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## Adoption Of Yellow Warbler Nestlings By Song Sparrows

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**ABSTRACT.**—Although interspecific brood adoption has been reported in several species of birds, the process by which it occurs has seldom been reported. We observed a pair of Song Sparrows (*Melospiza melodia*) that adopted a brood of Yellow Warblers (*Dendroica petechia*) and, gradually, over several days, took over the parental duties of the original parents. During the first five days of the nestling period, the brood was only attended by Yellow Warblers. In the following three days, however, a pair of Song Sparrows took over an increasingly larger proportion of the parental duties. This adoption probably resulted from misdirected parental care. Although the factors that led to the adoption are unknown, it is clear that the absence of the original parents was not prerequisite. Received 30 June 1997, accepted 3 Oct. 1997.

Interspecific parental care has been reported for several species of birds (e.g., Southern 1952, Watson et al. 1993). Perhaps the best known example is that of a Northern Cardinal (*Cardinalis cardinalis*) feeding a group of goldfish at the edge of a pond (Welty 1982). These accounts are usually limited to the actual observation of young of one species being cared by parents of another, and provide no information about the process by which this situation arose. Here we report an instance of adoption of Yellow Warbler (*Dendroica petechia*) nestlings by a pair of adult Song Spar-

rows (*Melospiza melodia*), and document a gradual process whereby over a period of a few days the Song Sparrows took over the parental duties of the original Yellow Warbler parents.

Our observations were obtained as part of a study of parental behavior in Yellow Warblers (see Lozano and Lemon 1996 for further details about the methods). During June 1995, at Pointe a Fourneau (45° 55' N, 73° 51' W), Ile Perrot, Quebec, Canada, we were conducting focal nest watches of several nests of a population of Yellow Warblers. The nest in question had been built in late May; the first egg was laid on May 29, and 4 additional eggs were laid on consecutive days. Of these eggs only 4 hatched, but, as part of an experiment, the brood size at this nest was increased to 6 nestlings. Two other nestlings of similar age and size were obtained from other Yellow Warbler nests, and were added the day after the nest's first nestling hatched.

Nest watches lasted 30 min and were conducted daily from the time nestlings were 3 days old until fledging occurred. During the first 3 nest watches only the two Yellow Warbler parents visited the nest (Fig. 1). In addition to feeding the nestlings, the female brooded them for 2:15, 0:45 and 11:40 min:s respectively. During the fourth watch, when the nestlings were 6 days old, a Song Sparrow fed the Yellow Warbler nestlings, as did the two Yellow Warblers parents. The two species were never present at the nest at the same time.

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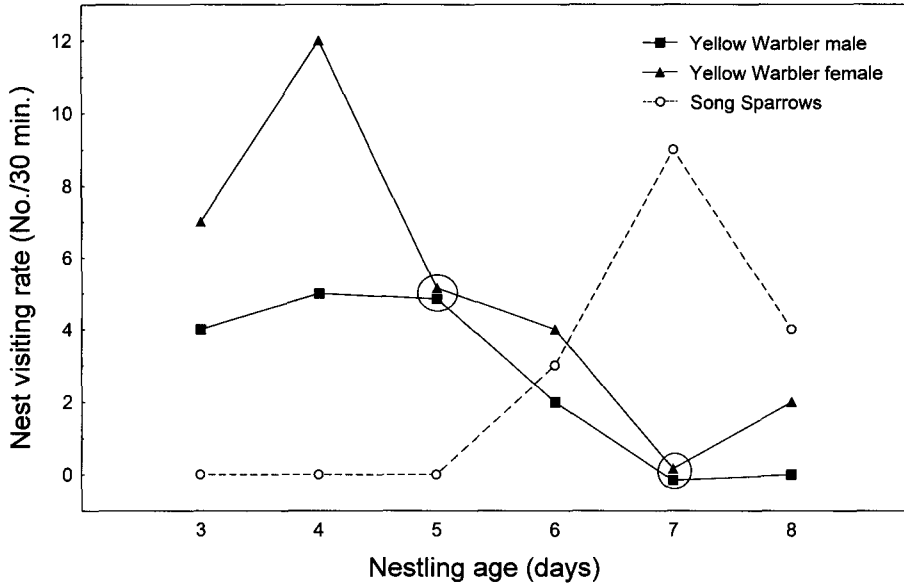


FIG. 1. Nest-visiting rates of Yellow Warbler and Song Sparrows. Circled data points have the same values, and are separated only for graphical purposes.

The next day the male Yellow Warbler was not seen. The two sparrows chirped defensively at us when we approached the area, and at a Gray Catbird (*Dumetella carolinensis*) that happened to approach while we were observing the nest. Although the parental contributions by the pair of sparrows was not differentiated by sex, both birds were feeding the nestlings and removing fecal sacs. When the nestlings were 8 days old both Yellow Warblers were seen in the territory, often perched nearby, but only the female approached the nest. The two sparrows made most of the feeding trips during the observation period (Fig. 1). We did not observe any apparent signs of aggression between the two species. Finally, the next day the nest was empty, presumably because the nestlings had fledged. Although parental care does continue after fledging, it is seldom observed because it is very cryptic and does not occur at any specific place. Neither the nestlings nor their parents, natural or foster, were seen again.

Although adaptive explanations have been sought to explain instances of intra-specific adoption (e.g., Gori et al. 1996), most of these are not applicable in this case. Perhaps the only exception is the recent suggestion that helping behavior is the result of individuals

attempting to gain "prestige" by demonstrating their ability to rear offspring (Zahavi 1995). Although this idea was developed to explain intraspecific helping behavior, it could also be applied to inter-specific cases of brood adoption. Nonetheless, the behavior we observed was most likely the result of misdirected parental behavior. If there is a cost associated with providing parental care, the Yellow Warbler parents may have actually benefited from this error. We do not know the fate of the original sparrow nest, or even if there ever was one, so we do not know the factors that precipitated the adoption. However, it is clear that the absence of the original Yellow Warbler parents was not a prerequisite for this adoption.

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## Evident Nest-Searching Behavior of Female Brown-headed Cowbirds While Attended by Males

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**ABSTRACT.**—Unlike most birds, brood parasitic Brown-headed Cowbirds (*Molothrus ater*) must find host nests in which to lay their eggs. Female cowbirds have been reported using several methods to find nests. Here, I report on two observations of cowbirds near host nests that are consistent with two hypotheses, nesting-cue and “flush” method, regarding techniques cowbirds may use to find host nests. The nesting-cue hypothesis poses that cowbirds are directed to host nests by host’s typically increasing aggressive behavior towards cowbirds as they approach the nest, whereas the flush method poses that cowbirds attempt to spot a concealed nest by rousing the host from it with intentionally noisy behavior near the nest. Unlike other reported observations of female cowbirds near potential host nests, male cowbirds were present during both observations. *Received 20 June 1997, accepted 27 Oct. 1997.*

Brown-headed Cowbirds (*Molothrus ater*) are obligate brood parasites that lay their eggs in the nests of other species, the ‘hosts’. Norman and Robertson (1975) summarized three main methods female cowbirds use to find host nests: (1) secretive searching while walking; (2) active, noisy searching; and (3) cryptic, silent watching of nest-building hosts (Hann 1937, 1941; Norris 1947; Mayfield 1960, 1961; Payne 1977). While conducting field work at The Morton Arboretum in Lisle, Illinois, I observed what appeared to be all three of these methods. While cryptic watch-

ing of host nest-building has been well documented, other methods have rarely been described (Norman and Robertson 1975). Further, previous studies either state or imply that female cowbirds search for and approach host nests when alone (i.e., Friedmann 1929; Hann 1937, 1941; Norris 1947; Norman and Robertson 1975). Here, I report on my observations of female cowbirds seemingly searching (e.g., the flush method) for host nests by using conspicuously noisy searching and host nest defense that has not been previously described.

Seppä (1969) and Ficken (1961) first suggested that the European Cuckoo (*Cuculus canorus*) and cowbird, respectively, may use host nest-defense to locate nests. Robertson and Norman (1976) later proposed the “nesting-cue” hypothesis which poses that brood parasites take advantage of host nest defense to direct them to the nest. However, this behavior has never been observed in cowbirds.

Many species of birds react aggressively toward cowbirds (e.g., Robertson and Norman 1976, 1977; Folkers 1982; Smith et al. 1984; Folkers and Lowther 1985; Neudorf and Sealy 1992; Bazin and Sealy 1993; Peer and Bollinger 1997). Nest defense may be an effective deterrent to parasitism (Slack 1976) for relatively large host species (Friedmann 1929, Neudorf and Sealy 1992), as they can inflict injury on cowbirds (Leathers 1956). However, nest defense may be ineffective, especially for smaller host species and those less equipped

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