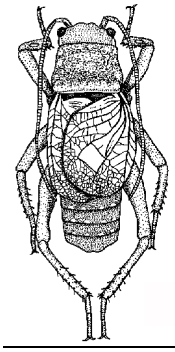

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REVIEW OF THE GENUS *BARSURA* VOLYNKIN, DUBATOLOV ET KISHIDA, 2017 (LEPIDOPTERA: EREBIDAE, ARCTIINAE) FROM VIETNAM, WITH DESCRIPTION OF TWO NEW SPECIES

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Summary. The genus *Barsura* is reported for Vietnam for the first time. *B. vernalis* Volynkin, **sp. n.** and *B. autumnalis* Volynkin, **sp. n.** are described from North Vietnam; *B. lineata* (Fang, 1993) is firstly recorded from this country. Adults, male and female genitalia of Vietnamese species are illustrated.

Key words: Lepidoptera, Erebidae, Arctiinae, Lithosiini, *Barsura*, new species, South East Asia.

А. В. Волынкин. Обзор рода *Barsura* Volynkin, Dubatolov et Kishida, 2017 (Lepidoptera: Erebidae, Arctiinae) Вьетнама с описанием двух новых видов // Дальневосточный энтомолог. 2017. N 339. С. 1-11.

Резюме. Впервые для Вьетнама указывается род *Barsura*. Из Северного Вьетнама описаны *B. vernalis* Volynkin, **sp. n.** и *B. autumnalis* Volynkin, **sp. n.**, а *B. lineata* (Fang, 1993) впервые приводится из этой страны. Приведены иллюстрации имаго и гениталий самцов и самок вьетнамских видов.

INTRODUCTION

The genus *Barsura* Volynkin, Dubatolov & Kishida, 2017 was recently erected for eight species known from Himalaya and China (Volynkin *et al,*. 2017). During studies of extensive Lithosiini materials deposited in Museum Witt / Zoologische Staatssammlung, München (Munich, Germany), I found three species of *Barsura* from Vietnam belonging to the *B. nubifascia* (Walker, [1865]) species-group. Two of them are new for science and described below. The third species, *Barsura lineata* (Fang, 1993) previously was known by males only, but I found in MWM/ZSM series of both sexes, and the present paper contains also the description of female genitalia of this species.

MATERIAL AND METHODS

The paper is based on the materials of the collection of Museum Witt / Zoologische Staatssammlung, München (MWM/ZSM, Munich, Germany), Natural History Museum, London (NHMUK, London, United Kingdom, formerly British Museum of Natural History, BMNH), Zoologisches Forschungsmuseum Alexander Koenig (ZFMK, Bonn, Germany), and Institute of Zoology of Chinese Academy of Sciences (IZCAS, Beijng, China). The genitalia were dissected and mounted in euparal on glass slides. Photos of imago where taken using the camera Nikon D3100/AF-S Nikkor, 18–55 mm. Photos of the genitalia where taken by same camera attached to a microscope with an LM-scope adapter.

TAXONOMY

Family Erebidae

Subfamily Arctiinae

Tribe Lithosiini

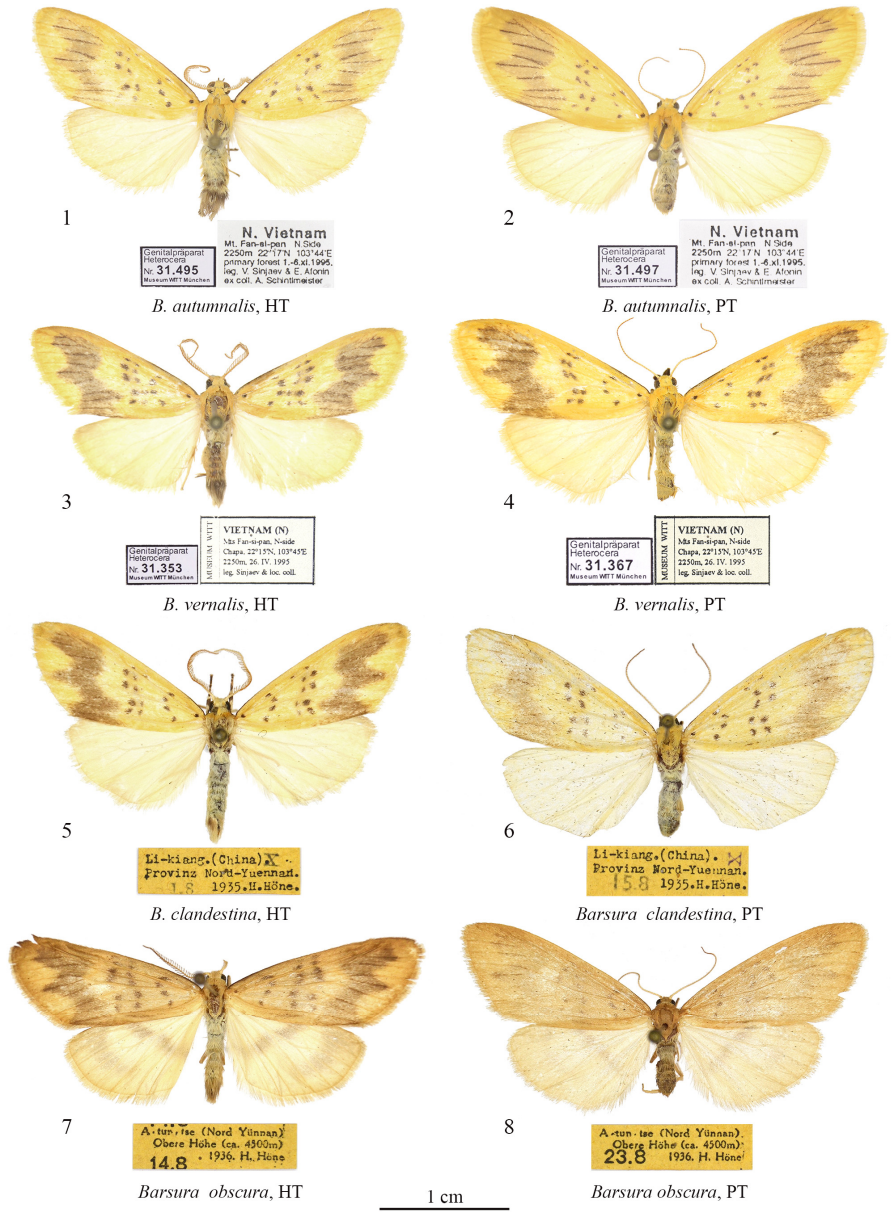
Genus *Barsura* Volynkin, Dubatolov et Kishida, 2017

Type species: *Barsine nubifascia* Walker, [1865], by original designation.

List of Vietnamese species with description of new taxa

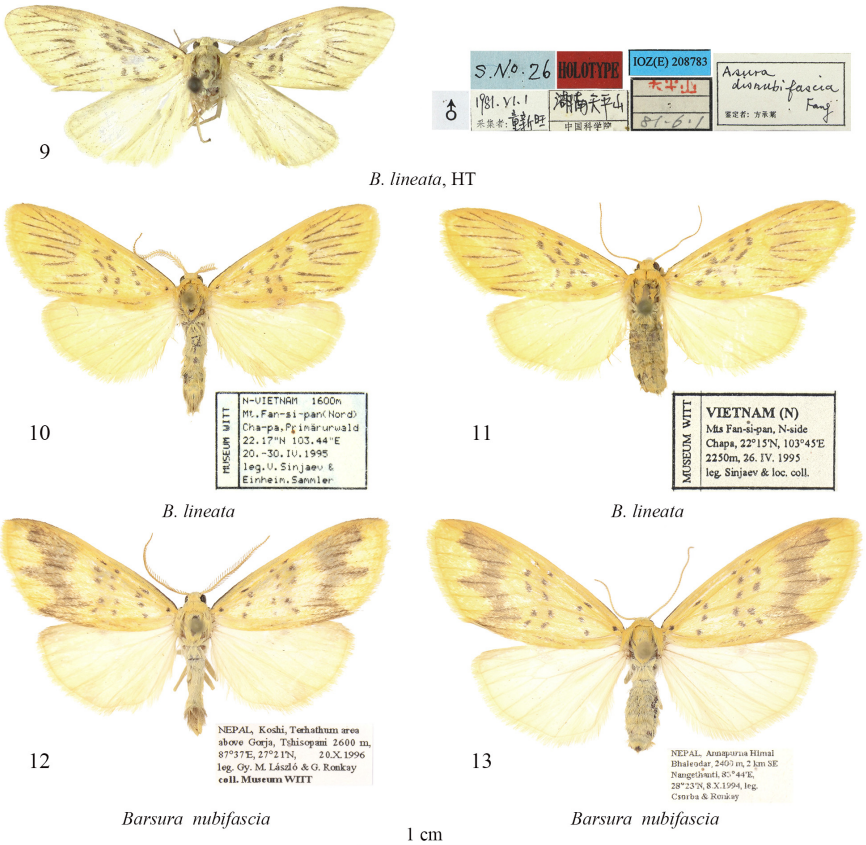
***Barsura autumnalis* Volynkin, sp. n.**
Figs 1, 2, 14, 20

TYPE MATERIAL. Holotype – ♂, **North Vietnam**: Mt. Fan-si-pan, N side, 2250 m, 22°17'N 103°44'E, primary forest, 1–6.XI 1995, leg. V. Sinjaev & E. Afonin, ex coll. A. Schintlmeister, slide MWM 31495 Volynkin (Coll. MWM/ZSM). Paratypes: same data as in the holotype, 39 ♂, 11 ♀, slides MWM 31496 (♂) and MWM 31497 (♀) Volynkin (Coll. MWM/ZSM); Mt. Fan-si-pan (Nord), 2350 m, Cha-pa, primary cloud forest, 22.15'N 103.45'E, 28–30.X 1994, 2 ♂, leg. Sinjaev &



Figs. 1–8. Adults of *Barsura* spp. 1, 2 – *B. autumnalis* sp. n.: 1 – holotype ♂, Vietnam, Fan-si-pan Mts. (MWM/ZSM); 2 – paratype ♀, Vietnam, Fan-si-pan Mts. (MWM/ZSM); 3, 4 – *B. vernalis* sp. n.: 3 – holotype ♂, Vietnam, Fan-si-pan Mts. (MWM/ZSM); 4 – paratype ♀, Vietnam, Fan-si-pan Mts. (MWM/ZSM); 5, 6 – *B. clandestina*: 5 – holotype ♂, China, Yunnan (ZFMK); 6 – paratype ♀, China, Yunnan (ZFMK); 7, 8 – *B. obscura*: 7 – holotype ♂, China, Yunnan (ZFMK); 8 – paratype ♀, China, Yunnan (ZFMK).

nat. coll. (Coll. MWM/ZSM); Mt. Fan-si-pan (West), Cha-pa, secondary forest, 1600–1800 m, 22.20'N 103.40'E, 10–30.X 1994, 2 ♂, 1 ♀, leg. Sinjaev & nat. coll. (Coll. MWM/ZSM); Mt. Fan-si-pan (West), 1600–1800 m, Cha-pa (=Sapa), 22.20'N 103.40'E, secondary forest, IX.1994 1 ♂, leg. Mong (Coll. MWM/ZSM); Mt. Fan-si-pan, N side, 22°17'N 103°44'E, 1600 m, primary forest, 20–30.X 1995, 16 ♂, 17 ♀, leg. V. Sinjaev & E. Afonin, ex coll. A. Schintlmeister (Coll. MWM/ZSM); Mt. Fan-si-pan, N side, 1600 m, 22°17'N, 103°44'E, primary forest, 1–7.XI.1995, 1 ♀, leg. V. Sinjaev & E. Afonin, ex coll. A. Schintlmeister (Coll. MWM/ZSM); North Vietnam, Farin Pass, 20 km NW Son-la, 21.22'N 103.52'E, 1600 m, 11–13.XI 1994, 1 ♂, leg. Sinjaev & Simonov (Coll. MWM/ZSM).



B. lineata, HT

B. lineata

B. lineata

Barsura nubifascia

Barsura nubifascia

1 cm

Figs. 9–13. Adults of *Barsura* spp. 9–11 *B. lineata*: 1 – holotype ♂, China, Hunan (IZCAS, photo by Wu Chunsheng); 10 – ♂, Vietnam, Fan-si-pan Mts. (MWM/ZSM); 11 –♀, Vietnam, Fan-si-pan Mts. (MWM/ZSM); 12, 13 – *B. nubifascia*: 12 – ♂, Nepal, Koshi (MWM/ZSM); 13 – ♂, Nepal, Annapurna Himal (MWM/ZSM).

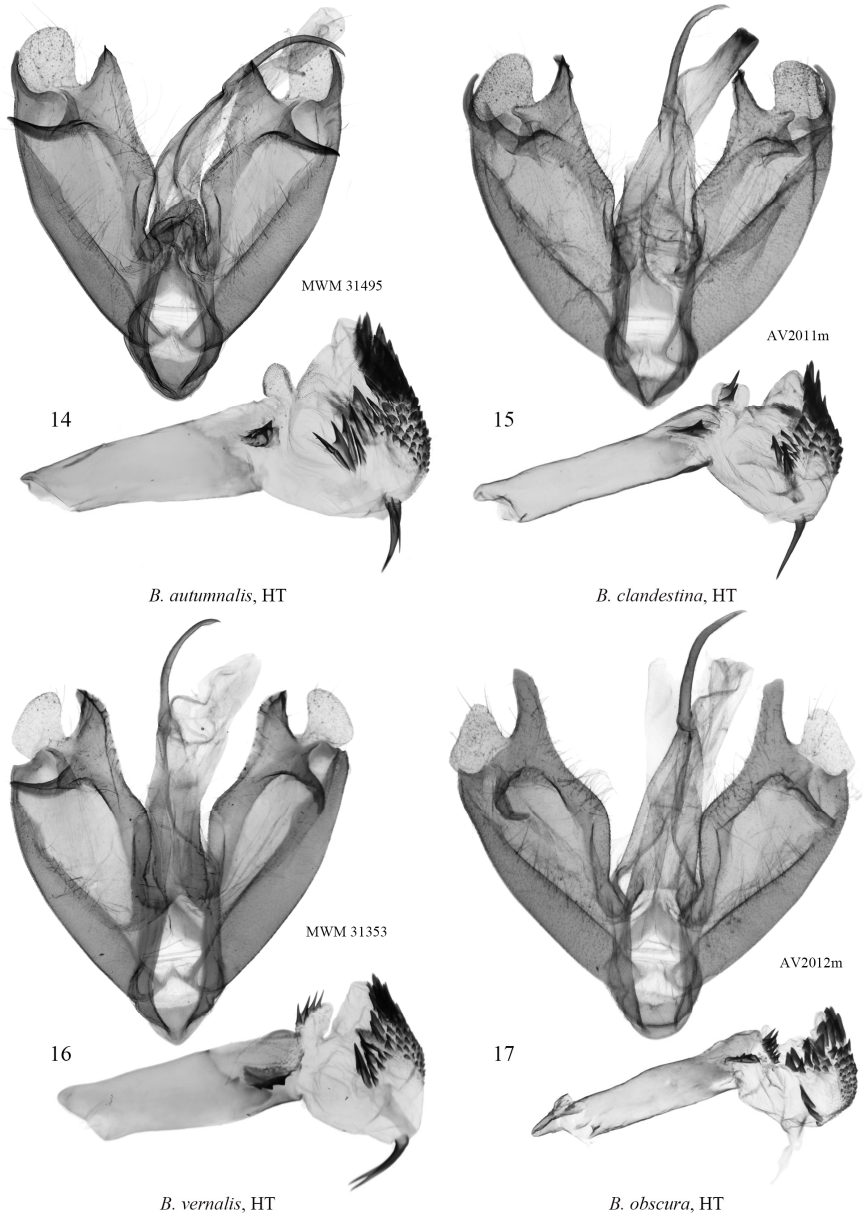
DIAGNOSIS. The new species (Figs 1, 2) is very similar externally to Himalayan *B. nubifascia* (Figs 12, 13) due its diffuse subterminal shadow with a strong dark

suffusion on veins, but can be differed by the slightly paler hindwings; from the sympatric species *B. vernalis* differs by the smaller dots of transverse lines and paler and more diffuse subterminal shadow with a strong dark suffusion on veins. The male genitalia of *B. autumnalis* (Fig. 14) are similar to those of Chinese *B. clandestina* Volynkin, Dubatolov et Kishida, 2017 and differ by the narrower ventral costal process, the broader trigonal distal costal process without a small ventral lobe, the broader aedeagus, presence of several thorns on the carinal plate (whereas in *B. clandestina* the carinal plate with only large thorn), the broader vesica, absence of cornuti in the subbasal ventral diverticulum, the larger cornuti in the apical and lateral fields, and presence of one-two additional needle-like subapical cornuti (whereas in *B. clandestina* there is only one needle-like subapical cornutus). The female genitalia (Fig. 20) differ from those of *B. clandestina* by the deeper ostial concavity of antevaginal plate, the anteriorly broader ductus bursae with larger lateral folds, the much broader lateral lobes of corpus bursae, and shorter and much broader anterior section of corpus bursae.

DESCRIPTION. Adult (Figs 1, 2). Forewing length 15–16 mm in males and 16–17 mm in females. Male antennae bipectinate, female antennae ciliate. Head and thorax ochreous-yellow; abdomen paler, ochreous. Forewing ground color intense ochreous-yellow. Forewing pattern consists of subbasal black dot, curved antemedial line consisting of four blackish dots, S-like medial and postmedial lines situated very close to each other and consisting of blackish small spots of different size, and diffuse cuneate wedge connected to shadows with blackish suffusion on veins in the subterminal area. Cilia ochreous-yellow. Hindwing monotonous pale ochreous-yellowish, cilia pale ochreous-yellowish.

Male genitalia (Fig. 14). Uncus long, narrow, smoothly curved, apically pointed. Tuba analis narrow, scaphium narrow, weakly sclerotized; tegumen moderately long and broad, slightly C-like curved; juxta trigonal, with deep lower concave; vinculum short, broad, U-like. Valva elongated, broad; costa heavily sclerotized, with robust, curved and apically pointed ventral process, and large, robust, trigonal distal process directed ventrally; sacculus broad, with long and claw-like curved distal process. Aedeagus long and narrow, with short and narrow coecum, and carinal plate with bunch of short robust thorn of different size. Vesica membranous, globular, with short subbasal ventral diverticulum with weak granulation, conical medial ventral diverticulum, apical field of cornuti of different size, lateral field of large cornuti, and subapical bunch of two-three long needle-like, slightly curved cornuti.

Female genitalia (Fig. 20). Ovipositor short, broad, conical; papillae anales broad, rectangular with rounded edges; apophyses and posteriores long and thin, apophyses posteriores about two times longer than apophyses anteriores. Antevaginal plate wrinkly sclerotized, with deep round concavity near its conjunction with ostium bursae. Ostium bursae broad; ductus bursae broad, moderately long, narrowed anteriorly, dorso-ventrally flattened, with strongly sclerotized lateral folds, left fold longer and broader than right fold. Corpus bursae broad, subdivided into two large asymmetric heavily sclerotized lateral lobes covered inside with numerous short spinules, and sack-like, weakly sclerotized anterior section with weak spine-like scobination; appendix bursae small, conical, membranous, situated dorso-posteriorly.



Figs. 14–17. Male genitalia of *Barsura* spp. 14 – *B. autumnalis* sp. n., holotype, Vietnam, Fan-si-pan Mts., slide MWM 31495 Volynkin; 15 – *B. clandestina*, holotype, China, Yunnan, slide AV2011m Volynkin; 16 – *B. vernalis* sp. n., holotype, Vietnam, Fan-si-pan Mts., slide MWM 31353 Volynkin; 17 – *B. obscura*, holotype, China, Yunnan, slide AV2012m Volynkin.

DISTRIBUTION. North Vietnam (Hoang Lien Son mountain range).

ETYMOLOGY. From Latin "*autumnalis*" means autumnal. The specific epithet refers to its autumnal flight period.

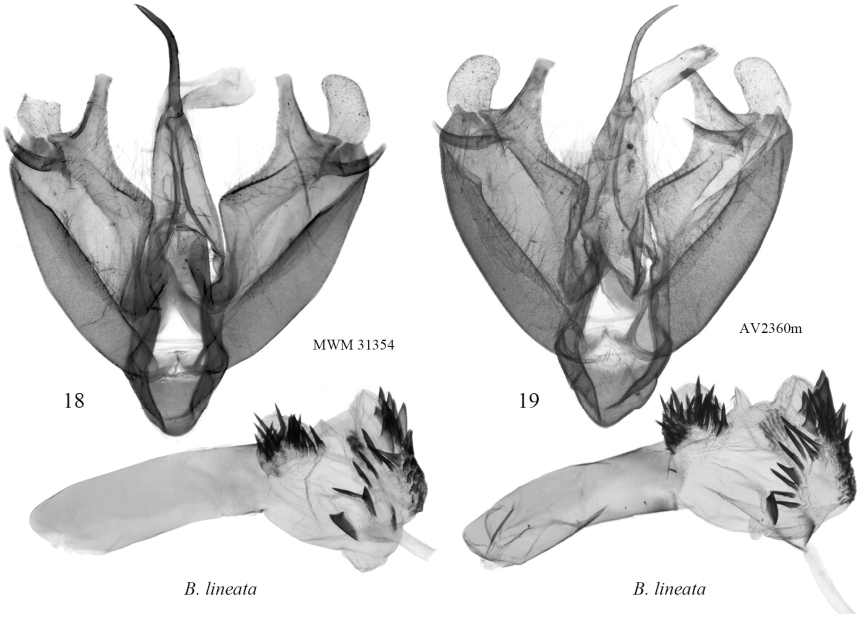
***Barsura vernalis* Volynkin, sp. n.**
Figs 3, 4, 16, 22

TYPE MATERIAL. Holotype – ♂, **North Vietnam**: Mt. Fan-si-pan, N side, Chapa, 22°15'N, 103°45'E, 2250 m, 26.IV 1995, leg. Sinjaev & loc. coll., slide MWM 31353 Volynkin (Coll. MWM/ZSM). **Paratypes**: same data as in the holotype, 15 ♂, 3 ♀, slides MWM 31368 (♂) and MWM 31367 (♀) Volynkin (Coll. MWM/ ZSM); Mt. Fan-si-pan (North), 1600 m, Cha-pa, primary forest, 22.17"N, 103.44"E, 20–30.IV 1995, 1 ♂, 1 ♀, leg. V. Sinjaev & nat. coll. (Coll. MWM/ZSM); Mt. Fan-si-pan, Cha pa, 1700 m, 22.15'N 103.46'E, VI 1994, 1 ♂, 3 ♀, leg. Sinjaev & nat. coll. (Coll. MWM/ZSM); Mt. Fan-si-pan (West), 1600–1800 m, Cha-pa (=Sapa), sec. forest/agricult., 22.20'N 103.40'E, 10.VI–6.VII 1994, 1 ♀, Sinjaev & nat. coll. (Coll. MWM/ZSM); Mt. Fan-si-pan (West), 1600–1800 m, Cha-pa, secondary forest, 22.20'N 103.40'E, IV 1995, 11 ♂, 3 ♀, leg. Sinjaev & loc. coll. (Coll. MWM/ ZSM); Mt. Fan-si-pan (West), 1600–1800 m, Cha-pa, XI 1994, 22.20'N 103.40'E, secondary forest/agricult., 10.VI–6.VII 1994, 2 ♀, Sinjaev & loc. coll. (Coll. MWM/ ZSM); North Vietnam, Tam Dao, 60 km NW Hanoi, 950 m, secondary forest, 21.34'N 105.20'E, IV 1995, 3 ♂, leg. V. Sinjaev (Coll. MWM/ZSM).

DIAGNOSIS. The new species is similar externally to *B. clandestina* (Figs 5, 6) and can be differed by the genitalia structures only. The male genitalia are surprisingly similar to those of Chinese *B. obscura* Volynkin, Dubatolov et Kishida, 2017 (Fig. 17) and not *B. clandestina* (Fig. 15) due reduction of the distal saccular process, but differ by the shorter and broader distal costal process with an arcuate curved ventral margin, the broader aedeagus, the more robust carinal plate, the larger cornuti of the lateral field, and presence of a bunch of two-three needle-ike subapical cornuti directed apically (whereas in *B. obscura* there is a row of two-three much shorter subapical cornuti directed laterally). The female genitalia of *B. vernalis* (Fig. 22) are more similar to those of *B. clandestina* (Fig. 21) and not *B. obscura* (Fig. 23), and differ by the much broader and deeper concavity of the antevaginal plate, the broader and more sclerotized ductus bursae, and the smaller anterior section of corpus bursae.

DESCRIPTION. Adult (Figs 3, 4). Forewing length 14.5–15.5 mm in males and 16–17 mm in females. Male antennae bipectinate, female antennae ciliate. Head and thorax ochreous-yellow; abdomen paler, ochreous. Forewing ground color intense ochreous-yellow. Forewing pattern consists of subbasal black dot, curved antemedial line consisting of four blackish dots, S-like medial and postmedial lines situated very close to each other and consisting of blackish small spots of different size, and diffuse cuneate wedge connected to shadows with blackish suffusion on veins in the subterminal area. Cilia ochreous-yellow. Hindwing monotonous pale ochreous-yellowish, cilia pale ochreous-yellowish.

Male genitalia (Fig. 16). Uncus long, narrow, smoothly curved, apically pointed. Tuba analis narrow, scaphium narrow, weakly sclerotized; tegumen moderately long and broad, slightly C-like curved; juxta trigonal, with deep lower concavity vinculum short, broad, U-like. Valva elongated, broad; costa heavily sclerotized, with robust, curved and apically pointed ventral process, and large, robust, trigonal distal process with curved dorsal margin; sacculus broad, with very short trigonal distal process. Aedeagus long and narrow, with short and narrow coecum, and carinal plate with three-four short trigonal thorns. Vesica membranous, globular, with subbasal ventral diverticulum with bunch of several strong thorn-like cornuti, conical medial ventral diverticulum, apical and lateral fields consist of broad robust trigonal cornuti of different sizes, and subapical bunch of two-three long needle-like, slightly curved cornuti.

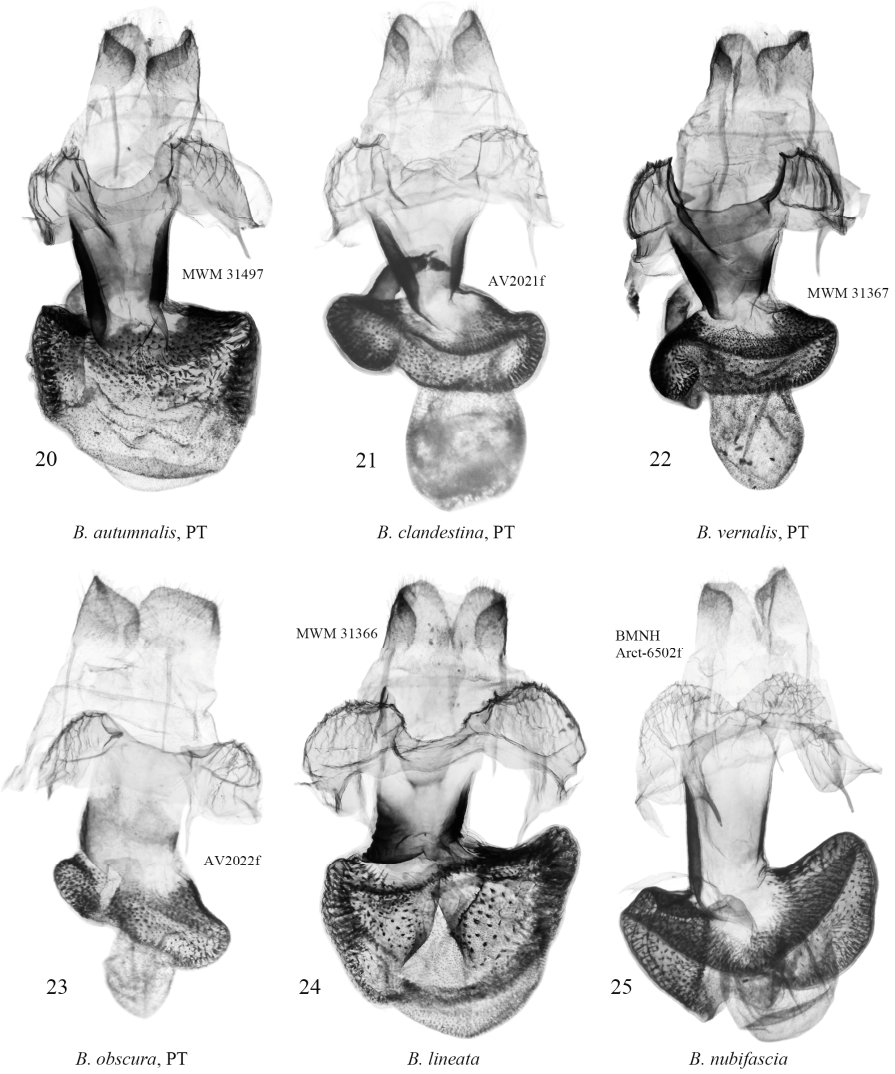


Figs. 18–19. Male genitalia of *Barsura lineata*. 18 – Vietnam, Fan-si-pan Mts., slide MWM 31354 Volynkin; 19 – China, Guangdong, slide AV2360m Volynkin.

Female genitalia (Fig. 22). Ovipositor short, broad, conical; papillae anales broad, rectangular with rounded edges; apophyses and posteriores long and thin, apophyses posteriores about two times longer than apophyses anteriores. Antevaginal plate wrinkly sclerotized, with deep and broad round concavity near its conjunction with ostium bursae. Ostium bursae broad; ductus bursae broad, short, narrowed anteriorly, dorso-ventrally flattened, with strongly sclerotized lateral folds, left fold longer and broader than right fold. Corpus bursae small, subdivided into two asymmetric, heavily sclerotized lateral lobes covered inside with numerous short spinules, and elliptical, weakly sclerotized anterior section with weak spine-like scobination; appendix bursae small, conical, membranous, situated dorso-posteriorly.

DISTRIBUTION. North Vietnam (Hoang Lien Son mountain range).

ETYMOLOGY. From Latin "*vernalis*" (spring). The specific epithet refers to its spring flight period.



Figs. 20–25. Female genitalia of *Barsura* spp. 20 – *B. autumnalis* sp. n., paratype, Vietnam, Fan-si-pan Mts., slide MWM 31497 Volynkin; 21 – *B. clandestina*, paratype, China, Yunnan, slide AV2021f Volynkin; 22 – *B. vernalis* sp. n., paratype, Vietnam, Fan-si-pan Mts., slide MWM 31367 Volynkin; 23 – *B. obscura*, paratype, China, Yunnan, slide AV2022f Volynkin; 24 – *B. lineata*, Vietnam, Fan-si-pan Mts., slide MWM 31366 Volynkin; 25 – *B. nubifascia*, Sikkim, slide BMNH(E) Arct-6502f Volynkin (©NHMUK).

***Barsura lineata* (Fang, 1993)**
Figs 9–11, 18, 19, 24

Asura lineata Fang, 1993: 355, 358, 361, fig. 1 (Type locality: "Tianping Mountain, Sangzhi, Hunan Province").
Asura disnubifascia Fang, 2000: 115 (an unnecessary replacement name for *Asura lineata* Fang, 1993).
Barsura lineata: Volynkin *et al.,* 2017: 62.

MATERIAL EXAMINED. North Vietnam, Mts. Fan-si-pan, N-side, Chapa, 22°15'N, 103°45'E, 2250 m, 26.IV 1995, 2 ♂, 5 ♀, leg. Sinjaev & loc. coll., slide MWM 31366 Volynkin (Coll. MWM/ZSM); Mt. Fan-si-pan (North), 1600 m, Cha-pa, primary forest, 22.17"N, 103.44"E, 20–30.IV 1995, 3 ♂, leg. V. Sinjaev & loc. coll., slide MWM 31354 Volynkin (Coll. MWM/ZSM); Mt. Fan-si-pan (West), 1600–1800 m, Cha-pa (=Sapa), 22.20'N 103.40'E, secondary forest, IX 1994, 1 ♂, 1 ♀, leg. Mong (Coll. MWM/ZSM).

DIAGNOSIS OF FEMALE. Female of *B. lineata* (Fig. 11) is very similar externally to male (Fig. 10), but has more elongated forewing apex and filiform antennae. The female genitalia of *B. lineata* (Fig. 24) are similar to those of *B. nubifascia* (Fig. 25) due very broad sclerotized lateral lobes of corpus bursae, but differ clearly by the much broader antevaginal plate with broader and deeper concavity, the much shorter ductus bursae with much broader lateral folds strongly broadened anteriorly, and the much broader anterior section of corpus bursae.

DESCRIPTION OF FEMALE GENITALIA (Fig. 24). Ovipositor short, broad, conical; papillae anales broad, rectangular with rounded edges; apophyses and posteriores long and thin, apophyses posteriores about two times longer than apophyses anteriores. Antevaginal plate wrinkly sclerotized, with round concavity near its conjunction with ostium bursae. Ostium bursae broad; ductus bursae broad, short, dorso-ventrally flattened, with strongly sclerotized lateral trigonal folds, left fold much broader anteriorly than right fold. Corpus bursae broad, subdivided into two large asymmetric heavily sclerotized lateral lobes covered inside with numerous short spinules, and broad, sack-like, weakly sclerotized anterior section with weak spine-like scobination; appendix bursae small, conical, membranous, situated dorso-posteriorly.

DISTRIBUTION. China: Hunan, Sichuan (Fang 1993; 2000), Guandong (Volynkin *et al.,* 2017); North Vietnam (Hoang Lien Son mountain range).

ACKNOWLEDGEMENTS

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Volynkin, A.V., Dubatolov, V.V. & Kishida, Y. 2017. *Barsura* Volynkin, Dubatolov & Kishida, gen. nov., with descriptions of three new species (Lepidoptera, Erebidae, Arctiinae). *Zootaxa*, 4299(1): 54–74. DOI: http://dx.doi.org/10.11646/zootaxa.4299.1.2