

**Short scientific note**Submitted: April 10<sup>th</sup>, 2018 - Accepted: November 24<sup>th</sup>, 2018 - Published: December 31<sup>st</sup>, 2018**First record of *Chaeteessa nigromarginata* from Peru (Mantodea: Chaeteessidae)**

Abdhiel BUSTAMANTE-NAVARRETE

Colección Entomológica (CEUC), Facultad de Ciencias, Escuela Profesional de Biología, Universidad Nacional San Antonio Abad del Cusco UNSAAC - Av. De la Cultura 733, Cusco, Perú - abdhiel77@gmail.com

**Abstract**The second Peruvian record of the genus *Chaeteessa* Burmeister and the first of the species *Chaeteessa nigromarginata* Salazar 2004 are reported.**Key words:** Amazon basin, Cusco, Andes mountains, geographical distribution.**Introduction**

Chaeteessidae, divergent primary lineage of the extant Mantodea (Grimaldi 2003; Svenson & Whiting 2009), exhibits a series of primitive traits in comparison with all the other members of this Order: small size, robust constitution, opaque coloration, very long antennae, short pronotum, low sexual dimorphism, and unusual agility (Agudelo 2014). The family includes five species in a single genus, *Chaeteessa* Burmeister 1838, all of them small, robust and very active, typical of tropical areas of South America, Central America, and southern North America, and, in contrast to the most other Mantodea, they are active hunters who pursue their prey (Agudelo & Chica 2002; Salazar 2005; Patel & Singh 2016).

The bibliography of the genus *Chaeteessa*, known from few specimens, is not useful for comparative analyzes allowing to distinguish between the few species of the genus (Rivera 2010): *Chaeteessa valida* (Perty 1833) recorded from Brazil, Colombia and French Guiana; *C. filata* Burmeister 1838, cited in Brazil and Suriname; *C. caudata* Saussure 1871, present in Brazil, Costa Rica and Venezuela; *C. nana* Jantsch 1995, known from Brazil, and *C. nigromarginata* Salazar 2004, from Colombia (Jantsch 1999<sup>1</sup>; Ehrmann 2002; Agudelo 2004; Salazar 2004; Agudelo et al. 2007; Patel & Singh 2016).

In Peru, the difficulty in identifying the species of the genus, due to the limitations in the access to bibliographic

resources and the poor condition of the specimens examined, resulted in the citation of the occurrence of an undetermined *Chaeteessa* species (Rivera 2004<sup>2</sup>; Rivera & Vergara-Cobián 2017) in the southeastern department of Madre de Dios.

In the Entomological Collection of the Faculty of Sciences of the National University San Antonio Abad of Cusco, Peru, a specimen of *Chaeteessa nigromarginata* was identified; this species was described on the basis of a female specimen from Caldas, Colombia, characterized among congeners by its larger size and by presence of longitudinal black lines crossing the femurs and tibiae of the forelegs (Salazar 2004; Salazar & Ríos-Malaver 2012). The aim of this note is to present the second known record of the genus *Chaeteessa* Burmeister in Peru, and the first record of the species *C. nigromarginata* in the country, expanding the known geographic range of the genus.

**Material and methods**

The identification was made using the descriptions of Salazar (2004) and Saussure (1871). Habitus and structures were photographed with an AxioCam ICc5 camera, mounted on a Discovery V20 stereoscope; the resulting images were edited using Paint.net software to improve brightness, contrast and correct imperfections. For the preparation of the distribution map, the ArcGis 10 pro-

<sup>1</sup> Jantsch L. 1999. Estudios filogenéticos em mantódeos americanos (Insecta; Pterygota; Mantodea). Pontificia Universidade Católica do Rio Grande do Sul, Dissertation for Doctorate degree, 137 p. (unpublished).

<sup>2</sup> Rivera, J. 2004. Contribución al conocimiento del sub orden Mantodea en el Perú (Hexápoda: Dictyoptera). Dissertation for bachelor's degree. Faculty of Sciences, Department of Biology, Universidad Nacional Agraria La Molina La Molina, Lima, Perú. 208 pp. (unpublished).

gram was used, and the geographic layer of Ecoregions of Peru, of the Ministry of the Environment (MINAM 2017) was used.

Collection data were transcribed literally; missing and/or important information is added in square brackets [...], information of different labels is separated by //. The specimen studied is deposited in the Entomological Collection of the National University San Antonio Abad of Cusco, Peru.

## Results and discussion

### Chaeteessidae Handlirsch 1925

#### *Chaeteessa* Burmeister 1838

*Chaeteessa* Burmeister 1838: 527; Saussure 1869: 52; 1871: 9; Giglio-Tos 1919: 56; 1921: 4, 1927: 41; Terra 1995: 20; Jantsch 1995: 149; Ehrmann 2002: 94. Type species: *Chaeteessa filata* Burmeister 1838.

#### *Chaeteessa nigromarginata* Salazar 2004 (Figs 1-5)

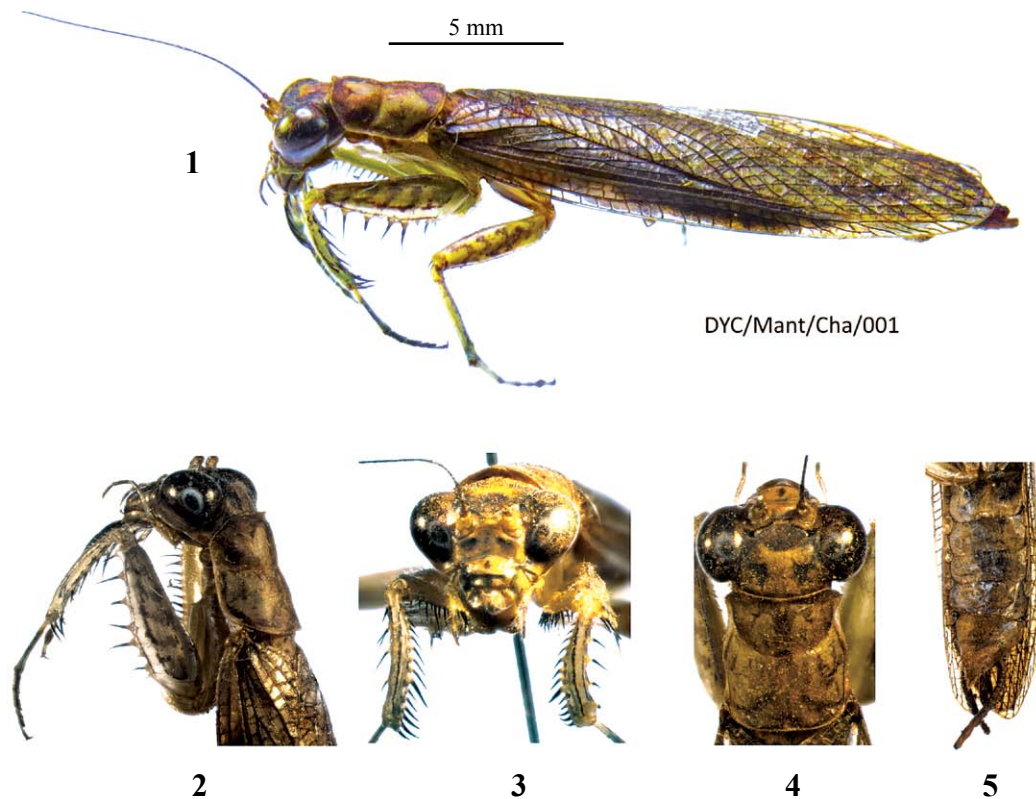
**New record: PERU:** (1 specimen): Pilcopata [Pillcopata], 565 m, [district] Kosñipata/Pa [province Paucartambo]/Cus [departament Cusco], 15.02.02 [15 Feb 2002], -12.909086 -71.404052 [12.59.29S 71.17.51W], A. Busta-

mante [collector] // 0488 [¿?] // DYC/Mant/Cha/001 [collection code] (Figs 1-5).

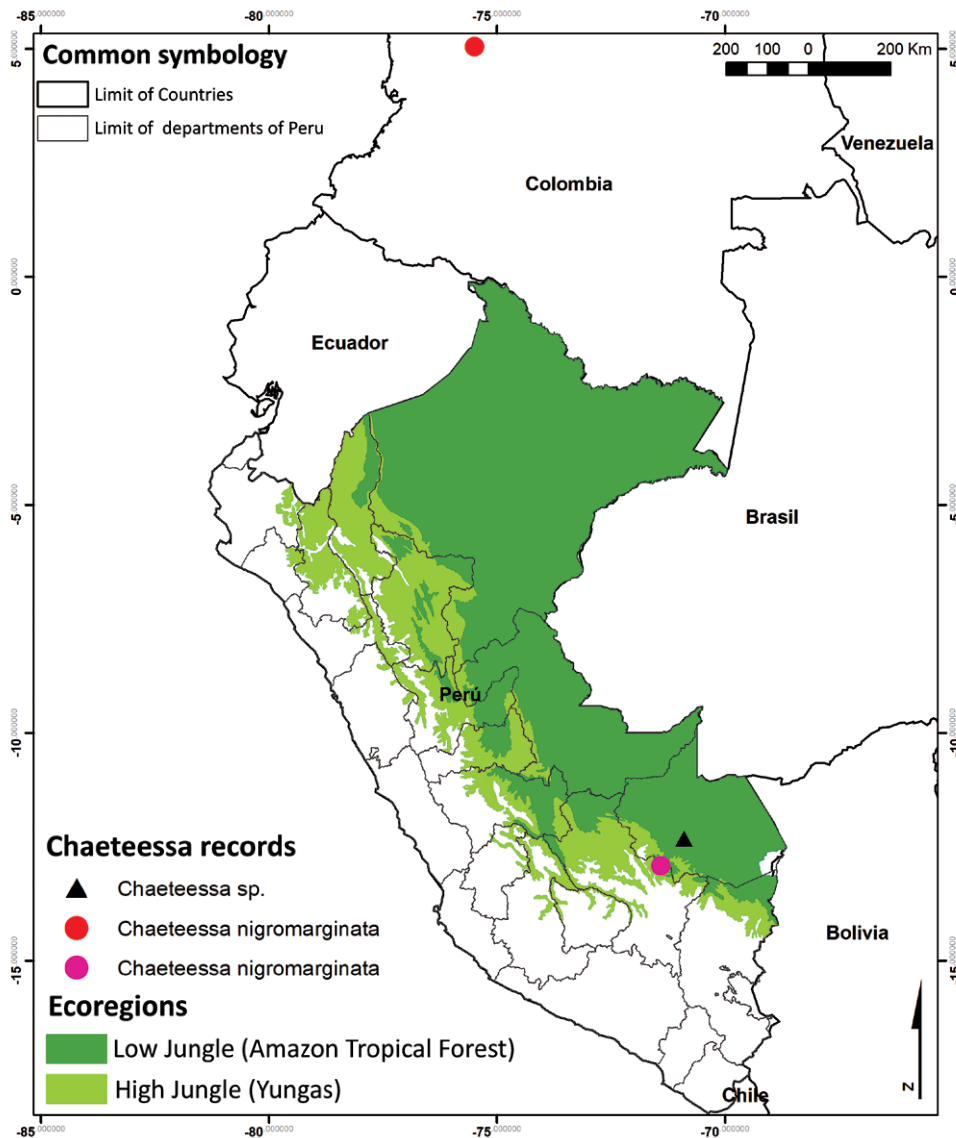
The specimen studied agrees with the description of *Chaeteessa nigromarginata*, which is distinguished by longitudinal black lines crossing femurs and tibiae of the forelegs, absent in the other known species; on the other hand, it exhibits a larger size (19 mm), in comparison to *C. nana* (13 mm), *C. filata* (15.48 mm), *C. valida* (13.5 mm), only matched by *C. caudata* (19 mm) from Brazil (Saussure 1871; Salazar 2004).

*Chaeteessa nigromarginata*, described from the eastern tropical humid forest of the Colombian Central Mountain Range, represented the first record of the genus from this region (Salazar 2004); the genus is, in fact, characteristic of the Amazon Basin and Central America (Rivera 2004).

In Peru, the previous generic registry came from the department of Madre de Dios (Rivera 2004), in the Peruvian Low Jungle, habitat typical of the Amazon basin, and of the genus. The present record comes from the High Jungle of Peru, also in the Amazon basin, expanding the distribution of this species in this habitat (Fig. 6). The Peruvian High Jungle extends along the eastern slope of the Andes, from the border with Ecuador to the border with Bolivia, in an altitudinal range between 500 to 3500 m, its climate is very varied and average rainfall exceeds 3000 mm/year. Meanwhile, the Low Jungle corresponds to the



**Figs 1-5** – *Chaeteessa nigromarginata* Salazar. 1, Habitus, lateral view; 2, Head, pronotum and forelegs, lateral view; 3, Head and fore tibiae, frontal view; 4, Pronotum and head, dorsal view; 5, Abdomen and base of cerci, ventral view.



**Fig. 6** – Records for *Chaeteessa* sp. in Peru and *Chaeteessa nigromarginata* in Peru (mauve) and Colombia (red).

Amazonian forests below 600 m in height, presents relatively flat physiography, its average temperature is 25 °C and is characterized by a high environmental humidity (Brack 1986). The existing information on members of the genus *Chaeteessa* is scarce, not allowing to easily assess the current state of conservation of all included species. The genus was never revised taxonomically and the literature of the group is deficient, even for the identification of the five included species, thus far known on a limited number of records. In Peru, this first record of the species, and the second of the genus, extends our knowledge about the distribution of this genus, which is apparently restricted to the Neotropics. The revision of *Chaeteessa* would require a large number of additional accurate records, in order to clarify the taxonomic status of this unique genus of Chaeteessidae, to establish solid foundations for future phylogenetic studies, and to better understand the evolu-

tionary relationships in this poorly-known early diverging lineage of extant Mantodea.

**References**

Agudelo A. 2004. Mántidos de Colombia (Dictyoptera: Mantodea) pp. 43–60. In Fernández-C., Andrade-C., Amat-G. (Eds), Insectos de Colombia Volumen III. Universidad Nacional de Colombia, Facultad de Ciencias Bogotá, D. C. 604 p.

Agudelo Rondon A.A. 2014. A new genus and species of Mantoididae (Mantodea) from the Brazilian and Venezuelan Amazon, with remarks on *Mantoida* Newman, 1838. *Zootaxa* 3797(1): 194–206. DOI: 10.11646/zootaxa.3797.1.14

Agudelo Rondon A.A., Chica, L. 2002. Mántidos: Introducción al Conocimiento del Orden Mantodea. Universidad Distrital Francisco José de Caldas, Centro de Investigaciones y Desarrollo Científico, Bogotá, 90 pp.

Agudelo Rondon, A.A., Lombardo F., Jantsch L.J. 2007. Check-

- list of the Neotropical mantids (Insecta, Dictyoptera, Mantodea). *Biota Colombiana* 8(2): 105–158.
- Brack A. 1986. Ecología de un país complejo. In: *Gran Geografía del Perú. Naturaleza y Hombre, Volumen II*. Manfer Juan Mejía Baca, Barcelona, pp. 175–319.
- Ehrmann R. 2002. *Mantodea Gottesanbeterinnen der Welt Natur und Tier - Verlag GmbH*, 519 pp.
- Grimaldi D. 2003. A revision of Cretaceous mantises and their relationships, including new taxa (Insecta: Dictyoptera: Mantodea). *American Museum Novitates*, 3412, 47 pp.
- MINAM 2017. Mapa de Ecorregiones del Perú (octubre 2017). Dirección General de Ordenamiento Territorial Ambiental, Ministerio del Ambiente. Available in: <http://geoservidor.minam.gob.pe/recursos/intercambio-de-datos/> [accessed September 29<sup>th</sup>, 2018].
- Patel S., Singh R. 2016. Updated Checklist and Global Diversity of Chaeteessidae, Mantoididae, Metallyticidae, Acanthopidae, Amorphoscelididae and Sibyllidae (Mantodea: Insecta). *International Journal of research Studies in Zoology*, 2(4): 55–67
- 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.
- Rivera J., Vergara-Cobian C. 2017. A checklist of the praying mantises of Peru: new records, one new genus (*Piscomantis* gen. n.) and biogeographic remarks (Insecta, Mantodea). *Zootaxa*, 4337(3): 361–389. DOI: 10.11646/zootaxa.4337.3.3
- Salazar J.A. 2004. Nuevas especies de Blátidos y Mántidos para Colombia (Insecta, Dictyoptera) y una nota sobre la hembra de *Vates festae* Giglio-Tos. *Boletín Científico, Museo de Historia Natural, Universidad de Caldas*, 8: 267–286.
- Salazar J.A. 2005. Notas sobre *Metallyticus* Westwood, 1837; *Chaeteessa* Burmeister, 1838 y *Mantoida* Newman, 1838. Tres géneros primitivos de mantidos tropicales (Dictyoptera: Mantodea). *Lambillionea*, 2: 265–276.
- Salazar J.A., Rios-Malaver C. 2012. Apuntes taxonómicos sobre Mantidos neotropicales e ilustración de algunos tipos descritos para Colombia (Insecta: Mantodea). *Revista de Investigaciones UniSarc*. 10(1): 16–23.
- Saussure H. 1871. IV. Synopsis des Mantides Americains. *Memoires pour servir a L'Histoire Naturelle du Mexique, des Antilles et des Etats-Unis. Quatrième Memoire*, 1(4): 5–186, pls 1–2.
- Svenson G.J., Whiting M.F. 2009. Reconstructing the origins of praying mantises (Dictyoptera, Mantodea): the roles of Gondwanan vicariance and morphological convergence. *Cladistics*, 25: 468–514.