

BRIEF NOTE

Helminths of the Frogs, *Rana catesbeiana*, *Rana clamitans*, and *Rana palustris*, from Coshocton County, Ohio¹

CHARLES R. BURSEY AND WILLIAM F. DEWOLF II, Biology, Shenango Campus, Pennsylvania State University, Sharon, PA 16146

ABSTRACT. Forty-three *Rana catesbeiana*, 120 *Rana clamitans*, and 5 *Rana palustris* from the Wills Creek drainage system in Coshocton County, OH, were examined for helminths. The sample of *R. catesbeiana* included 24 tadpoles, 3 metamorphosing individuals and 16 adults; the sample of *R. clamitans* included 18 tadpoles, 40 metamorphosing individuals and 62 adults; the sample of *R. palustris* included 5 adults. Tadpoles were infected with one species of nematode, *Gyrinicola batrachiensis*. Prevalence (% of animals infected) of *G. batrachiensis* in *R. catesbeiana* and *R. clamitans* tadpoles was 4% and 11%, respectively. Metamorphosing individuals contained no helminths. Adult frogs were infected with 1 species of trematode, *Haematoloechus longiplexus*, 1 species of cestode, *Ophiotaenia gracilis*, and 3 species of nematodes, *Cosmocercoides variabilis*, *Rhabdias ranae*, and *Physaloptera* sp. Prevalence of helminths in adult frogs included *H. longiplexus* in 6% of the *R. catesbeiana* and 5% of the *R. clamitans*; *O. gracilis* in 8% of the *R. clamitans*; *C. variabilis* in 6% of the *R. catesbeiana*, 18% of the *R. clamitans*, and 20 % of the *R. palustris*; *R. ranae* in 13% of the *R. clamitans*; and *Physaloptera* sp. in 2% of the *R. clamitans*.

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INTRODUCTION

Reports of helminths from ranid frogs in Ohio are few in number. Koeppe (1941) reported trematodes from 4 *Rana catesbeiana*, 46 *R. clamitans*, and 7 *R. palustris* collected in northeastern Ohio. Odlaug (1954) surveyed *R. catesbeiana*, *R. clamitans*, *R. pipiens* and *R. sylvatica* from Ottawa, Erie, Logan, and Trumbull counties (number of specimens examined was not stated) for parasites in general. Ashton and Rabalais (1978) found trematodes and nematodes in 24 *R. catesbeiana* and 6 *R. pipiens* from Fulton, Hancock, Lucas, Ottawa and Wood counties. Myer (1960) in a life history study of the trematode, *Mesostephanus kentuckiensis*, reported metacercariae in tadpoles of *R. catesbeiana* and *R. clamitans* from Franklin County. Catalano and White (1977) reported *R. sylvatica* from Geauga County as a new host record of *Haematoloechus complexus*. The purpose of this study is to report helminths from *Rana catesbeiana*, *R. clamitans*, and *R. palustris* from a wetland in Coshocton County.

MATERIALS AND METHODS

Tadpoles and adult frogs were collected from a constructed wetland (Simco #4) within the Wills Creek drainage system in Coshocton County, OH, by dip net between June and August of 1992: 43 *Rana catesbeiana* (24 tadpoles, 3 metamorphosing individuals, and 16 adults), 120 *R. clamitans* (18 tadpoles, 40 metamorphosing individuals, and 62 adults), and 5 *R. palustris* (adults only). This wetland was established in November 1985 to treat a deep mine discharge having a pH near 6 and iron levels ranging from 80 to 241 mg/l (Stark and others 1988). Broadleaf cattails (*Typha latifolia*) were

planted uniformly throughout 3 treatment cells to provide an initial plant matrix. Specifics for the construction design are provided in Stark and others (1988). Cutgrass (*Leersia oryzoides*), narrowleaf cattail (*Typha angustifolia*), and duckweed (*Lemna minor*) had invaded the site and were present during the collection period.

The frogs were fixed in 10% formalin and preserved in 70% ethanol. The body cavity of each specimen was opened and the gastrointestinal tract was removed by cutting across the esophagus and rectum. The stomach, small intestine, large intestine, as well as the body cavity, lungs, and urinary bladder were examined separately under a dissecting microscope. Each helminth was removed and cleared in undiluted glycerol for examination. Nematodes were identified from these temporary mounts. Trematodes and cestodes were regressively stained with hematoxylin and mounted in balsam for identification. Selected helminths were deposited in the US National Parasite Collection: *Ophiotaenia gracilis*, USNPC #87519; *Haematoloechus longiplexus*, 87520; *Cosmocercoides variabilis*, 87521; *Gyrinicola batrachiensis*, 87522; *Physaloptera* sp. (third-stage larva), 87523; *Rhabdias ranae*, 87524.

RESULTS

The helminth fauna consisted of 1 species of trematode, 1 species of cestode, and 4 species of nematodes. Tadpoles of *R. catesbeiana* and *R. clamitans* were infected with 1 species of nematode, *Gyrinicola batrachiensis*. Metamorphosing frogs contained no helminths. Adult frogs were infected with 1 species of trematode, *Haematoloechus longiplexus*; 1 species of cestode, *Ophiotaenia gracilis*; and 3 species of nematodes, *Cosmocercoides variabilis*, *Rhabdias ranae*, and a larva of *Physaloptera* sp. Site of infection and numbers of helminths found in this study are given in Table 1.

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TABLE 1

Helminths found in 3 species of Rana collected in Coshocton County, OH.

Host Helminth	Site	<i>Rana catesbeiana</i>		<i>Rana clamitans</i>		<i>Rana Palustris</i>	
		# helminths	# infected	# helminths	# infected	# helminths	# infected
Tadpole							
<i>Gyrinicola batrachiensis</i>	intestine	1	1/24 (4%)	11	2/18 (11%)	—	0
Adult frog							
<i>Haematoloechus longiplexus</i>	lung	1	1/16 (6%)	6	3/62 (5%)	—	0
<i>Ophiotaenia gracilis</i>	small intestine	—	0	5	5/62 (8%)	—	0
<i>Cosmocercoïdes variabilis</i>	large intestine	3	1/16 (6%)	51	11/62 (18%)	6	1/5 (20%)
<i>Rhabdias ranae</i>	lung	—	0	20	8/62 (13%)	—	0
<i>Physaloptera</i> sp. (larva)	stomach	—	0	1	1/62 (2%)	—	0

DISCUSSION

Five species of ranid frogs occur throughout Ohio, namely, *Rana catesbeiana*, *R. clamitans*, *R. pipiens*, *R. palustris*, and *R. sylvatica*. A sixth species, *R. utricularia*, may occur in extreme southwest Ohio; however, there are no reports of helminths from this species in Ohio. All helminth species found in this study, with the exception of *Ophiotaenia gracilis* and *Gyrinicola batrachiensis*, have previously been reported from ranid frogs of Ohio and are known to parasitize other North American amphibians (Dyer 1991). North American helminth infections have been cataloged for *Rana catesbeiana* (Andrews and others 1992), *R. palustris* (McAllister, Trauth, and Bursey 1995) and *R. sylvatica* (McAllister, Upton, and others 1995). The occurrence of *Ophiotaenia gracilis* in *Rana clamitans* establishes a new host record.

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