Towards the knowledge of tropical Protura

by

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With 4 figures

SUMMARY

Three new species *Eosentomon ceylonicum* sp. n., *Eosentomon temannegarai* sp. n. and *Australentulus hauseri* sp. n. are described. The description of a female of *Eosentomon bolivari* Bonet, 1949 is given.

Eosentomon ceylonicum sp. n.

Figs. 1 A-I

Holotype: ♂ from Kandy, Udawattekele Sanctuary (Central Ceylon), 600 m alt. The sample was taken on the margin of forest 22.1.1970 C. Besuchet et I. Löbl leg.

Holotype mounted in Swan's medium kept in Muséum d'Histoire naturelle de Genève.

Description: Length of body 1200 μ , foretarsus without claw 120 μ .

Head. — Mouthparts with very strong striated mandible (fig. 1 C). Pseudoculus very distinct, PR = 13 (fig. 1 D). Clypeal apodeme strongly developed.

Thorax. — Spiracles are smaller than pseudoculus (fig. 1 E). Foretarsus is characterized with very long a' and f_1 sensillae. Sensillae b'_1 and b'_2 are broadened in their first half. Praetarsal sensilla s overreaching the claw (figs. 1 A, B). The ratio of sensillae on foretarsus on exterior side $a:b:x:c:d:e:f_1:f_2:g$ as 15.5:22:43:17:24:22:26:15:22.5; on inner side $a':b'_1:b'_2:c'$ as 52:17.5:17.5:14. TR = 6.7, BS = 1.7, EU = 0.8. The hind tarsus with strong claw and very strong dorsal spine (fig. 1 F).

Abdomen. — Central lobe of praecosta deeply incised (fig. 1 G). p'_1 greatly surpassing p_1 in terg. I-VI (fig. 1 H). Squama genitalis ♂ is characterized by very strong basal apodeme (fig. 1 I). Survey of chaetotaxy in TUXEN's system:

	I	II-III	IV	V-VI	VII	VIII	IX-X	XI	XII
terg.	$\frac{4}{10}$	$\frac{10}{16}$	$\frac{8}{16}$	$\frac{8}{16}$	$\frac{2^x}{16}$	$\frac{6}{9}$	8	8	9
stern.	$\frac{4}{4}$	$\frac{6}{4}$	$\frac{6}{10}$	$\frac{6}{10}$	$\frac{6}{10}$	$\frac{2}{7}$	4	8	12

FIG. 1.

Eosentomon ceylonicum sp. n. ♂: A. Foretarsus in ventral view. — B. Foretarsus in dorsal view. C. Mouthparts: mdb—mandible, la—lobus externus. — D. Pseudoculus. — E. Metathoracic spiracle. — F. The hind tarsus. — G. Central lobe of praecosta VI. — H. The ratio $p_1 : p'_1$ on terg. IV. — I. Male squama genitalis.

Affinity. The chaetotaxy of *Eosentomon ceylonicum* sp. n. is closely related to *Eosentomon womersleyi* Bonet, 1942 known from Australia. It belongs probably to "swani" group.

***Eosentomon temannegarai* sp. n.**

Figs. 2 A-G

Holotype: ♂ from Teman Negara National Park (Malaysia) 240 m alt., climax lowland rainforest, 27.6.1973 P. Schauenberg leg.

Holotype mounted in Swan's medium kept in Muséum d'Histoire naturelle de Genève.

Description: Length of body 750 μ , foretarsus without claw 71 μ . Body colour: Thorax reddish brown, the rest of body dark yellow coloured.

Head. — The mouthparts are clearly seen but only in lateral position. Pseudoculi slightly divided with a rounded deepness in the first third (fig. 2 D); PR = 12.

Thorax. — Spiracles approximately of the same length as pseudoculus (fig. 2 E). Foretarsus is characterized with the presence of b'_1 and b'_2 , and with empodium a little longer than the claw. Sensillae b , e , g nearly the same length. Praetarsal sensilla s does not reach the tip of the claw (figs. 2 A, B, C). The ratio of sensillae on the exterior side of foretarsus $a:b:x:c:d:e:f_1:f_2:g$ as 12:21:29.5:11:13:22:12:8:20; on inner side $a':b'_1:b'_2:c'$ as 18:12:19:13. TR = 4.0, BS = 1.1, EU = 1.1. The hind tarsus with very strong unguis and weakly developed dorsal spine (fig. 2 F).

Abdomen. — Central lobe of praecosta deeply incised. p_1 by-passing p'_1 in terg. I-VI (fig. 2 G).

Survey of chaetotaxy in TUXEN's system:

	I	II-III	IV	V-VII	VIII	IX-X	XI	XII
terg.	$\frac{4}{10}$	$\frac{10}{16}$	$\frac{4}{16}$	$\frac{2}{16}$	$\frac{6}{9}$	8	8	9
stern.	$\frac{4}{4}$	$\frac{6}{4}$	$\frac{6}{10}$	$\frac{6}{10}$	7	4	8	12

Affinity. *Eosentomon temannegarai* sp. n. is closely related to *Eosentomon paktai* Imadaté, 1965, but differs from it first of all in BS and in ratio of $p_1:p'_1$ and in the length of b'_2 . Chaetotaxy is the same as in *E. paktai* Im.

***Australentulus hauseri* sp. n.**

Figs. 3 A-G

Holotype: m.j. from Teman Negara National Park, 240 m alt., climax lowland rainforest, 27.6.1973 P. Schauenberg leg.

Holotype mounted in Swan's medium kept in Muséum d'Histoire naturelle de Genève.

Description: Length of body 900 μ , foretarsus without claw 109 μ .

Head. — A distinct and fairly long rostrum, LR = 5.1 (Fig. 3 F). Maxillary palpi with two distinct lateral sensillae, tapering towards apex, well developed (fig. 3 F).

FIG. 2.

Eosentomon temannegarai sp. n. ♂: A. Foretarsus in exterior view. — B. Foretarsus in interior view. — C. The claw with empodium and sensilla *s*. — D. Pseudoculus. — E. Metathoracic spiracle. — F. The hind tarsus.

FIG. 3.

Australentulus hauseri n. sp. m.j.: A. Foretarsus in exterior view. — B. Foretarsus in interior view. — C. Pseudoculus. — D. Canal of maxillary gland. — E. Labial palp. — F. Rostrum and maxillary palp. — G. Terg. VIII with comb and chaetotaxy.

Labial palpi reduced with well developed foliaceous sensilla and three setae (fig. 3 E). Pseudoculi are longer than broad (fig. 3 C) $PR = 13$. Canal of maxillary gland with relatively short proximal part which is a little longer than diameter of pseudoculus. The distal part with a sausage-shaped dilatation (fig. 3 D).

Thorax. — In the foretarsus, the most remarkable character is that sensillae *b* and *c* similarly as the sensillae *e* and *f* are quite close to each other. *a'* is very broad, sword-like (figs. 3 A, B). The ratio of sensillae on foretarsus in exterior view $a:b:c:d:e:f:g$ as 50.5:41.5:45.5:43.5:41:47:46; in interior view $a':b':c'$ as 30:34.5:40. $TR = 3.66$, $BS = 0.35$, $EU = 0.14$.

Abdomen. — Abdominal legs II-III with 3 setae. Comb VIII with 9 sharp teeth (fig. 3 G).

Abdominal chaetotaxy is the same as in *Australentulus reginae* Tuxen, 1967.

Survey of chaetotaxy in Tuxen's system:

	I	II-III	IV	V-VI	VII	VIII	IX	X	XI	XII
terg.	$\frac{6}{10}$	$\frac{6^1}{18}$	$\frac{6}{18}$	$\frac{8^2}{18}$	$\frac{8}{18}$	$\frac{6}{16}$	14	12	6	9
stern.	$\frac{3}{4}$	$\frac{3}{5}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	4	4	4	6	6

¹ a_1 , a_2 and a_5 . ² also a_4 .

Affinity. *Australentulus hauseri* n. sp. is closely related to *Australentulus reginae* Tuxen¹ 1967 but differs from it in the position of sensillae *e* and *f* (in *A. reginae* Tx *e* is situated near to *g*), in the length of *a'* reaching only to t_2 and in the length of *b'* reaching only to α_5 . (in *A. reginae* Tx *a'* over passes b_2 and *b'* reached to *c'*). Also TR, BS and EU are different (in *A. reginae* Tx $TR = 4.0$, $BS = 0.40$, $EU = 0.2$).

Derivatio nominis. Named in honour of Dr. Bernd Hauser, Muséum d'Histoire naturelle de Genève.

Eosentomon bolivari Bonet, 1949

Figs. 4 A-E

Locality in which the animal was found: Guatemala, near the route of Coban-Lanquin at km 242, the sample was taken in coniferous forest, 1450 m alt.—2 ♂, 1 ♀, 1 m.j. 2 I II—7.4.1973 P. Strinati leg.

This species was described exclusively on features in the chaetotaxy of a male. Tuxen (1964) redescribed the holotype and characterized it: "Foretarsus with very long sensillae, especially *a'* and *b* as well as b'_2 and t_2 ; the latter two are alike and of a different shape to those of *wheeleri*. *a* does not reach γ_2 whereas *c* reaches γ_3 . f_2 long and slenderly club-shaped. Praetarsal sensilla *s* with short and big "head", empodium only fairly dilated apically. t_1 closer to α_3 than to α'_3 . $BS = 0.8$, $EU = 1$ or nearly so. $TR = 5.5$

Chaetotaxy. p'_1 is short on thorax II-III and level with the line p 1-2. p'_1 reaches p_1 on the tergites I-VI. The most unusual feature is the presence of an extra accessory seta between p_1 and p_2 on the tergites I-VI, p''_1 . This species was very well redescribed

¹ My thanks are due to Prof. Dr. S. L. Tuxen, Universitetets Zoologiske Museum, Copenhagen, for comparison of *A. hauseri* with Australian material of *reginae* Tx (♂).

FIG. 4.

Eosentomon bolivari Bonet, 1949: A. Foretarsus in exterior view (♂). — B. Foretarsus in interior view (♂). — C. Foretarsus in ventral view (♀). — D. Mouthparts: mdb—mandible. — E. Squama genitalis ♀.

by Tuxen (1964), so I have very little to add after examination of specimens from Guatemala. The all body marks inclusive chaetotaxy in Guatemalan ♂ and ♀ agree with Tuxen redescription as well. Only a deviation in TR was observed (TR = 4.5).

The ratio of sensillae on foretarsal exterior side $a:b:x:c:d:f_1:f_2:g$ as 17:32:43:24.5:21:27:19:14:28.5; on inner side $a':b':c'$ as 38:29:13 (figs. 4 A, B, C). Mandible striated, strong with few apical teeth (fig. 4 D). PR = 9.

Squama genitalis ♀ (fig. 4 E).

Length of body 1400-1500 μ , foretarsus without claw 109 μ .

REFERENCES

- IMADATÉ, G. 1965. Proturans-fauna of Southeast Asia. *Nature Life S.E. Asia*. 6: 195-302.
- PRABHOO, N. R. 1972. South Indian Protura. I. Two new species and three new records of Acerentomoidea. *Revue Écol. Biol. Sol.* 9: 711-718.
- TUXEN, S. L. 1964. The Protura. A revision of the species of the world with keys for determination. *Hermann, Paris*. 360 pp.
- TUXEN, S. L. 1967. Australian Protura, their phylogeny and zoogeography. *Z. Zool. Syst. Evolforsch.* 5: 1-53.
- YIN, W. Y. 1965. Studies on Chinese Protura. I. Ten species of the genus Eosentomon from Nanking-Shanghai regions. *Acta ent. sin.* 14: 71-92.

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1976. "Towards the knowledge of tropical Protura." *Revue suisse de zoologie* 83, 255–262. <https://doi.org/10.5962/bhl.part.91438>.

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