

First Known Case of a Passerine Presumably Returning a Dead Chick to the Nest

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Abstract: Nest sanitation is a well-documented behavior in birds, with benefits including less damage to eggs and chicks, lowering the risk of infection/infestation, and reduced nest detection by predators. Despite these clear benefits, here we report the first known documented case of a dead chick being placed back into a nest, presumably by a parent. We documented this behavior in a Field Sparrow (*Spizella pusilla*) as an incidental behavior observed as part of a larger multi-year provisioning study. Although the motivation behind returning a dead chick to a nest remains unclear, this is the first known reported case of such a behavior in any bird species.

Keywords: behavior, dead nestling, Field Sparrow, nestling, nest sanitation, *Spizella pusilla*

Many species of passerines engage in a variety of nest sanitation practices. Guigueno and Sealy (2012) reported 274 species of 40 families that engaged in some form of nest sanitation including the removal of debris such as twigs or other vegetation, foreign non-egg-shaped objects, cracked or broken eggs, unhatched eggs, egg shells, fecal sacs, and dead chicks. A clean nest may reduce parasitic infestations and olfaction- or vision-based detection by predators (Tinbergen et al. 1962, Petit et al. 1989). However, there has been limited recent experimental support for these potential adaptive values of nest sanitation (Ibáñez-Álamo et al. 2014, 2016).

The removal of sharp and abrasive objects may prevent damage to existing eggs. Sticks experimentally placed into nests were buried or removed from 100% of nests during incubation in the Great Reed Warbler (*Acrocephalus arundinaceus*) (Moskát et al. 2003). Furthermore, the removal of eggshells reduces the likelihood of “capping” where portions of an unhatched egg become trapped within the shell of a previously hatched egg thus interfering with hatching

(Derrickson and Warkentin 1991). Cracked eggs can also leak their contents, potentially adhering eggs together and resulting in damage to the eggs or nest lining (Kemal and Rothstein 1988).

Although the removal of waste, especially fecal sacs, from the nest by attending parents is well documented (Middleton 1998, Grant and Knapton 2012), reports of the removal of deceased chicks are less common. However, within the passerines, the presence of a deceased chick in the nest appears to be closely monitored by the parents. The removal of dead nestlings by parent birds has been documented in at least 20 North American species (Guigueno and Sealy 2012). Entire clutches of dead nestlings were removed from a Red-faced Warbler (*Cardellina rubrifrons*) nest after a thunderstorm (Kirkpatrick et al. 2009). Female Tree Swallows (*Tachycineta bicolor*) removed dead nestlings from the nests of conspecifics where they displaced the original female and remained to raise their own offspring (Chek and Robertson 1991). Within the family Passerellidae, Yellow-eyed Juncos (*Junco phaeonotus*) were documented removing two dead nestlings after a thunderstorm (Kirkpatrick et al. 2009) and in the Dark-eyed Junco (*Junco hyemalis*), both parents removed dead nestlings within 4 to 12 hours (Nolan et al. 2002). Adult Lincoln's Sparrows (*Melospiza lincolnii*) carried away experimental objects and dead nestlings immediately (Ammon 1995). Wheelwright and Rising (2008) report parent Savannah Sparrows (*Passerculus sandwichensis*) removing dead nestlings younger than 4–5 days old. Within *Spizella* sparrows (the genus of interest in this behavioral note), Brewer's Sparrows (*S. breweri*) also removed dead chicks within a few hours (Rotenberry et al. 1999). Like many species, Field Sparrows (*S. pusilla*) have also been reported to remove fecal sacs (Carey et al. 2008).

As part of a larger, on-going study of parental behavior of Field Sparrows, we observed the removal of both fecal sacs and dead chicks in this species. Here we report a case of a dead nestling Field Sparrow found outside of the nest bowl and subsequently returned to its nest presumably by the attending parents; this was the only known instance of such behavior over the course of this extensive three-year study and, to our knowledge, there are no known instances of this behavior reported in any other avian species.

SITE AND METHODS

Our field site is a 91.7-ha (226.6-ac) Conservation Reserve Program warm season grassland managed by the Chester River Field Research Station (CRFRS) in Queen Anne's County, Maryland (39.23° N, 76.00° W; for more information on establishment, management, and bird studies, see Gill et al. 2006). As part of a study of parental provisioning, we searched for and monitored Field Sparrow nests over three consecutive summers (2014–2016). Field Sparrow territories were mapped, and adults were color-banded and monitored to identify mating

pairs and their nest sites. A video camera recorded parental provisioning rates at nests on approximately day three, five, and seven post-hatching.

OBSERVATIONS

Nest NF12FS2 was found on 19 May 2016 at 0806 EST with two live Field Sparrow chicks in the bowl and one dead chick on the nest rim, approximately 4 cm (1.6 in) from the center of the nest bowl. The chicks were all the same size and were determined to have hatched the day before based on small body size and limited feather development (MEG, pers. obs.). The nest was photographed by JMC (Figure 1) and the location was marked using a hand-held global positioning system (Garmin GPSMAP 62 receiver). A five-year-old male and four-year-old female attended the nest. Although both birds were present in the study area for the previous two years, this was their first nesting attempt as a mated pair. The open cup nest was built into the duff of cool season grasses and was 100% visible from above. Forty-five minutes later, MEG photographed three chicks in the nest, two living and one dead (Figure 2). Upon comparing the two photographs, we determined that the dead chick on the nest rim was subsequently placed back into the nest bowl with the living chicks. The dead chick was pale in color and easily distinguishable from its nestmates, suggesting it had been dead for several hours, but had no visible signs of injury. We removed the dead nestling and continued to monitor the nest. One of the two remaining chicks disappeared the following day. The surviving chick was banded with a USGS aluminum band on 25 May 2016 and fledged 28 May 2016. The parents held their territory for the remainder of the breeding season, but we were unable to find any additional nests for this pair.

DISCUSSION

Here we report the first documented case of a dead passerine nestling being returned to its nest after having been removed. Although we cannot verify precisely where or how the nestling died, a dead chick found on the rim of the nest and subsequently found back into the bowl is noteworthy. We assume that in this case, one parent recognized the chick as dead and attempted to remove it from the nest as part of its nest sanitation; this sort of behavior was documented in video footage collected at other nests as part of a larger study. Since the chick was just outside the nest, perhaps the bird was interrupted in the task. Unfortunately, the activity at the nest was not yet being video recorded at the time that this behavior occurred. As such, the parents' behaviors are largely conjecture. However, time-stamped photo documentation of the nest clearly indicated that the dead chick was placed back into the nest, presumably by a parent; the chick was one day post-hatching and thus too small to leave the nest on its own volition. A predator could have been interrupted while attempting to remove the chick while it was alive, but this seems unlikely due to the



Figure 1. Field Sparrow nest NF12FS2 at 0806 on 19 May 2016. The nest contained two living chicks and one dead chick just outside the nest rim. Chester River Field Research Station, Queen Anne’s County, Maryland.



Figure 2. Field Sparrow nest NF12FS2 at 0851 on 19 May 2016. Note that 45 minutes have elapsed and the dead chick has been moved from its previous position outside of the nest rim back into the nest with the two living chicks. Chester River Field Research Station, Queen Anne’s County, Maryland.

defenseless nature of the chick and lack of visible signs of trauma or nest disturbance.

Although some species are known to move eggs into nests (Tenaza 1971, Prevet and Prevet 1973, Kim et al. 2006), the placement of chicks into nests has received little attention. An adult bird's ability to carry away a dead chick implies that birds presumably have some ability to move chicks within or between nests, particularly if a chick was in danger of falling out or wriggling away from the nest. Schaefer and Dinsmore (1992) provided one odd report of a living chick being moved to another nest; an additional American Crow (*Corvus brachyrhynchos*) nestling appeared at a nest tended by several adults. Based on the chick's size relative to the others in the nest, Schaefer and Dinsmore (1992) presumed that the chick was most likely to have been taken from another nest as a very recently hatched nestling. Although there is some evidence to suggest that birds may move living chicks between nests, the observations reported here are unexpected, given the potential predation- and sanitation-based risks associated with placing a dead chick back into a nest.

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