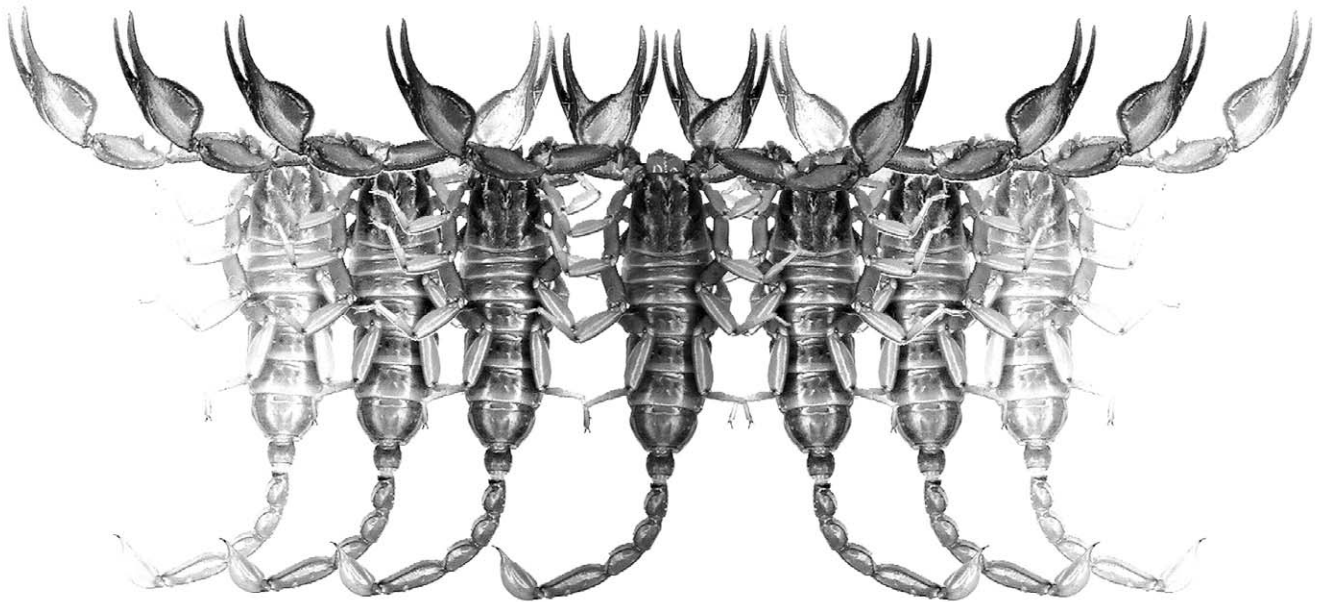


Euscorpius

Occasional Publications in Scorpiology



**Revalidation of Three Recently Synonymized Cuban
Species of *Heteroctenus* Pocock, 1893 (Scorpiones:
Buthidae: Centruroidinae)**

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Revalidation of three recently synonymized Cuban species of *Heteroctenus* Pocock, 1893 (Scorpiones: Buthidae: Centruroidinae)

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Summary

The scorpion genus *Heteroctenus* Pocock, 1893 was restored from synonymy with *Rhopalurus* in a recent revision by Esposito et al. (2017). Here, we restore two eastern Cuban species *Heteroctenus melloleitaoi* (Teruel et Armas, 2006) and *H. aridicola* (Teruel et Armas, 2012) as valid species. They were synonymized by Esposito et al. (2017) under *Heteroctenus junceus* (Herbst, 1800), without examination of corresponding specimens and with erroneous interpretations of some aspects of the original descriptions. *Heteroctenus granulimanus* (Teruel, 2006) is also restored as a valid species. The subfamily Rhopalurusinae Bücherl, 1971 is regarded as a junior synonym of Centruroidinae Kraus, 1955.

In a recently published revision of some Neotropical buthid genera, Esposito et al. (2017) restored the scorpion genus *Heteroctenus* Pocock, 1893 from synonymy with *Rhopalurus*, and moved a number of species into this genus [with type species *H. junceus* (Herbst, 1800)].

In this revision, Esposito et al. (2017) regarded the eastern Cuban species *Rhopalurus melloleitaoi* Teruel et Armas, 2006 and *R. aridicola* Teruel et Armas, 2012 as junior synonyms of *Heteroctenus junceus* (Herbst, 1800). Nevertheless, those authors: (1) did not examine any specimens of those two species; and (2) also misinterpreted some aspects of their original descriptions.

In respect to *Heteroctenus aridicola*, they considered it as morphologically indistinguishable from *H. junceus*, “except for its dark reddish color and more granular carapace and tergites, characters known to be variable in the widespread *H. junceus*” (Esposito et al., 2017: 43). Also, they state that “little genetic divergence was evident between topotypes of *R. aridicola* and other samples conspecific with *H. junceus* (Esposito et al., in review)”. The inconsistencies of those statements are as follows:

(1) *Heteroctenus aridicola* clearly differs from *H. junceus* by having (i) stronger metasomal carinae; (ii) males with more attenuated metasoma and (iii) male pedipalp fingers with a very weak basal separation when their apical extremes are in contact (compare Figs. 1 and 2).

(2) Both species (*H. aridicola* and *H. junceus*) are sympatric and syntopic (Teruel & Armas, 2012b: 214).

(3) In the laboratory, both species are capable of interbreeding, but the immature individuals died without reaching adulthood, allegedly as result of a reproductive postzygotic mechanism of isolation (Armas, 1982; Teruel in Teruel & Armas, 2012b: 215).

(4) Esposito et al. (2017) did not mention any examined specimens of *H. aridicola*, and consequently, is not possible to know which topotypes are those mentioned by them. According with Teruel & Armas (2012b: 214), *H. aridicola* seems to be endemic to the xerophytic coastal area between Punta Negra and Punta de Maisí, whereas the recorded specimens from Santa Rosa and Baracoa seem to be accidental introductions.

Regarding *Heteroctenus melloleitaoi*, the inconsistencies of their proposed synonymy are the following:

(1) This species was described from five localities belonging to Niquero municipality, Granma province (not from “a single locality”, as stated by Esposito et al., 2017: 43).

(2) *Heteroctenus melloleitaoi* has been collected syntopically with *H. junceus* (not “in close proximity to many known locality records of *H. junceus*”).

(3) *Heteroctenus melloleitaoi* differs from *H. junceus* in several morphological and meristic characters, not “solely on the basis of coloration, the pedipalp chelae being darker than the patella and femur”. As stated by Teruel & Armas (2006: 178), *H. melloleitaoi* has meta-



Figures 1–2: Male pedipalp chela, external aspect. **1**, holotype of *Heteroctenus aridicola* (after Teruel & Armas, 2012b: fig. 1f). **2**, male neotype of *H. junceus* (after Teruel & Armas, 2012a: fig. 2d).

soma and pedipalps more attenuated than *H. junceus*, mainly in the females. Also, *H. melloleitaoi* has a significantly higher pectinal tooth count than *H. junceus*. While *Heteroctenus junceus* has 17–23 teeth (mode 19–20) in the males, and 15–21 (mode 18) in the females (Teruel & Armas, 2012a: 154), the species *H. melloleitaoi* has 22–26 teeth (mode 24) in the males, and 20–25 (mode 23) in the females (Teruel & Armas, 2006: 178).

On the basis of the argumentation given above, *Heteroctenus melloleitaoi* (Teruel et Armas, 2006) and *Heteroctenus aridicola* (Teruel et Armas, 2012) are herein restored as valid species.

A third Cuban species, *Rhopalurus granulimanus* Teruel, 2006 was regarded by Esposito et al. (2017) as a junior synonym of *Heteroctenus gibarae* (Teruel, 2006). As in the cases of *H. melloleitaoi* and *H. aridicola*, they did not examine the type specimen or additional material, and no solid arguments were presented. *Heteroctenus granulimanus* (Teruel, 2006) is restored here as a valid species.

In addition, Prendini et al. (2009: 223) recorded as *Rhopalurus junceus* one male specimen from “Cuba, Santiago de las [sic] Caballeros, 1936, P. Thumb (ZMH)”. As stated by Teruel & Armas (2012a: 166), if it is correctly identified, then it is an accidental introduction or it was mislabeled, because that locality (Santiago de los Caballeros) is from the Dominican Republic, Hispaniola Island. Esposito et al. (2017: 51) overlooked that situation, and again recorded that male specimen as collected in Cuba.

Also, it is opportune to point out that on April 2012, Lauren Esposito was collecting scorpions in several Cuban localities in collaboration with Rolando Teruel; on that occasion, she also visited Havana and contacted with the staff of the arachnological collections of the Instituto de Ecología y Sistemática (a new name, since 1985, for the Instituto de Zoología de la Academia de Ciencias de Cuba). As long as I know, she did not express any interest in examination of type specimens or other material of scorpions deposited in Cuban arachnological collections. Examination of those specimens would have rendered important information on these three Cuban species.

Finally, we need to comment on the subfamily name Rhopalurusinae Bücherl, 1971, which is used by Esposito et al. (2017) as a valid name. In their discussion of buthid family-group nomenclature, Fet & Lowe (2000) commented that Centruroidinae Roewer, 1943, was a *nomen nudum* since Roewer (1943) published no description. However, Fet & Lowe (2000) were not aware of the fact (Victor Fet, pers. comm., July 2017) that the same name was used by Otto Kraus (1955) in a small paper on scorpions from El Salvador, published in Spanish. A brief description of Centruroidinae appeared in a footnote (Kraus, 1955: 101), and therefore this family-group name is available. Since Esposito et al. (2017) include genus *Centruroides* in the subfamily Rhopalurusinae, the latter becomes a junior subjective synonym of Centruroidinae Kraus, 1955 = Rhopalurusinae Bücherl 1971, **syn.n.** The valid name Centruroidinae should not be confused with an old name Centruroidinae, which is not available for Buthidae (Fet & Lowe, 2000: 56).

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