

EGG-BURYING BEHAVIOUR BY A YELLOW WARBLER IN THE APPARENT ABSENCE OF COWBIRD PARASITISM

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Yellow Warblers frequently bury their eggs in response to Brown-headed Cowbird parasitism.² From their observations of naturally parasitized nests in which the host's and cowbird's eggs were both buried, Clark and Robertson concluded that egg burial is caused directly by the presence of cowbird eggs and is an anti-parasite adaptation.¹ Rothstein believed that other factors may be influential such as inclement weather or a response to any item alien to the Yellow Warbler.⁴

While studying the breeding biology of the Yellow Warbler near Delta, Manitoba I observed a Yellow Warbler nest in which egg-burying behaviour occurred in the apparent absence of Brown-headed Cowbird parasitism.³ The nest was discovered 31 May 1976, 7.8 m high in a Manitoba Maple (*Acer negundo*). Eggs from the two sets observed in the nest were marked with a felt pen and the nest was inspected daily until it failed 28 June.

When first found, the nest contained a single egg. Two additional eggs were laid over the next two days. No loss of eggs was noted until 9 June, when only one egg remained. The nest structure was undisturbed and I observed a female Yellow Warbler nearby. By 11 June, additional nest material had been added to the top and inside lining of the nest, partially covering the warbler egg. The lining appeared complete on the following day. On 13 June the first egg of a four-egg clutch was laid in the new nest bowl. Eggs disappeared singly on 18

and 19 June and on 26 June the nest contained only one nestling and the other egg or nestling had disappeared. Two days later, the nestling was missing and the nest partially destroyed. I felt the nest for eggs, but found none.

Generally, Yellow Warblers in this population laid five-egg clutches during the first part of the breeding season³ and the presence of three eggs in the first set may suggest one or two eggs were lost. It is not known if the first set was incubated or if another female took over the nest after egg laying and carried out the burial behaviour. Additionally, since single eggs can be removed by a predator, it is possible that parasitism occurred at the nest without my knowledge and the cowbird egg and possibly a Yellow Warbler egg(s) were removed by a predator or disappeared from some other cause.

The observation of egg burial in the apparent absence of cowbird parasitism was not witnessed in any of the other 121 unparasitized Yellow Warbler nests that I found before the last egg had been laid and in which at least one egg hatched;³ however, egg burial of Yellow Warbler eggs was noted in 11% (9/82) of parasitized nests in which at least one Yellow Warbler egg had been laid. Burial of Yellow Warbler eggs in the absence of parasitism may have occurred more frequently than observed, since not all nests were found before clutch initiation. However, since burial in the present case occurred well into the incubation

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stage and if burial of Yellow Warbler eggs in unparasitized nests occurs during incubation, the probability of observing this occurrence in other nests should have been greater. Based on my observation and the lack of published records, egg burial in the absence of cowbird parasitism in Yellow Warblers must be considered rare. Although the present observation supports Rothstein's suggestion that factors other than parasitism may cause egg burial, the rarity of this event and the more frequent occurrence of Yellow Warbler egg burial in parasitized nests lends greater support to Clark and Robertson's hypothesis that egg burial is an anti-parasite adaptation.

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- ¹ CLARK, K.L. and R.J. ROBERTSON 1981 Cowbird parasitism and evolution of anti-parasite strategies in the Yellow Warbler. *Wilson Bull.* 93: 249-258.
- ² FRIEDMANN, H. 1963 Host relations of the parasitic cowbirds. *Smithsonian Inst., U.S. Natl. Mus. Bull.* 221
- ³ GOOSSEN, J.P. and S.G. SEALY 1982 Production of young in a dense nesting population of Yellow Warblers, *Dendroica Petechia*, in Manitoba. *Can. Field-Nat.* 96:189-199.
- ⁴ ROTHSTEIN, S.I. 1975 An experimental and teleonomic investigation of avian brood parasitism. *Condor* 77:250-271.



Aspen stand, Prince Albert National Park.

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