

A NEW SPECIES OF THE CAMBARINCOLID GENUS  
*SATHODRILUS* FROM MISSOURI, WITH THE  
PROPOSAL OF A REPLACEMENT NAME FOR  
*ADENODRILUS* HOLT, 1977  
(CLITELLATA: BRANCHIOBDELLIDA)

Perry C. Holt

*Abstract.* — *Sathodrilus nigrofluvius* is described and illustrated. Its relationships, distribution and possibly primitive status within the genus are described. *Uglukodrilus* is proposed as a replacement for the preoccupied name *Adenodrilus* Holt, 1977.

The description of a new branchiobdellidan presented below is offered as a part of an ongoing effort to describe the members of the genera *Oedipodrilus* Holt, 1967, and *Sathodrilus* Holt, 1968, from the southern Appalachian and Ozarkian regions of the southeastern United States. In addition, this opportunity is taken to propose a replacement name for *Adenodrilus* Holt, 1977, a junior homonym.

*Sathodrilus nigrofluvius*, new species

Fig. 1

*Type specimens.* — Holotype, USNM 118199, and three paratypes, USNM 118200-118202, taken from a tributary of the Black River, 2 mi NE of Lesterville, Reynolds County, Missouri, on State Road 21, on unknown host, 22 Aug 1961, by Perry C. Holt.

*Diagnosis.* — Slender, small worms (holotype 1.7 mm in length); dorsal ridge on segment VIII; lips entire; no oral papillae; jaws slight, triangular in lateral aspect, very light in color, dental formula (?)  $5/4$ ; one prominent pharyngeal sulcus, no corresponding exterior one; bursa large, approaching diameter of segment VI in length, penial sheath greater in diameter than atrial region, penis a straight, cuticular, eversible tube; ejaculatory duct short, slender, thin-

walled; spermiducal gland without prostate or prostatic protuberance or deferent lobes; spermatheca with thick ectal duct, median bulb, ental process.

*Etymology.* — Latin, Black River.

*Description.* — The members of *Sathodrilus nigrofluvius* are small and relatively slender worms. The holotype and four paratypes have the following mean dimensions: total length, 1.6 mm; greatest diameter, 0.3 mm; head length, 0.3 mm; head diameter, 0.2 mm; diameter, segment I, 0.2 mm; diameter, sucker, 0.2 mm.

The lips are entire and there are no oral papillae. The eighth body segment bears a low, but distinct dorsal ridge, the others lack dorsal supernumerary muscles. The head tapers slightly towards the peristomium. The clitellum, on segments VI and VII is distinct but not prominent. The anterior nephridiopore opens dorsally on the anterior margin of segment III.

The jaws are small, about one twenty-fifth that of the head in length, delicate, light in color. The dental formula appears to be the common one of  $5/4$ , but the teeth are small, uncolored and difficult to detect. The paucity of material (the types) makes it inadvisable to destroy it in order to verify this point.

The gut contents consist of detritus and diatoms.



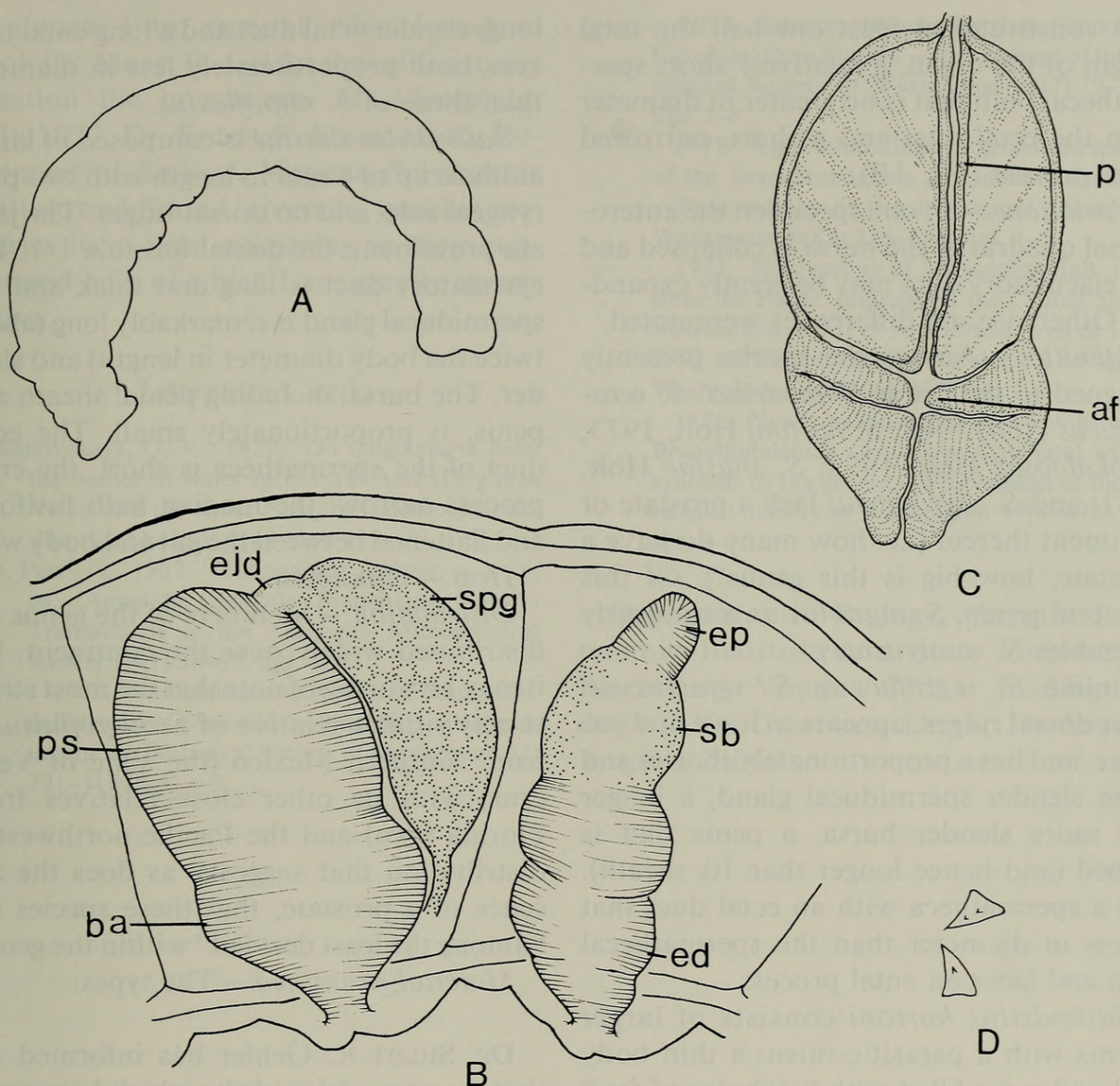


Fig. 1. *Sathodrilus nigrofluvius*: A, Lateral view of holotype; B, Lateral view of reproductive systems of holotype; C, Optical section of bursa; D, Lateral view of jaws. Abbreviations: af, atrial fold; ba, bursal atrium; ed, ectal duct of spermatheca; ejd, ejaculatory duct; ep, ental process of spermatheca; p, penis; ps, penial sheath of bursa; sb, bulb of spermatheca; spg, spermatiducal gland.

The spermatiducal gland lacks deferent lobes, is about two-thirds the diameter of segment VI in length and three-eighths its own length in diameter and is slightly tapered at each end. It lacks even the rudiment of a prostate, and often lies longitudinally above the gut.

The ejaculatory duct is a short, thin-walled, obscure tube that is more nearly inferred than seen in the available specimens. In one paratype it appears to be greatly expanded and the penial sheath collapsed at the place of its entry into the latter. Since serial sections are unavailable, it is possible,

but unlikely, that the spermatiducal gland opens directly into the penial sheath region of the bursa.

The bursa is a cylindrical sac, subequal to the body diameter in length. About one-third of its length consists of the atrium and atrial fold with a greatly reduced lumen. The penis is a straight, cuticular tube attached by relatively thick strands to the inner wall of the penial sheath which is set off externally from the bursal atrium by an encircling constriction (Fig. 1C).

The spermatheca is characterized by a thick, muscular, irregularly bent ectal duct



that constitutes at least one-half the total length of the organ, a relatively short spermathecal bulb that is no greater in diameter than the ectal duct and a short, narrowed ental process (Fig. 1B).

*Variations.*—In one specimen the anterodorsal quadrat of the bursa is collapsed and the ejaculatory duct may be greatly expanded. Otherwise, no differences were noted.

*Affinities.*—Among the species presently assigned to the genus *Sathodrilus*, *S. veracruzicus* Holt, 1968; *S. horton*i Holt, 1973; *S. okaloosae* Holt, 1973; *S. shastae* Holt, 1981; and *S. nigrofluvi*us lack a prostate or rudiment thereof (i.e. how many do have a prostate; how big is this genus?). Of this coherent group, *S. nigrofluvi*us most nearly resembles *S. veracruzicus*.

Unlike *S. nigrofluvi*us, *S. veracruzicus* lacks dorsal ridges, appears to have oral papillae, and has a proportionately shorter and more slender spermiducal gland, a longer and more slender bursa, a penis that is looped (and hence longer than its sheath), and a spermatheca with an ectal duct that is less in diameter than the spermathecal bulb and lacks an ental process.

*Sathodrilus horton*i consists of larger worms with a parasitic mien: a thin body wall and a gut filled with "globules of fat." The "oesophagus" is attached by strands of muscle to the body wall of segments I and II (Holt 1973:97–98). The upper lip is lobed. The secondary reproductive organs are unusual: the male efferent apparatus is proportionately small, the spermiducal gland relatively long and slender; the spermatheca is composed of a large muscular spermathecal bursa and a slender spermatozoa storing "bulb" with a thick muscular wall and no ental process.

*Sathodrilus okaloosae* has low dorsal ridges on the body segments. The jaws are unusual: broad and thick with a "dental ridge" bearing the teeth and a dental formula of doubtfully 3/4, possibly 1/4 (Holt 1973:101). The bursa is less than the body diameter in length. The spermatheca has a

long, slender ectal duct and a long ental process, both proportionately less in diameter than those of *S. nigrofluvi*us.

*Sathodrilus shastae* is composed of larger animals up to 4 mm in length with two pharyngeal sulci and no dorsal ridges. The jaws are prominent; the dental formula 1/1. The ejaculatory duct is long and thick and the spermiducal gland is remarkably long (about twice the body diameter in length) and slender. The bursa, including penial sheath and penis, is proportionately small. The ectal duct of the spermatheca is short, the ental process narrow, the median bulb fusiform and flattened between the gut and body wall.

*Host.*—Unknown.

*Distribution.*—Members of the genus are distributed widely over the continent, but it may be worthy of note that the most structurally similar relative of *S. nigrofluvi*us is from southern Mexico (the state of Veracruz) with its other close relatives from Florida (two) and the Pacific northwest, a distribution that suggests, as does the absence of a prostate, that these species are "among the least dervied" within the genus.

*Material examined.*—The types.

Dr. Stuart R. Gelder has informed me that the name *Adenodrilus* which I proposed (Holt 1977) for a genus later (Holt 1986) assigned to the family Bdellodrilidae is a junior secondary homonym of *Adenodrilus* Chekanovskaya, 1959, based on a haplo-taxid oligochaete from central Asia.

The genus-name *Uglukodrilus* is hereby proposed as a replacement name for *Adenodrilus* Holt, 1977. It is to be considered as masculine and is derived from that of the leader of a fictional band of Orcs (see Tolkien, J. R. R. *The Lord of the Rings*, v. 2, 1954) whose feeding habits were considered suspect.

#### Acknowledgments

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