**Alphaea stanislava**, a new species from Vietnam and Laos (Lepidoptera: Erebidae: Arctiinae: Arctiini)

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**Abstract**

A new species of the genus *Alphaea*, *Alphaea stanislava* sp. n., is described from central Vietnam and north-eastern Laos. The new species belongs to the subgenus *Nayaca* Moore, 1879 and is similar to *A. chiyo* Dubatolov & Kishida, 2005 and *A. imbuta* (Walker, 1855). The female genitalia of *A. chiyo* and *A. imbuta* are illustrated for the first time.

**Key words**: Arctiina, female genitalia, *Nayaca*, tiger moths.

**Introduction**

The tiger moth genus *Alphaea* belongs to the subtribe Arctiina and is distributed in Himalaya, southern China and northern Indochina. The genus was recently reviewed by Dubatolov & Kishida (2005), who included in it 10 valid species and one subspecies subdivided into three subgenera, *Alphaea*, *Flavalphaea* Dubatolov & Kishida, 2005 and *Nayaca* Moore, 1979. Subsequently, two additional species have been described from south-western China and northern Myanmar (Saldaitis & Ivinskis 2008; Volynkin & Saldaitis 2019).

In the course of examination of Arctiinae materials from Vietnam, a short series of unidentified specimens of *Alphaea* belonging to the subgenus *Nayaca* was found. Through comparison of the genitalia structures of the specimens with other *Nayaca* taxa, a number of distinctive characters were found suggesting the discovery of a hitherto unknown species, the description of which is provided in this paper.
Material and methods

Abbreviations for the depositories used: GMF = collection of Günter Müller (Freising, Germany); SDM = collection of Sergei Didenko (Moscow, Russia); WIGJ = World Insect Gallery (Joniškis, Lithuania). Other abbreviations used: HT = holotype; PT = paratype.

The genitalia were dissected and mounted in euparal on microscope slides. The photos of adults were taken using a Nikon D3100/AF-S camera equipped with a Nikkor, 18–55 mm lens while the photos of genitalia were taken using the same camera attached to a microscope with an LM-scope adapter. All pictures were processed using the Adobe Photoshop CC 2018 software.

Description of the new species

**Alphaea (Nayaca) stanislava sp. n.**

https://zoobank.org/urn:lsid:zoobank.org:act:C6D28D44-01B8-442F-86E1-1B787FE92F71

(Figs 1, 2, 7, 10)

**Type material. Holotype** (Figs 1, 7): male, “Central Vietnam, Quang Nam Province, Tay Giang District, Axan Mt., 1300m, II.2012, local collector leg.”, gen. prep. No.: AV6460 (prepared by Volynkin) (SDM).

**Paratypes**: VIETNAM: 1 female, the same locality and collector as in the holotype but XI.2013, gen. prep. no.: AV6461 (prepared by Volynkin) (SDM); 1 female, the same data but V.2013 (SDM); 2 females, the same data but III.2013 (WIGJ); LAOS: 12 specimens of both sexes, Prov. Xiangkhouang, Phou Samsoum, 1600m a. s. l, VIII.2007 (GMF).

**Diagnosis**. The new species (Figs 1, 2) is externally similar to *A. chiyo* (Figs 3, 4) and *A. imbuta* (Figs 5, 6) but can easily be distinguished by the larger size, the somewhat more elongate male forewing apex, the blackish thorax and wings colouration (dark brown in *A. chiyo* and *A. imbuta*), the yellowish creamy forewing pattern elements (whitish in *A. chiyo* and *A. imbuta*), the entire postmedial line (it is interrupted into a few of small spots in *A. chiyo* and *A. imbuta*), the larger subterminal yellowish creamy spots and the more reduced yellowish creamy pattern elements on the hindwing. The male genital capsule of *A. stanislava sp. n.* (Fig. 7) differs clearly from those of *A. chiyo* (Fig. 8) and *A. imbuta* (Fig. 9) in the distally tapered valva with very short apical and subapical processes, and the narrower sacculus with the trapezoid process directed distally whereas in *A. chiyo* and *A. imbuta*, the valva apex is more or less equal in width to the medial section, the apical processes of the valva are broad and more prominent, and the process of the sacculus (the ventral process of the valva) is larger, lobate and directed dorsally. Additionally, in the new species, the uncus is less convex dorsally than in the similar species and the tegumen lobes are less elongate apically. The aedeagus of *A. stanislava sp. n.* has a wide and heavily sclerotized carina bearing a robust thorn-like process directed distally whereas in *A. chiyo* and *A. imbuta* carina is thinner and bearing a tiny denticle. The vesica of *A. stanislava sp. n.* is similar to that of *A. chiyo* but the medial diverticulum is smaller and lacks a cluster of spinules, and the distal diverticulum is broader and bears a wider cluster of numerous tiny spinules. Compared to that of *A. imbuta*, the vesica of the new species is markedly narrower, lacks a medial transverse cluster of spinules and has a somewhat wider cluster of spinules apically. The female genitalia of *A. stanislava sp. n.* (Fig. 10) differ from those of *A. chiyo* (Fig. 11) in the narrower lateral subostial pockets, the narrower ductus bursae, the markedly narrower medio-lateral sclerotized protrusion of the corpus bursae, the presence of two round signa in the anterior section of the corpus bursae (absent in *A. chiyo*) and the shorter and narrower appendix bursae. Compared to *A. imbuta* (Fig. 12), the female genitalia of the new species have somewhat longer lateral subostial pockets, a longer postvaginal plate, a broader ductus bursae, a narrower medio-lateral sclerotized protrusion of the corpus bursae, a narrower anterior section of the corpus bursae directed laterally and bearing two round signa (whereas it is directed anteriorly and lacks signa in *A. imbuta*) and a somewhat shorter and medially narrower appendix bursae.

**Description. External morphology of adults** (Figs 1, 2). Forewing length 27 mm in holotype male and 31–32 mm in females. Palps black. Antenna black, shortly bipectinate in male and filiform in female. Head blackish brown with yellowish-creamy frons. Patagia blackish brown, outlined with creamy white and
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suffused with crimson posteriorly. Tegula blackish-brown with pale ochreous margins. Forewing ground colour blackish-brown with pale ochreous suffusion on veins. Pattern yellowish-creamy, represented by spots and transverse lines dilated on veins. Basal spot small. Antemedial area with two narrow transverse spots posteriorly. Medial line angled in cell and interrupted medially. Postmedial line smoothly curved opposite cell and almost straight. Postmedial area with transverse subapical dash on costa. Subterminal line dilated medially with semielliptical blackish-brown spots of various sizes between veins. Terminal line interrupted into spots between veins, fused with subterminal line. Cilia spotted, as terminal line. Hindwing paler than forewing, with pale yellowish-creamy suffusion on veins, two rectangular pale yellowish-creamy spots at costal margin and few semi-round small pale yellowish-creamy spots terminally at apex. Cilia pale blackish-brown with pale yellowish-creamy spots between veins posteriorly from apex, monotonous pale yellowish-creamy along termen and monotonous pale blackish-brown along anal margin. Abdomen crimson

Figures 1–6. Alphaea spp.: adults. Depositories of the specimens: 1, 2, 5 and 6 in SDM; 3 and 4 in WIGJ.
**A. stanislava sp. n., HT**
Vietnam, Quang Nam Prov., slide AV6460 Volynkin

**A. chiyo**
Myanmar, Chin State, slide AV6457 Volynkin

**A. imbuta imbuta**
Nepal, Katmandu Valley, slide AV6458 Volynkin

**Figures 7–9.** *Alphaea* spp.: male genitalia. The specimens dissected are deposited in SDM.
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Figures 10–12. *Alphaea* spp.: female genitalia. Depositories of the specimens dissected: 10 and 12 in SDM; 11 in WIGJ.

*A. stanislava* sp. n., PT
Vietnam, Quảng Nam Prov., slide AV6461 Volynkin

*A. chiyo*
China, Yunnan Prov., slide AV6462 Volynkin

*A. imbute imbute*
Nepal, Bagmati Prov., slide AV6459 Volynkin

with black spots on each segment dorsally and laterally. **Male genitalia** (Fig. 7). Uncus broadly triangular and apically rounded, swollen and convex dorsally, weakly setose. Tuba analis broad. Tegumen shorter than...
valva, with broadly triangular and apically rounded and serrulate medial lobes. Vinculum somewhat longer than tegumen, V-shaped and apically rounded. Valva narrow, distally tapered. Costa slightly convex medially. Apical process short, triangular and apically rounded, directed distally. Ventral subapical process shorter than apical one, broadly triangular and apically rounded, directed ventrally. Sacculus short (somewhat longer than half of valva length), distally dilated with short trapezoid apical process directed distally. Juxta wide, trapezoid with medial depression apically. Aedeagus long and narrow, somewhat curved medially, with elongate and heavily sclerotized carina bearing robust thorn-like subapical process directed distally. Vesica shorter than aedeagus, with dilated distal half. Subbasal ventral diverticulum semiglobular, short. Distal diverticulum broad, with elongate and broad cluster of numerous tiny spinules distally and area of weak granulation ventrally. Female genitalia (Fig. 10). Papilla analis trapezoid with rounded corners, weakly setose. Apophysis posterioris long and thin. Apophysis anterioris reduced. Postvaginal plate wide with convex posterior margin. 8th abdominal segment sclerotized and rugose triangular lateral subostial pockets. Ostium broad. Ductus bursae, dorso-ventrally flattened, sclerotized. Posterior section of ductus bursae with weakly sclerotized longitudinal medial area. Anterior section of ductus bursae somewhat broader than posterior one. Posterior section of corpus bursae rugose, with heavily sclerotized lateral protrusion on left side. Anterior section of corpus bursae globular, membranous with two round signa, directed laterally. Basal section of appendix bursae sclerotized and basally rugose, positioned ventrally and directed laterally on right side. Medial section of appendix bursae membranous, long and narrow, tubular, directed anteriorly. Anterior section of appendix bursae broad, teardrop-like, membranous. Ductus seminalis originates from medial section of appendix bursae.

Distribution. The new species is known from central Vietnam (Quảng Nam Province) and north-eastern Laos (Xiangkhouang Province).

Etymology. The new species is dedicated to Stanislava Didenko, a daughter of the senior author.

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