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WINTERING AMERICAN TREE SPARROWS FLY-CATCHING

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The American Tree Sparrow (*Spizella arborea*) most commonly forages on the ground (Naugler 1993), and those arthropod species most commonly captured are ground dwelling forms (Baumgartner 1937). A study of stomachs, most from Kansas, during November (n=33) and December (n=103) revealed a content of 9.1% and 7.8% animal food. An additional study found only 2% animal food during the winter months (Baumgartner 1937). Fly-catching by the American Tree Sparrow has been reported for the summer months only (Naugler 1993). Baumgartner (1937) while studying the species at Churchill, Manitoba occasionally observed a bird dart into the air for a mosquito or a moth.

While conducting a bird census on 2 December 2001, a stop was made at a dense stand of dead and upright sunflowers (*Helianthus* sp.) 14 miles (22.5 km) north and 15 miles (24.2 km) east of Garden City, Kansas in north-central Finney County. The sunflowers stood in a shallow draw covering about 3 acres (1.2 ha) adjacent to a cultivated field. After hearing the *teedle eet* calls (Rising 1996) of a few American Tree Sparrows, SJS noticed several of them fly-catching. We located a total of eight tree sparrows and observed approximately 30 sallies by various individuals of the flock during a ten-minute period between 3:50 and 4:00 p.m. (1550-1600 hr) CST. The estimated angle of the sallies varied between 30 and 70 degrees, at heights ranging from 2 to 12 ft (0.6 to 3.7 m) above the sunflower canopy. Most sallies were between 3 and 4 ft (0.9 - 1.2 m). The Finney County tree sparrows, as did those observed at Churchill, Manitoba by Baumgartner (1937), made only one capture attempt per sally. The sky was cloudy, with a 3 mph (4.8 km/hr) south wind and a temperature of 60° F (15° C) during the observation period.

The most abundant insect observed was a small greenish-bronze colored Calliphorid fly, 5 to 7 mm (0.2 to 0.28 in.) in length with maroon-colored eyes. Total body length (not including wing extension) for a collected specimen was 5.2 mm. Several small 3 mm leaf hoppers (Cicadellide) were observed along with one each of two other Dipteran species. The insects were attracted to the heat of the car hood making a rough insect sample possible.

Fly-catching is rare among the other five members of the genus *Spizella*. It is not reported in the Field Sparrow (*S. pusilla*) Carey et al. (1994), nor in the Clay-colored Sparrow (*S. pallida*) Knapton (1994), and rarely in the Black-chinned Sparrow (*S. atrogularis*) Tenney (1997). The Brewer's Sparrow (*S. breweri*) occasionally flies up and catches insects on the wing 1-3 m (3.3 - 9.8 ft) in the air, most frequently during the hour or so before sunset (Rotenberry et al. 1999). The Chipping Sparrow (*S. passerina*) sometimes takes insects on the wing (Middleton 1998).

The range of temperatures warm enough to allow insect emergence but still cool enough to slow their metabolism, so that a slow-flying Emberizid can capture them in the air, is most likely very narrow. This narrow window probably does not often allow the American Tree Sparrow to exhibit this fly-catching behavior, previously unreported for the wintering ground.

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AN UNUSUALLY LARGE BARN SWALLOW NEST

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Barn Swallow (*Hirundo rustica*) nests are made by adults attaching mud pellets to a vertical or horizontal surface. The nest has a semicircular shape if it is attached to a vertical surface (Brown and Brown 1999). This note documents the size of an unusually large attached nest compared to dimensions of normal size nests.

In mid August 1974 I found a Barn Swallow nest under a wooden bridge ca. 15 km northwest of Hays, Ellis County, Kansas (Fig. 1). The nest was 27 cm in diameter, 17 cm in depth, and weighed 890 g. When nests are reused from previous years, new mud is added to the rim, accumulating up to > 70 cm (Brown and Brown 1999). In some Barn Swallow breeding areas, where a different colored mud was used for nest-building in each subsequent nesting attempt, the nest was reused and added to as many as five times (Lippincott 1913). However, this behavior usually adds to the total depth, but not to the diameter. From the composition of mud in this nest, it appeared that a normal size nest was built initially, probably in a previous year, followed by an additional increase in depth and diameter at a

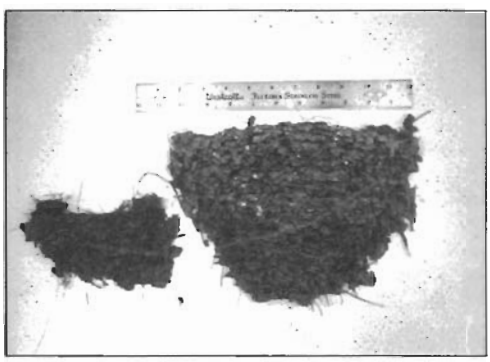

Figure 1. — Photograph of large Barn Swallow nest with a more typical, average size nest for scale.

later time. The specific number of times the latter occurred is unknown.

On 13 April 2001 I weighed, to the nearest gram, eight Barn Swallow nests attached to a concrete box drain culvert on the Fort Leavenworth, KS Military Reservation. Mean weight was 409 g ±84 SD (range, 306-587 g). The nests were re-attached to their original location with mud. No birds had returned to this site by this date. Mean exterior diameter (side-to-side of semicircle) for 13 nests (to the nearest cm) was 18 cm ±2 SD, range 15-22; mean depth (top-to-bottom) was 11 cm ±2 SD, range 9-14 cm (for nest morphometrics see Hansell 2000). Brown and Brown (1999) list total length and breadth of nests about 13 cm; mean weight of nests was not listed. The unusually large nest, by comparison, had a exterior diameter 9cm (50%) wider, a mean depth 6 cm (55%) longer, and a weight 481 g (118%) greater than the average nests I measured.

One hypothesis to explain why some species reuse old nests is that building new nests exacts an energetic cost by decreasing reproductive success. However, Shields et al. (1988) found no significant difference in the mean reproductive success between new and refurbished swallow nests. Other studies supported the hypothesis. One might predict an energetic cost for the individual that built this large Barn Swallow nest. But since it appeared that this bird added to a previous nest, the energetic effort expended was probably no different than building a normal-sized new nest. Between 40-90% of old nests are reused; and other factors such as predation, falling nests, and ectoparasitism confound interpretations of the cost of nest building (Shields et al. 1988). Since the reuse of old nests is common, the bird that built this nest, or other conspecifics that refurbish nests, probably would not incur such increased building costs on a yearly basis.

The large nest was collected under the supervision of Charles A. Ely and is located in the teaching collection of the Biology Department, Fort Hays State University, Hays, KS 67601. I thank Greg Farley for access to the nest, Beth Schukman for nest measurements, Roger Boyd and Cal Cink for helpful comments on the manuscript, and the Biology Department at the University of Saint Mary, Leavenworth, KS 66048 for the use of triple beam scales.

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COSTS OF NEST SITE SELECTION FOR A CISTERN-NESTING EASTERN PHOEBE

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On 22 May 1981, I flushed an Eastern Phoebe (*Sayornis phoebe*) from inside an abandoned cistern on the edge of Baker University's Ivan Boyd Woods, about two miles (3.2 km) NNE of Baldwin City, Douglas County, Kansas. The brick, cone-shaped, above-ground portion is a conspicuous landmark in the area (Fig. 1). Although I had passed it many times going to a nearby census plot beginning in 1979, this was the first time I had flushed out a phoebe. I saw a used nest on top of an old pipe leaning against the wall of the cistern, about 3.8 m below the outside opening and about 0.25 m above the water line. The circular, flask-shaped cistern

Figure 1. — Above-ground portion of cistern used for nesting by Eastern Phoebe.

was 3.5 m in diameter at the bottom and sloped steeply to a small circular opening of 0.5 m at the top. The water was 1.8 m deep at the bottom. It seemed to be nearly predator-proof because it would be relatively difficult to reach the nest and nearly impossible to get out. The nest site however, posed a problem for the phoebes as well. Fledglings would have only one chance to fly through the opening at the top on their first flight out. If they hit the ceiling they would fall helplessly into the water below. I assumed that all the young from this nest made it out, but careful inspection of the water with a flashlight on 25 May revealed three floating bodies. When I retrieved one of these I found it was a fully feathered young phoebe. In the process of banding the adults several days later, I mist-netted a hatch-year phoebe that was certainly their offspring. I saw no evidence of other young.

The female renested and by 1 June had three eggs. She completed the five egg clutch on 3 June. Four eggs had hatched by 19 June, and on 29 June three feathered young were in the nest. I recaptured the female on 30 June and found she was heavily infested with mites. The intense scratching by the young in the nest suggested they were infested as well. On 4 July I discovered the bodies of all three young in the water. Older infested young are known to jump from the nest prematurely (Weeks, H. 1979. Wilson Bull. 91:441-454). No further attempts at nesting occurred that summer. Assuming that I banded the only successful fledgling from the first nest, this female produced one young for both nesting attempts. Reproductive success in Indiana over two years was 5.97 young fledged/female/year with an average of 2.18 attempts/year (Weeks, H. 1979. op. cit.). In Kansas, where brood parasitism by cowbirds is more common, success still averaged 3.8 young fledged/female/year (Klaas, E. 1970. Ph.D. diss., Univ. Kansas, Lawrence). This is nearly four times greater than for the cistern-nesting phoebes.

Poor reproductive success did not dissuade the same male from returning to the cistern site in 1982, but the female did not return. Her replacement (which I banded) helped fledge one of three young (two drowned) in her first nesting attempt here. This female disappeared shortly thereafter, and although the male called from the site for several weeks, no replacement mate was found, and the site was abandoned. Reproductive success was the same as in 1981, but with one less nesting attempt. The banded male did not return in 1983 and no phoebes nested in the cistern. It is unknown whether he secured a more suitable site elsewhere or died. Neither banded female was observed at other nest locations in the area.

The selection of a cistern for nesting has not been recorded before, but such a site is probably not unexpected because phoebe nests have been found below ground-level in a well and a vertical cave (Bent, A. C. 1942. U.S. Natl. Mus. Bull. No. 179). Its selection in this case may have occurred because other, more favored sites, were already occupied (pers. obs.). Whatever the reason, the poor nesting success achieved in this cistern exemplifies the fitness costs associated with selection of sub-optimal nest sites.

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