

***Protocylindrocorpus dendrophilus* n. sp.** **(Nematoda: Cylindrocorpidae) Associated with Pine Wood Borings**

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Abstract: *Protocylindrocorpus dendrophilus* n. sp. is described from xylem samples taken from beetle infested slash pine (*Pinus elliottii* Engelmann var. *elliottii*) in Central Louisiana. It is similar to *P. goodeyi* (Rühm) Paramonov, but differs by the possession of a protuberant and more posteriorly located vulva and in the position of the caudal papillae. Morphometrics of the male and female are presented.

Key words: taxonomy, morphology, new species, wood borer associate.

An unidentified nematode species of the genus *Protocylindrocorpus* Paramonov was found during a survey of pine trees in Central Louisiana for the pine wood nematode, *Bursaphelenchus xylophilus* (Steiner and Buhner, 1934) Nickle, 1970. The new species was recovered from distilled water in which borings from slash pine (*Pinus elliottii* Engelmann var. *elliottii*) had been soaked for 24 hours. The pine wood nematode was absent. Nematodes were transferred to FAA and processed to pure glycerin using the method of Seinhorst (12). At the time of sampling, the tree was infested with the following beetles: the southern pine beetle (*Dendroctonus frontalis* Zimm.) (Scolytidae), a *Monochamus* sp. (Cerambycidae), and *Platypus flavicornis* F.

(Platyrodidae). Thirty-six male, thirty-one female, and numerous juvenile nematodes were found. Table 1 shows the morphometrics for 15 male and 15 female specimens.

Paramonov (8) elevated the subgenus *Protocylindrocorpus* Rühm, 1959 (10) to genus status equivalent to the genus *Cylindrocorpus* Goodey, 1939. *Protocylindrocorpus* and the closely related genus *Goodeyus* Chitwood, 1933 differ from *Cylindrocorpus* in possessing single ovaries, posterior vulvae, and postvulval sacs. Paramonov (8) distinguished *Protocylindrocorpus* from *Goodeyus* by the shorter length of the protostom relative to the esophageal length, the presence of 10 pairs of caudal papillae, unusually long spicules, and leptoederan tail.

Protocylindrocorpus dendrophilus n. sp.

Holotype (female): L = 1.26 mm; width = 38.0 μ m; stoma = 46.0 μ m; corpus = 52.0

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TABLE 1. Measurements and ratios for *Protocylindrocorpus dendrophilus* n. sp.

	♀♀ (n = 15)			♂♂ (n = 15)		
	Mean	Range	SD*	Mean	Range	SD
Length (mm)	1.184	0.935-1.544	0.047	1.153	0.906-1.533	0.047
Width (μ m)	41.0	35.0-49.0	1.12	37.0	32.0-43.0	0.83
Stoma (μ m)	40.0	29.0-49.0	1.48	40.0	35.0-46.0	0.87
Corpus (μ m)	43.0	38.0-52.0	0.86	44.0	38.0-52.0	0.99
Esophagus (μ m)	156.0	128.0-180.0	4.62	159.0	119.0-183.0	4.79
Vulva to anus (μ m)	331.0	252.0-456.0	15.42			
Spicules (mm)†				0.754	0.586-0.925	0.026
Gubernaculum (μ m)				17.0	15.0-19.0	0.342
Tail (μ m)	65.0	55.0-78.0	1.83	63.0	52.0-70.0	1.46
Vulva (%)	67.2	63.3-70.8	0.57			
a	28.9	22.1-38.3	1.41	30.7	23.8-41.5	1.23
b	7.6	6.6-8.6	0.16	7.2	5.3-8.7	0.26
c	17.7	14.8-19.7	0.46	18.3	16.4-26.0	0.79

* SD = standard deviation.

† Fourteen specimens.

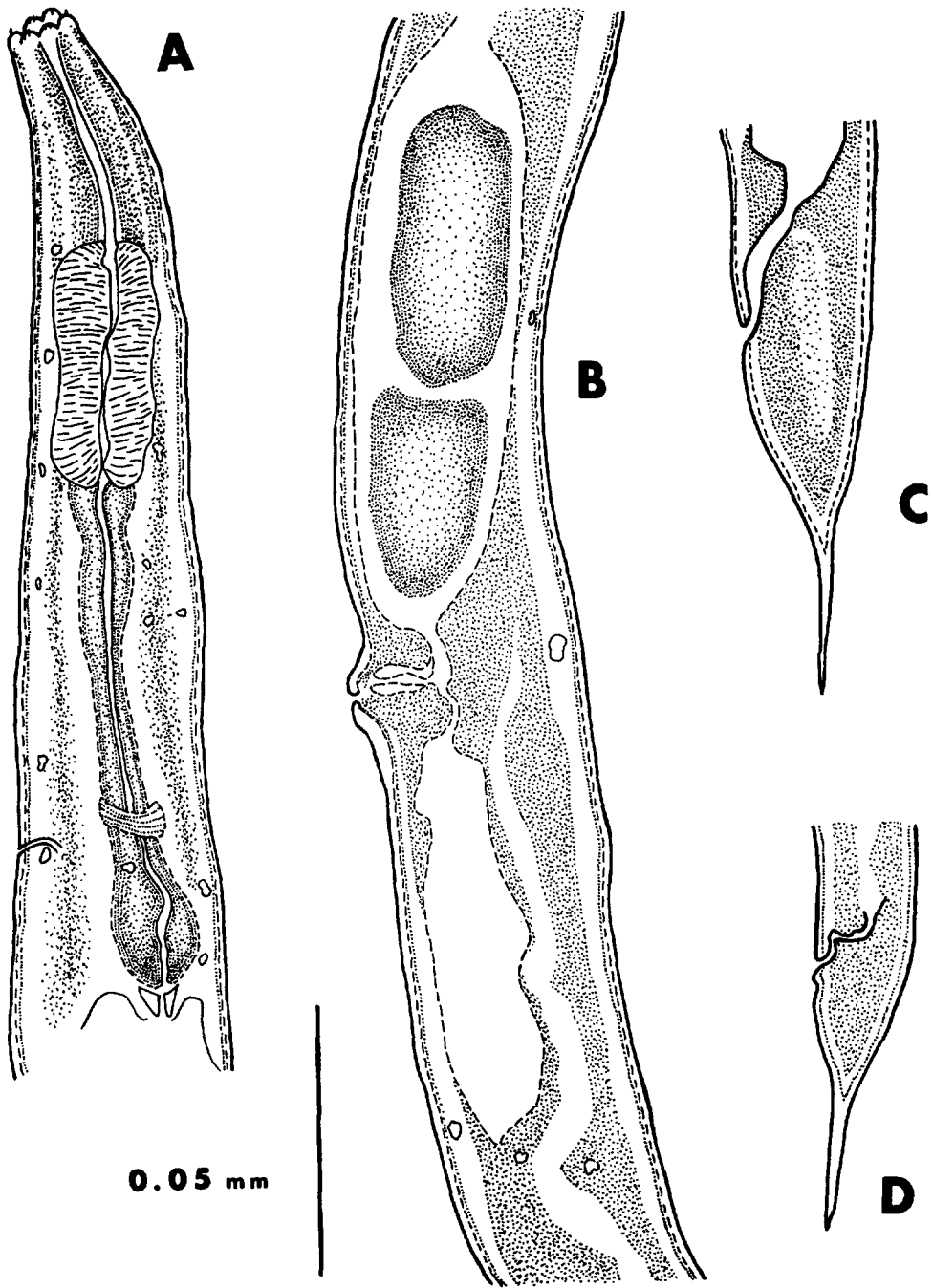


FIG. 1. *Protocylindrocorpus dendrophilus* n. sp. female and juvenile. A) Female head. B) Female midsection. C) Female tail. D) Juvenile tail.

μm ; esophagus = 177.0 μm ; tail = 75.0 μm ; V = 65%; a = 38.3; b = 7.1; c = 16.8. Cuticle thin, longitudinally and transversely finely striated. Stoma one-third length of esophagus; metastom slightly anisomor-

phic. Nerve ring circles isthmus anterior to terminal bulb. Excretory pore anterior to terminal bulb. Ovary single, uterus prodelphic and anteriorly reflexed. Vulva distinctly protuberant; vagina heavily cuticu-

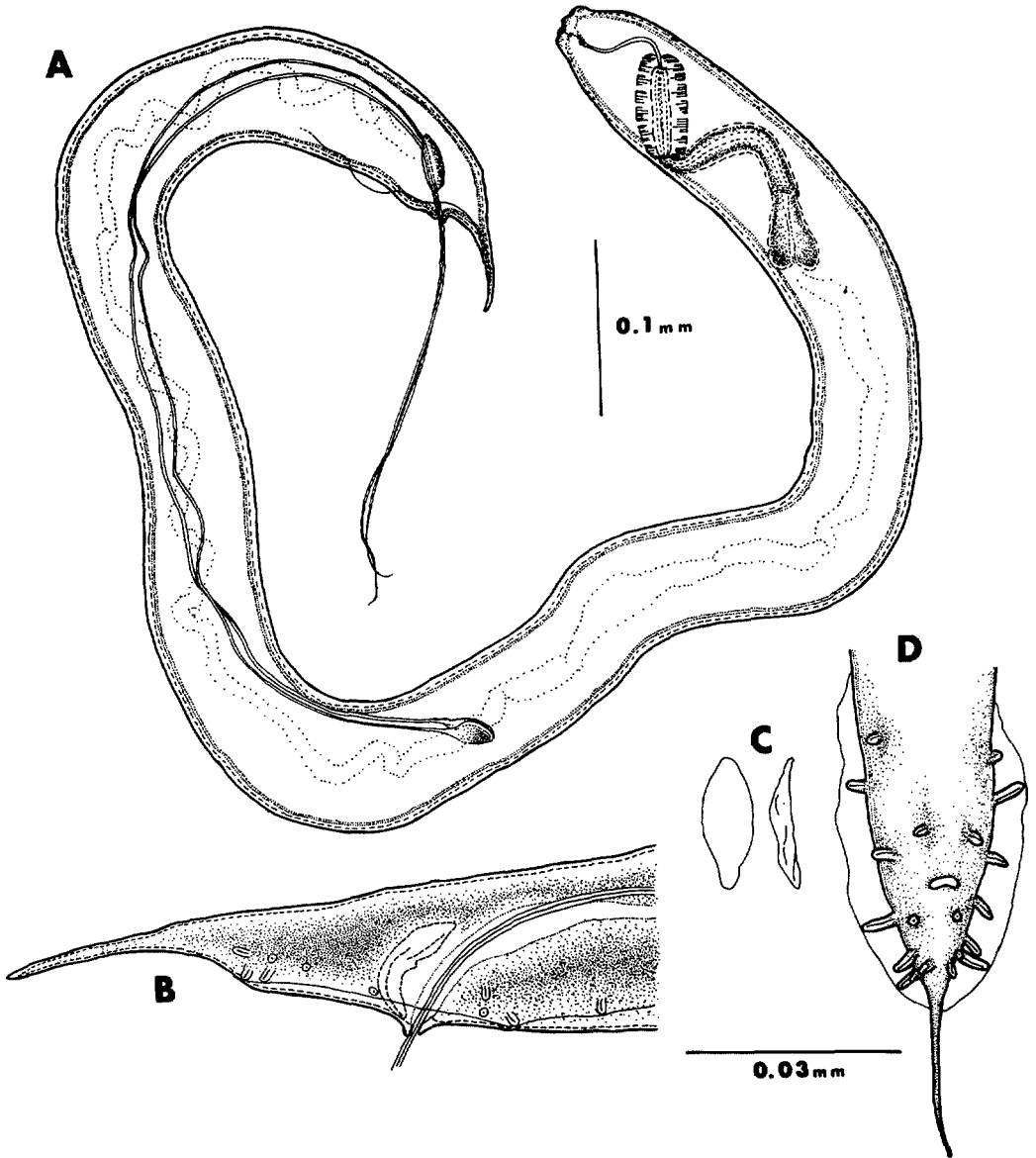


FIG. 2. *Protocylindrocorpus dendrophilus* n. sp. male. A) Spicules. B) Tail, lateral view. C) Gubernaculum, ventral and lateral views. D) Tail, ventral view.

larized; postvulval sac as long as, or longer than, two body widths. Vulva to anal region cylindrical; tail spicate (Fig. 1).

Allotype (male): L = 1.38 mm; width = 38.0 μ m; stoma = 41.0 μ m; corpus = 46.0 μ m; esophagus = 159.0 μ m; spicules = 764.0 μ m; gubernaculum = 18.0 μ m; tail = 69.0 μ m; a = 36.3; b = 8.7; c = 20.0. Testis single, straight; spicules needlelike, from 55 to 80% of total body length, sinuous in

body cavity, distal tips turn dorsally, proximal ends cephalated. Caudal alae lepto-deran, supported by 10 pairs of papillae of which four are precloacal and six are post-cloacal; tail spicate (Fig. 2).

Diagnosis: *Protocylindrocorpus dendrophilus* is morphologically similar to *P. goodeyi* (Rühm, 1959). Paramonov, 1964, but differs from that species by its thinner body form: *P. dendrophilus* female a = 22.1–38.3,

male = 23.8–41.5, *P. goodeyi* female = 21.0–23.4, male = 24.2–27.1; longer stoma in the male: *P. dendrophilus* = 35–46 μm , *P. goodeyi* = 25–30 μm ; protuberant and more posteriorly located vulva: *P. dendrophilus* = 63.3–70.8%, *P. goodeyi* = 57.7–60.4%; longer spicules: *P. dendrophilus* = 586–925 μm , *P. goodeyi* = 72–600 μm ; and position of the caudal papillae.

Type material: Holotype (female), allotype (male), 34 adult paratypes, and more than 250 juveniles collected from *Pinus elliottii* var. *elliottii* 24 August 1982, Bentley, Louisiana, by E. Vallery. The holotype, allotype, and some paratypes have been deposited in the USDA Nematode Collection (USDANC), Beltsville, Maryland. Paratypes have also been deposited in the collection of the Department of Nematology, University of California, Davis.

Biology: Nothing is known of the biology of *P. dendrophilus*. Since fungal spores were present in the lumen of the esophagus in some specimens, this species may be mycetophagous. T. Goodey (4) suggested that *Goodeyus ulmi* (T. Goodey, 1930) Chitwood, 1933 may be a fungal feeder. The tree from which specimens of *P. dendrophilus* were originally obtained was sampled a second time on 22 December 1982. Core samples were taken from the xylem where no beetle activity was noted, from areas intersecting cerambycid galleries, and from areas intersecting platypodid galleries. Only two additional *P. dendrophilus* specimens were recovered; both were from xylem samples containing galleries of *Platypus flavicornis*. *Goodeyus ulmi* is associated with *Scolytus* spp. and has been recovered from beetle frass (4) and from under the elytra of adult beetles (1,9). *Cylindrocorpus*

erectus Massey, 1960 is also associated with scolytid beetles (6). Other species belonging to the family Cylandrocorpidae have been found in sheep dung (*Myctolaimus pelucidus* Cobb, 1920 [2]), rat feces (*Cylindrocorpus longistoma* (Stefanski, 1922) T. Goodey, 1939 [3]), under the bark of trees (*P. goodeyi* [10]), tree cankers (*Cylindrocorpus rifflei* Massey and Hinds, 1970 [7]), and rotting plant tissue (*C. curzii* (T. Goodey, 1935) T. Goodey, 1939 [5] and *C. macrolaima* (Schneider, 1866) T. Goodey, 1938 [11]).

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