



<http://dx.doi.org/10.11646/zootaxa.3936.2.8>

<http://zoobank.org/urn:lsid:zoobank.org:pub:C34CF656-5CBA-4EC2-9A11-C8BEBD5E6108>

Notes on the genus *Mada* Mulsant with description of a new Andean species (Coleoptera: Coccinellidae: Epilachnini)

KAROL SZAWARYN

Raabego 13, 02-793, Warsaw, Poland. E-mail: k.szawaryn@gmail.com

Abstract

Mada andeana, a **new species** from the Andes is here described. Diagnostic characters are illustrated for both male and female. *Mada durantae* González et Gómez is here synonymized with *Mada inepta* (Gorham), **new synonymy**.

Key words: Entomology, taxonomy, Cucujoidea, phytophagous, ladybird beetle, Peru, Ecuador

Introduction

Epilachnini is a large tribe of herbivorous ladybird beetles containing 25 genera with about 1,050 species distributed worldwide (Jadwiszczak & Węgrzynowicz 2003; Szawaryn 2011; 2014; Szawaryn & Tomaszewska 2013, 2014; Tomaszewska & Szawaryn 2013, 2014).

The genus *Mada* was described by Mulsant in 1850 as a subgenus of *Epilachna* Chevrolat. Korschevsky (1931) in his catalogue elevated *Mada* to the genus level. In his revision, Gordon (1975) redescribed 13 previous species and described 18 new ones. Subsequently, Gordon & Almeida (1986a, 1986b, 1988) described twelve additional species. González & Gómez (2013) described *M. durantae* González & Gómez from Colombia, which is here synonymized with *M. inepta* (Gorham). Currently, 43 species have been described.

Representatives of the genus *Mada* are present in Mesoamerica and South America. The genus *Mada* is characterized by its narrow, transverse labrum and double tarsal claw with an additional large basal tooth (Fig. 10). The genus is not homogeneous and Gordon (1975) concluded that it probably is not monophyletic. The variable characters are, for example, as follows: the presence of apical spurs on tibiae; the presence of depressions for receiving apices of middle and hind femora on epipleuron; the shape of abdominal postcoxal lines, whether rounded or strongly angulate. Further taxonomic investigation of the genus *Mada* is needed.

During recent examination of the new material from Ecuador provided by Lech Borowiec and Rafał Ruta, and undetermined material from the National Museum of Natural History in Washington, a new species of *Mada* was found and it is described below as *M. andeana* **sp. nov.**

Material and methods

Specimens used in this study are deposited in the following collections:

- DBET Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Wrocław, Poland;
- LBC Lech Borowiec private collection;
- MZPW Museum and Institute of Zoology PAS, Warszawa, Poland;
- NHM Natural History Museum, London, United Kingdom;
- RRC Rafał Ruta private collection;
- USNM United States National Museum of Natural History, Washington, USA.

Material examined. Lectotype of *Mada inepta* (Gorham): Type// Syntype// Presido, Mexico, Forrer// E. inepta Gorham// B.C.A., Col., VII. Epilachna inepta Gorh.// Lectotype Epilachna inepta Gorham, Gordon 1970 (NHM). **Other material:** MEXICO: Playa vicente// 2322// E. inepta G.// B.C.A., Coll., VII. Epilachna inepra Gorh.// Mexico Salle Coll. (1, NMH); EL SALVADOR: 2000m, Cerro Verde, El Salvador, V.4.1971, H. Howden (2, USNM); COLOMBIA: Antioquia, Medellín, Instituto Tecnológico [Institución Universitaria Tecnológico de Antioquia], 1650 m., 5-VIII-2012, leg. Luis Gómez, on *Duranta variegata* (4, MZPW); PANAMA: Panama, Chiriqui Prov. 2km W Cerro Punta, 1720m 8°51'N 82°36'W 19–23.V.77, H.&A. Howden (10, USNM).

Remarks. I received several specimens of *M. durantae* González et Gómez from Guillermo González and examined male and female genitalia. I compared them to the lectotype of *M. inepta* (Gorham). Male genitalia of the lectotype and Colombian specimens are identical to each other and also to drawings by Gordon (1975: 311). Dorsal colour pattern is very similar, but the lectotype of *M. inepta* is a bit paler and lacks the black sutural striae present in specimens described by González et Gómez. However, I believe the specimens referred to as *M. durantae* fall within the range of variation of *M. inepta*. As a result *M. durantae* González et Gómez, 2013 is here synonymized with *M. inepta* (Gorham, 1898).

Distribution. Colombia, Costa Rica, El Salvador, Mexico, Panama.

Discussion

The newly described species *Mada andeana* has typical characteristics of the genus, such as a double tarsal claw with an additional large tooth at base, oblique carina at apex of the tibia and two rounded, setose projections at anterior margin of metaventrite. However, it is very distinctive because of its glabrous elytral surface and distinctive male genitalia, which show some similarities with other species close to the type species, *M. fraterna* (Mulsant).

Gómez & González (2013) discovered that *M. durantae* (= *M. inepta*) feed on *Duranta* spp. from plant family Verbenaceae. It was the first report of feeding of Epilachnini on plants of this family. Until then, only three plant families had been reported for New World Epilachnini: members of the genus *Dira* feed on Aristolochiaceae, and *Epilachna* on Cucurbitaceae and Solanaceae. It can be an important hint for future field work since other members of the genus *Mada* may be found on other species belonging to the family Verbenaceae, which is diverse in the Neotropics. Still, very little is known about host plants within the tribe Epilachnini.

Two membranous sacs in female reproductive system that are attached to the oviduct are regarded by Katakura (1981) as a place for storing sperm outside of the spermatheca. These structures were described in *Henosepilachna vigintioctomaculata* (Katakura 1981), subsequently in the genus *Figura* (Szawaryn 2014) and here in *M. andeana*. This character may be a potential synapomorphy for the tribe Epilachnini, since it has not been observed in other taxa of Coccinellidae.

Acknowledgments

I express my sincere thanks to Prof. Lech Borowiec and Dr. Rafał Ruta from the University of Wrocław for materials from their expedition to Yanayacu Biological Station in Ecuador. I also express my thanks to Guillermo González for sending specimens of *M. durantae* and valuable comments on the first version of this manuscript.

References

- Blackwelder, R.E. (1945) Checklist of the coleopterous insects of Mexico, Central America the West Indies, and South America. Part 3. *Smithsonian Institution United States National Museum, Washington, Bulletin*, 185, I–IV + 343–550.
- Gómez, L.C. & González, G.F. (2013) Ciclo de vida de *Mada durantae* González & Gómez (Coleoptera: Coccinellidae) y evaluación de daños causados a las plantas ornamentales urbanas del género *Duranta* (Verbenaceae) en Medellín, Colombia. *Boletín de la Sociedad Entomológica Aragonesa*, 52, 137–140.
- González, G.F. & Gómez, L.C. (2013) Descripción de *Mada durantae* n. sp. (Coleoptera: Coccinellidae: Cynegetini), plaga de plantas ornamentales urbanas de *Duranta* spp. (Verbenaceae) en Colombia. *Boletín de la Sociedad Entomológica Aragonesa*, 52, 43–48.
- Gordon, R.D. (1975) *A revision of the Epilachninae of the Western Hemisphere (Coleoptera: Coccinellidae)*. Technical Bulletin

No 1493, United States Department of Agriculture, Washington, 409 pp.

- Gordon, R.D. & Almeida, L.M. (1986a) New species and comments on *Mada* Mulsant, 1850, *Pseudodira* Gordon, 1975 and other Epilachninae (Coleoptera: Coccinellidae) in the collection of the “Universidade Federal de Paraná”, Curitiba, Brazil. *Revista Brasileira de Entomologia*, 30 (2), 365–373.
- Gordon, R.D. & Almeida, L.M. (1986b) New species of the genus *Mada* Mulsant (Coleoptera: Coccinellidae: Epilachninae) in the collection of the “Museu de Zoologia da Universidade de São Paulo”, Brazil. *Revista Brasileira de Entomologia*, 30 (2), 415–420.
- Gordon, R.D. & Almeida, L.M. (1988) A new species of *Mada* Mulsant from Brazil (Coleoptera: Coccinellidae: Epilachninae). *Revista Brasileira de Entomologia*, 32 (2), 259–261.
- Gorham, H.S. (1898) Fam. Coccinellidae. In: Godman, F. & Salvin, O. (Eds.), *Biologia Centrali-Americana. Insecta. Coleoptera*. London. Vol. VII [1887–1899], pp. 241–246.
- Jadwiszczak, A. & Węgrzynowicz, P. (2003) *World Catalogue of Coccinellidae. Part I - Epilachninae*. Mantis, Olsztyn, 264 pp.
- Katakura, H. (1981) Sperm storage place in adult females of the phytophagous ladybirds belonging to *Henosepilachna vigintioctomaculata* complex (Coleoptera, Coccinellidae). *Kontyû*, 49, 477–481.
- Korschefsky, R. (1931) Coccinellidae I. In: Junk, W. & Schenkling, S. (Eds.), *Coleopterorum Catalogus, Part 118*. Junk, W., Berlin, pp. 1–224.
- Lawrence, J.F., Ślipiński, A., Seago, A.E., Thayer, M.K., Newton, A.F. & Marvaldi, A.E. (2011) Phylogeny of the Coleoptera based on morphological characters of adults and larvae. *Annales Zoologici*, 61 (1), 1–217.
<http://dx.doi.org/10.3161/000345411x576725>
- Mulsant, E. (1850) Species des Coléoptères Trimères Sécuripalpes. *Annales des Sciences Physiques et Naturelles, d'Agriculture et d'Industrie, publiées par la Société nationale d'Agriculture, ect.*, de Lyon, Deuxième Série, 2, 1–1104.
- Szawaryn, K. (2011) A new species of *Henosepilachna* Li (Coleoptera: Coccinellidae: Epilachnini) from New Guinea. *Annales Zoologici*, 61 (4), 685–689.
<http://dx.doi.org/10.3161/000345411x622525>
- Szawaryn, K. (2014) Revision of the genus *Figura* (Coleoptera: Coccinellidae) with descriptions of new species. *European Journal of Entomology*, 111 (1), 105–119.
<http://dx.doi.org/10.14411/eje.2014.012>
- Szawaryn, K. & Tomaszewska, W. (2013) Two new genera of Epilachnini Mulsant from New Guinea and Aru Islands (Coleoptera: Coccinellidae). *Journal of Natural History*, 47 (37–38), 2427–2457.
<http://dx.doi.org/10.1080/00222933.2012.763067>
- Szawaryn, K. & Tomaszewska, W. (2014) A contribution to *Macrolasia* Weise (Coleoptera: Coccinellidae: Epilachnini). *Zootaxa*, 3780 (3), 577–584.
<http://dx.doi.org/10.11646/zootaxa.3780.3.9>
- Tomaszewska, W. & Szawaryn, K. (2013) Revision of the Asian species of *Afidentula* Kapur, 1958 (Coleoptera: Coccinellidae: Epilachnini). *Zootaxa*, 3608 (1), 26–50.
<http://dx.doi.org/10.11646/zootaxa.3608.1.2>
- Tomaszewska, W. & Szawaryn, K. (2014) On African Epilachnini—A revision of the genus *Tropha* Weise (Coleoptera: Coccinellidae). *Annals of the Entomological Society of America*, 107 (2), 347–355.
<http://dx.doi.org/10.1603/an13138>