

***Funaria maryanneae* n. sp. and *Proleptonchus weischeri* n. sp.**
(Nematoda: Dorylaimida) from Europe and
New Synonyms in Leptonchoidea¹

C. G. GOSECO and V. R. FERRIS²

Abstract: *Funaria maryanneae* n. sp., distinguished by its large size and long prerectum, is described from specimens collected in Bad Sooden, Germany, D. B. R. This nematode was collected also from Fräküntegg (Mt. Pilatus), Switzerland. *Proleptonchus weischeri* n. sp., with short hemispheroid female tail and relatively anterior vulva, is described from specimens collected in Kaufunger Wald near Kassel, Germany, D. B. R. This is the first report of either genus from the continent of Europe. *Leptonchus parisii* Zullini, 1973, from Chiapas, Mexico, becomes a junior synonym of *Funaria obtusa* (Thorne, 1939) Goseco, Ferris and Ferris, 1974. *Leptonchus acutus* Zullini, 1973 becomes *Funaria acuta* n. comb., and *Funaria rothi* Goseco, Ferris and Ferris, 1974 becomes a junior synonym of *Funaria acuta*. *Key Words:* Taxonomy, *Leptonchus*.

Following publication of our revisions (1) of the genera *Funaria* van der Linde, 1938 and *Proleptonchus* Lordello, 1955, we discovered an additional species of each genus in materials collected in Europe. The discovery of the two species is biogeographically important because it constitutes the first report of either genus from the continent of Europe.

Zullini's 1973 publication (4) on nematodes of Mexico, which came to our attention following the publication of our revisions, makes several nomenclatural changes necessary as an addendum to our revisions.

MATERIALS AND METHODS

The new species described herein were from collections made by V. R. Ferris and J. M. Ferris in wooded areas of West Germany and in Switzerland, June 1973. Nematodes were extracted, within several days of collection, by a combination of sieves and Baermann funnels. They were killed by gentle heat and fixed in 5% formalin for transport to Indiana, U.S.A., where they were infiltrated with glycerin by the slow method (3). Illustrations were made by

using a camera lucida as described by Thorne (3). Mean values and standard deviations were calculated for measurements when possible.

SPECIES DESCRIPTIONS

Funaria maryanneae n. sp.
(Fig. 1)

Type: Holotype female with dimensions as follows on slide labeled 6/3/73 C3 in Purdue Nematode Collection (PNC). Collected from wooded area, Bad Sooden, West Germany.

Paratypes: Females (14) and male (1) on slides labeled 6/3/73 A and B2; 6/3/73 A5; 6/3/73 B2; 6/3/73 B8; 6/3/73 C3 in PNC.

Measurements: Holotype female: L = 1.93 mm; a = 40.2; b = 7.5; c = 86.1; V = 56%; width = 48 μ m; esophagus = 256 μ m; tail = 22.4 μ m; esophageal bulb = 61 μ m; prerectum = 208 μ m.

Paratype females (6): L = 1.71 mm \pm 0.12 (1.6-1.95); a = 38.4 \pm 3.6 (34.4-44.2); b = 7 \pm 0.5 (6.4-7.6); c = 67.4 \pm 6.4 (57.3-76.7); V = 53.8% \pm 1.3 (52.3-56); width = 44.8 μ m \pm 4 (38.4-48); esophagus = 242.6 μ m \pm 12.2 (224-256); tail = 25.6 μ m \pm 2.8 (22.4-28.8); esophageal bulb = 60.8 μ m \pm 1.9 (57.6-62.4); prerectum = 213.7 μ m \pm 15.1 (185.6-224).

Paratype male: L = 1.88 mm; a = 41.9; b = 7.6; c = 67.7; T = 52.3%; width = 48 μ m; esophagus = 256 μ m; tail = 28.8 μ m; esophageal bulb = 61 μ m; spicule = 55.5 μ m.

Differential diagnosis: *Funaria maryanneae* resembles *F. ourasphaira* Goseco,

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² Postdoctoral fellow and Professor, respectively, Department of Entomology, Purdue University, West Lafayette, Indiana 47907. The authors are grateful to Dr. B. Weischer, Biologische Bundesanstalt, Munster, Germany, D.B.R., in whose laboratory the described extractions were carried out, and who, together with his colleagues, supplied helpful information regarding collection sites and the identity of flora at the sites. Dr. A. Zullini kindly loaned us paratype specimens of *Leptonchus parisii* and *L. acutus*.

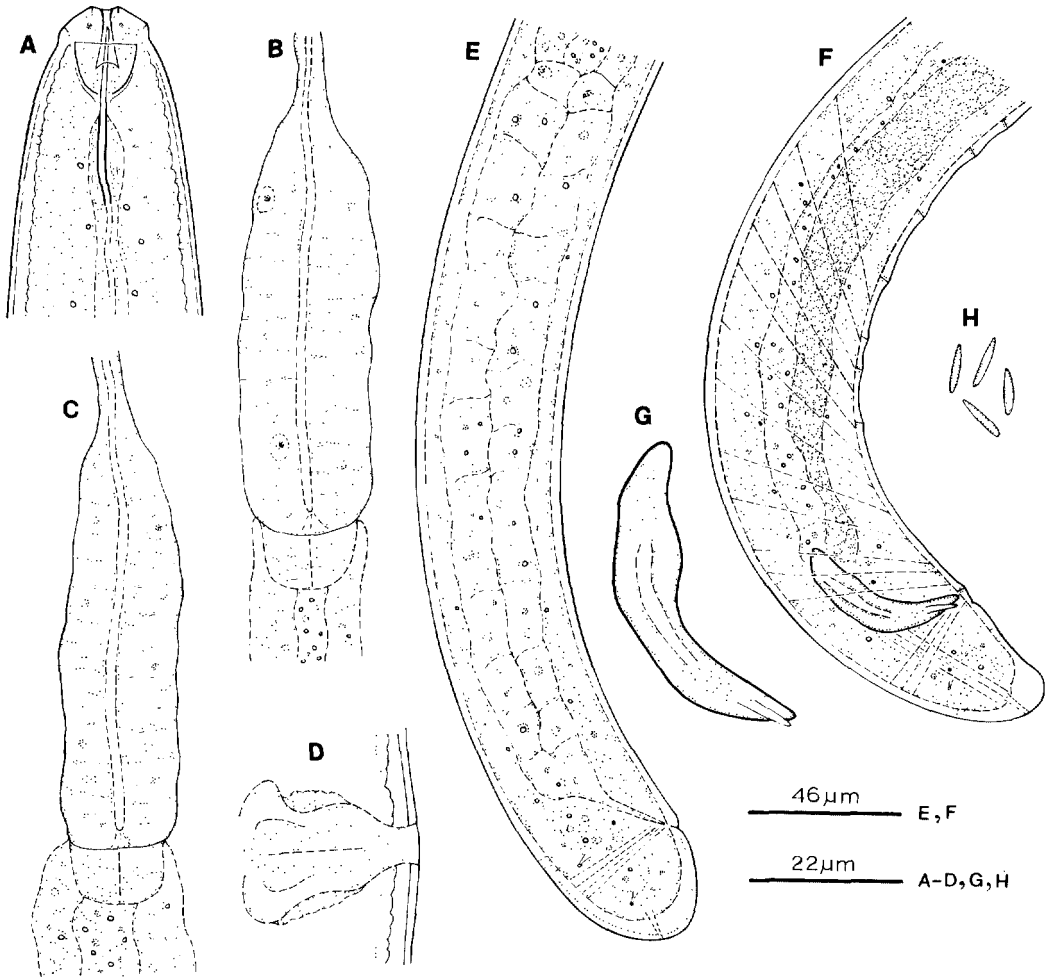


FIG. 1-(A-H). *Funaria maryanneae* n. sp. A) Head. B-C) Esophageal bulbs. D) Vulval region. E) Female posterior portion. F) Male posterior portion. G) Spicule. H) Spermatozoa.

Ferris and Ferris, 1974, but can be distinguished by larger size (total length = 1.6-1.95 vs. 1.1-1.4 mm) and by longer prerectum (185-224 vs. 109-176 μm).

The specific epithet honors Mary-Anne Escasa Goseco.

Holotype female: Body robust, cylindrical, slightly arcuate. Cuticle finely striated, with the refractive elements usually present in Leptonchidae; subcuticle coarsely striated. Lateral chords 12 μm wide; body pores distinct, in single row. Head offset, 13 μm wide; lips and papillae distinct. Amphids cup-shaped, 9 μm wide, appearing duplex. Stoma sclerotized, 8 μm long, thickened around oral opening. Spear slender, straight, 13 μm long; spear extension as long as spear, sclerotized, arcuate. Nerve ring located about midway along

esophagus. Esophageal bulb cylindrical, 61 μm long and 16 μm wide, occupying about 24% of esophageal length. Cardia distinct, large, 8 μm long. Vulva longitudinal; vagina 22.4 μm long, extending about halfway across body width. Ovaries 2, symmetrical, each about 14% body length, reflexed about 52%. Intestine-prerectum junction posterior to vulva, accompanied by three distinct cells. Prerectum about 5.4 anal body widths long; rectum 35 μm long. Tail hemispheroid, slightly more than one-half anal body width. Caudal and terminal papillae present.

Paratype male: Similar to female in general morphology. Testes 2, outstretched; sperms cylindrical to spindle-shaped, 7.3 μm long. Spicules dorylaimoid; lateral guiding pieces present. Seven ventro-median

supplements start about 1.5 anal body widths anterior to adanal pair. Tail as long as anal body width, bluntly conoid. Caudal and terminal papillae present.

Distribution and habitat: The type locality in Bad Sooden, Germany, is a wooded area with clay soil. The vegetation was comprised mainly of large oaks and beeches with small beeches in understory and many herbaceous plants including *Convallaria majalis*, *Lamium galeobdolon*, *Ranunculus auricomus*, *Phyteuma spicatum*, *Asarum europeum*, and others. In addition to the type locality, this species was collected halfway up Mt. Pilatus, Fräk-müntegg, Switzerland, in a wooded area of conifers, blueberries, and composites.

Collected by J. and V. Ferris, 3 June 1973.

Proleptonchus weischeri n. sp.

(Fig. 2)

Type: Holotype female with dimensions as follows on slide labeled *Proleptonchus weischeri* 6/2/73 A10 in PNC. Collected from Kaufunger Wald, near Kassel, West Germany.

Paratypes: Females (2), males (2) on slides labeled 6/2/73 A10 and 6/2/73 A9 in PNC.

Measurements: Holotype female: L = 1.33 mm; a = 33.2; b = 6.5; c = 83.1; V = 53.8%; G_1 = 24%; G_2 = 13%; width = 40 μ m; esophagus = 202 μ m; tail = 16 μ m; prerectum = 160 μ m.

Paratype females (2): L = 1.30, 1.48 mm; a = 33.8, 33.0; b = 5.8, 5.8; c = 73.8, 102; V = 54.0, 54.0%; G_1 = 17.0, 22.9%; G_2 = 11, 16%; width = 38.4, 44.8 μ m;

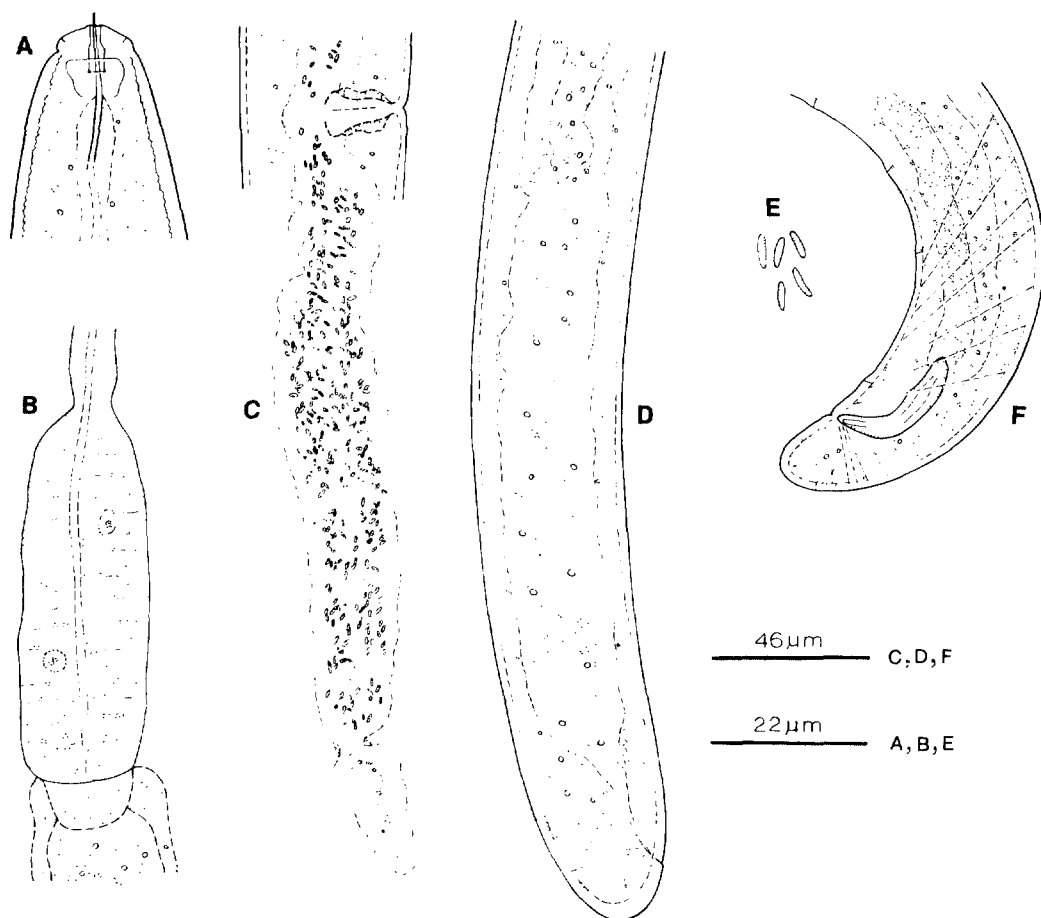


FIG. 2-(A-F). *Proleptonchus weischeri* n. sp. A) Head. B) Esophageal bulb. C) Vaginal region and posterior gonad. D) Female posterior portion. E) Spermatozoa. F) Male posterior portion.

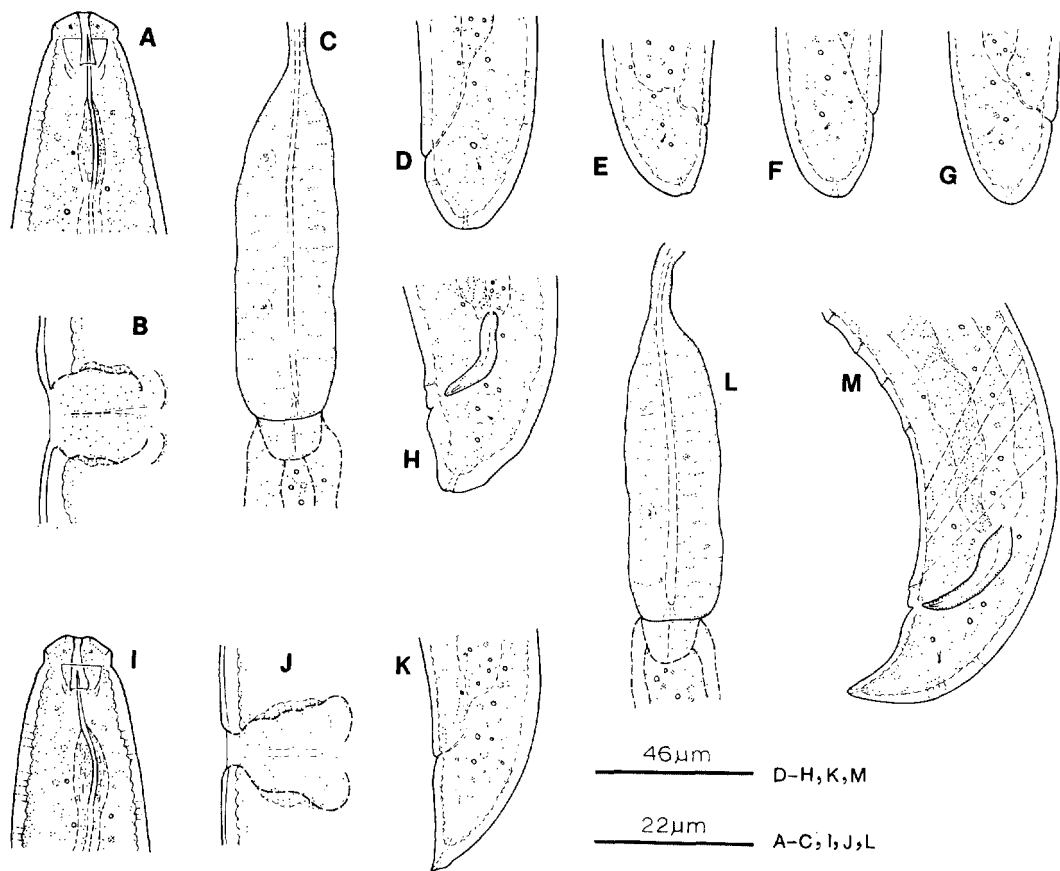


FIG. 3-(A-M). A-H). *Funaria obtusa* (population from Mexico): A) Head. B) Vulval region. C) Esophageal bulb. D-G) Variations in female tail shape. H) Male tail. I-M). *Funaria acuta* n. comb. (population from Mexico): I) Head. J) Vulval region. K) Female tail. L) Esophageal bulb. M) Male tail.

esophagus = 224, 253 μm ; tail = 17.6, 14.5 μm ; prerectum = 144, 176 μm .

Paratype males (2): L = 1.36, 1.43 mm; a = 38.6, 34.3; b = —, 6.5; c = 70.8, 74.4; T = 60.8, 63.7%; width = 35.2, 41.6 μm ; esophagus = —, 219 μm ; tail = 19.2, 19.2 μm ; spicule = 42, 43 μm .

Differential diagnosis: *Proleptonchus weischeri* differs from *P. johnsoni* Goseco, Ferris and Ferris, 1974, in the hemispheroid tail and in the more anterior vulva (53.8-54.0 vs. 57-58.5%).

The specific epithet honors Dr. Bernhard Weischer.

Holotype female: Body cylindroid, slightly arcuate. Cuticle with fine transverse striations; subcuticle coarsely striated; refractive elements abundant. Lateral chords about 12 μm wide; body pores arranged in two rows. Lip region 9.6 μm wide, slightly offset, low; papillae distinct. Amphids dis-

tinct, 6.4 μm wide; stoma flask-shaped, 6.4 μm long, sclerotized; guiding ring very distinct. Spear slender, 13 μm long, lumen not observed in anterior portion; spear extension sclerotized, 8.8 μm long, arcuate. Nerve ring located at about 40% of length of esophagus. Esophageal bulb cylindroid, 46.4 μm long and 16 μm wide, occupying 23% of esophagus. Cardia large, distinct, about 8 μm long. Vulva transverse; vagina 21 μm long, circular muscles thick. Anterior gonad normal, 24% body length, reflexed about 37%; spermatheca and developing egg observed. Posterior gonad reduced, about 4.4 body widths long; sperms present. Rudimentary ovary present, separated by constriction from proximal portion. Prerectum distinct, about 6.5 anal body widths long. Cells at intestine-prerectum junction. Tail hemispheroid, slightly more than one-half anal body width long; papillae present.

Paratype male: Similar to female in general morphology. Testes 2, outstretched. Adanal pair and 3-6 ventro-median supplements. Spicules arcuate; lateral guiding pieces present. Spermatozoa cylindrical to spindle-shape, 5-6 μm long. Caudal papillae present.

Distribution and habitat: This species was collected in Kaufunger Wald near Kassel, West Germany, in very wet soil along a stream. The vegetation was comprised of small beeches, coarse grass (*Deschampsia caespitosa*), ferns (*Dryopteris spinulosa*), *Senecio nemorensis*, *Ficaria verna*, *Urtica dioeca*, *Lamium galeobdolon*, and *Rubus* sp.

Collected by J. and V. Ferris, 2 June 1973.

NOMENCLATURAL CHANGES

Zullini (4) described two new species of *Leptonchus*, *L. parisii* and *L. acutus*, from Chiapas in southern Mexico. Goseco et al. (1) in their revisions of genera of the family Leptonchidae included a new *Funaria* species, *F. rothi*, from Arizona, U.S.A., and a redescription of *F. obtusa* (Thorne, 1939), (2) which they also transferred from *Leptonchus*.

Examination of Zullini's paratypes showed that both Mexican species (Fig. 3) possess characters of *Funaria*, viz. longitudinal vulva; long, cylindrical esophageal bulb; large cardia; and location of intestine-prerectum junction posterior to vulva. In addition, *L. parisii* and *L. acutus* closely resemble our specimens of *F. obtusa* and *F. rothi*, respectively, and have overlapping

measurements. The depressed caudal extremity and flat lip region, cited by Zullini (4) as diagnostic for *L. parisii*, vary among the borrowed paratypes as well as among our specimens of *F. obtusa* and probably result from differences in fixation among the specimens. Some specimens exhibit a smooth caudal extremity, whereas others have a distinctly depressed (sunken) caudal terminus. This "sunken area" is in the region of the terminal papilla. In addition to the morphological features described by Zullini (4), both species exhibit duplex amphids, refractive cuticular elements, cellular intestine-prerectum junction, and a terminal caudal papilla, all characteristics of *Funaria*.

Hence, both species from Mexico are transferred to *Funaria* and, in accordance with the rules of priority in publication, *F. acuta* (Fig. 3 I-M) (formerly *L. acutus*) becomes the senior synonym of *F. rothi*. *Funaria parisii* (formerly *L. parisii*) becomes a junior synonym of *F. obtusa*. (Fig. 3 A-H).

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