

Description of a new species of *Plectus* Bastian, 1865 (Nemata : Plectidae) from Mendocino County, California, USA with SEM observations

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SUMMARY

A new species of *Plectus* Bastian, 1865 is described and illustrated, *P. minutus* n. sp. is characterized by its small size, indistinct body annulation, generally one longitudinal ala visible with light microscope on each lateral surface of the body (two seen with SEM), cervical papilla dorsal to lateral ala, high cephalic region not set off from the body, cephalic setae not reaching the apex of the cephalic region, and tail conoid elongated generally with three pairs of setae.

RÉSUMÉ

Description d'une nouvelle espèce de Plectus Bastian, 1865 (Nemata : Plectidae) provenant du Comté de Mendocino (Californie, USA), accompagnée d'observations au MEB

Une nouvelle espèce de *Plectus* Bastian, 1865 est décrite et illustrée. *P. minutus* n. sp. est caractérisé par une petite taille, une annélation indistincte du corps, une seule aile longitudinale généralement visible en microscopie optique (deux visibles en MEB), les papilles cervicales situées dorsalement par rapport à l'aile latérale, une région céphalique haute et non séparée du reste du corps, les soies céphaliques n'atteignant pas l'extrémité de la région céphalique et une queue conoïde allongée portant généralement trois paires de soies.

Samples of soil and roots were collected from sites of spodosolic soil (pH 3.8) located on geologic terraces III (3×10^5 years old) and IV (4×10^5 years old) in Jughandle State Park, Mendocino County, California. Soil samples from the root region of coastal redwood, *Sequoia sempervirens* (Lamb.) Endl.; mendocino cypress, *Cupressus pygmaea* Sarg.; and hairy manzanita, *Arctostaphylos columbiana* Piper, were found to contain different populations of *Plectus* Bastian, 1865. Upon comparison of these specimens with the revisions of the genus *Plectus* by Maggenti (1961) and Andrassy (1985) they were found to be different from previously described species and are herein described as a new species.

Materials and methods

Soil and plant samples were collected from Mendocino County, California. Nematodes were extracted from soil samples by screening followed by Baermann funnels and sugar flotation centrifugation (Jenkins, 1964). Nemas were killed in a small volume of water by adding the amount of boiling 10 % formalin solution to give a final concentration of 5 % formalin; nemas were left in this solution for at least 48 h and then maintained

in storage in 2.5 % formalin. Specimens were subsequently transferred to FAA (24 h) and processed to glycerin, following Thorne's slow method (Thorne, 1961). The population range of body measurements are followed by the standard deviation.

Specimens to be prepared for SEM were taken from mass collection as described above, fixed in FAA (24 h), dehydrated in graded ethanol series and critical point dried, mounted on stubs, according to Abdel-Rahman and Maggenti (1987), coated with gold (300-400 Å), and viewed with ISI-DS 130 dual-stage scanning electron microscope using an accelerating voltage of 10 kv.

Plectus minutus n. sp. (Figs 1, 2)

DIMENSIONS

Female (n = 22) : L = 499-642 μ m (565 ± 42); a = 19.6-35 (28 ± 3.0); b = 3.0-4.1 (3.6 ± 0.3); c = 6.6-8.4 (6.9 ± 0.8); c' = 6.5-9 (8.0 ± 1.5); V = 44-56 (48 ± 3); stoma length = 12-17 μ m (16 ± 2).

Holotype (female) : L = 500 μ m; a = 21.8; b = 3.4; c = 6.6; c' = 6.5; V = 50.3; stoma length = 14.4 μ m.

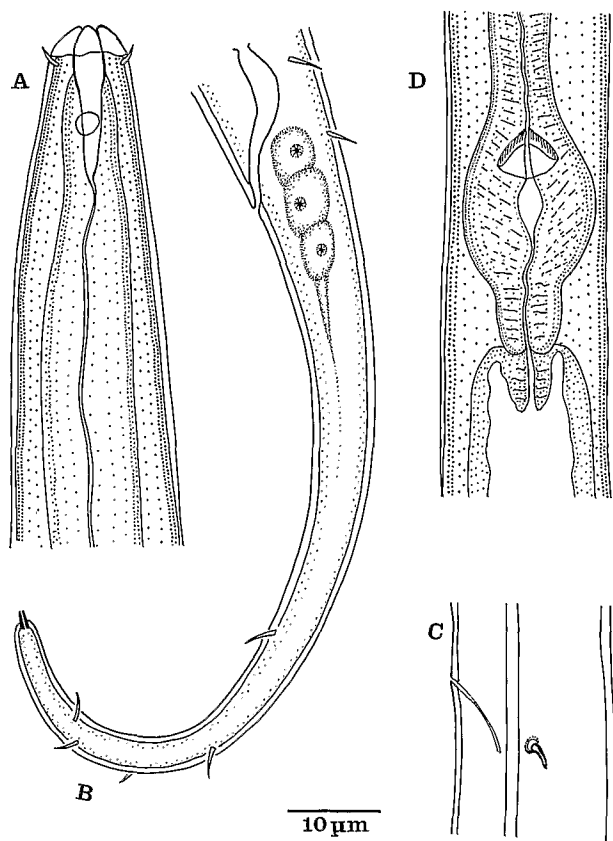


Fig. 1. A-D : *Plectus minutus* n. sp., Female. A : Anterior portion of body; B : Posterior portion of body; C : Lateral ala and cervical papilla; D : Posterior portion of esophagus.

DESCRIPTION

Female : Body vermiform, tapering slightly anteriorly, and more so posteriorly. Posterior portion of the body ventrally curved upon killing and fixation. Body annulation indistinct under light microscope (LM), however, distinct in SEM. Under LM one longitudinal ala, appears as two lines on each lateral side of the body, and it occupies about one tenth of body width at the vulva. With SEM each lateral area is revealed as two closely appressed alae. Labial region not set off from body, six lips, anteriorly narrow, wide posteriorly, fused at base. A circular cephalic plate surrounds oral opening, partially covered by anterior portion of the lips, 7.1-9.1 μm (7.9 ± 0.4) wide and 1.9-3.8 μm (3 ± 0.5) high, cephalic region three times as wide as high. Four cephalic setae located about two annuli posterior to cephalic region. Cephalic setae about 2.3-3.4 μm (2.8 ± 0.31) long and do not reach the anterior apex of the cephalic region.

Stoma wide anteriorly and narrows posteriorly, anterior wide part 45 % of total stoma length; stoma maximum width 2.3-3.8 μm (3.1 ± 0.4). Amphids circular, situated nine annuli posterior to cephalic region surrounded by an elevated rim, 7-11 μm (9 ± 1.7) from anterior extremity, diameter 2-3 μm (2.4 ± 0.3). Amphids occupy about 18-28 % (24 ± 2.8) of body width at their level. Body width at level of the stoma base about one and one-half as wide as lip region 1.2-1.7 μm (1.4 ± 0.1). Excretory pore just posterior to nerve ring about 73-96 (85 ± 6.5) from anterior extremity, at 49-61 % ($57 \% \pm 0.02$) of esophagus length. Cervical papillae setiform, situated outside lateral alae dorsally, just posterior to excretory pore. Esophagus slender elongate with posterior oblong valved basal bulb, prominent posterior extension (trunk) present. Esophago-intestinal valve length about one-third of body width at its level. Vulva near midbody; vagina extends inward about 30 % of the body width at its level. Ovaries two, reflexed, amphidelphic. Body gradually narrows posteriorly to form an elongate filiform tail, terminus with prominent cuticularized spinneret. Tail length about eight anal body diameters. Tail diameter for proximal one-fourth is two-thirds of anal body width; diameter of the terminal one-fourth of tail about 30 % of anal body width. Tail generally with three pairs of setae.

Males : Unknown.

TYPE SPECIMENS

Holotype : Female : collected on 11 June 1980 by A. R. Maggenti and E. M. Noffsinger, Catalogue No. UCNC 2380 University of California Nematode Collection, Davis, California, USA.

Paratypes : 12 females and 2 juveniles, same data as holotype Catalogue No. UCNC 2381, 2382, 2383 University of California Nematode Collection, Davis, California, USA.

TYPE LOCALITY AND HABITAT

Mendocino County, Biological Staircase (Jughandle State Park), Terrace III, Mendocino County, California. From soil around roots of coastal redwood *Sequoia sempervirens* (Lamb.) Endl.

Other Habitats : Soil around roots of mendocino cypress *Cupressus pygmaea* Sarg., and hairy manzanita *Arctostaphylos columbiana* Piper, Jughandle State Park, Terraces III and IV, Mendocino Co., California, USA.

DIAGNOSIS AND RELATIONSHIPS

Plectus minutus n. sp. is recognized by its small body size, indistinct body annulation, one visible (LM) longitudinal ala on each lateral side of the body that occupies

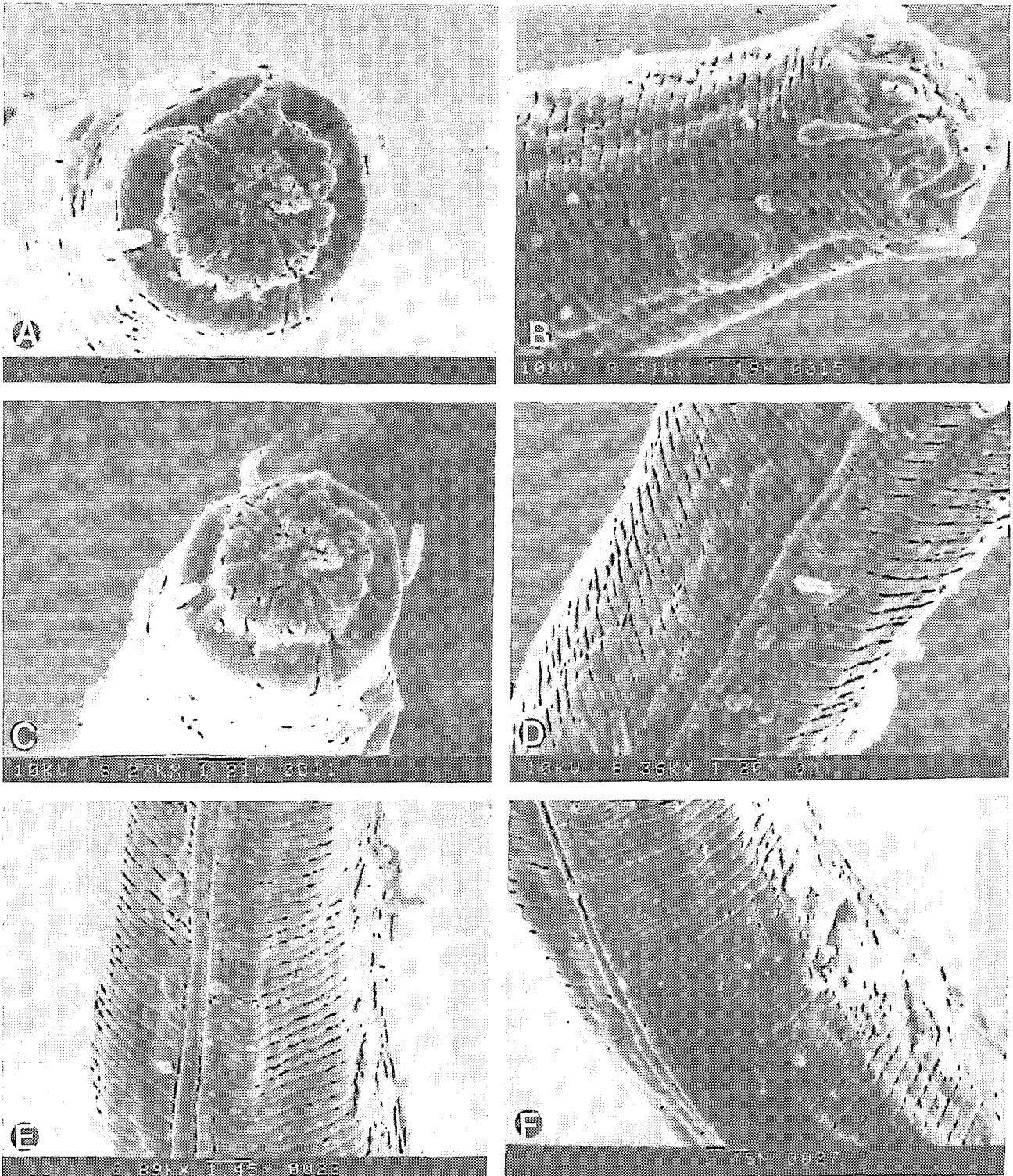


Fig. 2. A-F *Plectus minutus* n. sp., SEM micrographs, Female. A : Face view; B : Anterior portion of body (lateral); C : Anterior portion of body (dorsal); D : Cervical papillae outside dorsal to the lateral alae; E : Lateral alae anterior to vulva; F : Lateral alae at vulval level.

one tenth of body width, cervical papillae situated dorsally outside each lateral ala, vulva almost at mid-body, and tail conoid elongated.

Two other species of *Plectus* reportedly (with LM) have but a single lateral longitudinal ala : *P. annulatus* Maggenti, 1961 and *P. exinocaudatus* Truskova, 1976. *P. annulatus* also has cervical papillae located dorsal to the lateral ala as is seen in *P. minutus*. However, it differs from *P. minutus* by having the labial region well set off and by its very coarse and conspicuous body annulation. *P. minutus* further differs by its smaller body size : 499-642 μm vs 948-1130 μm for *P. annulatus*.

P. minutus differs from *P. exinocaudatus* by its larger body size : 499-642 μm vs 340-348 μm . *P. exinocaudatus* also has a larger stoma/cephalic width ratio, 3 : 1 vs 2 : 1 for *P. minutus*.

Andrássy (1985) relates and compares *P. exinocaudatus* with *P. longicaudatus* Bütschli, 1873. In running Andrássy's key, *P. minutus* also falls close to *P. longicaudatus*; however, one important character that clearly separates these two is the placement of the cervical papilla dorsal to the lateral ala in *P. minutus* and its

placement between the clearly discernible dual alae in *P. longicaudatus*. Further distinctions are observed in the higher labial region in *P. minutus* coupled with shorter cephalic setae [2.8 μm (2.3-3.4) vs 4 μm (4-5)] that do not reach the apex of the cephalic region.

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