

SHORT COMMUNICATION

Nhandu tripepii is a senior synonym of *Nhandu vulpinus*
(Araneae: Theraphosidae)

Roberto H. Nagahama¹; Caroline S. Fukushima¹ & Rogério Bertani^{1,2}

¹ Instituto Butantan. Avenida Vital Brazil 1500, 05503-900 São Paulo, São Paulo, Brasil.

E-mail: rbert@butantan.gov.br; rhiroakin@yahoo.com.br

² Corresponding author. E-mail: rogerio.bertani@uol.com.br

ABSTRACT. The holotype of *Eurypelma tripepii* Dresco, 1984 from state of Pará, Brazil, is revised and illustrated. Its palpal bulb and tibial apophysis are similar in shape to species of *Nhandu* Lucas, 1983. Therefore, the species is transferred to the genus *Nhandu*, establishing the new combination *Nhandu tripepii* (Dresco, 1984) **comb. nov.**, which is considered a senior synonym of *Nhandu vulpinus* (Schmidt, 1998) **syn. nov.** The protuberances present on the holotype's chelicerae are here considered a morphological anomaly.

KEY WORDS. *Eurypelma*; *Hapalopus*; morfological anomaly; spider taxonomy; synonymy.

DRESCO (1984) described *Eurypelma tripepii* Dresco, 1984 based on a male from the state of Pará, Brazil. He used the key of SIMON (1892) to classify his new species, and even though the species did not fit into *Eurypelma* C.L. Koch, 1850, the author included it into that genus because he did not consider the relative difference in article length of *E. tripepii* (patella + tibia IV < patella + tibia I) a sufficient reason to create a new genus.

DRESCO (1984) recognized *E. tripepii* as a new species due to the shapes of the male palpal bulb and the tibial apophysis (characteristics called "priorities" by the author) that were clearly distinct from the other species of *Eurypelma* he could examine. *Eurypelma tripepii* was characterized mainly by the presence of a male palpal bulb with a triangular shape in its terminal portion and by the presence of one dorso-apical protuberance on each chelicera (DRESCO 1984).

Eurypelma is one of the oldest and largest theraphosid genera, formerly including 33 species (KOCH 1850). It was originally poorly characterized, which led to the inclusion of several species that did not fit in other known genera. Finally, RAVEN (1985) synonymized *Eurypelma* Koch, 1850 with *Avicularia* Lamarck, 1818. However, in the same publication the author transferred *E. tripepii* to *Hapalopus* Ausserer, 1875, making the new combination *H. tripepii*. The transfer was not based on the holotype examination, but on the illustrations and described features of male palpal bulb and tibial apophysis of the original description (RAVEN 1985).

Herein the holotype of *Hapalopus tripepii* was examined and its taxonomic position is reinterpreted.

The specimen examined is deposited in the Muséum National d'Histoire Naturelle, Paris (MNHN M-15 113 Bis).

A Wild M8 dissecting microscope from the MNHN was used for illustration, with a camera lucida attachment.

Male palpal bulb keels terminology follows BERTANI (2000).

Nhandu tripepii (Dresco, 1984), **comb. nov.**

Figs 1-4

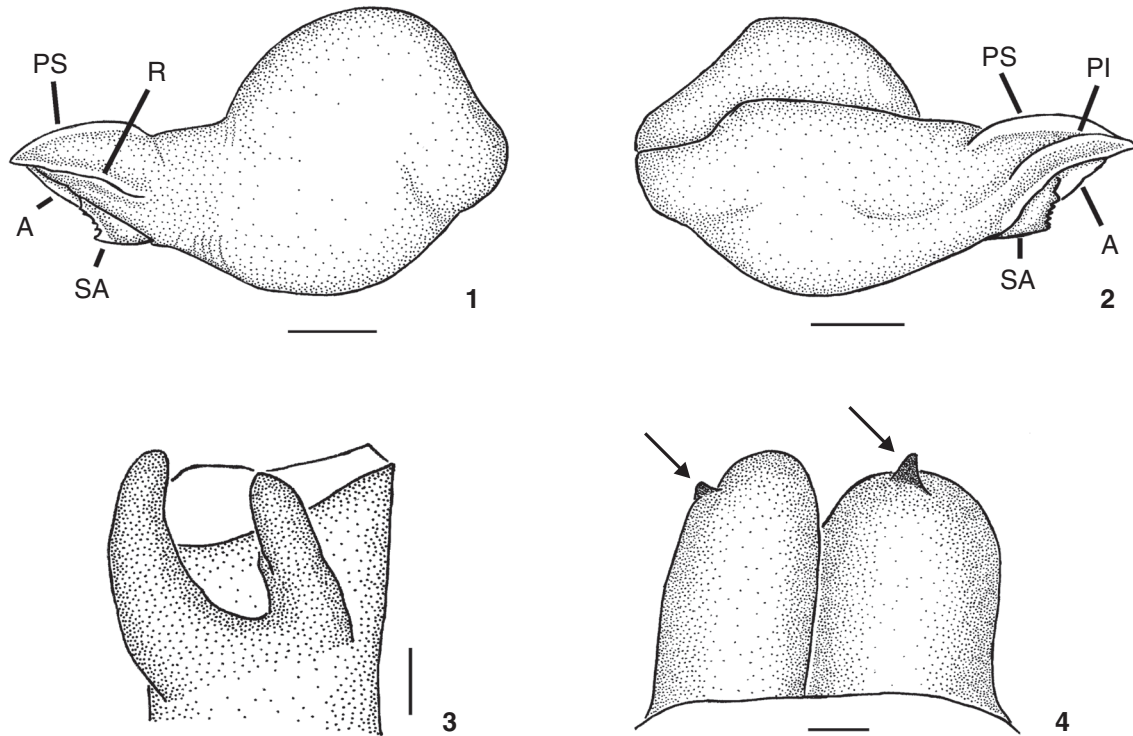
Eurypelma tripepii Dresco, 1984: 86-87, f. 1-10. Holotype male, Brazil, region of the state of Pará, Dr. Tripepi *leg.*, collection of Dresco on MNHN, M-15, 113 Bis, examined.

Hapalopus tripepii: Raven, 1985: 161.

Vitalius vulpinus Schmidt, 1998: 1, f. 1-3. Holotype, exuvia of a female, Brazil, state of Pará, M. Baumgarten *leg.*, 1997, Senckenberg Museum Frankfurt, not examined; Schmidt & Sann, 1998: 2-6, f. 1-3 (Male description). **Syn. nov.**

Nhandu vulpinus: Bertani, 2001: 313-314, f. 137-140, 191; Platnick, 2008.

Additional material examined. BRAZIL, Pará: 1 male (IBSP 6575); Belém, 1 male (IBSP 3573), 1 male (IBSP 3767), 1 male 2 females (IBSP 4245), 1 male (IBSP 4779), 1 female (IBSP 6561); Jacundá, 1 female (IBSP 4698); Dom Eliseu, 1 female (IBSP 6566), 1 female (IBSP 6567); Tucuruí (U. H. E. Tucuruí, Acamp. Canoal), 1 female (IBSP 6562); Tucuruí (U.H.E. Tucuruí, Vale do Caraipé), 1 male (IBSP 6564); Tucuruí (U.H.E. Tucuruí, Remansão), 1 female (IBSP 6565); Tucuruí (U.H.E. Tucuruí, Vila Bravo), 1 female (IBSP 6568), 1 male (IBSP 6569), 1 female (IBSP 6573), 1 male (IBSP 6574), 1 female (IBSP 6577); Tucuruí (U.H.E. Tucuruí, Breu Branco), 1 female (IBSP 6571); Tucuruí (U.H.E. Tucuruí), 1 male (IBSP 6576), 1 female (IBSP 6578), 1 female (IBSP 7036); Maranhão: 1 male (IBSP 3761); Peri-Mirim, Fazenda Canaã, 1 male (IBSP 3620).



Figures 1-4. *Nhandu tripepii*, holotype male: (1) left palpal bulb, retrolateral view; (2) left palpal bulb, prolateral view; (3) right leg I tibial apophysis, ventro-prolateral view; (4) chelicerae, dorsal view. (A) Apical keel, (PI) prolateral inferior keel, (PS) prolateral superior keel, (SA) subapical keel. Black arrows indicate protuberances. Scale bars: 1 mm.

The holotype male of *E. tripepii* presents palpal bulb with prolateral superior, prolateral inferior, apical, retrolateral and triangular subapical keels (Figs 1 and 2). The retrolateral and subapical keels are absent in *Hapalopus* (BERTANI 2000) which precludes the inclusion proposed by RAVEN (1985) of *E. tripepii* in that genus. Additionally, *Hapalopus* species have very convergent tibial apophyses (FUKUSHIMA *et al.* 2005), a characteristic absent from *Nhandu tripepii* (Figs 1-3). The palpal bulb keels present in *E. tripepii* are shared by a few other theraphosine genera: *Vitalius* Lucas, Silva & Bertani, 1993, *Lasiadora* C.L. Koch, 1850, *Proshapalopus* Mello-Leitão, 1923 and *Nhandu* Lucas, 1983 (BERTANI 2001). The holotype does not have stridulatory bristles on the superior region of prolateral coxae I and II nor accessory prolateral keel on male palpal bulb, synapomorphies of *Lasiadora* and *Proshapalopus* genera, respectively. Thus, the possibility of inclusion in those genera is discarded. The species also cannot be included in the genus *Vitalius* given that species of this genus have a more slender embolus and the tibiae I have tibial apophyses with converging branches, contrasting with the thickened embolus and straight spur branches found in the holotype. On the other hand, the latter characteristics are compatible with those proposed as diagnostics for *Nhandu* Lucas, 1983 (BERTANI 2001). Owing to this, we transfer *Hapalopus*

tripepii (Dresco, 1984) to this genus, making the new combination *Nhandu tripepii* (Dresco, 1984).

After comparing *N. tripepii* with the other described species of *Nhandu*, it was noted a high morphological similarity with *Nhandu vulpinus* (Schmidt, 1998). Both bulbs have the same general shape and position of keels and the metatarsus I folds on the external side of the retrolateral male tibial apophyses branch (BERTANI 2001). Additionally, their typical color patterns match and *N. vulpinus* is known to occur in a restricted area in northeastern state of Pará and northwestern state of Maranhão in Brazil (BERTANI 2001) which is compatible with the type locality of *N. tripepii*. Thus, *Nhandu vulpinus* (Schmidt, 1998) is considered a junior synonym of *N. tripepii* (Dresco, 1984) **syn. nov.**

DRESCO (1984) reported that the holotype presents protuberances on dorso-apical chelicerae and illustrated these structures as being symmetrical. However, the new holotype analysis showed that the protuberance of left chelicera is positioned more dorso-laterally, whereas the right chelicera is positioned dorso-centrally, showing that these structures are asymmetric (Fig. 4). Probably, these protuberances are cheliceral teeth, abnormally positioned due to a failure in the moulting process.

ACKNOWLEDGEMENTS

We thank Christine Rollard for her hospitality and kindness in allowing the access of RB to the arachnid collections and facilities at the MNHN. Volker von Wirth and Andrew Smith are thanked for their help while RB was visiting collections in Europe. Support: FAPESP 03/12587-4 for RB, FAPESP 06/58326-5 (Pós-graduação, Departamento de Zoologia, Universidade de São Paulo) for CSF and CAPES (Pós-graduação, Interunidades em Biotecnologia, Universidade de São Paulo) for RHN.

LITERATURE CITED

- BERTANI, R. 2000. Male palpal bulbs and homologous features in Theraphosinae (Araneae, Theraphosidae). **The Journal of Arachnology** 28 (1): 29-42.
- BERTANI, R. 2001. Revision, cladistic analysis, and zoogeography of *Vitalius*, *Nhandu* and *Proshapalopus*; with notes on other Theraphosine genera (Araneae, Theraphosidae). **Arquivos de Zoologia** 36 (3): 265-356.
- DRESCO, E. 1984. Étude des Mygales *Eurypelma tripepii*, sp. nov, du Brésil (Mygaloidea, Aviculariidae). **Revue Arachnologique** 5 (3): 85-90.
- FUKUSHIMA, C.S.; R. BERTANI & P.I. SILVA JR. 2005. Revision of genus *Cyriocosmus* Ausserer, 1903, with notes on the genus *Hapalopus* Ausserer, 1875 (Araneae, Theraphosidae). **Zootaxa** 846: 1-31.
- KOCH, C.L. 1850. **Übersicht des Arachnidensystems**. Nürnberg, Heft 5, p. 1-77.
- PLATNICK, N.I. 2008. The world spider catalog, version 9.0. American Museum of Natural History. Available online at: <http://research.amnh.org/entomology/spiders/catalog/index.html> [Accessed: 28.XI.2008]
- RAVEN, R.J. 1985. The spider infraorder Mygalomorphae (Araneae): cladistics and systematics. **Bulletin of the American Museum of Natural History** 182 (1): 1-180.
- SCHMIDT, G.E.W. 1998. *Vitalius vulpinus* sp. nov., eine neue *Vitalius*-Spezies aus Nordbrasilien (Araneae: Theraphosidae: Theraphosinae). **Arachnologisches Magazin** 6 (5): 1-6.
- SCHMIDT, G.E.W. & R. SAMM. 1998. Das Männchen von *Vitalius vulpinus* Schmidt, 1998 (Araneae: Theraphosidae: Theraphosinae). **Arachnologisches Magazin** 6 (8/9): 2-6.
- SIMON, E. 1892. **Histoire naturelle des araignées**. Paris, Librairie Encyclopédique de Roret, vol. 1, 256p.

Submitted: 07.I.2009; Accepted: 10.IX.2009.

Editorial responsibility: Walter A.P. Boeger