

New or little known butterflies from China - 7

(Lepidoptera: Nymphalidae, Lycaenidae et Hesperiiidae)

by

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Abstract: *Loxerebia liyinghuii* **spec. nov.** is described from Lhorong and Mali, Tibet. *Triphysa striatula urumtshiensis* DUBATOLOV, KORB & YAKOVLEV, 2023 is reported from Dushanzi on north slope of the Borohoro Mts., with ♀ specimens figured for the first time. *Triphysa phryne shaoshani* **subspec. nov.** is described from the southwest corner of the Balluk Mts., Xinjiang. *Howarthia qingangi* **spec. nov.** is described from the Nujiang valley. *Proteuspa akikoae* KOIWAYA & MORITA, 2003 is recorded from Guizhou as new to Chinese fauna. As a supplement to the author's previous review, the ♂ genitalia of *Tajuria illurgioides* DE NICEVILLE, 1890 are figured in detail, taken from a specimen recently collected from Shizong, E Yunnan. *Ahlbergia wenhaoi* **spec. nov.** is described from Yanling, Hunan. *Ahlbergia caerulea* JOHNSON, 1992 **syn. nov.** is proved to be a junior synonym of *Novosatsuma oppocoenosa* JOHNSON, 1992. *Ahlbergia albilinea balinti* (HUANG, 2021) is reported from Zuogong, E Tibet. *Glaucoopsyche* (*Sinia*) *leechi* FORSTER, 1940 is recorded from Jiangda, NE Tibet. *Unkana flava* EVANS, 1932 is reported from Pu'er, S Yunnan as new to Chinese fauna. *Chaospes subcaudatus yingqii* **subspec. nov.** is described from Xishuangbanna, S Yunnan with its last instar larva reported.

Introduction. Barcode of mitochondrial COI was chosen for calculating genetic distances and constructing a phylogenetic tree of *Loxerebia innupta* (SOUTH, 1913) and *Loxerebia liyinghuii* **spec. nov.** DNA extractions were conducted by Beijing Tsingke Biotech Co., Ltd. (Beijing, China). The PCR reaction was applied in a 30 µL system by using 15 µL of Mix (I-5TM 2×High Fidelity Master Mix, Beijing Tsingke Biotech Co., Ltd.), 1 µL of gDNA, 12 µL of dH₂O, and 1 µL of each of forward and reverse primers (the general primers LCO1490 and HCO2198 were utilized) (FOLMER et al. 1994). The thermal profile of PCR consisted of a pre-denaturation at 98°C for 3 min, 37 cycles of denaturation at 98°C for 10 s, annealing at 55°C for 15 s, and elongation at 72°C for 15 s, then a final elongation at 72°C for 5 min.

Sequence matrices were aligned by Cluster W and edited manually using MEGA 11 (TAMURA et al. 2021). Genetic distances were also calculated in MEGA 11 by KIMURA-2-parameter models (K2P) (KIMURA 1980). Construction of the phylogenetic tree was performed by Maximum likelihood (ML) method using IQ-TREE as implemented in the web online server (TRIFINOPOULOS et al. 2016). In addition to the five *Loxerebia* specimens from Tibet sequenced (PP768809 - PP768813), *Loxerebia saxicola* (OBERTHÜR, 1876) with its barcode obtained from NCBI GenBank was also included in the molecular analysis.

Taxa	Locality	Voucher Number	Accession Number
<i>Loxerebia innupta</i>	Basu	hqd05	PP768809
<i>Loxerebia innupta</i>	Basu	hqd06	PP768810
<i>Loxerebia liyinghuii</i>	Lhorong	hqd07	PP768811
<i>Loxerebia liyinghuii</i>	Mali	hqd08	PP768812
<i>Loxerebia zhuka</i>	Zhuka	hqd09	PP768813

Abbreviations

BSNU:	Biological laboratory of Shanghai Normal University, Shanghai, P.R. China.
CHH:	Collection of HAO HUANG, Qingdao, Shandong.
NHMUK:	Natural History Museum, London
TL:	Type locality

Nymphalidae

Loxerebia liyinghuii **spec. nov.**

Holotype ♂ (fig. 4- L3): China, Xizang, Qamdo Prefecture, Qamdo City, Lhorong County, 30.75 N, 95.81 E, 3660 m, 22.VI.2023, H. HUANG leg., will be deposited in BSNU.

Paratypes: 8 ♂♂, 2 ♀♀ (CHH), same data as holotype; 4 ♂♂, 2 ♀♀ (CHH), Mali Town in Nujiang valley, further upstream above Basu, 30.88 N, 96.20 E, 3340 m, 21.VI.2023, H. HUANG leg.

Etymology. This new species is named in honour of Mr. YING-HUI LI who accompanied the author during his recent collecting trip in Tibet.

Diagnosis. This new species can be distinguished from its closest species, *Loxerebia innupta* (SOUTH, 1913) from Menkong (TL, about 28.48 N, 98.39 E, alongside Nujiang, further downstream than Basu) and Basu (30.02 N, 97.07 E) by the following combination of characters.

Both sexes:

- 1) Forewing underside subapical ocellus constantly larger.
- 2) Forewing underside postdiscal line placed much closer to ocellus.
- 3) Hindwing underside postdiscal line less evident, being less marked by black scales.
- 4) Hindwing underside waved submarginal line absent or weakly marked, not clearly defined and continuous in *L. innupta* (SOUTH).
- 5) Hindwing underside with ground color more mottled than in *L. innupta* (SOUTH), more or less marked by a yellowish ill-defined antediscal smudge in costal half of the wing.

♂: 6) Hindwing upper side unmarked or at most marked by some white dots, not associated with reddish-ringed ocelli as in *L. innupta* (SOUTH).

7) Apex of valva narrower in lateral view. (Only 2 ♂♂ of *L. innupta* (SOUTH) are compared).

8) Juxta in posterior view (or full-face view) smaller. [Only 2 ♂♂ of *L. innupta* (SOUTH) are compared.]

Remarks. There is no difference in ♂ brand (fig. 6) and androconia (fig. 8) between the two species like in most known species of *Loxerebia* WATKINS, 1925.

The KIMURA 2-parameter distance in COI barcode sequence between *Loxerebia liyinghuii* spec. nov. and *L. innupta* (SOUTH) is 0.022 (fig. 2) that is much larger than that between the two known populations of *Loxerebia liyinghuii* spec. nov., somewhat forming a gap between the *Loxerebia* populations above Mali and those below Mali. A molecular analysis on barcode data reveals that these two species are sister to each other (fig. 1). These two species inhabiting Nujiang valleys have no geographical barrier between their ranges and they replace each other in different part of Nujiang valley, occupying the same ecological niche. The barcode distance indicates that the two species have reproductive isolation for a long time because their ranges are not separated by any geographical barrier. Moreover, these two species have significant difference in morphology including both wing-pattern and ♂ genitalia.

Range. Upper Nujiang valley above Mali Town (30.88 N, 96.23 E).

Triphysa striatula urumtshiensis DUBATOLOV, KORB & YAKOVLEV, 2023

Triphysa striatula urumtshiensis DUBATOLOV, KORB & YAKOVLEV, 2023: 99 (TL: Urumtchi), figs. 2a-b, 6a, 23.

Triphysa striatula urumtchiensis DUBATOLOV, KORB & YAKOVLEV, 2023: 99, 88, abstract, 90, catalogue.

Material. 22 ♂♂, 18 ♀♀ (CHH), S of Dushanzi, north slope of Boro-Khoro Mts., ca. 44.16 N, 84.84 E, 1380 m, 14.V.2022, H. HUANG leg.

Remarks. DUBATOLOV, KORB & YAKOVLEV (2023) recently revised the genus *Triphysa* ZELLER, 1858 and recognized four species. They separated *Triphysa striatula* ELWES, 1899 (TL: Kuruktag, near Korla) from *T. phryne* (PALLAS, 1771) at full specific rank, based on some difference in ♂ genitalia: “valva triangular (excluding caudal branch), with sharp spike on its apex” in *T. phryne* (PALLAS) but “pear-shaped (including caudal branch), with sharp apex (no spike is present)” in *T. striatula* ELWES. However such character is not clearly shown in their figures of genitalia prepared in slides.

T. striatula urumtshiensis DUBAT., KORB & YAKOV. was described upon a few specimens from Urumqi and the Borohoro Mts. on west of Urumqi. Though the ♀ specimens were included in the type series, none of the ♀ specimens was figured. The locality of the specimens examined in this work fall into the previously recorded range of this taxon. The newly collected ♀ specimens show an entirely whitish ground colour on both wings upper side as originally described.

Between the ranges of *T. phryne phryne* (PALLAS) and *T. striatula urumtshiensis* DUBAT., KORB & YAKOV. a large area remains unknown in *Triphysa* fauna. And a new subspecies is discovered by the author from the west slope of the Balluk Mts., described below.

An examination of these new materials reveals that *T. phryne* (PALLAS) and *Triphysa striatula* ELWES are different in apex of ♂ valva, confirming DUBATOLOV, KORB & YAKOVLEV'S (2023) observation in ♂ genital difference. But whether or not such small difference in ♂ valva deserves a separation in species level requires a further analysis of molecular data in future. Without sufficient material, the author just simply follows the last revisional work in this paper.

Triphysa phryne shaoshani subspec. nov.

Holotype ♂ (fig. 10- T3): China, Xinjiang, 50 km north of Alashankou, west slope of Balluk Mts., ca 45.60 N, 82.42 E, 800 m, 12.V.2022, H. HUANG leg., will be deposited in BSNU.

Paratypes: 1 ♂, 5 ♀♀ (CHH), same data as holotype.

Etymology. This new subspecies is named in honour of Prof. SHAO-SHAN WANG, Shihezi University, for his kindness in providing valuable information on the butterflies from Xinjiang.

Diagnosis. This new subspecies can be distinguished from the nearby *T. p. phryne* (PALLAS) by the following combination of characters.

1) ♀: both wings upper side more or less black-dusted along outer margin, rather extensive in most of the known specimens.

2) ♂: both wings underside with a discal series of yellowish patches at bases of spaces. (This character needs to be confirmed by more ♂ specimens in future.)

This new subspecies is distributed close to *T. striatula urumtshiensis* DUBAT., KORB & YAKOV., which might be actually a subspecies of *T. phryne* (PALLAS), but can be easily distinguished from the latter by the following combination of characters.

♀: 1) Both wings upper side more or less black-dusted along outer margin, not uniformly whitish.

2) Yellowish patches around ocelli on underside of both wings a little darker, not so bright as in *T. striatula urumtshiensis* DUBAT., KORB & YAKOV..

3) Forewing underside ocelli usually larger.

♂: 4) Both wings underside with a discal series of yellowish patches at bases of spaces. (This character needs to be confirmed by more ♂ specimens in future).

Remarks. The range of this new subspecies may cover the whole south slope of the Balluk Mts., as a specimen has been caught by Mr. S.-S. Wang from south of Tuoli County (ca. 45.73 N, 83.53 E). Unfortunately the author had no opportunity to examine this specimen closely yet.

Lycaenidae

Howarthia qingangi spec. nov.

Holotype ♂ (fig. 13): China, Yunnan, Nujiang Pref., Gongshan County, Bingzhongluo, 2200 m, 5.VIII.2023, H. HUANG leg., will be deposited in BSNU.

Etymology. This new species is named in honour of Mr. GANG QIN, who helped the author in collecting an important material from Guiyang.

Diagnosis & discussion. By having a rather small size of wings, a pale sky-blue ground color on upper side of wings and an absence of clear blackish submarginal markings on hindwing upper side, the ♂ of this new species is apparently similar to that of *H. kimurai* KOIWAYA, 2002 (sensu KOIWAYA, 2007 and HASEGAWA & SAITO, 2020) and that of *H. venata* HASEGAWA & SAITO, 2020. These three species constitute a small morphological group (most probably not a natural group) within the genus *Howarthia* SHIRÔZU & YAMAMOTO, 1956, being easily separable from other species. A further species, *H. jianyilingi* S.-Y. HUANG, 2021, based upon a ♀, belongs to this group too. The new species described herein can be easily distinguished from its similar species by the following combination of ♂ genital characters (consulting HASEGAWA & SAITO, 2020).

- 1) Uncus flat at apical margin, not bifurcate as in *H. kimurai* KOIWAYA (sensu KOIWAYA, 2007 and HASEGAWA & SAITO, 2020) and *H. venata* HASEGAWA & SAITO.
- 2) Uncus more than twice longer than tegumen.
- 3) Valva bifurcate, with a very long ventral branch which is absent in *H. kimurai* KOIWAYA (sensu KOIWAYA, 2007 and HASEGAWA & SAITO, 2020) and *H. venata* HASEGAWA & SAITO.
- 4) Aedeagus with a relatively shorter subzonal sheath.
- 5) Cornutus markedly larger.

However, S.-Y. HUANG (2021) considered that “the population of *H. kimurai* KOIWAYA from Sapa, N. Vietnam, known only by ♂♂, is conspecific with *H. jianyilingi* S.-Y. HUANG rather than the HT of *H. kimurai* KOIWAYA from C. Sichuan due to the similarity in some details in wing pattern, e.g. the more similar size of the metallic zone on forewing upperside and the shape of the blackish spot inside the tornal orange patch in space 1c on hindwing underside”. This viewpoint makes sense both biogeographically and morphologically. It is highly possible that the ♂ specimens from Sapa, N Vietnam identified as *H. kimurai* KOIWAYA by KOIWAYA (2007) or HASEGAWA & SAITO (2020) belong to *H. jianyilingi* S.-Y. HUANG. Thus, most likely the ♂ of *H. kimurai* KOIWAYA remains unknown.

Therefore, *H. qingangi spec. nov.* could be easily separable from both *H. jianyilingi* S.-Y. HUANG and *H. venata* HASEGAWA & SAITO in ♂ genitalia as stated above. And the relationship between *H. qingangi spec. nov.* and *H. kimurai* KOIWAYA (sensu S.-Y. HUANG, restricted to Omeishan, Sichuan) requires a further discussion.

In ♂ genitalia *H. qingangi spec. nov.* is more similar to *H. caelestis* (LEECH, 1890) than to both *H. jianyilingi* S.-Y. HUANG and *H. venata* HASEGAWA & SAITO by having a deeply bifurcate valva and a large cornutus. It seems that within the genus *Howarthia* SHIRÔZU & YAMAMOTO the classification based on wing-pattern is not in accordance with that on genitalia. Since the ♂ and ♀ genitalia provide more diagnosable characters than wing-pattern, it is highly possible that genitalia provide more phylogenetic information than wing-pattern. The striking difference in ♀ genitalia between *H. kimurai* KOIWAYA and *H. jianyilingi* S.-Y. HUANG is in great contrast with their similarity in wing-pattern that is most probably caused by parallel evolution.

Therefore it is highly possible that *H. qingangi spec. nov.* is not phylogenetically close to *H. kimurai* KOIWAYA. And this is reflected by the fact that the ♂ holotype of *H. qingangi spec. nov.* shows several important differences in wing-pattern from the ♀ holotype of *H. kimurai* KOIWAYA:

- 1) Discal whitish line on both wings underside broadly shaded by dark scales on its inner side, especially on forewing;
- 2) Submarginal lunules on forewing underside continuous from dorsum to costa;
- 3) Discocellular bar clearly marked on hindwing underside;
- 4) Antediscal area inside of discal line on forewing underside apparently more yellowish and not concolorous with reddish postdiscal area outside of discal line.

The characters 1 and 4 are particularly important as no individual variation in such extent has been found in a single species of *Howarthia* SHIRÔZU & YAMAMOTO yet. It is worthy noting that the underside wing-pattern shows no sexual dimorphism in the genus *Howarthia* SHIRÔZU & YAMAMOTO.

H. watanabei KOIWAYA, 1993 remains the most mysterious specie within the genus, since it was described on 2 ♀♀ 31 years ago. A few Chinese collectors including the author climbed to the top of the Wuzhishan Mt. trying to find more individuals during the past years but all failed. However it can be sure that *H. qingangi spec. nov.* and *H. watanabei* KOIWAYA are widely separated both geographically and morphologically.

Field observations. The unique ♂ holotype was captured in air when it was flying through the top of trees after a rain at 5:00 pm on a small path along the valley of a primary forest. The author failed to encounter further individual during the following twenty days at the type locality. It seems impossible to rediscover this species in the near future. This is the first record of the genus *Howarthia* SHIRÔZU & YAMAMOTO for the entire Gongshan area. Therefore the author decided to report this beautiful hairstreak on such an insufficient material. It is worthy noting that *H. caelestis derani* KOIWAYA, 2000 was found flying at Lushui, the downstream of Gongshan, but not from Gongshan.

Proteuspa akikoeae KOIWAYA & MORITA, 2003

Material. 1 ♂ (CHH; fig. 15), Huaxi, Guiyang, Guizhou, 1100 m, 24.V.2023, G. Qin leg.

Remarks. Mr. GANG QIN and Mr. ZHENG-JUN CHEN discovered this interesting hairstreak from Guiyang which is new to Chinese fauna. The ♂ genitalia (fig. 16) examined match with those of the topotype (Ha Giang, N Vietnam) figured by KOIWAYA (2007: 125, fig. 60-3).

Tajuria illurgioides DE NICEVILLE, 1890

Material. 1 ♂ (CHH; fig. 17), Junzishan, Shizong, E Yunnan, 2223 m, 3.V.2023, Y.-Q. LU leg.

Remarks. The ♂ specimen was unavailable when the author was preparing his review on the genus *Tajuria* MOORE, 1881 from China. The ♂ genitalia (fig. 18) taken from the recently collected ♂ from E Yunnan match with those of the specimen from Assam figured by CORBET (1940).

Ahlbergia wenhaoi spec. nov.

Ahlbergia maoweiwei: HUANG, 2023: partim, fig. 117- M1 for ♀ genitalia, fig. 126- M1 for ♀ habitus.

Holotype ♀ (fig. 19- W2): China, Hunan, Zhuzhou City, Yanling County, Ceyuan, 1456 m, 2.V.2022, Y.-Q. LU leg., will be deposited in BSNU.

Paratype: 1 ♀ (CHH): same data as holotype, but J.-T. ZHAO leg.

Etymology. This new species is named in honour of Mr. WEN-HAO SUN, who helped the author in collecting various important materials these years.

Diagnosis & discussion. This new species is similar to *A. maoweivei* HUANG & ZHU, 2016, but can be distinguished from the latter by the following combination of ♀ characters.

1) Size is markedly larger.

2) Marginal silvery grey dusting on forewing underside more restricted, with its inner edge closer to termen.

3) Submarginal sagittate markings on hindwing underside brown and ill-defined, not black and clearly defined as in *A. maoweivei* HUANG & ZHU.

4) Ductus bursae more robust as a whole, expanding caudally and much wider near ostium bursae.

This new species was misidentified by the author as *A. maoweivei* HUANG & ZHU on a single ♀ specimen. Now the second specimen is available to the author and proves that the first specimen of *Ahlbergia wenhaii* **spec. nov.** is not an aberration.

On the other hand, this new species is also similar to the very little known *Ahlbergia caerulea* JOHNSON, 1992 **syn. nov.** which is proved to be a synonym of *A. oppocoenosa* (JOHNSON, 1992) in this work. *A. caerulea* JOHNSON, 1992 was described on a single ♀ from “Saio-Hou”, and the type locality, “Saio-Hou” was interpreted by JOHNSON as a spot in Gansu. The author tried to ask Dr. HUERTAS to help in finding this type specimen in NHMUK, but Dr. HUERTAS failed to trace it. Later on, Dr. S.-Y. HUANG succeeded in finding this specimen which is labeled under the name “*Ahlbergia milleri*” that indicates that JOHNSON (1992) changed the name when he published his studies. The original label reveals that the type locality is Siao-Lou, not “Saio-Hou” as JOHNSON (1992) stated. Siao-Lou is a famous locality in the current Tianquan County of Sichuan, being very close to the type locality of *A. oppocoenosa* (JOHNSON, 1992) in Daduhe valley. As proved by HUANG & SUN (2016), JOHNSON (1992) made mistakes in combining different species from Sichuan and Yunnan under the name, *A. oppocoenosa* (JOHNSON, 1992). The ♂ holotype of *A. oppocoenosa* (JOHNSON) should be combined with the ♀ holotype of *A. caerulea* JOHNSON into a single species as they share the same wing-pattern and come from the same biogeographical area.

The author examined 4 ♀♀ of *A. oppocoenosa* (JOHNSON) from Luding and Jiulong, and two of the ♀ specimens from Luding in Daduhe valley match with the holotype of *A. caerulea* JOHNSON in all details. *Ahlbergia wenhaii* **spec. nov.** can be distinguished from *A. oppocoenosa* (JOHNSON) (= *A. caerulea* JOHNSON) by the following combination of characters.

1) Marginal silvery gray dusting on forewing underside more restricted, not entering postdiscal area as in *A. oppocoenosa* (JOHNSON).

2) Submarginal sagittate markings on hindwing underside brown and ill-defined, not black and clearly defined as in *A. oppocoenosa* (JOHNSON).

3) Ductus bursae expanding caudally and much wider near ostium bursae.

Ahlbergia albilinea balinti (HUANG, 2021)

Material. 1 ♂, 2 ♀♀ (CHH; fig. 23), Duoda (29.49 N, 97.94 E), Zuogong, E Tibet, 3800 m, 16.VI.2023, H. HUANG leg.; the entire type series from Deqin, NW Yunnan.

Remarks. The ♂ and ♀ genitalia (fig. 22) have been examined, not differing from those of the type series. This new locality is at about 150 km northwest of Deqin (TL), indicating a connection in butterfly fauna between the upper Nujiang valley and the upper Lancang valley.

Glaucoopsyche (Sinia) leechi FORSTER, 1940

Lycaena moorei: DRAESEKE, 1925: 225, partim for specimens from Sump (Songpan).

Glaucoopsyche (Sinia subg. nov.) leechi FORSTER, 1940: 875 (TL: Sunpanting = Songpan), Taf. 22-23, abb. 6 for ♂ holotype, 7 for ♀ allotype, Taf. 24, abb. 1 for ♂ genitalia; ZHANG et al., 2023: 4-5, genomic analysis.

Material. 1 ♂ (CHH), Munigou (32.59 N, 103.56 E), Maoxian, Sichuan, 3200 m, 27.VI.2021, S.-Y. HUANG leg.; 1 ♂ (CHH), Xiongmaogou (35.13 N, 102.65 E), Xiahe County, Gansu, 3070 m, 29.V.2016, H. HUANG leg.; 1 ♀ (CHH), Xiongmaogou, Xiahe, 3100 m, 18.VII.2015, G.-X. XUE leg.; 1 ♂ (CHH), Duoba, E Qinghai, 4000 m, 5.VI.2005, K. SONG leg.; 3 ♂♂ (CHH), west slope of Ailashan, E of Jiangda, 31.64 N, 98.44 E, 3900 m, 4.VII.2023, H. HUANG leg.; 1 ♂ (CHH), Geba village, E of Jiangda, 31.65 N, 98.40 E, 3570 m, 4.VII.2023, H. HUANG leg.

Remarks. A recent genomic analysis (ZHANG et al., 2023) reveals that this species is close to *G. lanty* (OBERTHÜR, 1886) as suspected by FORSTER (1940) and these two species constitutes a good subgenus *Sinia* FORSTER, 1940.

This rare species seems to be restricted to a small area around N Sichuan, S Gansu and NE Qinghai. Recently a small series of specimens (fig. 24) were unexpectedly collected by the author from Jiangda, NE Tibet, about 500 km west of the previously known localities.

Hesperiidae

Unkana flava EVANS, 1932

Material. 1 ♂ (CHH), Chashan, Pu'er, Yunnan, 1400 m, 3.VI.2023, H. HUANG leg.; 1 ♂, 1 ♀ (CHH), Lafu Road, Menglian, Pu'er, Yunnan, 1580 m, larvae collected by Y.-Q. HUANG on 16.II.2024 and emerged on 20.III.2024.

Remarks. This species is new to Chinese fauna. The last instar larvae will be reported by Y.-Q. HUANG and the author in a further paper.

Choaspes subcaudatus yingqi **subspec. nov.**

Choaspes subcaudatus: ZHANG et al., 2020: 215, pl. I-1, 2, pl. II-1.

Holotype ♂ (fig. 28-Y1): China, Yunnan, Xishuangbanna, 55 km east of Jinghong, 800 m, 4.III.2018, H. HUANG leg., will be deposited in BSNU.

Paratypes: 1 ♂ (CHH), Shuiku, Menglun, Xishuangbanna, 600 m, 13.III.2018, H. HUANG leg.; 1 ♀ (CHH), Shuiku, Menglun, Xishuangbanna, 600 m, 13.X.2018, H. HUANG leg.; 1 ♂ (CHH), Menglun, 560 m, 15.III.2018, H. HUANG leg.; 1 ♂ (CHH), Menglun,

580 m, larva collected by Y.-Q. HUANG, emerged on 26.II.2024.

Etymology. This new subspecies is named after YING-QI HUANG, the son of the author who collected the larva and reared it successfully into adult.

Diagnosis. This new subspecies can be distinguished from *Choaspes subcaudatus crawfurdi* (DISTANT, 1882) from Malay Peninsula, Borneo, Sumatra and Nias by the following combination of larva characters.

1) Larva with a complete series of yellow patches along dorsal midline in all segments.

2) Larva with lateral series of yellow patches more regularly arranged in a straight line, and subequal in size and shape.

Remarks. The larva characters appear to be rather constant, as two other individuals reared by Chinese collectors from Xishuangbanna (YU-FEI LI, personal communications) show no difference from the one reported herein. However, there is no difference in pupa between the two subspecies.

The adults of this new subspecies seem to have hindwing marginal black borders in both sexes more or less wider than in *Choaspes subcaudatus crawfurdi* (DISTANT), but this needs to be confirmed by more observations. The populations from Myanmar, Laos, Thailand and Vietnam (INAYOSHI, 2023) should belong to this new subspecies instead of *Choaspes subcaudatus crawfurdi* (DISTANT) on account of the zoogeography.

The larva of *Choaspes subcaudatus crawfurdi* (DISTANT) was reported and figured by IGARASHI & FUKUDA (1997) on some individuals from Borneo. The problem is that the larva of the population from Malay Peninsula which is the type locality is unknown. However, from a viewpoint of zoogeography, the butterfly faunas of Malay Peninsula and Borneo are much more in common with each other than with those of Yunnan and N Indo-China. A further research on the molecular phylogeny of these populations is required in the future.

It is worthy noting that only the nominotypical subspecies of *Choaspes subcaudatus* (C. & R. FELDER, 1867) from Java is known beside the above mentioned two subspecies.

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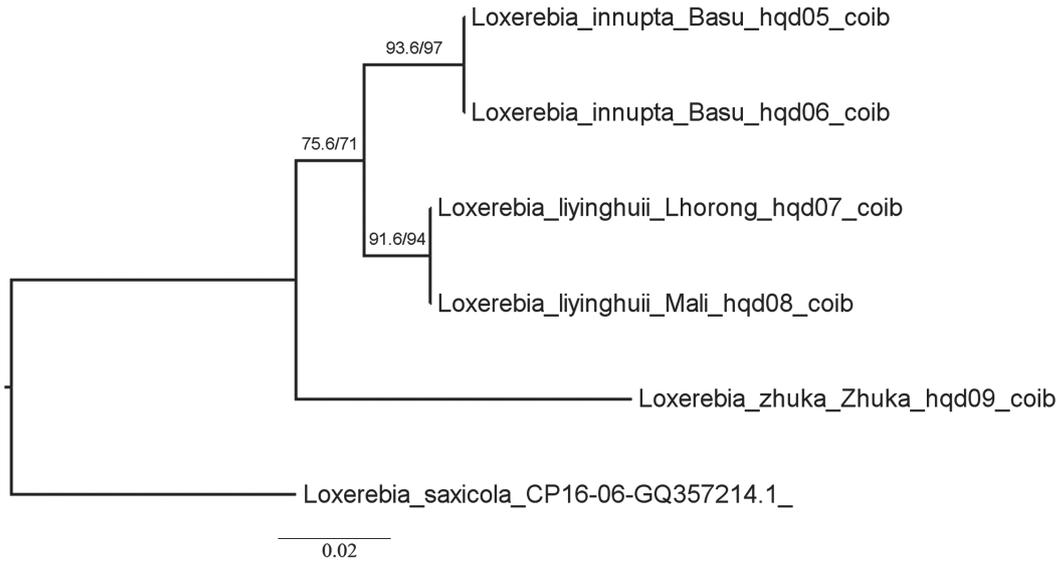
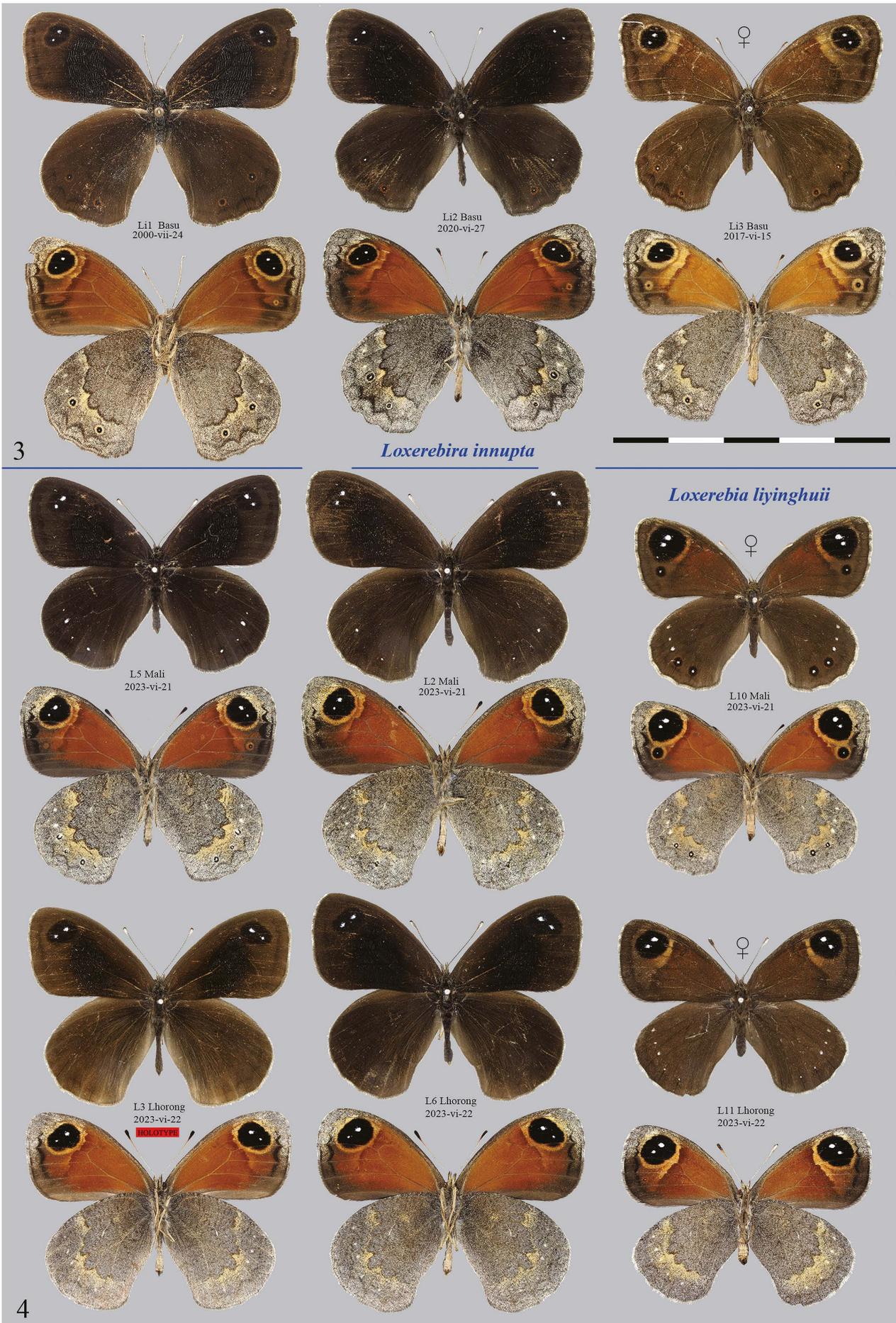


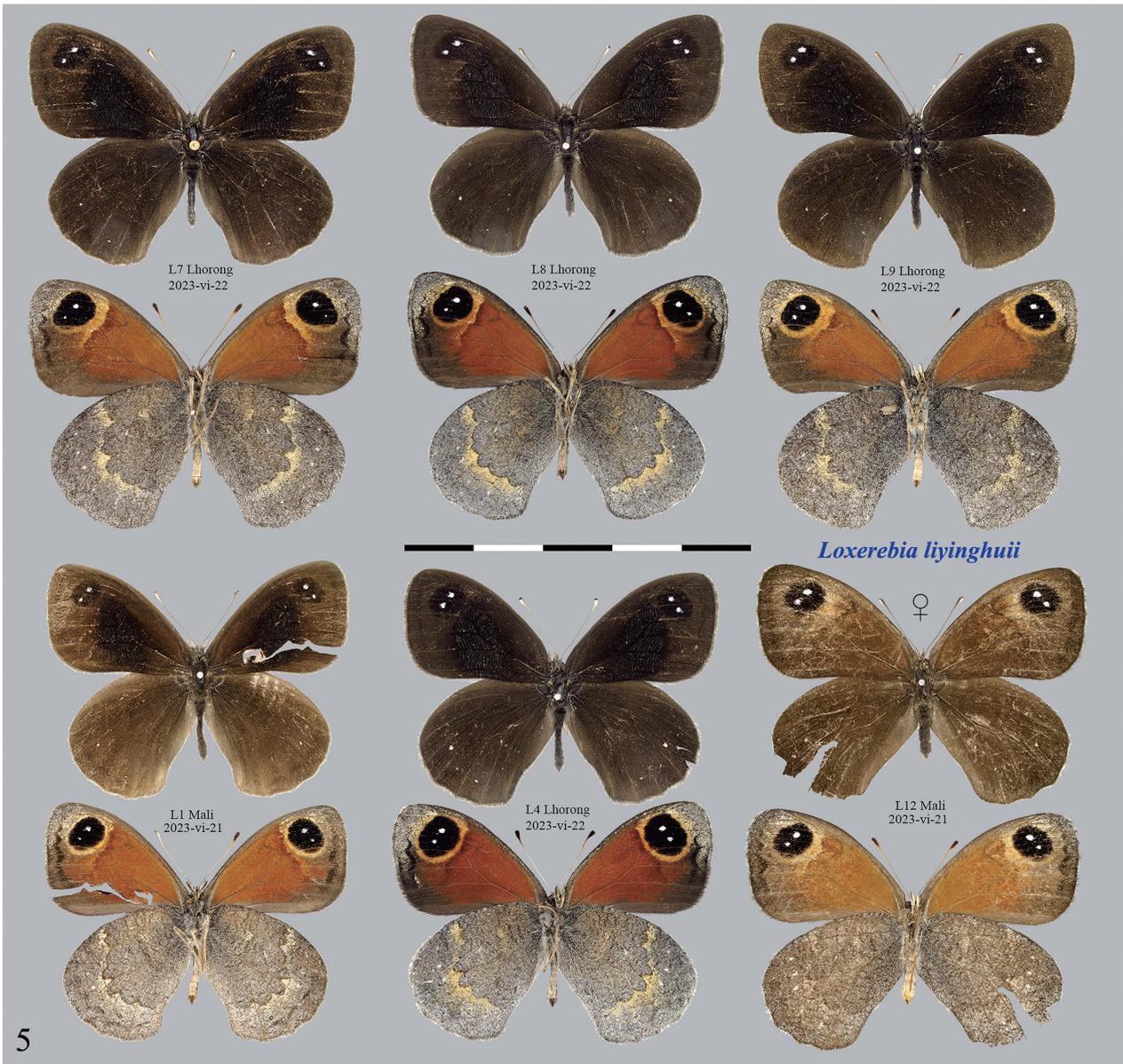
Fig. 1: Phylogeny of *Loxerebia liyinghuii* spec. nov. and its closest species.

Loxerebia_saxicola_CP16-06-GQ357214.1					
Loxerebia_innupta_Basu_hqd05_coib	0.075				
Loxerebia_innupta_Basu_hqd06_coib	0.075	0.000			
Loxerebia_liyinghuii_Lhorong_hqd07_coib	0.066	0.022	0.022		
Loxerebia_liyinghuii_Mali_hqd08_coib	0.066	0.022	0.022	0.000	
Loxerebia_zhuka_Zhuka_hqd09_coib	0.080	0.055	0.055	0.050	0.050

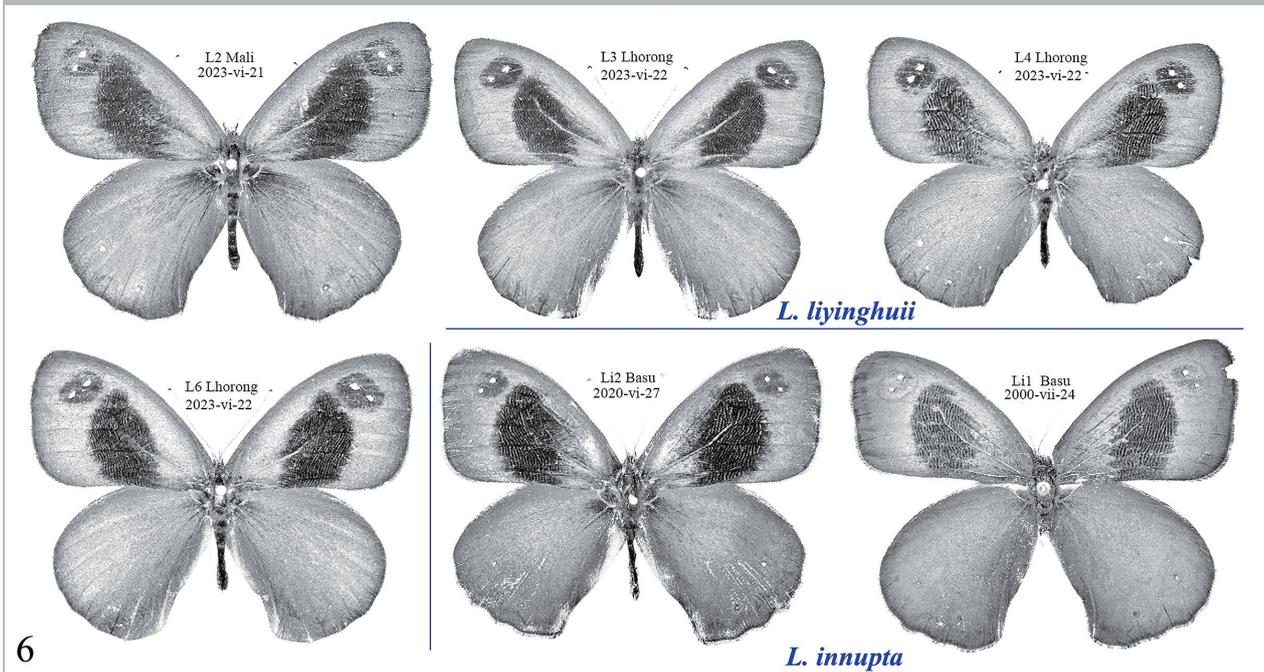
Fig. 2: The Kimura 2-parameter distance between samples of *Loxerebia liyinghuii* spec. nov. and its closest species.



Figs. 3-4: Habitus of *Loxerebia liyinghuii* spec. nov. and *Loxerebia innupta* (SOUTH, 1913).



5



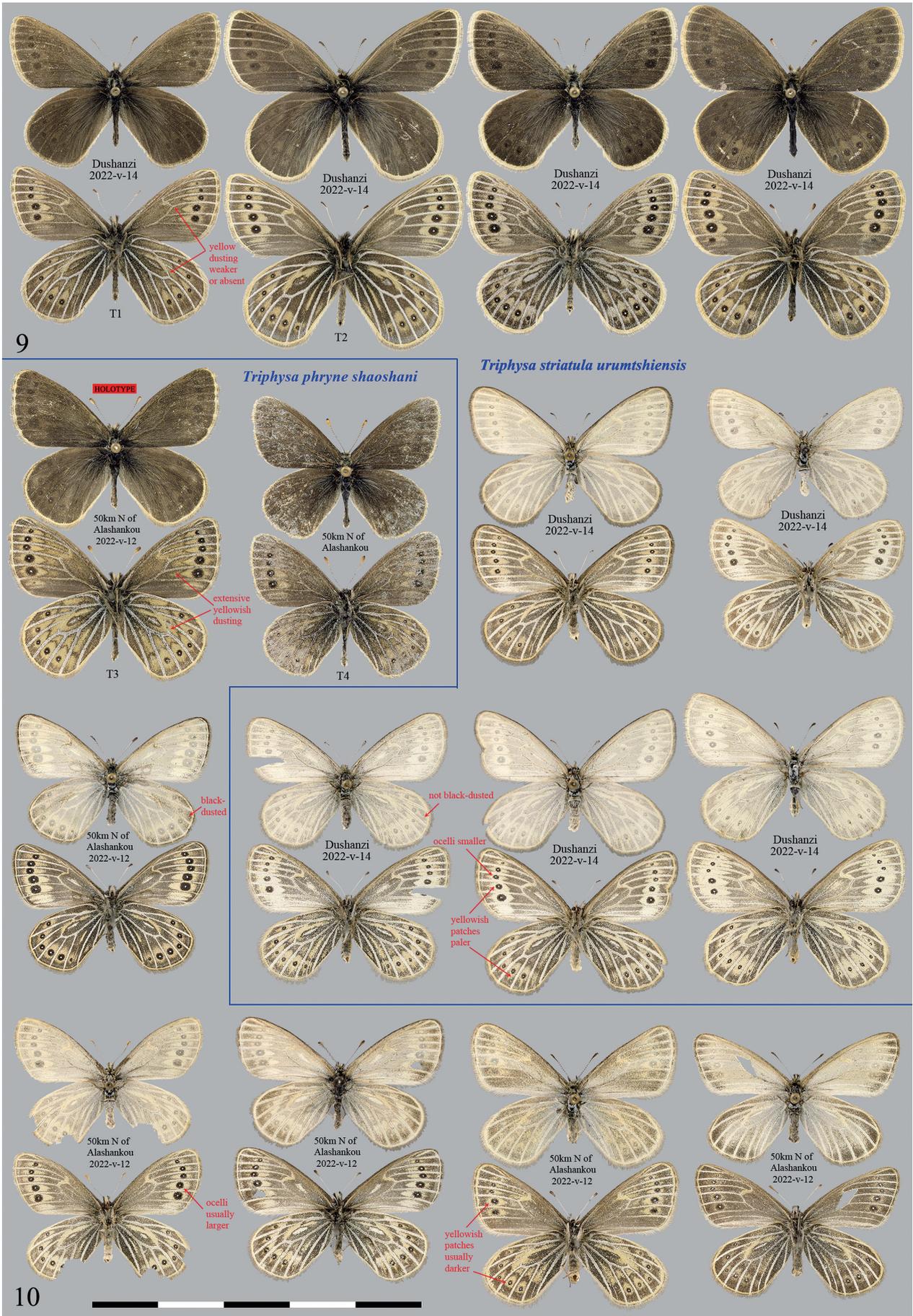
6

Fig. 5: Habitus of *Loxerebia liyinghuii* spec. nov.
 Fig. 6: ♂ brands of *Loxerebia liyinghuii* spec. nov. and *Loxerebia innupta* (SOUTH, 1913).

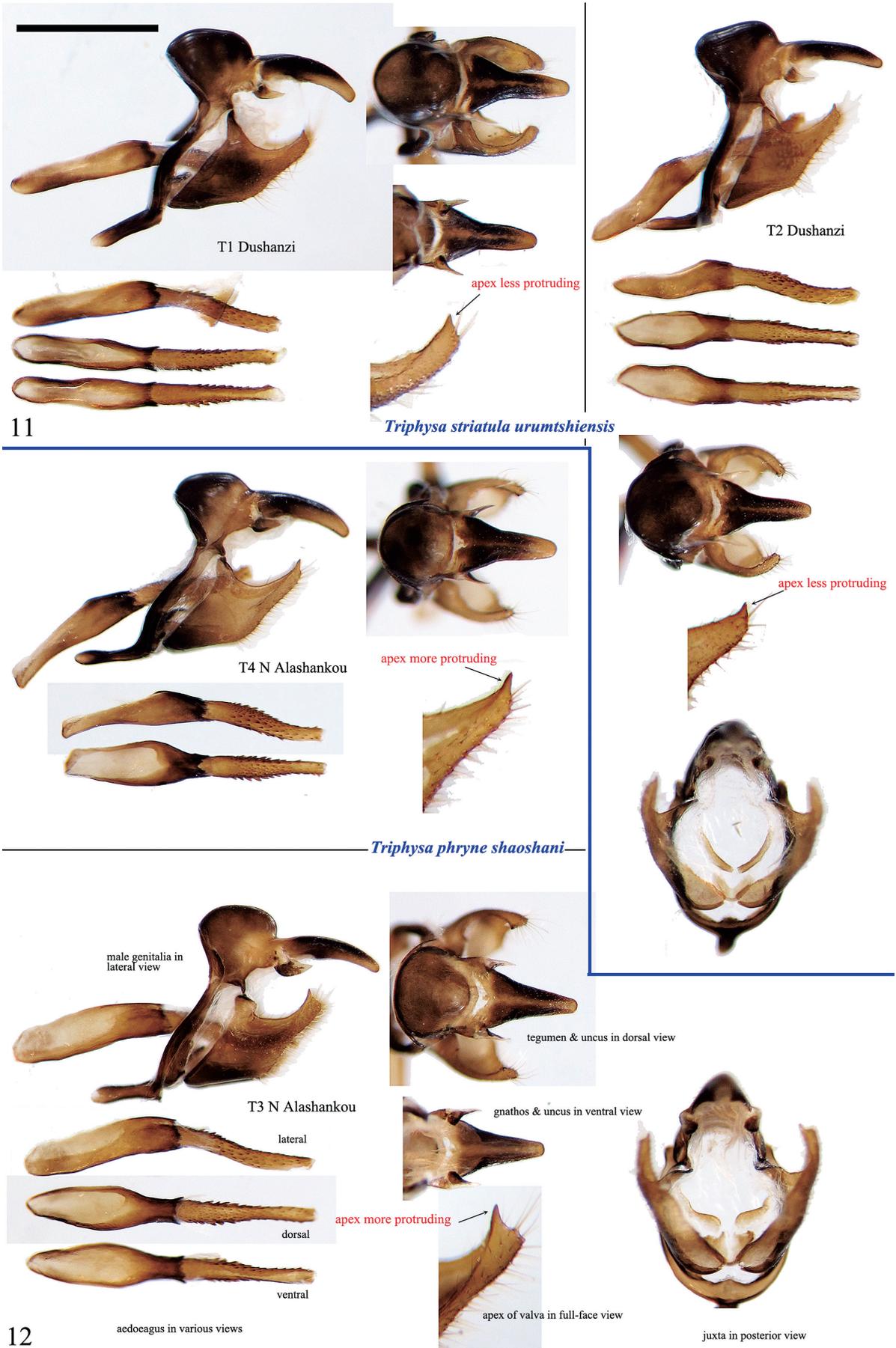


Fig. 7: ♂ genitalia of *Loxerebia livinghunii* spec. nov. and *Loxerebia innupta* (SOUTH, 1913).

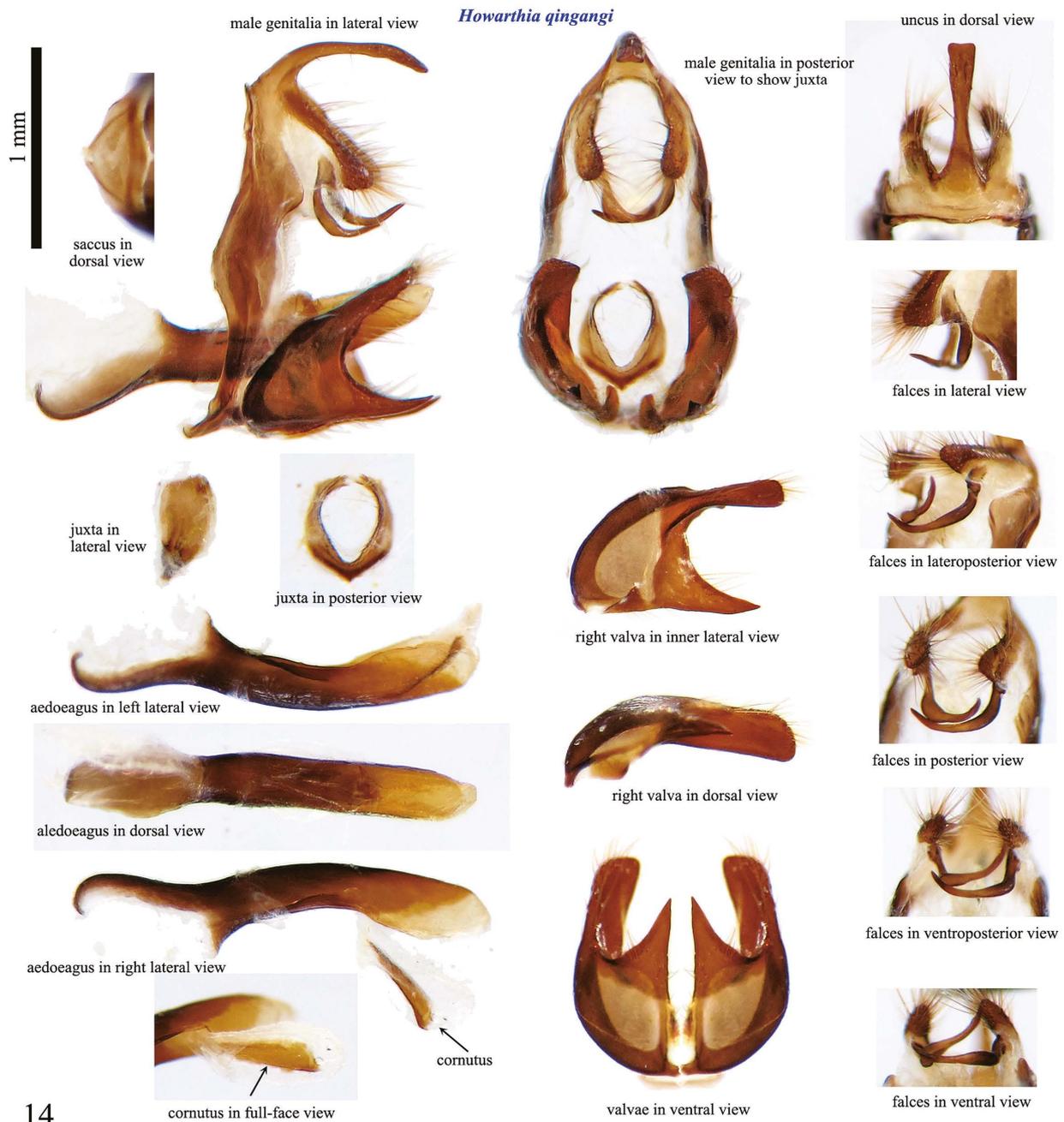
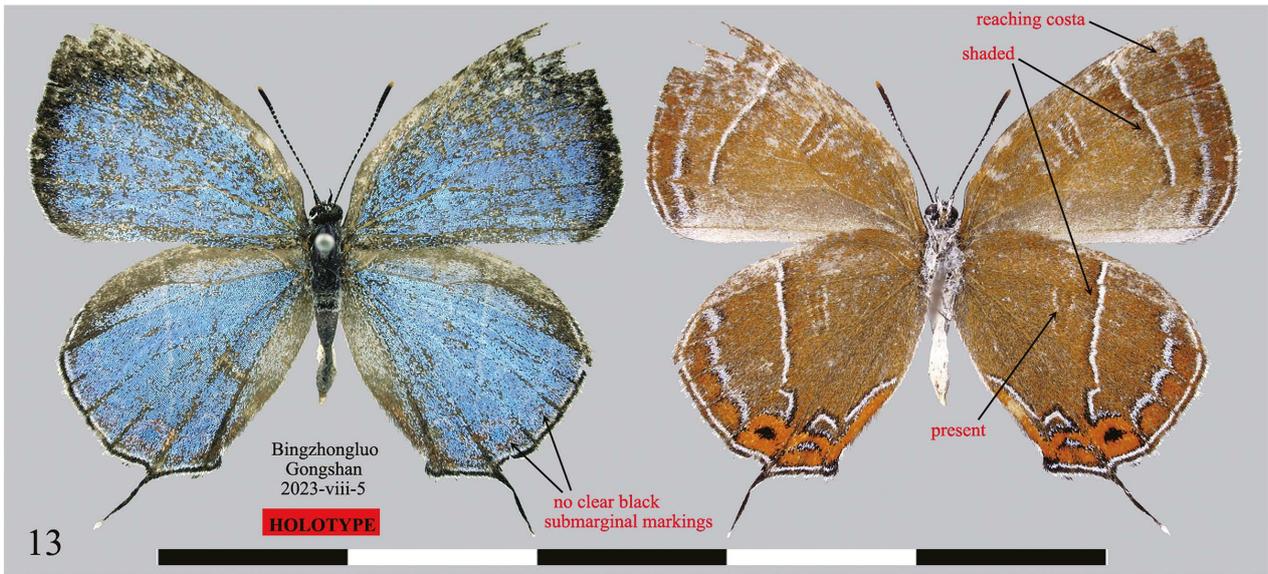
Fig. 8: Androconia of *Loxerebia livinghunii* spec. nov. and *Loxerebia innupta* (SOUTH, 1913).



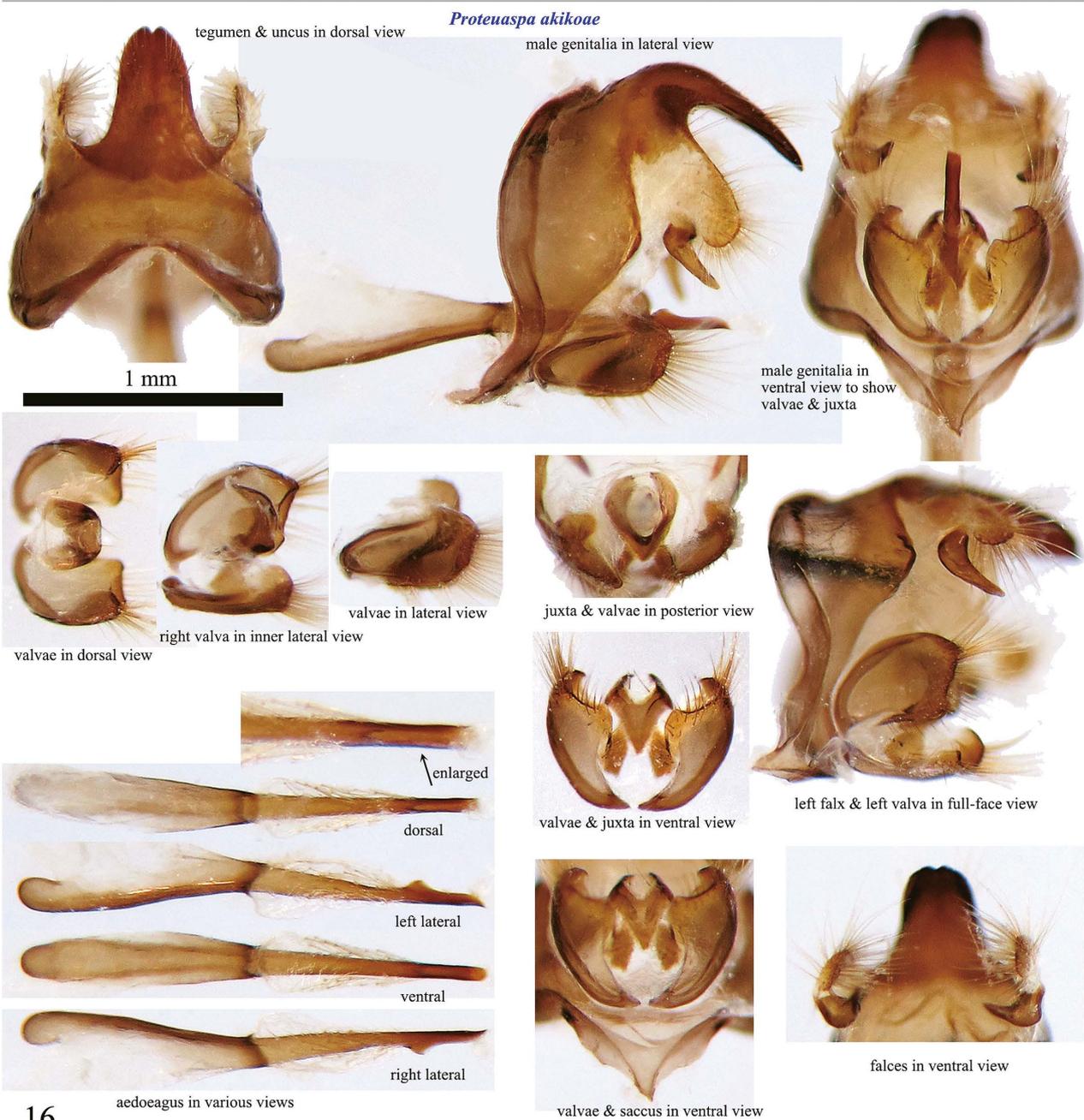
Figs 9-10: Habitus of *Triphysa striatula urumtshiensis* DUBATOLOV, KORB & YAKOVLEV, 2023 and *Triphysa phryne shaoshani* subsp. nov.



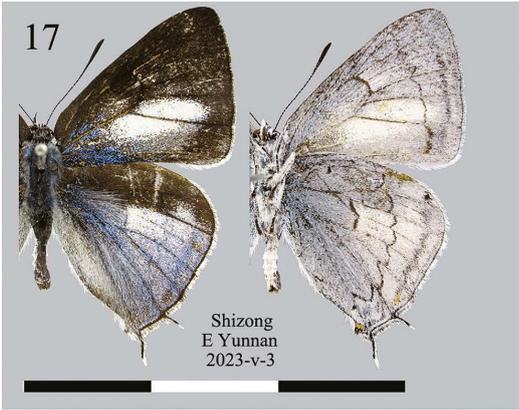
Figs. 11-12: ♂ genitalia of *Triphysa striatula urumtshiensis* DUBATOLOV, KORB & YAKOVLEV, 2023 and *Triphysa phryne shaoshani* subsp. nov.



Figs. 13-14: Habitus and ♂ genitalia of *Howarthia qingangi* spec. nov.

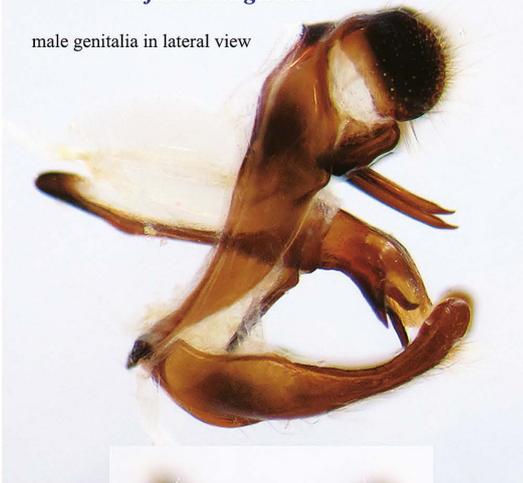


Figs. 15-16: Habitus and ♂ genitalia of *Proteuaspa akikoe* KOIWAYA & MORITA, 2003.



Tajuria illurgioides

male genitalia in lateral view



18



male genitalia in posterolateral view



male genitalia in ventroposterior view



tegumen & uncal lobes in dorsal view



juxta & aedeagus in posterior view



male genitalia in ventral view



valvae in ventral view



falces in ventral view



left lateral



dorsal



right lateral



ventral

aedeagus in various views



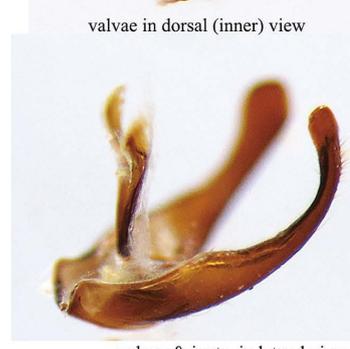
valvae in posteroventral view



valvae in dorsal (inner) view

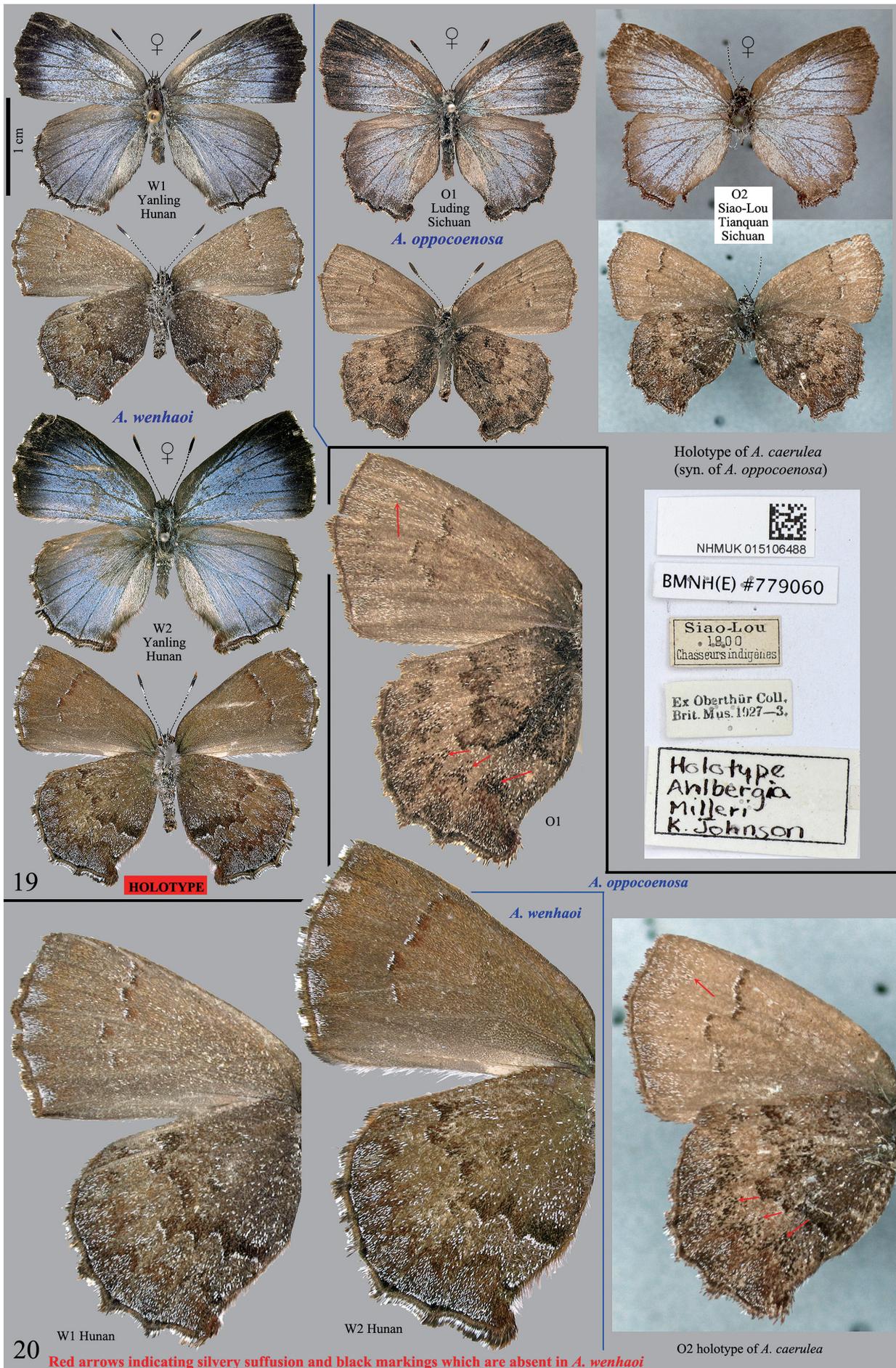


valvae in oblique view to show full face of apex



valvae & juxta in lateral view

Figs. 17-18: Habitus and ♂ genitalia of *Tajuria illurgioides* DE NICEVILLE, 1890.



Figs. 19-20: Habitus of *Ahlbergia wenhaii* *spec. nov.* and *A. oppocoenosa* (JOHNSON, 1992) including holotype of *Ahlbergia caerulea* JOHNSON, 1992 (photo courtesy of NHMUK).

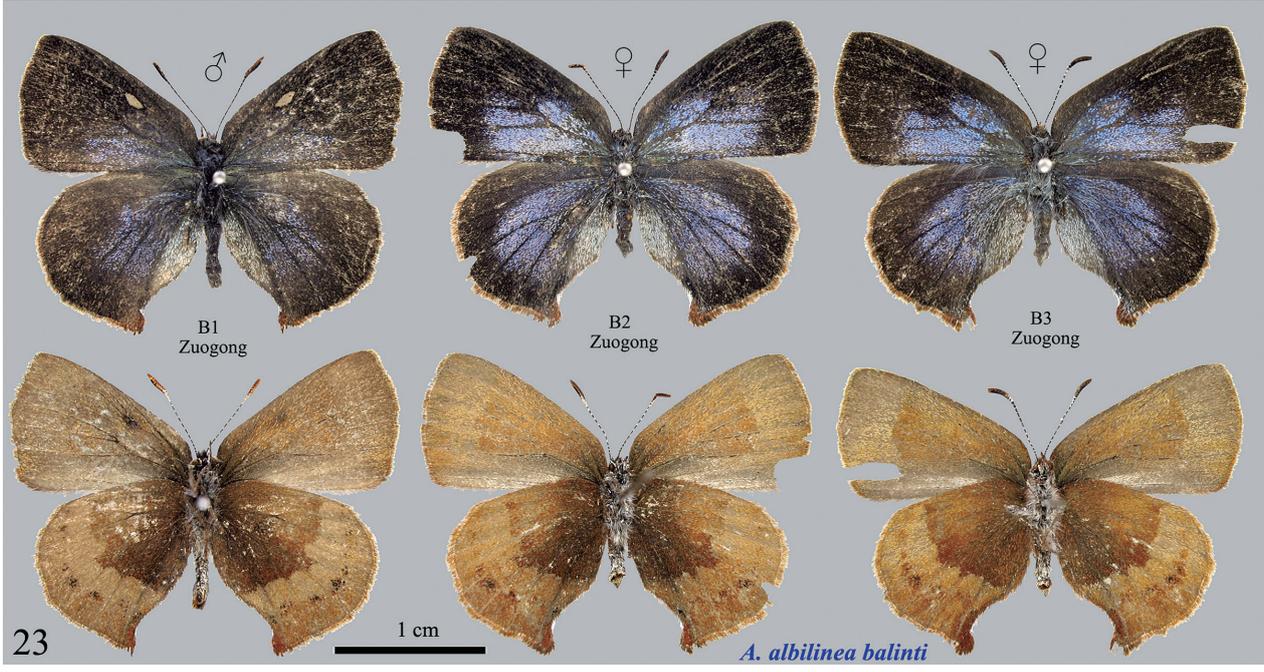
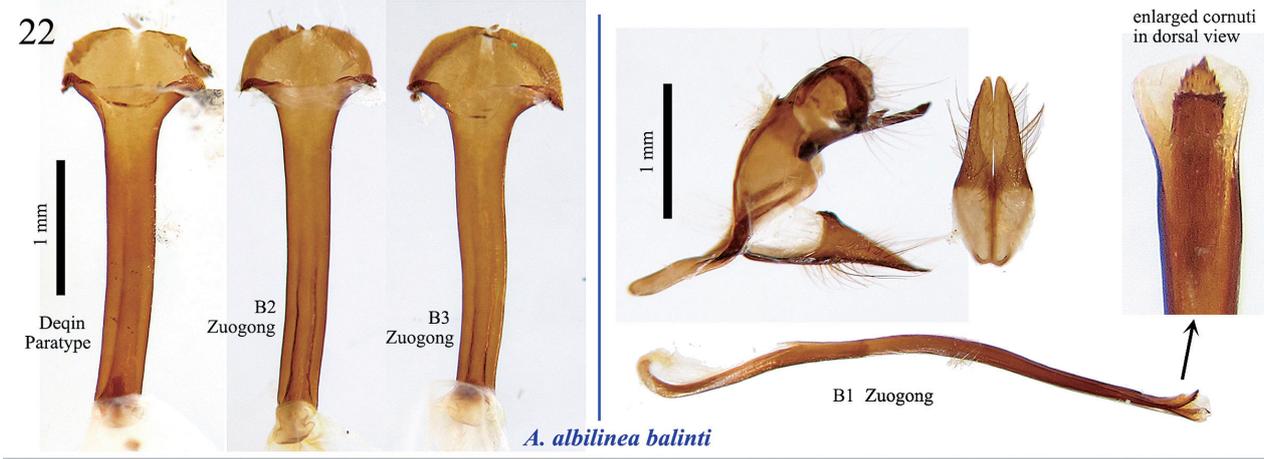
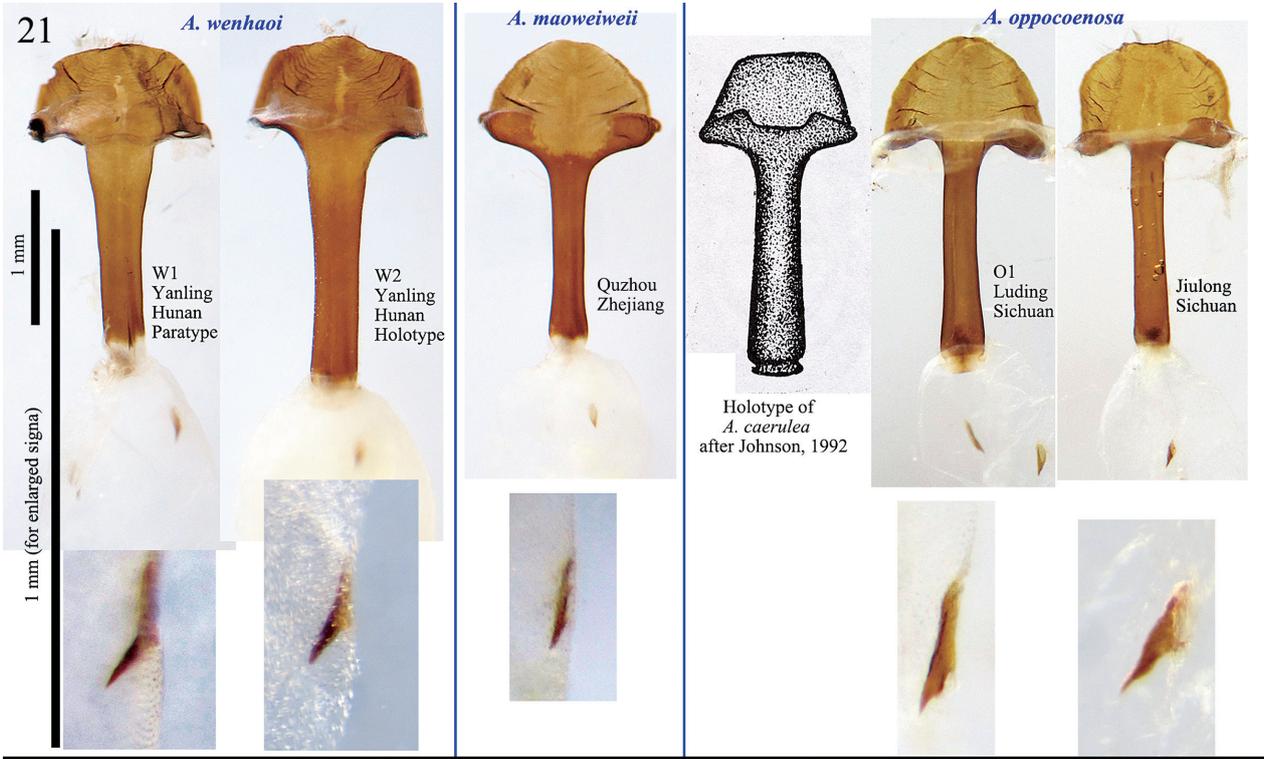
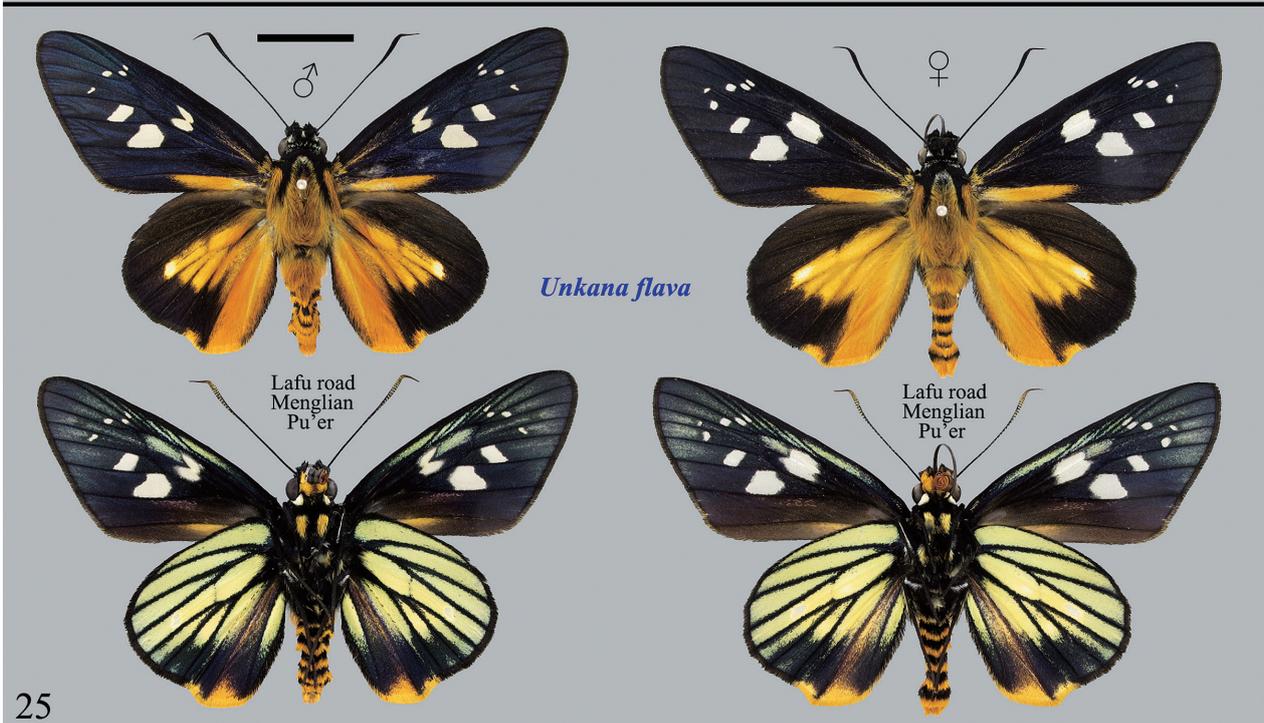


Fig. 21: ♂ genitalia of *Ahlbergia wenhaii* spec. nov. and its similar species.
 Fig. 22: ♀ and ♂ genitalia of *Ahlbergia albilinea balinti* (HUANG, 2021).
 Fig. 23: Habitus of *Ahlbergia albilinea balinti* (HUANG, 2021).



24

Glaucopsyche (Sinia) leechi



25

Unkana flava

Fig. 24: Habitus of *Glaucopsyche (Sinia) leechi* FORSTER, 1940.
 Fig. 25: Habitus of *Unkana flava* EVANS, 1932.

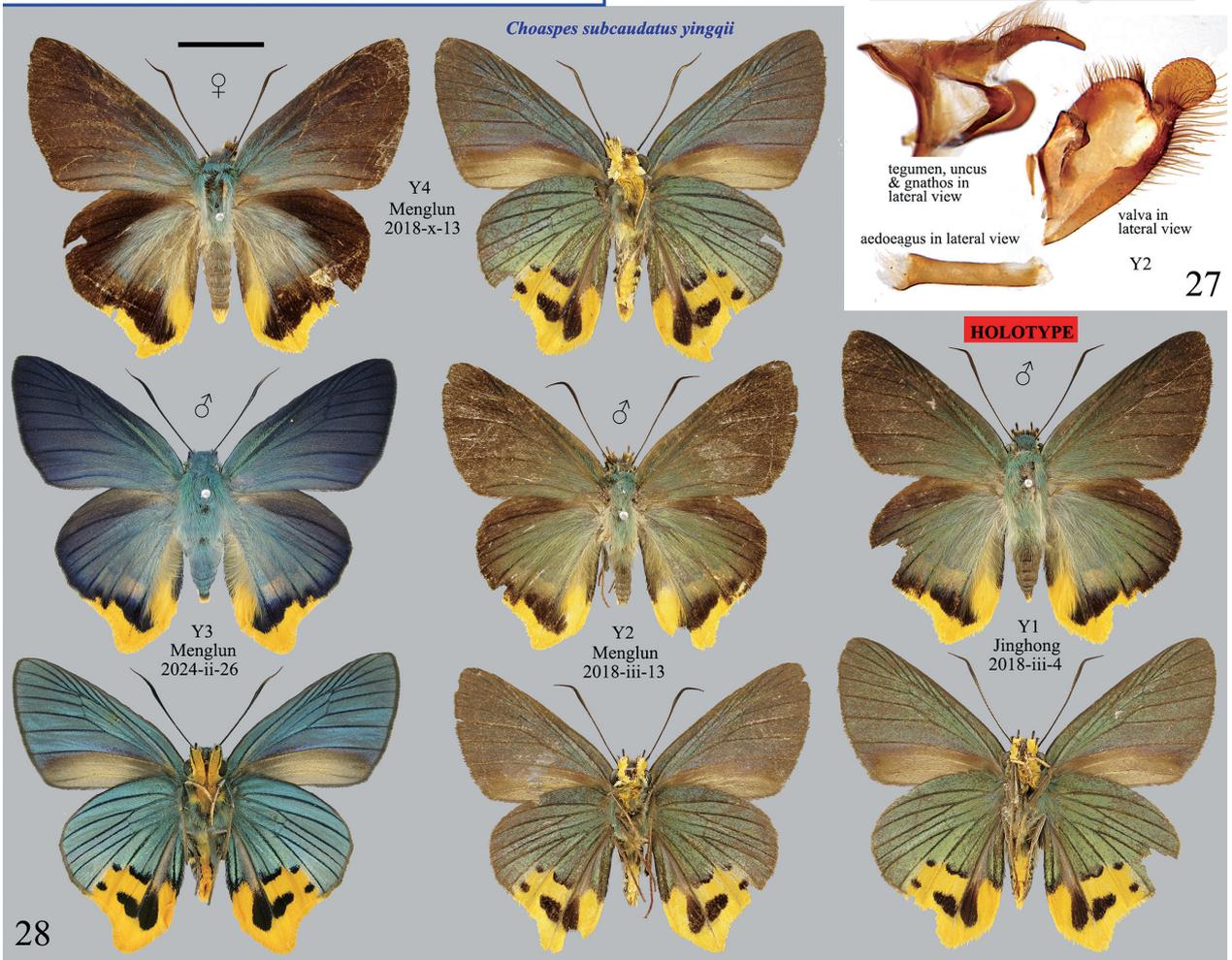
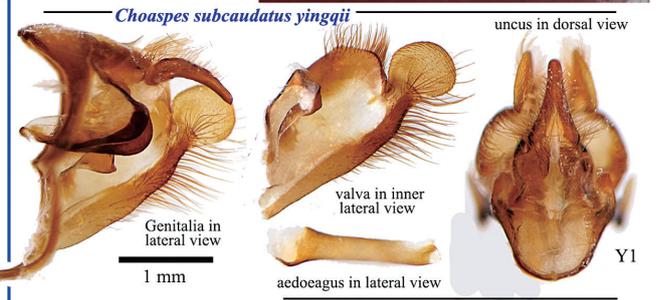
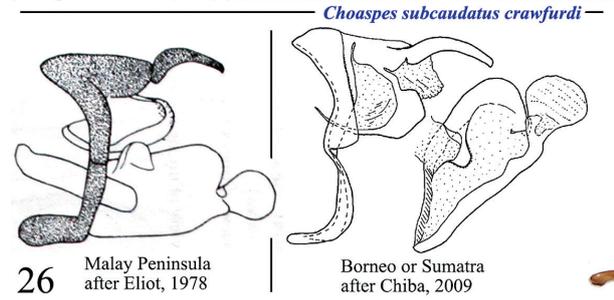
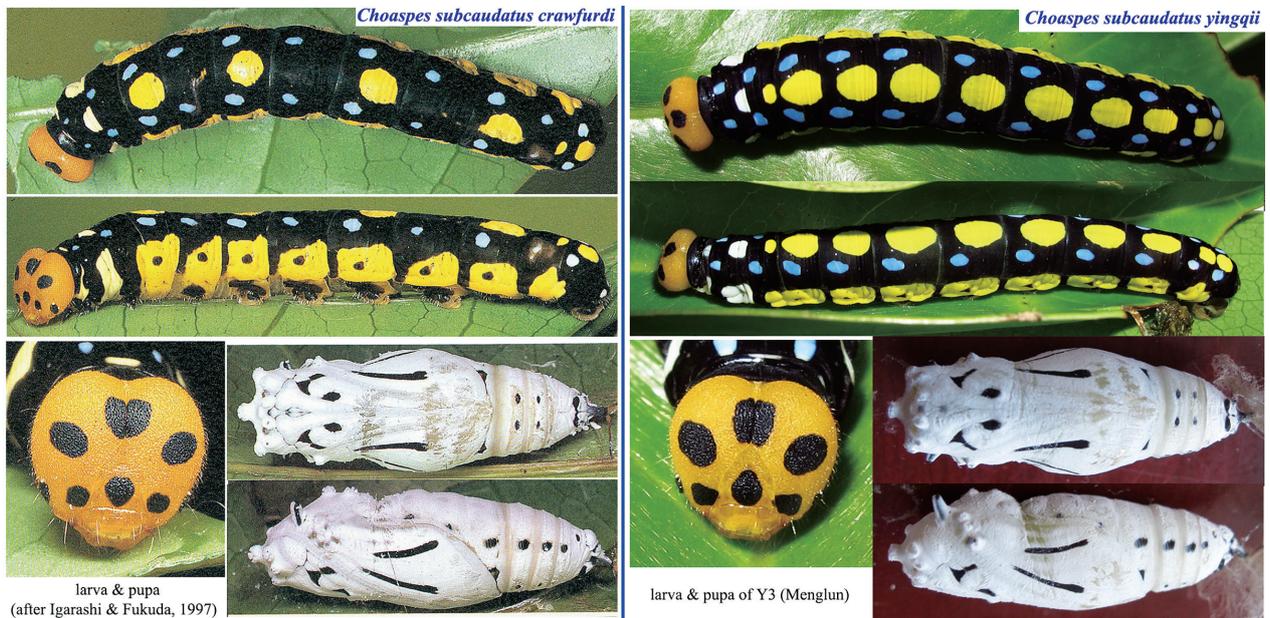


Fig. 26: Larva, pupa and ♂ genitalia of *Choaspes subcaudatus crawfurdi* (DISTANT, 1882) in literature.
 Fig. 27: Larva, pupa and ♂ genitalia of *Choaspes subcaudatus yingqii* **subspec. nov.**.
 Fig. 28: Habitus of *Choaspes subcaudatus yingqii* **subspec. nov.**.

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