Description of *Eocollis catostomi* sp. n. (Acanthocephala: Neoechinorhynchidae) from Two Species of Suckers (Catostomidae) in Alabama, with Comments on *Eocollis arcanus*

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**ABSTRACT:** *Eocollis catostomi* sp. n. is described from *Minytrema melanops* (Agassiz) and *Moxostoma poecilurum* (Jordan) in Alabama. *Eocollis catostomi* is distinguished from *E. arcanus* by having a more cylindrical trunk; longer proboscis hooks in anterior (71–81 [74] μm), middle (45–55 [49] μm), and posterior (24–28 [26] μm) circles; larger proboscis receptacle (273–395 [335] μm); lemnisci markedly unequal in length; an unelevated trunk; longer proboscis hooks in anterior (71–81 [74] μm), middle (45–55 [49] μm), and posterior (24–28 [26] μm) circles; larger proboscis receptacle (273–395 [335] μm); lemnisci markedly unequal in length; an unelevated female genital pore; and wider eggs (24–26 [25] μm) that lack tubelike structures in the middle membrane. This is the first report of *Eocollis* from catostomid fishes in North America. *Eocollis arcanus* is reported from fishes collected in Alabama, Louisiana, and Mississippi. Also, the existence of a protuberance elevating the female genital pore and a wider egg membrane having tubelike structures is reported for *E. arcanus*.

**KEY WORDS:** *Eocollis catostomi* sp. n., *Eocollis arcanus*, Acanthocephala, Catostomidae, fish parasites, Alabama.

Two species of *Eocollis* Van Cleave, 1947, have been described: *E. arcanus* Van Cleave, 1947, from the United States and *E. harengulae* Wang, 1981, from China. Since its description from *Lepomis macrochirus* and *Pomoxis nigromaculatus* in the Ohio River and southern Illinois (Van Cleave, 1947), *E. arcanus* has been reported from *L. macrochirus* in Alabama (Williams and Rogers, 1982); *L. macrochirus* and *Pomoxis annularis* in Illinois (Lincicome, 1949); *L. macrochirus* in Louisiana (Arnold et al., 1968); and *Chaenobryttus coronarius*, *Lepomis cyanellus*, *L. macrochirus*, *P. nigromaculatus*, and *P. annularis* in Texas (Meade and Harvey, 1968; Meade and Bedinger, 1972).

During examination for acanthocephalans from fishes collected in the southeastern United States, I collected *E. arcanus* from several species of centrarchids in 3 states. Study of these specimens along with 10 paratypes (USNM Helm. Coll. No. 37666) provided information on the position of the female genital pore and the shape of the eggs not reported in the original description. I also collected females of an undescribed species of *Eocollis* from 2 species of catostomids collected in Alabama. This species is here described. This is the first report of *Eocollis* from catostomid hosts in North America.

**Materials and Methods**

Fish were collected by trammel net or seine, kept in iced water, and examined within 24 hr of collection. Acanthocephalans were placed in distilled water to evaginate the proboscides and then fixed in alcohol-formaldehyde-acetic acid (AFA). Specimens were stained with Mayer's alum carmine, dehydrated, cleared in xylene, and mounted in Canada balsam. The description is of gravid females. Mature eggs are considered to be those with fully formed acanthors. Line drawings were prepared with the aid of a drawing tube. All measurements, unless otherwise noted, are in micrometers, with averages in parentheses.

**Eocollis arcanus** Van Cleave, 1947
(Figs. 6, 7, 11–13)

*Eocollis arcanus* was collected from *Pomoxis nigromaculatus* in Humphrey County, Mississippi; *Lepomis cyanellus* and *L. marginatus*, in LeFlore County, Mississippi; *Lepomis macrochirus* in Washington Parish, Louisiana, and Choctaw and Dallas counties, Alabama; and from *Centrarchis macropterus* in Sumter County, Alabama. Of the 8 specimens collected, all were immature except for 1 female from *L. macrochirus* in Louisiana and 1 male from *L. macrochirus* in Alabama. The general body shape and sizes of proboscis hooks of these specimens agree with the original description of *E. arcanus*.

Van Cleave (1947) gave dimensions of “embryos within the body cavity” of *E. arcanus* as being 41 to 47 long by 10 wide but did not provide further description or an illustration of the eggs. Eggs were teased from the body cavity of the 1 mature female from the present collection. Most of these eggs were nearly mature and were within the reported size range. The middle membrane at the ends of the embryo in the nearly.
mature eggs (Fig. 11) was terminally constricted giving the appearance of polar protrusions. Mature eggs were 43–50 (47) long by 12–15 (13) wide \((N = 12)\). These dimensions are slightly larger than the measurements originally reported and measured from examined paratypes. The polar protrusions were not seen in these mature eggs; the middle membrane was much thicker and contained tiny tubelike structures oriented perpendicularly to its surface (Figs. 12, 13). Eggs of paratypes were examined and measured. Most of these eggs appeared to have the polar protrusions. The egg membranes of many exhibited an opacity pattern suggestive of tubelike structures but might be an artifact of the age and shrinkage of specimens.

Female paratypes had a distinct genital protuberance not reported by Van Cleave (1947). This structure (Fig. 7), evident in all but the most contracted specimens, terminates with the genital pore. The immature females from the present collection did not show this structure and the posterior end of the 1 mature female was so contracted as to obscure its presence.

**Specimen Deposition:** The following voucher specimens of *E. arcanus* are deposited in the University of Nebraska State Museum's Harold W. Manter Laboratory Collection: 2 immature females from *L. marginatus* in Mississippi (HWML No. 34189), 1 mature female from *L. macrochirus* in Louisiana (HWML No. 34188), 1 immature female from *Centrarchis macropterus* (HWML No. 34190) in Alabama, and 1 mature male from *L. macrochirus* (HWML No. 34187) in Alabama.

**Description**

*Eocollis catostomi* sp. n. (Figs. 1–5, 8–10)


**MALES:** Unknown.

**Taxonomic summary**

**Type Host:** Spotted sucker, *Minytrema melanops* (Rafinesque) (Catostomidae).
OTHER HOST: Blacktail redhorse, *Moxostoma poecilurum* (Jordan) (Catostomidae).

SITE OF INFECTION: Intestine.

TYPE LOCALITY: Grinlin Lake, an oxbow lake off the Suacarnooche River near its confluence with the Tombigbee River, east of Bellamy, Sumter County, Alabama, R1W T17N, Sec. 26, 10 April 1981.


ETYMOLOGY: The name *catostomi* refers to the family of piscine hosts.

Remarks

*Eocollis catostomi* is readily distinguished by having proboscis hooks much larger than those originally reported for *E. arcanus* (anterior circle 47-59 long and 6 thick, middle circle 23 long, and posterior circle 12 long). Also, *E. arcanus* has a smaller proboscis receptacle (80–210 long for 50–67 wide) and slightly shorter proboscis (76-117). The trunk proper of *E. catostomi* is nearly cylindrical, lacking the pronounced anterior expansion evident in *E. arcanus* (Figs. 3, 6). The lemnisci of *E. catostomi* are typically unequal in length, whereas those of *E. arcanus* are nearly equal in length. The eggs of *E. catostomi* are wider than those originally described for *E. arcanus* (41–47 by 10) and those observed by the author (43–50 by 12–15). The posterior end of female *E. catostomi* lacks the distinct genital protuberance observed in female paratypes of *E. arcanus* (Figs. 5, 7).

*Eocollis catostomi* also appears to differ from *E. arcanus* in host specificity. *Eocollis arcanus* in known only from centrarchid fish hosts, whereas *E. catostomi* was collected only from catostomid fishes, *Minytrema melanops* (5 specimens) and *Moxostoma poecilurum* (5), all fish infected. None of 11 other species of fish from 4 other families collected at the type locality of *E. catostomi* was found infected with this acanthocephalan. These piscine species (number examined in parentheses) include Centrarchidae: *Lepomis gulosus* (1), *L. macrochirus* (1), *L. megalotis* (3), *L. microlophus* (20), Micropterus salmoides (6), *Pomaxis annularis* (4), *P. nigromaculatus* (5); Ictaluridae: *Ictalurus natalis* (10), *I. nebulosus* (3), *I. punctatus* (1); and Scianidae: *Aplodinotus grunniens* (1).

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Literature Cited


