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Another taxonomic problem for the "club-tailed" scorpions: the syntypes of *Rhopalurus crassicauda* Di Caporiacco, 1948 are burned (Scorpiones: Buthidae)

Andrea Rossi

Museo di Storia Naturale dell'Università degli Studi di Firenze, sezione di Zoologia "La Specola", Dipartimento di Entomologia, via Romana 17, I-50125 Florence, Italy. andrea.rossi@arachnida.eu

Abstract: Despite many attempts to clarify the status of several species belonging to the "club-tailed" scorpions, there is no general consensus among scorpiologists. Now an additional taxonomic problem is represented by the recent destruction of the syntypes of *Rhopalurus crassicauda* Di Caporiacco, 1948, which were burned during the tragic fire at Instituto Butantan, São Paulo, Brazil. According to ICZN, a neotype for *Rhopalurus crassicauda* can be designated.
Key words: Scorpiones, Buthidae, *Rhopalurus crassicauda*, syntypes, fire.

Un nuevo problema para los escorpiones "de cola gruesa": los sintipos de *Rhopalurus crassicauda* Di Caporiacco, 1948 se han quemado (Scorpiones: Buthidae)
Resumen: Pese a muchos intentos de clarificar el estatus de varias especies de escorpiones "de cola gruesa", no hay consenso entre los especialistas. Ahora se presenta otro problema taxonómico, con la reciente destrucción de los sintipos de *Rhopalurus crassicauda* Di Caporiacco, 1948, que se han quemado en un trágico incendio en el Instituto Butantan, São Paulo, Brazil. Según la CINZ, se puede designar un neotipo para *Rhopalurus crassicauda*.
Palabras clave: Scorpiones, Buthidae, *Rhopalurus crassicauda*, sintipos, incendio.

Despite many attempts to clarify the status of several species belonging to the "club-tailed" scorpions, there is not a general accordance among scorpiologists. Recently Esposito *et al*. (2017) revised several genera of the "club-tailed" scorpions such as *Heteroctenus* Pocock, 1893, *Rhopalurus* Thorell, 1876, *Physoctonus* Mello-Leitão, 1934, *Troglorhopalurus* Lourenço, Baptista *et* Giupponi, 2004 and two new described genera. These authors also proposed fifteen new junior subjective synonyms. Almost immediately after the publication of this extensive revision (on 26 June 2017), criticism appeared. Armas (2017), in an unusual lightning quick publication, just nine days later (on 5 July 2017), revalidated three species of *Heteroctenus* from Cuba and corrected an apparently serious error on the subfamilial name. Despite some of the corrections proposed by Armas (2017) may be regarded as reasonable, the speed of this reply raises doubt about the procedure of peer-review. Few months later, also Lourenço (2017) added criticism in regards to the revision by Esposito *et al*. (2017).

One of the most problematic matters is surely represented by *Rhopalurus laticauda* Thorell, 1876 which was regarded as a possible species complex or a species with phenotypic plasticity. *Rhopalurus crassicauda* Di Caporiacco, 1948 was synonymised and revalidated several times with *R. laticauda* and its taxonomic status can be considered still unclear. Unfortunately, I have to inform the scientific community that the three syntypes deposited at Museo di Storia Naturale dell'Università di Firenze, sezione di Zoologia "La Specola", Italy, are now destroyed. They were on loan at Instituto Butantan, São Paulo, Brazil, when the tragic fire burned almost all Museum collections in the year 2010. Instituto Butantan wrote an official letter to La Specola for informing about their destruction (Fig. 1). According to ICZN, a neotype for *Rhopalurus crassicauda* Di Caporiacco, 1948 can now be designated.

Esposito *et al*. (2017) again synonymised *R. crassicauda* with *R. laticauda* but they neither studied the original syntypes (now destroyed) nor topotypes. Indeed they did not study a single specimen of *Rhopalurus* from Guyana. Despite they claimed to support their decision with molecular evidences, they did not publish molecular data.

Regrettably I have again to underline (see Rossi, 2016, 2017) that, in the recent years, many synonyms appeared in putative serious publications on scorpions but these actions were not supported by the study of the original types, or at least topotypes, and when molecular evidences are claimed by the authors, these data are in reality not available to the scientific community since they are not clearly reported and discussed in the publications and/or are not deposited in open access genetic database.

If future taxonomic works will have as subject the status of *Rhopalurus crassicauda*, it is desirable that topotypes will be examined and possibly that a neotype will be designated in order to stabilise the nomenclature.

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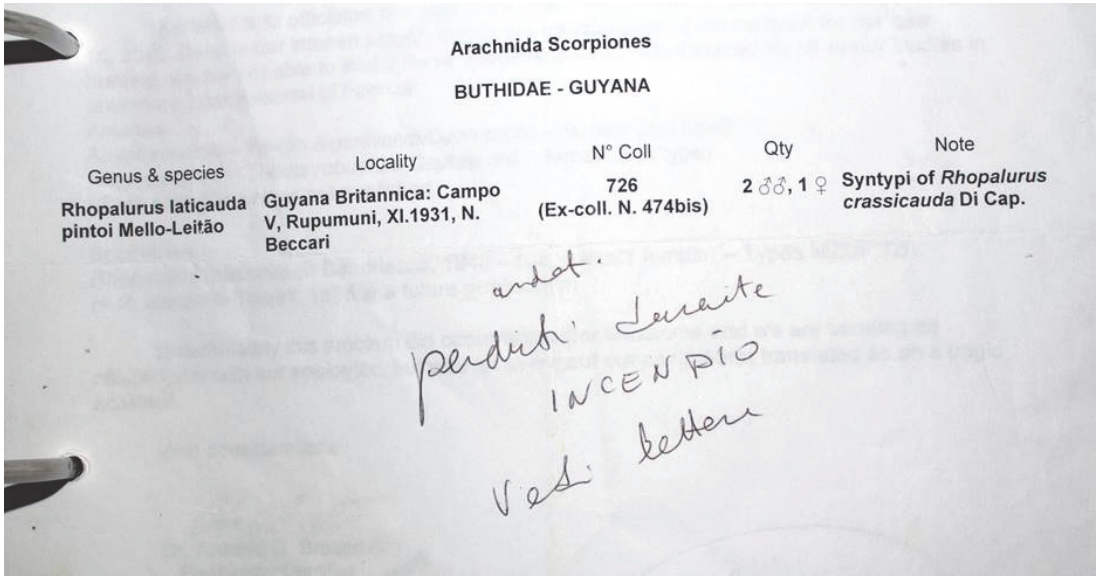
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Arachnida Scorpiones

BUTHIDAE - GUYANA

Genus & species	Locality	N° Coll	Qty	Note
Rhopalurus laticauda pintoi Mello-Leitão	**Guyana Britannica: Campo V, Rupumuni, XI.1931, N. Beccari**	**726 (Ex-coll. N. 474bis)**	**2 ♂♂, 1 ♀**	**Syntypi of *Rhopalurus crassicauda* Di Cap.**

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Fig. 1. Copy of the original loan form of the syntypes of *Rhopalurus crassicauda* Di Caporiacco, 1948 depostited at the Entomology Department, Museo di Storia Naturale dell'Università di Firenze, sezione di Zoologia "La Specola", Italy. The translated hand-written note by the MZUF director states: "Lost during fire. See letter".