

# Two new species of *Criconemella* (Tylenchida: Criconematidae) from meadows in the Primorsky region, Russian Far East

Alexander S. Eroshenko and Tamara V. Volkova

Institute of Biology and Pedology of the Far East Branch of Russian Academy of Sciences, Prospect Stoletiya 159, Vladivostok-22, 690022, Russia, e-mail: zoology@ihss.marine.su

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**Summary.** Two new species *Criconemella ripariensis* sp. n. and *C. sigillaria* sp. n. are described from specimens collected from the rhizosphere of *Carex appendiculata* and *C. lasiocarpa* growing in meadows in the Khassan district of the Primorsky region, Russia. *Criconemella ripariensis* sp. n. is characterized by the presence of 125-150 cuticular annules, stylet 64-73  $\mu\text{m}$  long, conical tail curved on the dorsal side and deformed annules on the tail terminus. *Criconemella sigillaria* sp. n. is characterized by the presence of 115-127 cuticular annules with anastomoses, stylet 46-51  $\mu\text{m}$  long and conical tail with dorsally curved terminus with numerous finger-like appendages. *Macroposthonia digiticauda* Eroshenko & Volkova, 1988 is transferred to *Criconemella digiticauda* (Eroshenko & Volkova, 1988) comb. n.

**Key words:** *Criconemella ripariensis* sp. n., *C. sigillaria* sp. n., taxonomy, Russian Far East.

Two undescribed species of Criconematidae were found in soils from natural meadows in the Khassan district of the Primorsky region, Russia, collected in June 1991 during a survey included in the State Scientific Program "Biological Diversity". According to the classification scheme of Tylenchina proposed by Raski & Luc (1987), these undescribed criconematids were identified as representing two new species of the genus *Criconemella*. Taxonomic descriptions of these two new species are presented in this paper.

## MATERIAL AND METHODS

Nematodes were extracted from the rhizosphere of meadow plants by the centrifugal-flotation technique (Jenkins, 1964), fixed in TAF and processed and mounted in glycerine on glass slides (Seinhorst, 1959).

## DESCRIPTIONS

### *Criconemella ripariensis* sp. n. (Fig. 1)

**Holotype female:** L=0.58 mm; a=9; b=4.6; c=12; V=88%; stylet=73  $\mu\text{m}$ ; R=140; RSt=22; ROes=3; Rex=37; RV=14; RVan=4; Ran=10.

**Paratypes females** (n=9): L=0.53±0.03 (0.50-

0.58) mm; a=9±0.6 (8-10); b=4.3±0.2 (4.1-4.5); c=13±1.5 (10-14); V=88±0.9 (87-90)%; stylet=69±1.9 (64-73)  $\mu\text{m}$ ; R=140 (125-150); RSt=22 (18-25); ROes=34 (31-36); Rex=38 (35-40); RV=14 (12-16); Rvan=5 (4-6); Ran=9 (8-10).

**Female.** Body slightly curved ventrally. Cuticular annules 4  $\mu\text{m}$  wide, broadening posteriorly, with festoons on edge. Anastomoses rarely observed. Labial region with well developed protruding submedian lobes, narrower than adjacent cuticular annule. Labial plate not observed. Inner sclerotization of cephalic end at the level of two anterior cuticular annules. Stylet knobs 10-12 (10.5)  $\mu\text{m}$  wide. Dorsal gland duct orifice situated 3.5-5 (4.2)  $\mu\text{m}$  posterior to the stylet knobs. Metenchium about 70-75 (72)% of total stylet length. Oesophagus 112-128 (120)  $\mu\text{m}$  long. Excretory pore situated three or four cuticular annules posterior to the oesophagus base. Anterior vulvar lip with festooned edge, slightly covering the cuticular vulval slit. Anus four or five cuticular annules posterior to the vulva. Tail conoid, with dorsally curved terminus. Tail length 35-50 (45)  $\mu\text{m}$ . Last three-four annule ridges of tail are dorsally deformed, with smooth edges, visible only on ventral side.

**Male unknown.**

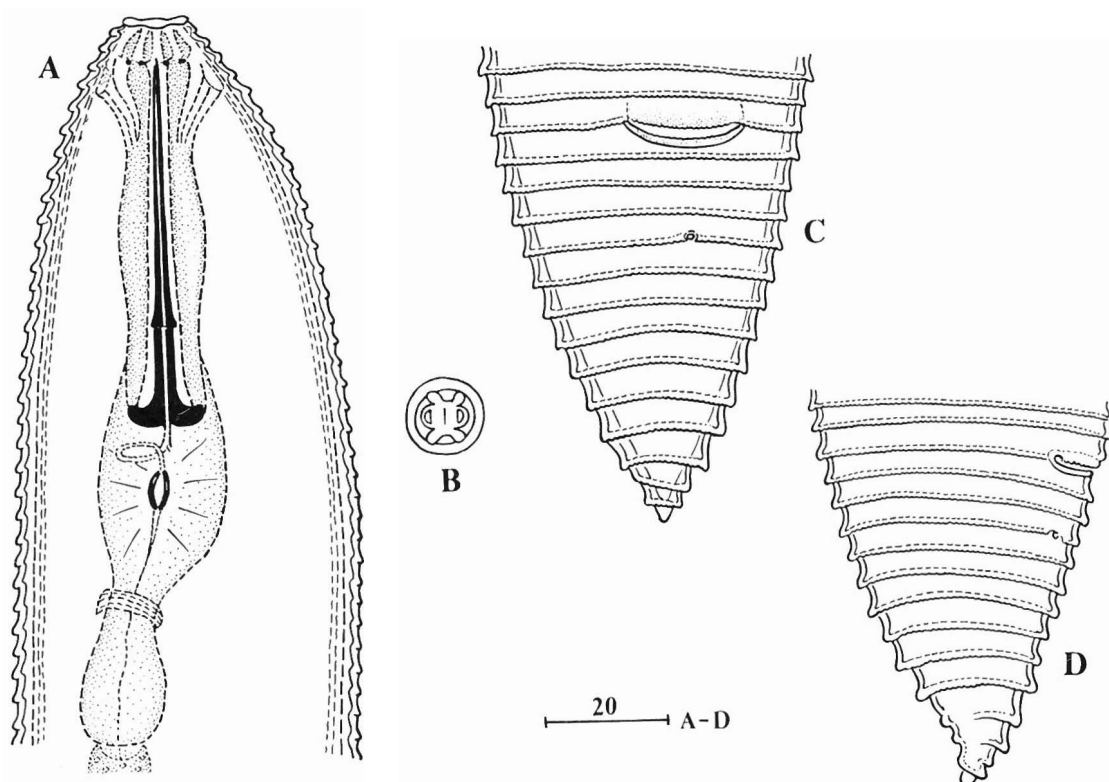


Fig. 1. *Criconemella ripariensis* sp. n. female. A: Anterior end; B: Labial region; C-D: Tail. Bar in  $\mu\text{m}$ .

**Juvenile** ( $n=1$ ). Body length  $405 \mu\text{m}$ , stylet length  $52 \mu\text{m}$ , posterior edges of cuticular annules with festoons. Tail curved dorsally as in females.

**Type locality and host.** *Criconemella ripariensis* sp. n. was found in soil in which *Carex appendiculata* Kuk. was growing on the bank of the Lebedinka river in the Khassan district of the Primorsky region. Soil samples were collected in June 1991.

**Type material.** Holotype female (CRKh691/1) deposited in the collection of Laboratory of Phytone-matology, Institute of Biology and Pedology, the Far East Branch of the Russian Academy of Sciences, Vladivostok. Paratype females (CRKh691/2, 4, 6-9) in the same collection and other paratype females deposited in the collection of the Phytone-matology Laboratory at the Institute of Parasitology, the Russian Academy of Sciences, Moscow.

**Differential diagnosis.** *Criconemella ripariensis* sp. n. is characterized by the presence of 125-150 cuticular annules with digitated posterior edge, large submedian lobes, stylet mean length of  $64-73 \mu\text{m}$ , conoid tail and deformed annules on the dorsally curved terminus.

*Criconemella ripariensis* sp. n. resembles *C. ras-*

*kiensis* (De Grisse, 1964) Luc & Raski, 1981 but differs by having more numerous cuticular rings (125-150 vs 62-72), longer stylet ( $64-73 \mu\text{m}$  vs  $50-56 \mu\text{m}$ ) and by the presence of deformed annules on the tail terminus. Also, *C. ripariensis* sp. n. can be distinguished from *C. solivaga* (Andrassy, 1962) Luc & Raski, 1981 by having narrower and more numerous cuticular annules (125-150 annules of  $4 \mu\text{m}$  wide vs 61 annules of  $8 \mu\text{m}$  wide) and a dorsally curved tail terminus with deformed posterior annules. Comparison between *C. ripariensis* sp. n. and the species *C. raskiensis* and *C. solivaga* was based on the descriptions of these two species given in the book of Ivanova (1976).

*Criconemella ripariensis* sp. n. can be distinguished from *C. jenssiensis* Van den Berg, 1992 by having a clear digitated edge on the cuticular annules, more numerous cuticular annules, longer stylet (in *C. jenssiensis* – 88-102 annules, stylet  $56-62 \mu\text{m}$  long), longer tail length ( $c=10-14$  vs  $16-23$ ), tail with a curved terminus, and deformed terminal annules and the presence of an undivided first cuticular annule on the cephalic end (Van den Berg, 1992).

**Etymology.** The specific name *ripariensis* is derived from the Latin word for "coastal".

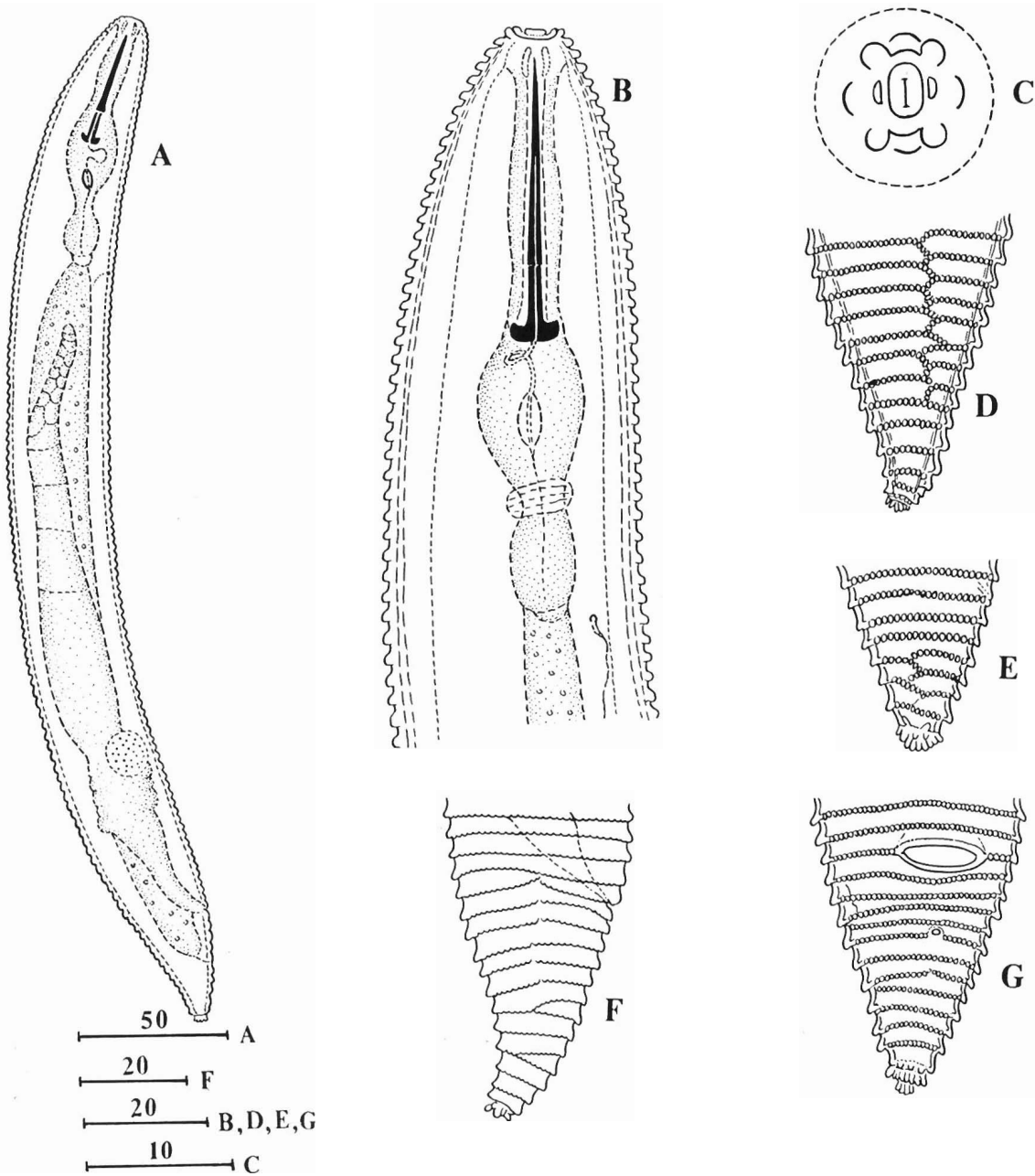


Fig. 2. *Criconemella sigillaria* sp. n. female. A: Total view; B: Anterior end; C: Labial region; D-G: Tail. Bars in  $\mu\text{m}$ .

***Criconemella sigillaria* sp. n.**  
(Fig. 2)

**Holotype female:**  $L=0.32$  mm;  $a=11$ ;  $b=4.2$ ;  $c=18$ ;  $V=90\%$ ;  $\text{stylet}=46$   $\mu\text{m}$ ;  $R=117$ ;  $\text{RSt}=19$ ;  $\text{ROes}=31$ ;  $\text{Rex}=32$ ;  $\text{RV}=11$ ;  $\text{RVan}=5$ ;  $\text{Ran}=6$ .

**Paratype females** ( $n=17$ ):  $L=0.41\pm 0.02$  (0.37-0.45) mm;  $a=11\pm 1.5$  (8-14);  $b=4.4\pm 0.3$  (4.1-5.0);  $c=15\pm 1.6$  (12-18);  $V=89\pm 0.9$  (87-90)%;  $\text{stylet}=49\pm 1.7$  (46-51)  $\mu\text{m}$ ;  $R=121$  (115-127);  $\text{RSt}=21$  (19-22);

$\text{ROes}=35$  (33-37);  $\text{Rex}=37$  (35-39);  $\text{RV}=12$  (11-15);  $\text{RVan}=5$  (5-7);  $\text{Ran}=7$  (5-9).

**Female.** Body slightly curved ventrally. Labial region with four small submedian lobes, slightly developed labial plates, narrower than adjacent cuticular annules. Cuticular annules 4  $\mu\text{m}$  wide with festoons on posterior edge. Anastomoses form broken lines on lateral sides of the body. Stylet comparatively thin, with anchor-like basal knobs 6.4  $\mu\text{m}$  wide.

Metenchium equal to 75% of total stylet length. Dorsal gland duct orifice at 3.5-5 (4.2)  $\mu\text{m}$  posterior to stylet knobs. Oesophagus length 88-104 (94)  $\mu\text{m}$ . Excretory pore at two cuticular annules posterior to oesophagus base. Vulva of open type with non-protruding anterior lip. Spherical and separated spermatheca. Tail conoid, 22-36  $\mu\text{m}$  long. Tail terminus dorsally curved with short digitiform protuberances.

**Male and juveniles unknown.**

**Type locality and host.** *Criconemella sigillaria* sp. n. was recovered from the rhizosphere of *Carex lasiocarpa* Ehn. growing on the bank of the Lebedinka river in the Khassan district of the Primorsky region. Soil samples were collected in June 1991.

**Type material.** Holotype female (CSKh691/1) deposited in the collection of the Laboratory of Phytoneematology, Institute of Biology and Pedology, Vladivostok. Paratype females (CSKh691/2-13) deposited the same collection and other paratype females deposited in the collection of the Phytoneematology Laboratory at the Institute of Parasitology, Russian Academy of Sciences, Moscow.

**Differential diagnosis.** *Criconemella sigillaria* sp. n. is characterized by 115-127 cuticular annules with festoons on the posterior edge and frequent anastomoses, small submedian lobes and slightly developed labial plates on the cephalic end, a comparatively thin stylet 46-51  $\mu\text{m}$  long, oval opened vulva slit, conoid tail and dorsally curved terminus with numerous digitiform cuticular protuberances.

With festoons present on the posterior edges of the cuticular annules *C. sigillaria* sp. n. is similar to *C. incisa* (Raski & Golden, 1966), but can be distinguished by its having a longer stylet (46-51  $\mu\text{m}$  vs 35-40  $\mu\text{m}$ ), and narrower cuticular annules (4  $\mu\text{m}$  vs

6  $\mu\text{m}$ ) and the absence of cuticular projections on the anterior vulvar lip (Raski & Golden, 1966).

Digitiform protuberances on the tail terminus were described for *Criconemella digiticauda* (Eroshenko & Volkova, 1988) comb. n. (= *Macroposthonia digiticauda* Eroshenko & Volkova, 1988), but unlike the newly described species this former species is characterized by a smaller number of cuticular annules - 79-81, which have smooth posterior edges (Eroshenko & Volkova, 1988).

**Etymology.** The specific name *sigillaria* is derived from the Latin *sagillarius* or "ornamented".

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Ерошенко А. С., Волкова Т. В. Два новых вида рода *Criconemella* (Tylenchida: Criconematidae) из лугов Приморского края Дальнего Востока России.

**Резюме.** Описываются два новых вида *Criconemella ripariensis* sp. n. и *C. sigillaria* sp. n., выделенных из ризосферы *Carex appendiculata* и *C. lasiocarpa* на лугах в Хасанском районе Приморского края. *Criconemella ripariensis* sp. n. характеризуется наличием 125-150 кутикулярных колец, стилетом длиной 64-73 мкм, коническим, изогнутым на дорсальную сторону хвостом и деформированными кольцами на терминусе хвоста. *C. sigillaria* sp. n. характеризуется наличием 115-127 кутикулярных колец с анастомозами, стилетом длиной 46-51 мкм, коническим хвостом с дорсально загнутым терминусом и многочисленными пальцевидными выростами на терминусе. *Macroposthonia digiticaudata* Eroshenko & Volkova, 1988 отнесена к *Criconemella digiticaudata* (Eroshenko & Volkova, 1988) comb. n.

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