

Notes on taxonomic position and origin of two phasmids from Trinidad and Tobago (Phasmatodea, Occidophasmata, Diapheromeridae)

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Abstract. – The geographical origin of *Caribbiopheromera jamaicana* Zompro, 2001, is discussed and called into question, while *Clonistria caputaurata* Bellanger *et al.*, 2012, is synonymised with *Bostra trinitatis* Werner, 1929, which is transferred to the genus *Clonistria* Stål, 1875.

Résumé. – Notes sur la position taxonomique et l'origine de deux Phasmes de Trinidad et Tobago (Phasmatodea, Occidophasmata, Diapheromerinae). L'origine géographique de *Caribbiopheromera jamaicana* Zompro, 2001, est discutée et remise en cause alors que *Clonistria caputaurata* Bellanger *et al.*, 2012, est placé en synonymie de *Bostra trinitatis* Werner, 1929, qui est transféré dans le genre *Clonistria* Stål, 1875.

Keywords. – Taxonomy, morphology, Caribbean region, new synonymy, new combination, barcoding.

In 2001, while providing a revision of the Diapheromerinae, ZOMPRO (2001: 213) described the genus *Caribbiopheromera* for the new species *C. jamaicana* Zompro, 2001. All type specimens are from breeding, and were stated to be from Jamaica. The culture of this species in Europe started in the early 1970's when John and George Newmark, two brothers who collected reptiles and invertebrates for the London Zoo, brought it back from the West Indies. However, the precise location where they collected this species could not be traced back with enough certainty, as they collected animals in numerous countries during 25 collecting trips (NEWMARK & NEWMARK, 2000: 4). What is known is that the species was later bred by members of the Phasmid Study Group under the name “Warty stick”. Among them is Tony James, who got a pair from Judith Marshall, and both of them did not know the precise origin of the species (J. Marshall & T. James, pers. comm.), as the Newmark brother were both deceased at the time. Someone stated this species to be from Jamaica, somewhat before JAMES (1982: 7) published a care sheet in the PSG Newsletter. The origin of the species is thus very doubtful.

While cataloging the type-material of two Phasmatodea collections, ZOMPRO (2005: 283) added to the genus *Caribbiopheromera* another species from Trinidad: *Bostra trinitatis* Werner, 1929.

In 2012, after a field trip in Tobago in 2008, Langlois & Bellanger described the female and the egg, and redescribed the male of *Caribbiopheromera trinitatis* (Werner, 1929) (LANGLOIS & BELLANGER, 2012: 100). At the time, no picture of the holotype male was available on the Phasmida Species File (BROCK *et al.*, 2022) and the authors relied on the work of ZOMPRO (2005). It was further used by BELLANGER *et al.* (2012: 490) in their paper on Phasmatodea of Trinidad after a field trip on this island in 2010.

A few years later, pictures of the holotype of *Bostra trinitatis*, taken by Oskar Conle in the Museum für Naturkunde der Humboldt-Universität in Berlin, were uploaded to the Phasmida

Species File and thus became publicly available. It was obvious that the original *Bostra* species was very different from its supposed sister taxon *Caribbiopheromera jamaicana*. In fact, the holotype of *Bostra trinitatis* perfectly matches the species described by BELLANGER *et al.* (2012: 491): *Clonistria caputaurata* Bellanger, Jourdan & Lelong, 2012. The latter thus becomes **n. syn.** of *Bostra trinitatis* Werner, 1929, but definitively belongs to the genus *Clonistria* Stål, 1875, and should thus be correctly spelled: *Clonistria trinitatis* (Werner, 1929), **n. comb.**

The *Caribbiopheromera* species occurring in Trinidad and Tobago seems to be common. During their expedition in Jamaica (2018), the three first authors did not find any specimen belonging to the genus. Tony James, who visited Jamaica four times and collected numerous stick insects, never found any specimen which would match *C. jamaicana* neither (T. James, pers. comm.). In the light of these facts, we believe the actual origin of *Caribbiopheromera jamaicana* Zompro, 2001 to be Trinidad and Tobago archipelago. Moreover, if we could not trace back any trip of the Newmark brothers in Jamaica, it is established that they visited Trinidad (NEWMARK & NEWMARK, 2000: 49).

Moreover, the authors sequenced specimens for COI gene (see “Material and methods” in LELONG *et al.*, 2022: 126) from offspring of the *Caribbiopheromera* strain collected in Trinidad in 2010; they did the same with the *Caribbiopheromera* believed to be collected in Jamaica by the Newmark brothers in the 1970’s and known as “Warty stick” (see material sequenced in table I, all stored in coll. YB). The consensus neighbour joining tree distinctly shows they all belong to the same species (fig. 1). The tree was rooted with an outgroup from the Phasmatidae family, *Lamponius guerini* (Saussure, 1868).

It turns out that the species name *trinitatis* was initially misused by ZOMPRO (2005) and attributed to the genus *Caribbiopheromera* for a species which is in fact *Caribbiopheromera jamaicana*, and it had been taken over by subsequent authors. LELONG *et al.* (2013) carried the mistake over when they published a comparison between the species believed to be *Caribbiopheromera trinitatis* and *C. jamaicana*. Since there is obviously only one species, these differences should be interpreted as intraspecific variation. This variation could possibly be exacerbated by inbreeding levels resulting from long lasting culturing of the original strain of *C. jamaicana* (from 1970’s and still in culture today), originally from few specimens only.

In conclusion, *Caribbiopheromera* is actually a monotypic genus with a single species *Caribbiopheromera jamaicana* Zompro, 2001, and shown here to be probably endemic to Trinidad and Tobago. The former *Clonistria caputaurata* Bellanger *et al.*, 2012, has been synonymised with *Bostra trinitatis* Werner, 1929, and combined in the genus *Clonistria*: *Clonistria trinitatis* (Werner, 1929).

Thus, the taxonomical position of those two species is as follow in the tribe Diapheromerini.

Table I. – List of barcoded specimens for this study.

Species	Bold number	Labels information	GenBank accession number
<i>Caribbiopheromera jamaicana</i> = <i>Caribbiopheromera</i> “Warty stick” suspected from Jamaica	PHAJA069-21	♀, Jamaica?, Culture stock “Warty” PSG, Elev. M. De Haan, 16.VIII.2019	OP620916
<i>Caribbiopheromera jamaicana</i> = <i>C. “trinitatis”</i> culture stock from Trinidad ASPER 2010	PHAJA071-21	♀, Trinidad (souche ASPER 2010), Elev. Marek Nohejl, 24.I.2020	OP620917
<i>Caribbiopheromera jamaicana</i> = <i>C. “trinitatis”</i> culture stock from Trinidad ASPER 2010	PHAJA070-21	♀, Trinidad (souche ASPER 2010), Elev. Marek Nohejl, 23.I.2020	OP620918

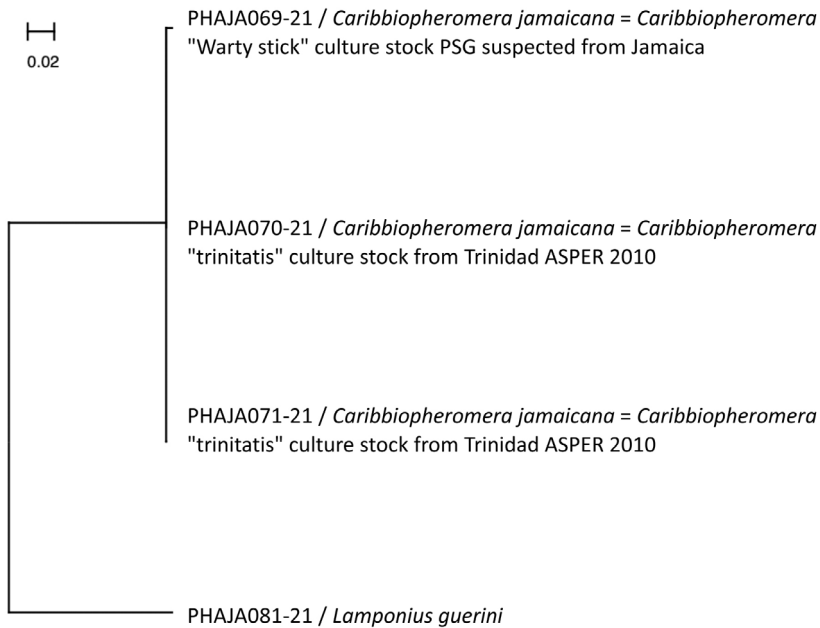


Fig. 1. – Neighbour joining tree of *Caribbiopheromera* based on COI genes.

Genus *Caribbiopheromera* Zompro, 2001

Caribbiopheromera jamaicana Zompro, 2001

Caribbiopheromera jamaicana Zompro, 2001: 214.

Caribbiopheromera trinitatis sensu ZOMPRO (2005); LANGLOIS & BELLANGER (2012); BELLANGER *et al.* (2012); LELONG *et al.* (2013).

Genus *Clonistria* Stal, 1875

Clonistria trinitatis (Werner, 1929), **n. comb.**

Bostra trinitatis Werner, 1929: 6.

Syn. *Clonistria captaurata* Bellanger, Jourdan & Lelong, 2012: 491, **n. syn.**

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