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Orialella aerizulae (Hemiptera: Cicadidae): first record in Brazil

Douglas H. B. Maccagnan^{1*} and Allen F. Sanborn²

Cicadas (Hemiptera: Cicadidae) are insects very common in the tropics and subtropics and make themselves evident in environments in which they occur by the loud sound emitted by males. Species of cicadas have been linked to resource pulses by their high emergence densities in a short period of time (Aoki et al. 2011). As cicadas have large amounts of dissolved nitrogen, phosphorus, carbon, and lipid, the surface layer of the soil becomes an important trophic resource (Mellec et al. 2011). Cicadas, in particular, translocate nutrients from the underground, where the nymphs feed, to above the ground, where the adults are susceptible to predation (Young 1980; Sazima 2009). For some environments, cicadas have received the status of keystone species due to the large number of individuals that emerge synchronously and due to their large bodies (Andersen 1994; Callahan et al. 2000).

Despite the ecological importance of cicadas, studies on this group of insects have been infrequent in Brazil. The paucity of studies has resulted in a lack of basic information, such as the species that occur in the country and their respective distributions. Thus, the present work aimed to record the occurrence of a species of cicada new to Brazil.

In October 2013, a female of *Orialella aerizulae* Boulard, 1986 (Hemiptera: Cicadidae: Cryptotympanini) was collected in the area about 8 km west of the municipality of Iporá, State of Goiás, Brazil (16°26'S, 51°11'W). The identification was made by following the original description. In general, *O. aerizulae* is diagnosed easily by the blue turquoise color at the wing base and by a plate of spines at the postero-inferior region of the 9th abdominal segment of the female (Boulard 1986). The specimen collected was deposited in the Entomological Collection of the Universidade Estadual de Goiás, Campus Iporá, State of Goiás, Brazil.

The tribe Cryptotympanini Handlirsch, 1925 currently includes 20 genera that are distributed in all faunal regions except continental Africa (Sanborn 2013). From the Neotropical Region, 5 genera are recorded (*Diceroprocta* Stål, 1870; *Tibicen* Latreille, 1825; *Cornuplura* Davis, 1944; *Cacama* Distant, 1904; and *Orialella* Metcalf, 1952), of which only *Orialella* has been reported in Brazil (Metcalf 1963; Sanborn 2013). This genus is composed of 2 species, *O. aerizulae* and *O. boliviana* (Distant, 1904). The last was recorded in Bolivia, and in the Brazilian states of Amazonas and Pará (Metcalf 1963). In contrast — despite the effort to recognize the cicada fauna in several New World countries (e.g., Sanborn 2001a,b, 2006, 2007a,b, 2008, 2009, 2010a,b, 2011a,b, 2014; Sanborn et al. 2005, 2008, 2011a,b, 2012; Sanborn & Heath 2012, 2014; Sanborn & Maes 2012; Sanborn & Phillips, 2013; Maes et al. 2012) — *O. aerizulae* has been recorded only in the type locality (French Guiana, Kaw region), attesting to its rarity in collections.

The region where the specimen was recently collected is located in the core area of the Brazilian Savanna (Cerrado biome) (Fig. 1). The climate in this region corresponds to Köppen classification AW, which is characterized by a dry season (Apr to Sep) and a rainy season (Oct to Mar) with an average annual precipitation of 1,617 mm (Alves 2011). Its vegetation shows a remarkable physiognomic variation from grassland to woodlands (Oliveira & Marquis 2002). The characteristics of this biome differ considerably from the region where the genus *Orialella* had been reported previously in Brazil, typically tropical rain forest (Distant 1912). The type locality for *O. aerizulae*, a marsh (Boulard 1986), also differs significantly from the location in Brazil where the specimen was found.

The Cerrado biome is considered a hotspot of biodiversity (Myers et al. 2000) and has been suffering various changes due to the increasing anthropogenic degradation including expansion of the agropastoral borders (Sano et al. 2008). Only 7.44% of the area of this biome is protected in conservation units (Lapola et al. 2014). Knowing the biodiversity that the Cerrado possesses is one of the priorities for developing relevant conservation strategies.

With this new record, the area of occurrence of *O. aerizulae* is expanded considerably to the South and is recognized to include Brazil. In addition, the total reported Brazilian cicada fauna is increased to 159 species.

We are grateful to Letícia Alves Silverio for the collection of the specimen and to Tiago Luiz Massochini Frizzo for help in preparation of the map.

Summary

This present note for the first time registers the occurrence of the cicada *Orialella aerizulae* Boulard, 1986 (Hemiptera: Cicadidae: Cryptotympanini) in Brazil. The species was previously known only at its type locality from French Guiana.

Key Words: cicada; distribution; Neotropical; Cerrado

Sumário

A presente nota registra pela primeira vez a ocorrência da cigarra *Orialella aerizulae* Boulard, 1986 (Hemiptera: Cicadidae: Cryptotympanini) no Brasil. Até então, esta espécie encontrava-se registrada apenas para a localidade tipo na Guiana Francesa.

Palavras Chave: cigarra; distribuição; Neotropical; Cerrado

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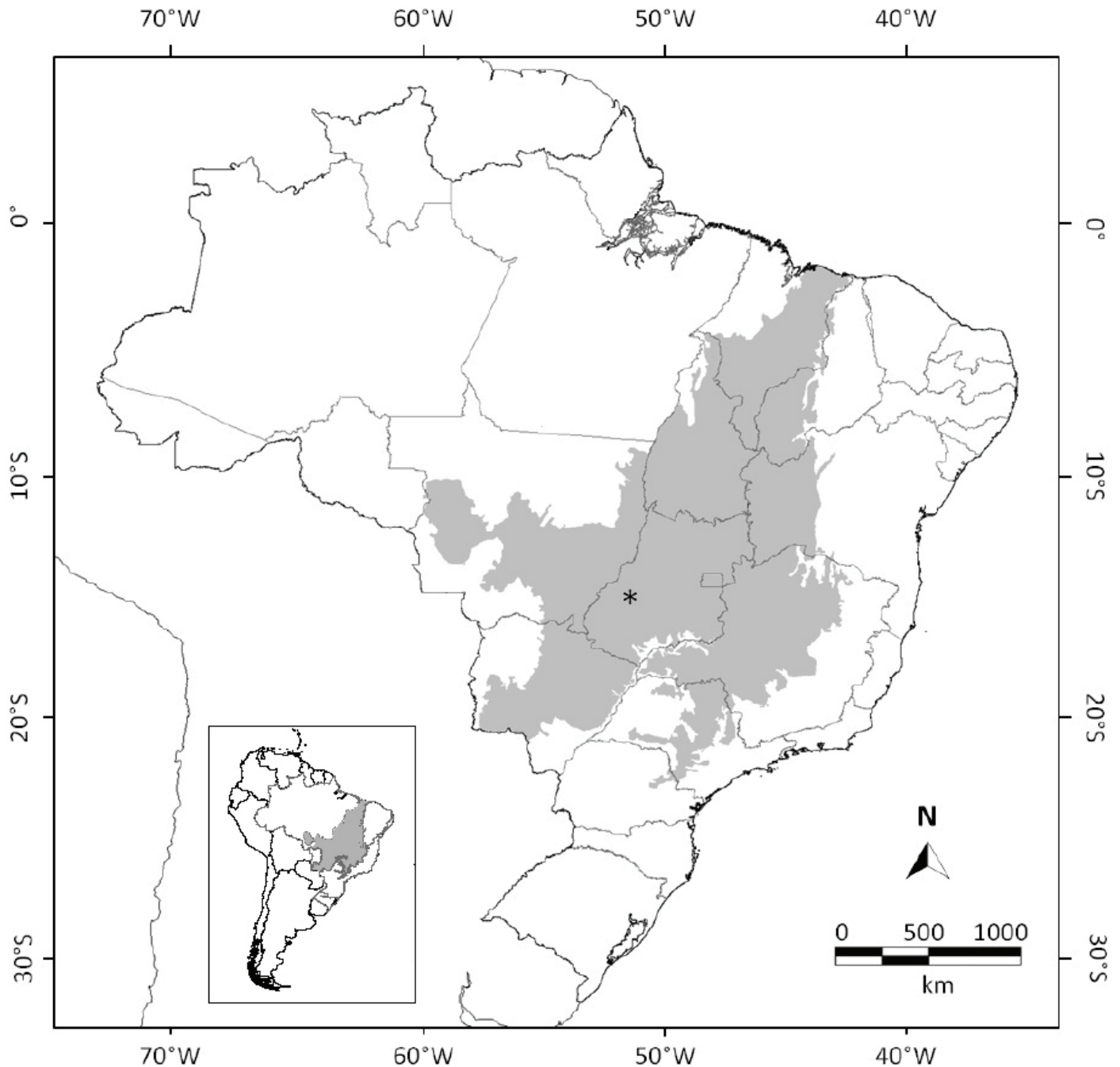


Fig. 1. Site of first record of *Oriallela aerizulae* in Brazil. The grey area represents the original distribution of the Cerrado biome.

References Cited

- Alves EDL. 2011. Frequência e probabilidade de chuvas no município de Iporá-GO. *Caminhos de Geografia* 12(37): 65-72.
- Andersen DC. 1994. Are cicadas (*Diceroprocta apache*) both a "keystone" and a "critical-link" species in Lower Colorado River riparian communities? *The Southwestern Naturalist* 39: 26-33.
- Aoki C, Lopes FS, Oliveira AMR, Souza FL, Marques MR. 2011. Nutrient flux associated with the emergence of *Quesada gigas* Olivier (Hemiptera: Cicadidae) in an urban ecosystem. *Neotropical Entomology* 40: 436-439.
- Boulard M. 1986. *Oriallela aerizulae* n. sp., cigale nouvelle de la forêt guyanaise (Hom. Cicadoidea). *L'Entomologiste* 42: 345-347.
- Callahan MA, Whiles MR, Meyer CK, Brock BL, Charlton RE. 2000. Feeding ecology and emergence production of annual cicadas (Homoptera: Cicadidae) in tallgrass prairie. *Oecologia* 123: 535-542.
- Distant WL. 1912. Homoptera Fam. Cicadidae, Subfam. Cicadinae. *Genera Insectorum* 142: 1-64.
- Lapola DM, Martinelli LA, Peres CA, Ometto JPHB, Ferreira ME, Nobre CA, Aguiar APD, Bustamente MMC, Cardoso MF, Costa MH, Joly CA, Leite CC, Moutinho P, Sampaio G, Strassburg BBN, Vieira ICG. 2014. Pervasive transition of the Brazilian land-use system. *Nature Climate Change* 4: 27-35.
- Maes JM, Moulds M, Sanborn AF. 2012. Cicadidae (Homoptera) de Nicaragua: catálogo ilustrado, incluyendo especies exóticas del Museo Entomológico de León. *Revista Nicaragüense Entomología* 72 (Suplemento 2): 1-138.

- Mellec AI, Gerhard G, Michalzik B. 2011. Insect herbivory, organic matter deposition and effects on belowground organic matter fluxes in a central European oak forest. *Plant Soil* 342: 393-403.
- Metcalf ZP. 1963. General catalogue of the Homoptera, Fascicle VIII. Cicadoidea. Part 1. Cicadidae. Section I. Tibiceninae. North Carolina State College Contribution 1502: 1-585.
- Myers N, Mittermeier RA, Mittermeier CG, da Fonseca GAB, Kent J. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858.
- Oliveira PS, Marquis RJ [eds.]. 2002. The Cerrados of Brazil: Ecology and Natural History of a Neotropical Savanna. Columbia University Press, New York, New York, USA.
- Sanborn AF. 2001a. A first contribution to a knowledge of the cicada fauna of El Salvador (Homoptera: Cicadoidea). *Florida Entomologist* 84: 449-450.
- Sanborn AF. 2001b. Distribution of the cicadas (Homoptera: Cicadidae) of the Bahamas. *Florida Entomologist* 84: 651-652.
- Sanborn AF. 2006. New records for the cicada fauna from four Central American countries (Hemiptera: Cicadoidea: Cicadidae). *Florida Entomologist* 89: 75-79.
- Sanborn AF. 2007a. Additions to the cicada fauna of Venezuela with the description of a new species and checklist of the Venezuelan cicada fauna (Hemiptera: Cicadoidea: Cicadidae). *Zootaxa* 1503: 21-32.
- Sanborn AF. 2007b. New species, new records and checklist of cicadas from Mexico (Hemiptera: Cicadoidea: Cicadidae). *Zootaxa* 1651: 1-42.
- Sanborn AF. 2008. New records of Brazilian cicadas including the description of a new species (Hemiptera: Cicadoidea, Cicadidae). *Neotropical Entomology* 37: 685-690.
- Sanborn AF. 2009. Checklist, new species and key to the cicadas of Cuba (Hemiptera: Cicadoidea: Cicadidae). *Deutsche Entomologische Zeitschrift* 59: 85-92.
- Sanborn AF. 2010a. The cicadas of Colombia including new records and the description of a new species (Hemiptera: Cicadidae). *Journal of Natural History* 44: 1577-1607.
- Sanborn AF. 2010b. New records and new species of Central American cicadas (Hemiptera: Cicadoidea: Cicadidae). *Studies on Neotropical Fauna and Environment* 45(2): 67-76.
- Sanborn AF. 2011a. Checklist of cicadas (Insecta: Hemiptera: Cicadidae) from Paraguay including new records for six species. *Check List* 7: 465-467.
- Sanborn AF. 2011b. Checklist of the cicadas of French Guiana including new records and the description of nine new species (Insecta, Hemiptera, Cicadoidea, Cicadidae). *Zoosystema* 33: 377-418.
- Sanborn AF. 2013. Catalogue of the Cicadoidea (Hemiptera: Auchenorrhyncha). With Contributions to the Bibliography by Martin H. Villet. Elsevier, Inc., Academic Press, San Diego, California, USA.
- Sanborn AF. 2014. Checklist of the cicadas (Insecta: Hemiptera: Cicadidae) of Costa Rica including new records for fourteen species. *Check List* 10: 246-252.
- Sanborn AF, Heath MS. 2012. Catalogue of the cicadas (Hemiptera: Cicadoidea: Cicadidae) of Continental North America North of Mexico. Thomas Say Publications in Entomology: Monographs. Entomological Society of America, Lanham, Maryland, USA.
- Sanborn AF, Heath MS. 2014. The cicadas of Argentina with new records, a new genus and fifteen new species (Hemiptera: Cicadoidea: Cicadidae). *Zootaxa* 3883: 1-94.
- Sanborn AF, Maes, J-M. 2012. Checklist of the cicadas (Insecta: Hemiptera: Cicadidae) of Nicaragua including new records for seventeen species. *Check List* 8: 437-442.
- Sanborn AF, Phillips PK. 2013. Biogeography of the cicadas (Hemiptera: Cicadidae) of North America north of Mexico. *Diversity* 5: 166-239.
- Sanborn AF, Heath MS, Sueur J, Phillips PK. 2005. The genus *Neocicada* Kato, 1925 (Hemiptera: Cicadomorpha: Cicadidae), with descriptions of three new species. *Systematic Entomology* 30: 191-207.
- Sanborn AF, Moore TE, Young AM. 2008. Two new cicada species from Costa Rica (Hemiptera: Cicadomorpha: Cicadidae) with a key to *Fidicinaoides* in Costa Rica. *Zootaxa* 1846: 1-20.
- Sanborn AF, Heath MS, Phillips PK, Heath JE. 2011a. A new species of the genus *Beameria* (Hemiptera: Cicadidae) from North America. *Journal of Natural History* 45: 1589-1605.
- Sanborn AF, Heath MS, Phillips PK, Heath JE. 2011b. The genus *Cacama* Distant, 1904 (Hemiptera: Cicadidae) with the description of three new species. *Zootaxa* 2897: 35-50.
- Sanborn AF, Heath MS, Phillips PK, Heath JE. 2012. The genus *Pacarina* Distant, 1905 (Hemiptera: Cicadidae) with the description of a new species. *Journal of Natural History* 46: 923-941.
- Sano MS, Almeida SP, Ribeiro JF [eds.]. 2008. Cerrado: Ecologia e Flora. Vol. 1. Embrapa Informação Tecnológica, Brazil.
- Sazima I. 2009. Insect cornucopia: various bird types prey on the season's first giant cicadas in an urban park in southeastern Brazil. *Biota Neotropical* 9: 258-262.
- Young AM 1980. Habitat and seasonal relationship of some cicadas (Homoptera: Cicadidae) in Central Costa Rica. *The American Midland Naturalist* 103: 155-166.