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Imma phuocbuu Buchsbaum, Chi & Chen, sp. nov. from south Vietnam (Lepidoptera: Immidae)

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Abstract

During a faunal survey of Lepidoptera in 2023, *Imma phuocbuu* Buchsbaum, Chi & Chen, sp. nov. was discovered and represents the first record of the genus in Vietnam. A single male specimen was collected from a transitional biotype between mangrove and semi-deciduous dry lowland forest habitats near the coast. The new species is distinguished from *Imma transversella* (Snellen, 1878)*, I. semicitra* Meyrick, 1937 and *I. semiclara* Meyrick, 1929 by differences in wing pattern and genitalia morphology.
Keywords: Lepidoptera, Immidae, *Imma phuocbuu*, new species, distribution, biotope, taxonomy, Vietnam.

Imma phuocbuu **Buchsbaum, Chi & Chen, sp. nov. aus Süd Vietnam (Lepidoptera: Immidae)**

Zusammenfassung

Während einer faunistischen Untersuchung von Lepidoptera im Jahr 2023 wurde *Imma phuocbuu* Buchsbaum, Chi & Chen, sp. nov. entdeckt und stellt den ersten Nachweis der Gattung in Vietnam dar. Ein einzelnes männliches Exemplar wurde in einem Übergangsbiotop zwischen Mangroven und halbtrockenen Tieflandwäldern in Küstennähe gesammelt. Die neue Art unterscheidet sich von *Imma transversella* (Snellen, 1878), *I. semicitra* Meyrick, 1937 und *I. semiclara* Meyrick, 1929 durch Unterschiede in der Flügelzeichnung und der Morphologie der Genitalien.
Schlüsselwörter: Lepidoptera, Immidae, *Imma phuocbuu*, Verbreitung, Biotop, Vietnam.

Imma phuocbuu **Buchsbaum, Chi & Chen, sp. nov. del sur de Vietnam (Lepidoptera: Immidae)**

Resumen

Durante un estudio faunístico de Lepidoptera en 2023, se descubrió *Imma phuocbuu* Buchsbaum, Chi & Chen, sp. nov. y representa el primer registro del género en Vietnam. Se recogió un único espécimen macho en un biotipo de transición entre los hábitats de manglar y de bosque seco semicaducifolio de tierras bajas cerca de la costa. La nueva especie se distingue de *Imma transversella* (Snellen, 1878), *I. semicitra* Meyrick, 1937 e *I. semiclara* Meyrick, 1929 por diferencias en el patrón alar y la morfología de la genitalia.
Palabras clave: Lepidoptera, Immidae, *Imma phuocbuu*, distribución, biotopo, Vietnam.

Introduction

During a 10-day field excursion for insect collection in the southern part of Vietnam in May 2023,

the authors collected Lepidoptera from various localities in an effort to enhance knowledge of the region's fauna. The insect fauna in the region around Ho Coc, Ba Ria-Vung Tau province, is of particular interest as it involves a combination of mangrove and dry forest biotypes (Ministry of Natural Resource and Environment 2020). The insect fauna of this region, particularly Lepidoptera (moths), is poorly known due to a lack of collecting. The only intensive insect collections were focused on the northern Region, around Hanoi and the Fansipan area (Schintlmeister, 1997a; Buchsbaum et al. 2022). There is extensive documentation of the Lepidoptera fauna for a range of localities in Laos, Thailand and Vietnam (e. g. Schintlemeister 1997a, 1997b, 2001, 2003; Schintlmeister & Pinratana, 2007; Cerny & Pinratana, 2007; Buchsbaum 2019; Buchsbaum et al. 2014; Küppers & Buchsbaum 2015; Buchsbaum et al. 2022).

The Immidae, with 250 species (approx.) and 10 genera, is widespread across southeastern Asia, Africa, and northern and eastern South America (Heppner, 1977, 1982a, 1982b, 1991; Holloway et al. 2001; Diakonoff, 1986). The family Immidae was proposed by Heppner (1977, 1982a) for 85 species of *Imma* Walker, 1859. The group remains poorly known and few specimens are found in collections. Most species are diurnal, only occasionally collected at light, and most occur in tropical regions at lower altitudes, less than 100 m a.s.l. (Heppner, 1977; Robinson et al. 1994; Diakonoff 1986). Some similar species to the species described here are recorded in mangroves or coastal forests. (e. g. Clarke, 1986; Robinson et al. 1994).

Material, Methods and Locality

The collecting site was located within a coastal forest at Ho Coc Forest Recreation area close to a ranger station in the Binh Chau-Phuoc Buu Nature Reserve, and a forested habitat located between mangrove and tropical southern Vietnam dry forest (Figures 5-6). A single specimen was collected with a 160 W mixed light lamp and UV LED lamps in front of a white screen. The single specimen settled on the screen close next to the lamp. The light sheet was operation from dusk (about 07:00 pm) to dawn (about 06:00 am). The specimen was put in KCN poison glasses, then field pinned and prepared for transport and later spread on a standard spreading board.

Genitalia were macerated in KOH 10% and mounted in Euparal, following the method described by Robinson (1976). Specimens were photographed with an Olympus Tough TG 5. Genitalia slides were scanned with a Nikon supercool scan 3000. All images were prepared for publication using Adobe Photoshop CS2, Version 9. The type locality map was prepared using MapCreator 3.0 (private license).

Imma phuocbuu Buchsbaum, Chi & Chen, sp. nov. (Figure 1-3)

Holotype ♂, South Vietnam, Ho Coc, Ven Ven Resort, 10 m NN, 10º30'04 N / 107º28'15 E, leg. U. Buchsbaum. 06-May-2023. Holotype in Coll. Ulf Buchsbaum, Kranichfeld (CUBK), later to deposited in the Collection of the Zoologische Staatssammlung München (ZSM), Germany.

Description: wingspan 17 mm, right forewing length: 8 mm. Head: vertex pale yellow, posterior dorsal edge with tuft of vertical scales, labial palps yellowish-white, flat; antennae pale yellow. Thorax dorsal surface yellow, postero-laterally greyish-brown, ventral surface and legs pale yellowish-white. Wings: forewing dorsal ground colour dark yellow with greyish brown shading on distal side of medial transverse line, shading paler away from medial transverse line, outer edge shaded area situate; thin paler yellow line along outer margin edged basally with dark brown, and distally with brown marginal scales (cilia), posterior basal margin with narrow trapezoid brown patch; ventral shading pale whitish-yellow basally, distally greyish brown and along costa. Hindwing greyish-brown, shading paler towards posterior margin, outer edge markings as for forewing.

Abdomen segments 1-7 dorsally pale greyish-brown, ventrally pale yellowish-white; segments 8-9 dorsally pale yellow-brown, ventrally pale yellowish-white.

Male genitalia: Valva weakly sclerotized, tegumen slightly arched. Clasper strong sclerotized and tapering. Vinculum V-shaped. Aedeagus narrow relative to length, simple, without cornuti (Figures 1-3).

Diagnosis: conforms to *Imma* by anterior fusion of tergum and sterun VIII forming a hooped structure (Dugdale et al. 1999). Distinguished from other South-east Asia species by pale yellow colour of the antennae, in contrast to brown in *I. transversella* (Snellen, 1878) dark yellow in *I. semicitra* Meyrick, 1837 and yellow with central brown segments in *I. semiclara* Meyrick, 1929.

Etymology: The new species is called *Imma phuocbuu* after the place where the species was collected, Binh Chau-Phuoc Buu Nature Reserve.

Table 1. Differences in characteristics and distribution to the nearest similar *Imma* species.

Species characters	***Imma phuocbuu* sp. nov.**	***I. transversella***	***I. semicitra***	***I. semiclara***
Head, thorax and abdomen	Head and thorax yellow. Abdomen grey with yellow posterior segments.	All brown.	All yellowish grey.	Only black and withe figures available.
Forewings	Dark yellow postmedian band brown, cilia brown.	Ground colour brown postmedian band yellow, apex yellow.	Ground colour greyish yellow, postmedian band brownish.	Only black and withe figures available.
Hindewings	Brown.	Brown.	Greyish yellow.	
Male genitalia	Valva weakly sclerotized. Tegumen slightly arched. Clasper strongly sclerotized and tapered. Vinculum V-shaped. Aedeagus slim, long, simple, without cornuti.	Not available.	Not available.	follow Clarke (1986): "Harpe narrow basally, broadening toward cucullus, cucullus broad, outer margin concave; clasper long, outer margin of cucullus, vinculum U-shaped. Anellus un two sclerotized elongate plates". Aedeagus simple, long, slender.
Distribution	South Vietnam.	Burma, Thailand, W. Malaysia, Singapore, Brunei, New Guinea.	India, Sri Lanka, Thailand.	W. Malaysia, Singapore, Sarawak, New Guinea, Australia.

Discussion

There are species of *Imma* described from South East Asia, with the closet distribution records being *I. semicitra* in Thailand with greyish yellow forewing groundcolour share a similar wing colour and pattern to *Imma phuocbuu* sp. nov.

The collecting site for *Imma phuocbuu* sp. nov. is located within a globally recognized priority ecoregion for conservation (Myers et al. 2000; Brooks et al. 2002; Olson & Dinerstein, 2002; Kier et al. 2009; Brooks, 2010; Wondroff, 2010; Sodhi et al. 2004). Furthermore, it is a centre for global endemicity and a hotspot for biodiversity. But the biota is endangered because of habitat loss and

extinction of biodiversity (Brooks, 2010; Brooks et al. 2002; Fa, 2007; Marchese, 2015; Mittermeier et al. 2011; Myers et al. 2000; Sechrest et al. 2002; Smith et al. 2020).

The collection site is a called “Drought are of South-Central Coast” (Phuong & Lin ed. 2011) and defined as a mixed area between coastal vegetation, lowland wetlands and mangrove thickets and semi-deciduous dry lowland forest behind the coastline (Phuong & Lin ed. 2011; Averyanov et al. 2003).

While in the north of Vietnam has taxa of mostly Siamic, Manchurian and Himalayan faunal affinities, species of Oriental and Pacific faunal relationships, are increasingly represented in the south (Schintlemeister, 1997a, b, 2001, 2003; de Lattin 1967; Kier et al. 2009; Mittermeier et al. 1998; Turner et al. 2001). Research about Lepidoptera (Papilionoidea) and Riodinidae as well as other insect groups shows that the biota of the southern part of Vietnam is dominated by taxa with Indo-Malayan relationships, with the closest relationships between the southeast and the Mekong Delta region (Callighan, 2009; Manh, 2015; Vu & Vu, 2011). This contrast is found in *Imma*, where the distribution of the group is (Clarke, 1986; Robinson et al. 1994), and the most similar species to *Imma phuocbuu* sp. n. all have distributions in southern Asia.

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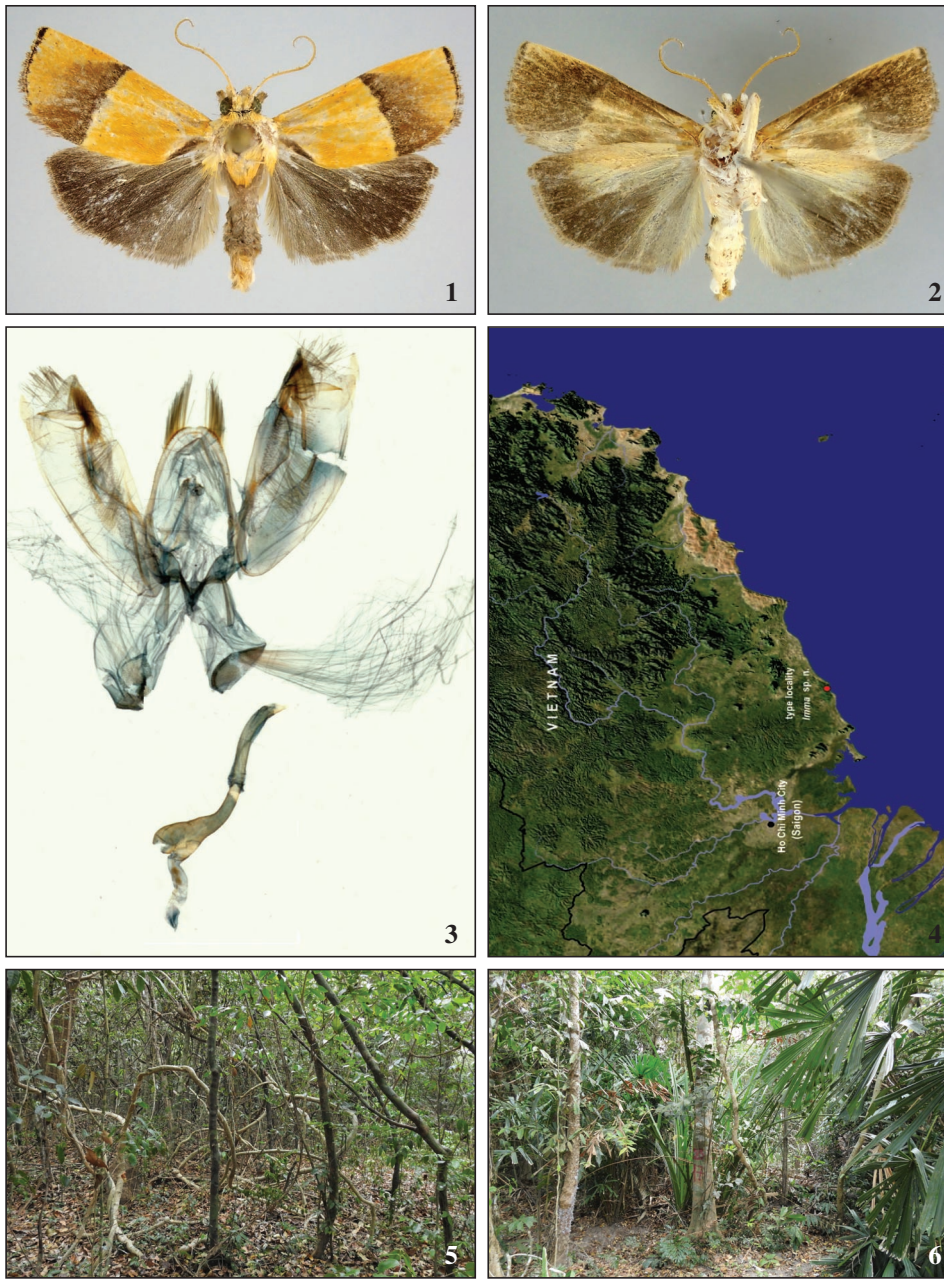

Figures 1-6. 1. *Imma phuocbuu* sp. nov., male, Holotype (HT). **2.** *Imma phuocbuu* sp. nov. (HT) underside. **3.** *Imma phuocbuu* sp. nov. HT, male genitalia. **4.** Map of Vietnam with type locality (HT) on Ho Coc. **5-6.** Biotope/Habitat at type locality (Photos: Ulf Buchsbaum).