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A NEW GENERIC ASSIGNMENT FOR *TORTRIX BABOQUAVARIANA* KEARFOTT, 1907
(LEPIDOPTERA: TORTRICIDAE) WITH COMMENTS ON ITS TRIBAL ASSIGNMENT

Additional key words: Arizona, Cochylini, *Hyptiharpa*, Mexico, new synonymy, Sinaloa

Tortrix baboquavariana Kearfott, 1904 has a history of uncertain generic and tribal assignment. Described from three specimens collected in the Baboquivari (also spelled “Baboquavari”) Mountains of southern Arizona, it was assigned by Kearfott (1904) to the “catch-all” tortricid genus *Tortrix* Linnaeus (Tortricidae: Tortricinae). Authors of early checklists of North American Lepidoptera (i.e., Barnes & McDunnough 1917, McDunnough 1939) continued to treat *baboquavariana* as a species of *Tortrix*. Although hundreds of species were described historically in *Tortrix*, the genus currently is narrowly circumscribed to include only two Palaearctic species (Brown 2005). Hence, *baboquavariana* belongs elsewhere.

In order to provide a more appropriate generic assignment for *baboquavariana*, Powell (1983) transferred the species (the spelling emended to “*baboquivariana*”) to “*Incertae Sedis*” in Cochyliidae (currently considered a tribe of Tortricidae). Poole and Gentili (1996) transferred all species treated by Powell (1983) as *Hysterosia* and *Incertae Sedis* to *Phtheochroa* because the latter subsequently was determined to be the senior synonym of *Hysterosia*. Brown (2005) listed *baboquivariana* (following Powell’s emendation) under “Cochylini unplaced,” and this treatment recently was followed by Metzler and Brown (2014). Therefore, the species continues to lack a contemporary generic assignment.

Meanwhile, in 1992 Razowski described *Hyptiharpa hypostas* (new genus and new species) from Sinaloa, Mexico. He assigned the genus to the tribe Euliini, with a few caveats, and Powell et al. (1995) followed that assignment in the Atlas of Neotropical Lepidoptera.

While trying to identify appropriate generic assignments for a few unplaced Cochylini, I recently stumbled upon the illustration of the male genitalia of

Hyptiharpa hypostas in Razowski (1992) and realized that the genitalia are a perfect match with those on an old slide of *baboquavariana* in the National Museum of Natural History, Washington, DC. It took me only 23 years to put together these two simple pieces of the puzzle: the illustration of the male genitalia of *Hyptiharpa hypostas* in Razowski (1992) and the slide-mounted genitalia of the male of *Tortrix baboquavariana* in the USNM. This discovery results in a contemporary generic assignment for the species, i.e., *Hyptiharpa baboquavariana*, new combination; the synonymy of *hypostas* Razowski with the senior synonym *baboquavariana* Kearfott; and the possible assignment of the species to the subtribe Euliina (Cochylini), although the latter is still somewhat unresolved.

The lectotype of *Tortrix baboquavariana*, designated by Klots (1942), is deposited in the American Museum of Natural History (AMNH) and two co-types (paralectotypes) are in the National Museum of Natural History (USNM), Washington, DC. The holotype and a paratype of *Hyptiharpa hypostas* are deposited in the Essig Museum of Entomology (EME), University of California, Berkeley

Hyptiharpa baboquavariana (Kearfott, 1904), **new combination**

Figs. 1–3

Tortrix baboquavariana Kearfott, 1904: 82 (description); Barnes and McDunnough 1917: 177 (checklist); McDunnough 1938: 57 (checklist); Klots 1942: 412 (lectotype designation).

“*Incertae Sedis*” *baboquivariana*: Powell 1983: 42 (checklist). Unjustified emendation.

Hyptiharpa hypostas Razowski, 1992: 106 (description); Powell et al. 1995: 83 (checklist). **New Synonymy.**

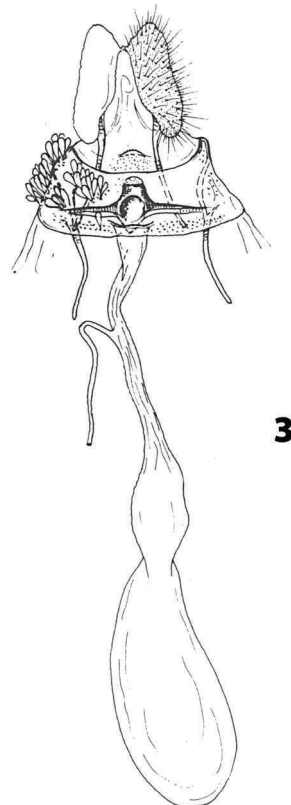
"Cochylini Unplaced" *baboquavariana*: Brown 2005: 208 (checklist).

"Cochylini Unplaced" *baboquavariana*: Metzler and Brown 2014: 278 (checklist)

Diagnosis. *Hyptiharpa baboquavariana* is a small moth (forewing length mean 4.1 mm; $n = 6$) similar to many small Cochylini, but it is easily distinguished by the forewing pattern alone (Fig. 1; also see Moth Photographers Group 2015: #3855). The forewing ground color is pale orange ocherous and slightly shiny. The brown forewing markings are well defined and consist of the following: a subbasal fascia represented by an oblique, elongate-triangular spot from near the base of the hind margin, ending either in the vicinity of the discal cell (forming an incomplete fascia) or extending to the costa (forming a more-or-less complete fascia); a rounded-triangular blotch from the middle of the hind margin; an oblique median fascia extending from the costa, originating at about 0.6 the distance from the base to the apex, to the tornus; and a narrow preterminal fascia. The forewing pattern is slightly reminiscent of that of *Aethes interruptofasciata* (Robinson, 1869) (Cochylini) and *Atepa* Razowski, 1992 (Euliina), but the genitalia of *H. baboquavariana* have little in common with those taxa. Females are easily distinguished from all other species by the presence of a dense patch of long, somewhat blunt-tipped, specialized scales from the dorsum of the last abdominal segment which extend well beyond the papillae anales. Although the scales seem pale cream-colored in dorsal view, they are more orange in posterior view.

In the male genitalia (Fig. 2) the uncus is about 0.75 the length of the valva, slightly keel-shaped, curved, slightly broadened near the middle, and distinctly tapered distally; the socii are broad basally, attenuate and incurved medially and narrowed distally; the gnathos is absent; the valvae are broad and short, with a linear, crenulate, sclerotized ridge separating the sacculus from the costal portion of the valve; the sacculus is wide and bears a long, slender, distally curved, basal process with a long free distal portion, weakly bifurcate or toothed distally; the transtilla has a large median process, broad basally (nearly as broad as the transtilla) and tapering distally; and the phallus is small, tapered distally with a sharp apex; cornuti are absent.

In the female genitalia (Fig. 3) the papillae anales are small; the apophyses posteriores are slightly longer than the apophyses anteriores; the sterigma is mostly membranous with a long transverse sclerite near the anterior edge surrounding a rounded median pit (= ostium). The corpus bursae is long and membranous



FIGS. 1–3. *Hyptiharpa baboquavariana*. 1. Holotype male of *H. hypostas*, which is a junior synonym of *H. baboquavariana*. 2. Male genitalia from Razowski (1992). 3. Female genitalia from Razowski (1992).

and undifferentiated from the slender membranous corpus bursae, the latter of which lacks a signum.

Distribution. The known range of *H. baboquavariana* includes Sinaloa, Mexico and the lower elevations of the mountains of southeastern Arizona (Baboquivari, Santa Rita, and Chiricahua mountains), ranging from about 250 to 1700 m in elevation. Capture records extend from mid-July to early August.

Specimens examined (14♂, 3♀). MEXICO: Sinaloa: 27 mi E Villa Union, 800', 27 Jul 1964 (holotype ♂ of *hypostas*), J. Powell (EME). USA: Arizona: Cochise Co.: 4 mi W Portal, Chiricahua Mountains, 5300', 3–6 Aug 1964 (3♂), D. R. Davis (USNM). Palmerlee, no date (1♂), no collector (USNM). Pima Co.: Baboquivari Mts, 15–30 July 1903 (3♂, including lectotype of *baboquavariana*), O. C. Poling (USNM, AMNH). Brown Canyon, Baboquivari Mts., 7 Aug 2005 (2♂), J. Brown (USNM). Santa Cruz Co.: Pena Blanca Canyon, 7 Aug 1959 (1♀), R. Hodges (USNM), 27–28 Jul 1964 (2♂, 2♀), D. R. Davis (USNM). Madera Canyon, 27 Jul 1959 (1♂), 5 Aug 1959 (1♂), R. W. Hodges (USNM).

Tribal Assignment. Razowski (1992) assigned *Hyptiharpa* to Euliini with some reservation, but because Euliini subsequently was relegated to a subtribe of Cochylini by Regier et al. (2012), that tribal assignment (Cochylini: subtribe Euliina) is compatible with its historical placement in Cochylini and our current understanding of the phylogeny of the group. However, it is less clear to which of the two subtribes (i.e., Euliina or Cochylina) the genus should be assigned. Morphological features that support the assignment of *H. baboquavariana* to Cochylina (formerly Cochylini, sensu stricto) include the absence of a gnathos and the presence of a prominent median process of the transtilla. However, the presence of a well-developed uncus, three acanthi in the female frenulum, and the absence of sclerotization in the corpus bursae argue for its assignment to Euliina. Although a well-developed uncus and three acanthi in the female frenulum are present in some presumably basal Cochylina (e.g., *Phtheochroa* Stephens), *Hyptiharpa* lacks other features of basal Cochylina; i.e., most are larger tortricids, males of many species have a forewing costal fold, and the phallus usually bears one or more large cornuti. *Hyptiharpa* are small moths, males lack a forewing costal fold, and the phallus lacks cornuti. A male foreleg hairpencil is characteristic of many, but not all, Euliina (Brown 1990), and this structure is absent in *Hyptiharpa*. Female genitalia are extremely simple and hence, provide little assistance in placing the genus to a subtribe. In conclusion, although

Hyptiharpa can be assigned convincingly to Cochylini, its subtribal assignment remains somewhat enigmatic.

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