

# Four New Species of Cicadas in the *Yoyetta abdominalis* (Distant) Species Group (Hemiptera: Cicadidae: Cicadettinae) from Southeastern Australia

LINDSAY W. POPPLE<sup>1</sup>  AND DAVID L. EMERY<sup>2</sup> 

<sup>1</sup> Biodiversity & Geosciences, Queensland Museum, South Brisbane QLD 4101, Australia

<sup>2</sup> Sydney School of Veterinary Science (SSVS), University of Sydney NSW 2006, Australia

**ABSTRACT.** Four new species are added to the *Yoyetta abdominalis* (Distant) species group: *Y. douglasi* sp. nov., *Y. enigmatica* sp. nov., *Y. loftyensis* sp. nov. and *Y. ngarabal* sp. nov. Calling song descriptions and morphological descriptions are provided for each species. An updated key to male specimens is also provided for the species group.

## Introduction

The genus *Yoyetta* was introduced by Moulds (2012) to accommodate nine Australian species, previously allocated to the genus *Cicadetta* Kolenati. The works of Emery *et al.* (2015) and Emery *et al.* (2019) added an additional 12 species, bringing the total to 21. More recently Moulds and Popple (2018) added another and Moulds *et al.* (2020) yet another species, bringing the total to 23.

Emery *et al.* (2015) recognized three informal species groups within the genus. The *Yoyetta abdominalis* (Distant) species group is readily identified with hind wing plagas that are almost entirely white and opaque, and abdominal tergites 2–7 mainly black or dark brown. The *Yoyetta incepta* (Walker) species group have hind wing plagas that are opaque and cream to pale orange-brown along the majority of the jugal fold and outer margin, and abdominal tergites mainly black. The *Yoyetta tristrigata* (Goding & Froggatt) species group possess hind wing plagas that are opaque and cream to light brown or orange-brown along the majority of the jugal fold and outer margin, and abdominal tergites 2–7

that are mainly orange to yellow-brown. This study focuses on the *Yoyetta abdominalis* species group.

Following from the work of Emery *et al.* (2019), the *Yoyetta abdominalis* species group contains 13 described species. This study adds an additional four species to the group from southeastern Australia, with descriptions based on morphology and calling songs, both of which are established diagnostic features of cicadas (Fleming, 1974; Gogala & Trilar, 2004; Ewart, 2005; Ewart & Marques, 2008).

## Methods and terminology

Anatomical terminology follows Moulds (2005, 2012) for body structures and wing characters, Moulds (2005) for genitalia, and Dugdale (1972) and Bennet-Clark (1997) for timbals. The long timbal ribs are referred to as long ribs 1 to 5, with long rib 1 being the most posterior (adjacent to timbal plate). The higher classification adopted in this paper follows Moulds (2012) and Marshall *et al.* (2018). Measurements (in mm) are given as ranges and means (in parentheses) and

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**Corresponding author:** Lindsay W. Popple [lindsay.popple@uqconnect.edu.au](mailto:lindsay.popple@uqconnect.edu.au)

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