

HELMINTH PARASITES OF THE BROWN-HEADED COWBIRD, *MOLOTHRUS ATER ATER*, FROM OHIO¹

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ABSTRACT

A total of 166 Brown-headed Cowbirds was examined for the occurrence of helminth parasites. Of these, 116 were collected on the campus of The Ohio State University, Franklin County, Ohio, from January 1964 through February 1965. The remainder of the birds were collected on South Bass Island, Ottawa County, Ohio, from July 1969 through July 1970. Twenty species of helminth parasites are recorded from these birds. Sixteen of these helminth species are new host records: the trematodes *Conspicuum icteridorum*, *Lutztrema* sp., *Prosthogonimus macrorchis*, *Tanaisia zarudnyi*, and *Zonorchis alveyi*; the cestode *Orthoskrjabinia rostellata*; the nematodes *Capillaria caudinflata*, *C. ovopunctatum*, *C. tridens*, *Chandlerella quiscali*, *Diplotrriaena bargusinica*, *Microtetrameres* sp., *Splendidofilaria algonquinensis*, *Syngamus trachea*, and *Tetrameres americana*; and the acanthocephalan *Plagiorhynchus formosus*.

INTRODUCTION

Prior to this study, no intensive investigations had been undertaken to determine the helminth fauna of the Brown-headed Cowbird. Records (table 1) of

TABLE 1
Published and unpublished records of helminth parasites taken from the Brown-headed Cowbird, Molothrus ater ater, exclusive of the present study

Species of parasites	Record	Locality
Trematoda		
<i>Leucochloridium dryobatae</i>	McIntosh (1932)	Michigan
	Hodasi (1963)	Manitoba, Can.
<i>Collyriclum faba</i>	Farner and Morgan (1944)	Wisconsin
<i>Plagiorchis</i> sp.	Blankenspoor (1970)	Iowa
Cestoda		
<i>Biuterina trapezoides</i>	Ransom (1909)	North America
<i>Taenia urnigera</i>	Ransom (1909)	North America
<i>Anonchotaenia globata</i>	Rausch and Morgan (1947)	Ohio
	Hodasi (1963)	Manitoba, Can.
Nematoda		
<i>Dispharynx nasuta</i>	Goble and Kutz (1945)	New York
<i>Porrocaecum ensicaudatum</i>	Mawson (1956)	Quebec, Can.
<i>Oxyspirura petrowi</i>	Pence (1972)	Louisiana
<i>Acanthocephala</i>		
<i>Mediorkhynchus</i> sp.	Manter (1928)	Nebraska
<i>Mediorkhynchus grandis</i>	Moore (1962)	Texas

helminth parasitism in this host are limited to reports surveying bird parasites in general, as in papers by Ransom (1909), Mawson (1956), and Hodasi (1963), or reports surveying birds for specific parasites, as in papers by Manter (1928), McIntosh (1932), Farner and Morgan (1944), Goble and Kutz (1945), Rausch and Morgan (1947), Moore (1962), Blankenspoor (1970), and Pence (1972).

The purpose of this report is to record the incidence and intensity of helminth infections in Brown-headed Cowbirds taken from two localities in Ohio.

MATERIALS AND METHODS

A total of 116 birds was collected from the decoy trap operated on the campus of The Ohio State University, Franklin County, Ohio. Birds from this trap site

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were collected and examined by the second author from January 1964, through February 1965. In addition, fifty birds were collected from the decoy traps operated by The Ohio State University on South Bass Island, Ottawa County, Ohio. Birds from the latter trap sites were collected and examined by the first author from July 1969 through July 1970.

Each bird was brought alive to a laboratory where it was sacrificed and immediately autopsied. The endoparasitic helminths removed were killed by heating in Ringer's "Warm" solution. The helminths were subsequently fixed in Lavdowsky's AFA solution. Acanthocephalans, cestodes, and trematodes were stained with Semichon's Carmine; nematodes were cleared in glycerine-alcohol.

RESULTS AND DISCUSSION

Twenty species of parasites (table 2) were collected from 75 of the 166 cowbirds examined. Sixteen of these helminth species are reported for the first time from

TABLE 2
Incidence of helminth parasitism in Brown-headed Cowbirds from two localities in Ohio

Species of parasites	Site of infection*	Percent of birds infected in each locality	
		Franklin Co. (incidence)	Ottawa Co.
Trematoda			
<i>Conspicuum icteridorum</i>	*(6)	2.6	4
<i>Lutzirema</i> sp.	(6)	0.9	—
<i>Plagiorchis noblei</i>	(5)	—	4
<i>Prosthogonimus macrorchis</i>	(8)	0.9	—
<i>Tanaisia zarudnyi</i>	(7)	—	2
<i>Zonorchis alveyi</i>	(6)	2.6	—
Cestoda			
<i>Anonchotaenia globata</i>	(5)	12.1	22
<i>Orithoskrjabimia rostellata</i>	(5)	—	4
Nematoda			
<i>Capillaria caudinflata</i>	(1)	0.9	—
<i>Capillaria ovopunctatum</i>	(5)	—	4
<i>Capillaria tridens</i>	(5)	0.9	—
<i>Chandlerella quiscali</i>	(10)	0.9	4
<i>Diplotrriaena bargusimica</i>	(3)	—	2
<i>Dispharynx nasuta</i>	(4)	9.5	12
<i>Microtetrameres</i> sp.	(4)	0.9	—
<i>Oxyspirura petrowi</i>	(9)	—	2
<i>Splendidofilaria algonquinensis</i>	(1)	2.6	2
<i>Syngamus tracheu</i>	(2)	—	2
<i>Tetrameres americana</i>	(4)	—	2
Acanthocephala			
<i>Plagiorhynchus formosus</i>	(5)	—	2

*The numbers in parentheses indicate the locations in the host: (1) heart and innominate artery, (2) trachea, (3) air sacs, (4) proventriculus, (5) intestine, (6) gall bladder, (7) intrarenal branches of the ureters, (8) cloaca, (9) under nictitating membrane of eye, or (10) cerebrum.

this host. Six species of trematode, 2 species of cestode, 11 species of nematode, and 1 species of acanthocephalan parasites were removed. Each of these species is discussed individually below. Eleven species of parasites were taken from the birds collected in Franklin County, and 14 species from the Ottawa County birds. Forty-four percent of the birds from the former locality and 48 percent of the birds from the latter were infected with one or more helminth parasites.

Trematoda

Conspicuum icteridorum Denton and Byrd, 1951, is reported from this host for the first time. Three birds in Franklin County and two birds in Ottawa County were parasitized. The range of infection extended from 1 to 5 trematodes, with a mean intensity of 2.8.

Lutztrema sp. is reported from the cowbird for the first time. The specimens were obtained from one bird collected in Franklin County and are not clearly referable to any described species of the genus *Lutztrema*. In the opinion of the first author, it is highly unlikely that these specimens are representatives of an undescribed species. In all likelihood, these specimens simply represent variations in trematode body form. Variability in the closely related genus *Lypersomum* has been discussed by Macko (1968, 1969).

Plagiorchis noblei Park, 1936, was removed from two birds from Ottawa County. The range of infection extended from 1 to 25 trematodes.

Prosthogonimus macrorchis Macy, 1934, is reported from the cowbird for the first time. One trematode was removed from one bird collected in Franklin County.

Tanaisia zarudynyi Skrjabin, 1924, is reported for the first time from this host. Four specimens were removed from one bird collected in Ottawa County.

Zonorchis aveyi (Martin and Gee, 1949) is reported from this host for the first time. Three birds from Franklin County were parasitized. The range of infection extended from 1 to 3 trematodes, with a mean intensity of 2.0.

Cestoda

Anonchotaenia globata (von Linstow, 1879) was reported as a parasite of Brown-headed Cowbirds from Ohio by Rausch and Morgan (1947) and from Manitoba, Canada, by Hodasi (1963). In our study, 14 birds from Franklin County and 11 birds from Ottawa County were parasitized by this cestode, the range of infection being from 1 to 20 specimens. The mean intensity of infection of birds from Franklin County was 10.5 specimens; that of birds from Ottawa County was 4.5 specimens.

Orthoskrjabinia rostellata (Rogers, 1941) is reported from this host for the first time. Two birds collected from Ottawa County were parasitized by this cestode. The range of infection extended from 2 to 6 cestodes, with a mean intensity of 4.0.

Nematoda

Capillaria caudinflata (Molin, 1858) is reported for the first time from this host. One specimen was removed from one bird collected from Franklin County, where it occurred in the heart muscle of the bird. *C. caudinflata* is a widely reported parasite of the intestines of galliform birds. The occurrence of this parasite in the heart muscle of a cowbird is most unusual, both as a host record and as a tissue-site record.

Capillaria ovopunctatum (von Linstow, 1873) is reported for the first time from this host. Two birds from Ottawa County were each parasitized by a single specimen of this nematode.

Capillaria tridens (Dujardin, 1845) is reported for the first time from this host. Two specimens were removed from a bird collected in Franklin County.

Chandlerella quisquali (von Linstow, 1904) is reported for the first time from this host. Two specimens were removed from one bird collected from Franklin County and one specimen in each of two birds collected from Ottawa County.

Diplotrriaena bargusina Skrjabin, 1917, is reported for the first time from this host. Two specimens were removed from one bird collected from Ottawa County.

Dispharynx nasuta (Rudolphi, 1819) was reported as a parasite of Brown-headed Cowbirds in New York by Goble and Kutz (1945). In our study, 10 birds collected from Franklin County and six birds collected from Ottawa County were

parasitized by this nematode. The range of infection in birds from Franklin County was from 1 to 50 specimens, with a mean intensity of 12.2; the range for birds from Ottawa County was from 1 to 2, with a mean intensity of 1.7.

Microtetrameres sp. is reported for the first time from this host. Two female specimens lacking fully developed ova were removed from one bird collected from Franklin County.

Oxyspirura petrowi Skrjabin, 1929, was reported as a parasite of Brown-headed Cowbirds from Louisiana by Pence (1972). One male specimen was removed from one bird collected from Ottawa County.

Splendidofilaria algonquinensis (Anderson, 1955) is reported for the first time from this host. Three birds collected from Franklin County were parasitized by this species of nematode. The range of infection was from 1 to 2 specimens, with a mean intensity of 1.33. In contrast, eight specimens were removed from one bird collected from Ottawa County.

Syngamus trachea (Montagu, 1811) is reported for the first time from this host. Two specimens was removed from one bird collected from Ottawa County.

Tetrameres americana Cram, 1927, is reported for the first time from this host. One mature female specimen was removed from one bird collected from Ottawa County.

Acanthocephala

Plagiorhynchus formosus Van Cleave, 1918, is reported for the first time from this host. One specimen was removed from one bird collected from Ottawa County.

SUMMARY

Twenty species of helminth parasites were removed from Brown-headed Cowbirds collected from two localities in Ohio. Of these, 16 are new host records: the trematodes *Conspicuum icteridorum*, *Lutztrema* sp., *Prosthogonimus macrorchis*, *Tanaisia zarudnyi*, and *Zonorchis alveyi*; the cestode *Orthoskrjabinia rostellata*; the nematodes *Capillaria caudinflata*, *C. ovopunctatum*, *C. tridens*, *Chandlerella quiscali*, *Diplotrriaena bargusina*, *Microtetrameres* sp., *Splendidofilaria algonquinensis*, *Syngamus trachea*, and *Tetrameres americana*; and the acanthocephalan *Plagiorhynchus formosus*. Overall, the incidence and intensity of infection by any specific helminth in the birds examined during this study was quite low. Very few birds were infected with more than a single species of helminth parasite.

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Geology of Eastern North America. *Johann David Schöpfung, 1787*; an annotated translation by *E. M. Spieker*. Contribution to the History of Geology, Vol. 8. Hafner Publishing Co., Inc., New York. 1972. x+195 p., map. \$17.95.

The book consists of five parts: the editor's foreword, translator's introduction, the translation with notes, an annotated list of works referred to, and a facsimile reprint of Schöpfung's original *Beiträge* (Gothic type). The volume is much more than a translation in the usual sense, for it provides an excellent commentary on the advancement of geologic science just before the Neptunist and Plutonist controversy (Werner and Hutton). It is truly surprising that Schöpfung could provide such a good account of the geology seen on his travels. Professor Spieker's introduction, commentary, full references, and geologic notes provide the necessary perspective to evaluate this first book on the geology of the eastern United States.

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Schöpfung principally reported geologic observations made during an excursion lasting 8 months (July 1783 to March 1784). This book antedates by 1 year publication of the more complete travelogue and naturalist's commentary on the same trip (Schöpfung's *Reise*), from New York to Philadelphia to Wilkes Barre, Pennsylvania, back to Allentown and west to Pittsburgh, returning eastward to Baltimore, Maryland, south to Richmond, Virginia, and, following the Coastal Plain, to Charleston, South Carolina, and Florida. Published in German and apparently distributed in a small edition in Europe, the *Beiträge* is an essentially uniformitarian geological work which has had surprisingly little exposure or influence in America. Spieker's translation will aid in repairing this oversight.

Earlier sections of the book are mainly descriptive, giving a physiographic interpretation of the Coastal Plain and fall line. In later sections, Schöpfung was concerned with a tectonic explanation for the Appalachians. It is anomalous, in terms of the alpine areas of Europe, that "granitic" rocks do not form the elevated cores of mountains with sedimentary deposits on their flanks. Schöpfung had no hesitation in ascribing poorly consolidated Coastal Plain deposits to a later era and in placing them in normal superposition above the Primitive rocks, but he was concerned about the present general elevation of sedimentary rocks composing the higher mountains. He was also concerned with the northeast trend of the successive Appalachian Mountains in contrast to the trends of European mountains. Strike was important, but he was inclined to accept dip as the attitude of primary deposition. Marine fossils were taken as evidence of the presence of the sea, coal with plant fossils as evidence of land areas. Tectonic elevation and depression seemed reasonable to him, but the idea of mountain folding was yet to be discovered.

Consultation of the facsimile text and comparison of it with passages of Professor Spieker's easy-reading translation quickly convince one of the extent to which he is indebted to the translator. The book may readily be used by those wishing to familiarize themselves with translation of old-style German. In spite of the similarity of names, I do not suppose there is any direct relationship between Schöpfung and the family of the reviewer. I am sorry, for J. D. was clearly an intelligent and honest man I would be glad to claim as an ancestor.

JAMES M. SCHOFF