

## *Acanthomicrolaimus jenseni* N.G., N.SP, (Nematoda : Microlaimidae) from marine sand

A.C. Stewart and W.L. Nicholas

Department of Zoology, Australian National University, PO Box 4,  
Canberra ACT, Australia

**Abstract** : A new species and genus of Microlaimidae, *Acanthomicrolaimus jenseni*, is described. It differs from other genera in the extremely spiny cuticle and the very unequal development of the two testes in the male. It was found in sand just beyond extreme low tide on an Australian beach.

**Résumé** : Une nouvelle espèce et un nouveau genre de Microlaimidae sont décrits, *Acanthomicrolaimus jenseni*. Ce dernier diffère des autres genres par la cuticule extrêmement épineuse et par le développement très inégal des deux testicules chez le mâle.

### INTRODUCTION

A small very spiny species of *Microlaimidae* was found in a shifting sand bar just beyond extreme low tide on a relatively sheltered Australian ocean beach. A few specimens were found in 1979 and more at the same location in 1984. Repeated attempts to recover more specimens were unsuccessful and we suspect that its normal habitat is in shallow offshore sand.

### MATERIAL

#### Location of Type Material

The holotype ♂ and allotype ♀ have been placed in the helminth collection in the South Australian Museum. Paratype males will be offered to the British Museum (Natural History), the Institut für Meeresforschung, Bremerhaven and the Museum National d'Histoire Naturelle, Laboratoire des Vers, Paris.

#### Habitat

All the specimens were collected in 1984 from a shifting sand bar connecting Broulee Island to Broulee beach on the coast of NSW, Australia. They were collected from sand immediately beyond the extreme low tide mark.

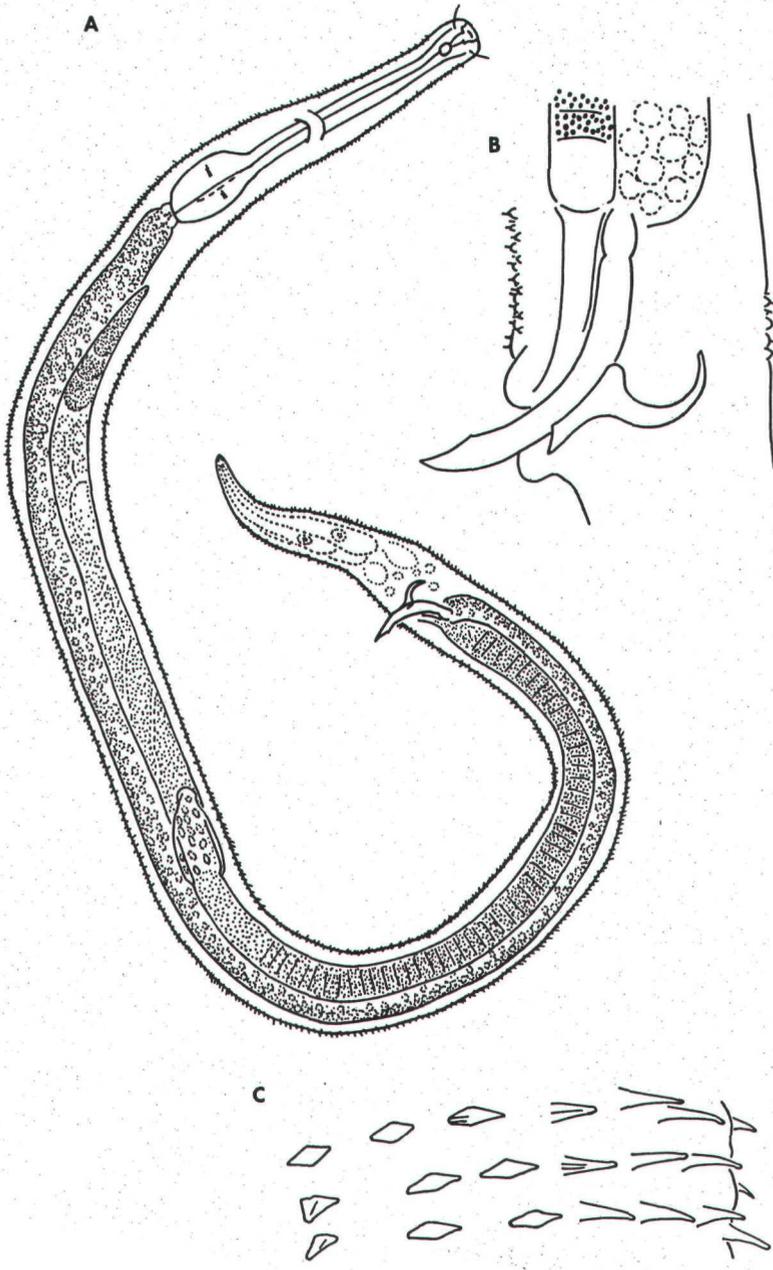


Fig. 1 : Holotype ♂ *Acanthomicrolaimus jenseni*. A, whole animal ; B, spicules and gubernaculum ; C, cuticular spines.

Measurements (in  $\mu\text{m}$ )

*Holotype* ♂ : L = 728, a = 26, b = 6.1, c = 9.3. Head 14, oesophagus 119, anus 650 from head end. Cephalic setae 9, spicule chord 28, arc 38, gubernaculum 11, post-anal tail 78, max. width 28.

*Allotype* ♀ : L = 647, a = 23, b = 6.0, c = 8.3, V = 50.7 %. Head 9, oesophagus 108, vulva 328, and anus 569 from head. Cephalic setae 8, tail 78, max. width 28.

*Paratypes* ♂ , n = 7 : L = 633 to 830, a = 20-26, b = 5.1-6.3, c = 8.3-11.3. Oesophagus 118-131, anus 558-752, tail 74-78, spicule chord 30-38, gubernaculum 19-23, cephalic setae 8-12.

*Paratype* ♀ : L = 755, a = 22, b = 6.1, C = 11, V = 50.7 %. Oesophagus 124, vulva 375, anus 686, tail 69, cephalic setae 8.

## Description

*Holotype male*, Fig. 1. Small with bulbous head with four strong cephalic setae, 9  $\mu\text{m}$  long, inserted just posterior to maximum head diameter of 16  $\mu\text{m}$ . The six minute outer labial papillae at the tip of the head are difficult to see and the inner labial papillae were not observed. The strong circular amphid, 5  $\mu\text{m}$  diameter, lies about 13  $\mu\text{m}$  from the anterior end at the level of the base of the buccal cavity (Pl. B).

The buccal cavity is heavily sclerotised, partially separated into an anterior chamber, with clearly defined longitudinal ridges, and a posterior chamber. There are three asymmetrically placed teeth, the dorsal largest. The oesophagus has a powerful oval bulb, 32  $\mu\text{m}$  long, without a thicker cuticular lining. The short cardia leads from the oesophagus to the intestine, with coarsely granular cells. There is a short conical post-anal tail. The body is covered with very strong sharply pointed spines, arranged in annular and longitudinal rows, see Fig. 3C-F, beginning just in front of the amphids and extending the length of the body to the tip of the tail. These make it impossible to find the excretory pore and obscure the nerve ring. There are two opposed testes but the posterior testis, to the right of the vas deferens, is very reduced, lying about the middle of the body, while the anterior testis reaches almost as far forward as the oesophageal bulb. A prominent vas deferens runs from the junction of the testes to the anus. The two curved spicules measure from 33  $\mu\text{m}$  to the tip of the head along the greater circumference, with chord length 30  $\mu\text{m}$ . The gubernaculum has a dorsal anteriorly directed apophysis.

*Allotype female*, Fig. 2. The female closely resembles the holotype male, though slightly smaller. Apart from the gonads and accessory sexual organs it fits the above description. There are two outstretched female gonads, lying ventral to the intestine and joining a median vulva. The gonads contain developing oocytes but no shelled eggs. The rectum is 20  $\mu\text{m}$  long.

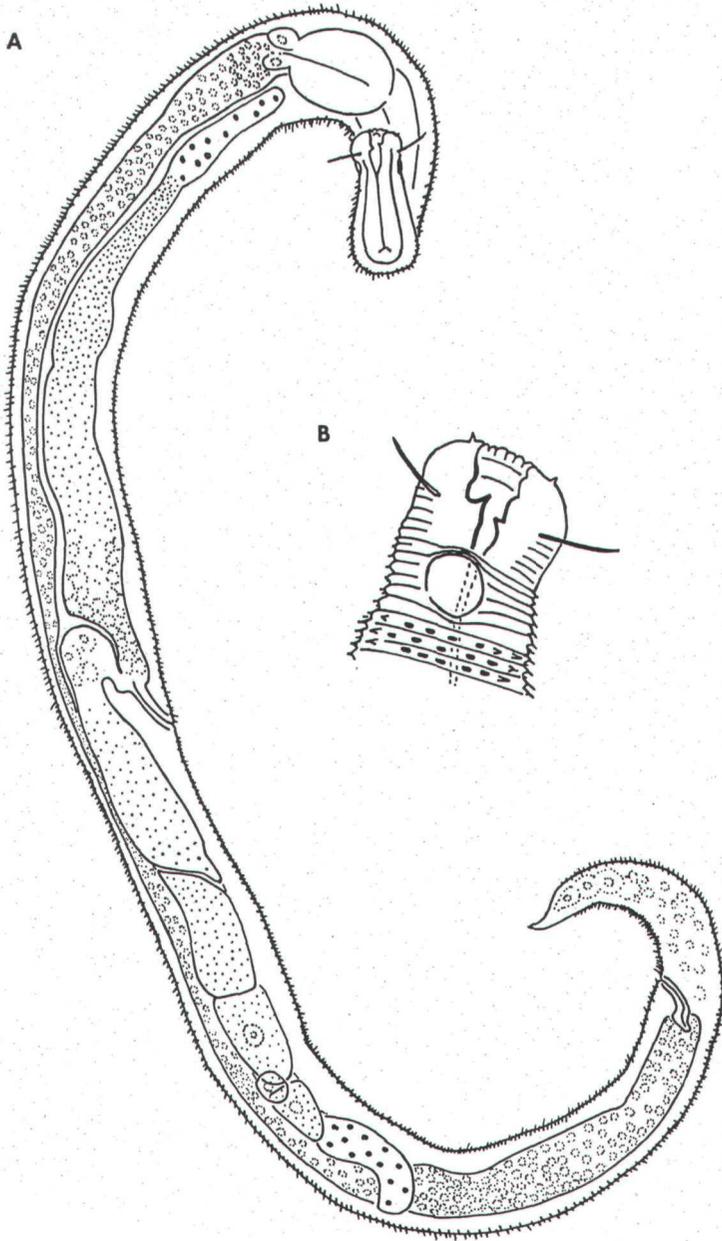
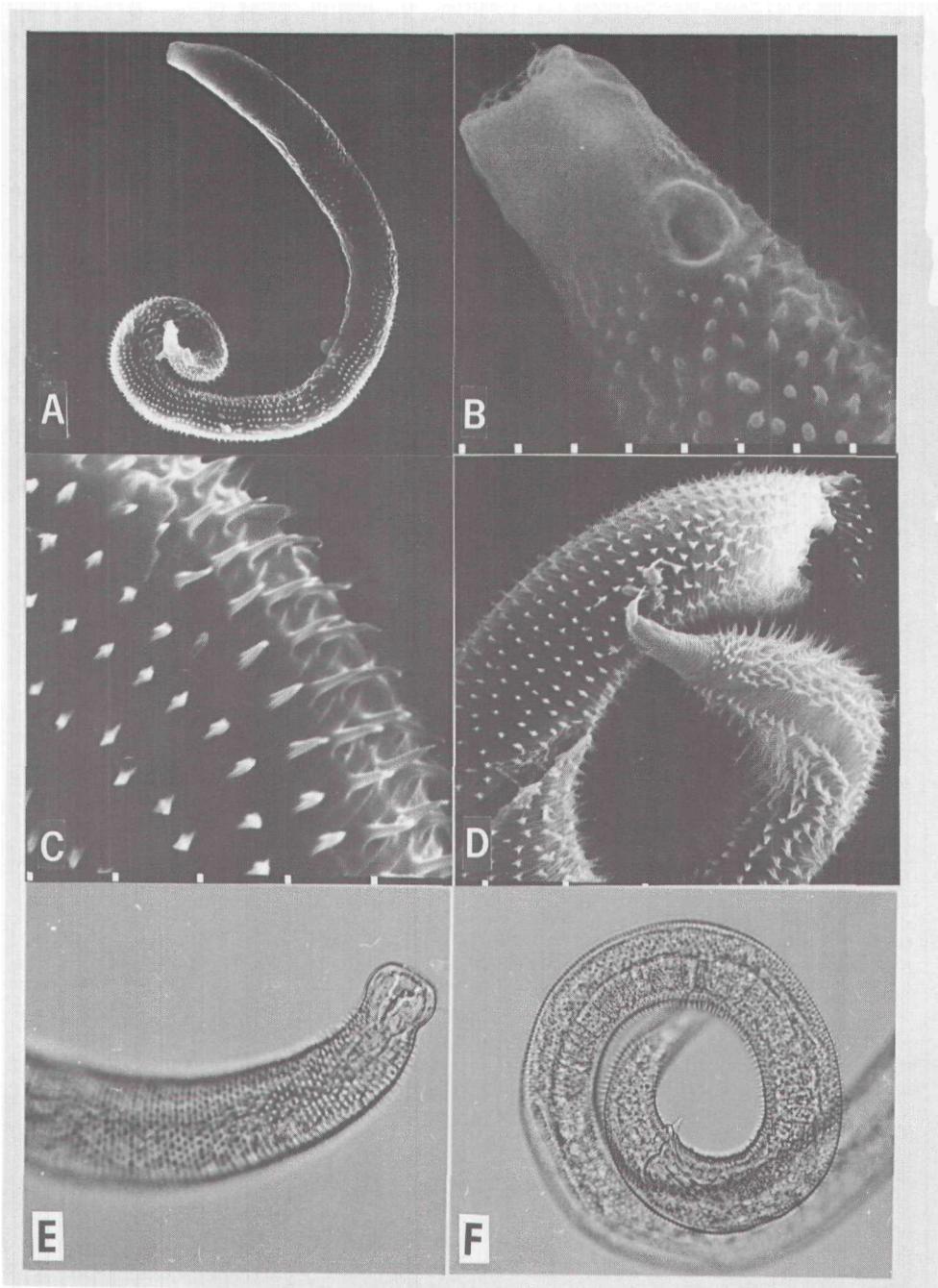


Fig. 2 : Allotype ♀ *Acanthomicrolaimus jenseni*. A, whole animal ; B, head, cephalic setae and amphid.



A.C. STEWART, W.L. NICHOLAS

PLATE *Acanthomicrolaimus jenseni*. A, SEM photomicrograph showing shape and body spines ; B, SEM amphid ; C and D, SEM, cuticular spines ; E and F, light microscope photomicrographs showing spines and annulation.

*Paratypes.* Measurements are given as above of seven paratype males and one paratype female.

#### Differential Diagnosis

The bulbous head, position of head sensilla, circular amphids, double chambered buccal cavity and body shape are typical of the Microlaimidae. The presence of a large oval oesophageal bulb, without strong cuticular lining, and two outstretched gonads place the species in the Microlaiminae. The long spines clothing the entire body surface distinguish the species from other genera of Microlaimidae, although some other species of *Microlaimus* do possess bars or punctuation on the cuticle. The spines are illustrated by SEM and light photomicrographs in the Plate. The spinous cuticle together with the extreme reduction of the posterior testis in the male justify, in our view, new generic status for this species. The species is named after Preben Jensen who has monographed the family (Jensen 1978), and helped us in our work.

#### ACKNOWLEDGMENTS

We are grateful to Dr Preben Jensen for examining one of our paratypes and advising us on its structure.

#### REFERENCE

JENSEN P., 1978. Revision of Microlaimidae, erection of Molgolaimidae, from fam. n., and remarks on the systematic position of *Paramicrolaimus* (Nematoda, Desmodorida). *Zoologica Scripta* 7: 159-173.