

WEST SISTER ISLAND  
Home of the Herons  
Revisited

Ed Pierce

I first visited West Sister Island in 1982. The results of those two trips, June 26 and July 2, are reported in the Ohio Cardinal Vol. 5, No. 2 and Vol. 4, No. 2 (joint issue) pgs. 1-11.

On those occasions I made a survey of the Island, counted black-crowned night-heron nests and discovered nesting cattle egrets. I had hoped to find a snowy egret colony as there had been a large increase in these birds in the Ottawa National Wildlife Refuge and Magee Marsh Wildlife Area complex the last two summers (nine in 1981 and seventeen in 1982). However, none were found nor any evidence of any nesting ibis, little blue heron or tri-colored heron. I speculated in that previous article that perhaps I visited the Island too late in the season and that the end of April would be a better time to find these species as the adults would then be incubating. Revisiting the Island in 1983 proved this to be incorrect.

I made three trips in 1983: May 12, June 11 and June 25. I was surprised by the lack of tree leaves on May 12. The mainland trees were in leaf but at West Sister no tree bore anything but buds although the vines and ground cover were in leaf. Perhaps the colder lake temperatures retarded the tree leaf growth.

The black-crowned night-heron nests contained eggs and newly hatched young. I didn't inspect many nests as this required climbing but I did photograph one nest with four eggs and a second nest with three downy young which I aged at less than five days old (McVaugh, 1973). This wasn't surprising as the black-crowned "calendar of life history events" (see Appendix A) establishes May 10 as the average day of first hatching in the Toledo area. Many adult birds were seen sitting in the smaller hackberry trees containing the nests. Among them were at least six adult cattle egrets in breeding plumage and several adult great egrets. The only other heron or egret species seen on this trip was the expected, great blue heron. Adults of this species were either standing near their nests in the tops of the taller hackberry trees on the northeast third of the Island or flying in groups to and from the Island.

Later I would learn that some of the species I was seeking (snowy egret and little blue heron) incubated later than May 12. A surprise since data from the nearest latitude nesting site, Islajo Island (near Atlantic City) New Jersey, reported (Burger, 1978) that these species started incubation between May 6 - 10, in that area. (I assumed that the farther the distance from the equator the later incubation began, but data of this type is infrequently reported and this is the nearest reported source I could find.)

Incubation is important to locating and identifying nests as the nests and eggs of these species including black-crowned night-heron and great egret are very similar if not indistinguishable in some cases (Harrison, 1975). So it is necessary to see the adult actually sitting on the nest. The only other reliable method of identification I know is to see the young but with some three thousand nests on the Island you first have to locate the nest.

The lack of foliage on May 12 presented the additional problem of increasing the flush distance of those black-crowned night-herons that were incubating. It also prevented the birds early return to the nest by revealing the intruder. Later, (June 11), we would be able to get close enough to the incubating bird to locate the nest with certainty and also conceal ourselves to watch the bird return to the nest.

Unknown to me at the time, Jane Brim and others from the Ohio Cooperative Wildlife Research Unit of Ohio State University had made a nest survey of the Island on May 5 and 6 of this year. Later (June 25), I would meet Jane as we both returned to the Island in the same boat.

The lack of foliage was perfect for this project (Brim, 1983). Unobstructed viewing of the nests was important. Their nest totals per species are included in Table I. Actually, they were testing the use of three different nest survey methods. Their totals are a summation of the totals from these three methods (each method was used in a separate area on the Island) plus an estimate of additional great blue heron and great egret nests in unsurveyed areas (based on the number of birds flushing in front of an observer in that area). Their totals do include the entire island.

At least three problems attend using nest counts to extrapolate the number of breeding birds present: (1) determining if the nest is occupied (or is it an unused nest from the prior year); (2) identifying the nest as to species in a mixed colony (the more visible the nest, the greater the flush distance); (3) accounting for those nests constructed after the count day (colony wading birds may nest over a period of time, apparently to avoid total young destruction by a single catastrophe [Weber, 1975] and some species construct nests for second broods).

The only solution I know is to count at a time when downy young are most likely (solves identification), number tag each nest and note its contents (provides history of nest from year to year) and check for newly built nests each week thereafter until none are likely, discounting those built for second broods if any.

Migratory passerines do apparently use the Island. Several warbler species were seen May 12 in the smaller hackberrys around the lighthouse (actually viewed from above by being at the top of lighthouse looking

down). A whip-poor-will was seen on May 12, a singing male black-throated blue warbler on June 25 and two Carolina wrens on May 12 and June 25.

The trip June 11 produced some of the nests I sought. By this time the foliage canopy of the smaller hackberries was closed. I accompanied Mark Shieldcastle, Wildlife Biologist, State of Ohio, Department of Natural Resources, Division of Wildlife, to the Island at his invitation. His crew was banding up to 100 immature black-crowned night-herons per season to study their fall dispersal patterns. As a project volunteer, I helped capture birds for banding. Later, I walked alone to the area of the 1982 nesting cattle egrets. It was there sitting on branches above the canopy that I saw a single adult little blue heron. I called Mark over but the bird had flown. As I was explaining to him what I had seen, an adult dropped through the foilage onto a nest within 30 feet of us. We watched and remained motionless as it worked down a limb to the nest containing an unknown number of eggs, inspected them and left. A second adult little blue heron attempted to return to a different nest in a different hackberry about 15 feet closer to us. It repeatedly returned to this twenty foot tree and sat in the small branches at its top. During this time Mark saw an adult cattle egret return to incubation on a nest approximately 180 feet to the east. Each of these nests was marked with a red streamer for future location. But our time had expired and we had to leave the Island without further searching.

Analysis of the data found from these nests on our final return to the Island on June 25 (see Appendix B) established that the little blue heron nests were probably completed around May 26 to June 1 when incubation began (incubation is used here as the time interval from the laying of one egg to the hatching of that egg) and ended with the first downy young about June 18 to June 24. Previous trips in early May, late June, early July or even late April as suggested had or would have missed the incubation period: the only real chance of finding two nests out of three thousand. The New Jersey data for this species placed these dates eight days to two weeks earlier than found (Burger, 1978).

After the June 25 trip we would find that all the small egrets and herons in question started incubation between May 26 and June 3 except for one snowy egret pair which started May 16 (see Appendix B). I calculated that this snowy egret had started nest building around May 11 and completed incubation around June 7. Whether the snowy egret nests earlier on the average than these other species awaits more data. However these snowy egret dates are dependent upon my aging the oldest young correctly at 18 days.

The June 25 trip included Mark, Jane and William Botsford, Outdoor Recreation Planner and Volunteer Coordinator for the Ottawa National Wildlife Refuge, among others. A step ladder proved helpful in observing and photographing nest contents. The understory was now five to six feet high at points. The remaining number needed of black-crowned night-heron

juvenals were banded. We did find at least one nest of this species with downy young about ten days old. This means that these eggs were first laid around May 22, about three weeks later than the downy young and eggs observed on May 12.

We then found and photographed the marked cattle egret nest. It was in a twenty foot hackberry tree. The nest was 2.25 meters (7'6") from the ground and contained four young which I aged at 5 - 7 days old. Seventy-five feet south, a second nest was discovered in an 18 foot hackberry 2.5 m (7'2") above the ground. It contained two young and three eggs. I aged the oldest young at two days. I also photographed this nest. A third nest was found about ten feet south of this second nest. It was 2.75 m (9'2") above the ground in a twenty foot hackberry tree and contained one downy young. I did not photograph or age this bird although Jane Brim states it was less than one week old (Brim, 1983). Since I was busy photographing and measuring these nests and those of the subsequent species found, I did not make a thorough search of each nest in the vicinity of these nests. Thus, I do not know the total number of cattle egrets nesting on West Sister in 1983. However, the nests found were more greatly distanced from each other than those nests in 1982. In 1982 all were within one group of trees (chokecherry) and in closer proximity to each other than the black-crowned night-heron nests.

#### Little Blue Heron

Quickly the marked little blue heron nest was located and photographed (see cover of this issue). This nest was about 180 feet northwest from the third cattle egret nest. It was 3.1 m (10'4") above the ground in a twenty foot hackberry and contained three young ranging in age from six to eight days (McVaugh, 1973, A). They did not move from the nest when approached or handled. I aged these birds due to this behavior and the juvenal feathers just emerging on the crown. This was the nest to which the adult returned on June 11.

Identification can be accurate even at this age. Black-crowned night-heron and tri-colored heron young at this age are "dark" plumaged whereas the little blue heron is "light" plumaged (McVaugh, 1973, A, B, D). The great egret is yellow-billed with a dark gray streak extending from under the eye to one half the length of the bill whereas the little blue heron bill is bluish-pink fading to blue-black distally and does not have the dark gray streak (McVaugh, 1973, C, D). The snowy egret yellow-billed bird has a yellow bill with a black tip and the black-billed bird has a solid black bill and both varieties have tarsi which are darker (grayish-green) than the toes (pale green) whereas the little blue heron bill is as described above and its tarsus and toes are the same color (medium gray-blue with pink cast) (McVaugh, 1973 D, 1975). The cattle egret at this age is black-billed with a yellow tip (starts to darken from horn or green to black at 5 days) with a distinctive jowl and stoutish bill

and prominent pale yellow iris with small dark pupil whereas the little blue heron bill is as described above and is without the distinctive jowl and is less stout and more pointed and its iris is pale gray and small with a large dark pupil (McVaugh, 1973 D; Weber, 1975; Blaker, 1969).

A second nest of this species was located within fifteen feet of the first. This was the nest where the adult repeatedly returned to the top of the tree on June 11. This nest was also in a twenty-foot hackberry 2.925 m (9'9") from the ground and contained two downy young and three eggs. These young were about two days old. I photographed this nest and contents. I don't have photos of one-day old great egrets or snowy egrets nor did I examine, in hand, the birds in this nest. I eliminate these other "white" herons by the presence of the adult on June 11 plus the photographs I took which are consistent with the description and drawings for this species (McVaugh, 1973, D).

#### Snowy Egret

While photographing these nests, someone called that they had found snowy egret young. I arrived to find four snowy egret young standing among the branches of a multiple stem chokecherry tree. Human presence had apparently flushed these four young into the branches above the nest before I arrived. I did not see these birds occupying this nest. The nest was 2.925 m (9'9") above the ground. I photographed one of the young from this group as it was being banded. I aged this bird at about eighteen days maximum (McVaugh, 1975). Since eggs of this species are laid every two days approximately and hatch over an average period of three days (Jenni, 1969), these four young could vary as much as three days in age from each other. In approximately ten days the horny indicated scales of the tarsi of this species begin to darken and at the age of 13 days, the tarsi are definitely darker than the toes. At 13 days the head and body are covered with white down while at 18 days white juvenal feathers cover the body, wings and tail and are emerging on the head and neck (McVaugh, 1975).

Surprising to me was the later acquired knowledge that snowy egret young can be either yellow-billed or black-billed. The young are born with a gray or pinkish-gray bill and acquire a "dark" or "light" bill in three to four days. At six or seven days of age, the bill is either completely black or yellow with a black tip. The only information I have on how long the bill remains yellow is "nestling period" which means to McVaugh at least 34 days (McVaugh, 1975). These birds at West Sister were yellow-billed. The only change in the comparative anatomical descriptions give above under little blue heron is due to the increased age of the young found here. At about 18 days of age the little blue heron's bill is yellow with a black tip, however, its tarsus and toes are light green-gray and darker on the toes whereas the snowy egret yellow-billed young (also black-billed) has tarsi (grayish-green) darker than toes (pale green) (McVaugh, 1973 D; 1975).

I was told that the second nest I saw in a nearby chokecherry contained two downy snowy egret young. This nest was 3.1 m (10'4") above the ground. In the excitement I never looked at nor photographed the contents of this nest. If this second nest is accurately identified, then a wide disparity in the start of incubation for this species on the Island exists. The nest with the 18-day old young began incubation around May 17 by my calculations whereas the downy young nest began around June 2. This June 2 date coincides well with the incubation period for cattle egret and little blue heron. However, there is no denying the existence of the older young. They could mean that the snowy egret begins nesting about two weeks earlier than these other species. More data is needed.

Both of these nests were within 100 feet of the little blue heron and cattle egret nests. Strangely, these nests were apparently in the same group of chokecherry trees where I found the cattle egret nests in 1982 according to my 1982 marks on these trees.

In conclusion, I had found the nests I was seeking. They had brought me a great deal of new information on what may be the northern-most mixed wading bird colony in the eastern United States. It also caused me to learn and synthesize a great deal of information on the species involved. Information on the breeding biology of these birds (see Appendix A) is sparse, incomplete and not readily available in one source as you might expect. Jenni (1969) is the best source but no one has determined the time period required between the onset of breeding and the beginning of nest building for these birds. I have used three days as an estimate since the great egret requires at least two days (Wiese, 1976). Information on identification of the young is available in McVaugh (1973, 1975), but other than cattle egrets it is the only source.

Only the tri-colored heron nest (assuming it even has) remains unlocated. Parris (1979) had seen a pair present on West Sister. That was in 1978. Not again until the summer of 1985 have more than one tri-colored heron been seen in the marsh complex.

Further study of the colony is imperative. Questions to answer: Do these night-heron nests survive the winter? Are they re-used or re-built? Do these night-herons have second broods? Do these snowy egrets lay eggs earlier than the other small egrets and herons? Finally, how many birds of each species really do nest on the Island?

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Second little blue heron nest found on West Sister Island June 25, 1983 photographed by Ed Pierce.

Table I

Nest Counts at W. Sister Island

	<u>Great Blue Heron</u>	<u>Great Egret</u>	<u>Black-crowned Night Heron</u>
1959 (A)			1,200
1972 (B)	Total nests for all three species: 3,000		
1976 (C)	1,600	200	3,000
1976 (D)	600	600	3,000
1977 (E)	1,158	100	600-1,000
1978 (E)	1,167	100	600-1,000
1979 (F)	950	50	1,000
1982 (G)			1,300
1983 (H)	1,013	543	1,011

- (A) Van Camp (Campbell, 1968), a "careful count" based on actual presence on Island.
- (B) Hoffman (Hoffman, 1974), estimate based on author's presence on Island in July. Not an actual nest count.
- (C) Scharf (Scharf, 1978), method unknown.
- (D) Campbell (Lafferty, 1979) and Toledo Naturalist's Association estimated these numbers of nests based on their presence on Island.
- (E) Parris (Parris, 1979), estimate based on actual nest count from ground for great blue heron and great egret and by "visual estimate" of number of pairs or nests for black-crowned night heron. "Visual estimate" method unknown and no details given.
- (F) Meeks and Hoffman (Meeks, 1979), as number of nests in June, method unknown and no other details given.
- (G) Pierce (Pierce, 1982), as a direct count of nests on July 2.
- (H) Brim (Brim, 1983), as the sum of three different survey methods (each in a different area) plus an estimate for unsurveyed areas on Island on May 5 and 6.

Appendix A

Breeding biology of West Sister birds

Breeding Activity	Interval in days consumed by activity per species				
	BC Night heron	Great egret	Cattle egret	Little blue heron	Snowy egret
Attainment of red legs	1	N/A	N/A	N/A	N/A
Pairing completion	16	3 <sup>(1)</sup>	3	3	3
Copulation	2	N/A	N/A	N/A	N/A
First egg laid after copulation	3.3	N/A	N/A	N/A	N/A
First egg laid after pairing completion	N/A	4-7 <sup>(2)</sup>	N/A	N/A	N/A
Nest construction prior to first egg	N/A	N/A	6.6±0.37	4.8±.41	4.4±.25
Incubation	24	25-26 <sup>(3)</sup>	22.9±.04	22.8±.17	22.4±.12
Total to hatch of first egg	46.3	32-36	32.5±.41	30.6±.58	29.8±.37
Total additional days to hatch complete clutch			4.7±.29	3.2±.26	3.2±.13

(1) Wiese, 1976; (2) Mock, 1980; (3) Cramp, 1977.

Notes:

1. The data for cattle egret, little blue heron and snowy egret is from Jenni (1969) except for the number of days for pairing completion which is a guess based on the interval for great egret.

2. The data for black-crowned night-heron is from Allen (1940).

3. Incubation is the period for one egg to hatch. In the above birds it generally begins with or after the first egg. In the snowy egret and

## Appendix A

continued

little blue heron it began the day the second egg was laid in fifty percent of the nests (Jenni, 1969). The great egret can delay until the third egg (Cramp, 1977).

4. Jenni (1969) found that most nest construction in the cattle egret, little blue heron or snowy egret followed pair formation whereas Allen (1940) did not regard nest construction in the black-crowned night-heron as a separate step in the reproductive cycle and Mock (1980) included nest building as one of four activities of the great egret in the 4-7 day stage referred to as a trial pair bond period.



Snowy egret young found on West Sister Island June 25, 1983 and photographed by Ed Pierce.

Appendix B

Calendar dates for reproduction stages of  
West Sister birds

Activity	BCNH	Great egret	Cattle egret	Little blue heron	Snowy egret
Average observed arrival	3/25	4/1	4/16	5/6 (5/9 median)	4/30
Observed arrival 1982	3/28	3/18	4/14	5/1	5/1
Observed arrival 1983	-	-	4/16	4/20	4/27
Onset of breeding	3/26; 5/1	4/25	5/16;5/23	5/18;5/23	5/8;5/26
Start nest building	4/11; 5/17	4/25	5/19;5/26	5/21;5/27	5/11;5/29
Start Incubation	4/16; 5/22	5/2	5/26;6/2	5/26;6/1	5/16;6/3
End Incubation	5/10; 6/15	5/28	6/18;6/25	6/18;6/24	6/7;6/25

Notes:

1. This chart gives ranges of dates for all but great egret which has not been studied with the same intensity.

2. The above dates are determined by first observing the nest and aging the young. Once a date of hatch for the first egg (oldest bird) is determined, use the intervals in Appendix A to determine the remaining retrospective dates.

3. The average observed arrival dates for cattle egret, little blue heron and snowy egret are calculated from observation dates submitted to The Ohio Cardinal. These dates for black-crowned night-heron and great egret are from Campbell (1968).



