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**REDESCRIPTION OF *MICROPERLA GEEI* CHU
(PLECOPTERA: PELTOPERLIDAE)**

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Abstract *Microperla geei* Chu, 1928, is redescribed from specimens collected in Henan Province, China, and a diagnosis is given to distinguish this species from *M. brevicauda* Kawai, 1958.

KEY WORDS: Plecoptera, Peltoperlidae, *Microperla*, China.

Izveček PONOVNİ OPIS VRBNICE *MICROPERLA GEEI* CHU (PLECOPTERA: PELTOPERLIDAE)

Na osnovi primerkov, ki smo jih nabrali v provinci Henan na Kitajskem, podajamo ponovni opis vrste *Microperla geei* Chu, 1928. Predstavljeni so znaki, na osnovi katerih to vrsto ločimo od vrste *M. brevicauda* Kawai, 1958.

KLJUČNE BESEDE: Plecoptera, Peltoperlidae, *Microperla*, Kitajska.

Microperla was proposed by Chu (1928) for a newly discovered stonefly species, *M. geei*, from "Hangchow", China, and the genus remained monotypic until Kawai (1958) described *M. brevicauda* from Japan. The latter species has provided the only additional data for the genus, including details of the egg (Isobe 1988), nymphal morphology and nervous system (Uchida & Isobe 1989), and adult behavior (Hanada et al. 1992,

1994). The only subsequent information on *M. geei* is the adaptation of Chu's data by Wu (1938).

Recently one of us (IS) collected male and female specimens of *Microperla* from Henan Province, China, and these permit the first direct comparison of mainland specimens with those from Japan. We tentatively place these new specimens as *M. geei*, but definitive placement is not possible without examination of the type specimens, and these are apparently destroyed.

Microperla geei Chu

Microperla geei Chu, 1928:197. Holotype ♂, Hu Pao, Hangchow, China (type lost)

Microperla geei: Wu, 1938:67

Material: China, Henan Province, 10 km N Long Yu Wan, 1750 m, 21 May 1999, I. Sivec, 1 ♂, 1 ♀

Adult habitus: General color pattern dark brown. Head and pronotum (Fig. 1) mostly brown but with pale areas located near margins. Wings pale brown, veins dark brown.

Male: Forewing length 6 mm. Cerci unmodified, 7-segmented. Tergum 10 strongly sclerotized and upturned on posterior margin; mesal field of T10 membranous (Fig. 2). Epiproct reduced to membranous bulb and retracted behind upturned margin of T10; paraprocts small and hidden by projecting posterior margin of sternum 9 (Fig. 2). Sternum 9 long, bearing a vesicle near anterior margin (Fig. 3). Uneverted aedeagus complexly lobed and armed with fine hair-like setae.

Female: Forewing length 8 mm. Subgenital plate covering most of sternum 9; posterior margin of plate truncate and armed along margins with short, thick setae (Fig. 4).

Egg: Disk shaped, diameter approximately 0.425 mm. Entire chorionic surface covered with follicle cell impressions. Impressions on circular lid irregular, but generally larger near center and small around margins (Fig. 5). Lateral impressions with pits at inner angles adjacent to connecting walls of adjoining cells (Figs. 6-7).

Nymph unknown.

Discussion

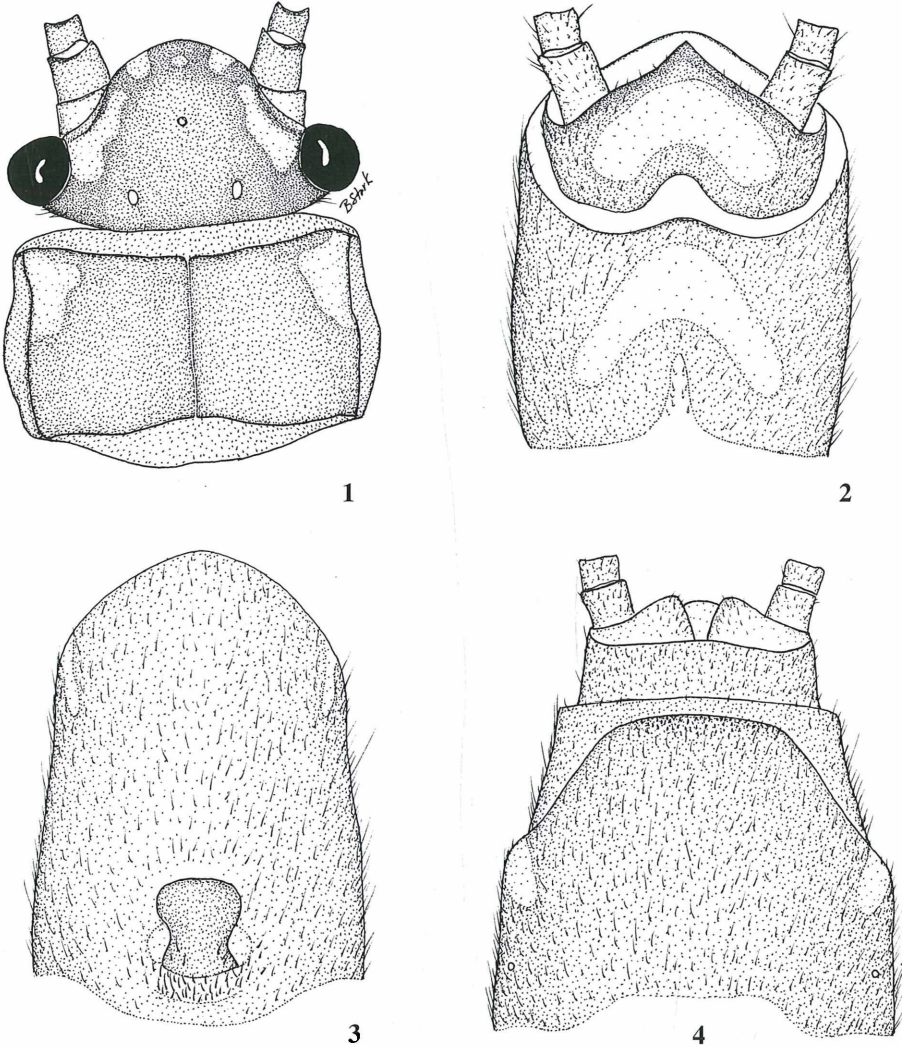
Our specimens from Henan Province generally match those from Chu's description (Wu 1938) but differ from those descriptions in shape of the female subgenital plate and in dimensions of the male vesicle. The latter structure, in particular, is shown in Chu's figures to be longer and narrower than in the male we describe, nevertheless we consider them to be conspecific.

Adults of the two *Microperla* species are very similar, although, in specimens at hand, *M. geei* is more robust and considerably darker. Males of *M. geei* have the upturned posterior margin of T10 acute whereas this structure is rounded in *M. brevicauda*, and in both species there are seven cercal segments (in contrast to the five reported by Kawai (1967) for *M. brevicauda*). The eggs differ in chorionic reticulation most obviously on the lid where the follicle cell impressions of *M. brevicauda* are more regular in appearance and less numerous than in *M. geei* (Figs. 5, 8). Lateral follicle

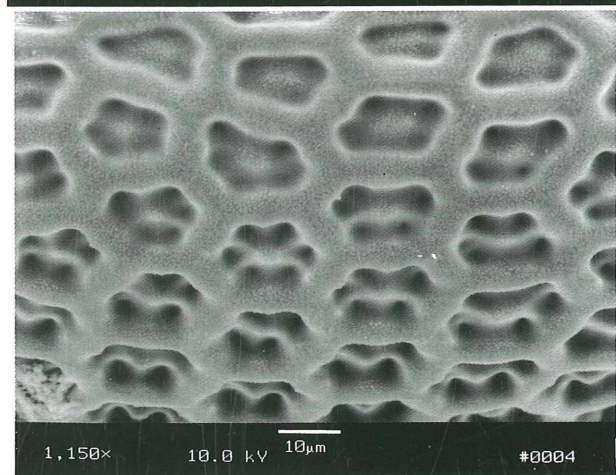
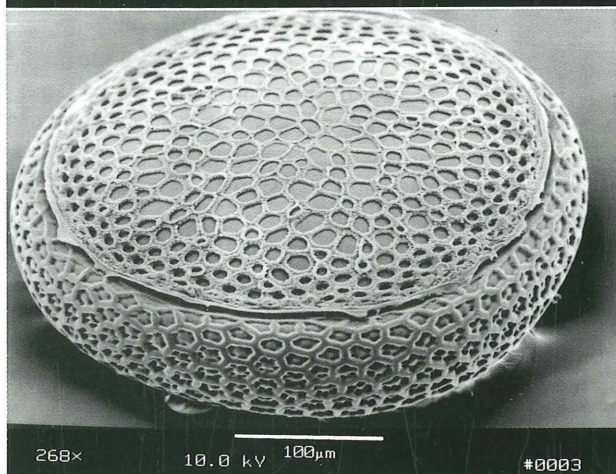
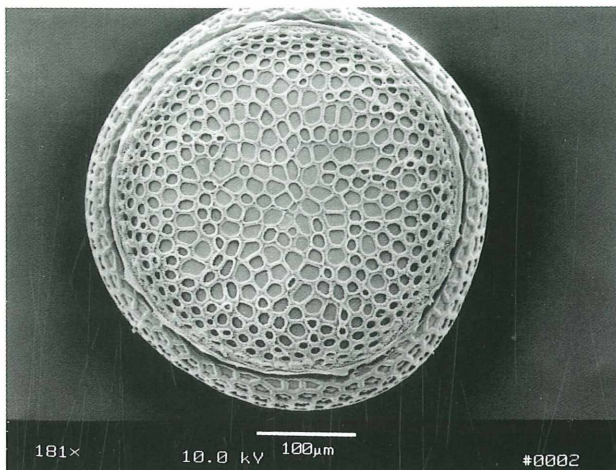
cell impressions of *M. geei* (Figs. 6-7) are similar to those of *M. brevicauda* (Figs. 9-10), but in the latter species, several upper mesh rows lack pits along the inner walls of follicle cell impressions whereas these are absent only in the uppermost row in *M. geei*.

Acknowledgement

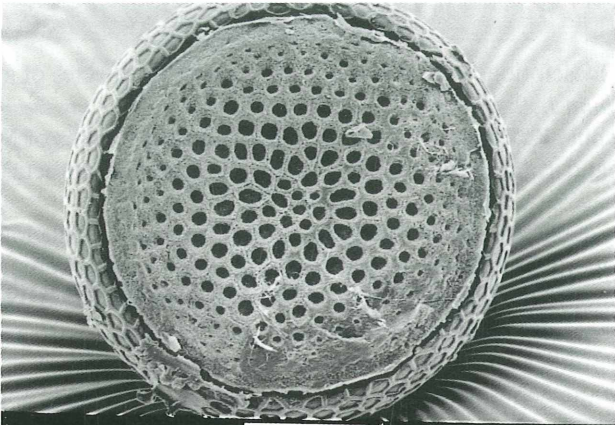
We thank S. Uchida for providing comparative material of *Microperla brevicauda*.



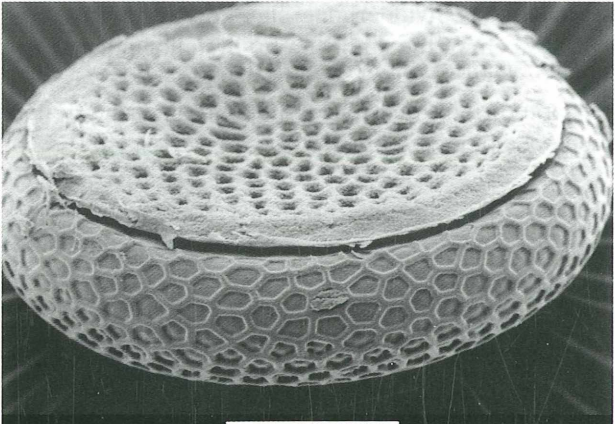
Figs. 1-4: *Microperla geei*, 1. head and pronotum, 2. male genitalia, dorsal, 3. male sternum 9, 4. female terminalia, ventral.



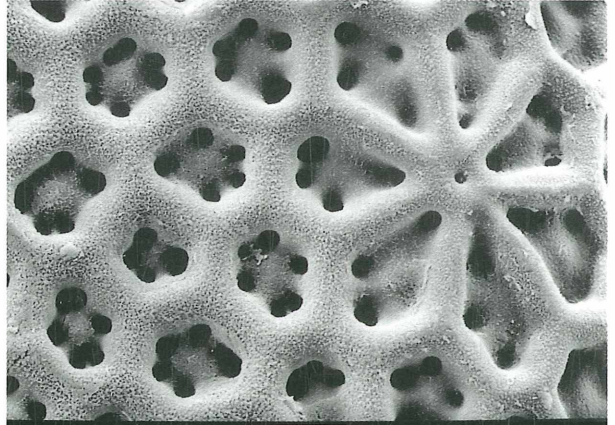
Figs. 5-7:
Microperla geei
eggs.



8 226x 10.0 kV 100µm #0002



9 314x 10.0 kV 100µm #0004



10 1,290x 10.0 kV 10µm #0003

Figs. 8-10:
Microperla brevicauda eggs.

References

- Chu, Y.T.**, 1928: Descriptions of a new genus and three new species of stone-flies from Hangchow. *China J.*, 9: 194-198.
- Hanada, S., Y. Isobe, K. Wada**, 1992: Behaviors of adult stoneflies of *Microperla brevicauda* Kawai and *Kamimuria tibialis* (Pictet) (Plecoptera: Insecta). *Biol. Inl. Wat.*, 7: 1-9.
- Hanada, S., Y. Isobe, K. Wada, M. Nagoshi**, 1994: Drumming behavior of two stonefly species, *Microperla brevicauda* Kawai (Peltoperlidae) and *Kamimuria tibialis* (Pictet) (Perlidae), in relation to other behaviors. *Aquat. Insects*, 16: 75-89.
- Isobe, Y.**, 1988: Eggs of Plecoptera from Japan. *Biol. Inl. Wat.*, 4: 27-39.
- Kawai, T.**, 1958: Studies on the holoognathous stoneflies of Japan, IV Description of a new species of the genus *Microperla* (Peltoperlidae). *Kontyu*, 26: 138-141.
- Kawai, T.**, 1967: Fauna Japonica: Plecoptera (Insecta). Biogeographical Society of Japan, Tokyo. 211 pp.
- Uchida, S. and Y. Isobe**, 1989: Styloperlidae, stat. nov. and Microperlinae, subfam. nov. with a revised system of the family group Systellognatha (Plecoptera). *Spixiana*, 12: 145-182.
- Wu, C.F.**, 1938: Plecopterorum sinensium, a monograph of the stoneflies of China (Order Plecoptera). Peiping. 225 pp.

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