

# *Criconema proclivis* n. sp. (Nematoda: Criconematinae) from Woodlands<sup>1</sup>

JOHN KERBY HOFFMANN<sup>2</sup>

**Abstract:** *Criconema proclivis* n. sp. from soil around roots of woodland trees in the northeastern USA is described and illustrated. It is characterized by a total of 67-74 annules, two naked offset head annules, a stylet length of 68.7 - 80.7  $\mu$ , a sculpted vulval flap, and forward-projecting body annules. The annules at midbody are covered with a continuous fringe of 60-70 spines. **Key Words:** *Acer pensylvanicum*, *Acer saccharum*, *Betula alleghaniensis*, *Fagus grandifolia*, taxonomy.

Soil samples taken from wooded areas in New York, New Hampshire, and Vermont, USA contained a new species of *Criconema*. The nematodes were recovered by a centrifugal-flotation method (3), heat-relaxed at 37 C, fixed in 5% formalin at 37 C, and mounted in glycerin (8). Measurements were made with an ocular micrometer and camera lucida tracings.

## *Criconema proclivis* n. sp.

**Measurements** (♀ Holotype): L = 369.6  $\mu$ ; a = 10.1; b = 3.4; c = ?; stylet = 79.5  $\mu$ ; R stylet = 17; V = 85.0%; R<sub>v</sub> = 13; R = 72; R<sub>ex</sub> = 26.

(9♀♀ Paratypes): L = 361.8  $\mu$  (302.9-414.3); a = 9.2 (7.8-11.5); b = 3.5 (3.1-3.9); c = ?; stylet = 75.1  $\mu$  (68.7-80.7); R stylet = 16 (15-19); V = 86.0% (83.9-87.2); R<sub>v</sub> = 13 (12-13); R = 70 (67-74); R<sub>ex</sub> = ?. R stylet = number of annules through which stylet passes; R<sub>v</sub> = number of annules from vulva to tail terminus; R = total number of annules (including head annules); R<sub>ex</sub> = number of annules from anterior end to excretory pore.

**Description:** Only females were found. The ventrally bent body varies in length from 302.9-414.3  $\mu$  and reaches its greatest width 2-3 annules anterior to the vulva (Fig. 1-D). From here the body tapers sharply posteriorly to the tail which ends in a blunt, spike-like annule. Anteriorly, the body tapers more gently to the two naked, offset head annules (Fig. 1-A). The first head annule is 16-17  $\mu$  in width and is

followed by a second slightly narrower annule 14-15  $\mu$  in width. The 70 (67-74) annules are conspicuously projected anteriorly except for those posterior to the vulva and the two head annules. Anastomoses of the annules are rare but occur occasionally. The annules at midbody are covered with a continuous fringe of 60-70 spines 4-5  $\mu$  long with rounded tips (Fig. 1-A, 1-C, 1-D). The excretory pore is located on the 25-26th annule (Fig. 1-D), but was observed in only two specimens because of the cuticle thickness. The robust stylet is 75.1  $\mu$  (68.7-80.7) long with heavy knobs 10-11  $\mu$  in width projecting anteriorly (Fig. 1-D). A typical criconematoid esophagus is present. The dorsal esophageal gland orifice is indistinct. The short isthmus leads to a pyriform basal bulb that overlaps the indistinct intestine (Fig. 1-D). No cardia was observed. The single outstretched ovary varies in length, but never reaches to the basal bulb. The spermatheca is an oval-to-round sac located in the anterior portion of the uterus (Fig. 1-D) and usually contains sperm. The vulva is located on the 13th (12-13) annule from the tail terminus and is five annules anterior to the anus. The anus was observed on only one specimen taken from another population. The anterior vulva flap is usually sculpted on its posterior margin and may overlap the following annule, partially hiding the spines (Fig. 1-C). The lip region is elevated and dome-shaped. The stylet orifice is an elongated slit, flanked on either side by the amphidial openings (Fig. 1-B). Submedian lobes are absent.

The species name is the Latin word *proclivis*, meaning inclined forwards, and here refers to the consistently forward-projecting annules.

**Type habitat and locality:** Holotype.—Female collected 16 July 1971, in organic layer around roots of *Fagus grandifolia* Ehrh. in a swampy area 500 feet south of an unmarked road between Lincoln Gap and Bristol, Vermont.

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<sup>2</sup> Department of Botany and Plant Pathology, Iowa State University, Ames. Appreciation is extended to D. C. Norton for his assistance in the collection of specimens and in preparation of this manuscript, and to D. J. Raski, Department of Nematology, University of California, Davis, for his examination and opinion of this nematode.

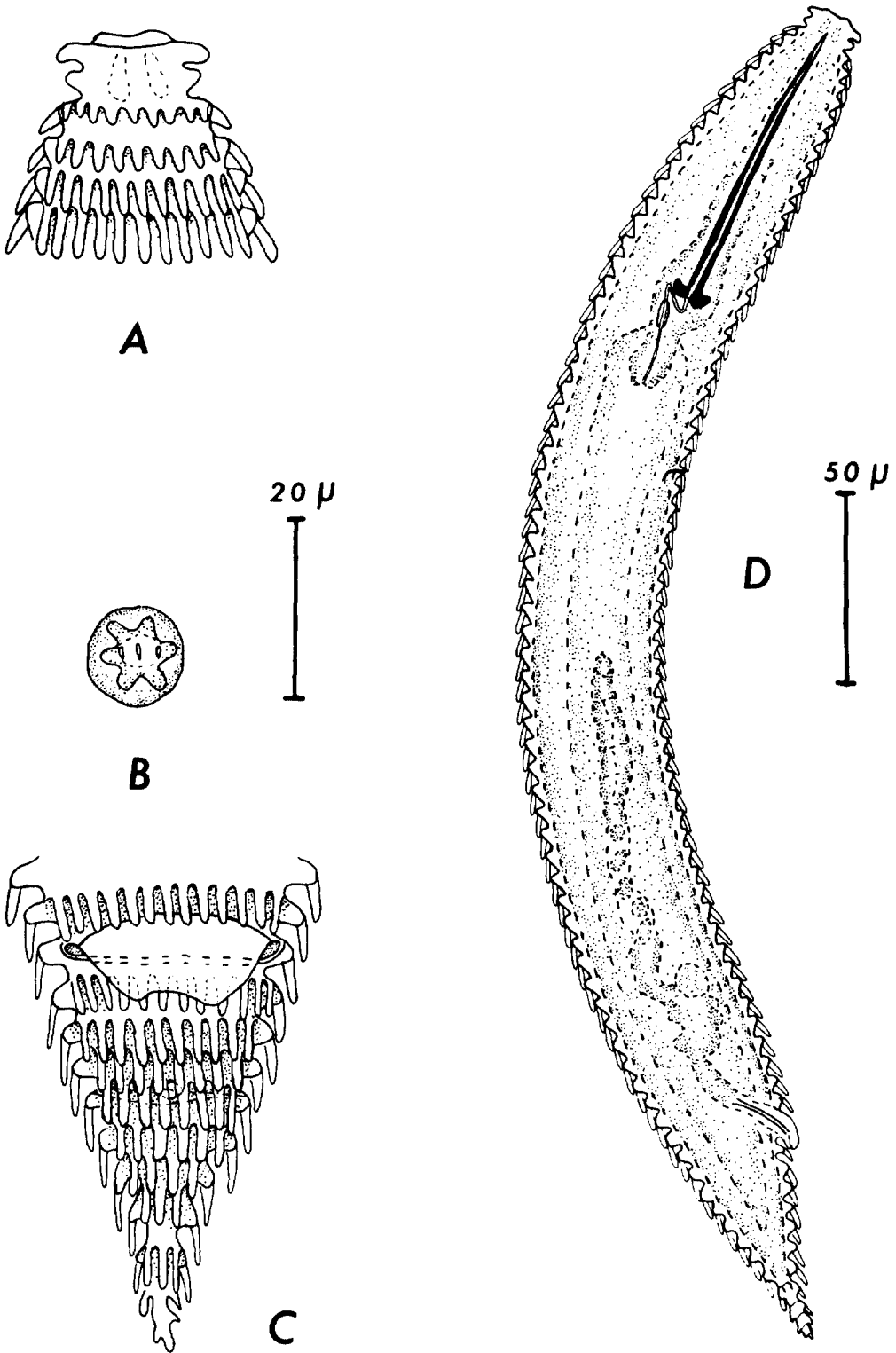


FIG. 1 (A-D). *Criconema proclivis* n. sp. A. Lateral view, anterior region; B. en face; C. Ventral view of vulva; D. Female, lateral view.

Paratypes.—Nine females collected in the same habitat and locality as holotype.

*Specimens*: Holotype on slide T-216t, nine female paratypes on slides T-1423p - T-1427p, one female ventral view and one female *en face* view on slides T-1428p and T-1429p, U.S. Dept. of Agriculture Nematode Collection, Beltsville, Md., USA.

*Diagnosis*: *C. proclivis* resembles *Criconema aculeatum* (Schneider, 1939) de Coninck, 1943, *Criconema fimbriatum* Cobb in Taylor, 1936, *Criconema menzeli* (Stefánski, 1924) Taylor, 1936, and *Criconema aquitanense* Fies, 1968, in that the body annules are covered with a continuous fringe of spines. It is differentiated from *C. aculeatum* by the smooth head annules, greater number of body annules, and rounded spines (4, 7). It differs from *C. fimbriatum* by its shorter stylet, greater number of annules, its less-coarse spines, and sculpted vulval flap (2, 4, 10). It differs from *C. menzeli* by its naked head annules, greater number of annules, shorter stylet, and sculpted vulval flap (4, 5, 6, 9, 10). It differs from *C. aquitanense* by its shorter body length, shorter stylet, and fewer annules (1, 4).

This species is placed in the genus *Criconema* as conceived by Taylor (10). I do not accept the revision of *Criconema* as proposed by Mehta and Raski (4).

*Measurements of a second population*: (12♀♀): L = 385.7  $\mu$  (340.3-425.7); a = 10.5 (9.4-11.6); b = 3.6 (3.2-4.0); c = 11.3; stylet = 74.3  $\mu$  (71-76.6); R stylet = 16 (13-17); V = 87.3% (84.7-90.4); R<sub>v</sub> = 13 (12-15); R = 72 (68-75); R<sub>ex</sub> = 25; R<sub>an</sub> = 7; R<sub>van</sub> = 5; R<sub>an</sub> = number of annules from the anus to tail terminus; R<sub>van</sub> = number of annules from vulva to anus.

*Habitat and locality*: These specimens were collected from soil around roots of *Fagus grandifolia* 500 yards up Bald Mountain Trail north of Highway No. 28 near Old Forge, N.Y., 12 July 1971. They are on slides UCNC 1294-UCNC 1296 in the collection of the Department of Nematology, University of California, Davis.

*Other known habitats and localities*: *Acer saccharum* Marsh., same location and date as holotype; *Acer saccharum* and *Acer*

*pensylvanicum* L. from the same locality as the second population, and *Fagus grandifolia*, *Acer saccharum* and *Betula alleghaniensis* Britt. collected on the lower portion of the Daniel Webster Trail from the Dolly Copp Campgrounds near Gorham, N.H., 18 July 1971. Slides containing several females from these collections are in the Department of Botany and Plant Pathology, Iowa State University.

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