



## Short Communication

A taxonomic review of the genus *Cyclidia* (Lepidoptera: Drepanidae: Cyclidiinae) in LaosVitaly M. Spitsyn<sup>a,b,\*</sup>, Nikita I. Bolotov<sup>a</sup>, Yaroslava E. Kogut<sup>a</sup><sup>a</sup>Russian Museum of Biodiversity Hotspots, Federal Center for Integrated Arctic Research, Russian Academy of Sciences, Severnaya Dvina Emb. 23, 163000 Arkhangelsk, Russian Federation<sup>b</sup>Northern Arctic Federal University, 163002 Arkhangelsk, Russian Federation

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## ABSTRACT

In this article, we report the first records of the genus *Cyclidia*: *C. substigmata* (Hübner, 1831), *C. orciferaria* Walker, 1860, and *C. pitimani* (Moore, 1886) from Laos. Maps of recent findings for three species of genus *Cyclidia* from the north of Indochina are also presented.

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## Introduction

The genus *Cyclidia* Guenée, 1858 belongs to Cyclidiinae, a relatively small subfamily of the Drepanidae (Holloway 1998; Jiang et al 2016), which also includes the genus *Mimozethes* Warren, 1901. Representatives of the discussed genus are widely distributed in the southeast of the Palearctic zone, in the Oriental region (China, Korea, and Japan) and the territory of Sundaland (Holloway 1998; Jiang et al 2016). In the latest insight on the Chinese fauna of *Cyclidia*, distribution areas of species were studied comprehensively (Jiang et al 2016). However, data on distribution for species outside of China are still incomplete. The fact that no *Cyclidia* species were reported from Lao PDR until the present study can be a good example of our poor knowledge on the range of these moths.

The main goal of the current study was to provide new and previously unknown information on the distribution of the genus *Cyclidia* outside the Chinese territory. Notwithstanding, we are publishing data on all of the specimens of the discussed genus that were recently recorded by us to mark species occurrences in sites

where they are still present. In our opinion, the publishing of such information appears to be an important topic since mass recycling of various biotopes for agricultural needs is performed nowadays in countries of Southeast Asia.

## Materials and methods

The moth specimens were collected by using ultraviolet lamps of two types: Medium 250 WSB/E24-E23 250 Watt Mercury Vapor-Clear Self Ballasted, USA and F15W/T8/Quantum Black Light, Germany. The specimens were prepared and dissected according to a standard approach, which was fully described in our previous article (see Spitsyn et al 2016). Pictures of individuals were taken by using a Canon EOS 650D camera with Canon EF 100 mm f/2.8L Macro IS USM. The given maps were created with ESRI ArcGIS 10.3.1. Samples are kept in the Russian Museum of the Biodiversity Hotspots (RMBH), Federal Center for Integrated Arctic Research, Russian Academy of Sciences, Arkhangelsk, Russian Federation.

## Results

Within the current study, fieldwork on the recording of moth specimens was performed in 33 localities in the north of the Indochinese Peninsula (territories of Thailand, Laos and Vietnam). Members of the genus *Cyclidia* were recorded at nine sites of the presented localities. The collected individuals belong to three

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species: *C. orciferaria* Walker, 1860, *C. pitimani* (Moore, 1886) and *Cyclidia substigmatica* (Hübner, 1831). All three of the reported species mark the presence of the genus *Cyclidia* on the territory of Laos for the first time.

***Cyclidia orciferaria* Walker, 1860**

(Figures 1, 2, 7, 10)

*Cyclidia orciferaria* Walker, 1860: 56.

*Cyclidia ociferaria*: Kirby, 1892: 725. [Incorrect spelling of *Cyclidia orciferaria* Walker.]

**Material examined.** [Laos] 5 ex., tropical forest with bamboo, Oudomsay city, Oudomsay Province, 20°39.062'N, 101°58.296'E, 04-06 v 2016, Spitsyn leg. (RMBH, voucher no. SPH0735—SPH0739); 6 ex., tropical forest, Muang Long town, Luang Namtha Province, 20°57.415'N, 100°49.330'E, 11-22 v 2016, Spitsyn leg. (RMBH, voucher no. SPH0740—SPH0745); 2 ex., tropical forest, Viangphoukha town, Luang Namtha Province, 20°40.971'N, 101°03.466'E, 23 v 2016, Spitsyn leg. (RMBH, voucher no. SPH0746 - SPH0747). [Thailand] 1 ex., Mountain rainforest, Loei Province, 17°15.594'N, 101°34.872'E, 05-06 iv 2014, Bolotov, Spitsyn leg. (RMBH, voucher no. SPH0748). [Vietnam] 3 ex., mountain tropical forest with bamboo, Tan Thanh village, Thanh Hoa Province, 19°37.306'N, 105°17.898'E, 21-30 iii 2016, Spitsyn leg. (RMBH, voucher no. SPH0749—SPH0751); 3 ex., mountain tropical forest, Me Linh Station, Ngoc Thanh Commune, Phuc Yen District, Vinh Phuc Province, 21°23.050'N, 105°42.740'E, 01-13 iv 2016, Spitsyn leg. (RMBH, voucher no. SPH0752—SPH0754).

**Distribution.** Laos, Thailand\*, China (Jiangsu, Zhejiang, Jiangxi, Hunan, Fujian, Guangdong, Hainan, Guangxi, Sichuan, and Yunnan), Myanmar, Vietnam, Peninsular Malaysia, and Indonesia (Sumatra) (our data; Holloway 1998; Warren 1922; Jiang et al 2016).

**Remarks.** We found 10 cytochrome oxidase subunit I (COI) sequences of this species in the BOLD Systems v3 database (Ratnasingham & Hebert 2007). However, there are no data on the occurrence of *C. orciferaria* in Thailand in the body of published scientific literature (Jiang et al 2016). The specimen, collected by us at the Loei province, also proves the presence of this species in Thailand. While collecting the moth specimens during March–April of 2016 in Vietnam, our group faced a high species abundance (up to 20–30 individuals per night) in the provinces of Thanh Hoa and Vinh Phuc. Within the present article, the occurrence of *C. orciferaria* in Laos is reported for the first time.

***Cyclidia pitimani* (Moore, 1886)**

(Figures 3, 4, 8, 10)

*Euchera pitimani* Moore, 1886: 99.

*Cyclidia pitimani*: Warren, 1922: 445.

*Cyclidia sericea* Warren sensu Chu & Wang, 1987: 206; 1991: 64.



**Figure 1.** Dorsal side of *Cyclidia orciferaria*. Photo by Vitaly M. Spitsyn.



**Figure 2.** Ventral side of *Cyclidia orciferaria*. Photo by Vitaly M. Spitsyn.



**Figure 3.** Dorsal side of *C. pitimani*. Photo by Vitaly M. Spitsyn.

**Material examined.** [Laos] 1 ex., tropical forest with bamboo, Oudomsay city, Oudomsay Province, 20°39.062'N, 101°58.296'E, 04-06 v 2016, Spitsyn leg. (RMBH, voucher no. SPH0755).

**Distribution.** Laos, China (Yunnan), and Myanmar (our data; Jiang et al 2016).

**Remarks.** The individual of the *C. pitimani* that was collected by us proves for the first time the presence of the species in the territory of Laos.

***Cyclidia substigmatica* (Hübner, 1831)**

(Figures 5, 6, 9)

*Euchera substigmatica* Hübner, 1831: 29.



**Figure 4.** Ventral side of *C. pitimani*. Photo by Vitaly M. Spitsyn.

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