

THE EASTERN COWBIRD vs. THE KENTUCKY WARBLER

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THESE observations concerning the effect of the Cowbird's imposition upon the number of eggs laid by the Kentucky Warbler, began in the latter part of May, 1886, when I found a nest, new to me, which had been trodden upon by cattle roaming through a moist woodland patch. A single egg which I felt certain was of parasitic origin, a Cowbird's, was all the evidence that the nest had been occupied. After a study of the big bulky nest and some inquiry, I decided that the erstwhile owners were Kentucky Warblers (*Oporornis formosa*). So my acquaintance with the nesting of this bright yellow-breasted woodland warbler began fifty years ago, this past summer. During the long period of years since then, I have looked into perhaps more than three hundred nests of this species within the countryside surrounding Waynesburg, Pennsylvania; and like the first nest of a half century ago, the last one I looked at (June 7, 1936) also contained a parasitic egg of the Cowbird (*Molothrus ater*). The three warbler's eggs were pipped, so I cast out from their midst the interloper's egg, that the rightful owners of the nest should not have to care for a come-by-chance forced upon them. My records show well-detailed accounts of about one hundred and fifty of these nests and their contents. A recent study of these reveals some interesting data on the case of the Eastern Cowbird vs. the Kentucky Warbler. The first nest I found with authentic Kentucky Warbler's eggs, was on June 5, 1887; it contained two eggs of the warbler besides one of the Cowbird. The nest, large and bulky, was tucked between two may-apple stalks, close to the location of the 1886 despoiled nest. The birds were near, to make identification certain. More eggs might have been laid, for I found them to be quite fresh; but remembering the destruction of a nest in the same nook the previous year, I decided that I would take these for my, then, small collection. Long ago these eggs passed out of my hands, so I cannot recall their varietal type.

On May 29, 1888, I found a pair of Kentucky Warblers just beginning the foundation of a large bulky nest which consisted almost wholly of dry oak, beech and maple leaves, loosely piled together. Quietly concealing myself at a short distance, I watched the birds at work for an hour. Two days later I revisited the nest and saw the birds putting the finishing touches to the lining of the now neatly cupped top wherein was used much wild-grapevine bark, weed stems and fine rootlets. On June 1, the lining was complete. Hoping for a full clutch of eggs, I left the birds and nest undisturbed until June 10, when I found four beautiful eggs in the nest, still fresh, without even an egg of the interloping Cowbird to mar their beauty. These eggs

are now before me, none the less clean and beautiful after the lapse of almost forty-nine years. I pause to admire them and experience a peculiar thrill in remembering the incidents surrounding their collecting and the further historical interest centering in the specimens, for this set of Kentucky Warbler's eggs represented the species in my collection of Pennsylvania birds' eggs at the Chicago World's Columbian Exposition in 1893.

But to return to the subject of the Cowbird's interference in the deposition of full clutches of the Kentucky Warbler: of the 133 complete records, I find that forty-two nests contained five eggs each; only eight of these nests contained eggs of the parasitic species, but in one case, the Cowbird had deposited two additional eggs. The comparison would be, approximately, 81 per cent free of the interloping species against 19 per cent containing the outsider's egg. Nests which held four warbler's eggs suffered more; for of fifty-six nests, thirty escaped the Cowbird's intrusion, twenty-two had received one egg each, two eggs had been dropped in each of three nests, and one nest had been victimized with three Cowbird's eggs. Nine nests containing only three warbler's eggs each had not been visited by the Cowbird, while in twenty-six similarly situated nests I found the parasitic eggs, one in each of fifteen nests, two in each of eleven nests, and three in one other nest.

Of the total of 133 complete records entering into these computations, the percentage of nests escaping and of nests victimized by the parasitic species, averages more nearly the same in the warbler's sets of four eggs, than in either the large full sets of five, or the smaller sets of three eggs. By way of summary:—

Of forty-two nests containing five eggs each thirty-four (or 81%) contained no Cowbird's eggs, eight (or 19%) did hold Cowbird's eggs.

Of fifty-six nests containing four eggs each thirty (or 54%) contained no Cowbird's eggs, twenty-six (or 46%) did hold Cowbird's eggs.

Of thirty-five nests containing three eggs each nine (or 26%) contained no Cowbird's eggs; twenty-six (or 74%) did contain Cowbird's eggs. All these records, when taken as a whole, show that nearly one half have been interrupted by the Cowbird, seventy-three escaping, while sixty were victimized. The comparison is 55 per cent escaping, while 45 per cent bore the extra burden.

In the seventy-three nests here cited where no interference from the Cowbird was experienced, the preponderance of full sets of five brings the average number of warbler's eggs to 4.3 per nest. On the other hand, the sixty nests victimized by the Cowbird show an average of 3.8 warbler's eggs per nest. The comparison is 0.5 Cowbird's eggs to each two nests; in other words, one pair of breeding Kentucky Warblers out of every four, is due to lose one egg from its normal laying. Without the Cowbird's intrusion I

believe the normal complement of eggs of this warbler would be either four or five in nearly equal proportion with the deposition rarely ending with only three eggs.

But this does not reveal the complete story of the decreased size of Kentucky Warbler broods through the intrusion of the Cowbird. There are two other factors upon which I have not as yet commented, that would I believe affect the verdict against the parasitic species, if the actual facts could be ascertained as plainly as from my recorded data. These factors are: first, that occasionally (perhaps once in ten nests containing the parasitic eggs) one or more of the warbler's eggs are rendered sterile by shell punctures resembling claw marks. Secondly, numerous nests of this warbler are found deserted, even before they are finished; others may contain one or two eggs, but, still for some undeterminable cause, are abandoned. Although practically all the egg damage can be blamed on the interloper, the majority of these nest desertions bear no evidence of the Cowbird's interference. On the other hand, many of these abandoned nests contain one or more eggs of either the warbler or the impostor, or both. I believe that herein is evidence of greater detriment to the number of warbler's eggs, for many of these curtailed sets had progressed, more or less, in incubation. This factor in the case should, I believe, result in one Kentucky Warbler's nest out of each three suffering a loss of one egg from the normal clutch number.

While it is evident that this warbler rarely rears a second brood in a season, the birds are persistent in their efforts at success, and immediately upon the loss or abandonment of one nest, will set about building another. This accounts for finding nests at any time from May 18 to July 10, with the height of the nesting season about June 1. These later layings possess one advantage against possible intrusion by the Cowbird, to the extent at least that since the nests are placed upon the ground, usually in the midst of quick-growing woodland vegetation, this forms an increasingly concealing barrier to the Cowbird's prying eyes as the summer season advances with the result that it finds fewer of these second or later efforts of the warbler.

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