# Description of a new species of *Eupterote (Eupterote)* from Sulawesi (Indonesia) (Lepidoptera: Eupterotidae)

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**Abstract:** Further data on the Eupterotidae fauna of the Indonesian islands of Sulawesi and Buton is provided. A new nocturnal species of the genus *Eupterote* Hübner, 1820 ["1816"], nominotypical subgenus, is described: *Eupterote (Eupterote)* ***celebica*** **sp. n.** (holotype male in SMFL, Frankfurt am Main) from Sulawesi Selatan, Tanah Toraja, Pulu Pulu, ca. 1800 m. Both sexes, the pattern and colour variability of the males and the male genitalia of the new species are described and illustrated.

**Key words:** Bombycoidea, Buton Island, Butung Island.

**Beschreibung einer neuen Art von *Eupterote (Eupterote)* von Sulawesi (Indonesien) (Lepidoptera: Eupterotidae)**

**Zusammenfassung:** Weitere Informationen über die Eupterotidenfauna von Sulawesi und Buton werden gegeben. Hier wird eine neue Art der Gattung *Eupterote* Hübner, 1820 ["1816"], nominotypisches Subgenus, beschrieben: *Eupterote (Eupterote)* ***celebica*** **sp. n.** (Holotypus Männchen in SMFL, Frankfurt am Main) von Sulawesi Selatan, Tanah Toraja, Pulu Pulu, ca. 1800 m. Beide Geschlechter, die Variationsbreite der Männchen und die männlichen Genitalien der neuen Art werden beschrieben und abgebildet.

## Introduction

The higher systematics (at the family, subfamily and tribal levels) and phylogeny of the family Eupterotidae is still not reliably resolved and is at present under research (see Oberprieler et al. 2003, Nässig & Oberprieler 2007, 2008, Zwick 2008, Zwick et al. 2010). For the problems with the names for this family see Nässig & Oberprieler (2007); a catalogue of the genera of the family was compiled by Nässig & Oberprieler (2008).

With respect to Eupterotidae, the Indonesian island of Sulawesi is still something of a "terra incognita" (compare Nässig & Schulze 2007, Nässig et al. 2009). Earlier authors, such as Swinhoe (1901, 1904) and Nieuwenhuis (1948), described only single species from smaller islands close to Sulawesi (Swinhoe: Salayar Island; Nieuwenhuis: Banggai Archipelago, Peleng), but not from the main island of Sulawesi. Further material of this family of bombycoid moths has come to hand rather recently (see, e.g., Holloway et al. 2001: pl. 2, fig. 5), either from scientific expeditions especially dedicated to the study of the insect fauna of Sulawesi or from Indonesian insect traders.

To our surprise, the material recently obtained from Sulawesi proper nearly always appears to be distinct at the species level from older material from adjacent islands. We are presently preparing genitalia and DNA barcode-based studies on the Eupterotidae of Asia; the present paper is a preliminary publication to describe a clearly unnamed and easily recognized new species from Sulawesi in advance of the revisions. Revisional notes on the entire group, based on the results of our studies, will be published later.

Holloway (1987) described and illustrated the Eupterotidae from Borneo. Nässig & Schulze (2007) recently described a new species of the genus *Eupterote* Hübner, 1820 ["1816"], subgenus *Eupterote,* from Sulawesi proper, in which the ♂♂ have a special diurnal life habit. The present paper deals with an externally distinctive nocturnal species; a further species will be considered in the near future within the wider revision mentioned above. Another recent publication covered the *Ganisa* species of Sulawesi (Nässig et al. 2009), and further papers focusing on Sulawesi are in preparation.

### Abbreviations and conventions

**Abbreviations of collections:**

| | |
|---|---|
| CSLL | Collection Swen Löffler, Lichtenstein (Sachsen), Germany. |
| CMBS | Collection Martin Beeke, Stemwede, Germany (formerly Hille/CMBH). |
| CMWM | Collection Museum Thomas Witt, München (Munich); assigned to ZSM, Munich, Germany. |
| CWAN | Collection Wolfgang A. Nässig, now in SMFL. |
| SMFL | Lepidoptera collection in the Senckenberg-Museum, Frankfurt am Main (with the number of the Lepidoptera type catalogue of the Senckenberg-Museum), Germany. |
| ZSM | Zoologische Staatssammlung, München (Munich), Germany. |

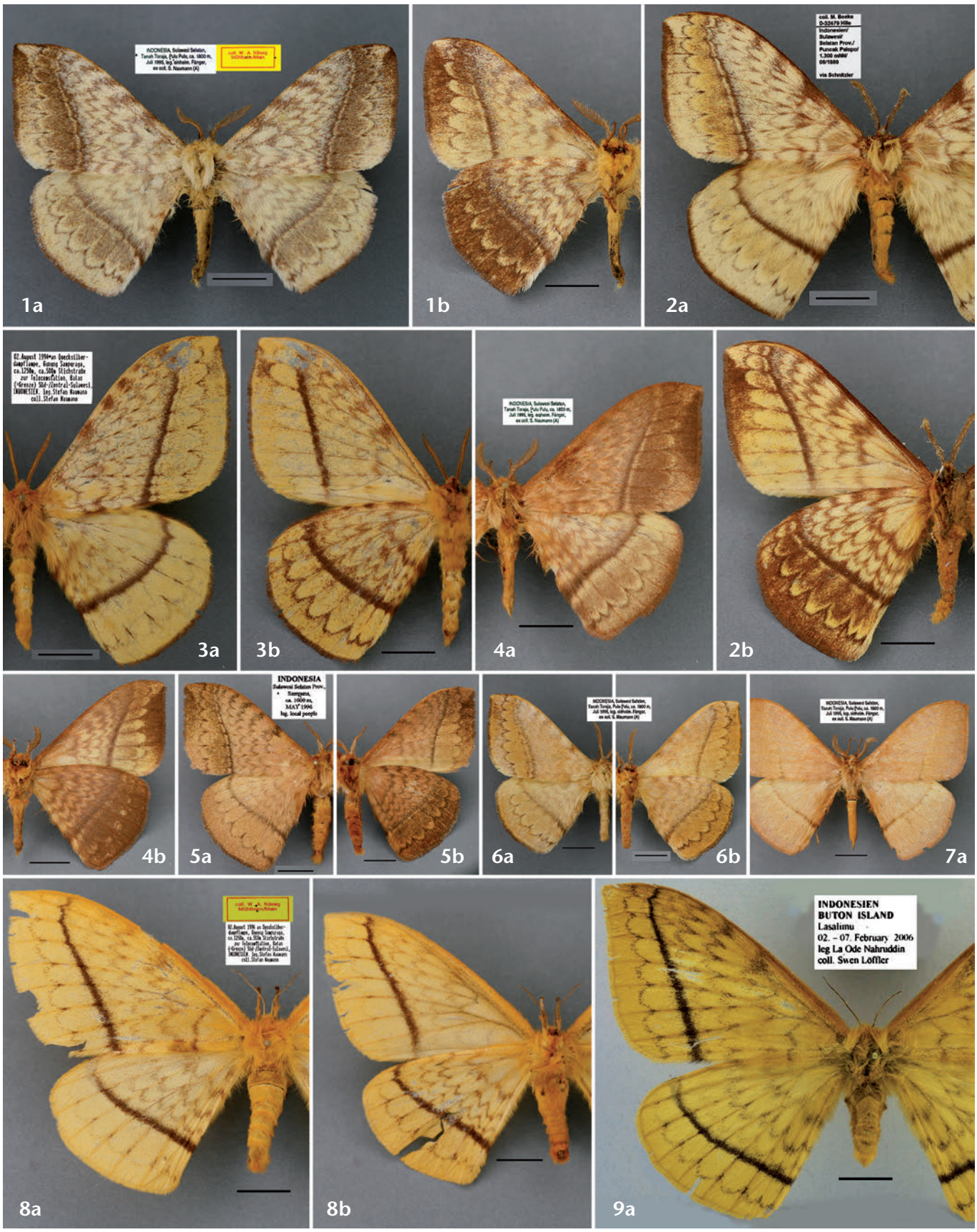
**Measurements:**

| | |
|---|---|
| lfw. | Length of the forewing [mm], measured in a straight line from the base of the wing to the most distant point of the apex, without the width of the thorax and without the tegulae. |
| AL | Antennal length [mm]. |
| LR | Longest rami [mm] of the antenna (not measured in ♀♀). |
| S.D. | One standard deviation. |
| max. | Maximum value measured [mm]. |
| min. | Minimum value measured [mm]. |
| *n* | Number of specimens measured. |

**Other abbreviations and conventions:**

| | |
|---|---|
| fw. | forewing(s). |
| GP no. | dissection/genitalia slide no. (Genitalpräparatenummer), ex CWAN, now in SMFL, if not stated otherwise. |

[1] Studies in Eupterotidae, no. 12. (No. 11 see: Nässig, W. A., & Bouyer, T. (2010): A new *Pseudojana* species from Flores, Indonesia (Lepidoptera: Eupterotidae). — Nachrichten des Entomologischen Vereins Apollo, Frankfurt am Main, N.F. **30** (4): 205–208.)




**Figs. 1–9:** *Eupterote (Eupterote) celebica* sp. n. from Sulawesi, specimens. **Fig. 1:** HT ♂, SMFL. **Fig. 2:** PT ♂, bright yellowish form, CMBS. **Fig. 3:** PT ♂, another yellowish form, CWAN. **Fig. 4:** PT ♂, dark form with little contrast, CWAN. **Fig. 5:** PT ♂, dark, contrasting form. **Fig. 6:** PT ♂, bright brown form with little contrast. **Fig. 7:** PT ♂, bright brown form without pattern. **Fig. 8:** PT ♀, CWAN. **Fig. 9:** PT ♀, CSLL. — Always: **a** = ups., **b** = uns. (not always uns. shown). Photographs W. Nässig, except Fig. 9a (S. Löffler). — Scales are different: Figs. 1a–4a and 8a–9a are approximately natural size, while Figs. 4b–7a are smaller; scale bars = 1 cm.

| | | | |
|---|---|---|---|
| HT | holotype. | PT | paratype(s). |
| hw. | hindwing(s). | uns. | underside. |
| l.t. | locus typicus. | ups. | upperside. |

## Descriptive part

A complete list of the taxa of *Eupterote* Hübner, 1820 ("1816") described from Sulawesi and adjacent smaller islands will follow in the revision. The species apparently all belong to the subgenus *Eupterote (Eupterote),* according to the present classification (compare Nässig 1989, 1995, 2000, Nässig & Schulze 2007).

### *Eupterote (Eupterote) celebica* sp. n.

**Holotype:** ♂, "Indonesia, Sulawesi Selatan, Tanah Toraja, Pulu Pulu, ca. 1800 m, VII. 1995, leg. einheim. Fänger, ex coll. S. Naumann (A)"; in coll. CWAN in SMFL, GP-no. 2133/10 WAN, SMFL-no. 4264. Fig. 1.

**Paratypes** (in total 17 ♂♂, 2 ♀♀): **Sulawesi:** 8 ♂♂, same data as HT, 1 GP 1414/00 WAN (Figs. 4, 6, 7); 1 ♂, same data, 1200 m, v. 1996, leg. local collectors, via U. Paukstadt; 1 ♂, Selatan, Kalewakan, IV. 1996, leg. local collectors, via U. Paukstadt, GP 1413/00 WAN; 1 ♂, Selatan, Sampuna, ca. 1000 m, v. 1996, leg. local collectors, via U. Paukstadt (Fig. 5); 3 ♂♂ (Fig. 3), 1 ♀ (Fig. 8), Grenze Süd-/Zentral- [*sic*], Gunung Sampuraga, ca. 500 m Stichstraße zur Telecomstation, ca. 1250 m, HQL 7. VIII. 1994, leg. et coll. SNB, in CWAN; these 14 ♂♂, 1 ♀ (in CWAN) in SMFL. — 1 ♂, same data as HT, 1300 m, VI. 1999, via H. Schnitzler, CMBH (Fig. 2). — 1 ♂, same data as HT, 2°55′ S, 120°5′ E (misspelled as "2.55″ S, 120.05″ E" [*sic*]), 1000 m, 25.–31. I. 1995, leg. Sinjaev & Tarasov; 1 ♂, Mt. Sampuraga, 2°10′ S, 120°45′ E (same error), 1400 m, 1.–6. II. 1995, leg. Sinjaev & Tarasov; these 2 ♂♂ in CMWM. — **Buton Island:** 1 ♀, Lasalimu, 2.–7. II. 2006, leg. La Ode Nahruddin, CSLL (Fig. 9).

**Further material,** no PT: 1 ♂, "Philippinen, Mindoro, Mt. Halcon, 1000 m, VI. 1999, leg. Noel Mohagar" [sic], in CMWM. — This is most likely a mislabelled specimen. There has been so much collecting in the Philippines that the existence of this extraordinary new species there would surely have resulted in the collecting of additional specimens. Furthermore, Mindoro is so far away from Sulawesi (being one of the northernmost larger islands of the Philippines) that a zoogeographical connection between Sulawesi and Mindoro without any specimens from intermediate localities seems unlikely. Moreover, there are several instances of singletons or small series of locally distributed species in CMWM that without doubt were mislabelled in error, most likely during the commercial setting process.

**Derivatio nominis:** Named after the old European name of the Indonesian island of Sulawesi: Celebes. The specific name is herewith defined as a noun in apposition to avoid possible changes in spelling based on gender agreement. — Martin Beeke independently noticed in the 1990's that this species was still undescribed, so he is included as an author.

**Here illustrated:** Distribution: see Map. Specimens: see colour Figs. 1–9. ♂ genitalia: see Fig. 10.

**Distribution:** So far known from the central part of Sulawesi (especially from localities near the border between Sulawesi Selatan and Sulawesi Tengah, Tanah Toraja) and Buton (= Butung) island (see Map).

**Ecological data available:** Preimaginal stages and larval foodplants are unknown. — Specimens were found between 1000 m and 1800 m elevation (insofar as altitudinal data was supplied). — The types were collected in the months I.–II. and IV.–VIII.

## Description and diagnosis

**Measurements, ♂♂:** HT: Lfw. = 37 mm, AL = 11 mm, LR = 1.75 mm. All ♂♂ (PTs and HT combined, $n = 18$), averages: Lfw. = 39.72 ± 2.47 mm (min. = 36 mm, max. = 44 mm). AL = 11.25 ± 0.5 mm (max. = 12 mm, min. = 11 mm), LR = 1.88 ± 0.10 mm (min. = 1.75 mm, max. = 2.0 mm) ($n = 4$). — **♀♀:** both identical data: Lfw. = 51 mm, AL = 12 mm ($n = 2$).

♂. Antenna bipectinate (both rami per segment ventrally inserting, covered with tiny hairs), shaft densely scaled on dorsal side, scales usually flatly adhering; with some speckled pattern: some scales dark, others (the majority) brighter.

Wing pattern quite variable, in yellowish to brownish tones, with more or less strong contrast between the different pattern elements, with only two different colours or several colours (see colour pictures, Figs. 1–7).

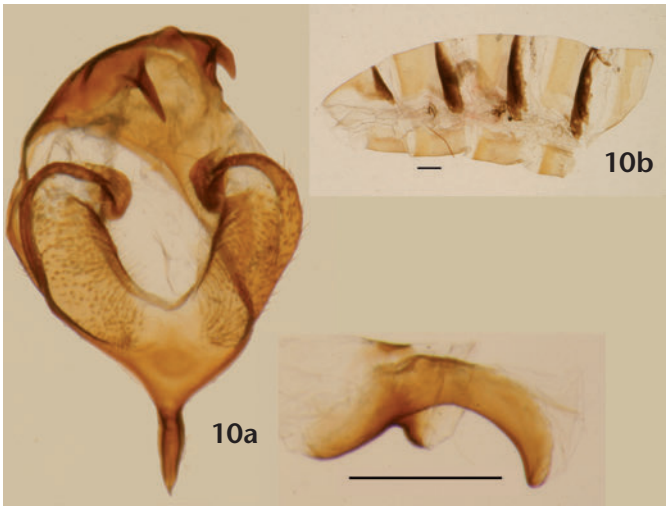
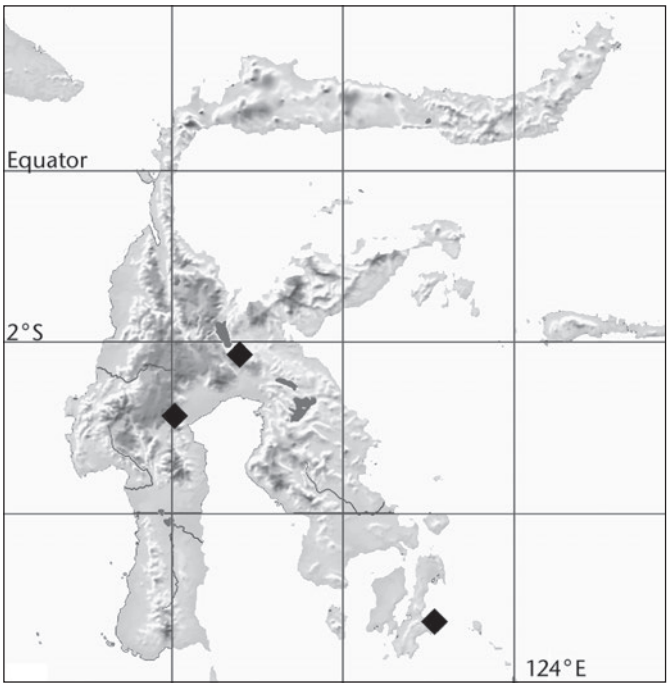



**Fig. 10a:** ♂ genitalia of the HT of *Eupterote (E.) celebica;* GP 2133/10 WAN, in SMFL. — **Fig. 10b:** abdominal pelt of this specimen. — Scale bars = 1 mm.




**Map:** Localities of *Eupterote (E.) celebica* on Sulawesi and Buton. Not all localities have been located on maps; one dot may correspond to more than one locality. — Map base produced with MapCreator 2, modified.

♂ **genitalia** (Fig. 10a). Typical for members of the genus *Eupterote* and the subfamily Eupterotinae in general, compare Oberprieler et al. (2003). They are very similar to those of the recently described *E. splendens* Näss-sig & Schulze, 2007 (also from Sulawesi), but also to other species; in general, the ♂ genitalia do not often show large diagnostic differences in *Eupterote*. There is no scobination and no cornutus in the vesica of the new species, *E. celebica,* as in several other species of the subgenus (e.g., *E. kalliesi* Nässig, 2000), whereas, for example, *E. multiarcuata* Holloway, 1976 has a dense field of scobination (see Nässig 2000: fig. 4). The abdominal tergites are rather strongly sclerotised and dark at their cephal margins (Fig. 10b), but there is no sclerotisation at the caudal margins of the 8th sternite and tergite as in *E. splendens* (see Nässig & Schulze 2007: 190).

♀. Antenna unipectinate (every segment has a somewhat broadly club-shaped ventral protuberance, covered with short hairs, with a longer bristle at its apex), densely scaled on dorsal side as in ♂♂. The only 2 ♀♀ known are quite similar, deep yellow ground colour with blackish pattern (see Figs. 8–9).

♀ **genitalia** not studied so far.

**Diagnosis.** Compared to other yellow *Eupterote (Eupterote)* species from the Sulawesi Region, such as *jaresia* Swinhoe, 1904, the new species is a more brownish ochreous yellow with much stronger (though variably developed) blackish fasciation. The wings are generally narrower. The arcuate fasciae appear to be fewer. The forewing postmedial is more or less straight, meeting the costa relatively more basally. The hindwing postmedian has the strongest curvature closer to the costa and curves in the same direction towards the posterior rather than being gently reflexed; it is relatively more distal on the wing than in "*E. jaresia*" (Holloway et al. 2001). The submarginal dark spots between CuA1 and CuA2 often seen on all wings (or at least on the fw.) in most other species of *Eupterote* are absent from the new species.

## Discussion

With regard to the external and ♂ genitalia morphology, *E. celebica* might be a rather close relative of *E. splendens,* which may suggest a further case of a small species-group endemic to Sulawesi with either diurnal or nocturnal ♂♂ (see in the genus *Antheraea* [Saturniidae]: Holloway et al. 1996). Details will be discussed in a revision once further information (especially from the barcode analyses) is available.

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