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Two More Double-brooded Tree Swallows

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ABSTRACT

In 1983 I reported the first two fully documented cases of double brooding in Tree Swallows (*Tachycineta bicolor*; Hussell 1983a). Here are details of two additional observations of double brooding in this species. That no other cases of double brooding have been reported in the literature, or detected in my intensively studied populations, confirms that double brooding is rare in this species.

INTRODUCTION

Tree Swallows are normally single brooded (Robertson et al. 1992). "Single-brooded" means that a female successfully fledges chicks from only one brood in any one year. A "double-brooded" female or pair raises chicks from two successive broods in the same year.

In 1983 I reported the first fully documented cases of double-brooded Tree Swallows (Hussell 1983a). In 1979, a pair nesting at Port Rowan Sewage Lagoons raised broods of six and three young; another pair at Backus Conservation Area fledged broods of five and four in 1982. Here are two additional cases of double brooding in Tree Swallows.

METHODS

Nest boxes were maintained and monitored by Long Point Bird Observatory (LPBO) at four sites near Port Rowan, ON (42° 37' N, 80° 27' W): Long Point (LP), 1 km from the eastern tip of the Long Point peninsula in Lake Erie, since 1969; Sewage Lagoons (SL), Port Rowan's waste treatment ponds about 0.5 km west of the village and 33 km

west of LP, since 1977; Backus Field (BF), 3.25 km NNW of Port Rowan in the Backus Conservation Area, from 1976 to 1986; and Mud Creek (MC), 1 km east of BF since 1987.

Plywood nest boxes stood about 1.5 m above the ground (or sometimes above water at LP) on steel poles usually spaced about 24 m apart in lines or grids. Some boxes were temporarily more closely spaced for experimental purposes.

The number of nest boxes at each site varied over the years. In 2001 there were 64 at LP, 55 at SL, and 60 at MC. (In addition, there were 17 extra boxes at SL and 20 at MC that were available after 29 May for experimental purposes. These were available too late to accommodate normal first broods, but could have been used for late first broods or second broods).

Nest boxes were usually checked daily during the laying period and eggs were numbered with indelible ink marks when first found. After the eggs hatched, adults were trapped in their nest boxes using a trap similar to that described by Stutchbury and Robertson (1986), but made of stiff plastic instead of aluminum and with an upside down "U" cut out of it as described by Magnusson (1984). The adults were sexed by the presence of a brood patch (female) or cloacal protuberance (male), and banded if not previously banded. Females were aged as yearling (SY: birds in their second calendar year) or older (ASY: birds in their third or later calendar year) based on plumage differences (Hussell 1983b). A few females could not be aged. Broods were usually examined at least at 3, 6, 9, 12, and 16 days after mean hatch and sometimes more

frequently. Nestlings were banded at the 12-day check. Late clutches and broods (those initiated after mid-June, including potential second broods) were not checked as regularly as those started earlier, but an attempt was made to document the occurrence of all late broods, to capture the attending adults, to band the young, and to determine whether nesting was successful.

RESULTS

At all sites, all or nearly all (90-100%) of the nest boxes were occupied by breeding Tree Swallows each year; but despite intensive monitoring since 1982, additional cases of double brooding were not detected until 2001. Both of these were at SL, as described below.

In nest box S15, the first egg was laid on 6 May and a clutch of six was completed on 11 May. Two newly hatched young were in the nest on 24 May along with three eggs (the other egg or young disappeared). No more eggs hatched. The adult female was captured incubating the eggs on 18 May and again attending young on 30 May, when the male was also captured. Both adults had been banded previously: the female aged ASY in S15 in 2000; the male as a nestling at MC in box M48 in 2000. The two young developed normally, were banded on 7 Jun (two days later than normal) and fledged some time between 9 and 12 Jun.

Box S15 was not checked again until 11 Jul when it contained a nest with three young, about four days old, and an old egg from the previous clutch. Both adults were captured on 12 Jul and proved to be the same individuals as those attending the earlier brood. The male had molted primaries one and two and the new primaries were about 1/2 and 1/3 grown, respectively. The young were banded on 17 Jul, at about 10 days of age. They are assumed to have fledged successfully as there was no sign of mortality or disturbance when the nest was next visited.

The second case of double brooding occurred in box S52. The first egg in this box was laid on 9 May and eggs were added daily until 14 May, when six were present. A seventh egg appeared on 17 May. The incubating female was captured on 23 May. She had been banded in box S54 as an ASY female

in 1997, so was at least six years old in 2001. She bred in nearby boxes S54 and S53 in 1998 and 1999, respectively, but was not captured in 2000. The third egg disappeared between 26 and 28 May. Three of the remaining eggs hatched on 29 May, but one of the young was missing the following day. The female was captured again on 29 May, but the male was not caught until 5 Jun, when he was found to be unbanded. The two surviving young were banded on 10 Jun and left the nest between 16 and 18 Jun.

On 11 Jul, the nest in box S52 had four new eggs and an old egg from the previous clutch. On 12 Jul the nest contained two newly hatched young and three unhatched eggs and the same female was captured attending the nest. There was no sign of a male in attendance and none was captured. The young were banded on 24 Jul and presumably fledged some time later because there was no sign of them when the box was next examined.

DISCUSSION

Despite intensive monitoring of nest boxes in the intervening years, no other genuine second broods, raised by the same female or pair, were detected at the Long Point sites, indicating that second broods are rare in Tree Swallows at this location. Late nestings, with eggs laid after 15 Jun, are not uncommon, but usually the attending adults prove to be birds that are not known to have raised an earlier brood.

To raise two broods in a season, the first brood must be started relatively early. Females that had second broods at SL, laid the first eggs in their first clutches on 6 and 9 May 2001 and 14 May 1979 (this report and Hussell 1983a). In 20 of the 25 years for which we have records (1978-2002), no clutches were initiated at SL before 7 May, and in 14 years none was started before 10 May. However, clutches were initiated later than 14 May in only seven of the 25 years, indicating that second broods may be possible in up to 75% of years at this site. The female that had a second brood at BF laid its first egg on 7 May 1982 (Hussell 1983a). Egg-laying started as early as 7 May at BF in only two of the 10 years for which we have records.

Clutch initiations at LP (the tip of Long Point) average about five days later than at SL (Hussell

2003), a difference related to the cooler spring temperatures at LP that are attributable to the proximity of the cool waters of Lake Erie. In only eight of the 32 years for which we have records were any eggs laid before 15 May at LP; and in only three years (1999, 2000, and 2001) were first eggs laid as early as 9 May. Consequently, second broods are even more unlikely to occur at LP than at the mainland sites, and none has been detected there so far.

All of the four second broods involved ASY females (this report and Hussell 1983a). The probability that an SY female would attempt to raise a second brood, even if able to do so, is relatively low, because SY females tend to initiate their first clutches later than older birds (DeSteven 1978; Stutchbury and Robertson 1988), leaving relatively little time for a second brood. Moreover, very few SY females breed at the Long Point sites (usually 0-5%, but occasionally as many as 30% of breeding females; unpublished data), reducing the chance that we would detect such second broods if they do occur.

These records confirm that second broods are rare in this part of the Tree Swallow's breeding range. Second broods may be more common in the southern portions of the range (Robertson et al. 1992), but documentation is lacking.

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