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NEW DATA ON SOME OF THE RECENTLY DESCRIBED LITHOSIINI SPECIES (LEPIDOPTERA, EREBIDAE, ARCTIINAE)

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The paper contains new data on some of the recently described Lithosiini species from Indochina: male vesici of *Lyclene kontumica* Dubatolov & Bucsek, 2013, *Lyclene kepica* Dubatolov & Bucsek, 2013, *Adites thanhi* Dubatolov & Bucsek, 2016, *Aemene monastyrskyi* Dubatolov & Bucsek, 2013, *Aemene annamica* Dubatolov & Bucsek, 2016, and female genitalia of *Lyclene kontumica*, *Lyclene kosterini* Dubatolov & Bucsek, 2013 and *Lyclene zhinchenkoi* Dubatolov & Bucsek, 2013 are described and illustrated for the first time; updated diagnoses for *Lyclene kosterini* and *Lyclene kepica* are given; *Adites thanhi* is reported for Thailand for the first time. In addition, *Asura punctata* Rothschild, 1913 is transferred to the genus *Lyclene*: *Lyclene punctata* (Rothschild, 1913), **comb. nov.**, its male genitalia are described and illustrated for the first time. Adults of all species mentioned are illustrated.

Key words: *Lepidoptera*, *Erebidae*, *Lithosiini*, *Lyclene*, *Adites*, *Aemene*, *male genitalia*, *female genitalia*, *new combination*, *new record*, *Asia*.

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INTRODUCTION

During the last several years, a number of new Lithosiini species were described from Indochina by the second and third authors of the present paper (Dubatolov & Bucsek, 2013; 2014; 2016). In many cases, species were described on the basis of males only, and in some small species male vesici were not everted and described. During our studies on Lithosiini of Indochina, additional materials on some of these recently described species were obtained, and the male genitalia of some small-sized species were re-prepared and mounted in euparal by the senior author of the present paper. All the newly obtained data are presented below.

MATERIAL AND METHODS

The paper is based on the materials of collections of the Siberian Zoological Museum of the Institute of Systematics and Ecology of Animals, Siberian Branch of RAS (SZMN, Novosibirsk, Russia), the Natural History Museum, London (formerly British Museum of Natural History, NHM, London, Great Britain) and the private collection of Anton Volynkin (CAV, Barnaul, Russia). The genitalia were dissected and mounted in euparal on glass slides. Photos of imago were taken using the camera Nikon D3100/AF-S Nikkor, 18–55 mm. Photos of the genitalia were taken by same camera attached to a microscope with an LM-scope adapter, and further processed by Adobe Photoshop CS4® software.

RESULTS

Subtribe NUDARIINA

Lyclene kontumica Dubatolov & Bucsek, 2013

(Figs 1, 2, 16, 26)

Lyclene kontumica Dubatolov & Bucsek, 2013, *Timea* **22** (4): 285, figs 7, 8, 22 (Type locality: "Vietnam, Ngoc Linh, Kon Tum Prov., 14°45'–15°15'N, 107°21'–108°20'E").

Type material examined: **Holotype**, male, Vietnam, Ngoc Linh, Kon Tum Prov., 14°45'–15°15'N, 107°21'–108°20'E, Monastyrski leg. III–IV.2006, slide AV1655m Volynkin (Coll. SZMN); **paratypes**: 2 males, 2 females, with the same data as in holotype, slide AV2430f Volynkin (Coll. SZMN).

Additional material examined: 5 males, 3 females, X.2015, South Vietnam, Lam Dong province, Lac Duong district, Tay Nguyen Highlands, Nui Ba National Park, leg. Vo Van Nhon (Coll. CAV).

Note. The type series of the species includes both males and females, but the male genitalia without everted vesica were described and illustrated only (Dubatolov & Bucsek, 2013).

Description of male aedeagus (Fig. 16). Aedeagus straight, short and broad; vesica short and broad, with small, conical and membranous dorsal subbasal diverticulum, large bulbous lateral diverticulum having strong scobination, several smaller diverticuli of different shape and size with scobination, and bunch of two-three strong spearhead-like cornuti that situated apically on one strongly sclerotized bundle-like base.

Description of female genitalia (Fig. 26). Ovipositor short and broad, papillae anales rectangular; apophyses anteriores and posteriores long and thin, with broadened triangular bases. Ostium bursae situated in the middle of 7th sternite; antrum rugose, with two lateral triangular lateral lobes; ductus bursae short, rugose, weakly sclerotized; corpus bursae pear-like, with numerous thorns in anterior section and laterally at the left side, and three large bands of strong spines in posterior and medial sections; appendix bursae large, globular, strongly rugose-sclerotized, situated laterally at the right side. 7th sternite with very small lateral pockets.

Distribution. The species is known from Vietnam (Kon Tum and Lam Dong provinces).

Lyclene kosterini Dubatolov & Bucsek, 2013

(Figs 3, 4, 17, 27)

Lyclene kosterini Dubatolov & Bucsek, 2013, *Timea* **22** (4): 284, figs 5, 20 (Type locality: "Cambodia, Kampot Prov., Bokor Hill Station, h = 1030 m, 10°37'37"N, 104°01'33"E").

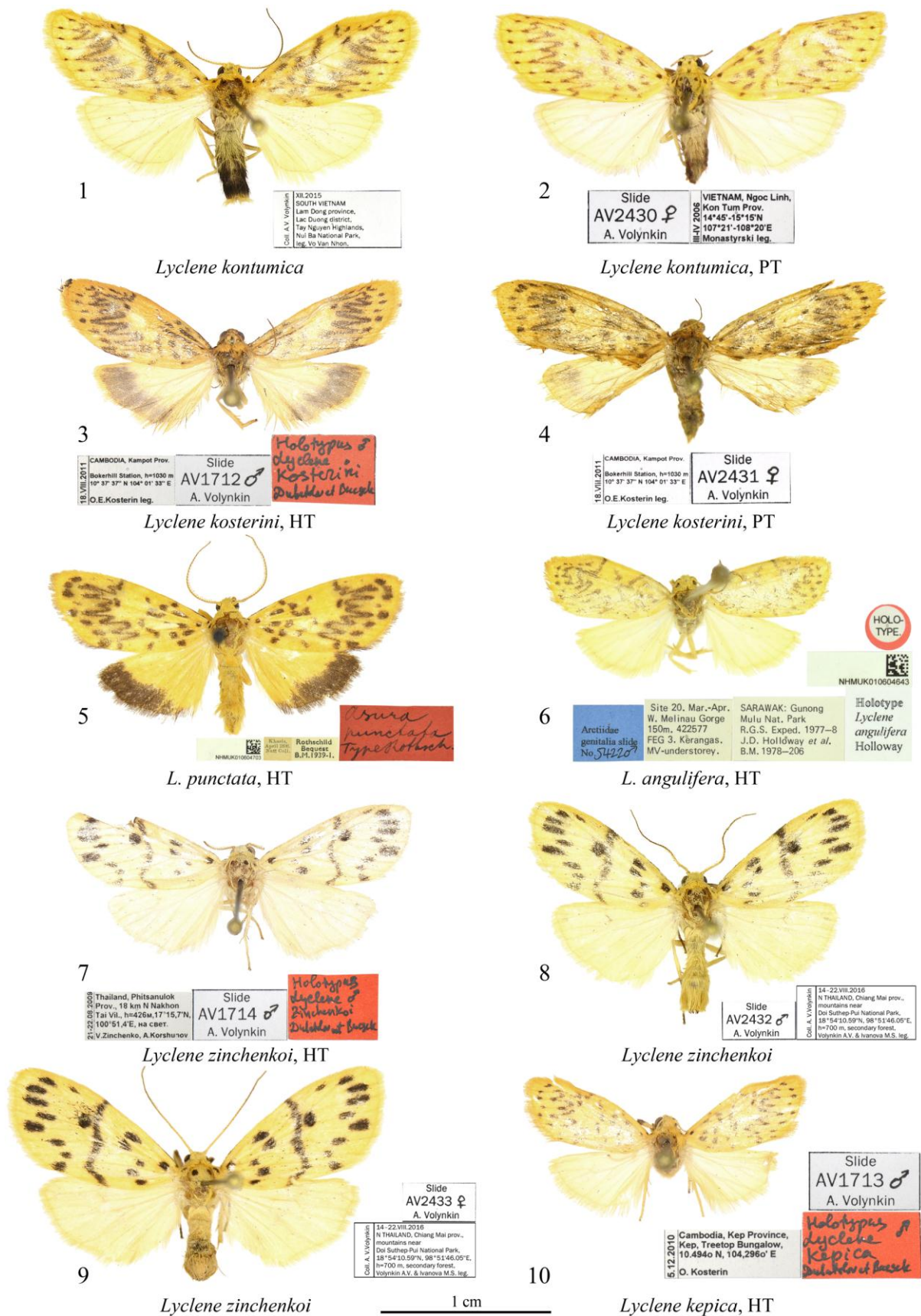
Type material examined: **Holotype** (Figs 3, 17), male, Cambodia, Kampot Prov., Bokor Hill Station, h = 1030 m, 10°37'37"N, 104°01'33"E, O.E. Kosterin leg., 18.VIII.2011, slide AV1712m Volynkin (Coll. SZMN); **paratypes** (Figs 4, 27): 3 females, same data as in the holotype, slide AV2431f Volynkin (Coll. SZMN).

Note. The type series of the species includes both sexes, but the female genitalia were not described and illustrated (Dubatolov & Bucsek, 2013).

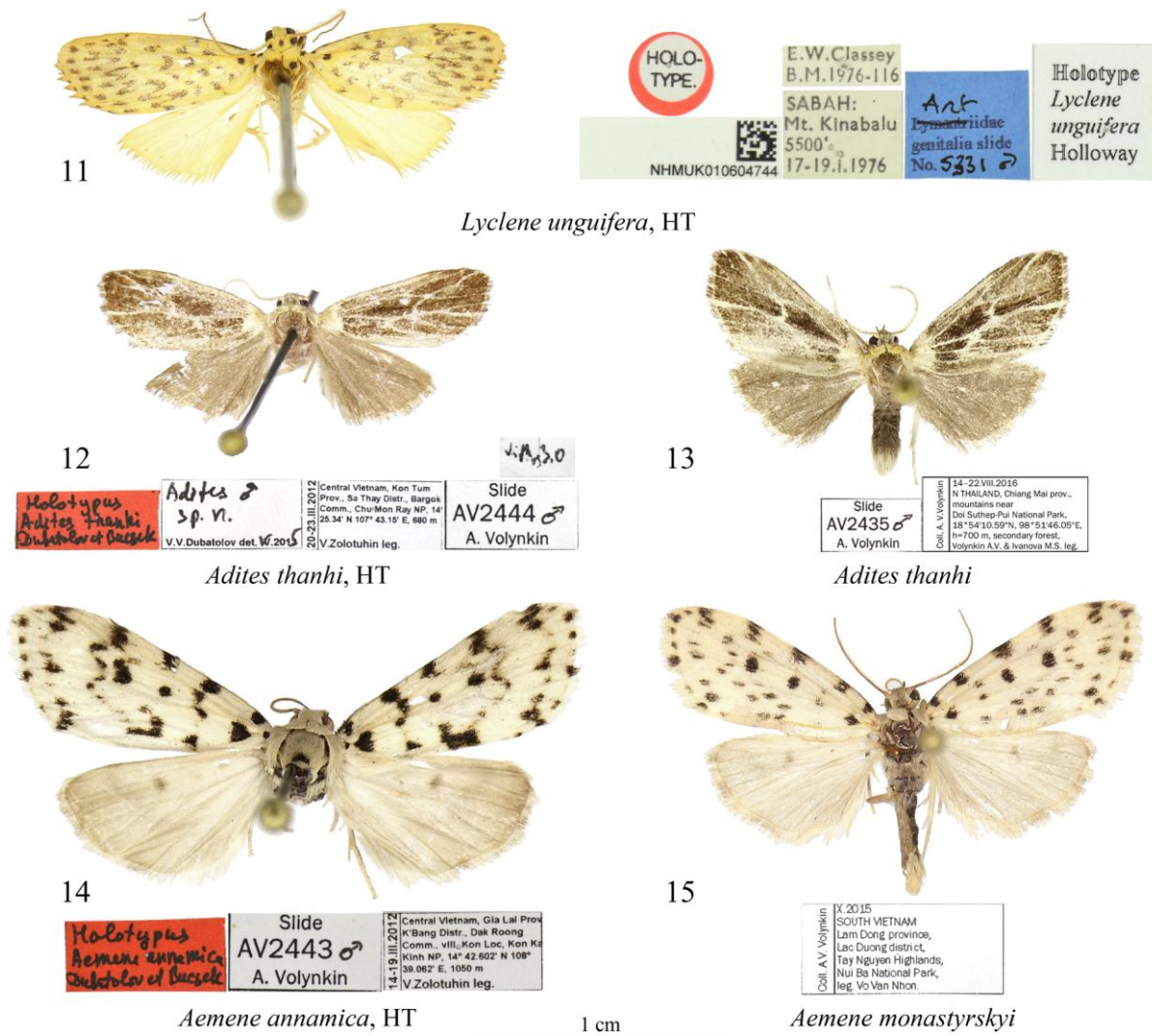
Description of female genitalia (Fig. 27). Ovipositor short and broad, papillae anales rectangular; apophyses anteriores and posteriores long and thin, with broadened triangular bases. Ostium bursae situated in the posterior third of 7th sternite; antrum rugose, narrow; ductus bursae very short, membranous; corpus bursae kidney-like, its anterior two-thirds with numerous thorns of different size; posterior third of corpus bursae strongly rugose-sclerotized; appendix bursae large, globular, strongly rugose-sclerotized, situated laterally at the right side. 7th sternite with very large lateral pockets.

Diagnosis. In the original description (Dubatolov & Bucsek, 2013), the species was not compared with any other *Lyclene* species, its characteristic hindwing dark margin was mentioned only. There is one more species with close appearance, *Lyclene punctata* (Rothschild, 1913), **comb. nov.** (Figs 5, 19) known from eastern India (Meghalaya, Khasi Hills), but it has strongly different male genitalia structure. According to the male genitalia structure (presence of the weakly sclerotized dorsal crest on apical part of costa, configuration of diverticuli in vesica, and presence of a bunch of several strong claw-like cornuti on a sclerotised plate in the distal part of vesica), *L. kosterini* (Fig. 17) is similar to *Lyclene angulifera* Holloway, 2001 (Fig. 18) known from Sundaland, but differs externally by the larger size, longer forewings and the different wing pattern; the male genitalia of *L. kosterini* (Fig. 17) differ from those of *L. angulifera* (Fig. 18) by the valva medially broader, the dorsal crest of apical part of costa very short and broad, the valva apex triangular, the distal saccular process very short and thin, the ventral subbasal diverticulum broader, the scobination of medial diverticulum weaker, and the cornuti slightly shorter.

Distribution. Southern Cambodia (Kampot prov.). The species is known from its type locality only.



Figures 1–10. *Lyclene* spp., adults. 1 – *L. kontumica*, male, S Vietnam (CAV); 2 – *L. kontumica*, paratype female, C Vietnam (SZMN); 3 – *L. kosterini*, holotype male, Cambodia (SZMN); 4 – *L. kosterini*, paratype female, Cambodia (SZMN); 5 – *L. punctata*, lectotype male, E India (©NHM); 6 – *L. angulifera*, holotype male, Borneo (©NHM); 7 – *L. zinchenkoi*, holotype male, N Thailand (SZMN); 8 – *L. zinchenkoi*, male, N Thailand, Chiang Mai prov. (CAV); 9 – *L. zinchenkoi*, female, N Thailand, Chiang Mai prov. (CAV); 10 – *L. kepica*, holotype male, Cambodia (SZMN).



Figures 11–15. Lithosiini spp., adults. 11 – *Lyclene unguifera*, holotype male, Borneo (©NHM); 12 – *Adites thanhi*, holotype male, Vietnam (SZMN); 13 – *A. thanhi*, male, N Thailand, Chiang Mai (CAV); 14 – *Aemene annamica*, holotype male, C Vietnam (SZMN); 15 – *A. monastyrskyi*, S Vietnam (CAV).

***Lyclene punctata* (Rothschild, 1913), comb. nov.**

(Figs 5, 19)

Asura punctata Rothschild, 1913, *Novitates Zoologicae* 20: 207 (Type locality: "Khasia Hills, Assam").

Type material examined: lectotype (designated by Hampson, 1914) (Fig. 5): male, red handwritten label "*Asura punctata* Type Rothsch." / whitish printed label "Rothschild bequest, B.M.1939-I." / yellowish-grey printed label "Khasis, April 1896, Nat. coll." / white printed label with QR-code "NHMUK010604703" (Coll. NHM).

Additional material examined: former syntypes, 3 males, yellowish-grey printed label "Khasis, April 1896, Nat. coll." / whitish printed label "Rothschild bequest, B.M.1939-I." (Coll. NHM).

Notes. In NHM collection, besides the specimen having the red type-label, there are three more specimens with the same geographic label from the Rothschild's collection, but not marked as types. In the original description (Rothschild, 1913), the number of types was not mentioned. Hampson (1914) recorded as "Type" only one male specimen, that is equivalent to a present-day lectotype designation. Therefore the specimen with a type-label (Fig. 5) is treated here as the lectotype. The species has an appearance typical for the genus *Lyclene*, but long time it was treated by authors (Strand, 1922; Kirti et al., 2014) as a member of the genus *Asura*. Our examination of its male genitalia confirmed its belonging to the genus *Lyclene*, so the new combination is established here: *Lyclene punctata* (Rothschild, 1913), **comb. nov.** The male genitalia of the species (Fig. 19) are very characteristic in the aedeagus strongly curved and the vesica structure, and differ strongly from those of externally close *L. kosterini* that has a similar broad blackish hindwing margin.

Description of male genitalia (Fig. 19). Uncus long, narrow, laterally flattened, slightly curved dorsoventrally, apically pointed; scaphium thin and weakly sclerotized; subscaphium as narrow field of weak scobination; tegumen short and broad, penicular lobes broad, elliptical; manica very long, consists of two very long, narrow and strongly sclerotized lobes with strong dentation; justa broad, weakly sclerotized, band-like; vinculum large, U-shaped. Valva broad, in border of distal third weakly sclerotized and curved dorsally, its distal third broad and rounded; sacculus very narrow and strongly sclerotized, its distal process long but not reaching the calva apex, strongly separated from the distal lobe of valva, heavily sclerotized, distally slightly curved dorsally and pointed apically. Aedeagus long, narrow, strongly curved dorsally; vesica curved dorsally, with small conical subbasal ventral diverticulum, small conical subapical diverticulum, one strong thorn-like cornutus medially, and long and narrow diverticulum projected ventrally and having one strong thorn-like cornutus apically.

Distribution. The species is known from its type locality only: Khasi Hills in eastern India, Meghalaya.

Lyclene zinchenko Dubatolov & Bucsek, 2013

(Figs 7–9, 22, 28)

Lyclene zinchenko Dubatolov & Bucsek, 2013, *Tinea* **22** (4): 284, figs 4, 19 (Type locality: "Thailand, Phitsanulok Prov., 18 km N Nakhon Tai Vil., h=426 m, 17°15,7'N, 100°51,4'E").

Type material examined: Holotype (Fig. 7), male, 21–22.VIII.2009, Thailand, Phitsanulok Prov., 18 km N Nakhon Tai Vil., h=426 m, 17°15,7'N, 100°51,4'E", at light, V. Zinchenko, A. Korshunov [leg.], slide AV1714m Volynkin (Coll. SZMN).

Additional material examined: 5 males, 6 females, 14–22.VIII.2016, N Thailand, Chiang Mai prov., mountains near Doi Suthep-Pui National Park, 18°54'10.50"N 98°51'46.05"E, h=700 m, secondary forest, Volynkin A.V. & Ivanova M.S. leg., slides AV2432m Volynkin (male), AV2433f Volynkin (female) (Coll. CAV).

Note. The species was described on the basis of a single male of bad condition having weather-stained whitish wing coloration (Fig. 7). Fresh specimens of both sexes collected in Chiang Mai province (Figs 8, 9) have bright light yellow forewing coloration. Females were collected for the first time, they have forewing pattern very similar to that of males, but broader forewing and slightly larger size (Fig. 9). Male genitalia of newly collected specimens (Fig. 22) have no differences from those of the holotype. Female genitalia are described here for the first time.

Description of female genitalia (Fig. 28). Ovipositor short, broadly conical; apophyses anteriores and posteriores long and thin; ostium bursae very broad; antrum with rugose margins and deep narrow concave medially; ductus bursae long, broad, narrowed anteriorly, heavily sclerotized, its anterior section with scobination; corpus bursae curved, pear-like, its anterior section with spinulose scobination, medial section with two short bands of very large spinules, posterior section weakly sclerotized.

Distribution. The species is known from North Thailand (Phitsanulok and Chiang Mai provinces).

Lyclene kepica Dubatolov & Bucsek, 2013

(Figs 10, 20)

Lyclene kepica Dubatolov & Bucsek, 2013, *Tinea* **22** (4): 285, figs 6, 21 (Type locality: "Cambodia, Kep Province, Kep, Treetop Bungalow, 10.494°N, 104.296°E, 51 m").

Type material examined: Holotype (Figs 10, 20), male, Cambodia, Kep Province, Kep, Treetop Bungalow, 10.494°N, 104.296°E, 51 m, O. Kosterin [leg.], 5.XII.2010, slide AV1713m Volynkin (Coll. SZMN).

Note. The species was described on the basis of a single male. Its male genitalia were described and illustrated without everted vesica (Dubatolov & Bucsek, 2013).

Diagnosis. Externally, the species resembles Himalayan *L. obsoleta* Moore, 1878 (the comparison was given by Dubatolov & Bucsek, 2013), but the valva configuration resembles that of *L. unguifera* Holloway, 2001 (Figs 11, 21). Nevertheless, *kepica* and *unguifera* are not related species because of presence of long costal lobe with dentate ventral margin, and strongly dentate lobes on transtilla in *L. kepica*, the features are unique among known *Lyclene* species. In addition, the male genitalia of *L. kepica* differ from those of *L. unguifera* by the uncus longer and evenly narrowed apically (in *unguifera* the uncus apex with a claw-like tip), the juxta much broader, the costa almost straight (in *unguifera* the costa with a strong fold apically), the apical lobe of valva shorter, the sacculus narrower, the distal saccular process much narrower, the aedeagus longer and narrower, the carina scobination presented, the vesica diverticuli configuration different, and presence of only thorn-like cornutus in the ventral diverticulum (whereas in *unguifera* a very large claw-like subbasal cornutus and a field of several short spike-like cornuti in the apical diverticulum are present).

Description of male aedeagus (Fig. 20). Aedeagus long and narrow, straight, with scobination in distal end. Vesica broad and short, consists of one large membranous ventral diverticulum with strong claw-like cornutus, one small membranous and one larger scobinated medio-apical diverticuli, and one small conical

membranous distal diverticulum; basal plate of ductus ejaculatorius very narrow, weakly sclerotized, situated dorsally.

Distribution. S Cambodia, Kep province. The species is known from its type locality only.

Adites thanhi Dubatolov & Bucsek, 2016

(Figs 12, 13, 23)

Adites thanhi Dubatolov & Bucsek, 2016, *Euroasian entomological journal* **15**(3): 230, figs 7, 25 (Type locality: "Central Vietnam, Kon Tum Prov., Sa Thay Distr., Bargok Comm., Chu Mon Ray NP [National Park], 14°25.34' N, 107°43.15' E, 680 m").

Type material examined: Holotype (Figs 12, 23), male, Central Vietnam, Kon Tum Prov., Sa Thay Distr., Bargok Comm., Chu Mon Ray NP [National Park], 14°25.34' N, 107°43.15' E, 680 m, 20–23.III.2012, V. Zolotuhin leg., slide AV2444m Volynkin (Coll. SZMN).

Additional material examined: 1 male, 14–22.VIII.2016, N Thailand, Chiang Mai prov., mountains near Doi Suthep-Pui National Park, 18°54'10.50"N 98°51'46.05"E, h=700 m, secondary forest, Volynkin A.V. & Ivanova M.S. leg., slide AV2435m Volynkin (Coll. CAV).

Note. The species was described on the basis of a single male. Its male genitalia were described and illustrated without everted vesica (Dubatolov & Bucsek, 2016).

Description of male aedeagus (Fig. 23). Aedeagus long and narrow, almost straight. Vesica elongated, narrow, curved dorsally, broadened medially, with one ventral subbasal longitudinal band of more than 10 strong spike-like cornuti of size expanding distally along the band, medio-distal ventral bunch of several strong spike-like cornuti, and subapical transverse band of 6 strong spike-like cornuti.

Distribution. Central Vietnam (Kon Tum province) and North Thailand (Chiang Mai province). The species is reported here for Thailand for the first time.

Subtribe CISTHENINA

Aemene annamica Dubatolov & Bucsek, 2016

(Figs 14, 24)

Aemene annamica Dubatolov & Bucsek, 2016, *Euroasian entomological journal* **15**(3): 233, figs 10, 29 (Type locality: "Central Vietnam, Gia Lai Prov., K'Bang Distr., Dak Roong Comm., vill.[age] Kon Loc, Kon Ka Kinh NP [National Park], 14°42.602' N, 108°39.062' E, 1050 m").

Type material examined: Holotype (Figs 14, 24), male, Central Vietnam, Gia Lai Prov., K'Bang Distr., Dak Roong Comm., vill. Kon Loc, Kon Ka Kinh NP, 14°42.602' N, 108°39.062' E, 1050 m, 14–19.III.2012, V. Zolotuhin leg., slide AV2443m Volynkin (Coll. SZMN).

Note. The species was described on the basis of a single male. Its male genitalia were described and illustrated without everted vesica (Dubatolov & Bucsek, 2016).

Description of male aedeagus (Fig. 24). Aedeagus moderately broad, elongated. Vesica broad, globular, with broad diverticulum with granulation latero-dorsally, one broad membranous diverticulum latero-ventrally, and one small globular diverticulum with bunch of long spike-like cornuti of different thickness medio-dorsally.

Distribution. Central Vietnam, Gia Lai province. The species is known from its type locality only.

Aemene monastyrskiyi Dubatolov & Bucsek, 2013

(Figs 15, 25)

Aemene monastyrskiyi Dubatolov & Bucsek, 2013, *Tinea* **22** (4): 288, figs 13, 26 (Type locality: "Vietnam, Ngoc Linh, Kon Tum Prov., 14°45'-15°15'N 107°21'-108°20'E").

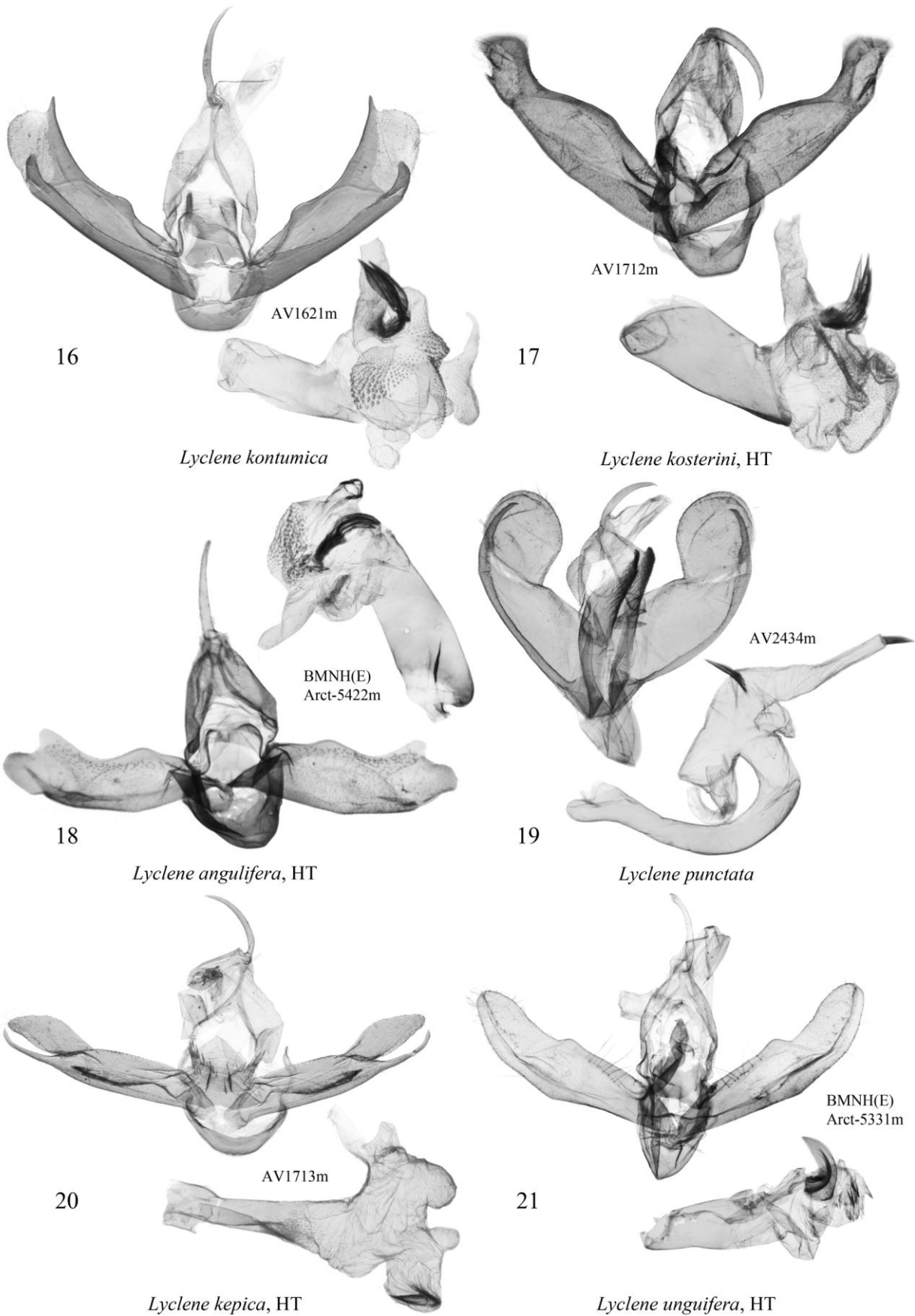
Type material examined: Holotype (Fig. 25), male, Vietnam, Ngoc Linh, Kon Tum Prov., 14°45'-15°15'N 107°21'-108°20'E, Monastyrski leg., III–IV 2006, slide AV2442m Volynkin (Coll. SZMN).

Additional material examined: 1 male, Central Vietnam, Gia Lai Prov., K'Bang Distr., Dak Roong Comm., vill. Kon Loc, Kon Ka Kinh NP, 14°42.602' N, 108°39.062' E, 1050 m, 14–19.III.2012, V. Zolotuhin leg. (Coll. SZMN); 1 male, X.2015, South Vietnam, Lam Dong province, Lac Duong district, Tay Nguyen Highlands, Nui Ba National Park, leg. Vo Van Nhon (Coll. CAV).

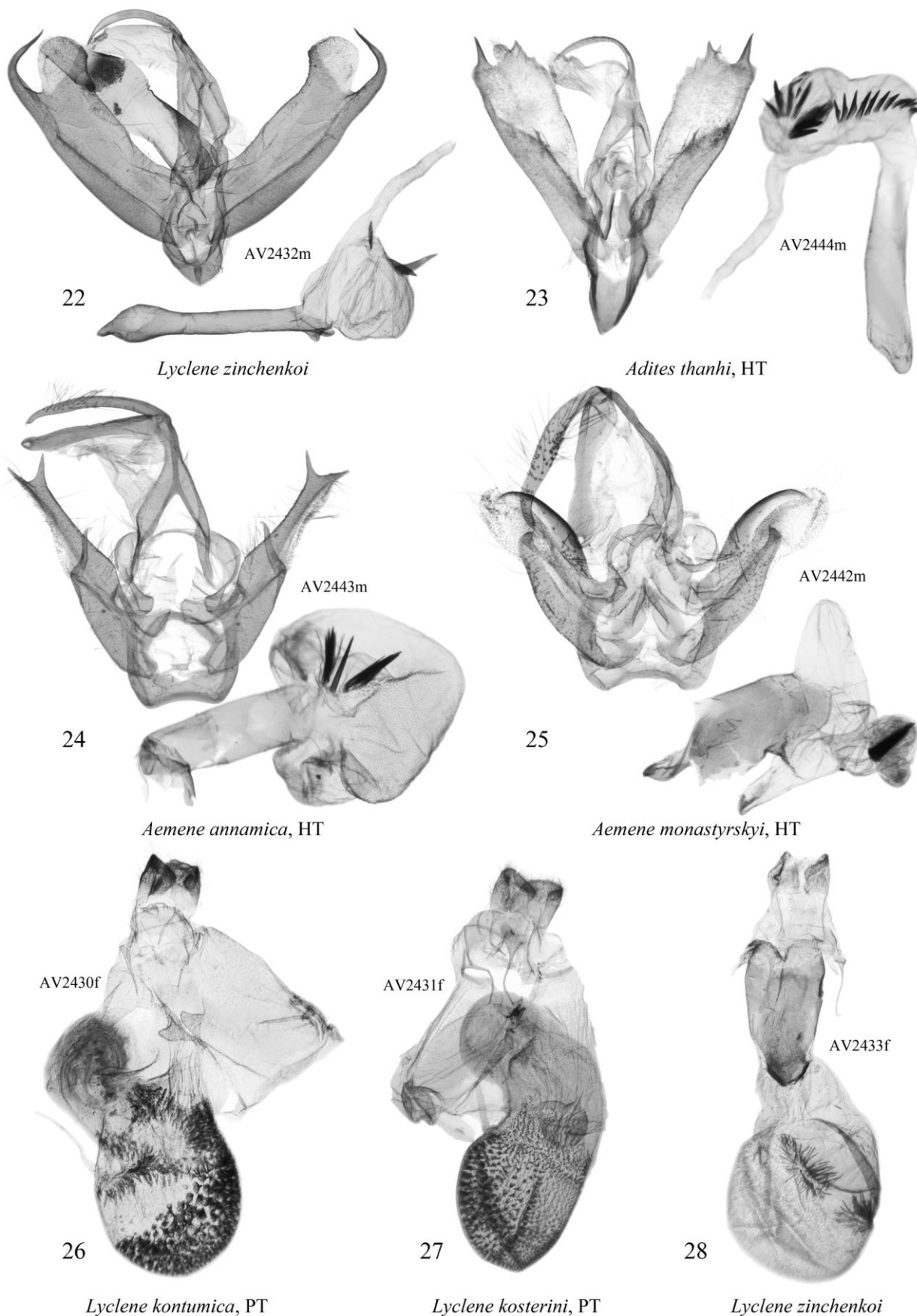
Note. The species was described on the basis of a single male in bad condition. Its male genitalia were described and illustrated without everted vesica (Dubatolov & Bucsek, 2013).

Description of male aedeagus (Fig. 25). Aedeagus short and very broad. Vesica short, membranous, with one dorsal subbasal conical diverticulum, and one twisted apical diverticulum with bunch of long and thin cornuti; distal section of vesica and ductus ejaculatorius broad, projected ventrally backwards.

Distribution. Central and South Vietnam (Kon Tum, Gia Lai and Lam dong provinces).



Figures 16–21. *Lyclene* spp., male genitalia. 16 – *L. kontumica*, S Vietnam, slide AV1621m Volynkin; 17 – *L. kosterini*, holotype, Cambodia, slide AV1712m Volynkin; 18 – *L. angulifera*, holotype, slide BMNH(E) Arct-5422m Holloway (©NHM); 19 – *L. punctata*, E India, slide AV2434m Volynkin (©NHM); 20 – *L. kepica*, holotype, Cambodia, slide AV1713m Volynkin; 21 – *L. unguifera*, holotype, Borneo, slide BMNH(E) Arct-5331m Holloway (©NHM).



Figures 22–28. Lithosiini spp., male (22–25) and female (26–28) genitalia. 22 – *Lyclene zinchenkoi*, N Thailand, slide AV2432m Volynkin; 23 – *Adites thanhi*, holotype, Vietnam, slide AV2444m Volynkin; 24 – *Aemene annamica*, holotype, Vietnam, slide AV2443m Volynkin; 25 – *Aemene monastyrskyi*, holotype, Vietnam, slide AV2442m Volynkin; 26 – *Lyclene kontumica*, paratype, Vietnam, slide AV2430f Volynkin; 27 – *L. kosterini*, paratype, Cambodia, slide AV2431f Volynkin; 28 – *L. zinchenkoi*, N Thailand, Chiang Mai, slide AV2433f Volynkin.

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REFERENCES

- Dubatolov, V.V. & Bucsek, K. (2013). New species of lichen-moths from South-East Asia (Lepidoptera, Noctuoidea, Lithosiini). *Tinea*, 22 (4), 279–291.
- Dubatolov, V.V. & Bucsek, K. (2014). New Lithosiinae (Lepidoptera, Arctiidae: Lithosiinae) species collected by A. Schintlmeister in Indonesia. *Amurian zoological journal*, 6(2), 176–181.
- Dubatolov, V.V. & Bucsek, K. (2016). New lichen-moth taxa (Lepidoptera, Arctiidae, Lithosiinae) from Vietnam. *Euroasian entomological journal*, 15(3), 228–238.
- Singh, J., Singh, N. & Joshi, R. (2014). A Checklist of Subfamily Arctiinae (Erebidae : Noctuoidea : Lepidoptera) from India. *Records of the Zoological Survey of India*, 367, 1–76.
- Rothschild, W. (1913). New Lithosiinae. *Novitates Zoologicae*, 20, 192–226.
- Strand, E. (1922). Arctiidae: Subfam. Lithosiinae. In: Wagner, H. (Ed.), *Lepidopterorum Catalogus*, 26. Berlin: W. Junk.