ZooKeys 646: 73–78 (2017)
doi: 10.3897/zookeys.646.10912
http://zookeys.pensoft.net

RESEARCH ARTICLE

A peer-reviewed open-access journal
ZooKeys
Launched to accelerate biodiversity research

A new species of the leafhopper genus *Maiestas* Distant from Australia (Hemiptera, Cicadellidae, Deltocephalinae, Deltocephalini)

Yani Duan[1], Christopher H. Dietrich[2], Yalin Zhang[3]

1 *School of Plant Protection, Anhui Agricultural University, Hefei, Anhui Province 230036, China* **2** *Illinois Natural History Survey, Prairie Research Institute, University of Illinois, Champaign, IL 61820, USA* **3** *Key Laboratory of Plant Protection Resources and Pest Management of the Ministry of Education, Entomological Museum, Northwest A & F University, Yangling, Shaanxi Province 712100, China*

Corresponding author: *Yalin Zhang* (yalinzh@nwsuaf.edu.cn)

Academic editor: *Mick Webb* | Received 24 October 2016 | Accepted 5 January 2017 | Published 17 January 2017

http://zoobank.org/8A1BC92F-79A9-4440-835E-037E98020EC2

Citation: Duan Y, Dietrich CH, Zhang Y (2017) A new species of the leafhopper genus *Maiestas* Distant from Australia (Hemiptera, Cicadellidae, Deltocephalinae, Deltocephalini). ZooKeys 646: 73–78. https://doi.org/10.3897/zookeys.646.10912

Abstract

A new leafhopper species *Maiestas irwini* **sp. n.** is described and illustrated from Australia. A checklist of the genus from the Australian region is provided together with a key to species for males.

Keywords

Auchenorrhyncha, morphology, new species, taxonomy

Introduction

The grassland leafhopper genus *Maiestas* was established by Distant (1917) with the type species *Maiestas illustris* Distant from the Seychelles. It belongs to the *Deltocephalus* group as reviewed by Webb and Viraktamath (2009), as part of a larger study of Old World Deltocephalini and re-assessment of *Maiestas* Distant. Subsequently, Zhang and Duan (2011) revised the group in China and currently the genus comprises 98 species. It differs from *Deltocephalus* Burmeister and *Recilia* Edwards by the aedeagal shaft being at most only slightly curved dorsally with its apex not notched and sometimes produced

into a thin process or spine with the gonopore apical on the dorsal surface. In this paper, a new species of *Maiestas* Distant is described from Australia bringing the total for the Australian region to six species (see checklist). A checklist and a key to these species for males are provided. Images of all previously known Australian species can be seen on Fletcher's (2016) website.

Materials and methods

Morphological terminology follows Dietrich (2005). Digital photographs were taken with a QImaging Micropublisher 3.3 digital camera mounted on an Olympus BX41 stereo microscope and with a Nikon D1x digital SLR camera configured with lenses by Microptics, Digital Lab XLT system. Photographs were modified with Adobe Photoshop CS. Abbreviations used herein are INHS: Illinois Natural History Survey, Champaign Ill, USA; QDPI: Queensland Department of Agriculture and Fisheries, Brisbane, Australia; QM: Queensland Museum, Brisbane, Australia.

Taxonomy

Maiestas Distant

Maiestas Distant, 1917: 312. Type species: *Maiestas illustris* Distant, 1917, by monotypy.
Togacephalus Matsumura, 1940: 38. Type species: *Deltocephalus distincta* Motschulsky, 1859, by original designation.
Inazuma Ishihara, 1953: 15. Type species: *Deltocephalus dorsalis* Motschulsky, 1859, by original designation.
Inemadara Ishihara, 1953: 48. Type species: *Deltocephalus oryzae* Matsumura, 1902, by original designation.
Insulanus Linnavuori, 1960: 303. Type species: *Stirellus subviridis* Metcalf, 1946, by original designation.

Distribution. The Old World.

Checklist of species of *Maiestas* Distant from the Australian region

Note: see Fletcher (2016) for full synonymy.

Maiestas dorsalis (Motschulsky, 1859) (Qld, NT, NSW, Oriental region)
Maiestas irwini **sp. n.** (Qld)
Maiestas knighti Webb & Viraktamath, 2009 (ACT, NSW, NT, Tas, Vic, WA, New Zealand, Papua New Guinea, Fiji, Guam)

Maiestas lucindae (Kirkaldy, 1907) (Qld)
Maiestas samuelsoni (Knight, 1976) (Norfolk Island, New Zealand (Kermadec Islands), Fiji, New Caledonia)
Maiestas vetus (Knight, 1975) (ACT, NSW, NT, Vic, WA, NZ)

Key to species of *Maiestas* Distant from the Australian region (males)

Note: male genitalia of *M. lucindae* is unknown and this species is therefore omitted from the key.

1 Forewing with dark zig-zag marking (Webb and Viraktamath 2009, fig. 36o) ..... ***M. dorsalis***
– Forewing without zig-zag marking **2**
2 Aedeagal shaft with ventral margin extending beyond gonopore by approximately 5× apical width of shaft (Webb and Viraktamath 2009, fig. 35h) ..... ***M. vetus***
– Aedeagal shaft with ventral margin extending beyond gonopore by approximately apical width of shaft **3**
3 Style apophysis robust (Fig. 2E) ..... ***M. irwini* sp. n.**
– Style apophysis slim **4**
4 Subgenital plate lateral margin slightly convex (Webb and Viraktamath 2009, fig. 39d) ..... ***M. knighti***
– Subgenital plate lateral margin slightly concave (Webb and Viraktamath 2009, fig. 41d) ..... ***M. samuelsoni***

***Maiestas irwini* sp. n.**
http://zoobank.org/439E3157-1A52-4847-9A0D-13D25C053D2C
Figs 1–2

Length. Male: 2.6–3.0 mm.

Coloration and morphology. Ground color stramineous marked with orange and fuscous (Fig. 1A–C). Fore margin of head with fuscous marks and light fasciae extending to scutellum, coronal sulcus prominent (Fig. 1A–B). Face mostly brown, with paired white arcs corresponding to muscle scars of frontoclypeus (Fig. 1D). Pronotum with three pairs of fasciae. Scutellum with three fasciae (Fig. 1A–B). Forewing pale ochraceous, with two distinct, irregular fuscous maculae, one at the apex of the clavus and the other at the base of the central anteapical cell, veins contrastingly pale, veins of apex bordered with fuscous. Mesosternum light brown. Femora and tibiae with fuscous marks (Fig. 1C).

Head wider than pronotum, crown depressed, anterior margin distinctly angulate in dorsal view, slightly longer than distance between eyes (Fig. 1A–B). Ocellus closely adjacent to eye on anterior margin of vertex (Fig. 1A–C). Anteclypeus tapering toward the apex, not extended to ventral margin of face. Lorum semicircular, narrower than anteclypeus, well separated from lateral margin of face (Fig. 1D). Pronotum nearly as

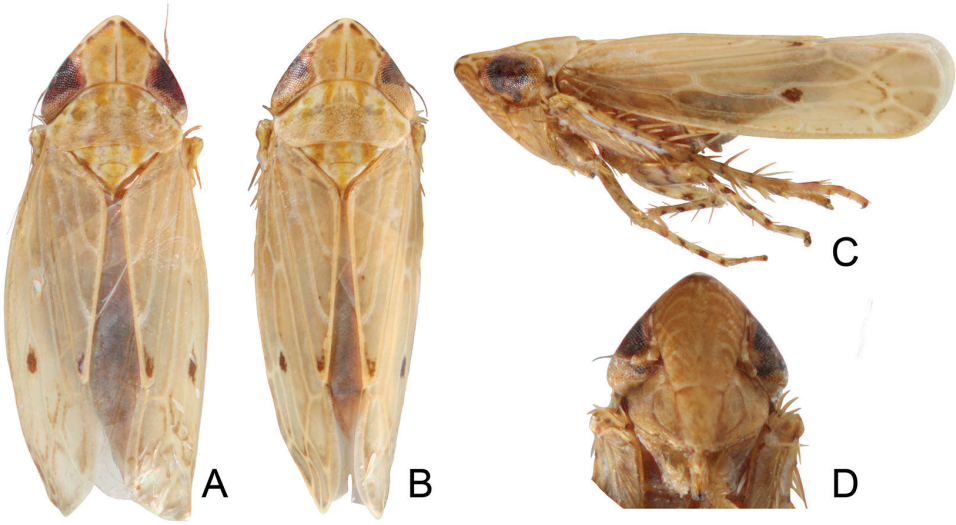

Figure 1. *Maiestas irwini* sp. n. **A, B** habitus, dorsal view **C** habitus, lateral view **D** face.

long as vertex (Fig. 1A–B). Forewing macropterous, with four apical and three anteapical cells, inner anteapical cell open basally, costal area with one cross vein (Fig. 1C).

Male genitalia. Pygofer lobe with numerous apical macrosetae, longer than its height, hind margin rounded (Fig. 2A–C). Subgenital plate subtriangular, lateral margin convex, length nearly as long as width. Valve rectangular (Fig. 2D). Style preapical lobe angulated, apophysis digitate, slightly laterally curved (Fig. 2E). Connective slightly longer than aedeagus. Aedeagal shaft short, stout, more or less of uniform width, curved dorsally with ventral margin produced into small spine beyond gonopore (Fig. 2F–G).

Material examined. Holotype: 1 male, 4km up Black Mountain Road, via Kuranda, 14.ix.–12.x.1982, malaise trap (QM, T234944, ex QDPI). **Paratypes:** 1 male, same data as holotype (QDPI); 2 males, same data as previous but 14.ix–12.x.1982, G. Simpson (QDPI); 1 male, 1 female, same data as holotype but 12–26.x.1982 (QDPI); 3 males, 3 females, Moggill State Forest, 26 km W Brisbane, Queensland, 17.x.1983, M. E. Irwin, malaise trap in gully in eucalyptus (INHS); 1 male, Mount Baldy Rd via Atherton, N Queensland, vi.1981, J. D. Brown, malaise trap (QDPI); 1 male, Tully Falls Rd, 10.iii.1956, J. L. Gressitt, light trap (BPB).

Remarks. The male genitalia of this species are similar to those of *M. scriptus* (Distant), from India (Webb & Viraktamath, 2009, Fig. 33) with a short and broad subgenital plate with lateral margin well rounded (Fig. 2D), style apophysis relatively long and straight (Fig. 2E), and aedeagal shaft short (Fig. 2F–G), but *M. irwini* differs in color pattern, the more strongly produced head (Fig. 1A–B), and less acute aedeagal apex in dorsal view (Fig. 2F). The new species differs from other Australian species (see Fletcher, 2016) in coloration and genital morphology.

Etymology. This species is named for M. E. Irwin who collected much of the type series.

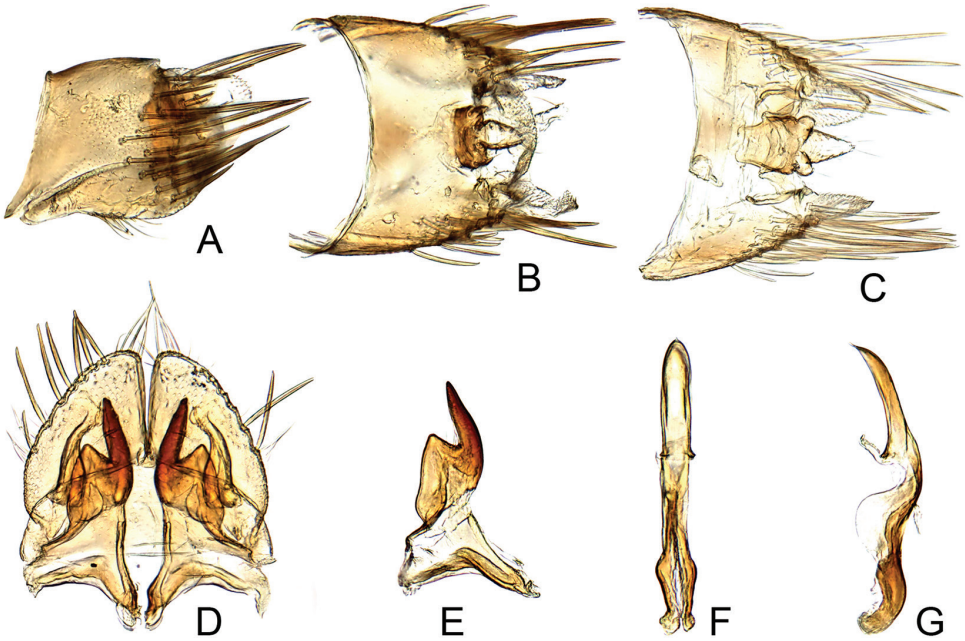

Figure 2. *Maiestas irwini* sp. n. **A** male pygofer lobe, lateral view **B, C** male pygofer and segments X–XI, dorsal view **D** valve, subgenital plates and styles, ventral view **E** style, dorsal view **F, G** connective and aedeagus, dorsal and lateral view, respectively.

Acknowledgements

We sincerely thank Dr Murray J. Fletcher, Orange Agricultural Institute, Australia for providing additional locality details of this species. We express our sincere thanks to M. D. Webb, the Natural History Museum, London, UK and J. R. Schrock, Emporia State University, USA for revising this manuscript. This research is supported by the National Natural Science Foundation of China (31000968), Anhui Provincial Natural Science Foundation (1608085MC55), Anhui Provincial Outstanding Young Talent Support Plan Key Projects (gxyqZD2016036), and Anhui Provincial Colleges and Universities Natural Science Foundation (KJ2015A006). The senior author was supported by the National Scholarship Fund of China to pursue research at the Illinois Natural History Survey, Champaign, USA, from August 2013 to August 2014.

References

Dietrich CH (2005) Keys to the families of Cicadomorpha and subfamilies and tribes of Cicadellidae (Hemiptera: Auchenorrhyncha). Florida Entomologist 88: 502–517. https://doi.org/10.1653/0015-4040(2005)88[502:KTTFOC]2.0.CO;2

Distant WL (1917) The Percy Sladen Trust Expedition to the Indian Ocean in 1905, under the leadership of Mr J. Stanley Gardiner, M.A. Vol. VI, No. VII-Rhynchota, Part II: Suborder Homoptera. Transactions of the Linnean Society of London 17: 273–322. https://doi.org/10.1111/j.1096-3642.1917.tb00469.x

Fletcher MJ (2016) Identification keys and checklists for the leafhoppers, planthoppers and their relatives occurring in Australia and neighbouring areas (Hemiptera: Auchenorrhyncha). http://www1.dpi.nsw.gov.au/keys/leafhop/deltocephalinae/deltocephalini.htm

Ishihara T (1953) A tentative check list of the superfamily Cicadelloidea of Japan (Homoptera). Scientific Reports of the Matsuyama Agricultural College 11: 1–72.

Kirkaldy GW (1907) Leaf-hoppers supplement. (Hemiptera). Report of work of the Experiment Station of the Hawaiian Sugar Planters' Association. Division of Entomology bulletin 3: 1–186.

Knight WJ (1975) Deltocephalinae of New Zealand (Homoptera: Cicadellidae). New Zealand Journal of Zoology 2(2): 169–208. https://doi.org/10.1080/03014223.1975.9517868

Knight WJ (1976) The leafhoppers of Lord Howe, Norfolk, Kermadec and Chatham Islands and their relationship to the fauna of New Zealand (Homoptera: Cicadellidae). New Zealand Journal of Zoology 3(2): 89–98. https://doi.org/10.1080/03014223.1976.9517905

Linnavuori R (1960) Insects of Micronesia. Homoptera: Cicadellidae. Honolulu, Bishop Museum 6(5): 231–344.

Matsumura S (1902) Monographie der Jassinen Japans. Természetrajzi Füzetek. Kiadja a Magyar Nemzeti Muzeum Budapest 25: 353–404.

Matsumura S (1940) Homopterous insects collected at Kotosho (Botel Tabago) Formosa by Mr Tadao Kano. Insecta Matsumurana 6: 34–51.

Metcalf ZP (1946) Homoptera. Fulgoroidea and Jassoidea of Guam. Bulletin of the Bernice P. Bishop Museum 189: 105–148.

Motschulsky VI (1859) Homoptères. In: Insectes des Indes orientales, et de contrées analogues. Etudes Entomologiques, rédigées par Victor de Motschulsky 8: 25–118.

Webb MD, Viraktamath CA (2009) Annotated check-list, generic key and new species of Old World Deltocephalini leafhoppers with nomenclatorial changes in the *Deltocephalus* group and other Deltocephalinae (Hemiptera: Auchenorrhyncha: Cicadellidae). Zootaxa 2163: 1–64. https://doi.org/10.3956/2012-34.1

Zhang YL, Duan YN (2011) Review of the *Deltocephalus* group of leafhoppers (Hemiptera: Cicadellidae: Deltocephalinae) in China. Zootaxa 2870: 1–47. http://www.mapress.com/zootaxa/list/2011/2870.html