

Review of the lophopid genus *Zophiuma* Fennah (Fulgoromorpha: Lophopidae) in New Guinea

Fletcher M. J.^{1,2}, Gitau C. W.², Mitchell A.³, Dewhurst C.⁴ & Gurr G. M.²

¹Orange Agricultural Institute, Industry & Investment NSW, Orange, NSW 2800, Australia. murray.fletcher@industry.nsw.gov.au.

²EH Graham Centre for Agricultural Innovation, Charles Sturt University, PO Box 883 Orange, NSW 2800, Australia. cgtau@csu.edu.au; GGurr@csu.edu.au.

³Australian Museum, College Street, Sydney, NSW 2010, Australia. Andrew.Mitchell@austmus.gov.au.

⁴PNG Oil Palm Research Association, Kimbe, West New Britain, Papua New Guinea. charles.dewhurst@pngopra.org.pg

The lophopid genus *Zophiuma* Fennah, 1955 (Fulgoromorpha: Lophopidae) includes five described species, all restricted to New Guinea. *Zophiuma lobulata* Ghauri, 1967 (Figure 1) has been associated with Finschhafen Disorder of coconut and oil palms since the disorder first appeared at Finschhafen, Morobe Province, in 1960 (Ghauri 1967). The other four species are *Zophiuma pupillata* (Stål, 1863), known only from females which are dark red in colour (Figure 2), *Zophiuma doreyensis* (Distant, 1906), known only from the male holotype, and two species originally described in the Fulgoridae as *Hellerides guineae* Lallemand, 1962, and *Hellerides butawengi* Heller, 1966, both based on single female holotypes. *Hellerides* Lallemand, 1962, was transferred to the Lophopidae and synonymised with *Zophiuma* by Liang (1995). We used the morphology of the male genitalia and mitochondrial cytochrome oxidase subunit 1 (CO1) gene sequences to compare *Z. pupillata* and *Z. lobulata* specimens collected as part of a study on the etiology of Finschhafen Disorder. Both the male genitalia and the CO1 sequences showed clear differences between the two species with minimal intraspecific variation in *Z. lobulata* but some variation in *Z. pupillata*, which might indicate geographical variants. Sequence data demonstrated that brown coloured males collected with the red *Z. pupillata* females are the males of that species. Distinctive features of the tegmen markings and of the female anal segment have confirmed that *Zophiuma guineae* (Lallemand) is a new junior synonym of *Zophiuma pupillata* (Stål) and that *Zophiuma lobulata* Ghauri is a new junior synonym of *Zophiuma butawengi* (Heller). A paper formalising these synonymies, describing and illustrating the male genitalia of *Z. pupillata* for the first time and providing a key for the discrimination of the three species of the genus has been submitted for publication.

References

- Fennah, RG. 1955 New and little-known Lophopidae and Issidae from Australasia (Homoptera: Fulgoroidea). *Proceedings of the Royal Entomological Society of London Series B* **24**, 165-173.
- Distant, WL. 1906 Rhynchotal notes. xl. *Annals and Magazine of Natural History* (7) **18**, 349-356.
- Ghauri, MSK. 1967 *Zophiuma lobulata* sp. n. (Lophopidae - Homoptera), a new pest of coconut in New Guinea. *Annals and Magazine of Natural History* (13) **9**, 557-561.
- Heller, F. 1966 Eine neue Fulgoridae aus Neu-Guinea, *Hellerides butawengi* n.sp. (Homoptera). *Stuttgarter Beitrage zur Naturkunde* **168**, 1-4.
- Lallemand, V. 1962 *Hellerides guineae* n.sp., n.gen. aus Neu-Guinea (Homoptera, Fulgoridae, Aphaeninae). *Stuttgarter Beitrage zur Naturkunde* **95**, 1-3.
- Liang, A-P. 1995 Taxonomic changes in oriental Fulgoroidea (Hemiptera: Fulgoromorpha). *Journal of the New York Entomological Society* **103**, 1362-1164.
- Stål, C. 1863 Hemipterorum exoticorum generum et specierum nonnullarum novarum descriptions. *Transactions of the Entomological Society of London, Series 3* **1**, 571-603.

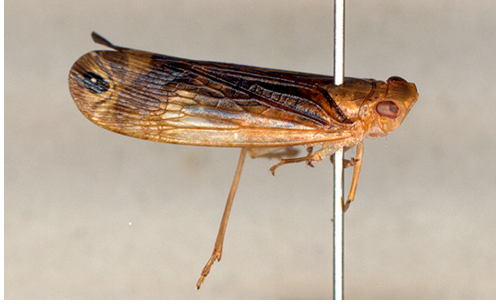


Figure 1. *Zophiuma butawengi* (Heller)
(= *Z. lobulata* Ghauri), male



Figure 2. *Zophiuma pupillata* (Stål),
female