First record of the genus *Aethalida* Walker, 1865 (Lepidoptera: Erebidae: Arctiinae) from Flores Island, East Nusa Tenggara, Indonesia

VITALY M. SPITSYN*, IVAN N. BOLOTOV, MIKHAIL Y. GOFAROV & NIKITA I. BOLOTOV

Russian Museum of Biodiversity Hotspots, IBIGER – Institute of Biogeography and Genetic Resources, Federal Center for Integrated Arctic Research, Russian Academy of Sciences, Severnaya Dvina Emb. 23, 163000 Arkhangelsk, Russia.
E-mail: vitali91993@yandex.ru

*Corresponding author

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Abstract
The discussed record marks presence of the genus *Aethalida* Walker, 1865 in East Nusa Tenggara (Flores Island, Indonesia) for the first time. We have found that a specimen from Flores Island shows great similarity with *A. owadai* Dubatolov & Kishida, 2005, an endemic species of Selayar Island. Comparing external morphology of *A. owadai* and the discussed specimen, we were able to highlight some key differences in structure of the male genitalia and in the markings pattern. The given morphological features are sufficient to establish a new subspecies, *A. owadai floresiensis* ssp. n.

Key words: Tiger moths, island biogeography, *Aethalida owadai*, new subspecies, Lesser Sunda Islands, West Flores.

Introduction
The tiger moth genus *Aethalida* Walker, 1865 (Lepidoptera: Erebidae: Arctiinae) comprises a group of a few species with pronounced sexual dimorphism that occur in the central Indonesia, Borneo and Philippines (Holloway 1988; Dubatolov and Kishida, 2005; Černý 2011). Holloway (1988) performed the first systematic revision of the genus with description of a new species. Dubatolov and Kishida (2005) have prepared next revision, and two additional new species were described under this study. Previously, two male specimens of *Aethalida owadai* Dubatolov & Kishida, 2005 were recorded from Selayar Island close to South Sulawesi, while the female is still unknown (Dubatolov and Kishida 2005). Hitherto this species was considered as an endemic to Selayar Island. In the present investigation, we report a male *Aethalida* specimen from Flores Island, East Nusa Tenggara, Indonesia.

Material and Methods
The specimen was found in the collection of the Russian Museum of Biodiversity Hotspots (RMBH) of the Institute of Biogeography and Genetic Resources, Federal Center for Integrated Arctic Research, Russian Academy of Sciences. During the specimen analyses performing, we have used common methods, which are applied ubiquitously. The abdomen was separated from a body and boiled in 10% KOH for approximately 3–
5 min. Further, the genitalia were cleaned up from body segments with two dissection needles, then they were placed on a glass slide, were poured with Histofluid® (Paul Marienfeld GmbH & Co., Germany), mounting medium and were covered with a coverslip. The photos of the specimen were taken with a Canon EOS 650D camera. The photos of the genitalia were obtained using a research stereomicroscope (SteREO Discovery.V8, Carl Zeiss, Germany).

Systematics

Family Erebidae Leach, [1815]

Genus Aethalida Walker, 1865
Type species: Aethalida distinguenda Walker, [1865] 1864, by monotypy.

Aethalida owadai floresiensis Spitsyn & I. Bolotov ssp. n.
(Figures 1–4)

Holotype: 1♂, RMBH, voucher no. Sph 0680.

Type locality: Indonesia, East Nusa Tenggara, Flores Island: shore of Lake Sano Nggoang, 8°42’33.50″S, 119°59’51.0″E, local collector leg.

Etymology: Named after Flores Island, the type locality of the species.

Figure 1. Holotype of Aethalida owadai floresiensis ssp. n. from Flores Island, Indonesia: A) Upperside; B) Underside.
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Figure 2. The male genitalia and phallus of taxa under discussion: A) Aethalida owadai floresiensis ssp. n. (holotype); B) A. owadai owadai Dubatolov & Kishida, 2005 (holotype).

Description: Male morphology and markings. Total body length is 19 mm, the forewing length is 20 mm, and the wing expanse is 41 mm. The wings are painted in gray-brown color. The forewings have two round spots, the first spot is located in the center of the costal margin, and the second spot is located at the base of the wing. Additionally, there are a number of irregular-shaped spots at the apex of the wing, which extends to the M₂ vein. The hindwings have a lighter shade than the forewings. The inner margin of the hindwing is marked with pink, but the costal margin has a yellow-pink coloration. There are a series of small pink spots along the outer margin of the hindwing. On the ventral side can be seen the same marking pattern as that of the dorsal side. The eyes are dark black. Antennae are pale pink. The clypeus is painted with a dark brown; epicranium has a pale brown coloration. Patagium is colored with white and marked by a black spot in the middle. A collar is also white with a pink border, marked by a black spot in the middle. The dorsal side of the thorax is white and it has a number of black spots. The hindmost group of spots is divided with T-shaped pink mark. Abdomen is pink dorsally, with three rows of black spots. Male genitalia. Valve is curved in the middle; it tapers from the base to the middle and becomes narrow at the distal part. Lateral lobes of vinculum are wide. Juxta is cup-shaped, very broad. The uncus forms a rhombus with slightly rounded corners. Phallus has a sclerotized area in the apical part.

Diagnosis. A newly reported subspecies from West Flores shows differences in the male genitalia comparing to the nominative subspecies, A. owadai owadai. The main difference is presented in valve structure, as valve is wider at the distal part, curved in its middle for A. owadai floresiensis ssp. n. comparing to A. owadai owadai, which has almost straight valves with narrow distal part. The uncus in the new subspecies is wider, while all corners are slightly rounded. Additionally, the uncus surface is less sclerotized in its base for A. owadai floresiensis ssp. n. The phallus in the specimen from Flores Island is shorter and thickened, with a sclerotized area on the surface of its apical part, while A. owadai owadai has very weak apical sclerotization. The new subspecies does not have a noticeable outgrowth on the curve of the phallus, which is a typical feature of A. owadai owadai. With respect to the markings pattern, white spots on the apical part of the A. owadai floresiensis ssp. n. forewing are arranged up to vein M₂. By contrast, white spots at the apex of the A. owadai owadai forewing are arranged only to vein M₁ (Dubatolov and Kishida 2005). Finally, the abdomen of the specimen from Flores Island is pink dorsally, with three rows of black spots, while the abdomen of the nominative subspecies from Selayar Island is pink with broad longitudinal brown stripe in proximal part, which narrows in distal part.
Figure 3. Map of the type localities of *Aethalida owadai floresiensis* ssp. n. (1) and *A. owadai owadai* Dubatolov & Kishida, 2005 (2).

**Distribution:** West Flores; only known from the type locality.

**Habitat:** The holotype was collected in secondary mountain forest with old nutmeg trees on a hill slope on 665 m above sea level (21–22.i.2015).

**Discussion**
It becomes evident that *Aethalida* species reveal low migration activity and the majority of them are endemics to certain islands or island groups (Dubatolov and Kishida 2005; Černý 2011). In this regard, the fact of their entry to the Nusa Tenggara islands is apparently a local phenomenon, because the recent stretch of sea between Selayar and Flores Islands is ~200 km wide. The hypothesis that asserts species penetration to the island territory after recurring regressions of the sea level during the Pleistocene glacial events seems quite possible. Regarding rareness of the species, we report the first recorded male individual since the original description (Dubatolov and Kishida 2005). Female individuals of the species are still unknown.

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Figure 4. The type locality of *Aethalida owadai floresiensis* **ssp. n.**: Flores Island, shore of Lake Sano Nggoang, secondary mountain forest with old nutmeg trees on a hill slope (photo: M. Albarran Valle).

References

