

Two new *Lambula* species from Papua, and the male of *L. marginata* described for the first time (Lepidoptera: Erebidae, Arctiinae, Lithosiini)

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Abstract: Two new *Lambula* species, *L. bormeensis spec. nov.* and *L. lacinia spec. nov.*, have been discovered in Koleksi Serangga Papua, the former collection of Br. Henk van Mastrigt. Additionally, the former unknown male of *L. marginata* De Vos, 2019 was discovered during a recent survey on Yapen Island. All three are being described and the adults and genitalia are depicted.

Rangkuman: Dua *Lambula* spesies baru, *L. bormeensis spec. nov.* dan *L. lacinia spec. nov.*, telah ditemukan dalam Koleksi Serangga Papua, yang sebelumnya merupakan koleksi Br. Henk van Mastrigt. Selain itu, individu jantan *L. marginata* De Vos, 2019 yang sebelumnya belum diketahui juga ditemukan selama survei terbaru di Pulau Yapen. Ketiga taksa tersebut dideskripsikan dalam makalah ini, beserta ilustrasi imago dan genitalianya. [translation by ChatGPT]

Keywords: Borme, Henk van Mastrigt, Indonesia, New Guinea, Yapen Island

Introduction

In 2025, during the maintenance and rearrangement of the Koleksi Serangga Papua (KSP) at the University of Cenderawasih (UNCEN), Waena, Papua, Indonesia, several Arctiinae specimens were discovered that were presumed to represent undescribed species. These specimens were separated from the collection and examined in greater detail. The study revealed two *Lambula* specimens belonging to previously unknown species, *Lambula bormeensis spec. nov.* and *L. lacinia spec. nov.*, as well as one male specimen of *L. marginata* De Vos, 2019, a species for which only the female had been known until now. As most *Lambula* species exhibit sexual dimorphism, it is considered appropriate to describe the male as well. A photograph of the previously published female is included to provide a complete documentation of the species.

With the description of these two new species, the total number of known *Lambula* species is now increased to 39. For further information on the genus, see De Vos (2019) and De Vos & Zilli (2023).

As noted in both previous publications, it is expected that additional new species will be discovered within this species-rich genus.

All specimens treated in this paper are deposited in the Koleksi Serangga Papua (KSP).

Material and methods

The following abbreviations are used:

Fwl – Forewing length (measured in millimetres from the wing base to the apex)

KSP – Acronym for the Koleksi Serangga Papua, Waena, Papua, Indonesia

KSP-PIF – Acronym for KSP material collected by the Papua Insects Foundation (PIF)

RMNH – Acronym for the collection of Naturalis Biodiversity Center, Leiden, the Netherlands

Digital photographs of the adults were taken with a Nikon D5600 fitted with a Nikon AF-S DX Micro NIKKOR 85 mm lens and a Godox ML-150 II ring flash, mounted on a Bresser copy stand. Digital photographs of the genitalia were made using a motorized Zeiss V20 binocular microscope equipped with a digital Axio MRc5 camera controlled by Zeiss ZEN 3.8 software. Genitalia preparations were made according to the standard procedures of the Natural History Museum (NHMUK), London (Robinson, 1976). After dissection, the genitalia were macerated for 12 hours in cold 10% KOH, cleaned in 30% ethanol, and stained with chlorazol black dissolved in 30% ethanol. The genitalia were subsequently fixed and dehydrated in 98% ethanol. Before mounting on a microscope slide, they were transferred to Euparal essence to prevent the formation of air bubbles in the mounting medium.

One or two drops of Euparal (depending on the size of the preparation) were placed in the centre of a clean glass slide and spread into a square corresponding to the size of the coverslip. The genitalia were arranged in the mounting medium according to NHMUK standards (Robinson, 1976) and left to dry without a coverslip for approximately 24 hours. During this period, the Euparal became sufficiently viscous to prevent the often very small structures from floating sideways, which could occur if the coverslip was applied immediately. On the following day, a fresh drop of Euparal was added to the partially cured mounting medium, after which the coverslip was carefully placed in position.

Taxonomic section

Lambula bormeensis spec. nov.

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(Figs 1, 5-6)

Holotype: ♂ (KSP.23998), [Indonesia], Irian Jaya, Kec. Borme, Borme, 900 m, 17-24.1998, Henk v. Mastrikt.

Diagnosis: Yellow-buff forewings with a smokey appearance. Hindwings yellow with suffused apex, very different from the dark hindwings of *L. punctifer*. Male genitalia resembling those of *L. punctifer* Hampson, 1900 (De Vos & Zilli, 2023), but the saccular processes of *bormeensis* are distinctly longer, also the similar formed cornutus in the aedeagus is in *bormeensis* longer than in *punctifer*.

Description: Fwl. ♂ 9.5 mm. Head, antennae and thorax brown. Abdomen with first two segments yellowish-brown, middle segments dark brown, anal tuft large and reddish brown. Legs reddish brown. Male with narrow forewings. Ground colour yellow-buff with a smokey appearance. A diffuse dark reddish-brown oblique band running from dorsum towards apex, the margin narrowly suffused with dark brown from apex to tornus. Fringes grey. Forewings distal two-third sprinkled with dark reddish-brown scales. Hindwings yellow with the apical area suffused with brown. Fringes in apical area yellow-brown, towards tornus turning grey. Female unknown.

Male genitalia: Tegumen stretched triangular with thin and fragile sides. Uncus needle-shaped, curved with a sharp apex. Vinculum rather narrow with a deep “U”-shaped saccus. Valva elongated and narrow, valvula narrow and rather long. Sacculus broadly based, in the middle slightly constricted, distally broadening, covered with numerous setae. Saccular process long, thin and curved like a claw, the length of it exceeding that of the valvula. Aedeagus bottle-shaped with a broad coecum. Cornutus short curved needle-shaped, with barb-shaped base, including an inner tooth.

Distribution: The type specimen was found in Borme, North of the Star Mountains (Papua, Indonesia) in the Central Mountain Range, at an altitude of 900 meters.

Etymology: The species is named after its type locality, the village Borme, Papua, Indonesia.

Lambula lacinia spec. nov.

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(Figs 2, 7-8)

Holotype: ♂ (KSP.25278), [Indonesia], Irian Jaya, Kec. Borme, Borme, 900 m, 17-24.1998, Henk v. Mastrikt.

Diagnosis: The large conspicuous pocket at the costa of the forewing is diagnostic. Having a pocket along the male forewing costa is not unique in the genus, *L. buergersi* Gaede, 1925 and *L. cuprea* (Rothschild, 1912) also show this feature very clearly. However, the accentuation of the pockets by brown bands and golden yellow is not seen in any other *Lambula* species. Hindwings yellow with a dark marginal band, which makes it belong to the so called “underwing-group” (De Vos, 2019). The saccus in the male genitalia is widely bifurcate. The cornutus in the aedeagus is straight needle shaped.

Description: Fwl. ♂ 7.5 mm. Antennae buff, ciliate. Head and thorax yellow, the greater part of abdomen dark brown, but anal tuft yellow. Legs yellow. Forewing shape almost rectangular, with a large elongate pocket along the costa which stretches from one-third wing length from wingbase to apex. Ground colour of forewing golden yellow with a broad dark brown band along the rim of the pocket, which accentuates it, and a diffuse dark brown streak in the tornal area. Hindwings yellow with a dark brown marginal band which is broader towards apex and ends at the tornus. Inner rim of the marginal band sinuate. Female unknown.

Male genitalia: Tegumen clock-shaped with a thin rim. Uncus thin, almost straight with the distal half ventrally open, and with a small claw-shaped apex. Valvae with costa of cucullus and sacculus parallel, stretched. Cucullus elongate and almost rectangular, valvula with rounded apex. Sacculus evenly broad as cucullus, distally narrowing in a short and slightly curved saccular process with a sharp claw-shaped apex. Vinculum with a wide saccus which is bifurcate with pointed apices. Aedeagus long and rather narrow with a wider balloon-shaped coecum. Vesica covered with numerous tiny chitinous drops, cornutus long, straight and needle-shaped.

Distribution: The holotype is from the same collection event as that from the above described *Lambula bormeensis*, Borme, North of the Star Mountains (Papua, Indonesia) in the Central Mountain Range, at an altitude of 900 meters.

Etymology: The name is derived from the pocket at the forewing costa (Latin: *lacinia*, which means “seam” or “pocket”).

The first description of a male of *Lambula marginata* De Vos, 2019

Lambula marginata De Vos (2019: 68)

(Figs 3-4, 9-10)

Examined material: 1 ♂ (KSP-PIF.90740), Indonesia, Papua, Kabupaten Kep. Yapen, S of Mambo village, 575 m, 1°46' S – 136°09' E, 22.ix.2023, at light, Papua Insects Foundation.

Diagnosis: Closely allied to and externally very much resembling *Lambula nigrescens* De Vos, 2019, but in *nigrescens* the forewings are black instead of dark brown and in the wingbase with even less yellow than in *marginata*. The costa in males of *marginata* are more arched than in *nigrescens*, and the dark margin in the hindwing is in *marginata* broader than in *nigrescens*. Male genitalia very similar to *Lambula nigrescens* De Vos, 2019, but aedeagus of *marginata* has a shorter and more curved cornutus than that of *nigrescens*.

Description of male: Fwl. ♂ 8.0 mm. Antennae black, ciliate. Head yolk-yellow with frons and cranium black. Patagia yolk-yellow with a black central dot. Tegulae for the greater part black, apex with a yolk-yellow tip. Legs pale buff. Thorax and abdomen black. Anal tuft grey-brown. Forewings broad and short, costa strongly arched at wing base. Forewings almost black, deeply dark brown, with very wingbase yolk-yellow. Hindwings with basal half yellow, marginal half dark grey-brown.

Male genitalia: Tegumen clock-shaped, uncus short and thin, slightly curved with sharp apex. Valvae long and slender. Cucullus with long narrow valvula. Sacculus sinuous, broadly based, in the middle with a finger-shaped harpe, and distally with a long “S”-curved slender process with a sharp apex. Vinculum very broad with a bilobed saccus. Aedeagus rather short, slightly bend with coecum as broad as the tube. Vesica with fields of scobination and one large cornutus. Cornutus thorn-shaped, short and curved.

Distribution: The holotype and two paratypes were found in the northern Arfak Mountains (Province of Papua Barat, Indonesia) (De Vos, 2019) at 300-500 meters altitude. The male was found near the village Mambo on Yapen Island (Province of Papua, Indonesia) at an altitude of 575 meters.

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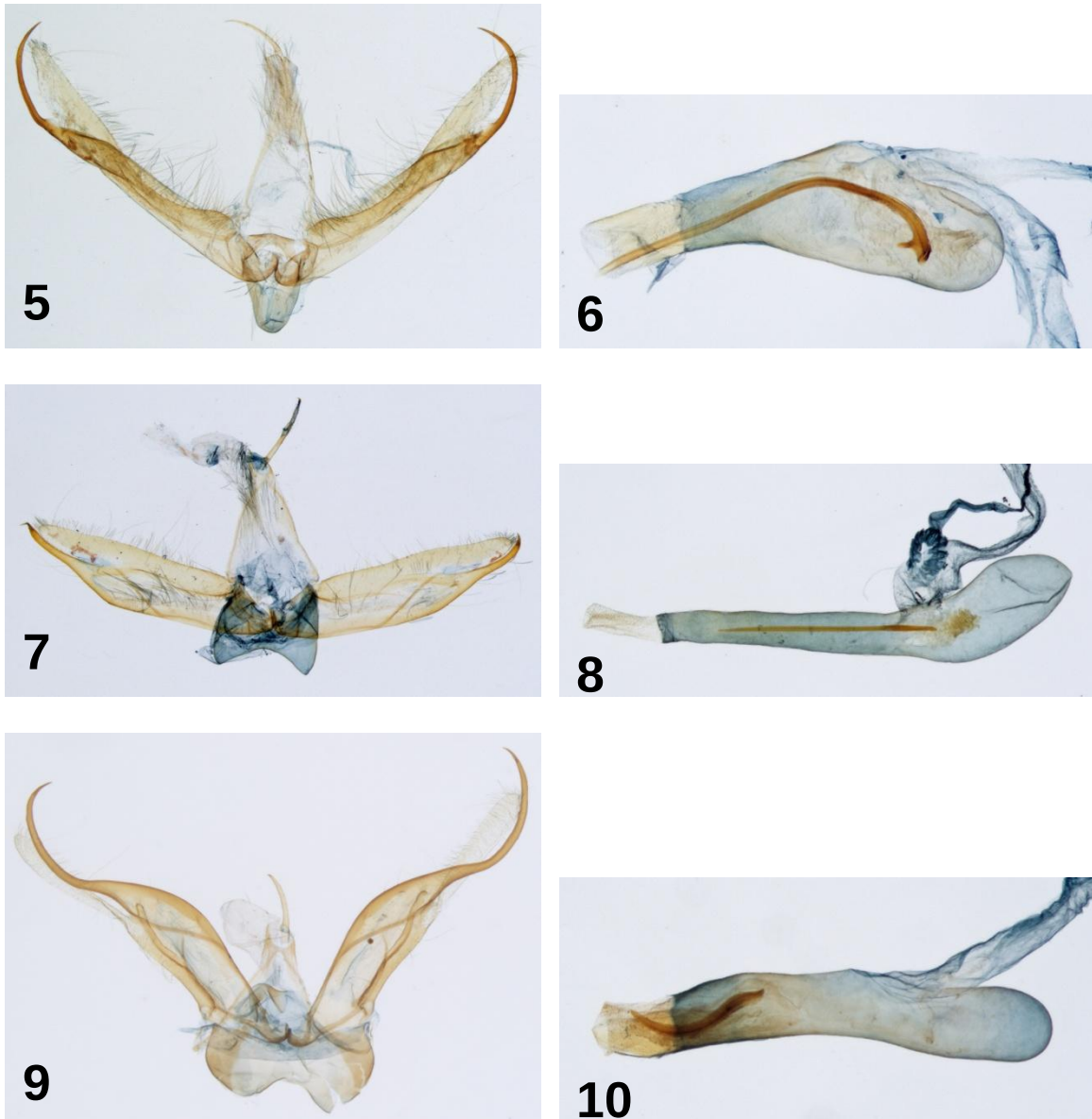
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References

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Figs 1-4. Adults of *Lambula* species. **Fig. 1.** *Lambula bormeensis* **spec. nov.** ♂ holotype, Borme, Papua, Indonesia (KSP.23998); **Fig. 2.** *L. lacinia* **spec. nov.** ♂ holotype, Borme, Papua, Indonesia (KSP.25278); **Figs 3-4.** *L. marginata* De Vos, 2019. **Fig. 3.** ♂, Mambo, Yapen Island, Papua, Indonesia (KSP-PIF.90740); **Fig. 4.** ♀ holotype, Warkapi, Arfak Mts, Papua Barat, Indonesia (RMNH.INS.910529).



Figs 5-10. Male genitalia of *Lambula* species. **Fig. 5.** *Lambula bormeensis spec. nov.* genital armature (KSP.23998); **Fig. 6.** *L. bormeensis spec. nov.* aedeagus (KSP.23998); **Fig. 7.** *L. lacinia spec. nov.* genital armature (KSP.25278); **Fig. 8.** *L. lacinia spec. nov.* aedeagus (KSP.25278); **Fig. 9.** *L. marginata* De Vos, 2019, genital armature (KSP-PIF.90740); **Fig. 10.** *L. marginata* De Vos, 2019, aedeagus (KSP-PIF.90740).