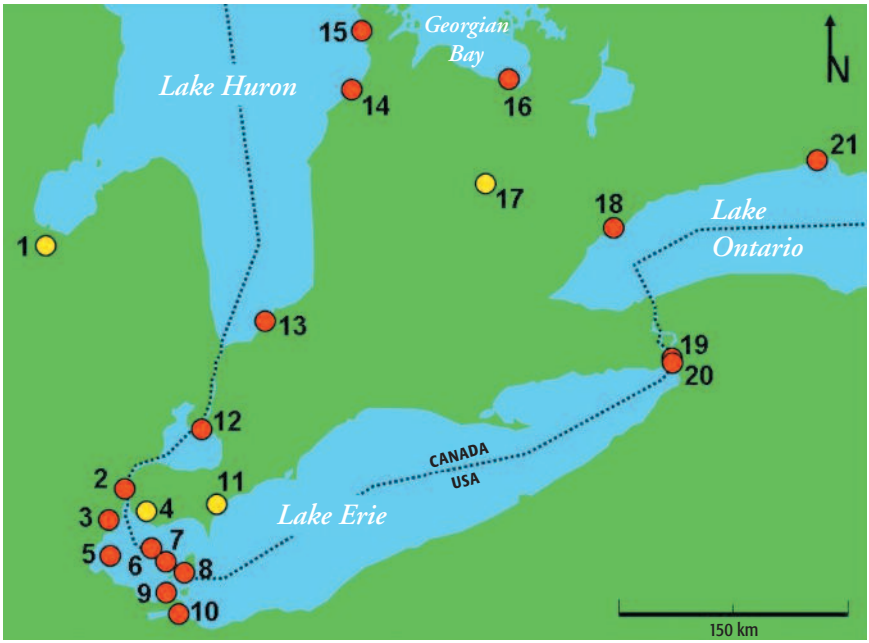

Figure 1. The active breeding sites (red dots) and the solely roosting sites (yellow dots) mentioned in the text for Great Egrets.

1. Shiawassee National Wildlife Refuge
2. Stoney Island
3. Pointe Mouillier
4. Big Creek Marsh
5. West Sister Island
6. Middle Sister Island
7. East Sister Island
8. Middle Island
9. Green Island
10. Sandusky Turning Point Island
11. Muddy Creek
12. Walpole Island
13. Cedar Point
14. Chantry Island
15. Chimney Reefs
16. Nottawasaga Island
17. Luther Marsh
18. Tommy Thompson Park
19. Motor (Pirate) Island
20. Strawberry Island
21. High Bluff Island

post-breeding period, they continue their habit of roosting communally, i.e. they gather together at dusk (Seibert 1951, Sigfried 1971) usually in trees or shrubs in or near standing water, where they spend the night. Early in the morning (usually prior to sunrise), they disperse out from these roosts to nearby feeding and foraging areas.

Socially, communal roosts are probably the second most important gathering place for colonially-nesting waterbirds, after their breeding colony. Communal roosts are the places many bird species return to each evening and from which they disperse each morning. In the post-breeding season, the communal roost becomes their centre of activity. It stands to reason that if there is not a safe local area where these birds can roost, then local populations of those species will be small. Thus, roosting areas should be identified and efforts should be made to characterize their periods of use and the size of the (temporary) populations that use them.

Even though the Great Egret is a very conspicuous bird and is eagerly sought out by birders and other naturalists, historically there has been very little reporting of its roosting sites in Ontario. This is perhaps understandable because "going to roost", i.e. leaving a foraging area and flying to where the birds will sleep, is an activity associated with sunset; a time when the majority of naturalists are often not active.

There is a well-known roosting site for herons and egrets at Muddy Creek, in extreme southwestern Ontario on the north side of Wheatley Harbour, Essex County. Exactly when these herons and egrets were first attracted to this area as a roost is probably not known, but they have been roosting there, at least intermittently, for more than 35 years (DVCW, AW, pers. obs.). The known presence of this roost and the increasing numbers of Great Egrets breeding in Ontario (Peck 1987, 2007, Blokpoel and Tessier 1998) prompted the current study; its objective was to document the number of egrets using the roost and their direction of arrival at the roost during the post-breeding late summer and autumn period. Since that study was completed, other information concerning egret numbers and roosting in Essex County/southern Ontario has come forward, or been collected, and some of that has been incorporated into this paper.

Methods

A reconnaissance visit, to search for foraging areas and roosting sites, was made to southern Essex County during the afternoon and evening of 11 August 2006 (by DJM). Subsequently, an observation post was established on the south side of Muddy Creek at the north end of Wheatley Harbour (Figure 1). The post was just west of County Road 37, which eventually goes south to Hillman Marsh. The time, direction and number of egrets arriving at Muddy Creek were recorded during the following six evenings in 2006: 13, 15 and 17 August and 13, 17 and 26 September. The observer (AW) arrived at the site, on average, 77 minutes (range = 40-93 minutes) before official sunset, as calculated for Wheatley, and stayed until, on average, 28 minutes (range = 23-35 minutes) after sunset. The average observation period was, thus, 105 minutes in duration (range = 75-122 minutes). In addition to these counts, a second set of counts of Great Egrets roosting in the trees at Muddy Creek in the early morning (pre-sunrise) was made approximately every 3rd day on 13 mornings between 29 September and 01 November 2006 (also by AW). The primary purpose of these secondary counts was to detect when egrets abandoned the roost for the season, i.e. when did they cease using the roost.

Results

Muddy Creek – 2006

The number and direction of arriving egrets at the Muddy Creek roost are shown in Table 1, as is the number of egrets at the roost at 2210 hrs on 11 August. There were two main directions of arrival in August: from east-northeast (15.8% of total) and south-southwest (83%) bearings. These were also the

Table 1. Numbers and direction of arrival of Great Egrets at the Muddy Creek roost, Aug.- Sept. 2006.

Date	Arriving From ENE	SSW	WSW	W	Already at Roost	Total
11 - Aug.	–	–	–	–	76	76
13 – Aug.	14	44	1		2	61
15 – Aug.	7	49		1	1	58
17 – Aug.	6	49			1	56
Subtotal	**27**	**142**	**1**	**1**	**80**	**251**
Percent	**15.8%**	**83%**	**0.6%**	**0.6%**		**100%**
13 – Sept.	4	15			1	20
17 – Sept.	13	11			1	25
26 – Sept.	8	9		5	4	26
Subtotal	**25**	**35**	**0**	**5**	**6**	**71**
Per Cent	**38.5%**	**53.8%**	**0.0%**	**7.7%**		**100%**

* Based only on arriving birds.

main arrival directions observed in September but with a greater proportion arriving from the ENE (38.5%) versus SSW (53.8%). The peak number of egrets at the roost and flying to the roost, 76 and 61, respectively, occurred during the first two days of observation; the number of egrets counted at the roost in the evening declined over the course of the study. Numbers were reasonably consistent during each of the two survey periods, but between survey periods (from mid-August to mid-September) the average number of egrets coming to the roost at the Muddy Creek site declined by approximately 59.5%.

Most egrets (66.7% in August and 81.6% in September) arrived at the roost singly. On two of the three evenings in August, more egrets arrived before official sunset than after. In September, more egrets arrived after sunset on two of the three evenings. Overall, more egrets arrived before sunset than after during both periods (52.1% and 59.4%, respectively).

Table 2. Number of Great Egrets at the Muddy Creek roost, pre-sunrise, Sept. –Oct. 2006

Date	Number	Date	Number
29 Sept. 06	24	15 Oct. 06	2
2 Oct. 06	24	18 Oct. 06	0
5 Oct. 06	19	21 Oct. 06	3
7 Oct. 06	10	25 Oct. 06	0
10 Oct. 06	10	29 Oct. 06	0
13 Oct. 06	0	1 Nov. 10	0
14 Oct. 06	1		

Early morning counts, well before sunrise when it was still dark, at the Muddy Creek roost from late September to early November 2006, showed a continuous decline in the number of egrets using

the roost (Table 2). The last egrets vacated the roost for the season between 21-25 October 2006.

Discussion

The identification of roosts of communal birds in Ontario has received minimal and usually negative attention. The best known communal roosts seem to be those of crows, starlings and blackbirds, and these are often "notorious" roosts because they are often located in or close to cities (Reaume 1986) and the masses of birds using the roosts, often in the thousands, are considered pests. Roosts of egrets, night-herons, terns and some of the other waterbirds (e.g. gulls) are not as well known, nor are they as large (Schreiber 1968, Cooke and Ross 1972). The egret roost at Muddy Creek is very easy to observe and hence lends itself well to intensive observation and monitoring.

Immediate Origin and Numbers of Egrets at Muddy Creek

The immediate origin of the egrets which arrived at the Muddy Creek roost during this study is open to conjecture. Hillman Marsh, a noted foraging area for egrets, is only 2.8 km away to the SSW, the main direction of arrival of egrets in August. To the NNE, only 1.8 km away, is Holiday Harbour and Wheatley Provincial Park with its aquatic complexes of both West Two Creeks and East Two Creeks. It is generally accepted that egrets roosting at Muddy Creek feed and forage in these nearby wetland areas during the day. For example, during the summer and autumn at Hillman Marsh, Great Egrets at sunset are routinely seen departing that area and flying off in the direction of Muddy Creek (AW, pers. obs.). Furthermore, other than Hillman Marsh, there are no other areas southwest of Muddy Creek, within the Pelee Peninsula, where Great Egret numbers are present with any regularity.

Since the present study was completed (in 2006), several other observations have come forth that may shed light on movements of egrets associated with Muddy Creek. These observations may or may not have had a bearing on movements in 2006, but they give us insight into subsequent ones since this roost is still active.

It would be easy to assume that all egrets seen at either Hillman Marsh or the area of Holiday Harbour roost at Muddy Creek in the autumn, but this is not always the case. From 29 July to 4 September 2008, intermittent observations were made in the evening/early morning at the Muddy Creek roost, and there were never more than six egrets present (Table 3). Yet during the day on 3 September 2008, 40+ egrets were observed in the NW corner of Hillman Marsh (AW, pers. obs.). A few of these birds undoubtedly went to roost at Muddy Creek, but obviously many did not. This suggests that there must have been another roost at which the rest of these birds, foraging at Hillman Marsh, spent the night. Also, no egrets are known to use Hillman Marsh proper as a night-time roosting site (AW, pers. obs.).

The fact that the number of egrets roosting at Muddy Creek declined with each successive day of observation in

Table 3. Observations of Great Egrets in the Muddy Creek Roost (MC)-Hillman Marsh area (HM), autumn 2008.

Date	Observations	Observer
29 Jul 2008	9:00 PM: 5 GREGs at MC	D.V. Chip Weseloh
18 Aug 2008	8:38 PM: 5 GREGs at MC	D.V. Chip Weseloh
03 Sep 2008	40+ GREGs at HM	Alan Wormington
04 Sep 2008	5:11 AM: 6 GREGs, 2 GBHEs at MC	Bruce Patterson
04 Sep 2008	8:30 PM: 4 GREGS, 2 GBHEs at MC	Bruce Patterson
10-12 Sep 2008	AM: 75+ GREGs, 20 GBHEs at HM	Bruce Patterson
16 Sep 2008	6:30 AM: 39 GREGs, 3 GBHE, 2 BCNH at MC	Bruce Patterson
28 Sep 2008	9:30 PM: 47 GREGs, 7 GBHEs at MC	Bruce Patterson
29 Sep 2008	<8:00 PM: 35 GREGs at MC	Bea Patterson

August, and had declined substantially by September, suggests that the date of peak roosting numbers there was missed and probably occurred before 11 August (but see 28 & 29 September 2008, in Table 3). In 2006, the maximum number of egrets observed at the Muddy Creek roost was 76. Additional autumn counts of significance that have been recorded there include 56- 61 birds on 13-17 August 2006 (DJM, unpubl. data), 78 birds on 8 September 2007; 63 on 8 October 2007; and 60 on 29 August 2009 (AW, unpubl. data). The sizes of other egrets roosts in southern Ontario and adjacent New York and Michigan include the following high counts (Figure 1): 304 – Luther Marsh, Ontario (21 August 2009, DVCW, pers. obs.); 440 – Shiawassee National Wildlife Refuge, Michigan (24 September 2009, S. Kahl, in litt); 75 – Motor Island, Niagara River, NY (4 August 2009, B. Watson, in litt.); 26 Strawberry Island, Niagara River, NY (18 August 2009, B. Watson, in litt.); 35 – Wildlife Management Area, Tonawanda, New York (21 October 2009, B. Watson, in litt.); 70 – Montezuma National Wildlife Refuge, New York (27 September 2008, L. Ziemba, in litt.); 51 – Cornwall, Ontario (2 September 2009, DVCW, pers. obs.); 145 – Winthrop, New York (24 August 2009, B. Watson from J. Collins, in litt). Thus, in the southeastern Great Lakes basin, the Muddy Creek egret roost probably qualifies as a small- to medium-sized roost in comparison. However, it may rank as one of the oldest, most traditional.

Other Autumn Roosting areas in Essex County

Several years ago, there was good documentation of another egret roosting area in Essex County. During the period of 4 June to 27 September 2001, Elizabeth M. Learmouth (in litt.), assisted at various times by Dean J. Ware, Paul D. Pratt

Table 4. Observations of Great Egrets foraging in the Big Creek Marsh (BCM) area. All observations were by Elizabeth M. Learmouth unless otherwise indicated.

Date	Observations
02 Jul 2001	131 GREGs in BCM (P.D. Pratt)
16 Jul 2001	184+ GREGs at BCM (K.R. Konze) and, in the evening, 93 GREGs in their roost tree on Hunt Club Property. Both GBHEs and GREGs roost in trees on barrier beach between beach and LE; visible from observation tower of Conservation Authority.
17 Jul 2001	144 GREGs in BCM as seen from the observation Tower. Also, 189 visible from BCM Bridge, 333 in all.
22 Jul 2001	At dusk at the Hunt Club, "many" egrets were seen in their tree roosts.
23 Aug 2001	At 2:15 PM, 200 egrets in the marsh
3 Sep 2001	59 GREGs counted at BCM
11 Sep 2001	12 GREGs counted at BCM
25 Sep 2001	6 GREGs counted at BCM

Figure 2. An enlargement of the Big Creek Marsh area showing the location of the commonly used viewing area at the bridge on County Road 20 and the Observation Tower at the Holiday Beach Conservation Area. The roost was located just to the left (west) of the Observation Tower along the shoreline.

and Karl R. Konze, recorded large numbers of Great Egrets foraging near Amherstburg in Big Creek Marsh (hereafter BCM), and roosting on the adjacent property of the Big Creek Hunt Club (Table 4, Figure 2).

Paul D. Pratt later commented (in litt.) that, "There was a large heron/egret roost in the tall cottonwoods along the beach that summer." On 11 August 2006, 16 egrets were observed foraging in BCM from the small bridge that goes over the marsh on County Road 20 (between 2030 and 2115 hrs). As the evening progressed, all 16 flew south, following the marsh, headed for the observation tower at the Holiday Beach Conservation Authority (Figure 2, DJM, pers. obs). Whether they alighted in the trees near the tower, to roost for the evening, or continued out over the water to roost on the islands out in Lake Erie could not be determined. However, the roosting flight was present and there must have been a roost somewhere in SW Essex County.

Big Creek Marsh is approximately 50 km west of Hillman Marsh; it is very unlikely that egrets would fly that far between a roost and a feeding area; a maximum foraging flight distance of 40 km is cited by McCrimmon *et al.* (2001). In September 2008, Robert C. Pettit (in litt.) commented that he did not know of any egret roost tree visible from the tower. Thus, this roost site may now be inactive.

Ultimate Origin of Egrets Using the Muddy Creek Roost

While the immediate origin of egrets using the Muddy Creek roost is probably very local, i.e. many feeding studies show most initial daily foraging flights are less than 10 km (McCrimmon *et al.* 2001), the ultimate origin of those egrets could be any of several more distant breeding colonies. For example, a flightless young egret (#42U) was banded on Nottawasaga Island on 7 July 2008 and re-observed 6 weeks later at the Muddy Creek roost on 18 August. We also know that colour-banded egrets from Chantry Island (92 km due west of Nottawasaga Island) come to and use the Luther Marsh roost in the autumn (DVCW unpubl. data). Logic would tell us that birds from Chantry Island, nearly 300 km to the NNE, probably also then stop off at Muddy Creek. In addition to those two breeding colonies, 50 km to the north, is the egret colony on Walpole Island. More locally, the islands in western Lake Erie would also have to be considered a highly probable source of egrets for Muddy Creek given the numbers which occur there. In 2006, there were approximately 1200 pairs of egrets breeding on the six island colonies in western Lake Erie, with more than 1100 of them on West Sister Island (M. Shieldcastle, DVCW unpubl. data). Twelve hundred pairs of nesting egrets will fledge approximately 2,400 young egrets for a total of approximately 4,800 egrets that would be leaving those islands in July-August. It would probably be safe to say that most

of the egrets at the Muddy Creek roost, perhaps those using the roost in late summer, might have come from the colonies in western Lake Erie, 48-59 km away. Another potential source of egrets to the Muddy Creek roost is from a large autumn roost at the Shiawassee National Wildlife Refuge in Saginaw Bay (Lake Huron), Michigan. Since 2001, there has been an annual maximum of over 400 egrets that roost there in the August-September period; in 2006 there were 226 on 16 September (S. Kahl, in litt.). The refuge is approximately 225 km NNW of Muddy Creek. A final "locale" source of egrets for this roost might be the Motor Island breeding colony at the east end of Lake Erie in the Niagara River.

Final Departure from the Roost and Autumn Migration

The date of the final roost departure at Muddy Creek in 2006 (22-25 October) is interesting when compared to that at another well-studied roosting site for Great Egrets in southern Ontario, namely Luther Marsh. During the last two years, 2008 and 2009, the last egrets have left the Luther Marsh roost site on 23 and 30 September, respectively (DVCW and L. McLaren, unpubl data). It is also known that many (colour-banded) egrets from the breeding colony on Nottawasaga Island, near Collingwood, Ontario, move to the Luther Marsh roost after the breeding season (DVCW unpubl data). With Luther Marsh located approximately 270 km NE of Muddy Creek, it could be predicted that, in the autumn, egrets would desert the more northerly roost site before they would desert the more southerly one. Egrets displaying evening migration departures from Luther Marsh leave their roost in a southwesterly direction, towards Essex County. So, some egrets from the Luther Marsh roost might be headed towards Hillman Marsh and the Muddy Creek roost when they leave Luther Marsh. Egret # 42U (above) might easily have spent a few days at Luther Marsh on its way from its natal colony at Nottawasaga Island to Muddy Creek., Thus, it is easy to visualize egrets from Nottawasaga Island departing that site at the end of the breeding season in late July, moving 60 km to Luther Marsh where they take up temporary residence and use the roost there. As autumn progresses, some of them depart the Luther Marsh area to the southwest…going to Hillman Marsh and the Muddy Creek roost…or to an as of yet unknown roost in the Essex County area. From here it is not known where they go exactly …but one can again visualize Ontario egrets moving to their eventual wintering areas through a series of 200-300 km southward flights to new feeding areas and the associated roosting sites every several days as the season progresses. This kind of movement is complete speculation on our part as nothing is published on the process of migration in Great Egrets (McCrimmon *et al.* 2001). However, this conjecture seems to fit with what we have seen in the field. It is known that most of the winter recoveries and sightings of (our) colour-banded egrets come from the Carolinas, Florida and the Caribbean Islands.

Additional Observations of Egrets at the Muddy Creek Roost

Although not quantitatively documented, opportunistic observations at Muddy Creek confirm that small numbers of egrets roost at the site during the spring and early summer (AW, pers. obs.). Presumably these are one-year old, non-breeding birds, as Great Egrets are not thought to breed until they are two years of age (McCrimmon *et al.* 2001). Also, the number of egrets using the roost begins to rise dramatically in late summer (AW, per. obs.) which coincides with the departure of adults and juveniles from various breeding colonies. For comparison, at the Luther Marsh roost, seasonal occupation in 2009 did not begin until the last week of June. Numbers there built up slowly over the next month but increased sharply in August, and then reached their peak during the 3rd week of that month (DVCW and L. McLaren, unpubl. data).

Summary

The trees along the north side of Muddy Creek have been used as an autumn roosting site by Great Egrets for at least the last 35 years; in 2006 at least 76 egrets roosted there in mid-August. Their numbers declined through the autumn of 2006 and all egrets had vacated the site by 30 October. At dusk, egrets arrived at the roost from the SSW and ENE, the directions of Hillman Marsh and Wheatley Provincial Park, respectively. On 3 September 2008, more egrets foraged in the nearby Hillman Marsh area than roosted at Muddy Creek, suggesting that perhaps another roost site(s) must have existed in the area. A major roost site was known during 2001 (and perhaps 2006 as well) at the mouth of the Big Creek Marsh at Lake Erie, near Amherstburg, which is 50 km west of Hillman Marsh. However, it is highly unlikely that egrets feeding at Hillman Marsh would fly as far as Big Creek Marsh to roost, and there are no known observations to suggest that they do. Compared to other egret roosts in and or close to southern Ontario, the one at Muddy Creek is considered small to medium in size, even though it is still significant in a local context. Ontario observers are urged to be on the lookout for egret roosts, especially during the August-September time period, in hopes of better understanding the roosting habits of egrets in Essex County and elsewhere in southern Ontario. Please report sightings to DVCW.

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