

Extending the geographic range of the ensign wasp *Decevania reticulata* Kawada, 2007 (Hymenoptera: Evaniidae): first record in Brazil and some notes on its distribution

*Ampliando a distribuição geográfica da vespa-bandeira *Decevania reticulata* Kawada, 2007 (Hymenoptera: Evaniidae): primeiro registro no Brasil e algumas notas sobre sua distribuição*

Antonielson Bezerra da Silva^{1,*}

Ricardo Kawada²

Daniell Rodrigo Rodrigues Fernandes³

Received 12/12/2022 | Accepted 01/25/2023 | Published 01/30/2023 | Edited by Rodrigo Gonçalves

Abstract

We extend the geographic range of the ensign wasp *Decevania reticulata* Kawada, 2007 from Amazon rainforest and “lavrado” in Roraima and Amazonas states, Brazil. Additionally, we illustrate the species and add some comments about its distribution.

Keywords: Amazon, cockroach, Evanioidea, parasitic wasp, Neotropical region

Resumo

Ampliamos a distribuição geográfica da vespa-bandeira *Decevania reticulata* Kawada, 2007 para a floresta amazônica e o lavrado, nos estados de Roraima e Amazonas, Brasil. Adicionalmente, ilustramos a espécie e adicionamos comentários sobre sua distribuição.

Palavras-chave: Amazônia, barata, Evanioidea, vespa parasitoide, região Neotropical

1. Programa de Pós-Graduação em Zoologia, Museu Paraense Emílio Goeldi, Universidade Federal do Pará, Belém, Pará, Brazil. Coordenação de Biodiversidade, Instituto Nacional de Pesquisas da Amazônia, Manaus, Amazonas, Brazil. E-mail: antonielsonbeze@gmail.com. ORCID: <https://orcid.org/0000-0001-7798-4077>. * Corresponding Author. 2. RK Science Factory, Viçosa, Minas Gerais, Brazil. E-mail: hyme.neo@gmail.com. ORCID: <https://orcid.org/0000-0003-0899-011X>. 3. Coordenação de Biodiversidade, Instituto Nacional de Pesquisas da Amazônia, Manaus, Amazonas, Brazil. E-mail: daniellrrfernandes@gmail.com. ORCID: <https://orcid.org/0000-0002-2208-6349>.

The ensign wasp (Hymenoptera: Evaniidae) are showy, easy to recognize and frequently collected; despite of this, are still ignored by systematists and ecologists of Hymenoptera (Deans, 2006).

In the Neotropical region, nine genera of Evaniidae are recognized (Deans, 2005; Deans & Kawada, 2008), and in Brazil, seven genera are found: *Alobevania* Kawada & Deans, 2008 (two species recorded), *Evania* Fabricius, 1775 (four species), *Evaniella* Bradley, 1905 (18 species), *Evaniscus* Szépligeti, 1903 (five species), *Hyptia* Illiger, 1807 (15 species), *Semaemyia* Bradley, 1908 (10 species) and *Decevania* Huben, 2003 (no nominal species recorded) (Kawada & Azevedo, 2007, Kawada, 2011; Kawada, 2022).

Decevania Huben, 2003 (Hymenoptera: Evaniidae) was originally described to account for two species *D. parva* (Enderlein, 1901) from Colombia and *D. striatigena* (Kieffer, 1910) from Bolivia that had the following distinct synapomorphies: flagellum 8-segmented, head with relatively small eye, oversized wings, flaccid tarsomere and posterior 1–3 expanded posteriorly/apically (Deans & Huben, 2003). Subsequently, Kawada & Azevedo (2007) and Kawada (2011) described eleven and one new species respectively. In fact, *Decevania* occurs in Mexico, Guatemala, Costa Rica, Panama, Colombia, Venezuela, Ecuador, Peru, and Brazil (Kawada & Azevedo, 2007; Kawada, 2011), and despite being reported from Brazil, no nominal species have been assigned to this country.

The specimens studied were collected in inventories in the Serra de Tepequém (1,100 masl), in the state of Roraima and in interfaces of cultivation of guaraná and forested areas in the municipality of Manaus (80 masl), Amazonas state, Brazil. The material examined were deposited in the Invertebrate Collection of the Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Brazil (M. L. Oliveira, curator).

The specimens were identified based on the original description in Kawada & Azevedo (2007) and on the key provided by Kawada (2011). Observations were carried out using a Leica MZ 12.5 stereomicroscope

under fluorescent light source. Photographs were taken using a Leica (M165C) stereomicroscope with a DFC420 digital camera and Leica Application Suite V3.4.1 (Version 2009). Series of partially focused digital images were stacked using the Helicon Focus software (Version 6.7) to produce final images with enhanced quality.

New country records are indicated with an asterisk (*), and the new state records with two (**).

The map was prepared using the free software SimpleMappr (www.simplemappr.net) (Shorthouse, 2010).

Decevania reticulata Kawada, 2007

(Figs. 1-2)

Diagnosis

According to Kawada & Azevedo (2007), *D. reticulata* differs from the other species of the genus by having eye developed, but relatively more reduced (Fig. 1A and Fig. 1B); flagellomere I long (Fig. 1C); face with dense and deep punctures, and striations wide and sinuous; gena narrow in lateral view (Fig. 1D); thorax punctate dorsally; notaulus punctate; stigmal vein + 1R1 vein long and 1R1 slender distally (Fig. 1E); tarsus (Fig. 1F).

Material examined

Two females and 1 male. BRAZIL, Roraima, Amajari, Serra de Tepequém, 1-15.I.2016, Malaise, Rafael et al. cols., 1 female (INPA); BRAZIL, Amazonas: Manaus, EMBRAPA, Guaraná orgânico [*Paullinia cupana* Kunth], 2°53'29"S - 59°58'45"W, Borda Möerick Lote: 793, 5.I.2013, K. Schoeninger, 1 female (INPA); same data except: Lote: 297, 26.X.2012, 1 male (INPA).

Distribution

Mexico, Guatemala, Panama, Costa Rica, Colombia, Bolivia and Brazil* (Roraima** and Amazonas**) (Kawada & Azevedo, 2007; Kawada 2011) (Figure 2).

Comments

Although the genus occurs from sea level to altitudes from about 5,000 masl, there are few records of species that occur in the Amazon, most of them in the Colombian Amazon (Kawada & Azevedo, 2007). In the Brazilian Amazon region, the knowledge about the hosts of Evaniidae is restricted to the introduced species *Evania appendigaster* (Linnaeus, 1758), that is associated with cockroaches of anthropic distribution

(mostly *Periplaneta americana* (Linnaeus, 1758) (Blattaria: Blattidae)) and its presence has not been reported for natural environments of the Amazon rainforest (Lima et al., 2022). Possibly *D. reticulata* are associated with hosts that develop in natural environments of the Amazon forest, which would also explain its encounter in interfaces of cultivation of guaraná and forested areas. So far no host is known for the genus. However it is reasonable to assume

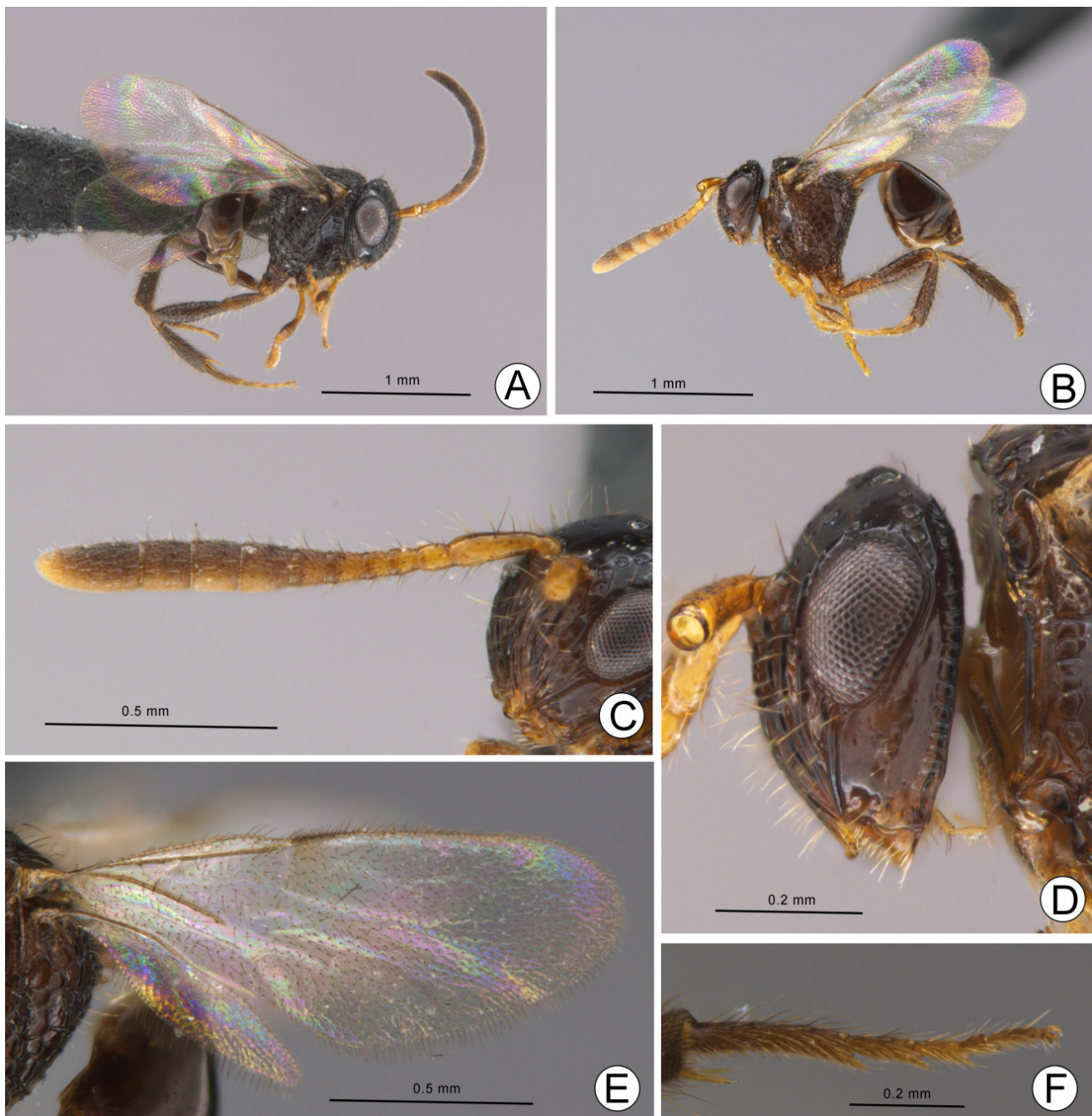


Figure 1. Figure 1 A-F. *Decevania reticulata* Kawada, 2007. A) Male habitus; B) Female habitus; C) Female antenna; D) Female head; E) Female forewing; F) Female tarsus.

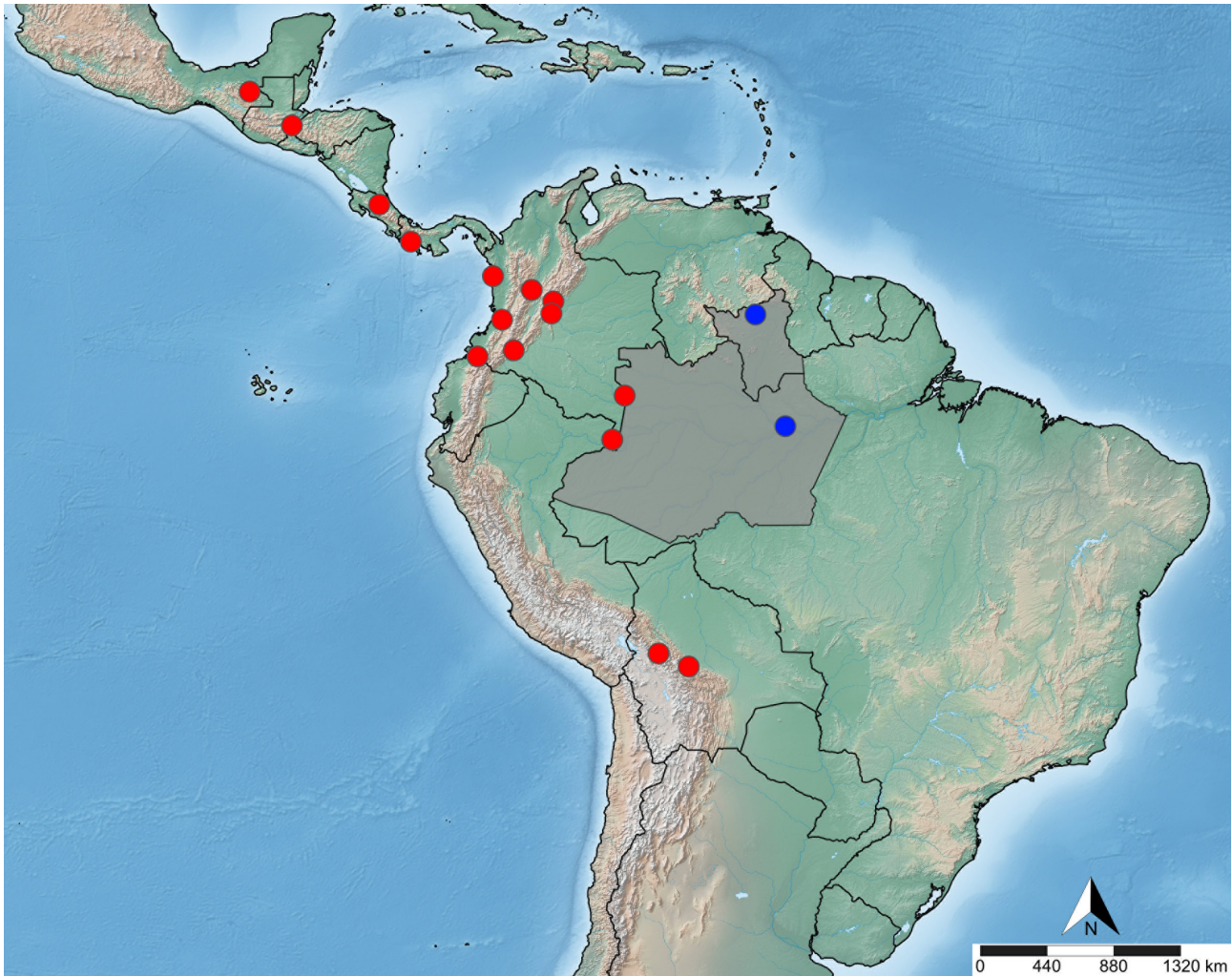


Figure 2. Distribution map of *Decevania reticulata* Kawada, 2007, red circles= previous records, blue circles= new records, gray area= new state records.

that these insects act as parasitoids/predators of cockroaches' oothecae (Insecta: Blattaria) like the other members of the Evaniidae (Deans, 2005; Kawada & Azevedo, 2007).

Acknowledgements

We thank the Instituto Nacional de Pesquisas da Amazônia (INPA) for research support, and Invertebrate Collection - INPA for allowing the use of photographic equipment used in this work. ABS thanks CAPES (Coordenação e Aperfeiçoamento de Pessoal de Nível Superior) for scholarship. DRRF thanks the FAPEAM - Universal Amazonas (process number 062.00770/2015); Edital Universal - Chamada MCTIC/

CNPq n° 28/2018 (process number 432933/2018-2), and "Programa de Capacitação Institucional" - PCI/ CNPq (process number 300722/2022-2).

Author's contribution

DRRF and RK identified the specimens; ABS sorted the material on laboratory; ABS photographed the specimens; DRRF, ABS and RK wrote the manuscript.

Conflicts of interest

The author declares no conflict of interest.

References

- Deans, A. R. (2005). Annotated catalog of the world's ensign wasp species (Hymenoptera: Evaniidae). Contributions of the American Entomological Institute, 34(1), 1-164.
- Deans, A. R. (2006). Familia Evaniidae, p. 795-802. In: Fernandez, F. & M. J. Sharkey (Eds.). Introducción a los Hymenoptera de la Región Neotropical. Sociedad Colombiana de Entomología & Universidad Nacional de Colombia.
- Deans, A. R. & Kawada, R. (2008). *Alobevania*, a new genus of neotropical ensign wasps (Hymenoptera: Evaniidae), with three new species: integrating taxonomy with the World Wide Web. Zootaxa, 1787, 28-44. <https://doi.org/10.11646/zootaxa.1787.1.2>
- Deans, A. R. & Huben, M. (2003). Annotated key to the ensign wasp (Hymenoptera: Evaniidae) genera of the world with descriptions of three new genera. Proceedings of the Entomological Society of Washington, 105, 859-875.
- Kawada, R. & Azevedo, C. O. (2007). Taxonomic revision of the Neotropical ensign wasp genus *Decevania* (Hymenoptera: Evaniidae). Zootaxa, 1496, 1-30. <https://doi.org/10.11646/zootaxa.1496.1.1>
- Kawada, R. (2011). Pictorial key for females of *Decevania* Huben (Hymenoptera, Evaniidae) and description of a new species. ZooKeys, 116, 59-84. <https://doi.org/10.3897/zookeys.116.1473>
- Kawada, R. (2022). Evaniidae. In: Catálogo Taxonômico da Fauna do Brasil. PNUD. <http://fauna.jbrj.gov.br/fauna/faunadobrasil/33464>. Access on: 10. iv. 2022.
- Lima, A. G. M., Nascimento, A. C., & Fernandes, D. R. R. (2022). Parasitoides de *Periplaneta americana* (Linnaeus, 1758) (Blattaria: Blattidae) em zona urbana de Manaus, Amazonas, Brasil. Entomological Communications, 4, ec04026. <https://doi.org/10.37486/2675-1305.ec04026>
- Shorthouse, D. P. (2010). SimpleMappr, an online tool to produce publication-quality point maps. <https://www.simplemappr.net>.