

Short Note

The Identity of Shiraki's "*Termitoxenia formosana*" (Diptera: Phoridae)

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(Accepted April 16, 1996)

R. Henry L. Disney, Gui-Xiang Li and Jung-Tai Chao (1996) The identity of Shiraki's "*Termitoxenia formosana*" (Diptera: Phoridae). *Zoological Studies* 35(4): 296-299. *Clitelloxenia formosana* (Shiraki) comb. n. is removed from the status of *incertae sedis* and is distinguished from the similar *C. assmuthi* (Wasmann) and several related species, following the collection of fresh material of Shiraki's species from the nests of the termites *Odontotermes formosanus* (Shiraki) and *O. hainanensis* (Light) in Taiwan and *O. parallelus* Li in mainland China. A neotype of Shiraki's species is designated.

Key words: Termitoxeniinae, Isoptera, Termitidae.

Shiraki (1925) provided a preliminary report of 2 species of Termitoxeniinae collected from nests of *Odontotermes formosanus* (Shiraki) in Taiwan (Formosa) by Inao Nitobe (新渡戸稻雄). He assigned 1 species to a new genus, naming it *Pseudotermitoxenia nitobei*, and he named the other species *Termitoxenia formosana*. The genus *Termitoxenia* Wasmann, however, is now known to be restricted to Africa (Borgmeier 1964, Disney 1994, Disney and Kistner 1995).

Shiraki intended to publish a more detailed description of the 2 species from Taiwan, but evidently failed to do this. While it is possible to provide a brief diagnosis of his genus *Pseudotermitoxenia* from his short description, the recognition of his *T. formosana* has not been possible in the light of subsequently described Oriental Termitoxeniinae. Borgmeier (1964) therefore placed it as *incertae sedis*, and he summarized its features, but without indicating how to distinguish it from similar Termitoxeniinae sharing the same features.

Materials and Methods—After making numerous enquiries, the senior author concluded that the type material of Shiraki's 2 species had probably been destroyed by military action. It was decided, therefore, to collaborate with G-XL and J-TC in an attempt to collect fresh material of both Shiraki's species if possible, but of his "*Termitoxenia*" *formosana* in particular. We also wished to ascertain whether the latter species is restricted to Taiwan or whether it occurs on the mainland as well. We were successful in collecting the latter species. It is re-described below and a neotype is designated. Three previously undescribed species of Termitoxeniinae were collected in Taiwan, and are described elsewhere (Disney and Kistner 1997).

Clitelloxenia formosana (Shiraki) comb. n.

Termitoxenia formosana Shiraki, 1925: 210.

Type material: Neotype ♀, Taiwan, Taipei, Botanic Garden, 1 June 1995, coll. RHL Disney. Deposited in Taiwan Forestry Research Institute (TFRI). **Other material examined:** 4 ♀ ♀, same data as neotype; 19 ♀ ♀ Taiwan: Ching-Tien Temple, near Taipei, 25°09'55"N, 121°29'33"E, 1 June 1995, coll. RHL Disney, AB Disney, J-T Chao, S-S Lu, W-N Chou and W-C Yeh. Most deposited in University Museum of Zoology (UMZ), Cambridge, England, but some in TFRI and some in the National Museum of Natural Science, Taichung, Taiwan. 19 ♀ ♀ mainland China: Guangdong Province, Huan Tan Management Station (for flood control), near Shan Shui City, 24 May 1995, coll. RHL Disney, AB Disney, D Li, G-X Li and B Yang. Most in UMZ, Cambridge, but some in Guangdong Entomological Institute, Guangzhou.

Borgmeier (1964) listed 6 species of *Clitelloxenia* Kemner; 2 from India, 2 from Sri Lanka, 1 from Java and 1 from Malaysia. However, 5 of these were subsequently synonymised with *C. assmuthi* (Wasmann), following recognition of the remarkable degree of post-eclosion heterochrony exhibited by the females of this species (Disney 1995). This heterochrony particularly involves elongation of the rear part of the head and lengthening of the hind femora.

Shiraki's species is very similar to *C. assmuthi*, but its female is generally a little smaller. The dorsal transverse saddle of abdominal segment 3 (which is orange-brown in mature females) is a little longer but narrower in *C. formosana* (Fig. 4) than in *C. assmuthi* (Fig. 5). Abdominal segment 2 of *C. formosana* is sometimes strikingly distended in length (Fig. 4; lower picture). The females of all ages are best distinguished

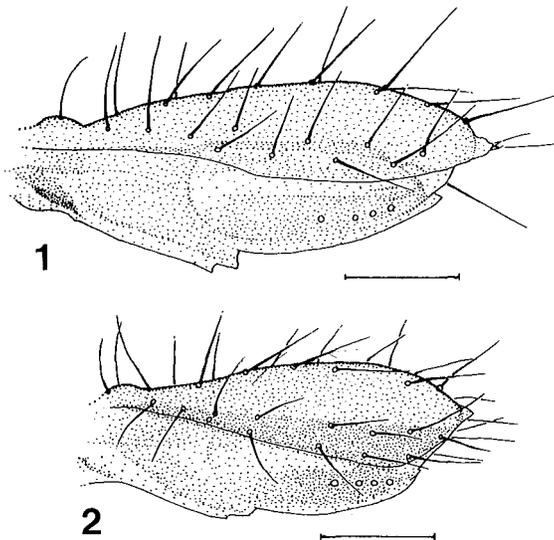
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by the following details of the chaetotaxy. There are 4 pairs of dorsocentral bristles on the thoracic scutum of *C. assmuthi*, 1 pair at the rear, 1 pair at the front, plus a pair a little before and a pair a little behind the level of the notopleural bristles. The mesopleuron of *C. formosana* is bare, but has 1 or more (usually 2) fine bristles in *C. assmuthi*. Material collected in Yunnan Province, China; Thailand; and Malaysia, being described elsewhere (Disney and Kistner 1997) indicates that there is a cluster of sibling species related to *C. formosana*, all of which differ from *C. assmuthi* in having a bare mesopleuron. The mature females of *C. formosana* are more than 2 mm long and have an unusually small membranous appendix at the tip of the costa of the wing stump (Fig. 2), and the metatarsus

of the front leg is relatively elongate (Fig. 3). The granulosity (microtrichia) of the jowls (genae) is weak but dense (Fig. 7) and there are less than 50 ommatidia in each eye. In *C. assmuthi* this granulosity is stronger and less dense (Fig. 6) and there are more than 50 ommatidia in each eye. The number of bristles on the sides and top of head, excluding the occiput, is similar to *C. assmuthi* and not reduced as in some species.

Notes: All specimens were obtained from the fungus gardens of termite nests. The termite hosts were identified (by G-XL) as *Odontotermes parallelus* Li in mainland China and *O. formosanus* (Shiraki) and *O. hainanensis* (Light) in Taiwan. We thus confirm Shiraki's host record and add 2 new species as hosts for this fly species. The taxonomy and biology of these species of termite are covered by Huang et al. (1989).

Acknowledgements—We are grateful for the support of Professor Dong Li, Fu Mei He, Biao Yang, Bo-kan Pan and Ming-Jian Cheng during fieldwork in mainland China. We especially thank Shi-Yi Lu, and her team, for locating and excavating a termite nest. In Taiwan, we thank S-S. Lu, W-N. Chou and W-C Yeh for helping in the field. In both mainland China and Taiwan, Audrey Disney assisted in the fieldwork. Helpful reviews from 2 anonymous reviewers and suggestions made by Dr. Man-Miao Yang (National Museum of Natural Science) are appreciated. RHLD is currently funded by a grant from the Leverhulme Trust, to Dr. WA Foster (Dept. of Zoology,



Figs. 1-2. *Clitelloxenia* mature females, right wing stumps. 1. *C. assmuthi*. 2. *C. formosana*. (Scale bars = 0.1 mm)

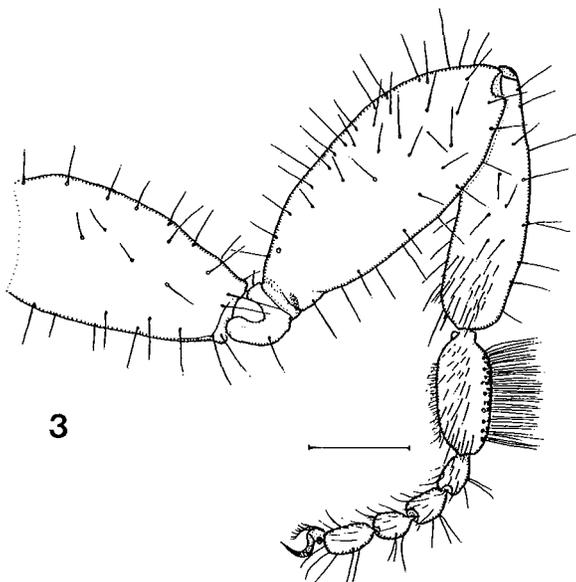


Fig. 3. *Clitelloxenia formosana* mature female, anterior face of front leg. (Scale bar = 0.1 mm)

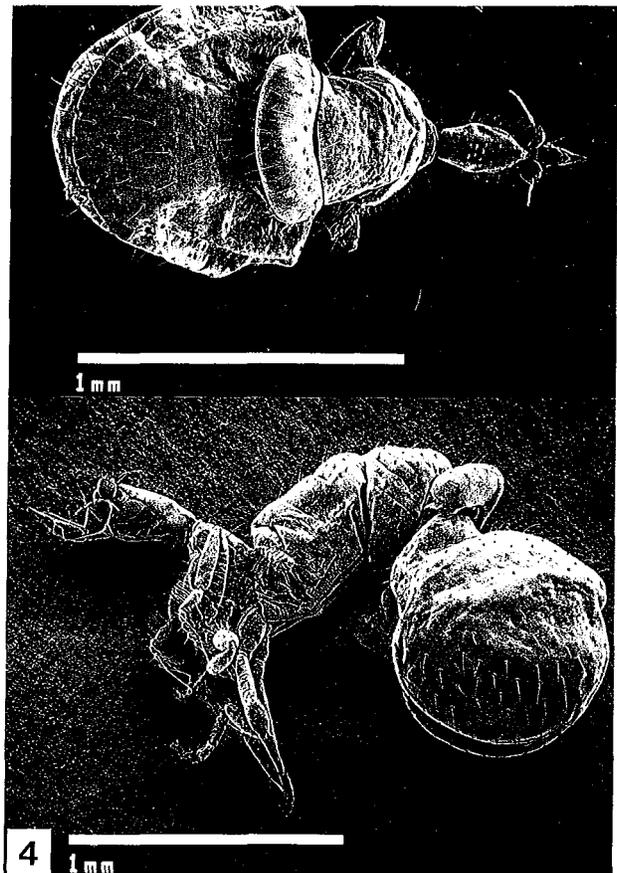


Fig. 4. *Clitelloxenia formosana* mature females, from above and from side.

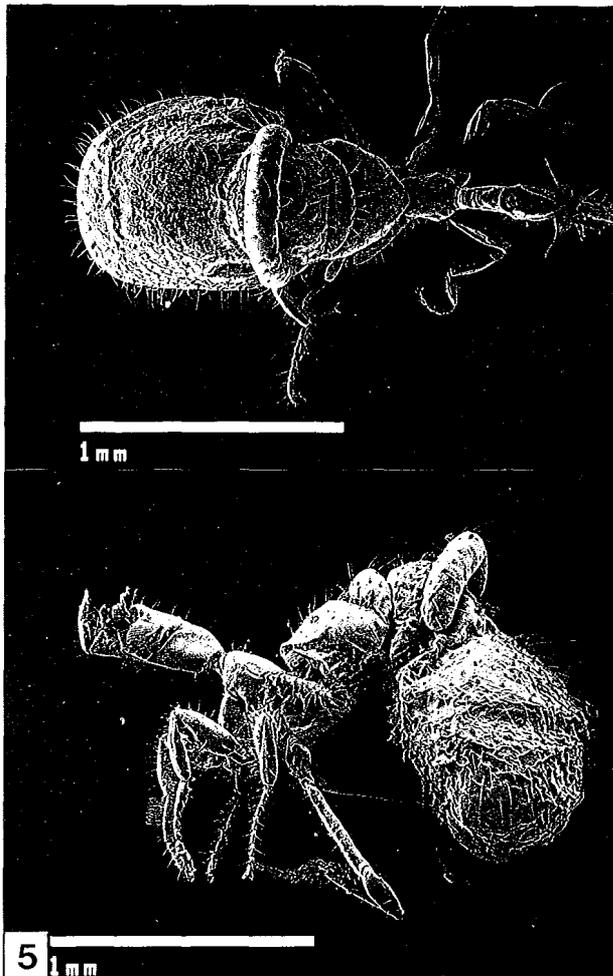
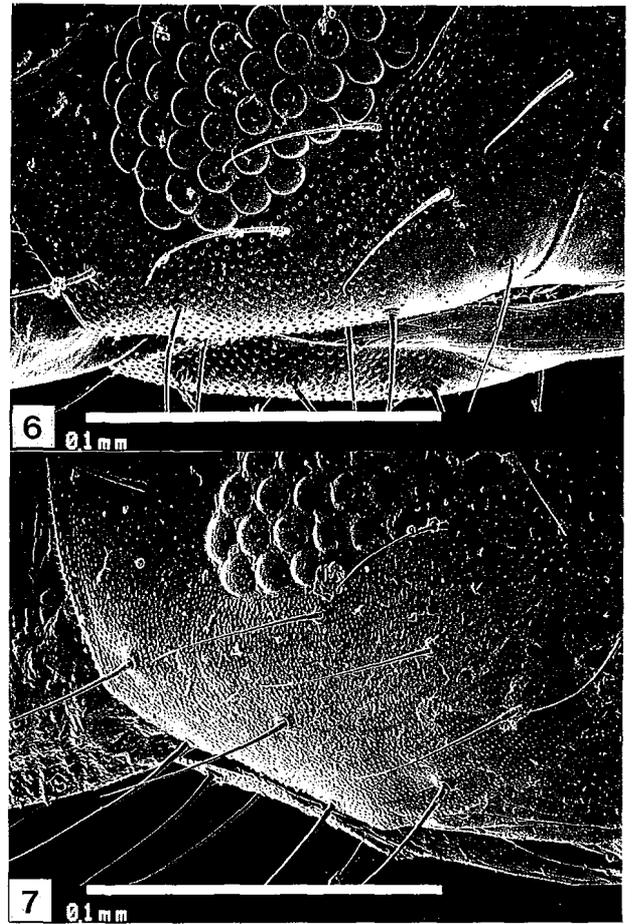


Fig. 5. *Clitelloxenia assmuthi* mature females, from above and from side.



Figs. 6-7. *Clitelloxenia* mature females, left jowls. 6. *C. assmuthi*. 7. *C. formosana*.

University of Cambridge) for a Research Associate to carry out taxonomic studies of termitophilous Phoridae, and the Isaac Newton Trust (Trinity College, Cambridge).

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“*Termitoxenia formosana*” (雙翅目，蚤蠅科)之分類地位

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本文重新認定素木得一 1925 年自臺灣臺灣白蟻 (=黑翅土白蟻) (*Odontotermes formosanus* (Shiraki)) 蟻巢採得寄生性蚤蠅之新種，當時素木定其種名為 *Termitoxenia formosana*，但日後被認為分類地位不明。作者依目前在臺灣的臺灣白蟻、海南土白蟻 (*O. hainanensis* (Light)) 以及在中國大陸的平行土白蟻 (*O. parallelus* Li) 的蟻巢內採集到的標本，區別其與 *C. assmuthi* (Wasmann) 及其數個近緣種，確認該種為 *Clitelloxenia formosana* (Shiraki) comb. n.，並指定了 *C. formosana* 的新模式標本(neotype)。

關鍵詞：蚤蠅，等翅目，白蟻科。

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