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Destruction of a Pine Warbler Brood by an Adult Cowbird

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Many accounts of the Brown-headed Cowbird (*Molothrus ater*) mention its habit of often removing eggs from the nest of its host (Hann, 1941; Friedmann, 1963). It is also well known that nestling cowbirds often oust their nestmates, although this behavior is generally thought to be unintentional (Bent, 1958). Few instances of adult cowbirds ejecting or otherwise injuring the hatched young of their hosts have been reported. Tate (1967) observed a female cowbird carrying away and dropping one of three nestling Black-throated Green Warblers (*Dendroica virens*) from a nest which also contained a nestling cowbird. Bonwell (1895) reported a female cowbird feeding a young cowbird in a nest of a Rose-breasted Grosbeak (*Pheucticus ludovicianus*) and pecking the young grosbeaks on the head if they begged for food. We here report an adult cowbird's deliberate ejection of a warbler brood from a nest that apparently contained no cowbird nestling.

On 29 April 1990, at 1104 h, while walking through Bean Patch Savannah in the Green Swamp Ecological Preserve (N. C. Nature Conservancy property off NC 211, ca. 9.7 km NNW Supply, Brunswick County, North Carolina), we noticed a small object fall to the ground beneath a large longleaf pine (*Pinus palustris*). Upon investigation we saw that the object was a nestling bird. Approximately 9-12 m up in the tree was a small nest, and at the nest was an adult female cowbird, holding in her bill another nestling, which she pulled from the nest and dropped to the ground. Subsequently a third nestling was dropped, and a fourth, and apparently final nestling was pulled from the nest and deposited on the limb beside the nest. The cowbird then immediately flew from the nest and out of sight at 1106 h, the entire procedure having taken approximately 2 min. The nestling on the limb floundered there for approximately 1 min., clutching the limb with one foot before dropping to the ground. All four young were alive, though apparently injured. One was nearly dead and bleeding on its head and wing from lacerations presumably inflicted by the cowbird's bill. A search of the ground failed to reveal more than four nestlings. Believing them to be Pine Warblers (*Dendroica pinus*), but not certain at that point, we collected the young birds and waited a short distance away for the parents to return. When, after several minutes, no other birds had come near the nest, we left the site. The young warblers, later deposited in the

research collection of the N. C. State Museum of Natural Sciences, were estimated to be about 7 days old (J. A. Gerwin, pers. comm.).

We returned to the nest site approximately 15 min. later to discover an adult Pine Warbler, with food in its bill, flying from branch to branch in the tree in obvious confusion. In the few minutes that we watched, the bird spent most of its time on the limb containing the nest. It then began to investigate other branches in the nest tree and immediately adjacent trees, returning often to the branch containing the nest. Its behavior suggested that no young remained in the nest, and although the nest was far too high for us to see into, we could neither hear any sound of remaining young begging for food nor see any evidence of nestlings through binoculars. We observed only the single parent bird of undetermined sex.

The cowbird's removal of the week-old warbler brood did not appear to be related to gaining an advantage for an existing egg or nestling of her own. She did not lay an egg while we were present and would not have been expected to lay one in a nest with such an advanced brood. It is possible that the unseen parent Pine Warbler could have been some distance away, tending a young cowbird already fledged from the nest, though in the rather open pine savannah we saw no sign of any such activity.

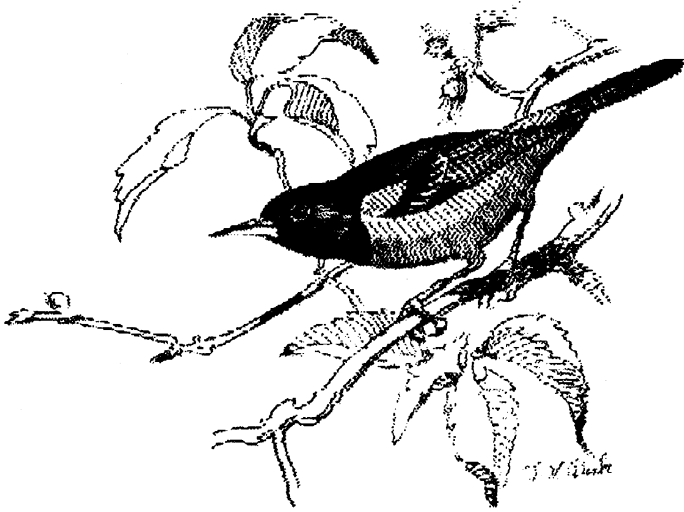
Considering what is currently known about nest selection and egg-laying by the Brown-headed Cowbird (Thompson and Gottfried, 1981), it appears that ejection of the Pine Warbler nestlings could have benefited the cowbird only by causing the parent birds to re-nest. After observing nest construction and the onset of egg-laying, the female cowbird would have been able to parasitize the replacement nest at a time likely to result in the successful hatching and rearing of a young cowbird by the host species. Though not, to the best of our knowledge, documented in the voluminous literature on cowbirds, removal of nestlings resulting in re-nesting by preferred host species may be a fairly common practice. If so, cowbirds may represent a far greater mortality factor in the lives of their most frequent victims than is generally recognized. The above incident, however, seems more unusual considering the fact that Pine Warblers are not generally considered to be among the most preferred hosts of the cowbird (Friedmann, 1963). At the least, the nestling mortality reported above justifies a re-examination of Friedmann and Kiff's (1985) generalization, made in reference to the success rate in a study of open nests of altricial birds, that "all nests lost because of parasitism involve loss of cowbird eggs, as well as those of the host."

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