

A New Species of the Genus *Gracilentulus* (Protura)  
from East China

By

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Kindly invited by the Academia Sinica, the junior author unexpectedly had an opportunity to visit China in November, 1978, and to make a co-operative study with the senior author on the proturan fauna of East China. The present paper, the first part of our works, deals with description of a new species of the genus *Gracilentulus* TUXEN (Acerentomidae). The new species, *G. maijiawensis* sp. nov., is related to *G. floridanus* (EWING) from U.S.A. These two species are distinguished from all the other members of this genus by the shape of the canal of maxillary gland and by the absence of the foretarsal sensilla *b'* as well as by the absence of the posterior seta on abdominal sternite VIII. From *G. floridanus*, the present new species is different in the relative length of the foretarsal sensillae *b*, *c*, *d*, *f*, *g* and *c'*, in the presence of an extra accessory pair, P 3a, on abdominal tergite VII, and in the ratio PR, TR and EU.

The paratype of the new species to be described, one male from the type-locality Maijiawu, is to be deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo, and the other specimens including the holotype are in the collection of the Institute of Entomology, Academia Sinica, Shanghai.

We wish to express our hearty thanks to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for kindly reading the original manuscript, for giving valuable advice, and for arranging the publication of our article in the bulletin of his museum. Our sincere thanks are also due to Messrs. JIN Gen-Tao, GUO Pei-Fu and others for their kind co-operation in the course of our study.

We are much indebted to the Academia Sinica for the cordial arrangement of our co-operative study.

*Gracilentulus maijiawensis* YIN et IMADATÉ, sp. nov.

(Figs. 1-2)

*Specimens examined.* 2 ♂, Maijiawu, Hangzhou, 7-XI-1978, collected by YIN *et al.*; 1 preimago (♂) and 1 matus junior, Lingyin, Hangzhou, 12-VI-1973, collected by YIN *et al.*; 1 ♂, West Sheshan, Shanghai, 10-VIII-1963, collected by YIN

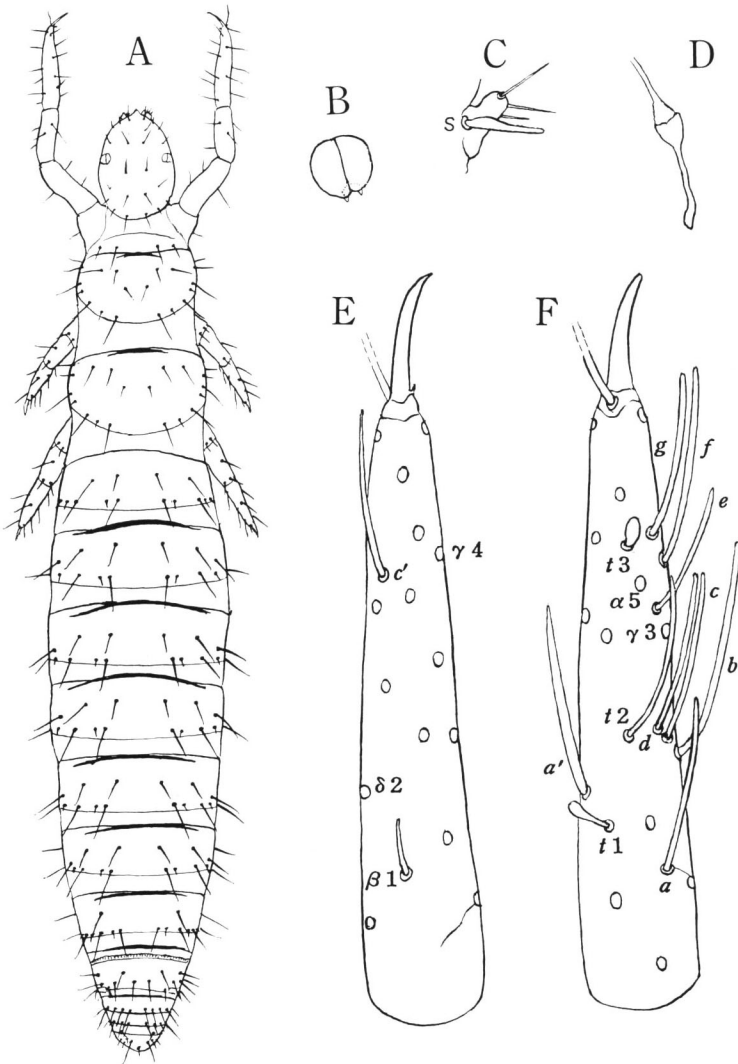


Fig. 1. *Gracilentulus maijiawensis* sp. nov. — A, Dorsal view; B, pseudoculus; C, labial palpus, s: sensilla; D, canal of maxillary gland; E, foretarsus, ventral view; F, the same, dorsal view.

*et al.*; 1 ♀, East Sheshan, Shanghai, 3–VII–1964, collected by YIN *et al.*

Body length 1200–1220  $\mu$  in extended adults.

Head oval, 122–124  $\mu$  in length in lateral view; pseudoculus small, 8–9  $\times$  9  $\mu$ , PR  $\doteq$  18; mouthparts rather small; labial palpus with three setae at apex, sensilla upon labial palpus slender; canal of maxillary gland simple, the proximal part short with end dilatation at the base.

Foretarsus 94–102  $\mu$  in length (75  $\mu$  in preimago); claw 24–27  $\mu$ , TR=3.7–3.9; empodium very short, EU  $\doteq$  0.07; S-shaped seta a little longer than claw. Dorsal sensilla *t-1* claviform; *t-2* thin and gently bowed; *t-3* small, the apex not pointed; exterior sensilla *a* thin; *b* long, the apex reaching the base of  $\gamma$  4; *c* and *d* very close to each other, *c* subequal to *d* in length and obviously shorter than *b*, *c* and *d* at the same level as *t-2*; *e* situated about a halfway between  $\gamma$  3 and  $\alpha$  5; *f* a little closer to *g* than to *e*; apices of *f* and *g* surpassing tarsus; interior sensilla *a'* relatively broad, a little proximal to  $\delta$  2; *b'* absent; *c'* thin and slightly surpassing tarsus; interior seta  $\beta$  1 very short. Middle tarsus 44–46  $\mu$  in length, claw 18–20  $\mu$ ; hind one 50–51  $\mu$ ; claw 19–21  $\mu$ .

Abdominal appendage I bi-segmented; appendages II and III uni-segmented, with two setae, the apical one being about 1/3 the length of the subapical. Striate band on abdomen VIII not reduced, the striae being distinct. Comb on abd. VIII consisting of about 12 distinct teeth, with the posterior margin almost straight, not protruding posteriorly.

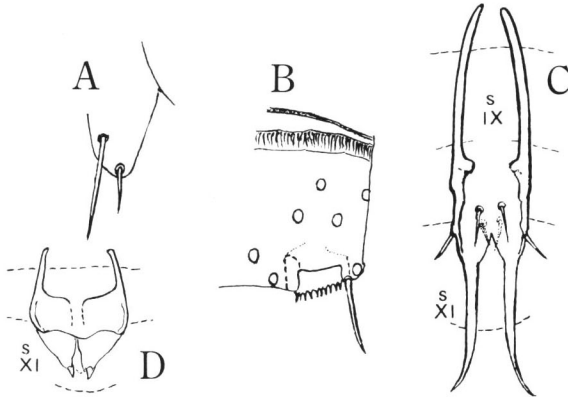


Fig. 2. *Gracilentulus maijiawensis* sp. nov. — A, Abdominal appendage II; B, abdominal tergite VIII; C, male squama genitalis, s IX: sternite IX, s XI: sternite XI; D, female squama genitalis, s XI: sternite XI.

Male squama genitalis normal; female one with stout pointed acrostylus.

Chaetotaxy (Table 1) similar to that of *G. floridanus*. Thoraces II and III each with seven ventral anterior setae; dorsal setae P 5a on these segments rudimentary. Abdominal tergites I–V with three pairs of anterior setae, A 1, 2 and 5; terg. VI with

Table 1. Chaetotaxy of *Gracilentulus maijiawenensis*.

		Maturus junior		Imago	
		Formula	Composition of setae	Formula	Complementary setae
(Dorsal)					
Thorax	I	4	1, 2	4	
	II-III	6	A 2, 4, M	6	
		14	P 1, 1a, 2, 2a, 3, 4, 5	14	
Abdomen	I	6	A 1, 2, 5	6	
		10	P 1, 2, 2a, 3, 5	12	P 1a
	II-V	6	A 1, 2, 5	6	
		14	P 1, 2, 2a, 3, 4, 4a, 5	16	P 1a
	VI	6	A 1, 2, 5	8	A 4
		14	P 1, 2, 2a, 3, 4, 4a, 5	16	P 1a
	VII	6	A 2, 4, 5	6	
		16	P 1, 1a, 2, 2a, 3, 4, 4a, 5	18	P 3a
	VIII	6-7	A 1, 3, 5, Mc, 2, 3, 4	6-8	M 1 (- Mc)
		8	P 2, 3, 4, 5	8	
	IX	12	1, 2, 3, 3a, 4, 5	14	4a
	X	10	1, 2, 3, 4, 5	12	3a
XI	6		6		
XII	9		9		
(Ventral)					
Thorax	I	4-4	A 1, 2, M 1, 2	4-4	
		6	P 1, 2, 3	6	
	II-III	7-2	Ac, 2, 3, 4, M	7-2	
		4	P 1, 2	4	
Abdomen	I	3	A c, 2	3	
		2	P 1	4	P 2
	II-III	3	A c, 2	3	
		5	P c, 2, 3	5	
	IV-VII	3	A c, 2	3	
		8	P 1, 1a, 2, 3	8	
	VIII	4	M 1, 2	4	
		0		0	
	IX-X	4	1, 2	4	
	XI	2	2	6	1, 3
	XII	6		6	

four pairs, A 1, 2, 4 and 5; on terg. II-VI, principal posterior setae P 3 situated a little anterior to the other posterior ones; terg. VII with three pairs of anterior setae, A 2, 4, 5, and nine pairs of posterior setae, P 1, 1a, 2, 2a, 3, 3a, 4, 4a and 5; stern. VIII with single row of four middle setae, without posterior seta.

Holotype: ♂, Maijiawu, Hangzhou, 7-XI-1978, collected by YIN *et al.* Paratypes: ♂, Maijiawu, Hangzhou, 7-XI-1978, collected by YIN *et al.*; ♂, West Sheshan,

Shanghai, 10–VII–1963, collected by YIN *et al.*; ♀, East Sheshan, Shanghai, 3–VII–1964, collected by YIN *et al.*

*Maturus junior*. Body length 740  $\mu$ , foretarsus 68  $\mu$ , TR=3.4. Similar to adult in the shape and position of foretarsal sensillae and in other fundamental features, but the following setae are absent: P 1a on abd. terg. I–VI, A 4 on terg. VI, P 3a on terg. VII, 4a on terg. IX, 3a on terg. X, P 2 on stern. I, 1 and 3 on stern. XI. On abd. terg. VIII central seta Mc present instead of M 1.

*Notes*. Chaetotaxial abnormality seems rare in the present new species. Only the exception is one of the males examined, in which the pair M 1 on abdominal tergite VIII is absent and Mc is present. The preimago examined does not show any difference in chaetotaxy from the adult.

All the collecting sites of this new species are in the “warm-temperate evergreen broadleaved forest zone”. Both Lingyin and Sheshan are densely covered with evergreen broadleaved trees such as *Cinnamomum*, *Quercus*, etc., mixed with Mōsō bamboo, *Phyllostacys pubescens*. At the type-locality, Maijiawu, however, the proturans were obtained at the edge of a tea plantation. This place is well known for the centre of the famous Longjing tea which is said to have been cultivated for more than one thousand years, and was frequently visited by the former prime minister, CHOU En-Lai. We are, therefore, pleased to name this interesting new species after the famous place in commemorating our first co-operative work.

### References

- IMADATÉ, G., 1974. Protura. *Fauna Japonica*. 351 pp. Tokyo, Keigaku Publ. Co.
- PRABHOO, N. R., 1975. South Indian Protura. III. Four new species and some new records. *Orient. Ins.*, **9**: 431–438.
- TUXEN, S. L., 1964. The Protura. A revision of the Species of the World. With Keys for Determination. 360 pp. Paris, Hermann.
- & G. IMADATÉ, 1975. The Protura from the Bismarck Archipelago and Solomon Islands. *Bull. Br. Mus. nat. Hist.*, (Ent.), **31**: 333–375.

