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A NEW LARVAL SMARIDID MITE
(ACARINA : SMARIDIDAE) FROM COSTA RICA

BY R. V. SOUTHCOTT *

TAXONOMY

SUMMARY: Surasmaris longirostris gen. nov., sp. nov., is described from Costa Rica. A key is given to the genera of Smarididae of the world, for larvae.

TAXONOMIE


INTRODUCTION

The family Smarididae was founded by Vitzthum (1929). The first worker to describe a larva in the family was Paoli (1937) (which he placed in the Erythraeidae), who reared larvae of Phanolophus oedipodarum (Frauenfeld, 1868) to protonymphal and deutonymphal instars, identifying them as Smaris magnifica (Berlese, 1918). The correlation was confirmed by further experimental rearing by Daniel and Samšič (1955), under the name of Phanolophus nasica André, 1927. These synonymies were established by Southcott (1961).

Two further genera in the Smarididae have been successfully correlated between larval and post-larval instars by experimental rearing, these being Smaris Latreille, 1796 (restricted by Womersley and Southcott, 1941); these authors reared larva to deutonymph in the Australian Smaris prominens Banks, 1915) and Sphaerotarsus Womersley, 1934. The latter genus had a species (S. leptopilus Womersley and Southcott, 1941), of Australia, successfully reared from adult to larva, by Southcott (1960).

Other genera which have been correlated between larval and post-larval instars, on the basis of field correlation or morphological grounds, are Clipesoma, Southcott, 1948, Pilosoma Southcott, 1961 (for Oecosmaris Grandjean, 1947, for the larva only), and Neophanolophus Shiba, 1976.

Recently Dr Evert E. Lindquist, Biosystematics Unit, Canadian National Collection, Ottawa, has sent the author a series of larvae collected in Costa Rica, which represent a new genus and species, described below.

MATERIAL AND METHODS

Larvae were forwarded from the Canadian National Collection, Ottawa. One specimen had been slide-mounted, the other four were in ethanol. The latter were cleared in 50 % lactic acid solution and mounted in Hoyer's medium. Seta and other terminology follows Southcott (1992); additional term introduced is bothriala, for the setae originating in the leg trichobothria. Microscopy was by use of a Leitz Ortholux microscope with phase-contrast and polarizing facilities. All drawings were made using a camera lucida drawing attachment. All measurements are in micrometres (μm) unless otherwise specified.

Surasmaris gen. nov.

DIAGNOSIS

Smarididae, larva. One eye on each side. Dorsal idiosomal scutum kite-shaped, with two pairs of scutalae. AL scutalae arise behind middle of
Sensillary setae of scutum slightly expanding, with numerous fine setules throughout length. Anterior sensillary setae with bases anterior to bases of AL scutalae. Posterior sensillary setae with bases near posterior pole of scutum. Legs long and thin. Genu I with ten solenoidalae and five bothrialae. Tibia I with three solenoidalae and five bothrialae. Tarsus I with three bothrialae. Chelicerae elongate. Palpal odontus simple, undivided, with small accessory tooth (paradont).

Type species *Surasmaris longirostris* sp. nov.

Etymology: *Surasmaris*: from the site of capture and the word *Smartis*; the specific name refers to the elongate cheliceral bases.

### *Surasmaris longirostris* gen. nov., sp. nov.
(Figs. 1–4)

**Diagnosis.** With the characters specified for *Surasmaris*, supra.


**Description of holotype, slide-mounted.**

Colour in life not available. Idiosoma elongate-ovoid, length 245, width 140; total length of animal from tip of chelicerae to posterior pole of idiosoma 335.

Dorsal scutum kite-shaped, anterior end pointed, posterior end rounded, anterolateral margins almost straight, posterolateral margins concave. Scutalae blunt-ended, catkin-like, with numerous fine, pointed setules; AL Scutalae tapering, arising behind middle of scutum, PLs thinner, at the posterolateral angles of scutum, posterolateral to the ALs. Sensillary setae thickened, with numerous fine setules throughout length, anterior sensillary setae expanding slightly with longer distal setules, posterior sensillary setae similar but more expanded distally. Anterior sensilla in anterior one-third of scutum, posterior sensilla towards posterior pole of scutum.

**Metric data of holotype and paratypes as in Table 1.**

**Table 1: Metric data for *Surasmaris longirostris* gen. nov., sp. nov. larvae**

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* No seta is close to the eye; the one measured could be called a ‘humeral’ seta.
Fig. 1: Surasmaris longirostris gen. nov., sp. nov., larva, holotype.
A. — Dorsal view, legs omitted beyond trochanters. B. — Tip of palp, dorsolateral aspect. (Each to nearer scale).
Fig. 2: *Surasmaris longirostris* gen. nov., sp. nov., larva, holotype.
A. — Ventral view, legs omitted beyond trochanters. B. — Tip of palp, ventrolateral aspect. (Each to nearer scale).
Fig. 3: *Surasmaris longirostris* gen. nov., sp. nov., larva, holotype. Legs I, II, III, coxae to genua, to standard symbols. All to scale shown.
FIG. 4: *Surasmaris longirostris* gen. nov., sp. nov., larva, holotype.
Legs I, II, III, tibiae and tarsi, to standard symbols. All to scale shown.
Eyes on lateral margins of idiosoma, cornea prominent, 16 across.

Dorsal idiosomalae almost parallel-sided, narrowing slightly distally, blunt-ended, with numerous fine, pointed setules; about 31 setae present, in vague transverse rows.

Ventral surface of idiosoma: sternalae I thin, pointed, with faint setules; level with coxae I. Two intercoxalae present, pointed, with numerous fine setules, 56 long, bases 55 apart, arising about midway between levels of coxae II and III. Behind coxae III are two rows of finely setulose setae, arranged 4, 2; anterior row with middle setae 49 long, laterals 38 long, pointed; posterior row of blunt-ended setae 26-27 long.

Legs extremely long; lengths (coxae to claw tips) I 1065, II 940, III 1195. Coxalae with numerous fine, pointed setules, I, II pointed, III blunt-ended.

Other leg scobalae pointed, well setulose with numerous fine setules.

Leg specialized setae as follows: leg I carries supernumerary solenoidalae on genu and tibia, and trichobothrial setae ('bothrialae') on tibia and tarsus. Enumeration of leg specialized setae is as follows: Genu I with 10 solenoidalae in distal half of segment, 29-38 long, in anterodorsal to posterodorsal placement, also with five bothrialae TbGeI.65ad(22), TbGeI.72pd(32), TbGeII.78a(50), TbGeII.83v(53), TbGeII.92p(57). No vestigiala identified on genu. Tibia I with three solenoidalae SoTII.79d(66) (large, prominent), SoTII.95d(55), also five bothrialae TbTil.26ad(48), TbTII.61d(45), TbTII.62pd(40), TbTil.70pd(43), TbTII.71v(40), VsTII.96pd(4). Genu II without specialized setae.

Tibia II with SoTIII.11d(24), SoTIII.94pd(16) (blunt-ended), vestigiala absent. SoTIII.06d(34). Tarsus I with SoTaI.31d(58), TbTaI.29d(34), TbTaI.33ad(23), TbTaI.80pd(29). Famala absent. Tarsus II with SoTaII.21d(27) (pointed).

Tarsal claws smooth, falciform.

Gnathosoma: long and slender; chelicer bases 84 long by 34 wide (combined); chelicer digits short, 9 long, pointed. Galea simple, pointed, 16 long. Hypostomala (Phy) slender, simple, pointed, c. 15 long. Palpal setal formula 0, 1, 1, 3, 6; palpal femorala, genuala blunt-ended, with numerous fine setules; lateral tibiala (tibiala 2) pointed, slender, simple. Other palpal setae as figured. Palpal supracoxala blunted, peg-like, 5 long, in dorsal position.

**KEY TO GENERA OF SMARIDIDAE LARVAE**

1. Two eyes on each side.......................... 2
   One eye on each side.......................... 5

2 (1). Anterior scutal sensilla posterior to level of PL scutalae bases. Posterior eye much smaller than anterior .................. Neophanolophus Shiba, 1976
   — Anterior scutal sensilla anterior to level of PL scutalae bases. Posterior eye about the same size as the anterior.................. 3

3 (2). Anterior scutal sensilla anterior to level of AL scutalae bases.......... Filosoma Southcott, 1961
   — Anterior scutal sensilla posterior to level of AL scutalae bases .......... 4

4 (3). Dorsal scutum crescentic, with deep anterior concavity ............. Smaris Latreille, 1796
   — Dorsal scutum rounded, with shallow anterior concavity ............... Phanolophus André, 1927

5 (1). Palpal tibial claw (odontus) with two distinct prongs. Genu I with four solenoidalae. Tibia I with three solenoidalae ...... Clipeosoma Southcott, 1948
   — Palpal tibial claw (odontus) not dividing into two widely separating prongs .................. 6

6 (5). Palpal tibial claw (odontus) with a narrow terminal split, and with an outstanding accessory basal tooth (paradont). Genu I with 5-6 solenoidalae. Tibia I with four solenoidalae... Sphaerotarsus Womersley, 1934
   — Palpal tibial claw (odontus) entire, and with a small basal accessory tooth. Genu I with 10 solenoidalae. Tibia I with 3 solenoidalae... Surasmaris gen. nov.

**REMARKS ON THE CHAETOTOXY OF LARVAL SMARIDIDAE**

Grandejean (1947) pointed out that the larval Smarididae are characterized by having pedal trichobothrial setae. In some cases there is a well-developed bothridial pit and an accompanying swelling of the nearby part of the leg segment; in others the pit is shallow, and not accompanied by segmental swelling. However the setae can be recognized by the uniformity of their length, and their evident flexibility.
ACKNOWLEDGEMENTS

I thank Dr Evert E. Lindquist, Biosystematics Unit, Department of Agriculture, Ottawa, Canada, for sending me the specimens of Surasmaris longirostris larva.

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