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***Barsine dingjiai* sp. n. from Lanyu Island (Taiwan)  
(Insecta, Lepidoptera: Erebiidae, Arctiinae, Lithosiini)**

**Contribution to the moths of Taiwan 12<sup>1</sup>**

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**Abstract**

The species *Barsine dingjiai* sp. n. is described and illustrated from Lanyu Island (Taiwan). The genus *Barsine* HÜBNER, 1819 is recorded from Lanyu (Orchid) Island for the first time. The new species differs significantly from other species of this genus in the wing pattern as well as in the genitalic structures.

**Introduction**

Our investigation of the Insect fauna of Taiwan started with the DAAD project (No.: ID D/0039914 PPP-Taiwan) together with the National Chung Hsing University Taichung (CHU) in the year 2001 and since then many more excursions have been done. Lanyu Island could be visited during the joint projects with the Da-Yeh University with the staff and students.

Within the last decade, many papers were published on Taiwan (e. g. BUCHSBAUM & CHEN 2013, 2018, BUCHSBAUM & MILLER 2002, BUCHSBAUM et al. 2006, 2018a, 2018b).

Lanyu Island, also called Orchid Island, is a small island about 62 km southeast of Taiwan and about 110 km north of the Philippines. This small island has a size of about 45 km<sup>2</sup>. Two thirds of Lanyu Island are natural forest. The highest mountain of this small island is 552 m asl. Many plants and animal species are endemic on Lanyu Island (CHAO et al. 2009, SHEN & TSAI 2002, YEH et al. 2008, SPÄTH et al. 2018, CHEN et al. 2017, HONDA et al. 2008, YANG & LIN 2013, WATANABE et al. 2015, SILER et al. 2014).

Lanyu Island and Green Island north of Lanyu Island are created by vulcanic activities and uplifted from a submarine arc about 2 – 3 Ma (Green Island 2.0 to 0.54 Ma and Lanyu Isl. 3.5 to 1.4 Ma) (CHEN et al. 2017, YANG et al. 1996). The special situation for Lanyu Island is its position in the biogeographical area near the Wallace line (HE et al 2017, HOLT et al. 2012, OLSEN et al. 2001, TURNER et al. 2001). This area is known as one of the biodiversity hotspots in the world (e. g. MITTERMEIER et al. 2011, MYERS et al. 2000). It is considered that the Wallace line should be between Taiwan and Orchid Island because Lanyu (Orchid) Island is closer related to the north Philippines and belongs to the tropical rather than to the subtropical Taiwanese fauna (HE et al. 2017, OLSEN et al. 2001, HOLT et al. 2012).

***Barsine* WALKER, 1954**

This genus contains about 100 species which all occur in East Palaearctic and Oriental region (e. g. BUCSEK 2012, 2014, CERNY & PINRATANA 2009, FANG 2000, HOLLOWAY, 2001, VOLYNKIN 2017, 2018). In the last decades, numerous books and papers were published describing new *Barsine* species from e. g. Thailand, Borneo, Peninsula Malaysia, China and the Philippines (BUCSEK 2012, 2014, CERNY & PINRATANA 2009, HOLLOWAY 2001, FANG 2000, VOLYNKIN & CERNY, 2017, VOLYNKIN 2018, JOSHI et al. 2018, BAYARSAI-KHAN et al. 2018, DUBATOLOV et al. 2012, DUBATOLOV & BUSCEK 2013). The genus is heterogenous and probably related to *Miltochrista* HÜBNER, 1819.

The genus requires an integrative revision including molecular data (HOLLOWAY 2001; CERNY & PINRATANA 2009). All *Barsine* species are listed under the genus *Miltochrista* in the recent checklist of Taiwan (HEPPNER & INOUE 1992).

<sup>1</sup> Contribution to the moths of Taiwan 11: BUCHSBAUM et al. (2018a).



Fig. 1a: *Barsine dingjai* sp. n., ♂, holotype.



Fig. 1b: *Barsine dingjai* sp. n., ♂, holotype underside.



Fig. 2a: *Barsine dingjai* sp. n., ♀, paratype.



Fig. 2b: *Barsine dingjai* sp. n., ♀, paratype underside.



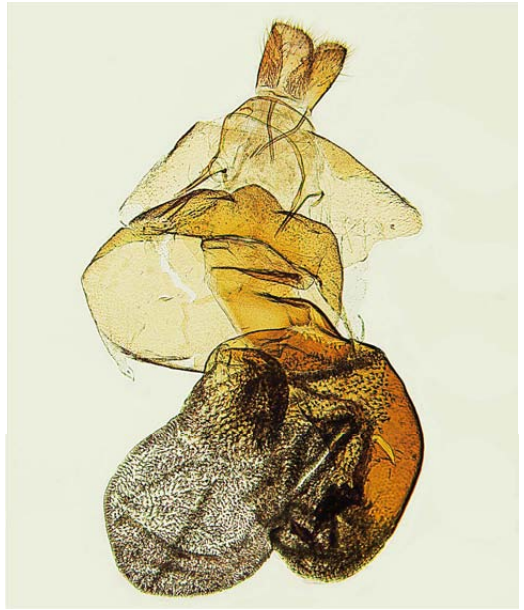
Fig. 3: *Barsine dingjai* sp. n., ♂, resting on wood.



Fig. 4: *Barsine dingjai* sp. n., ♀, resting on wood.



**Fig. 5:** Male genitalia.



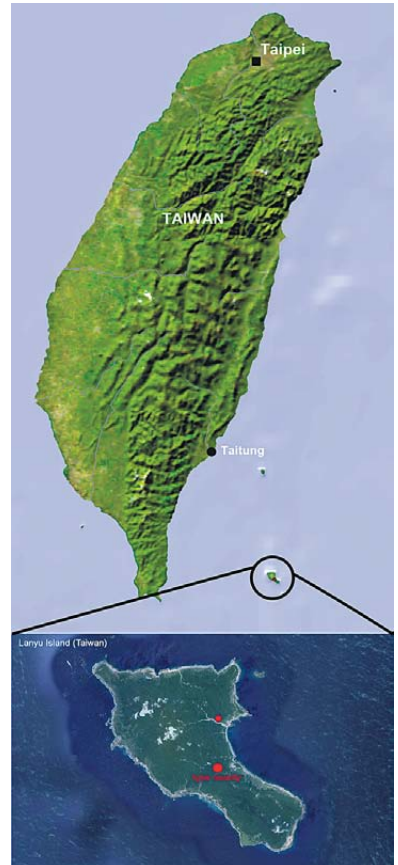
**Fig. 6:** Female genitalia.



**Fig. 7:** Habitat, type locality.



**Fig. 8:** Habitat at another collecting site.



**Fig. 9:** Map with type locality.

## Material, Methods and Locality

All specimens were collected by a 250 W mercury lamp. The lamp was placed at an exposed position on a small hill beside the weather station of Lanyu Island with an overview of the forest around (fig. 7 & 8).

The moths were collected with poison glasses and after their death pinned and stored for transport. Later, the moths were spread on normal spreading boards.

Genitalia preparation was done with KOH 10% and the genitalia mounted in Euparal. The genitalia slides were scanned with Nikon supercool Scan 3000 and prepared for publication with Adobe Photoshop 7.0.1.

The type locality is a hill in the south central mountains of Lanyu Island beside the weather station with an exposed view on the surrounding forest (Fig. 7 & 8). The weather was almost always warm, about 25°C, with few clouds and little wind during all the collections dates.

### *Barsine dingjiai* sp. n. (Figs 1 – 6)

Holotype ♂, 23. May 2018, South Taiwan, Lanyu Island, Weather Station, 22°02'15N/121°33'29E, leg. Mei-Yu Chen & Ulf Buchsbaum. Holotype in Collection Zoologische Staatssammlung München (ZSM), later to be deposited in the National Museum of Nature Science (NMNS) Taichung

Paratypes 16 ♂, 20 ♀ 06 May 2017; 35 ♂, 13 ♀, 07. May 2017; 48 ♂, 33 ♀, 23. May 2018; 50 ♂, 51 ♀ 24. May 2018; 52 ♂, 22 ♀ 25. May 2018, South Taiwan, Lanyu Island, Weather Station, 22°02'15N/ 121°33'29E, leg. Mei-Yu Chen & Ulf Buchsbaum; 8 ♂, 24. May 2018; 1 ♂, 25 May 2018; 32 ♂ 26 May 2018 Taiwan, Taitung Co., Lanyu Island, Iranmeylek (Dongqing) village, Hotel, 45 m NN, 22°3'31N/ 121°33'35E, leg. Mei-Yu Chen & U. Buchsbaum. Paratypes in Collection ZSM, NMNS, and in Collection Ding-Jia Chen (Taichung, Taiwan).

Description and differential diagnoses:

♂ wingspan 18 – 21 mm, Ø: 20.5 mm, right forewing length: 8 – 10 mm, Ø: 9.6 mm.

♀ wingspan 19 – 22 mm, Ø: 21.2 mm, right forewing length: 9 – 11 mm, Ø: 10.4 mm.

Head, body, legs and antennae orange. Abdomen paler orange in female. Male abdomen with black hairbrushes. Forewings orange with large, strong black mark from base to median area, from median area to costa and to dorsum and from dorsum to subterminal region. Mid termen with slightly paler orange fringes. Palps orange. Legs orange with black tarsal claws.

Next similar species *B. aberrans* (BUTLER, 1877) with different marks and patches on the forewings. Black lines are thin and in zigzag lines in the post-median area and some small and short lines in sub-terminal area. In *B. callida* (FANG, 1991) marks and patches are brown and don't touch the base. Cilia dark brown.

Male genitalia: Uncus thin, long and pointed at the end. Anal tube less sclerotized. Valvae slender and pointed at the end. Sacculus slender and rounded. Saccus pointed. In *B. aberrans* rounded. Valvae and saccus much shorter than in *B. aberrans*. Aedeagus with 27 cornuti and a cluster of about ten smaller cornuti at coccum. *B. aberrans* with less than ten (and smaller) cornuti.

Female genitalia: Papillae anales rounded. Ductus bursae wide, poorly sclerotized. Corpus bursae rounded with sclerotized marks. Ductus seminalis and bulla seminalis also rounded and stronger sclerotized. Differing from all other similar species like *B. aberrans*, *B. callida* and *B. punicea* in the structure of corpus bursae, ductus seminalis and bulla seminalis.

Distribution: *B. dingjiai* sp. n. is only known from Lanyu (Orchid) Island from two places, so we assume that the species is endemic on Lanyu Island.

Phenology: The authors also collected in October 2017 on Lanyu, but no specimen of the new species came to the light. So the authors consider that the main flight period is the second half of May.

Etymology:

The new species is named after Ding-Jia Chen in recognition of his always kind help during the joined excursions. He collected the first specimens of the new species during the excursion to Lanyu Island.

Remarks:

The next similar species *B. aberrans* is very widespread in the East Palaearctic region from Far East Russia, Korea, China and Japan, but not recorded from Taiwan (DUBATOLOV et al. 2012, HEPPNER & INOUE 1992) and *B. callida* is widespread and recorded from Northeast India, southwest China (Sichuan) (FANG 1991, 2000), North Thailand and north Vietnam, but also not known from Taiwan (CERNY & PINRATANA 2009, HEPPNER & INOUE 1992, JOSHI et al. 2018).

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### Zusammenfassung

Die Art *Barsine dingjiai* sp. n. wird von der Insel Lanyu (Taiwan) beschrieben und abgebildet. Die Gattung *Barsine* wird damit zum ersten Mal von der Insel Lanyu (Orchid-Insel) nachgewiesen. Die neue Art unterscheidet sich deutlich von den anderen Arten dieser Gattung sowohl in der Flügelzeichnung als auch in den Genitalstrukturen.

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