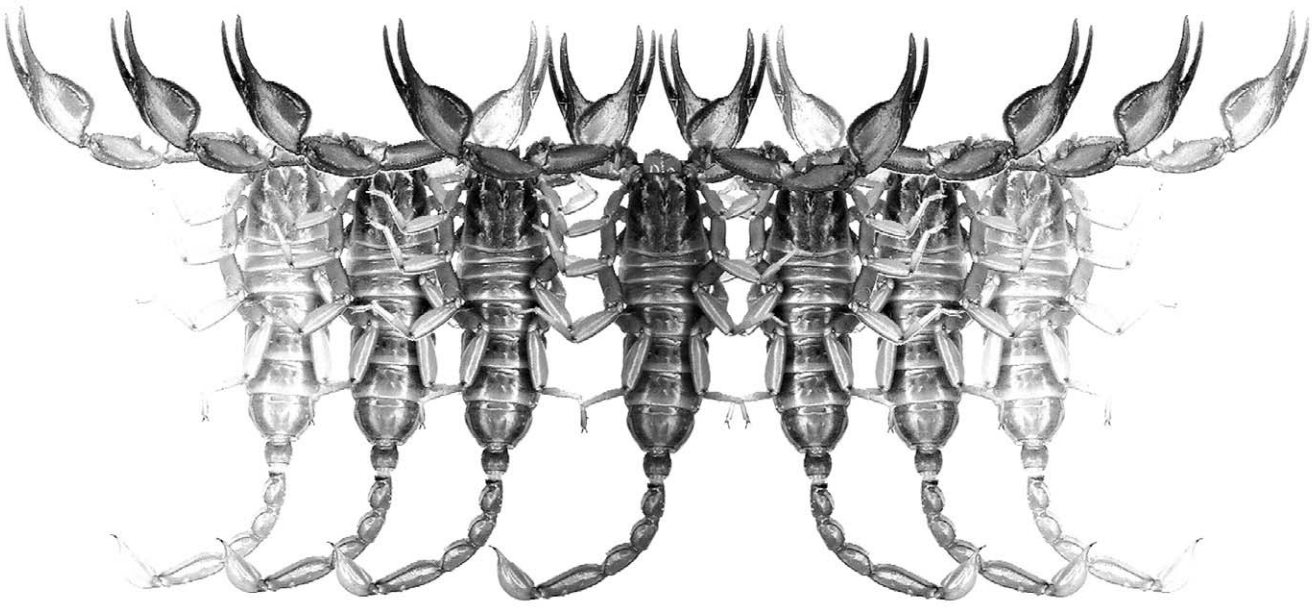
# Euscorpius

## Occasional Publications in Scorpiology

# *Microananteroides mariachiarae* Rossi et Lourenço, 2015 is a Junior Synonym of *Akentrobuthus atakora* Vignoli et Prendini, 2008 (Scorpiones: Buthidae)


**František Kovařík, Rolando Teruel, & Graeme Lowe**



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# *Euscorpius*

## Occasional Publications in Scorpiology

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# *Microananteroides mariachiarae* Rossi et Lourenço, 2015 is a junior synonym of *Akentrobuthus atakora* Vignoli et Prendini, 2008 (Scorpiones: Buthidae)

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## Summary

The African monotypic scorpion genus *Microananteroides* Rossi et Lourenço, 2015 and its single species *M. mariachiarae* Rossi et Lourenço, 2015, from Ghana, are herein demonstrated to be junior synonyms, respectively, of *Akentrobuthus* Lamoral, 1976 and *A. atakora* Vignoli et Prendini, 2008 from neighboring Benin. We provide detailed high-resolution color photographs of the holotype of *M. mariachiarae* and further show its real trichobothrial pattern, which was incorrectly depicted in the original description.

## Introduction

Rossi & Lourenço (2015) described the monotypic genus *Microananteroides* with a single species *Microananteroides mariachiarae* Rossi et Lourenço, 2015 from Ghana, and differentiated it from *Ananteroides* Borelli, 1911 on the basis of several morphological characters. As is typical of their papers, in the diagnosis and comparisons of their allegedly new genus, Rossi & Lourenço (2015) neglected to consider other Afrotropical genera of Buthidae, especially *Akentrobuthus* Lamoral, 1976, which was already known and recorded from the same geographical region, e.g., compare fig. 15 of Rossi & Lourenço (2015: 8) versus fig. 3 of Vignoli & Prendini (2008: 64). Ironically, Lourenço was already quite familiar with *Akentrobuthus*, having previously illustrated its anatomy (Lourenço, 1998: figs. 6–8), placed it in a separate family (Lourenço, 1998: 845–847), and repeatedly compared it to various other humicolous buthid scorpions (Lourenço, 2000, 2003, 2004, 2005, 2012).

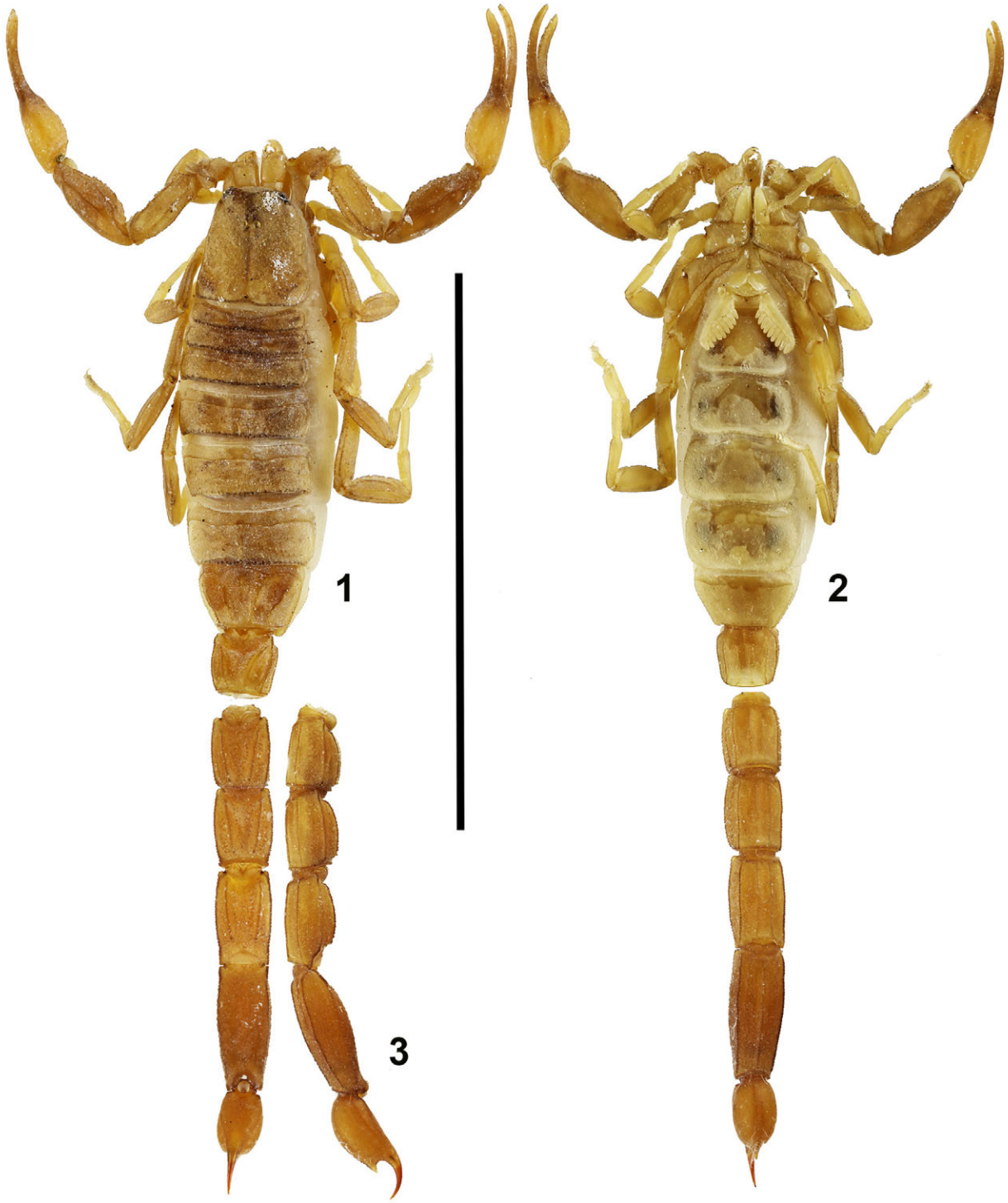
The original description and photographs of *M. mariachiarae* were immediately recognized by us to exactly match those of *Akentrobuthus atakora* Vignoli et Prendini, 2008, a well documented species described seven years earlier from neighboring Benin. Thus, we proceeded to loan the holotype of the former (which fortunately is lodged in a public, open-access collection), to review it in detail and especially to compare it to *A. atakora*. As expected, our study confirmed the suspected synonymy, and also revealed further errors in the original description and figures of *M. mariachiarae*.

It has already been documented elsewhere that both Andrea Rossi and Wilson R. Lourenço routinely utilize inaccurate and/or nonexistent characters to diagnose their "new" taxa, see e.g., Kovařík et al. (2016a: 20; 2017: 2–3), Kovařík & Ojanguren-Affilastro (2013: 209), and Teruel (2017: 5–6). Moreover, it has been repeatedly shown that these authors omit crucial species in their comparisons and differential diagnoses of "new" taxa, and such oversight leads to inevitable synonymizations, see e.g. Kovařík et al. (2016a: 4–6), Kovařík et al. (2016b: 1–17), Kovařík et al. (2016c: 2, 4–5, 16–17), Armas (2017: 1), Kovařík et al. (2017: 1–103), and Teruel (2017: 6). Considering these numerous flaws, their work must be regarded as unreliable and should not be accepted without careful scrutiny.

## Systematics

**Family Buthidae C. L. Koch, 1837**
***Akentrobuthus* Lamoral, 1976**
(Figs. 1–16)

*Akentrobuthus* Lamoral, 1976: 681–691, figs. 1–27; Sissom, 1990: 89, 95, 101; Lourenço, 1998: 845–847, figs. 6–8; Fet, 2000: 421–422; Lourenço, 2000: 878–879; Lourenço, 2003: 1149–1150; Soleglad &

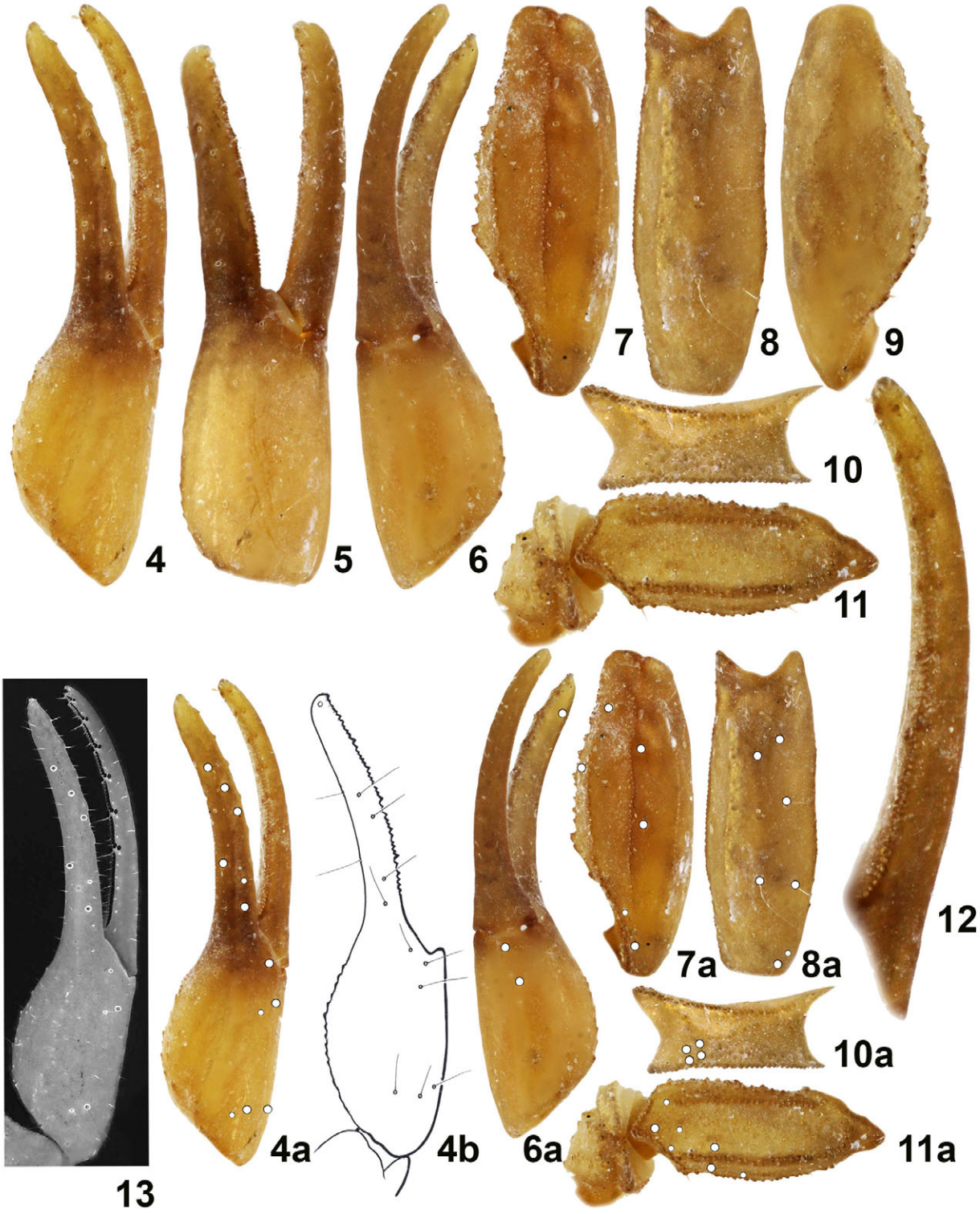



**Figures 1–3:** *Akentrobuthus atakora*, holotype of *Microananteroides mariachiarae*, dorsal (1) and ventral (2), and metasoma II–V and telson lateral (3) views. Scale bar: 10 mm.

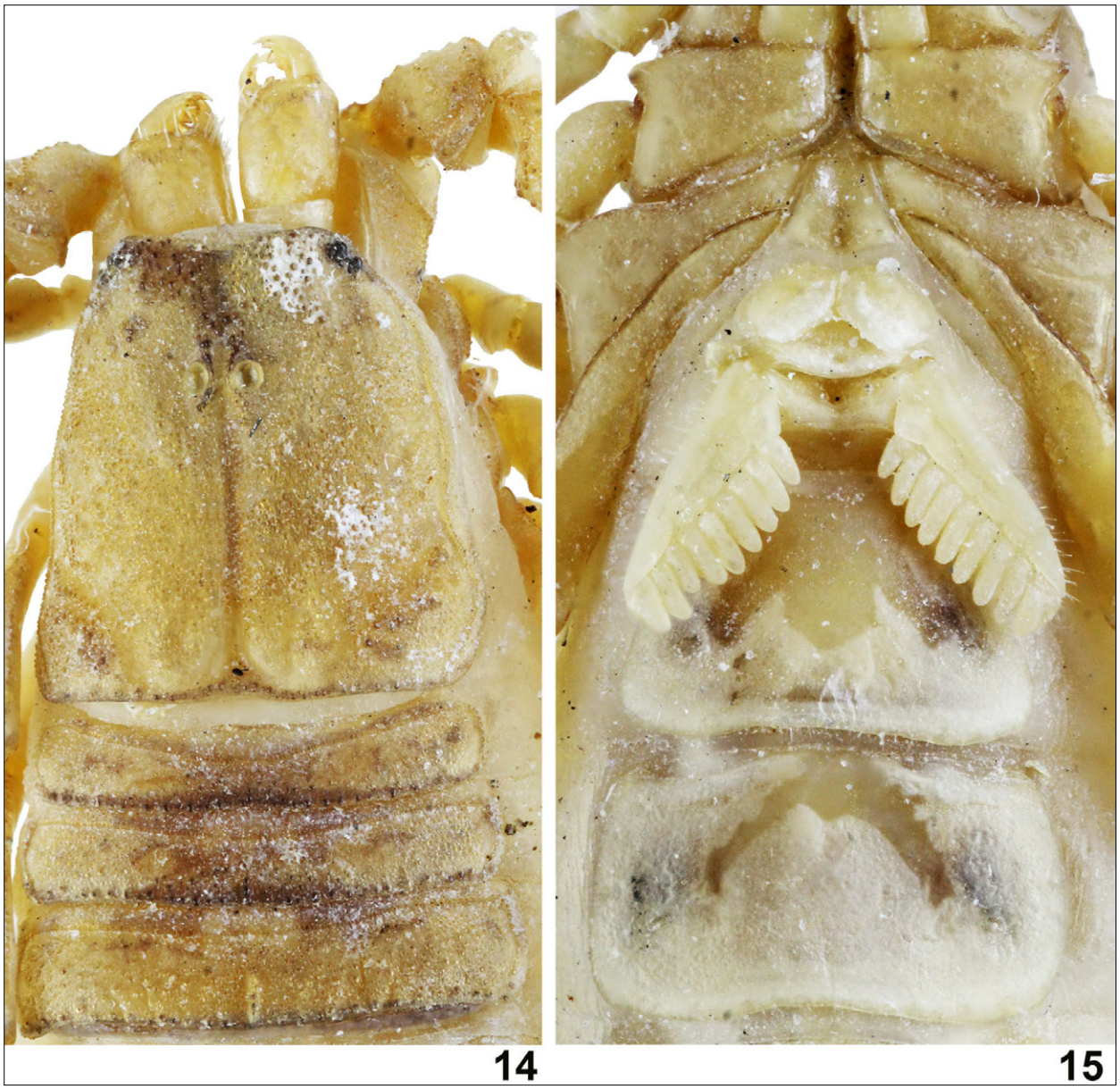
Fet, 2003a: 3, 12, 30; Soleglad & Fet, 2003b: 88, 90–91; Lourenço, 2004: 77–78; Fet et al., 2005: 3, 13, 20, 22–26; Lourenço, 2005: 949–950; Vignoli & Prendini, 2008: 61–70, figs. 1–17, tab. 1; Kovařík, 2009: 30; Lourenço, 2012: 555.

= *Microananteroides* Rossi et Lourenço, 2015: 4. **New synonym.**

TYPE SPECIES. *Akentrobuthus leleupi* Lamoral, 1976, by original designation.




**Figures 4–13:** *Akentrobuthus atakora.* **Figures 4–12.** Holotype of *Microananteroides mariachiarae*. Pedipalp chela, dorsal (4), external (5) and ventral (6) views. Pedipalp patella, dorsal (7), external (8), and ventral (9) views. Pedipalp femur internal (10) and femur and trochanter dorsal (11) views. Movable finger (12).The trichobothrial pattern is indicated in Figures 4a, 6a–8a, 10a–11a. **Figure 4b**. Drawing of pedipalp chela dorsoexternal trichobothrial pattern published as fig. 10 in Rossi & Lourenço (2015: 11). **Figure 13**. *Akentrobuthus atakora*, holotype, photo of pedipalp chela dorsoexternal trichobothrial pattern published as fig. 12 in Vignoli & Prendini, (2008: 68).




**Figures 14–15:** *Akentrobuthus atakora*, holotype of *Microananteroides mariachiarae*, chelicerae, carapace and tergites I–III (14), and sternopectinal region and sternites III–IV (15).

COMMENTS. The diagnosis of this previously monotypic genus (Lamoral, 1976), was updated by Vignoli & Prendini (2008), to include their newly described second species *Akentrobuthus atakora* Vignoli et Prendini, 2008. For the formal syonymization of *Microananteroides*, see the detailed discussion below.

### *Akentrobuthus atakora* Vignoli et Prendini, 2008
(Figs. 1–16)

*Akentrobuthus atakora* Vignoli et Prendini, 2008: 61–70, figs. 1–17, tab. 1.

= *Microananteroides mariachiarae* Rossi et Lourenço, 2015: 3–9, figs. 1–15. **New synonym.**

TYPE LOCALITY AND TYPE REPOSITORY. Benin, Atakora Department, Natitingou Municipality, Atakora Mountain Range, Tanougou Waterfalls, 10°48.12'N 01°26.26'E, 261 m a. s. l.; AMNH, American Museum of Natural History, New York, USA.

MATERIAL EXAMINED. Ghana, North Province, Tamale, 7.I.1972, leg. Y. Endrödy, 1♀ holotype of *Microananteroides mariachiarae* (HNHM Scorp-26, Hungarian Natural History Museum, Budapest, Hungary).

Rossi & Lourenço (2015) did not cite any characters that could differentiate *Microananteroides* from *Akentrobuthus*. They only compared *Microananteroides* to


**Figures 16:** Map showing distribution of *Akentrobuthus atakora*.

*Ananteroides* Borelli, 1911, and also cited the African genus *Lychasioides* Vachon, 1974 without mentioning any diagnostic differences. However, they completely ignored the genus *Akentrobuthus*, and the species *A. atakora* whose description is virtually identical to that of *M. mariachiarae*, with the exception of a few characters that were incorrectly interpreted by Rossi & Lourenço (2015) (see below).

Figure 4 shows the right pedipalp chela of the holotype of *M. mariachiarae*, and in Fig. 4a its correct trichobothrial pattern is indicated. Fig. 4b shows the same pattern as depicted by Rossi & Lourenço (2015: 7, fig. 10, herein reproduced unmodified from the original description). There are several glaring discrepancies in this figure:

(i) manus $Eb_2$ is marked at the same distance from the base as $Eb_3$; in fact, $Eb_2$ is distal to $Eb_3$ (Fig. 4a);
(ii) manus *Est* and *Esb* are marked at the same vertical level; in fact *Est* is situated below *Esb* (Fig. 4a);
(iii) manus *Est*, *Esb* and *Et* are marked at positions equidistant from each other; in fact, *Est* and *Esb* are much closer to each other, than to *Et*, i.e. less than half the distance (Fig. 4a); and
(iv) fixed finger *dt* is marked only slightly distal to *et*, i.e. only about one-fourth of the distance between *est* and *et*; in fact, *dt* is much more distally located, with *dt*, *est* and *et* being about equidistant from each other along the finger axis (Fig. 4a).

Moreover, on the pedipalp patella (Rossi & Lourenço, 2015: 7, fig. 13), *em* is marked distinctly closer to $esb_1$ and $esb_2$, than to *est* and *et*; in fact the converse is true (Fig. 8a). In each of these points, our map of the trichobothrial configuration of the holotype also agrees with corresponding configurations documented in both *Akentrobuthus atakora* and *A. leleupi* Lamoral, 1976.

Figure 13 shows the chelal trichobothrial pattern of *A. atakora* as correctly marked by Vignoli & Prendini (2008: 68, fig. 12). It is readily apparent that this pattern is identical to the true pattern of the holotype of *M. mariachiarae* (Fig. 4a) (see also Lamoral, 1976: 686, fig. 3). We further note that Rossi & Lourenço (2015: 7, figs. 10, 12, 14) incorrectly showed petite trichobothria (chela $Eb_3$, *Esb* and *esb*; patella $d_2$; femur $d_2$) with areolar diameters and shaft lengths equal to those of non-petite trichobothria. The same mistake recurs in many recent publications of these authors. This anatomical disinformation creates confusion because, in buthids, petite trichobothria have much smaller areolae and much shorter shafts than non-petite trichobothria.

Another character that was inaccurately described by Rossi & Lourenço (2015: 5) is the carination of the carapace in the holotype of *M. mariachiarae*, which they characterized as "anterior median and posterior median carinae weak". However, their own figure 3 (Rossi & Lourenço, 2015: 6) does not depict these carinae, which suggests that they were too weakly developed to be resolved. In fact, our examination of the holotype confirmed that the carapace lacks clearly defined carinae, except for the superciliary carinae. This is consistent with the absence of carinae on the carapace of *A. atakora*, as revealed in fine detail by UV fluorescence imaging (Vignoli & Prendini, 2008: 67, fig. 6).

Vignoli & Prendini (2008: 63, fig. 2) accurately described the true color of a fresh specimen, both *in vivo* and immediately after preservation. In contrast, Rossi & Lourenço (2015) described altered coloration of a specimen poorly preserved after over 40 years of storage in alcohol (see our Figs. 1–3 herein), but they did not mention this caveat.

Apart from the above points, the holotypes of *M. mariachiarae* and *A. atakora* match each other precisely in the following key characters: size, structure of sternum and genital operculum, pectinal tooth count and lamellar structure, proportions, setation, carination and sculpture of pedipalps, carapace, tergites, sternites, and metasoma, shape and armature of the telson, as well as armature of chelicerae and pedipalp fingers.

The inevitable conclusion is that *Microananteroides mariachiarae* Rossi et Lourenço, 2015 is a junior synonym of *Akentrobuthus atakara* Vignoli et Prendini, 2008.

## Acknowledgments

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