

KILLING OF HOST NESTLINGS BY THE BROWN-HEADED COWBIRD

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Abstract.—An adult female Brown-headed Cowbird (*Molothrus ater*) was filmed as she killed all six nestlings of a Blue-winged Warbler (*Vermivora pinus*). Although several previous accounts provided strong indirect evidence of cowbird attacks on host nestlings, this is the first unequivocal evidence of such behavior to be reported. This behavior may enhance cowbird reproductive success by facilitating host renesting, thus providing an additional opportunity for nest parasitism. If so, this behavior has parallels to the infanticide documented for a number of species of mammals and birds.

MUERTE DE LOS PICHONES DE AVES HOSPEDERAS POR *MOLOTHRUS ATER*

Sinopsis.—Se filmó una hembra adulta de *Molothrus ater* mientras mataba todos los seis pichones de *Vermivora pinus*. Aunque varias narraciones previas ofrecían una fuerte evidencia indirecta de ataques por parte de los *Molothrus* en pichones de hospederas, esta es la primera evidencia inequívoca de tal conducta en ser reportada. Esta conducta puede aumentar el éxito reproductivo al facilitar el anidaje repetitivo de los hospederas, y como consecuencia proveyendo una oportunidad adicional de parasitar nidos. De esto ser así, este comportamiento es paralelo al infanticidio exhibido por algunos machos mamíferos.

Brood parasitism by the Brown-headed Cowbird (*Molothrus ater*) has been implicated as a significant factor in the recent declines of many species of Neotropical migrant birds (see review by Robinson et al. 1995). Typically, cowbirds negatively affect host populations through egg removal and increased nestling mortality resulting from the competition with larger, more aggressive cowbird nestlings. Consequently, host eggs that hatch prior to the nest being discovered by a female cowbird have generally been thought to have escaped the "window of vulnerability" to the detrimental effects of cowbirds. However, results of a long-term study described by Arcese et al. (1992, 1996) and Smith and Arcese (1994) indicate that unparasitized Song Sparrow (*Melospiza melodia*) nests experience higher rates of nest predation than parasitized nests. This observation led the authors to suggest that cowbirds may represent an additional predator threat to nests in which they have no offspring (Arcese et al. 1992, 1996). In recent years strong indirect evidence has been reported of female cowbirds attacking and/or removing host nestlings (Scott et al. 1992, Scott and McKinney 1994, Grzybowski 1995, Sheppard 1996). I report here the first photographic documentation of a female cowbird killing host nestlings.

On 12 Jun. 1996 at approximately 20:00 h, a female Brown-headed Cowbird was filmed as she killed all six nestlings in the unparasitized nest

of a Blue-winged Warbler (*Vermivora pinus*). Each of the 6-d-old nestlings was repeatedly pecked by the cowbird before and/or after she picked them up and dropped them outside of the nest. After removal of the last nestling, the cowbird spent several seconds "examining" the empty nest, presumably to insure that no additional nestlings remained. The female cowbird made no attempt to consume or fly away with any of the nestlings. The entire episode lasted less than 60 s. The dead nestlings were discovered the following morning during the routine monitoring of the video equipment. All the nestlings were scattered outside the nest and had received numerous pecks, but there was no evidence of attempted consumption after the nestlings had been removed from the camera's field of view.

The video recording was made with a Sony Video 8 Handycam, activated by a Trailmaster TM 700v Passive Infrared Video Trail Monitor (Goodson & Associates, Inc.). The camera was activated by the activity monitor upon detection of heat and/or motion. The warbler nest was located on the ground beneath beech saplings (*Fagus grandifolia*) on a high-voltage powerline right-of-way in New London County, Connecticut. The nest was being filmed as part of a study of parental investment among five species of warblers. The video can be viewed via the internet at <http://biology.ecsu.ctstateu.edu/people/elliott.htm>.

Over the past three years nestlings in two other warbler nests (out of approximately 100 monitored nests) have apparently been attacked by cowbirds. All three nests were located within 40 m of one another. On 16 Jun. 1995, a Yellow Warbler (*Dendroica petechia*) nest with five, 6-d-old nestlings suffered apparent nest predation. However, upon closer examination, all five nestlings were found beneath the nest. All were dead, and each had several open wounds consistent with having been pecked. At approximately 08:00 h on 13 Jun. 1997 a female cowbird was frightened away from a Yellow Warbler nest that had contained four warbler nestlings the previous day. When the nest was checked approximately 30 min later in order to band the 5-d-old nestlings, only three nestlings remained in the nest. The inference of cowbird involvement in these two instances is tenuous, and would be little more than speculation were it not for their temporal and spatial proximity to the video-recorded occurrence.

Arcese et al. (1992) first suggested that female cowbirds who discover nests late in the nesting cycle may cause the nest to fail as a means of facilitating host re-nesting, thus providing an additional opportunity for nest parasitism. This hypothesis was discussed more fully in Arcese et al. (1996). The instances reported here are consistent with that hypothesis in several respects. All instances occurred relatively late in the nesting cycle with the nestlings being 5–6 days old in each case. Second, none of the nests described here were parasitized. In areas in which female cowbirds have non-overlapping home ranges, indiscriminate nest destruction would be maladaptive, since it would increase the probability of one's own nestlings being killed. Third, the video recording provides unequivocal evidence that the intent of the female cowbird was to kill all of the

nestlings. Only the loss of the entire clutch would be likely to facilitate renesting. The 1995 observation is consistent with this logic, while the 1997 observation is confounded by the apparent interruption of the female cowbird's activities. Finally, the absence of any evidence of consumption by the female cowbird suggests that "predation" may not be the most suitable term with which to characterize this behavior. Although infanticide as a reproductive strategy typically involves the killing of conspecific young (see Hausfater and Hrdy 1984 and Parmigiani and vom Sal 1994 for examples), it appears to be the more appropriate term to describe cowbird killing of host young, because cowbird fecundity may be enhanced by increased breeding opportunities gained by the renesting of hosts.

ACKNOWLEDGMENTS

The research which serendipitously resulted in this report was supported by a Connecticut State University Basic Research Grant. I wish to thank A. Abel, J. Bender and Northeast Utilities Inc. for granting me permission to conduct research on their respective properties, and B. Goodson of Goodson & Associates, Inc. for enthusiastically sharing his technical expertise. I also thank P. Arcese and J. Grzybowski for helpful comments on this manuscript.

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