

First Record of *Rhabdochona cascadilla* Wigdor, 1918 (Nematoda: Thelazioidea) in the Blue Sucker, *Cycleptus elongatus* (Lesueur, 1817), from Illinois

William G. Dyer and William J. Poly
Department of Zoology
Southern Illinois University
Carbondale, Illinois 62901-6501

ABSTRACT

Rhabdochona cascadilla was detected in the intestine of *Cycleptus elongatus* from the Mississippi River in Randolph County, Illinois. This constitutes the first record of this rhabdochonid nematode in the blue sucker and the only internal helminth for this host.

INTRODUCTION

Nematodes of the genus *Rhabdochona* Railliet, 1916 (Thelazioidea, Rhabdochonidae) are cosmopolitan in distribution as intestinal parasites of freshwater fishes (Moravec and Coy Otero, 1987; Moravec, 1994). Approximately 96 nominal species have been recognized of which 19 have been reported from North and South America (see Sanchez-Alvarez et al., 1998). Of rhabdochonid nematodes reported from North America, *Rhabdochona cascadilla* Wigdor, 1918 has been recorded in 13 families, 30 genera, and 53 species of freshwater fishes across Canada and the United States (Hoffman, 1999). Identification of *Rhabdochona* species is difficult as many of them have been inadequately or erroneously described, and as pointed out by Sanchez-Alvarez et al. (1998), a detailed taxonomic revision of all putative species in this group warrants initiation.

MATERIALS AND METHODS

A single adult female blue sucker (557 mm standard length) was collected incidentally by electrofishing on 24 October 1996 from the Mississippi River just below the mouth of the Kaskaskia River, Randolph County, Illinois and was transported alive to the laboratory. The gastrointestinal tract was removed, placed in a container of 0.65% sodium chloride solution, cut open longitudinally, and examined for helminths utilizing a stereoscopic microscope. Nematodes were fixed in steaming acetic alcohol (1 part glacial acetic acid and 3 parts 95% ethanol) and cleared for study in glycerine. *En face* preparations followed the methods of Anderson (1958), and identification of nematodes to species level was based on the study by Moravec and Arai (1971). In addition, eggs were dissected from the terminal uteri for study. Voucher specimens of nematodes were deposited in the National Parasite Collection, U.S. Department of Agriculture and designated by the

accession number USNPC No. 091949.00 (5 males, 5 females). We prepared the fish host as a dry skeleton and deposited it in the Southern Illinois University at Carbondale Fluid Vertebrate Collection (SIUC 26826).

RESULTS AND DISCUSSION

Thirty female and ten male rhabdochonid nematodes from the intestine of a blue sucker, *Cycleptus elongatus*, were identified as *Rhabdochona cascadilla*. While rhabdochonid nematodes have been reported from freshwater fishes in Illinois (Hoffman, 1999), this finding constitutes the first report of *R. cascadilla* from *Cycleptus elongatus* in the contiguous United States.

Until recently, the catostomid genus *Cycleptus* was considered monotypic with *C. elongatus* as the only representative. The geographic range of the species was limited to large southward-draining systems extending from Texas to Mobile Bay, Alabama and north in the Mississippi River basin to the Missouri and Ohio drainages (Lee et al., 1980). Examination of over 300 museum specimens by Burr and Mayden (1999) revealed three allopatric groups of *Cycleptus* suckers over this range: a western group in the Rio Grande, a central group in the Mississippi River basin, and an eastern group in the Pearl and Pascagoula rivers and Mobile River basin. They considered the eastern group as a new species, the southeastern blue sucker, *Cycleptus meridionalis*, while the remaining two groups were retained as *C. elongatus*.

Few external parasites have been reported from *C. elongatus*. Rogers (1967) described *Myzotrema cyclepti* (Monogenea) on *C. elongatus* from Tombigbee River, Pickens County, Alabama. However, based on the type locality of this parasite (Burr and Mayden, 1999) the type host of this monogenean is now known as *Cycleptus meridionalis*. The second monogenean reported from *C. elongatus* is *Anonchohaptor olseni* described from the gills of blue sucker from the Missouri River at tailrace of Garrison Dam near Riverdale, Mercer County, North Dakota by Leiby et al. (1973). They also reported finding *M. cyclepti* on their hosts. Later Robinson and Jahn (1980) reported *Myzotrema cyclepti* in 2 of 4 *C. elongatus* in pool 20, Mississippi River, near Hamilton, Illinois. Johnson and Rogers (1973) listed a crustacean, *Ergasilus megaceros* Wilson, 1916, as occurring on *C. elongatus* from Warren County, Mississippi. A single leech, *Helobdella* sp., was found attached behind the pectoral fin of the blue sucker taken from Big Bend Reservoir, Missouri River, South Dakota (Alleman, 1965).

To our knowledge, with the exception of the reports of Moss et al. (1983) and Peterson et al. (1999) on unidentified nematodes in the digestive tracts of *C. elongatus* from the Neosho River in Kansas and *C. meridionalis* from the Pearl and Pascagoula rivers in Mississippi, respectively, no internal helminth has been reported for the blue sucker or the southeastern blue sucker. The finding of the nematode *Rhabdochona cascadilla* in the intestine of *Cycleptus elongatus* from the Mississippi River in Illinois constitutes the first report of an internal helminth species in this fish.

ACKNOWLEDGMENTS

We appreciate the assistance of Patricia Pilitt (USNPC) with cataloging specimens.

LITERATURE CITED

- Alleman, G. A. 1965. Parasites of fishes of Oahe and Big Bend Reservoir, South Dakota. Master's Thesis, South Dakota State University. 46 p.
- Anderson, R. C. 1958. Méthode pour l'examen des nématodes en vue apicale. *Ann. Parasit. Hum. Comp.* 33:171-172.
- Burr, B. M. and R. L. Mayden. 1999. A new species of *Cycleptus* (Cypriniformes: Catostomidae) from Gulf slope drainages of Alabama, Mississippi, and Louisiana, with a review of the distribution, biology, and conservation status of the genus. *Bull. Alabama Mus. Nat. Hist.* 20:19-57.
- Hoffman, G. L. 1999. *Parasites of North American Freshwater Fishes*, 2nd ed. Cornell Univ. Press, Ithaca, New York. 539 p.
- Johnson, S. K. and W. A. Rogers. 1973. Distribution of the genus *Ergasilus* in several Gulf of Mexico drainage basins. *Agricult. Exp. Stat. (Auburn Univ.), Bull.* 445. 74 p.
- Lee, D. S., C. R. Gilbert, C. H. Hocutt, R. E. Jenkins, D.E. McAllister, and J. R. Stauffer, Jr. 1980. *Atlas of North American freshwater fishes*. North Carolina State Museum of Natural Sciences, Raleigh. x, 867 p.
- Leiby, P. D., D. C. Kritsky, and D. D. Bauman. 1973. Studies on helminths of North Dakota. VII. Ancyrocephalinae (Monogenea) from the gills of the blue sucker, *Cycleptus elongatus* (LeSueur). *Can. J. Zool.* 51:777-779.
- Moravec, F. 1994. *Parasitic nematodes of freshwater fishes of Europe*. Kluwer Academic Publishers, Dordrecht. 473 p.
- Moravec, F. and H. P. Arai. 1971. The North and Central American species of *Rhabdochona* Railliet 1916 (Nematoda: Rhabdochoniidae) of fishes, including *Rhabdochona canadensis* sp. nov. *J. Fish. Res. Bd. Can.* 28:1645-1662.
- Moravec, F. and A. Coy Otero. 1987. *Rhabdochona cubensis* sp. n. (Nematoda: Rhabdochoniidae) from the freshwater fish *Gambusia punctata* from Cuba. *Helminthologia* 24:103-110.
- Moss, R. E., J. W. Scanlan, and C. S. Anderson. 1983. Observations on the natural history of the blue sucker (*Cycleptus elongatus* LeSueur) in the Neosho River. *Am. Midl. Nat.* 109:15-22.
- Peterson, M. S., L. C. Nicholson, D. J. Snyder, and G. L. Fulling. 1999. Growth, spawning preparedness, and diet of *Cycleptus meridionalis* (Catostomidae). *Trans. Am. Fish. Soc.* 128:900-908.
- Robinson, G. L. and L. A. Jahn. 1980. Some observations of fish parasites in pool 20, Mississippi River. *Trans. Am. Microsc. Soc.* 99:206-212.
- Rogers, W. A. 1967. *Myzotrema cyclepti* gen. n., sp. n. (Trematoda: Monogenea) from gills of *Cycleptus elongatus* (LeSueur) from Alabama. *Proc. Helminth. Soc. Wash.* 34:3-6.
- Sanchez-Alvarez, A., L. Garcia-Prieto, and G. Pérez-Ponce de León. 1998. A new species of *Rhabdochona* Railliet, 1916 (Nematoda: Rhabdochoniidae) from endemic goodeids (Cyprinodontiformes) from two Mexican lakes. *J. Parasit.* 84:840-845.