



New species of *Microcentrum* Scudder, 1862 (Orthoptera: Tettigonioidae: Phaneropteridae) from Amazon rainforest

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Abstract

A regional study is performed for the Amazonian species of the genus *Microcentrum* Scudder, 1862, its proposed *Microcentrum punctifrons* Brunner von Wattenwyl, 1891 as *nomen dubium* **n. stat.** and two new species are described: *Microcentrum amacayacu* **Cadena-Castañeda, Sovano n. sp.** and *Microcentrum xavieri* **Sovano, Cadena-Castañeda n. sp.** the Colombian and Brazilian Amazon, respectively. A list and a key to the Amazonian species are also provided, along with a discussion on their distribution, according to endemism areas established to Amazon rainforest.

Key words: Phaneropterinae, Microcentrini, distribution, endemism areas, katydids

Resumen

Se realiza un estudio regional para el género *Microcentrum*, enfocado en las especies amazónicas. Se propone a *M. punctifrons* como *nomen dubium* **n. stat.** y se describe a *M. amacayacu* **Cadena-Castañeda, Sovano n. sp.** y a *M. xavieri* **n. sp.**, provenientes de la amazonia de Colombia y Brasil respectivamente. Se proporciona un listado y una clave para las especies con distribución amazónica e se discute sobre su distribución entre las áreas de endemismo establecidas para esta región.

Palabras clave: Phaneropterinae, Microcentrini, distribución, áreas de endemismo, esperanzas

Resumo

Foi realizado um estudo regional para o Gênero *Microcentrum*, focado nas espécies amazônicas. Neste artigo é proposto *M. punctifrons* como *nomen dubium* **n. stat.** e também, descreve-se *M. amacayacu* **n. sp.** e *M. xavieri* **n. sp.**, provenientes da Amazônia colombiana e brasileira respectivamente. Também é fornecida uma lista e uma chave de identificação para as espécies de *Microcentrum* com distribuição amazônica discutindo-se sobre sua distribuição de acordo com as áreas de endemismo estabelecidas para esta região.

Palavras chave: Phaneropterinae, Microcentrini, distribuição, áreas de endemismo, esperanças

Introduction

The Amazon rainforest is the largest tropical forest in the world and consists of a continuous mosaic of vegetation types that are floristically distinct (Pires 1972). This forest possesses a high diversity, where the area reduction and the species overlapping in the same niche are listed as some of the determining factors for its richness (Haffer 1982).

species is still doubtful. According to unpublished data from the second author of this paper, this genus should be paraphyletic. The high number of species known so far can be reduced with subsequent nomenclatural acts, and several species of uncertain status could be synonymized. In the same way, new species are yet to be described from the highly diverse areas such as Ecuadorian, Peruvian, Venezuelan, Nicaraguan and Salvadoran forests, where there are no records of species of *Microcentrum*.

This study showed that *Microcentrum* is widely distributed in the Amazon forest. However, we have noticed that this genus had not been recorded for localities in Rondonia, Tapajós, Xingu and Belém endemism areas. According to Araujo e Belo (2009), these areas were highly exploited in the mid-1990s, because of the development of mining and hydroelectric facility projects. With that in mind, we believe that *Microcentrum* may be associated with intact forests. Nevertheless, the lack of sampling in the mentioned areas does not allow us to draw a precise conclusion.

Pappavero (1994), affirms that the knowledge of the insect fauna at the regional level has great importance for behavioural studies and those comparing the actions of development on the fauna. This thought is further reinforced by Sovano & Mendes (2013) who emphasize the necessity for sampling in the Amazon, in order to determine the actual diversity of katydids in this region. Therefore, future studies in the Amazon rainforest will improve our knowledge for this biome and the fauna of katydids.

Acknowledgments

The first coauthor thank to Dr. Ana Lúcia Nunes Gutjahr for his orientation in the scientific initiation and for the friendship and to Márlon Breno Costa Santos da Graça (INPA) for reviewing the text. The second coauthor thank to José Monzón by sending specimens of different localities of the Central America, which was useful for comparison with others specimens and to a teacher Alexander García for your friendship and instruction during the academic education in the Universidad Distrital Francisco José de Caldas, Bogotá, Colombia. We thank to Diego Mello Mendes for sharing his beautiful photo of *M. xavierei* and all the curators and collections visited for the assistance.

Literature cited

- Araújo, M.A.T. & Belo, P.S. (2009) Grandes Projetos Minerários e Comunidades Tradicionais na Amazônia: Impactos e Perspectivas: *Revista de Políticas Públicas*. São Luis, 13 (2), 265–277.
- Brunner von Wattenwyl, C. (1891) Additamenta zur Monographie der Phaneropteriden. *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien*. 41, 1–196. [plates. 1–2]
- Burmeister, H. (1838) Kaukerfe, Gymnognatha (Erste Hälfte: Vulgo Orthoptera). *Handbuch der Entomologie*, 22 (I–VIII), 397–756.
- Cadena-Castañeda, O.J. & Gorochoy, A.V. (2012) Review of the Neotropical genus *Paraphidnia* (Orthoptera: Tettigoniidae: Phaneropterinae). *Zoosystematica Rossica*. 21 (2), 204–233.
- Cadena-Castañeda, O.J. (2012) La tribu Viadaniini n. trib. (Orthoptera: Tettigoniidae): primer aporte a la organización supra-genérica de los faneropterinos neotropicales. *Journal of Orthoptera Research*, 21 (1), 25–43.
<http://dx.doi.org/10.1665/034.021.0102>
- Cadena-Castañeda, O.J. (2013) *Revisión de la tribu Dysoniini (Orthoptera: Tettigoniidae: Phaneropterinae) sistemática, filogenia, biogeografía, adaptaciones liquenomórficas y nuevos taxones*, 209 pp. [Undergraduate Tesis]
- Cadena-Castañeda, O.J. (2014) Las tribus Microcentrini, n. stat. y Amblycoryphini, n. stat. (Orthoptera: Tettigoniidae: Phaneropterinae): Cuarto aporte a la organización supra-genérica de los Faneropterinos Neotropicales. *Boletín de la Sociedad Entomológica Aragonesa (S.E.A.)*, 55, 19–39.
- Eades, D.C., Otte, D., Cigliano, M.M. & Braun, H. (2014) Orthoptera Species File. Version 5.0/5.0. Available from: <http://Orthoptera.SpeciesFile.org> (accessed 19 February 2014)
- Haffer, J. (1982) General aspects of the refuge theory. In: PRANCE, G.T., *Biological diversification in the tropics*. New York, Columbia University Press, pp. 6–24.
- Heikkinen, R.K., Luoto, M., Virkkala, R., Pearson, R.G. & Kober, J.H. (2007) Biotic interactions improve prediction of boreal bird distributions at macro-scales. *Global Ecology and Biogeography*, 16, 754–763.
<http://dx.doi.org/10.1111/j.1466-8238.2007.00345.x>
- Papavero, N. (1994) *Fundamentos práticos de taxonomía zoológica: coleções, bibliografía e nomenclatura*. 2ª ed. rev. e ampl. São Paulo, Editora da Universidade Estadual Paulista, 285 pp.
- Pires, J.M. (1972) *Estudos dos principais tipos de vegetação do estuário amazônico. (Tese-Doutoramento-ESALQ)*. Piracicaba,

183 pp.

- Piza, S.T. Jr. (1968) Uma nova *Parableta* de Piracicaba (Phaneropteridae). *Revista de Agricultura (Piracicaba)*, 43 (3–4), 103–104.
- Piza S.T. Jr. (1971) Três gêneros novos de Phaneropteridae do Brasil (Orthoptera). *Revista Peruana de Entomología*, 14 (2), 399–400.
- Piza, S.T. Jr. (1973) Orthoptera nova acreana. *Anais da Escola Superior de Agricultura "Luiz de Queiroz" (Universidade de São Paulo)*. 30, 77–81.
<http://dx.doi.org/10.1590/S0071-12761973000100006>
- Piza, S.T. Jr. (1980) Espécies novas de *Microcentrum* e *Scudderia* (Orthoptera, Tettigoniidae, Phaneropterinae). *Revista Brasileira de Entomologia*, 24 (1), 7–14.
- Rehn, J.A.G. (1903) A contribution to the knowledge of the Orthoptera of Mexico and Central America. *Transactions of the American Entomological Society*, 29 (1), 1–34.
- Rentz, D.C.F. (1993) Orthopteroid insects in threatened habitats in Australia. In: Gaston K.J., New, T.R. & Samways, M.J. (Eds.), *Perspectives on Insect conservation*: 125–138; Andover, Hampshire (Intercept Ltd), pp. 125–138.
- Silva, J.M.C., Rylands, A.B. & Da Fonesca, G.A.B. (2005) The fate of the Amazonian areas of endemism. *Conservation Biology*, 19, 689–694.
<http://dx.doi.org/10.1111/j.1523-1739.2005.00705.x>
- Soares-Filho, B.S., Nepstad, D.C., Curran, L., Cerqueira, G., Garcia, R.A., Ramos, C.A., Lefebvre, P., Schlesinger, P., Voll, E., McGrath, D. (2005) *Cenários de desmatamento para Amazônia. Estudos Avançados*, 19 (54), 138–152.
<http://dx.doi.org/10.1590/S0103-40142005000200008>
- Sovano, R.S.S. & Mendes, D.M.M. (2013) New Records of Katydid of the Genus *Quiva* (Orthoptera: Tettigoniidae: Phaneropterinae) to Brazil. *EntomoBrasilis*, 6 (3), 251–254.
<http://dx.doi.org/10.12741/ebrasilis.v6i3.362>