



<http://dx.doi.org/10.11646/zootaxa.3797.1.16>

<http://zoobank.org/urn:lsid:zoobank.org:pub:ECB9A7D7-C69F-4925-8B2C-662F79307047>

On the identity and taxonomic status of the enigmatic mantid *Thespoides bolivari* Chopard, 1916 (Mantodea: Mantidae, Angelinae)

JULIO RIVERA^{1,2}

¹Department of Ecology and Evolutionary Biology, University of Toronto. Correspondence: Royal Ontario Museum, 100 Queen's Park, Toronto, ON, M5S2C6, Canada. E-mail: julior@rom.on.ca.

²Museo de Entomología Klaus Raven Buller, Universidad Nacional Agraria La Molina, Lima, Peru.

Chopard (1916) published a brief paper in which he cited and described a number of praying mantis species from the neotropics. The specimens he studied belonged to the prominent Spanish Entomologist Ignacio Bolívar y Urrutia (1850–1944), whose collection is now housed at the Museo Nacional de Ciencias Naturales in Madrid (MNCN), Spain (Izquierdo *et al.* 1997). In this publication Chopard described *Thespoides bolivari* Chopard, 1916 as a new genus and species, based on a single male obtained by French coleopterist René Oberthür in Cauca, Colombia. According to Chopard (1916) the specimen was remarkable for having, among other features, an abdomen that is markedly shorter than the rest of its body—certainly an unusual morphological trait among the Mantodea. Chopard assigned *Thespoides* to the Miopteryginae (Thespidae), but it was later reassigned (together with *Angela* Serville, 1839 as the “Angelae group”) to the subfamily Schizocephalinae (Mantidae) by Giglio-Tos (1927). Current classifications consider the Angelinae to comprise a distinct subfamily of the Mantidae, with *Thespoides* and *Angela* as the only representatives of this subfamily with a Neotropical distribution (e.g. Ehrmann 2002).

The mantid fauna of Colombia has been the subject of intense scrutiny over the last 15 years (e.g. Salazar 1998, 2000a,b, 2002a,b, 2003, 2006; Agudelo 2004; Agudelo & Chica 2003; Agudelo *et al.* 2007; Medellín & Salazar 2011, Medellín, *et al.* 2007; Ariza *et al.* 2012) and the 122 species known from that country is second in richness only to Brazil (270 spp.) in the Neotropical realm (Rivera 2010). Despite this recent collecting effort, *T. bolivari* is still only known from the originally collected type specimen. Salazar (2006) provided a photograph of the holotype (in its present conditions, as described below) and commented on the absence of *T. bolivari* from recent Colombian collection efforts. The reason for this apparent paradox was made clear when the author re-examined the type of *T. bolivari* during a recent visit to the MNCN collection.

Thespoides bolivari Chopard, 1916

(Figs. 1–2)

The actual holotype (Fig. 1) is incomplete, as the mesothorax, metathorax and abdomen are all now missing. The only parts left are the pronotum, both forelegs, and the head, the latter partially damaged. The specimen bears three labels (Fig. 1). The original description of the complete insect was accompanied by three illustrations that are reproduced in Figure 2. After comparing this specimen with the original description and accompanying illustrations, the author was able to draw several conclusions about its identity, as follows:

A) The only surviving parts of the type (i.e., the prothorax and head) conform to the original description of *T. bolivari*. The left foretibia and femur are notoriously smaller than the right ones, a clear sign of a regenerated lost limb; this anatomical feature of the type was not mentioned by Chopard. Analysis of pronotal proportions, armature of the forelegs and general habitus of these parts confirms that the type of *T. bolivari* is ascribed to *Angela guianensis* Rehn, 1906 (Table 1), a widespread and frequently collected species throughout the Amazon basin, including localities in Colombia. Consequently, the now missing parts of the type specimen (i.e., the mesothorax, metathorax and abdomen), which were described and illustrated by Chopard (Fig. 2), almost certainly belong to another species, as they depart markedly in form from the anatomy of other *Angela* spp., including *A. guianensis*. For example, the cerci in *T. bolivari* were originally described and illustrated as cylindrical, rather than laminar, the

excluded from the holotype...”. Thus, in agreement to Article 73.1.5 and to provide nomenclatural stability, the non-conspicuous lost parts from the type of *T. bolivari*, already physically removed from the type, are removed from the description. In addition, *Angela guianensis* was described by Rehn (1906) ten years before Chopard’s *Thespoides bolivari* description, making it necessary to apply the “Principle of Priority” (ICZN Article 23.1). Accordingly, it is established that *Thespoides bolivari* as a new junior synonym of *Angela guianensis*. A summary of the taxonomy follows:

Genus *Angela* Serville, 1839

=*Thespoides* Chopard, 1916 **n. syn.**

Angela guianensis Rehn, 1906

= *Thespis infuscata* Chopard, 1911

= *Thespoides bolivari* Chopard, 1916 **n. syn.**

In addition, the type of *Thespis infuscata* Chopard, 1911, also deposited at the MNCN was examined. This species is considered to be a junior synonym of *A. guianensis* by Giglio-Tos (1927), an action later accepted by Rehn (1935) that is herein corroborated. Because *A. guianensis* is a rather common species across the Amazon basin, further studies are needed to determine whether or not other synonyms remain to be discovered.

TABLE 1. Comparison between prothoracic structures of *A. guianensis* and *T. bolivari*. Measurements (in mm) of *T. bolivari* were taken from Chopard (1911), whereas minimum and maximum ranges of the same in *A. guianensis* were taken from Rivera (2004) (sample size=22 male specimens).

Structure (length)	<i>A. guianensis</i>	<i>T. bolivari</i>
Pronotum	24–28	23.5
Fore Coxae	10.2–12.1	10.5
Fore Tibiae	4–4.2	4.2
Fore Femora	13–15	14

Acknowledgments

I wish to thank Mercedes París, curator at the MNCN, for facilitating access to the Ignacio Bolívar collection and for her assistance. I am also indebted to the Natural Sciences and Engineering Council of Canada (NSERC) for support through a CGS grant to me, and through a Discovery Grant to my Ph.D. supervisor Douglas Currie. I am grateful to José Carlos Cadenillas for providing helpful assistance during my time in Madrid, and to colleagues Claus Rasmussen and Gerardo Lamas for their advice on nomenclatural procedures. This material is based upon work supported by the US National Science Foundation under Grant No. 1216309 to Gavin Svenson. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

References

- Agudelo, A. (2004) Mántidos de Colombia (Dictyoptera: Mantodea). In: Fernández-C., F., Andrade-C., M.G. & Amat-G., G. (Eds.), *Insectos de Colombia. Vol. III*. Universidad Nacional de Colombia, Facultad de Ciencias Bogotá, D.C. pp. 43–60.
- Agudelo, A. & Chica, L. (2003) Mántidos de la Orinoquía Colombiana: contribución al conocimiento de su diversidad genérica y algunos aspectos bioecológicos (Insecta: Mantodea). *Revista Colombiana de Entomología*, 29 (2), 127–136.
- Agudelo, A.A., Lombardo, F. & Jantsch, L.J. (2007) Checklist of the Neotropical mantids (Insecta, Dictyoptera, Mantodea). *Biota Colombiana*, 8 (2), 105–158.
- Ariza, G.M., Salazar, J.A. & Canal, N.A. (2012) Especies y distribución de los mántidos (Mantodea) del departamento del Tolima, Colombia. *Revista Colombiana de Entomología*, 38 (2), 282–290.
- Chopard, L. (1916) Étude des Mantides Américains. Collection I. Bolívar. *Annales de la Société Entomologique de France*, 85, 161–187.
- Ehrmann, R. (2002) *Gottesanbeterinnen der Welt*. Natur und Tier Verlag, Münster, 519 pp.

- Giglio-Tos, E. (1927) *Das Tierreich. Orthoptera-Mantidae. Vol. 50*. Walter de Gruyter & Co., Berlin, 707 pp.
- ICZN (1999) *International Code of Zoological Nomenclature*, 4th Edition. International Trust for Zoological Nomenclature, London, XXIX + 306 pp.
- Izquierdo, I., Martín C., París M. & Santos C. (1997) La Colección de Entomología del Museo Nacional de Ciencias Naturales (CSIC). *Graellsia*, 53, 49–85.
<http://dx.doi.org/10.3989/graeellsia.1997.v53.i0.365>
- Medellín, Avendaño, J. & Sarmiento C.E. (2007) Géneros de Mantodea depositados en el Instituto de Ciencias Naturales de la Universidad Nacional de Colombia. *Boletín Científico del Museo de Historia Natural Universidad de Caldas*, 11, 148–159.
- Medellín, C. & Salazar, J.A. (2011) Notas sobre mántidos colombianos con énfasis en la subfamilia Vatinae (Insecta). *Boletín Científico del Museo de Historia Natural Universidad de Caldas*, 15 (1), 134–149.
- Rehn, J.A.G. (1906) Record and descriptions of non-saltatorial Orthoptera from British Guiana. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 58, 262–265, 273–278.
- Rehn, J.A.G. (1935) The Orthoptera of Costa Rica. Part I. Mantidae. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 87, 167–271.
- Rivera, J. (2004) *Contribución al Conocimiento del Sub-Orden Mantodea en el Perú (Hexapoda: Dictyoptera)*. Tesis de Licenciatura, Facultad de Ciencias, Departamento de Biología, Universidad Nacional Agraria La Molina-Lima, Perú, 208 pp.
- Rivera, J. (2010) A historical review of praying mantid taxonomy and systematics in the Neotropical Region: State of knowledge and recent advances (Insecta: Mantodea). *Zootaxa*, 2638, 44–64.
- Salazar, J.A. (1998) Estudios sobre Mántidos Colombianos. *Boletín Científico del Museo de Historia Natural Universidad de Caldas*, 2, 101–124.
- Salazar, J.A. (2000a) (I) Mántidos contenidos en la colección entomológica “Francisco Luis Gallego” Facultad de Agronomía. Universidad Nacional, Sede Medellín, Antioquia (Insecta: Mantodea). *Boletín Científico del Museo de Historia Natural Universidad de Caldas*, 4, 63–64.
- Salazar, J.A. (2000b) (II) Praying Mantis contents in the Entomological Museum from Faculty of Sciences, Valle University, Cali (Insecta: Mantodea). *Boletín Científico del Museo de Historia Natural Universidad de Caldas*, 4, 70–76.
- Salazar, J.A. (2002a) Lista de los Mantodea (Insecta) conocidos para Colombia. *Biota Colombiana*, 3 (1), 119–130.
- Salazar, J.A. (2002b) Novedades en Mantidae y su reconocimiento en la colección entomológica de la Universidad de Tolima, Ibagué). *Boletín Científico del Museo de Historia Natural Universidad de Caldas*, 6, 73–82.
- Salazar, J.A. (2003) A note on *Pseudoxypsy perpulchra* (Westwood, 2003). New record for Colombian mantidea and the check list of the species deposited in the other museums of the world. *Boletín Científico del Museo de Historia Natural Universidad de Caldas*, 7, 229–223.
- Salazar, J.A. (2006) Ilustraciones en mántidos Colombianos, tipos y apuntes sobre su biogeografía (Insecta: Mantodea). *Boletín Científico del Museo de Historia Natural Universidad de Caldas*, 10, 243–257.
- Terra, P.S. (1995) Revisão Sistemática dos Gêneros de louva-a-deus da Região Neotropical (Mantodea). *Revista brasileira de Entomologia*, 39 (1), 13–86.