


A new species of *Neurocossus* (Lepidoptera: Cossidae: Cossinae) from India with a catalogue of the genus

Новый вид *Neurocossus* (Lepidoptera: Cossidae: Cossinae) из Индии с каталогом рода

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Abstract. A new species *Neurocossus albuquerci* **sp. nov.** of the rare poorly studied oriental genus *Neurocossus* Yakovlev, 2011 (Cossidae: Cossinae) is described from India. The new species clearly differs from all known species of the genus in the very small size (fore wing length 9 mm), poorly developed reticulate pattern on fore wing and very wide uncus with semicircular apex. The article also contains an illustrated catalogue of the genus *Neurocossus*.

Резюме. Из Индии описан новый вид *Neurocossus albuquerci* **sp. nov.**, относящийся к редкому, слабо изученному ориентальному роду *Neurocossus* Yakovlev, 2011 (Cossidae: Cossinae). Новый вид хорошо отличается от других представителей рода очень мелкими размерами (длина переднего крыла 9 мм), слабо развитым сетчатым рисунком на переднем крыле и очень широким ункусом с полукруглой вершиной. В статье также представлен иллюстрированный каталог рода *Neurocossus*.

Key words: carpenter moths, taxonomy, biodiversity, fauna, entomology, Asia, India, Cossidae, Cossinae, *Neurocossus*, new species

Ключевые слова: бабочки-древоточцы, таксономия, биоразнообразие, фауна, энтомология, Азия, Индия, Cossidae, Cossinae, *Neurocossus*, новый вид

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Introduction

The poorly studied family of carpenter moths (Lepidoptera: Cossidae) includes over 1200 valid species in the World fauna (Yakovlev, 2011). Yakovlev (2011) established the genus *Neurocossus* Yakovlev, 2011 in the subfamily Cossinae for *Paracossus khmer* Yakovlev, 2004 (by the original designation). Additionally, *Cossus spei-*

deli Holloway, 1986 and *Paracossus pinratanae* Yakovlev, 2004 were included in the genus. The characters that distinguish *Neurocossus* from the other genera of oriental Cossinae are the poorly sclerotized valve without processes, apically pointed arms of transtilla, and long pin-shaped lateral processes of juxta.

During the examination of Cossidae deposited in the collection of the Institute of Systematics

and Ecology of Animals (Novosibirsk, Russia), the author found a specimen of *Neurocossus* collected in western India (Goa Province), which represents a new species. Its description is given in this article and supplemented with a catalogue of the genus *Neurocossus*.

Material and methods

The materials for the study were the adult Cossidae specimens deposited in four collections: AHU – Armin Hauenstein private collection (Untermünkheim, Germany); ISEA – Institute of Systematics and Ecology of Animals (Novosibirsk, Russia); MWM – Museum Witt (Munich, Germany); NHMUK – Natural History Museum (London, United Kingdom).

The male and female genitalia were mounted in Euparal on slides according to Lafontaine & Mikkola (1987) and examined with an Olympus SZX16 microscope. The images were taken with a digital camera (CMOS, 20.7 megapixels) and processed using Corel PHOTO-PAINT 2017 software. The morphological terminology follows Kristensen (2003). The map was made using the

open soft Simple Mapper (<https://www.simple-mapper.net/>).

The labels of the holotype are cited verbatim. Each label is separated from other labels by a comma (;); lines in a label are separated by a slash (/).

Taxonomy

Order **Lepidoptera**

Family **Cossidae**

Subfamily **Cossinae**

Genus ***Neurocossus*** Yakovlev, 2011

***Neurocossus albuquerquei* sp. nov.**

(Figs 1A, 2)

Holotype. Male, with labels: “India, Goa, Bendur-dem / 15.1290°N / 74.0334°E, on light / leg. K. Tomkovich, 1–4.iii.2009”, “Genital preparation / № 423 / Naydenov”, “HOLOTYPUS / *Neurocossus albuquerquei* / Yakovlev, 2023 / Yakovlev des., 2023” (ISEA).

Diagnosis. The new species clearly differs from all known species of the genus in the following characters: (a) very small size: fore wing length 9 mm (in other species, length of fore wing

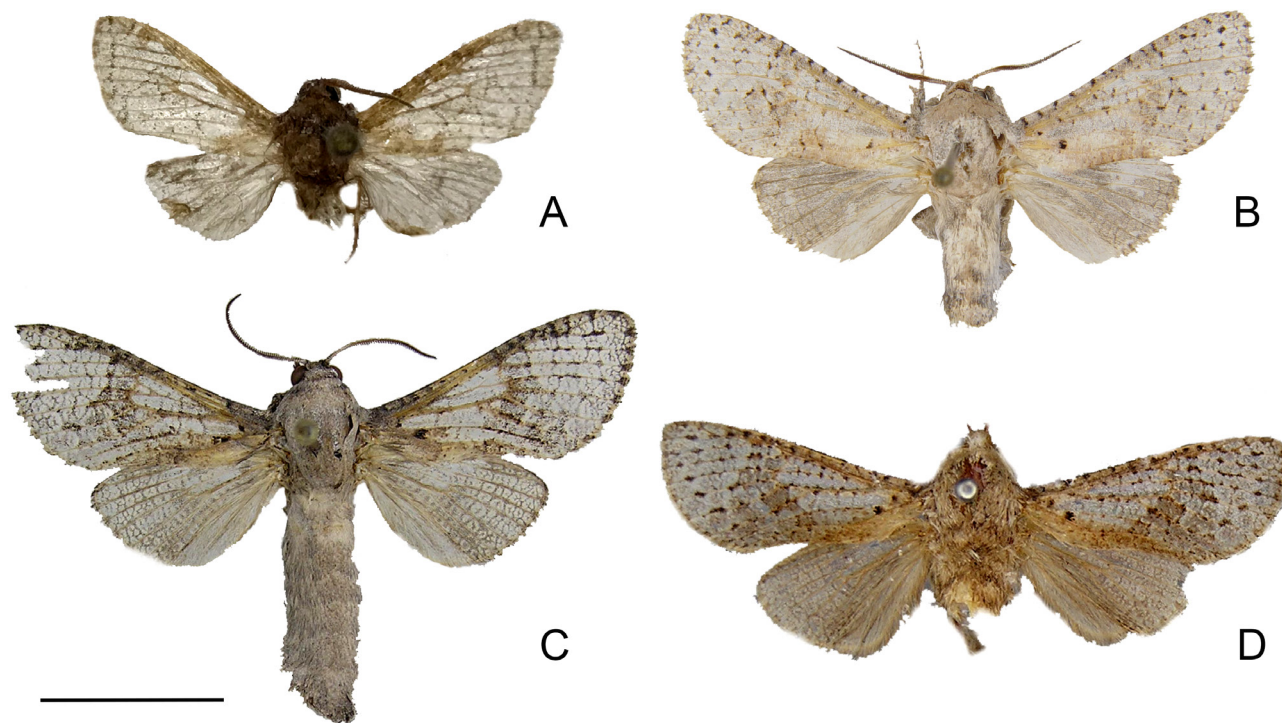


Fig. 1. *Neurocossus* spp., males (holotypes). **A**, *N. albuquerquei* sp. nov.; **B**, *N. khmer* (Yakovlev, 2004); **C**, *N. pinratanaei* (Yakovlev, 2004); **D**, *N. speideli* (Holloway, 1986). Scale bar: 10 mm.



Fig. 2. *Neurocossus albuquerci* sp. nov., male genitalia. Scale bar: 1 mm.

15–16 mm); (b) poorly developed reticulate pattern on fore wing (in other species, fore wing with tiny black dots along veins); (c) very wide semicircular uncus (in other species, uncus significantly narrower).

Description. Male. Length of forewing 9 mm. Antenna bipectinate, setae twice as long as diame-

ter of antennal rod. Forewing apically sharp, light grey, with thin reticulate pattern on entire wing area. Hind wing light grey, with poorly expressed grey dusting on entire wing area.

Male genitalia. Uncus robust, apically extended, semicircular; gnathos arms short, thick; gnathos large, densely covered with tiny spikes; valve long, lanceolate, distal half of valve membranous, triangular; transtilla processes hook-like, strongly curved; juxta with long clavate lateral processes; saccus small, semicircular; phallus equal to valve in length, thin, poorly curved on border between medium and distal third; vesical aperture in dorsoapical position, short; vesica without cornuti.

Female unknown.

Etymology. The new species is named after Afonso de Albuquerque, the first Duke of Goa (1453–1515), a Portuguese traveller, military man and statesman. His latinised name, Alphonsus Albuquerque, is used here to create the name of the new species.

Distribution. Western India: Goa Province.

Flight period. March.

Catalogue of the genus *Neurocossus* Yakovlev, 2011

Neurocossus Yakovlev, 2011: 18.

Type species: *Paracossus khmer* Yakovlev, 2004 (by original designation).

Composition of genus. Four species listed below.

Distribution. Oriental Asia from Hindustan to Borneo. Known distribution of species is shown in Fig. 3.

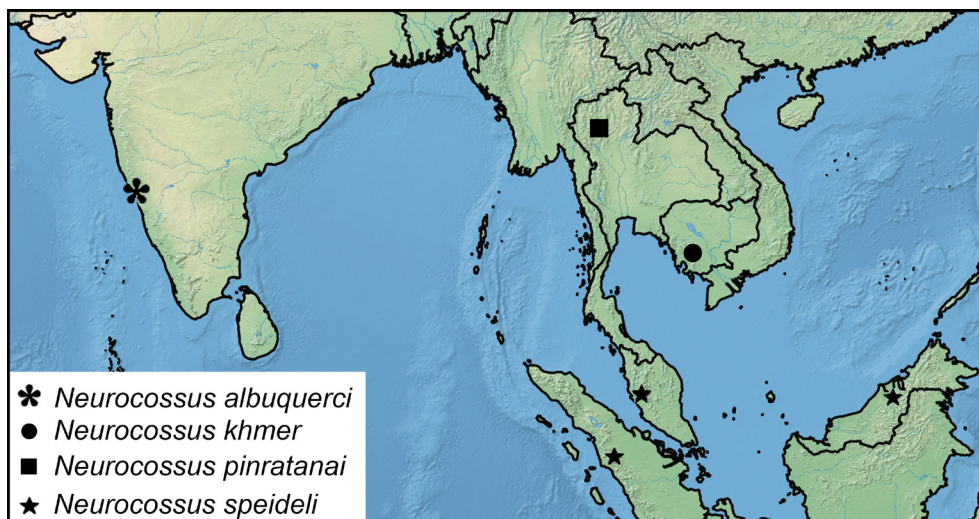


Fig. 3. Geographical distribution of *Neurocossus*.

***Neurocossus albuquerci* sp. nov.**

(Figs 1A, 2)

Type locality: Bendurdem (India: Goa Province).

Type material: holotype (male) in ISEA.

Distribution. India: Goa Province.

***Neurocossus khmer* (Yakovlev, 2004)**

(Fig. 1B)

Paracossus khmer Yakovlev, 2004b: 373.

Type locality: Kirirom (southern Cambodia: environs of Sre Klong).

Type material: holotype (male) in MWM.

Distribution. Southern Cambodia.

***Neurocossus pinratanai* (Yakovlev, 2004)**

(Fig. 1C)

Paracossus pinratanai Yakovlev, 2004a: 383.

Type locality: 4 km south of Kop Dong (northern Thailand: Chiang Mai Province).

Type material: holotype (male) in AHU.

Distribution. Northern Thailand: Chiang Mai Province.

***Neurocossus speideli* (Holloway, 1986)**

(Fig. 1D)

Cossus speideli Holloway, 1986: 26.

Type locality: Genting Tea Estate (western Malaysia: Pahang Federal State).

Type material: holotype (male) in NHMUK.

Distribution. Peninsular Malaysia, northern Borneo and Sumatra (Holloway, 1986).

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References

- Holloway J.D.** 1986. The moths of Borneo: key to families: families Cossidae, Metarbelidae, Ratardiidae, Dudgeonidae, Epipyropidae and Limacodidae. *Malayan Nature Journal*, **40**: 1–166.
- Kristensen N.P.** 2003. Skeleton and muscles. In: **Kristensen N.P.** (Ed.). 36. *Lepidoptera, moths and butterflies. 2. Morphology, physiology, and development. Handbuch der Zoologie / Handbook of zoology, IV. Arthropoda: Insecta*: 39–131. Berlin & New York: Walter de Gruyter. <https://doi.org/10.1515/9783110893724.39>
- Lafontaine J.D. & Mikkola K.** 1987. Lock-and-key system in the inner genitalia of Noctuidae (Lepidoptera) as taxonomic character. *Entomologische Meddelelser*, **55**: 161–167.
- Yakovlev R.V.** 2004a. Cossidae of Thailand. Part II. *Atalanta*, **35**(3/4): 383–389.
- Yakovlev R.V.** 2004b. New taxa of Cossidae from SE Asia. *Atalanta*, **35**(3/4): 369–382.
- Yakovlev R.V.** 2011. Catalogue of the family Cossidae of the Old World (Lepidoptera). *Neue entomologische Nachrichten*, **66**: 1–130.

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