

PURPLE MARTIN AT CANANDAIGUA LAKE: BEHAVIORAL NOTES AND CENSUS

STEPHEN W. EATON AND ELLEN E. EATON

From 1965 to 1969 behavioral notes were made on a Purple Martin (*Progne subis*) colony established in a sixteen hole box on our lake front property in town of South Bristol, Ontario County, on the west shore of Canandaigua Lake opposite Vine Valley. Censuses of Purple Martin in boxes around the perimeter of Canandaigua Lake were made in 1967 and 1989.

OBSERVATIONS

Nesting chronology: Birds arrived in the nesting area about 1 May. Pair formation and nest building extended through May and into the first two weeks of June. Four nests were checked on 28 June 1966; young were hatching in two nests, one nest held four eggs and one recent nest contained no eggs. On 24 June 1967 one nest had 5 eggs, another 6, and a third was fresh with no eggs. Young were visible at entrance holes 28 June 1965 and were usually visible through July and early August. The last young left the box on 16 August 1966, 9 August 1967, 28 August 1968 and 2 August 1969.

Food: Adults feeding the young were observed from 50 feet with a 20x Bushnell telescope. In June, young were fed mainly mayflies (Ephemeroptera) after periodic hatches. In early July, adults brought in mostly medium-sized dragonflies (Odonata). Once a Hummingbird Moth (*Hemaris thysbe*) was identified and several times large horseflies (*Tabanus*) were brought. As young neared fledging, cicadas (Cicadidae) were often fed to the gaping young.

Predation: All young in 10 nests and at least one adult were killed by a Raccoon (*Procyon lotor*) which climbed a wooden pole the night of 29 June 1965. A Great Horned Owl (*Bubo virginianus*) feather was found below the same box following another complete kill of young by a predator in the 1970s. One colony on the east shore of the lake was thought to have been destroyed by Eastern Screech-Owl (*Otus asio*). In May 1930 my father, E.H. Eaton, was called upon to dispatch a Merlin (*Falco columbarius*) which was killing a colony, one by one, in Geneva, New York (Dean Amadon, *pers. comm.*).

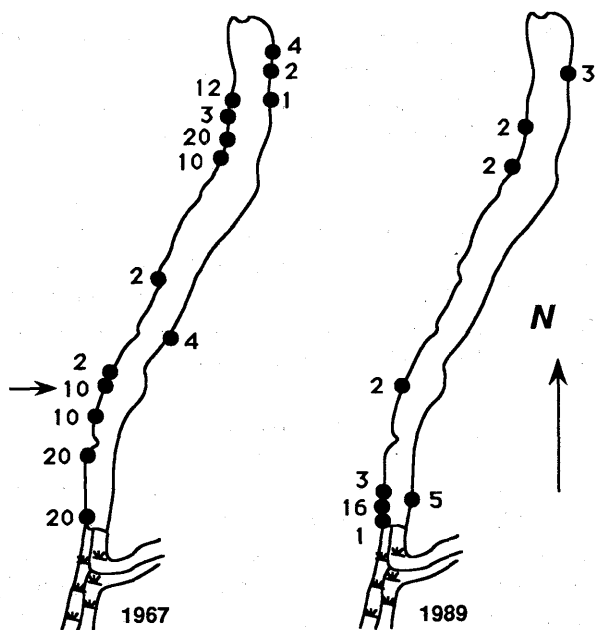


Figure 1. Locations of occupied Purple Martin houses, and number of pairs established, around the perimeter of Canandaigua Lake in 1967 and 1989. The arrow indicates the colony where behavioral observations were made.

Census: In an attempt to census the entire perimeter of Canandaigua Lake (34 miles or 54 km) A.M. Seymour, Sr., A.M. Seymour, Jr. and S.W. Eaton circled the shoreline 4 July 1967 from 0830 hrs to 1530 hrs in a 25 h.p. outboard skiff. We counted the number of martin houses visible from the lake and counted the number of pairs occupying each house. At this time adults were very actively feeding young and we felt that after a short stay observing nest material or young, our figures were reasonable. The average numbers of holes in a box was about 12. Thirty-seven boxes were observed (444 holes). One hundred nine pairs were counted along the west shore of the lake, 11 pairs along the east shore, for a total of 120 pairs (27% occupancy).

On 6 July 1989 the authors circled the southern third of the lake perimeter in a Grumman Sportboat with Mercury 4 h.p. outboard engine. We completed the northern two-thirds on 7 July. We counted 51 boxes which averaged about 12 holes per house (612 holes). Along the

west shore only 26 pairs were counted, plus 8 pairs along the east shore, for a total of 34 pairs (5.6% occupancy). The most populous colony of 16 pairs was on the west side near the south end at Hunter Marine. This box was near much human activity night and day and within 200 yards (182 m) of High Tor Wildlife Management Area, a large cattail (*Typha*) marsh at the south end of Canandaigua Lake. Even though there were 168 more holes available to the martins in 1989 than in 1968, the total population around the lake had dropped 74% (from 123 to 32 pairs). The colony at *Hunter Marine* had almost 50% of all the pairs around the entire lake. This colony has been one of the largest and most consistent, at least since the early 1930's (S.W. Eaton, *pers. obs.*).

DISCUSSION

Why has the Canandaigua Lake Purple Martin population declined to such a degree? In 1956 and 1957 Hoyt (1958) in a survey of central New York Purple Martin colonies said under Canandaigua, "Roseland Park (n. end) several houses full". In 1989 three poorly maintained boxes at the north end contained only House Sparrows. Benton and Tucker (1968) found that Purple Martin mortality in Chautauqua Co. approached 75% during the wet cold May of 1966. This may explain the low rate of nest hole occupancy which we observed in 1967. Five years after our 1967 census Hurricane *Agnes* pounded the Finger Lakes area. Citing the official weather bureau report, Spofford (1972) said, "June was the wettest month ever recorded in the Finger Lakes Area at any time of year... Purple Martin... numbers continued low." Rusk (1964) in a census of the perimeter of Oneida Lake in 1963 found a population of about 1930 pairs around a shoreline of sixty-five miles (1040 km) (Stoner 1931), establishing nice base line data. Rusk and Spies (1972) checked 54 boxes on the north shore of Oneida Lake in 1972 following the passage of Hurricane *Agnes* and found they housed only 114 pairs. These same boxes in 1963 had housed 740 pairs, down 85%. Levine (1980) summarized the 'Blue-listed' Purple Martin in New York as "...always absent at higher elevations, only Region 3 saying anything encouraging (houses at Montezuma well filled) and Region 10 most gloomy." Levine (1981) said again, "only Region 3 gives us good news." Here, Benning (1981) reported "very good numbers of nesting birds at the north end of Cay[uga] L[ake], including M[ontezuma] NWR, but scarce elsewhere." Benning (1983) said of Region 3 "very low numbers". Clements (1984) for Region 3, "scattered reports of very few individuals." Robbins (1986)

said, "Prolonged periods of rain at the time Purple Martins have young in the nest can cause heavy mortality of both young and adults and produce dramatic changes in local populations." He further stated, "Hurricane *Abby* June 1968, *Agnes* 1972 and local heavy rains in summer 1977 and early June 1978 in the Appalachian Region (including the Allegheny Plateau) showed significant population losses associated with those years."

S. C. Sibley (1988) showed the birds favor lower altitudes and margins of waters for breeding. The map in that publication shows confirmed Purple Martin nesting concentrated along the west and south ends of Canandaigua Lake. The west shore of Canandaigua Lake is better habitat for martins than the east shore (probably due to the east shore's exposure to west winds). The south end of the lake with its extensive cattail marsh and protected west shore is prime habitat for this bird. The fairly stable populations adjacent to good marshland at Montezuma National Wildlife Refuge also seem to represent prime habitat as do those around Oneida Lake.

These data indicate that Purple Martin populations can fluctuate wildly in areas of marginal habitat but stay relatively stable in prime habitat where boxes are available near consistently good hatches of aquatic insects.

Ten Mile Road, Allegany, New York 14706

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