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Trematode Parasites of the Brown Thrasher, *Toxostoma rufum*, from Dickinson County, Iowa¹

SUSAN PEET and MARTIN J. ULMER²

Abstract. Nineteen Brown Thrashers (seven adults, 12 immatures) were carefully examined for trematodes during the summer of 1968. Trematodes were recovered from ten hosts and include the following: *Brachylaima* sp. (intestine); *Brachylecithum exochocotyle* (gall bladder); *Lutztrema microstomum* (gall bladder); *Lyperosomum oswaldoi* (gall bladder and bile ducts); *Tanaisia zarudnyi* (ureter); *Urogonimus certhiae* (cloaca); and *U. dryobatae* (cloaca). All trematodes represent new locality records and all but *B. exochocotyle* and *L. oswaldoi* are new host records. (This investigation was supported in part by a NSF Undergraduate Research Participation Program grant.)

Because the helminth fauna of the Brown Thrasher, *Toxostoma rufum* (Linnaeus), is not well known, a survey of its trematode, cestode, nematode, and acanthocephalan parasites was conducted from June to mid-August, 1968 at Iowa Lakeside Laboratory, Dickinson County, Iowa. The present report deals with the incidence and distribution of trematode parasites in this host species.

Some birds were collected using steel-mesh walk-in traps baited with corn; other hosts were shot. Nineteen hosts (seven adults, 12 immatures) were examined immediately after death or shortly thereafter. After dissection, individual organs were separated and placed in avian Ringer's solution. The following were examined: brain, eyes, beak, body musculature, esophagus and trachea, proventriculus and gizzard, cloaca, liver and gall bladder, lungs and heart, kidneys and ureters, gonads, pancreas, intestine and associated mesenteries and blood vessels, skin, and blood.

Trematode parasites recovered were flattened somewhat before fixing in A.F.A., and were subsequently stained in Mayer's paracarmine or Erlich's hemotoxylin and mounted. Some were counterstained with fast green.

Seven species of trematodes representing three families were recovered. Of the 19 birds examined, ten were infected with at least one species of trematode. The largest number of flukes found in one bird, an immature female, was 65. Of these, 60 were of one species, *Brachylecithum exochocotyle*, and five of another, *Lyperosomum oswaldoi*. The largest number of species found in a single bird (an adult female) was four, namely: *Brachylaima* sp., *Lyperosomum oswaldoi*, *Tanaisia zarudnyi*, and *Urogonimus certhiae*.

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² Iowa State University and Iowa Lakeside Laboratory.

From this survey, five new host records and seven new geographical records have resulted (Table 1).

TABLE 1
SUMMARY OF TREMATODES RECOVERED

Species	No. Birds Infected	Location within Hosts	Hosts
<i>Brachylaima</i> sp. ^{1,2}	1	small intestine	adult female
<i>Brachylecithum exochocotyle</i> ²	2	Gall bladder and bile ducts	immature female adult male
<i>Lutztrema microstomum</i> ^{1,2}	1	gall bladder	immature male
<i>Lyperosomum oswaldio</i> ²	7	gall bladders or gall bladder and bile ducts	adult males (3) adult females (2) immature females (2)
<i>Tanaisia zarudnyi</i> ^{1,2}	3	ureters	adult females (2) immature male
<i>Urogonimus certhiae</i> ^{1,2}	2	cloaca	adult female immature male
<i>Urogonimus dryobatae</i> ^{1,2}	3	cloaca	immature females (2) immature male

¹ New host record

² New geographical record

FAMILY DICROCOELIIDAE

Of all trematode genera represented in the collection, those belonging to the family Dicrocoeliidae were the most abundant. Specimens representing three genera of this family were collected, namely: *Brachylecithum*, *Lutztrema*, and *Lyperosomum*.

Brachylecithum exochocotyle was originally described by Denton and Byrd (1951), who recovered specimens from the liver of a single Brown Thrasher in Athens, Georgia. Ellis (1963) reported this parasite from specimens taken from one infected Brown Thrasher taken in Chickasaw County, Iowa. In the present survey, the gall bladder and bile ducts of two birds, one immature female and one adult male, were found to be infected with 60 and 11 trematodes, respectively. The occurrence of *B. exochocotyle* in Dickinson County constitutes a new geographical record for this species.

Although the life cycle of *B. exochocotyle* is not known, in a related species, (*B. mosquensis*) according to Carney (1967), bird hosts become infected by ingestion of ants containing metacercariae. Metacercariae of another related species, *B. americanum*, according to Denton (1945) probably occur in chrysomelid beetles.

Four specimens of *Lutztrema microstomum*, described originally

by Denton and Byrd (1951), were recovered from the gall bladder of a single immature Brown Thrasher. According to Slater (1967), three species of this genus have been reported from North America, namely: *L. microstomum* Denton and Byrd, 1951 from *Cyanocitta cristata*, *L. monenteron* (Price and McIntosh, 1935) Travassos 1941, found in various hosts including *Turdus migratorius* and *Toxostoma rufum*, and *L. sturni* Skrjabin and Evranova, 1952, reported from *Sturnus vulgaris*. The occurrence of *Lutztrema microstomum* in Iowa is a new geographical record and new host record for the Brown Thrasher. In all respects except for body length, the specimens conform to the original description of the species. The trematodes recovered in this survey ranged in length from 1.50 mm to 1.95 mm. According to Denton and Byrd (1951), the body length varies from 3.00 to 4.95 mm. The life cycle of *L. microstomum* is not known.

Lyperosomum oswaldoi (Travassos, 1919) Travassos, 1944 was recovered either from the gall bladders or the gall bladders and bile ducts of seven of the ten infected birds. The largest single infection was found in an immature female, from which 11 specimens were collected. According to Denton and Byrd (1951), two species of the genus are known, namely: *L. longicauda* (Rudolphi, 1809) confined to the Old World, and *L. oswaldoi* found in the New World. Denton and Byrd (1951) were the first to describe *L. oswaldoi* from the Brown Thrasher, 20 of 41 hosts examined from the southern United States having been infected with this species. Two of 26 Blue Jays, *Cyanocitta cristata*, were also infected. Ellis (1963) described the trematode from three specimens found in a Brown Thrasher collected from Chickasaw County, Iowa. The presence of this trematode in Dickinson County, Iowa constitutes a new geographical record.

FAMILY BRACHYLAIMIDAE

Two genera (*Brachylaima* and *Urogonimus*) of this family were recovered from infected birds.

A single specimen of *Brachylaima* sp., recovered from the intestine of an adult female, constitutes both a new geographical and new host record for this genus. *Brachylaima fuscatum* (Rudolphi, 1819) and *B. mcintoshii* Harkema, 1939 are the two recognized species of this genus described from North America. The specimen recovered, however, does not resemble either of these. The oral sucker of *B. mcintoshii* is much larger than its acetabulum. In the trematode recovered, the ratio of oral sucker to acetabulum is approximately 1:1. Although the specimen resembles *B. fuscatum* (as described by Joyeux, Baer, and Timon-David in 1934) more

closely than it resembles *B. mcintoshi*, precise identification is difficult because only a single specimen was recovered.

The life cycle of one species of *Brachylaima*, *B. fuscatum*, involves terrestrial molluscs as first and second intermediate hosts (Joyeux, Baer, and Timon-David, 1934; Sumenkova, 1962).

Urogonimus dryobatae (McIntosh, 1932) was found in the cloacae of three of the infected birds. The largest single infection was eight specimens in an immature female host. *Urogonimus certhiae* (McIntosh, 1927) was found in the cloacae of two avian hosts. The largest single infection was 16 trematodes in one immature male. Both species constitute new host and geographical records. Criteria presented by Kagan (1952) were used in identification of the two species.

Although the life cycles of neither of the species found have been published, in the related species, *U. macrostomus*, according to Schmidt (1965), birds become infected by ingesting land snails.

FAMILY EUCOTYLIDAE

Specimens representing one genus of this family were recovered. From the ureters of three of the infected birds, *Tanaisia zarudnyi* (Skrjabin, 1924) was recovered. Sixteen, nine, and 13 specimens were found in two female adults and one immature male, respectively. This infection by the trematode in the Brown Thrasher constitutes both a new geographical and a new host record. Criteria presented by Byrd and Denton (1950) were used in identification of the species.

According to Kingston (1965), the life cycle of this species involves a single intermediate host, a land snail.

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