

SCIENTIFIC NOTE: *MICTOPSICHIA CUBAE* RECORDED FROM HONDURAS (LEPIDOPTERA: TORTRICIDAE)

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Abstract - *Mictopsichia cubae* Razowski, 2009 is reported from northern Honduras based on specimens collected at Pico Bonito National Park, near La Ceiba. This species was previously known only from two Cuban specimens. Both male and female genitalia are figured, with the female described and illustrated for the first time.

Key words: Tortricoidea, Archipini, telochromatic tortricines, neotropical, diurnal, Parque Nacional Pico Bonito.

The neotropical tortricid genus *Mictopsichia* Hübner was recently revised (Razowski 2009) and transferred to Archipini along with the closely related genera *Mictocommosis* Diakonoff, *Chamaepsichia* Razowski and *Rubropsichia* Razowski, which can be distinguished on the basis of genitalia characters. These small telochromatic or brightly colored moths, like other Archipini, are for the most part diurnal (Razowski & Wojtusiak (2008). *Mictopsichia* is distinguished from related genera by the characteristic orange hindwings with patterns of black and silvery scaling along the anal and terminal margin that extend into the posterior half of the hindwing. *Mictopsichia* currently includes 25 species (Brown 2005, Razowski 2009, Razowski and Pelz 2010), 13 of which were newly described and illustrated in the aforementioned revision along with accounts of other species including the type species *M. hubneriana* (Stoll, 1791). Species previously described by Meyrick are illustrated by Clarke (1969).

Field work conducted in June and November 2009 at Pico Bonito Lodge (PBL), and CURLA (Centro Universitario Regional del Litoral Atlántico) Reserve, Parque Nacional Pico Bonito, La Ceiba, Honduras, as part of a cooperative comprehensive lepidopteran biodiversity survey with Escuela Agricultura Panamerica en Zamorano, CURLA, PBL, and the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, resulted in the collection of two adult specimens of *Mictopsichia cubae* Razowski, 2009. The specimens are the first records of this species for the country and two of four specimens known for the species. Both specimens were collected during the day while searching for larvae, butterflies, and diurnal moths. The present note documents the two new locality records and describes the previously unknown female genitalia.

Institutional and locality acronyms used in the text are as follows:

BMNH – Natural History Museum, London; CURLA – Centro Universitario Regional del Litoral Atlántico, Honduras; EAPZ – Escuela Agricultura Panamerica en Zamorano, Honduras; FLMNH – Florida Museum of Natural History, Gainesville, Florida; MGCL – McGuire Center for Lepidoptera and Biodiversity; PBL – Pico Bonito Lodge, La Ceiba, Honduras; USDA – United States Department of Agriculture; USNM – National Museum of Natural History, Washington, DC; ZIL – Zoological Institute, Academy of Sciences of Cuba, Havana.

Mictopsichia cubae Razowski, 2009 (Figs. 1 & 2a-d)

Material Examined. Holotype ♂, “CUBA (S.E.) Santiago, II, 02. W. SCHAUS. 1905-244”; GS 31697 [BMNH] (examined, JR); CUBA: *Lomas de Soroa*, Pinar del Rio ix.1963 Alayo & Garcia (1 ♂, slide DM 1586) [ZIL]; HONDURAS: Atlantida: Pico Bonito Lodge N15°41'48.00" W86°54'4.40", 28-29.vi.2009 D. Matthews & J. Y. Miller (1 ♂, slide DM 1556) [MGCL]; Parque Nacional Pico Bonito, vicinity Estación CURLA N15°42'07.0" W86°51'16.0" 13.xi.2009 J. Y. Miller, D. Matthews, M. Lehnert, C. Salcedo (1 ♀, slide DM 1569) [MGCL].

Descriptive notes. Head, thorax, and abdomen dark brown. Legs shiny buff with gray scaling on hindleg at tibial spurs and marking tarsi dorsally, light gray ventrally. Forewing length 5.0 mm (♂), 5.5 mm (♀). Holotype ♂ wing expanse about 12 mm. Forewing ground color auburn brown with darker chestnut-brown markings and scattered white scales near middle. Cream colored subapical streak with orange scales basad and curved silvery preapical and subapical fascia. Hindwing orange with small black to chestnut brown patches along margin and posterior half of wing. Silvery scale patches along anal margin and a patch of scattered white scales in cubital area within dark posterior half of wing. Fringe with elongate gray to buff outer scales and shorter spatulate basal scales concolorous with adjacent wing pattern. Forewing venter auburn brown to orange, yellowish toward base, with cream apical streak and three distinct partial dark brown fascia extending from costa. Hindwing ventral surface as on forewing but markings consisting of diffuse chestnut brown patches along outer margin.

Male genitalia. The Cuban holotype as figured and described by Razowski (2009) shows slender tapered and terminally acute socii and valvae somewhat proportionally wider at the base than near middle. The socii are acute in the Honduras specimen (Fig. 2a), but project outward from the focal plane of the image due to the orientation of the genitalia on the slide. Likewise, slight differences in the shape of the valvae at the base appear within variation expected with the different orientation of the preparation. In the Honduran specimen, the valvae appear to be of more uniform width. The aedeagus of the Honduras specimen (Fig. 2b) is oriented with the vesica extended so that the characteristic spatulate plate-like cornutus is laterally oriented with the minute dentate process dorsal, as opposed to ventral in the Holotype slide. A second Cuban specimen [ZIL] was dissected and matches both the Honduras male and the Holotype, especially the spatulate cornutus and dentate process of the aedeagus, as well as the shape of the valvae, transtilla, and socii. The uniform width of the stout aedeagus, together with the shape of the cornutus, and overall shape of the valvae, socii, and saccus differentiate *M. cubae* from its congeners. Other notable characters of this species include a broad, undifferentiated submedian belt (Razowski 2009) and reduced submedian rib on the valvae and a distinct transtilla with a broad rectangular margin medially.

Female genitalia (Fig. 2c,d). Papillae anales petaloid, narrowed anteriorly of connection with posterior apophysis, with dense arrangement of setae on ventral surface. Anterior and posterior apophyses similar in length. Anterior apophyses with short laterally projecting thumb-like appendage about 0.17 from base and transversely aligned with sterigma. Sterigma elongate with moderately sclerotized band. Ostium slightly excavate. Antrum rectangular, slightly longer than wide, anterior with transverse sclerite. Ductus bursae long and narrow, constricted near inception of ductus seminalis at about 0.1 distance from antrum. Corpus bursae ovate, with falciform signum. Anterior margin of



Fig.1. Female *Mictopsichia cubae* collected at CURLA reserve, Parque Nacional Pico Bonito. Dorsal view (above), ventral view (below).

signum serrate. Signum base extended longitudinally on bursa as curved double line of scobinations covering central 0.6 of bursa. Ductus seminals bursalike, posterior half gradually expanded toward ovate distal portion; with narrow tubular extension arising from midpoint. Rounded part of ductus seminalis with microscopic spiculations more pronounced than in corpus bursae.

Life history and habits. Other than the diurnal habits of these moths the biology and early stages are unknown. The two adults from Honduras were collected during the day on low vegetation. The male was observed jumping erratically on the surface of leaves and nearly eluded capture in a vial.

Distribution and Phenology. Adults have been collected in February and September in Cuba and in June and November in Honduras. The genus *Mictopsichia* ranges from Mexico to Brazil (Razowski 2009).

DNA barcode. A 606bp fragment of Mitochondrial Cytochrome Oxidase Subunit 1 (CO1) was obtained from one isolate of legs of the Honduras male specimen, with PCR and sequencing using the forward and reverse primers, LEP-F1, 5'-ATTCAACCAATCATAAAGATAT-3'; and LEP-R1, 5'-TAAACTTCTGGATGTCCAAAAA-3' (Hebert et al. 2004). This sequence has been deposited in the GenBank database and is provided in the appendix. Because of the age of the specimen, the Holotype (BMNH) is unlikely to provide adequate sequence data for comparison and confirmation of the present determination based on morphological characters.

DISCUSSION

Despite the striking coloration of *Mictopsichia* and related genera, the group is poorly represented in most collections, and much remains to be discovered regarding the behavior, life histories, and biogeographic distribution patterns of the group. In resting posture, the bright orange portion of the hindwing is mostly concealed beneath the forewing. This feature, together with the metallic coloration and "eye-spots" as seen in certain species such as *M. jamaicana* Razowski, 2009, suggest a possible startle display. The bright coloration

and markings of the adults, combined with the erratic jumping behavior when evading capture as observed in *M. cubae*, are suggestive of jumping spider mimicry which has been observed in other Lepidoptera (Rota and Wagner 2006). Adult behavior and potential predator evasion tactics in this group merit future study.

Likewise, the early stages and larval habits of these small moths are in need of investigation. Thus far, our only life history data for the group comes from a series of four USNM Venezuelan specimens identified as *Mictopsichia gemmisparsana* (Walker) which were reared from grape (Vitaceae). Label data from these specimens are "Ex. Vitis vinifera / El Valle, Venez. / 13-March-1943 / Lot 43-20941 / C. H. Ballou BBK" same data 24 March 1943, 2 April 1943, and 7 April 1943.

There are a number of lepidopteran taxa shared at the generic and specific level between the West Indies and other areas in the Caribbean Basin. Brown and Razowski have been actively working on the Tortricidae throughout this area, and the discovery of *M. cubae* including a female is of major interest. Whether the current distribution can be attributed to simple dispersal, hurricane activity, human transport, or is of a more ancient origin remains to be determined.

Relatively few species of Tortricidae have been encountered thus far (<18 species) in our night sampling with mercury vapor lamps at Pico Bonito Lodge (June and November, 2009, May and August, 2010), especially considering the world fauna of more than 9,757 species (Baixeras et al. 2010, Brown 2005). We anticipate additional finds as surveys continue, including more specimens and observations of *Mictopsichia* and related genera.

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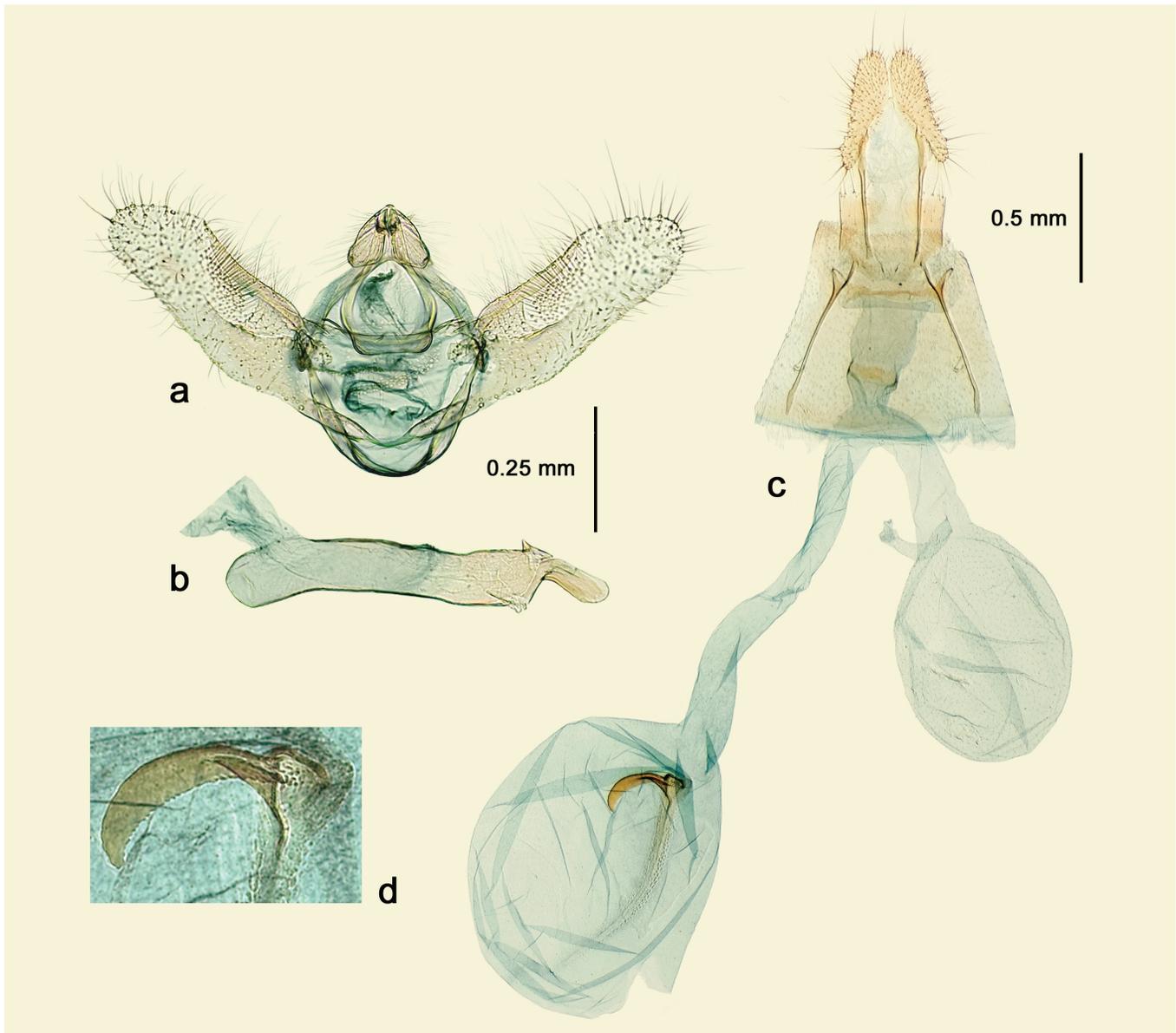


Fig. 2. Genitalia of *Mictopsichia cubae*: a) male, with aedeagus removed, slide DM 1556; b) same individual, aedeagus; c) female genitalia, slide DM 1569; d) enlargement showing detail of signum.

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APPENDIX

GCAGGAATAGTAGGAACCTCTTTAAGATTATTAATTCGTGCTGAATTAGGTTCCACGAGATCATTAAATGGAGATGATCAAATTTATAACTATTGTAACAGCTCATGCATTATTATAATTTTTTATAGTTATACCTATTATAATGGTGGATTGGTAATTGATTAATCCCTTATATATTAGGTGCACCTGATATAGCTTTTCCCTCGAATAAATAATAAGATTTTGATTATTACCACCTTCTATTATACTTTAATTTCTAGAAGAATTGTAGAAAATGGAGCAGGAACAGGATGAACAGTATACCCCACTTTCATCTAATATTGCTCAIAGTGGAAAGATCTGIAGATTAGCTATTTTTCTTTACATTAGCTGGTATTTCCCTCAATTCAGGAGCAGTAAATTTATTACTACAATCATTAAATACGACCAATAATATATCATTAGATCAAATACCCCTTTTGTATGAGCAGTTGGAATTACAGCTTTTATTATTATTATCTTTACCAGTATTAGCAGGAGCTATTACTATATTATACTGATCGAAATCTTAATACATCATTTCGATCTCGGGAGGAGAGAT