

SPIXIANA	49	1	67–74	München, Oktober 2026	ISSN 0341-8391
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Genusa hausmanni sp. nov., a new dayflying Ennominae from Laos

(Lepidoptera: Geometridae)

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Buchsbaum, U. & Chen, M.-Y. 2026. *Genusa hausmanni* sp. nov., a new dayflying Ennominae from Laos (Lepidoptera: Geometridae). Spixiana 49(1): 67–74.

The species *Genusa hausmanni* sp. nov. from central Laos is described. The specimens were collected while flying by day in the rainforest near Vientiane. The new species differs significantly from other species of this genus in its genital structures and morphological characteristics.

Es wird die Art *Genusa hausmanni* sp. nov. aus Zentral-Laos beschrieben. Die Tiere wurden tagfliegend im Regenwald nahe Vientiane gesammelt. Die neue Art unterscheidet sich deutlich in den Genitalstrukturen und den morphologischen Merkmalen von den anderen Arten dieser Gattung.

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Introduction

During a research and collection trip in Laos a dayflying moth of the subfamily Ennominae has been collected in a small rainforest “island” surrounded by agriculture areas. The collecting site is north northeast from Vientiane, the capital of Laos. Several new species were already described from the type locality in the past (e.g., *Callidrepana heinzhuebneri* Buchsbaum, Bruggemeier & Chen, 2014), and some more descriptions are still in process. Dayflying moths were also collected on Borneo (Sabah) where the new tussock moth (Erebidae, Lymantriinae) *Euproctis rolandbaueri* Buchsbaum & Bruggemeier, 2003 was discovered. The genus *Genusa* Walker, 1855 was first described in the Erebidae, Lymantriinae, but later transferred to Geometridae (Holloway 1994).

Material, methods and locality

The collecting site is located about 30 km north northeast from Vientiane beside a tributary of the Mekong River, the Nam Ngung River. This place is a primary rainforest. In the vicinity are some small villages and agricultural areas.

The moths were collected with a normal insect net. Life pictures were taken with a Nikon Coolpix 900 camera system. The collected moths were placed in KCN poison glasses, pinned after death and stored in transport boxes. After the return to Germany, the moths were prepared on normal spreading boards. Genitalia preparation was done with 10% KOH and then mounted with Euparal on genitalia slides.

Photos were taken with Olympus E-M 1 and prepared for publication with Photoshop 7.0 (private license); the distribution map was created with Map-Creator (private license).



Fig. 1. *Genusa hausmanni*, holotype male.

Taxonomy

The genus *Genusa* Walker, 1855

The genus was erected by Walker (1855) with the type species *Genusa bigutta* Walker, 1855 (Walker 1855, Holloway 1994, Scoble 1999, Cui et al. 2014, Savelle, M. 2026). So far, five species are known from Thailand, Burma (Myanmar), North Vietnam, Hainan (P.R. China) and the Philippines (Luzon). However, the type species *G. bigutta* was described from Northeast India (Walker 1855).

Genusa hausmanni sp. nov.

Figs 1–8

Holotype (HT): 1 ♀, Central LAOS; near Vientiane, 150 m a.s.l.; Nathe, Rivertime Lodge; 18°09'33" N, 102°44'30" E; 22. February 2010, TF; leg. U. Buchsbaum.

Paratypes (PT): 1 ♀ and 1 ♂, same data as HT.

Description and differential diagnoses

HT ♂: wingspan 41 mm, forewing length 24 mm.

PT ♂: wingspan 44 mm, forewing length 24 mm.

PT ♀: wingspan 44 mm, forewing length 23 mm.

Holotypes and paratypes are deposited in the Zoologische Staatssammlung München (SNSB-ZSM).

Ground colour yellowish white. Head, thorax, abdomen yellowish white. Abdomen with about five black dots. Antenna blackish. Forewings white, yellowish at base and on costa. At base a single larger black dot. In *Genusa hollowayi* Cui, Xue & Han, 2014, there are many more black dots dispersed asymmetrically on the wings whereas *G. bigutta* is more or less without black dots on the wings. Some small black dots from wing base along costa. A few brownish dots along termen. Hindwings white, with unregular and asymmetric brown dots at and around anal angle. Female with same coloration, with shadow-like darker white band medially on fore- and hindwings. In *G. hollowayi*, many smaller black dots and *G. bigutta* very few black dots.



Fig. 2. *Genusa hausmanni*, paratype female.

Table 1. Morphological differences to the most similar *Genusa* species and their distribution.

Species characters	<i>Genusa hausmanni</i> sp. nov.	<i>G. bigutta</i>	<i>G. hollowayi</i>
Head, thorax and abdomen	Yellowish white	Body, abdomen brownish	Dark yellow
Forewings/ hindwings	Yellowish white with dark brown and black dots	Greyish white	Greyish white with small black dots
Male genitalia	Uncus broad, at middle narrow, with U-formed tip. Vinculum balloon-like, less sclerotized	Uncus smaller and narrow without U-formed tip. Valvae smaller, rounder, less hairy, vinculum smaller	Less hairy and with smaller hairs. Valvae larger, shorter haired, Vinculum wide and stronger sclerotized
Female genitalia	Papillae anales strongly sclerotized with many short hairs. Apophyses posteriores thin, strongly sclerotized and short. Ductus bursae shorter and thinner. Bursa copulatrix round, less sclerotized. Signum rounded and less sclerotized	Not available	Papillae anales larger, wider, less hairy. Ductus bursae shorter and thinner. Bursa copulatrix round, less sclerotized. Signum rounded and less sclerotized
Distribution	Laos	India	China (Hainan), Vietnam



Fig. 3. *Genusa hausmanni*, male genitalia.



Fig. 4. *Genusa hausmanni*, female genitalia.

Male genitalia. Uncus broad, in the middle narrow, with U-fomed tip. In *G. hollowayi*, the uncus is less sclerotized. Uncus large wide, dorsally hairy. In *G. hollowayi*, less hairy and with smaller hairs. In *G. bigutta*, uncus smaller and narrow, without U-formed tip. Valvae large, rounded, wide. Sacculus with many but small hairs. Vinculum balloon like, less sclerotized. In *G. hollowayi*, valvae larger, shorter haired, Vinculum wide and stronger sclerotized. In *G. bigutta*, valvae smaller, rounder, less hairy, vinculum smaller. Sacculus exentions, long hairy, less sclerotized, in *G. hollowayi* short, stronger sclerotized, in *G. bigutta* shorter, wider, strongly hairy. Ampulla strong, sclerotized, with pointed end, in *G. hollowayi* with strong sclerotized pointed end and in *G. bigutta* much shorter and smaller. Aedeagus thin, long with slim long ductus ejaculatorius, in *G. hollowayi* shorter, wider and stronger sclerotized.

Female genitalia. Papillae anales strongly sclerotized, with many short hairs. Apophyses posteriores thin, strongly sclerotized and short. In *G. hollowayi*, papillae anales larger, wider, less hairy. Ductus bursae shorter and thinner. Bursa copulatrix round, less sclerotized. Signum rounded and less sclerotized, in *G. hollowayi* smaller and stronger sclerotized.

Diagnosis. The differences to the most similar species of the genus are summarized in Table 1.



Fig. 5. *Genusa hausmanni*, holotype resting on leaf.



Fig. 6. Map of type locality.



Figs 7. Biotope around type locality.



Ruth Kühbandner
2016

Fig. 8. Drawing from *Genusa hausmanni* holotype by Ruth Kühbandner ©.

Etymology. The new species is dedicated to Dr. Axel Hausmann, the leading scientist of the Entomology Department and the section Lepidoptera at Zoologische Staatssammlung München (SNSB-ZSM) and my “boss”. Thanks for the long time of fruitful cooperation with you, though it may have been sometimes not always quite easy for you with me and for me with you. It was a good, long time together! Thank you, Axel!!!

Discussion

Species of *Genusa* range from India (type species *G. bigutta* Walker, 1855) to Thailand, Myanmar, Vietnam, Hainan (China), and Luzon (Philippines). They occur on both sides of the Wallace Line (Holloway 1994, Cui et al. 2014). The Indo-Chinese faunal realm exhibits the highest species diversity (Mittermeier et al. 1998, 2011). In this context, Laos is known as a biodiversity hotspot together with the Indo-Chinese and the Indo-Chinese-Sundaic biogeographic region (comprising Thailand, Vietnam, Laos, and Burma (Myanmar)) (Mayr 1944, de Lattin 1967, Myers 1988, Myers et al. 2000, Olsen et al. 2001, Olson &

Dinerstein 2002, Schintlmeister 2003, Woodruff 2003, Turner et al. 2007, Kier et al. 2009, Woodruff 2010, Marchese 2015, Smith et al. 2020, Liu et al. 2023). It can be expected that more species of this genus will be discovered in this region in the future.

Acknowledgements

Many thanks to Barnaby Evens, the owner of the Rivertime Lodge, for his help to collect in his place and for his interest in insects and his efforts to protect this nice small forest. Furthermore, thanks to Dr. Dieter Stünig (Museum Koenig Bonn, Germany) for the discussion about the early draft of the manuscript. Finally, thanks to Dr. Wolfgang Speidel (Munich/Olching) for his careful review of the manuscript.

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