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FIRST RECORD OF THE GENUS *AMPHIENTULUS* TUXEN, 1981 (PROTURA: BERBERENTULIDAE) FROM CHINA, WITH DESCRIPTION OF A NEW SPECIES

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***ABSTRACT*. –** *Amphientulus sinensis,* a new species from Guangdong and Hainan, south China is described. Comparison between the new species and *Amphientulus ruseki* (Nosek, 1978) from Madagascar is provided.

***KEY WORDS*. –** Protura , *Amphientulus,* first record, new species, China.

INTRODUCTION

The genus *Amphientulus* was established by Tuxen (1981) for some species removed from *Berberentulus.* It belongs to the genera of the family Berberentulidae with reduced striate band on abdominal segment VIII, with the subapical and the delicate median apical seta on abdominal legs II-III, and with simple canal of maxillary gland. All species in genus *Amphientulus* are characterized by the presence of foretarsal sensillia *b*' (missing in *Berberentulus*). They often have the hook-shaped design on the "striate band" on abdominal segment VIII and the lateral apical seta instead of the median one on abdominal legs II-III. There are six Australian species, one Korean and one Madagascarian species in genus *Amphientulus*. The present paper reports a new species from China. The specimens have been collected in Guangdong and Hainan through the soil faunistic surveys in China from 2001 to 2003. Type specimens are deposited in the collection of Institute of Entomology, Shanghai Institutes for Biological Sciences (SIE), Chinese Academy of Sciences, and the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research, National University of Singapore.

TAXONOMY

Amphientulus sinensis, new species
(Figs. 1-17)

***Material examined.* –** Holotype-female (mounted) (SIE) (P-GD-020921), from Mt. Dinghu (23°9'N 112°30'E), 290 m alt., Guangdong Province, China, coll. Mr. Qiang Liu, 21 Sep.2002. Paratypes – 6 females, 3 males, 2 maturi juniores (mounted) (SIE) (P-GD-021209) and (P-GD-030225); 1 female, 1 male (ZRC), same locality as holotype, coll. Mr. Qiang Liu, 25 Feb.2003, 9 Dec.2002; 1 female (SIE) (P-HN-021217), Mt. Jianfengling (18°23'N 108°36'E), 340 m alt., Hainan Province, China, coll. Mr. Qiang Liu & Mrs. Yan Xiong, 17 Dec.2002.

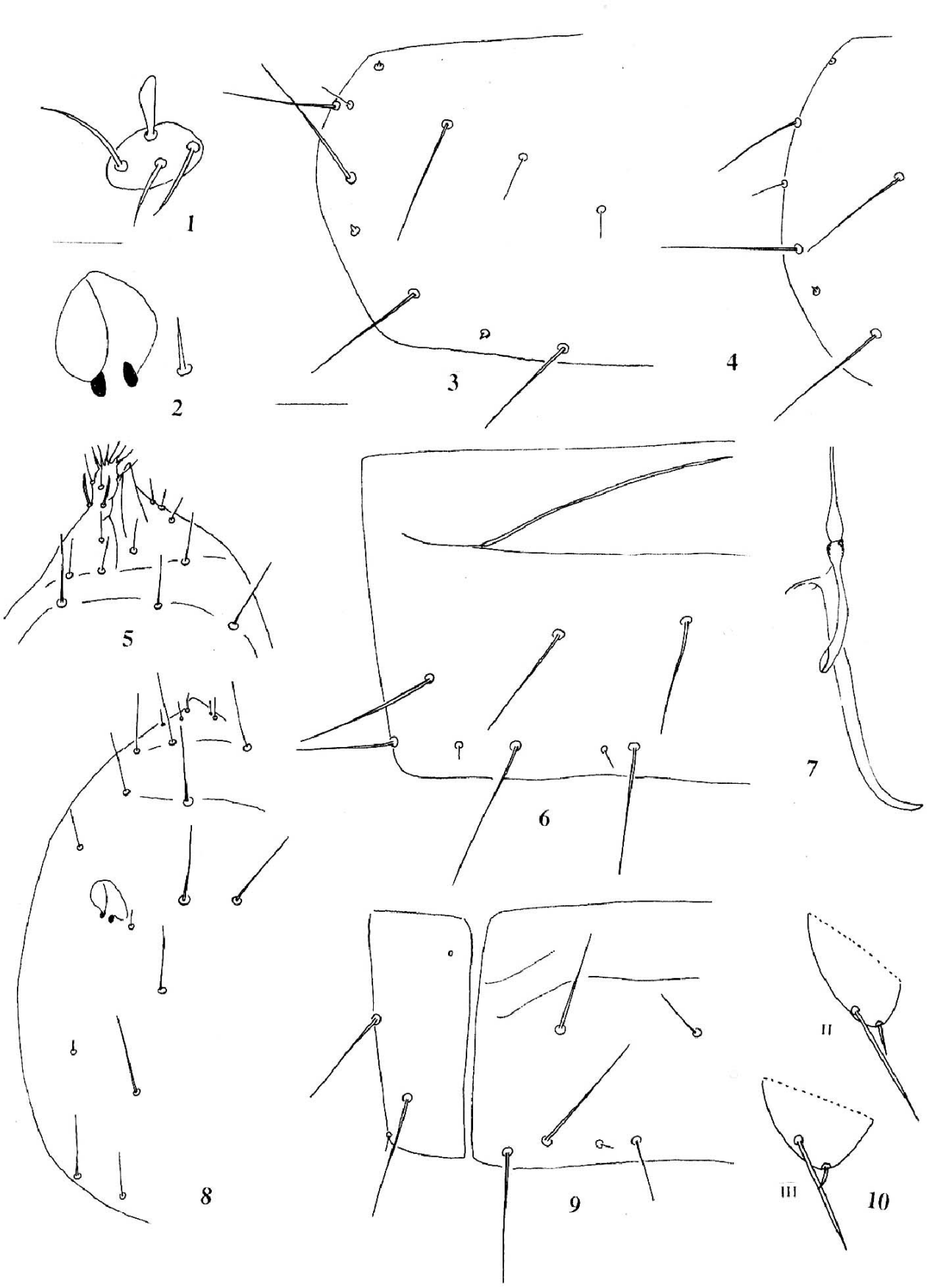
***Description*.** – Adult:

Body length 883.4μm (830-908μm, n=10), width 165.2μm (152-176μm, n=10).

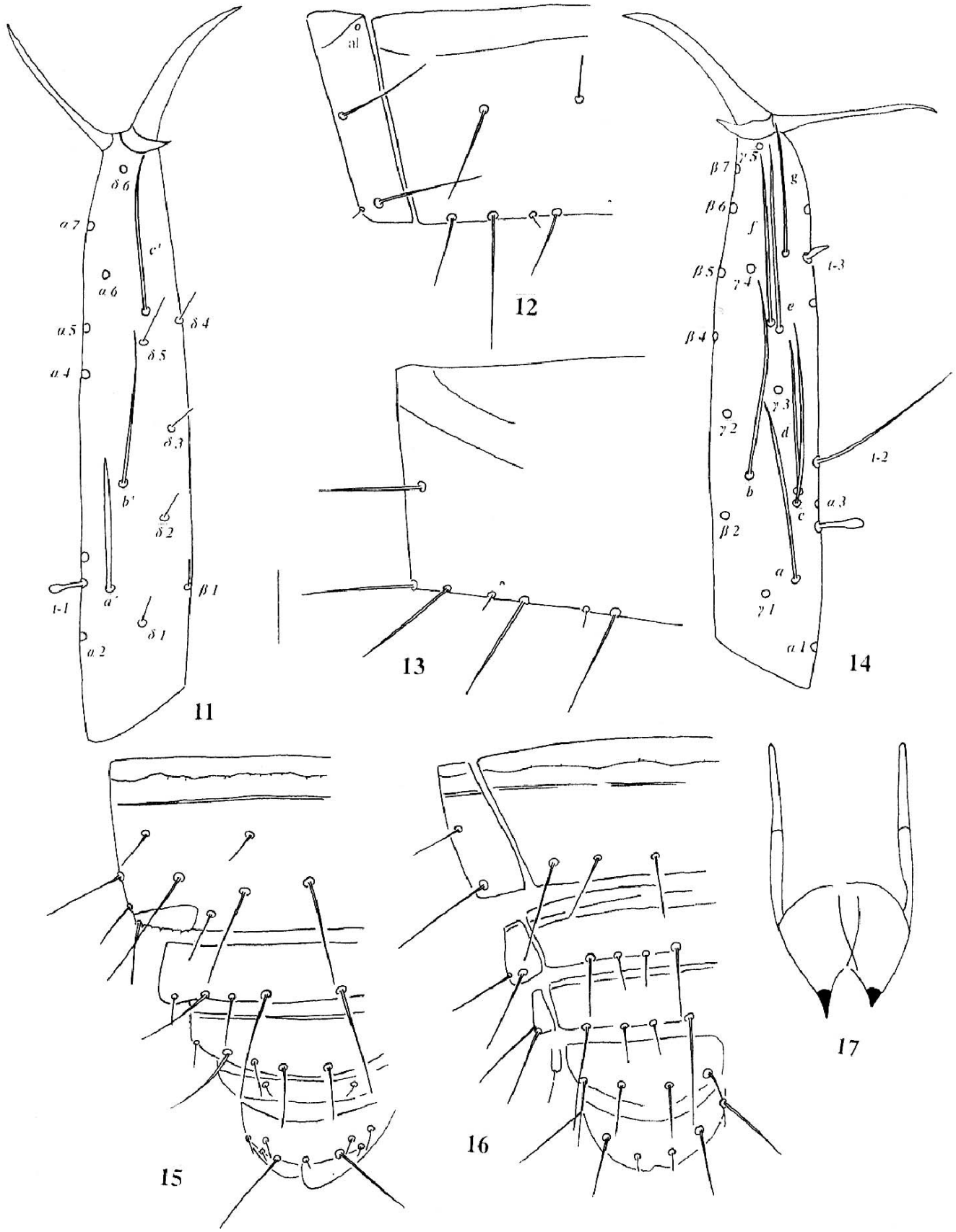
Head – Elliptic, length 94.5μm (88-98μm, n=10), width 66.9μm (59-72μm n=10). Additional setae absent, postpseudocular seta present. Dorsal side of head with 2+2 short and thin sensory setae, ventral side with no differentiated setae. Sensilla of maxillary palpus thin, subequal. Labial palpus reduced to three setae and a claviform sensillum. Pseudoculus almost circular, slightly broader than long, 7-8 X 8-9μm. PR=11.8. Canal of maxillary gland straight and smooth, with heart-shaped calyx, short terminal filament and slightly developed terminal widening. Length 15.6μm (14-17μm, n=10), as long as half of the branch of fulcrum (Figs. 1, 2, 5, 7, 8).

Thorax – Chaetotaxy on thoracic tergites II-III with two anterior setae (*A2* and *A4*), seta *P1a*, *P2a* and *P5* very short, less than one-tenth of *P1* in length. *P2a* nearer to *P3* than to *P2*. Seta *P4a* on mesonotum, *P3a* on metanotum.Thoracic sterna without pores (Figs. 3, 4).

Foretarsus length 84.0μm (80-87μm, n=10), claw 26.3μm



Figs. 1-10. *Amphientulus sinensis*, new species. 1, labial palpus; 2, pseudoculus; 3, mesonotum; 4, metanotum; 5, anterior part of head, dorsal view; 6, urotergite VI; 7, filamento di sostegno; 8, head chaetotaxy; 9, urosternite VI; 10, abdominal legs II, III. Scale bar: Figs. 1-2 = 5 μm; Figs. 3-10 = 10μm.



Figs. 11-17. *Amphientulus sinensis*, new species. 11, foretarsus in interior view; 12, urosternite VII; 13, urotergite VII; 14, foretarsus in exterior view; 15, furotergite VIII-XII; 16, urosternite VIII-XII; 17, female squama genitalis. Scale bar: Figs. 11-17 = 10μm.

Table 1: Chaetotaxy of *Amphientulus sinensis*, new species.

		Dorsal		Ventral	
		Formula	Composition of setae	Formula	Composition of setae
Thorax	I			4 – 4 / 6	A1, 2, M1, 2 P1, 2, 3
		4	A 2, 4		
	II	6 / 16	A2, 4, M P1, 1a, 2, 2a, 3, 4, 4a, 5	7 – 2 / 4	Ac, 2, 3, 4, M P1, 2
	III	6 / 16	A2, 4, M P1, 1a, 2, 2a, 3, 3a, 4, 5	7 – 2 / 4	Ac, 2, 3, 4, M P1, 2
Abdomen	I	4 / 10	A1, 2 P1, 1a, 2, 2a, 3	3 / 4	P1, 2 P1, 2
	II-III	6 / 16	A1, 2, 5 P1, 1a, 2, 2a, 3, 4, 4a, 5	3 / 5	Ac, 2 Pc, 1, 2
	IV-VI	6 / 16	A1, 2, 5 P1, 1a, 2, 2a, 3, 4, 4a, 5	3 / 8	Ac, 2 P1, 1a, 2, 3
	VII	4 / 16	A4, 5 P1, 1a, 2, 2a, 3, 4, 4a, 5	3 / 8	Ac, 2 P1, 1a, 2, 3
	VIII	6 / 15	A1, 3, 5 Mc, P1, 1a, 2, 2a, 3, 3a, 5	4 / 0	1, 2
	IX	12	1, 1a, 2, 2a, 3, 4	4	
	X	12	1, 1a, 2, 2a, 3, 4,	4	
	XI	4	2, 4	4	
	XII	9		6	

Table 2. Comparison of the new species with *Amphientulus ruseki* (Nosek, 1978).

	A. sinensis, new species	*A. ruseki* Nosek, 1978
Foretarsal sensillium *b*	distally to level of *c*	nearly on level of *c*
The ratio of exterior sensilla	*b>a>e>f>c>d>g*	*a>b>d>e>c>f>g*
Foretarsal sensillium *c*	nearly on level of *d*	distally to level of *d*
Foretarsal sensillium *e*	nearer to *f*	half way of *f* and *g*
Foretarsal sensillium *g*	reaching base of empodium	not reaching base of empodium
Urotergite I setae	*A5* absent	*A5* present
Urotergite VII setae	*A2* absent	*A2* present
Urotergite VIII setae	*Mc* present	*Mc* absent
Urosternite XI	2+2 setae	3+3 setae
TR=	3.2	2.8
PR=	11.8	19

(24-27μm, n=10), slender, no tooth. TR=3.2; Empodium short, EU=0.15. S-shaped seta subequal to the claw. Dorsal sensillum *t-1* claviform, *t-2* long and thin, *t-3* small, jar-shaped, BS=0.4-0.5. Interior sensillum *a´* proximal to level of *t-1*, broad, sword-like; *b´* thin and long, its apex surpassing base of *δ5*; *c´* also thin and long, subequal to *b´*, its apex surpassing base of *δ6*. Seta *δ4* proximally *to base of c´*, subequal to *β1*. Exterior sensillum *a* slender and long, reaching almost level of *γ3*; *b* extremely long, reaching base of *γ4*; *c* nearly on level of *d*, longer than *d*. Seta *e* situated nearly level with *f*, longer, reaching base of *γ5*, *g* shorter, but its apex reaching base of empodium. Length ratio of exterior sensilla as: *b>a>e>f>c>d>g* (Figs. 11, 14).

Abdomen – Chaetotaxy as shown in Table 1. Abdominal tergite I with two pairs of anterior setae (*A1*, and *A2)*. Tergites II-VI each with three pairs of anterior setae, *A1*, 2, and 5, without *P3a*; accessory seta as thin, hair-like, less than one-fifth of *P1* in length (Figs 6, 9). Tergite VII with *A4* and 5, *P3a* absent; tergite VIII with the central seta Mc, *p3a* present; tergite IX-X with six pairs of setae, seta *1a* shorter than seta *1*; XI with 2+2 setae, both short. Pore *al* dorsally to *A5* on tergite II-V, on VI and VII ventrally to it. Sternite VII with no Pc, sternite VIII without posterior setae, sternite IX-XI with 2+2 setae. Pore on sternite VII situated asymmetrically near base of *P1a* (Figs. 12, 13, 15, 16).

Abdominal legs II-III with two setae each, no terminal vesicle, apical seta shorter than subapical one. On abdominal leg II, the apical seta less than half of the subapical in length, the apical seta less than one-third of the subapical seta on abdominal leg III (Fig. 10). Striate band on abdomen VIII reduced, with undulant faint striae along the proximal margin, comb consisting of 6-8 small, irregular teeth (Fig. 15). Female squama genitalis with pointed acrostyli (Fig. 17).

***Etymology.* –** Named *sinensis* alluding to China, the place where the species was found.

***Remarks.* –** The new species seems to be similar to *Amphientulus durumagi*, described by Imadaté (1973) from Korea, but the latter is distinct in having double rows of setae on urosternite VIII and seta *A4* on urotergite on VI from the new species. The new species is closely similar in some respects to *Amphientulus ruseki* from Madagascar (Nosek, 1978). However, they can be distinguished from each other by the relative length and the position of foretarsal sensilla as well as by the chaetotaxy on abdomen. The differences among them are listed in Table 2.

***Distribution.* –** Guangdong and Hainan Province, southern China.

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