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Griveaudus gen. nov. (Hemiptera: Fulgoromorpha: Flatidae) from Tsaratanana Massif supports the biodiversity of montane flatids in Madagascar

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Abstract

The paper describes a new flatid genus, *Griveaudus* **gen. nov.**, comprising two species *G. issidiformis* **sp. nov.** and *G. tsarantananae* **sp. nov.** from Madagascar. Additionally, the illustrations of the female internal genital structures are provided.

Key words: entomology, taxonomy, systematics, endemism, Flatinae, Afrotropical region

Introduction

Madagascar for centuries has inspired naturalists to describe its diverse and unique flora and fauna (Goodman & Benstead 2003). The island is characterized by its extreme biodiversity and high degree of endemism (more than 80% for plants and vertebrates), which at higher taxonomic levels resulted from millions of years of tectonic isolation from Africa and India after the break-up of the Gondwana supercontinent (Storey *et al.* 1995). Additionally, several alternative mechanisms may have generated local endemism, including allopatric speciation driven by isolation, for example, due to rivers or watersheds; parapatric speciation along environmental gradients; or ecologically mediated postspeciation range shifts (Pearson & Raxworthy 2009). Finally, ongoing loss of the original primary vegetation has been constantly reported (Ganzhorn *et al.* 2001), resulting in disappearance of associated with it rich entomofauna.

Despite long history of the research on Madagascan insects, it is evident that the knowledge of Flatidae is still very limited (Świerczewski & Stroiński 2013). It refers especially to relatively unexplored and poorly documented ecosystems, such as those of montane areas, which flatid fauna seems to be quite rich and diverse (Stroiński & Świerczewski 2013, Stroiński & Świerczewski 2014). In this paper we describe new genus *Griveaudus* **gen. nov.** from Tsaratanana Massif—the highest mountain range of Madagascar.

Material and methods

Material. The studied material comes from the entomological collections of the Muséum national d'Histoire naturelle (MNHN), Paris, France.

Methods. The abdomens of the specimens examined were cut off and cleared for 30 min. in a warm (50ºC) 10% KOH solution with a few drops of black chlorazol (CAS No. 1937–37–7) for dying the ectodermic genital ducts based on the method introduced by Carayon (1969) and Bourgoin (1993). Dissections and cleaning of genital structures were performed in distilled water. Final observations and drawings were made in glycerin using a camera lucida attached to Olympus microscope (SZH10 and BX50). The photos of the habitus, male and female genital structures were taken using a stereoscopic microscope Leica MZ16 with IC3D camera, excluding those of aedeagus, which were taken using a light microscope Leica DM5500B with Leica DFC490 camera. Final images

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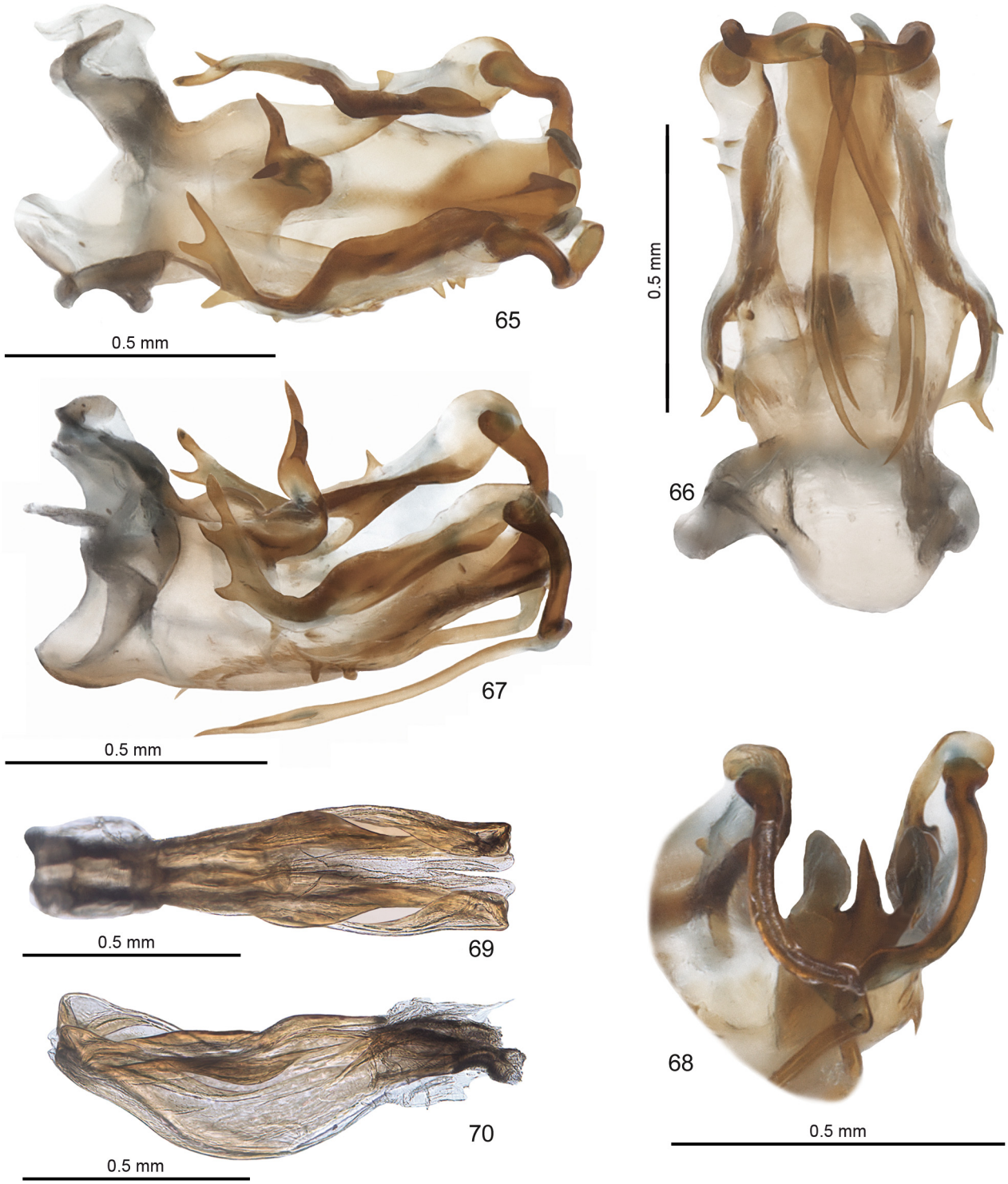

FIGURES 65–70. *Griveaudus tsaratananae* **gen. et sp. nov.**, male. (65) periandrium, dorsal view; (66) periandrium, ventral view; (67) periandrium, dorso-lateral view; (68) periandrium, frontal view; (69) aedeagus, dorsal view; (70) aedeagus, lateral view.

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