



<http://dx.doi.org/10.11646/zootaxa.3893.2.8>

<http://zoobank.org/urn:lsid:zoobank.org:pub:6D5BFD10-A1A2-4956-80E1-BDC6FC8885>

Two new species of the genus *Dasybasis* Macquart, 1847, from Chile (Diptera: Tabanidae: Diachlorini)

CHRISTIAN R. GONZÁLEZ

Instituto Entomología, Universidad Metropolitana de Ciencias de la Educación, Santiago, Chile. E-mail: christian.gonzalez@umce.cl

Abstract

The females of *Dasybasis antillanca* and *Dasybasis collagua*, new species, are described from specimens collected in Osorno and Iquique Provinces, south and north Chile, respectively. Their relationships to other *Dasybasis* species are discussed.

Key words: *Dasybasis antillanca* sp.n., *Dasybasis collagua* sp.n., Horse flies, Neotropical Region

Introduction

The Tabanidae is a large worldwide family of more than 4,000 species. Some species are mechanical vectors of pathogens of veterinary importance (Desquesnes & Lamine Dia 2003; Baldacchino *et al.* 2014), but they can also transmit human diseases such as anthrax and tularemia (Hornok *et al.* 2008). Tabanidae also have importance as pollinators of different plants that they visit to obtain food and energy. Flower-visiting tabanids are generalists that visit many types of plants (Szymank *et al.* 2008)

The tabanid genus *Dasybasis* Macquart, 1847, constitutes one of the most abundant and speciose components of the southern Neotropical fauna, with 70 taxa considered valid (Coscarón & Papavero 2009). It is very well represented in the subantarctic dominion of southern Chile and Argentina (Morrone 2001). *Dasybasis* also occurs in Australia and New Zealand, which have a combined fauna of 73 species described in two subgenera (Daniels 1989).

Dasybasis was erected by Macquart (1847) as a monotypic genus, including only the Australian species *D. appendiculata* Macquart. This genus exhibits important variation in some characters such as the bare or, rarely, sparsely setose basicosta and shape of the frontal callus.

González (1999) revised the taxa included as subgeneric units of *Dasybasis* by Coscarón & Philip (1967a) and raised to generic status the taxa *Agelanius* Rondani, 1863, *Haematopotina* Coscarón & Philip, 1967, *Nubiloides* Coscarón & Philip, 1967 and *Scaptiodes* Enderlein, 1922, based on their morphological differences from *Dasybasis*, s.str. Four species formerly included in the genus *Agelanius* were transferred to the genus *Acellomyia* González 1999.

The genus *Dasybasis* is part of the most basal group within the tribe Diachlorini and predominantly found between cold and higher elevations of the Andes (Mackerras 1954; Fairchild 1969). The genus, as defined by González (1999), can be recognized by the following characters: general color of the body grayish, eyes sparsely hairy and without bands. Front wide, rarely convergent at the base. Frontal callus quadrangular, touching eyes, ocellar triangle and, ocelli vestigial. Subcallus bare. Antenna with pruinosity and without dorsal projection on basal flagellomere. Maxillary palpus stout and short. Mesoscutum with longitudinal stripes reaching notopleural lobe. Wing hyaline, smoky or with clouds on the veins; with short setae on Sc, and R₁ with several rows of setae. Abdomen with longitudinal stripes and triangles on tergites.

The Neotropical species of *Dasybasis* were monographed by Coscarón and Philip (1967a) who recognized five subgenera and 80 species. Coscarón (1962, 1969a, 1972, 1989) has described additional species from Chile and Argentina. Recently, González & Henry (1996) described a new species from Chile. The only 11 species of

Male: Unknown

Variability. The three specimens are clearly conspecific, there is some variation, especially in length and abundance of ocular pilosity, length of pilosity of maxillary palpus, and length of pilosity of abdominal terga.

Etymology. The specific name is a noun in apposition taken from type locality.

The morphological differences between *D. collagua* and other species of *Dasybasis* are shown in table 2.

Discussion

These species exhibit generalized features characteristic of the genus *Dasybasis*: front wide, ocellar triangle and three ocelli vestigial, first flagellomere of the antenna without a dorsal median angle, maxillary palpus short and stout.

Dasybasis antillanca sp.n. is part of a group of species occurring in the southernmost region of South America, especially the mountains of the Andes. These species were affected by the last ice age and either shifted their ranges to lower altitudes, as has been shown for some groups of Coleoptera (Ashworth & Hoganson 1987), or used wetland azonal formations present throughout the Andes to shelter and disperse, as has been shown for different groups of plants and animals (González 1999; Villagrán *et al.* 1983). With the retreat of the ice, these groups became widely distributed in the Valdivian forest.

Dasybasis collagua sp.n. is close, to a group of species distributed at high altitudes in the Andes of Argentina, Bolivia, Chile and Peru such as *D. bulbula* Coscarón & Philip, *D. fairchildi* Coscarón & Philip for example. These species, as a whole, have morphological features molded by high altitude, including reduction in body size and increased melanism as a mechanism of thermoregulation. This effect is correlated with low air temperature (Mani 1968; Hodkinson 2005) and limitations in obtaining food (Hill *et al.* 1998). It is also likely that these species have physiological mechanisms that facilitate low freezing points (Somme & Zachariassen 1981), allowing them to withstand cold nights and wide temperature variation typical of desert and high altitude environments.

Acknowledgements

To Dr. Stephen A. Marshall (University of Guelph) for help in editing the English version.

References

- Ashworth, A.C. & Hoganson, J.W. (1987) Coleoptera bioassociations along an elevational gradient in the lake region of southern Chile, and comments on the postglacial development of the fauna. *Entomological Society of America*, 80, 865–895.
- Baldacchino, F., Gardès, L., De Stordeur, E., Jay-Robert, P. & Garros, C. (2014) Blood feeding patterns of horse flies in the French Pyrenees. *Veterinary Parasitology*, 199 (3–4), 283–288.
<http://dx.doi.org/10.1016/j.vetpar.2013.10.009>
- Coscarón, S. (1962) Notas sobre tabánidos argentinos II. Sobre 2 nuevas especies de *Dasybasis* halladas en la zona del lago Fontana (Chubut). *Anales del Instituto Nacional de Microbiología*, 1, 41–50.
- Coscarón, S. (1969a) Ibidem VIII. *Dasybasis colla* una nueva especie de tábano hallado en la puna argentina. *Neotropica*, 15, 115–118.
- Coscarón, S. (1969b) Datos sobre estados preimaginales de tábanos neotropicales (Diptera: Tabanidae). *Revista de la Sociedad Entomológica Argentina*, 31, 19–22.
- Coscarón, S. (1972) Datos adicionales sobre taxonomía y distribución del género *Dasybasis* Macquart en la región Neotropical. *Revista Peruana Entomología*, 15, 67–71.
- Coscarón, S. (1989) A new species of *Dasybasis* Macquart from NW of Argentina. *Memórias do Instituto Oswaldo Cruz*, 84 (Supplement. IV), 125–128.
<http://dx.doi.org/10.1590/s0074-02761989000800026>
- Coscarón, S. (1991) Los estados inmaduros de siete especies neotropicales del género *Dasybasis* Macquart (Tabanidae, Diptera, Insecta). *Acta Entomologica Chilena*, 16, 7–23.
- Coscarón, S. & Papavero, N. (2009) Catalogue of Neotropical Diptera. Tabanidae. *Neotropical Diptera*, 16, 1–199.
<http://dx.doi.org/10.1590/s0085-56262012005000042>
- Coscarón, S. & Philip, C.B. (1967a) Revisión del género *Dasybasis* Macquart en la región neotropical (Diptera: Tabanidae).

- Revista del Museo Argentino de Ciencias Naturales "Bernardino Rivadavia, Entomología*, 2, 15–226.
- Coscarón, S. & Philip, C.B. (1967b) Notas sobre biología y morfología de estadios preimaginales y descripción del macho de *Dasybasis fairchildi* Coscarón & Philip. *Revista de la Sociedad Entomológica Argentina*, 29, 43–51.
- Cumming, J.M. & Wood, D.M. (2009) Chapter 2: Adult morphology and terminology. In: Brown, B.V. et al. (Eds.), *Manual of Central American Diptera. Vol. 1*. NRC Research Press, Ottawa, Ontario, Canada, pp. 9–50.
- Evenhuis, N.L. (Ed.) (1989) Catalog of the Diptera of the Australasian and Oceanian Regions. *Bishop Museum Press & E.J Brill Honolulu and Leiden*, 39 (4–5), 277–294.
<http://dx.doi.org/10.1002/mmnd.19920390412>
- Desquesnes, M. & Lamine Dia, M. (2003) *Trypanosoma vivax*: mechanical transmission in cattle by one of the most common African tabanids, *Atylotus agrestis*. *Experimental Parasitology*, 103, 35–43.
[http://dx.doi.org/10.1016/s0014-4894\(03\)00067-5](http://dx.doi.org/10.1016/s0014-4894(03)00067-5)
- Fairchild, G.B. (1969) Notes on Neotropical Tabanidae XII. Classification and distribution, with keys to genera and subgenera. *Arquivos de Zoologia, São Paulo*, 17, 199–255.
<http://dx.doi.org/10.11606/issn.2176-7793.v17i4p199-255>
- González, C.R. (1999) A revision of southern neotropical genera related to *Dasybasis* Macquart, 1847 (Diptera: Tabanidae: Diachlorini). Contributions to the Knowledge of Diptera. *Memoirs of the American Entomological Institute*, 14, 137–194.
- González, C.R. (2002) The immature stages of two species of *Dasybasis* from the southern Neotropical Region (Diptera: Tabanidae: Diachlorini). *Annales Zoologici*, 52 (2), 271–277.
- González, C.R. & Henry, A.A. (1996) *Dasybasis (Agelanius) cortesi*, a new species of horse fly from Chile (Diptera: Tabanidae: Diachlorini). *Memórias do Instituto Oswaldo Cruz*, 91, 733–737.
<http://dx.doi.org/10.1590/s0074-02761996000600015>
- Hill, J.K., Hamer, K.C. & Hodkinson, I.D. (1998) Variation in resource exploitation along an altitudinal gradient: the willow psyllids (*Cacopsylla* spp.) on *Salix lapponum*. *Ecography*, 21, 286–289.
<http://dx.doi.org/10.1111/j.1600-0587.1998.tb00566.x>
- Hodkinson, I.D. (2005) Terrestrial insects along elevation gradients: species and community responses to altitude. *Biological Review*, 80, 489–513.
<http://dx.doi.org/10.1017/s1464793105006767>
- Hornok, S., Foldvári, G., Elek Vilmos, Naranjo, V., Farkas, R. & de la Fuente, J. (2008) Molecular identification of *Anaplasma marginale* and rickettsial endosymbionts in blood-sucking flies (Diptera: Tabanidae, Muscidae) and hard ticks (Acari: Ixodidae). *Veterinary Parasitology*, 154, 354–359.
<http://dx.doi.org/10.1016/j.vetpar.2008.03.019>
- Mackerras, I.M. (1954) The classification and distribution of Tabanidae (Diptera). I. General review. *Australian Journal of Zoology*, 2, 431–454.
<http://dx.doi.org/10.1071/zo9540431>
- Macquart, J. (1847) Diptères exotiques nouveaux au peu connus 2e. supplément. *Mémoires de la Société Royal des Sciences, de l'Agriculture et des Arts, Lille*, 1846, 21–120. [Paris]
- Mani, M.S. (1968) *Ecology and biogeography of high altitude insects. Vol. 4*. Series entomologica The Hague: Dr. W. Junk. 527 pp.
<http://dx.doi.org/10.1002/iroh.19700550332>
- Morrone, J.J. (2001) *Biogeografía de América Latina y el Caribe. M & T-Manuales & Tesis*. SEA, Vol. 3. Zaragoza, 148 pp.
- Schwan, E.V. (1989) *Untersuchungen zum Vorkommen, zur biologie und zur bekämpfung von Tabaniden (Diptera: Tabanidae) in der Provinz Valdivia, Chile*. PhD Thesis, Tierärztliche Hochschule Hannover, 136 pp.
- Somme, L. & Zachariassen, K.E. (1981) Adaptations to low temperature in high altitude insects from Mount Kenya. *Ecological Entomology*, 6, 199–204.
<http://dx.doi.org/10.1111/j.1365-2311.1981.tb00606.x>
- Ssymank, A., Kearns, C.A., Pape, T. & Thompson, C. (2008) Pollinating flies (Diptera): a major contribution to plant diversity and agricultural production. *Biodiversity*, 9 (1, 2), 86–89.
<http://dx.doi.org/10.1080/14888386.2008.9712892>
- Villagrán, C., Kalin, M. & Marticorena, C. (1983) Efectos de la desertización en la distribución de la flora andina de Chile. *Revista Chilena de Historia Natural*, 56 (2), 137–157.