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A classification of the genus *Lethe* Hübner, [1819] sensu d'Abrera (1985) from China
1- the *Zophoessa nicetas* (Hewitson, 1863) group

(Lepidoptera, Nymphalidae, Satyrinae)

by

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Abstract: A systematic and taxonomic review has been conducted on *Lethe nicetas* Hewitson, 1863, along with its allied species in China, namely *Lethe cybele* Leech, 1893, *Lethe namjagbarwae* Huang, 1999, *Lethe violaceopicta* (Poujade, 1884), *Lethe burmana* Tytler, 1939, *Lethe lingnana* Lang & Ding, 2022, *Lethe pseudokanjupkula* Lang & Ding, 2022 and *Lethe ailao* Lang & Ding, 2022. Based on an unpublished molecular analysis, all of these species have been transferred to the genus *Zophoessa* Doubleday, 1849. The following taxonomic alterations are proposed: *Zophoessa burmana namjagbarwae* **stat. nov.** is downgraded from *Lethe namjagbarwae* Huang, 1999; *Lethe pseudokanjupkula* Lang & Ding, 2022 **syn. nov.** is recognized as a new synonym of *Zophoessa lingnana* (Lang & Ding, 2022); *Zophoessa burmana ailao* **stat. nov.** is downgraded from *Lethe ailao* Lang & Ding, 2022; *Lethe ailao pseudoburmana* Lang, 2024 **syn. nov.** is designated as a new synonym of *Zophoessa burmana* (Tytler, 1939). Additionally, two new taxa are described: *Zophoessa wuchunshengi* **spec. nov.** from Weixi, northwest Yunnan, and *Zophoessa cybele eshaanensis* **subspec. nov.** from Hubei and Shaanxi.

Introduction: The generic classification of the genus *Lethe* Hübner, [1819] (sensu lato) has historically been rather controversial. Moore (1892) split this group into a series of small genera, while the contemporary lepidopterist Leech's (1892) retained only two genera: *Lethe* Hübner and *Zophoessa* Doubleday, 1849. Evans (1924) combined Leech's (1892) two genera into a single one, together with species of the currently widely accepted genus *Neope* Moore, 1866. Evans' (1924) treatment was followed by Talbot (1949). De Lesse (1957) reached a conclusion similar to Leech's (1892) work, but the components of *Lethe* Hübner and *Zophoessa* Doubleday are quite different from those in Leech's (1892) work. D'Abrera (1985) first established the most popular current classification, retaining only the genus *Lethe* Hübner alongside the genus *Neope* Moore; this opinion was followed by Bozano (1999) and Lang (2017, 2020).

A molecular analysis based on three fragments of nuDNA gene markers, however, does not support d'Abrera's (1985) classification. As more materials are being added to the analysis currently and in the near future, it is best to present the final conclusion on the higher classification of this group in a later paper when the materials are more complete. Meanwhile, for convenience and to avoid future alterations, the genus *Zophoessa* Doubleday is provisionally employed for the small group discussed in this paper.

Our knowledge of *Lethe nicetas* Hewitson, 1863 and its allied species (*Lethe cybele* Leech, 1893, *Lethe namjagbarwae* Huang, 1999, *Lethe violaceopicta* (Poujade, 1884), *Lethe burmana* Tytler, 1939, *Lethe lingnana* Lang & Ding, 2022, *Lethe pseudokanjupkula* Lang & Ding, 2022 and *Lethe ailao* Lang & Ding, 2022) has been greatly advanced by Dr. S.-Y. Lang in recent years. The present author has also collected substantial material during visits to Sichuan, Yunnan and Tibet over the past twenty years. However, he was unable to reach a definitive conclusion about his collection as this group shows little variation in ♂ genitalia between species but considerable individual variation in both wing pattern and genitalia. Species delimitation is particularly challenging in this group, making it especially suitable for molecular analysis to determine species boundaries. Unfortunately, most specimens are too old for sequencing nuDNA gene markers, which limits the analysis in terms of both material and nuclear loci. Nevertheless, some interesting results have been obtained, though they remain preliminary.

Abbreviations:

BSNU:	Biological laboratory of Shanghai Normal University, Shanghai, P.R. China.
CHH:	Collection of Hao Huang, Qingdao, Shandong, China.
CLP:	Collection of Peng Li, Xi'an, Shaanxi, China.
CWZJ:	Collection of Zhen-Jun Wu, Fuzhou, China..
NHMUK:	Natural History Museum, United Kingdom.
TL:	Type locality

Methods: Two fragments of the nuclear EF1-alpha gene (1114 bp) and one fragment of the nuclear Rps5 gene (575 bp) were analyzed to infer the phylogenetic relationships among *Lethe* Hübner (sensu lato) species. Ter-

minal taxa widely separated by apparent gaps on the nuDNA tree (Fig. 3) were considered separate species. A relevant analysis of morphological characters in both wing patterns and ♂ genitalia is congruent with this result. However, due to the older collection years, most material was insufficient for nuDNA sequencing in this work. Therefore, these specimens were sequenced for the barcode fragment of the mtDNA gene COI (688 bp). Thus, some relationships for which nuDNA data are missing had to be deduced from the mtDNA tree.
The mtDNA trees are generally incongruent with the nuDNA trees due to hybridization between species (or hybridization during speciation) and uneven evolution. Thus, the mtDNA tree cannot be used directly for determining true phylogeny. In such cases, the author suggests the following procedures:
1) Widely separated clades on the mtDNA tree are not directly considered separate species.
2) If such widely separated clades on the mtDNA tree are clustered in the nuDNA tree or inseparable in morphological characters (especially genitalia), they are considered conspecific [Example 1: *Z. violaceopicta violaceopicta* **(**Poujade) and *Z. violaceopicta kulingensis* **(**Lang, 2024) **conb. nov.**; Example 2: *Z. cybele cybele* **(**Leech) and *Z. cybele* ***eshaanensis*** **subspec. nov.**].
3) Terminal taxa clustered in a single clade on the mtDNA tree are not directly considered a single species; they are also tested by morphological analysis. If all these taxa [such as various subspecies of *Z. burmana* **(**Tytler) **conb. nov.**] show no significant difference in wing patterns and no difference in ♂ genitalia, they are considered conspecific. However, this is not a final conclusion, and further research on nuDNA is still required.
4) Terminal taxa clustered in a single clade on the mtDNA tree but showing considerable differences in morphological traits will not be considered conspecific (this case was not encountered in this study).

DNA extractions were conducted by Beijing Tsingke Biotech Co., Ltd. (Beijing, China). The primers used are shown in Tables 1-2. Sequence matrices were aligned by Cluster W and edited manually using MEGA 11 (Tamura et al. 2021). 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), with branch support values evaluated based on 1000 replicates for SHaLRT and ultrafast bootstrap. The substitution model was set to "Auto" for the combined analysis of different genes.

Table 1. Forward and reverse primers names in this study

Gene	Forward primers	Reverse primers	References
COI (barcode)	LCO1490	HCO2198	Folmer et al. 1994
EF1-alpha part1	ef135	ef684	Kandul et al. 2004
EF1-alpha part2	ELF2F (f)	efrcM4(r)	Wan et al. 2013; Cho et al. 1995
RPS5	RpS5-f	RpS5-r	Wahlberg & Wheat 2008

Table 2. Primers sequences in this study

Primers	Sequences	Annealing temperature
ef135	CAAATGYGGTGGTATYGACAAACG	55
ef684	TCCTTRCGCTCCACSTGCCAYCC	55
ELF2F (f)	AAAATGCCCTGGTTCAAGGGA	55-57
efrcM4(r)	ACA GCV ACK GTY TGY CTC ATR TC	55-57
RpS5-f	ATG GCN GAR GAR AAY TGG AAY GA	55
RpS5-r	CGG TTR GAY TTR GCA ACA CG	55

Accession numbers: The mitochondrial COI gene sequences of the specimens examined in this study have been deposited in GenBank under accession numbers PV461667–PV461685. Additionally, the Rps5 sequences are available under accession numbers PV475859–PV475866, and the EF1-alpha sequences under PV475850–PV475858.
All sequenced specimens are associated with voucher numbers, which are clearly indicated in the relevant figures.

Species boundary and genitalic character analysis (fig. 1): The classification based on nuDNA analysis is congruent with that based on the following ♂ genitalic characters, which are therefore considered important in morphological analysis and identification. While each of these characters may not be useful for separating all species, they are useful for distinguishing certain species:
A. Apex of uncus: 1) Very broad in dorsal view and broad in lateral view; 2) Narrow in dorsal view and pointed in lateral view.
B. Uncus in dorsal view: 1) Even in width from base to nearly the midpoint, parallel-sided, then abruptly tapered apically; 2) Gradually tapered apically from base.
C. Uncus in lateral view: 1) More arched near base; 2) Less arched near base.
D. Uncus: 1) Relatively short; 2) Relatively long.

It is worth noting that all other genitalic characters, including the aedeagus, juxta, and valva, are highly individually variable and show little differentiation between species. Thus, figures of these characters are omitted in this paper. Dr. Lang (2022, 2024) has already published numerous figures of ♂ genitalia. Alongside Lang's (2022, 2024) investigations, 32 additional ♂ specimens were dissected and examined in this work. To save space, only the diagnostically useful characters are figured here.
Lang (2022) initially employed the presence or absence of a dorsal keel (crest) as an important diagnostic character but later concluded (Lang, 2024) that this feature is individually variable in some species and thus taxonomically insignificant. The newly examined material confirms that this keel is variable in presence/absence across all species, including *Z. cybele* (Leech), and varies in size and shape when present.

Wing characters in ♂ (fig. 2): Nearly all wing characters exhibit individual variation, reducing their diagnostic utility as more specimens are examined. The following characters are statistically useful, though exceptions exist for each:
E. Forewing termen: 1) Upright relative to the dorsum or nearly so; 2) Rather oblique to the dorsum, making the forewing apex more pointed.
F. Upper side ground color: 1) Greyish rather than brownish, lacking a distinct black border; 2) Brownish rather than greyish, with a somewhat regular black border; 3) Brown, with a very wide black border; 4) Brownish rather than greyish, lacking a regular black border.
G. Apex of forewing: 1) Relatively more pointed; 2) Relatively rounded.
H. Hindwing underside ocelli: 1) Rather close to the termen; 2) Slightly more distant from the termen.
It is worth noting that the presence/absence of a bright yellow band on the forewing underside and a yellow patch in space 3 of the hindwing underside are unreliable for species identification. These features vary individually and may only have subspecific significance in certain cases.

Taxonomic account

Zophoessa violaceopicta (Poujade, 1884) (figs. 1-2)

♂ **characters**. A1, C1, D2, E2, F1, G1.
♀ **characters**. Forewing discal band clearly defined on both upper and under sides, bright in appearance, being interrupted by veins 2 and 3.

Zophoessa violaceopicta violaceopicta (Poujade, 1884)

Debis violaceopicta Poujade, 1884: clviii (TL: Mou-pin = Baoxing).
Lethe calisto Leech, 1891: 23 (TL: Omei-Shan).
Zophoessa violaceopicta: de Lesse, 1957: 79, fig. 8.
Lethe violaceopicta: d'Abrera, 1990: 122; Lang, 2017: pl. VI-fig. 8.

Material. 8 ♂♂ (CHH), Omeishan, Sichuan, 12-22.VIII.2012, H. Huang leg.; 3 ♂♂ (CHH), Omeishan, 19.V.2017, H. Huang leg.; 3 ♂♂, 5 ♀♀ (CHH), Qinghe-linchang, Kangxian, S Gansu, 14-17.VI.2016, H. Huang leg.
Remarks. The major problem is that the type material of this taxon has never been examined. Lang (2024) noted that de Lesse's (1957) figure of ♂ genitalia, taken from a specimen in the Muséum national d'Histoire naturelle, Paris (where the syntypes are deposited), does not match those of *Z. lingnana* (Lang & Ding) **conb. nov.**, and *Z. lingnana* (Lang & Ding) **conb. nov.** has not been collected from the type locality of *Z. violaceopicta* (Poujade). Another problem is that there could be individuals of *Z. lingnana* (Lang & Ding) **conb. nov.** mixed in the syntype series of *Lethe calisto* Leech, though the figured specimens in Leech's book are not *Z. lingnana* (Lang & Ding) **conb. nov.** The entire type series of *Lethe calisto* Leech should be examined to determine whether lectotype designation is necessary to establish the name-bearing type for *Lethe calisto* Leech.
As Lang (2024) stated, the two broods in Omeishan show no differences in wing characters or genitalia.
Range. Sichuan, S Gansu, S Shaanxi.

Zophoessa violaceopicta kulingensis (Lang, 2024) comb. nov.

Lethe violaceopicta kulingensis Lang, 2024: 222 (TL: Kuling, Lushan, Jiangxi), figs. 2, 7, 18, 20, 22.

Material. 1 ♂, 1 ♀ (CHH), Wuyishan, Fujian, 27.V.2020, Z.-J. Wu leg.; 2 ♂♂, 2 ♀♀ (CHH), Wuyishan, Fujian, 27.V.2020, J.-L. Chen leg.
Remarks. The diagnostic characters proposed by Lang (2024) to distinguish this subspecies from the nominotypical form demonstrate inconsistent utility. Specimens from eastern China frequently show minimal differentiation. However, the present author's analysis reveals significant COI sequence divergence between the western (Omeishan) and eastern (Wuyishan) populations. A complicating factor emerges from a southern Guangxi specimen (Chongzuo, at China-Vietnam border) that shares COI haplotypes with the Omeishan population while exhibiting minimal nuDNA differentiation from Wuyishan specimens.
Due to unsuccessful nuDNA sequencing of Omeishan specimens, definitive subspecific classification must await

analysis of additional material from the nominotypical population.
The deeply divergent mtDNA clades of *Z. violaceopicta* (Poujade) are not accorded species status based on:
1) nuDNA phylogeny showing limited differentiation between clade representatives (ZL1 vs. VK1/VK3);
2) Absence of diagnostic morphological or genitalic differences.
Range. Jiangxi, Zhejiang, Fujian.

***Zophoessa violaceopicta* (Poujade, 1884) subspec.?**

Material. 1 ♂ (CHH), Aidian, Chongzuo, S Guangxi, 1100 m, 7.V.2024, J.-T. Zhao leg. Dissected.
Remarks. The silvery discal and subbasal waved lines on hindwing underside are markedly wider than in other populations.
Range. S Guangxi.

***Zophoessa lingnana* (Lang & Ding, 2022) comb. nov.** (figs. 5-6)

Lethe violaceopicta: Monastyrskii, 2005: pl. 11: fig. 4; Lang, 2017: partim, pl. 6- fig. 66; pl. VI- figs. 9-10.
Lethe kanjupkula: Lang, 2017: partim, pl. 6- fig. 67, pl. VI- fig. 12; Saito & Vu, 2020: 28, fig. 1; Lang, 2024: 223, partim on ♂♂ from Dulongjiang, figs. 5-a,b, 19C, 21C, 22C.
Lethe violaceopicta lingnana Lang & Ding, 2022: 131 (TL: Nanling, Guangdong) figs. 16-18, 26-27, 29.
Lethe pseudokanjupkula Lang & Ding, 2022: 132 (TL: Cenwanglaoshan, Tianlin, Guangxi), figs. 7-9, 22, 29d. **syn. nov.**
Lethe lingnana lingnana: Lang, 2024: 222
Lethe lingnana wawushana Lang, 2024: 222 (TL: Wawu shan, Hongya, Sichuan), figs. 3, 11, 18, 20, 22. Possible synonym.

Material. 1 ♂ (CHH), Nanling Nature Reserve, Ruyuan, N Guangdong, 22.VI.2007, H. Huang leg.; 1 ♂ (CHH), Nanling, Guangdong, 3.VI.2012, C.-H. Zhan leg.; 1 ♂ (CHH), Dayaoshan, Jinxiu, Guangxi, 5.V.2020, J.-T. Zhao leg.; 9 ♂♂ (CHH), Cenwang-laoshan, Tianlin, Guangxi, 20.V.-4.VI., 2020, H. Huang leg.; 1 ♂ (CHH), Daguan, Zhaotong, NE Yunnan, 30.VI.2022, J.-T. Zhao leg.; 1 ♂ (CHH), Omeishan, Sichuan, 18.VIII.2012, H. Huang leg.
♂ **characters**. A2, B2, C1, D2, E1, F1, G1, H1.
♀ **characters**. As in *Z. violaceopicta* (Poujade): Forewing discal band clearly defined on both upper and under sides, bright in appearance, being interrupted by veins 2 and 3 (Lang, 2024).
Remarks. Lang's (2022, 2024) works revealed the remarkable discovery of an entirely distinct species concealed within the well-known *Z. violaceopicta* (Poujade). The genitalic differences between these two species are both significant and consistent. Furthermore, the species are sympatric at Omeishan, Sichuan. Their specific separation has been confirmed through molecular analysis in this study, incorporating both mtDNA and nuDNA markers.
However, despite these striking genitalic differences, the two species remain difficult to distinguish based on external characters for certain individuals. Some specimens of *Z. lingnana* (Lang & Ding) cannot be reliably separated from *Z. violaceopicta* (Poujade) using wing shape or forewing discal band characteristics.
The proposed subspecific divisions within this species appear unsupported by morphological traits as more specimens are examined. The author's analysis demonstrates considerable individual variation in: wing shape; wing coloration; forewing discal band appearance; presence/absence of yellowish coloring in the postdiscal area (spaces 3-4) of the hindwing underside.
Molecular analysis (mtDNA and nuDNA) shows close clustering between: 1) the Dayaoshan population (paratype locality of *Lethe violaceopicta lingnana* Lang & Ding) and 2) the Cenwanglaoshan population (type locality of *Lethe pseudokanjupkula* Lang & Ding).
Given the absence of marked morphological differentiation among Guangxi populations, the author proposes *Lethe pseudokanjupkula* Lang & Ding, 2022 as a new junior synonym of *Z. lingnana* (Lang & Ding, 2022) **comb. nov.**.
Lang (2024) described *Lethe lingnana wawushana* Lang, 2024 from Sichuan as having: 1) brown postdiscal area on the hindwing underside; 2) longer uncus compared to other populations. However, the examination of an Omeishan ♂ specimen shows no differentiation from non-Sichuan populations. Final determination of this taxon's status requires future nuDNA sequencing.
The Dulongjiang population, identified by Lang (2024) as *Lethe kanjupkula* Tytler, 1914, shows: 1) no ♂ genitalic differentiation from *Z. lingnana* (Lang & Ding) **comb. nov.**; 2) currently no available DNA data; 3) potential subspecific status under *Z. lingnana* (Lang & Ding) **comb. nov.** based on smaller size; 4) sympatry with *Z. burmana* (Tytler) **comb. nov.** in Dulongjiang.
Dr. S.-Y. Huang's (personal communication, April 2025) examination of a *Z. kanjupkula* (Tytler, 1914) ♂ at Oxford University Museum of Natural History revealed: 1) uncus similarity to *Z. burmana* (Tytler) and *Z. lingnana* (Lang & Ding) **comb. nov**; 2) markedly shorter apical portion of uncus compared to *Z. burmana* (Tytler) and *Z. lingnana* (Lang & Ding) **comb. nov**; 3) greyish (vs. brownish) dorsal ground coloration. These findings suggest: 1) *Z. kanjupkula* (Tytler) may be more closely related to *Z. lingnana* (Lang & Ding) *Z. lingnana* (Lang & Ding) **comb. nov** than to other congeners; 2) it likely represents a distinct species from *Z. lingnana* (Lang & Ding) **comb.**

nov; 3) the greyish dorsal coloration serves as a potential diagnostic character.
Range. Guangxi, Guangdong, Yunnan, Sichuan; N Vietnam.

***Zophoessa kanjupkula* (Tytler, 1914) comb. nov.** (figs. 7-8)

Lethe kanjupkula Tytler, 1914: 220 (TL: Kanjupkul, Manipur); Tytler, 1915: pl. 1- 5, 6; Evans, 1924: 532; Lang, 2024: 227, partim, fig. 5c for holotype.
Lethe violaceopicta kanjupkula: Talbot, [1949]: 177.

♂ **characters**. A2, B2, C1, D1, E1, F1, G1, H1.
♀ **characters**. Forewing discal band obscure on upper side, ill-defined at outer margin on underside, being conjoined and not interrupted by veins 2 and 3 (Tytler, 1915).
Remarks. The ♂ genitalia dissected by Dr. S.-Y. Huang show similarity to those of *Z. burmana* (Tytler) **comb. nov.** but have the apical part markedly shorter. With its greyish ground color and ill-defined blackish border on the forewing upper side, this species could be closely related to *Z. lingnana* (Lang & Ding) **comb. nov.**
Range. NE India.

***Zophoessa burmana* (Tytler, 1939) comb. nov.** (figs. 7-8)

♂ **characters**. A2, B2, C1, D1, E1, F2.
♀ **characters**. No ♀ specimen is known.

***Zophoessa burmana burmana* (Tytler, 1939) comb. nov.**
Lethe violaceopicta burmana Tytler, 1939: 245 (TL: Sadon, NE Burma); Talbot, [1949]: 178; d'Abrera, 1985: 414, fig. for holotype; Shizuya, Watanabe, Saito & Soe, 2005: 35, figs.
Lethe burmana: Lang, 2017: pl. 6- fig. 68, pl. VI- fig. 13.
Lethe nicetas: Lang, 2017: pl. 6- fig. 69, pl. VI- fig. 14.
Lethe ailao: Lang & Ding, 2022: 131, partim on paratype, fig. 3-4, 20, 29b.
Lethe ailao pseudoburmana Lang, 2024: 224 (TL: Gongshan), figs. 14, 19, 21, 22. **syn. nov.**

Material. 9 ♂♂ (CHH), Pianma, west slope of Gaoligongshan Mts., 7-8.VI.2014, H. Huang leg.; 2 ♂♂ (CHH), Baihualing Nature Reserve, Baoshan, east slope of Gaoligongshan Mts., 23-25.V.2005, H. Huang leg.; 4 ♂♂ (CHH), Datang vaillage, N Tengchong, west slope of Gaoligongshan Mts., 6.VI.2005, H. Huang leg.; 2 ♂♂ (CHH), Dulongjiang, west slope of Gaoligongshan Mts., 5.V.2015, H. Huang leg.; 1 ♂ (CHH), East part of Gongshan-Dulongjiang Road, 14.VI.2014, H. Huang leg.; 9 ♂♂ (CHH), Qiqi Station, Gongshan, east slope of Gaoligongshan Mts., 12-22.VI.2002, H. Huang leg.
Remarks. On the mtDNA COI tree, the samples from Gongshan, Dulongjiang, and Pianma are clustered closely into a clade, which clusters closely with the clades of *Z. burmana ailao* (Lang & Ding, 2022) **comb. nov.** et **stat. nov.** and *Z. burmana namjagbarwae* (Huang, 1999) **comb. nov.** et **stat. nov.** A careful analysis of morphological characters reveals no marked differences in wing characters or ♂ genitalia between these populations. Therefore, the population from Gongshan, named by Lang (2024), is considered to belong to the nominotypical subspecies.
Range. N Myanmar; W Yunnan (around Gaoligongshan Mts.)

***Zophoessa burmana ailao* (Lang & Ding, 2022) comb. nov. & stat. nov.**
Lethe ailao Lang & Ding, 2022: 131 (TL: Ailao shan, Xinping), partim on holotype, figs. 1-2, 19, 29a.

Material. 1 ♂ (CHH), Xinping, Ailaoshan, C Yunnan, 7.VI.2023, H. Huang leg.; 1 ♂ (CHH), Xinping, Ailaoshan, C Yunnan, 21.VI.2024, ex. coll. Zhen-Jun Wu.
Remarks. The molecular analysis of mtDNA COI sequences does not support division between this taxon and *Zophoessa burmana* (Tytler) **comb. nov.** at the species level. As no marked differences exist in either wing characters or ♂ genitalia, it is most appropriate to treat this taxon as a subspecies of *Zophoessa burmana* (Tytler) **comb. nov.** However, final confirmation requires future analysis of nuDNA sequences.
This taxon warrants subspecific status based on: 1) more consistently complete forewing discal bands; 2) generally darker hindwing ground coloration (ventral surface); 3) geographic isolation.
Nevertheless, wing pattern differences remain subtle and variable. For example, Specimen BP2 of *Zophoessa burmana burmana* (Tytler) **comb. nov.** shows transitional characters approaching *Z. burmana ailao* (Lang & Ding) **comb. nov.** et **stat. nov.**
Range. C Yunnan (Ailaoshan only).

***Zophoessa burmana namjagbarwae* (Huang, 1999) comb. nov. & stat. nov.**
Lethe cybele namjagbarwae Huang, 1999: 647 (TL: Motuo, SE Tibet), fig. 74, 75.
Lethe namjagbarwae: Lang, 2024: 224, figs. 15, 19E, 21E, 22E.

Material. 1 ♂ (holotype), On path from Nage to Hanmi, Motuo, IX.1995, H. Huang leg.; 1 ♂ (CWZJ), Motuo,

18.V.2015, Z.-J. Wu leg.
Remarks. The molecular analysis of the mtDNA COI gene does not support division between this taxon and *Zophoessa burmana* (Tytler) **comb. nov.** at the specific level. As there is no marked difference in ♂ genitalia, it is at best to treat this taxon tentatively as a subspecies of *Zophoessa burmana* (Tytler) **comb. nov.**.
This taxon deserves distinct subspecies status by having a more frequently complete forewing discal band and more frequently distant hindwing ocelli from the hindwing termen on the underside, and by having striking geographical isolation.
Range. SE Tibet (Motuo).

***Zophoessa cybele* (Leech, 1893)** (figs.7-10)

♂ **characters**. A2, B2, C2, D2, E1, F2, G2, H2.
♀ **characters**. As in *Z. violaceopicta* (Poujade), forewing discal band clearly defined on both upper and under sides, bright in appearance, being interrupted by veins 2 and 3. Upperside ground color yellowish brown and paler than in *Z. violaceopicta* (Poujade). This represents the first documented record of the ♀ for this species.

***Zophoessa cybele cybele* (Leech, 1893)**
Lethe cybele Leech, 1893: 643 (TL: Omei-Shan), pl. 43: 8; Lang, 2024: 224, figs. 17, 19H, 21H, 22H.
Zophoessa cybele: de Lesse, 1957: 79.
Lethe cybele cybele: Lang, 2017: 67, partim for ♂♂ from Ebian, Sichuan, pl. VI- fig. 16.

Material. 9 ♂♂ (CHH), Jiulinggang, Omeishan, Sichuan, 18-25.VIII.2011, H. Huang leg.; 1 ♂ (CHH), Erlangshan, Tianquan, Sichuan, 17.VIII.2011, H. Huang leg.; 3 ♂♂ (CHH), Qingshibangou, Hailuogou, east slope of Gongga shan Mts., 10.VIII.2014, H. Huang leg.
Remarks. In the mtDNA COI phylogenetic tree, this species constitutes a basal clade within the entire group. Nevertheless, the nuclear DNA (nuDNA) sequences data remain unavailable. Additionally, only a population from Gonggashan, which is located to the west of the TL, has been sequenced. The specimens from the TL are too aged to permit successful sequencing. Hence, further investigations involving more samples are warranted.
Range. Sichuan.

***Zophoessa cybele e s h a a n e n s i s* subspec. nov.**
Holotype ♀ (figs. 9, 10- CE2): China, Shaanxi, Ningshaan, 26.VIII.2020, Y.-F. Li leg. (to be deposited in BSNU).
Paratypes: 4 ♂♂ (CHH), Hubei, Shennongjia, Hongping village, 19.VIII.2013, H. Huang leg.; 1 ♂ (CLP), Ningshaan, Shaanxi, 18.VIII.2016, P. Li leg.
Etymology. The subspecies is named after its geographic distribution, encompassing the provinces of Hubei and Shaanxi, abbreviated as E and Shaan, respectively.
Diagnosis. The new subspecies can be distinguished from the nominotypical subspecies in ♂♂ by the typically broader discal band on the forewing underside.
Remarks. In the mtDNA COI phylogenetic tree, this taxon does not cluster with the nominotypical subspecies, i.e., they do not form a monophyletic clade. The Kimura 2-parameter distance in the COI barcode sequence between the two taxa is 0.031, a relatively high value. However, the ♂ genitalia of the two taxa are indistinguishable, warranting their provisional classification as distinct subspecies of a single species. Future studies should include an analysis of nuDNA gene sequences for further clarification.
Range. Hubei, S Shaanxi.

***Zophoessa nicetas* (Hewitson, 1863)** (figs. 9-10)
Debis nicetas Hewitson, 1863: 78 (TL: East India [Darjiling]), pl. 3- 17, 18.
Lethe nicetas: Butler, 1868:116; Evans, 1924: 532; Talbot, [1949]: 179; d'Abrera, 1985: 414, 415- figs. for ♂ and ♀; Huang, 2000: 155, record for SE Tibet.
Sinchula nicetas: Moore, 1892, pl. 88, figs. 4a-c.
Zophoessa nicetas: de Lesse, 1957: 80.

Material. 1 ♂ (CHH), Motuo, SE Tibet, 21.VI.1996, H. Huang leg.; 2 ♂♂ (CHH), Qiqi Station, east slope of Gaoligongshan Mts., 19.VI.2002, H. Huang leg.; 3 ♂♂ (CHH), Dulongjiang, west slope of Gaoligongshan Mts., 6.V.2015, H. Huang leg.
♂ **characters**. A2, B1, C1, D1, E1, F4, G1, H1.
♀ **characters**. The forewing discal band is faint on the upper side but broader and more diffuse at outer edge on the underside, exhibiting less curvature from the costa to the dorsum compared to other species (D'Abrera, 1985).
Remarks. In the mtDNA COI phylogenetic tree, this species does not cluster with any congeners and is instead distinctly divergent. Although nuDNA sequences remain unexamined, this species exhibits pronounced differentiation from all others in both wing morphology and ♂ genitalia.

Range. NE India; Nepal; N Myanmar; N. Vietnam; SE Tibet (Motuo), NW Yunnan (Gaoligongshan Mts.)

***Zophoessa wuchunshengi* spec. nov.** (figs. 7-10)

Holotype ♂ (figs. 7, 8- W2): China, NW Yunnan, Weixi County, Tacheng, 2800 m, 6.IX.2024, local collectors leg. (to be deposited in BSNU).

Paratypes: 6 ♂♂ (CHH), same data as holotype.

Etymology. The species is named in honor of the late Dr. Chun-Sheng Wu (1960-2024), a renowned lepidopterist who worked at the Institute of Zoology, Chinese Academy of Sciences, Beijing.

Diagnosis. The new species can be distinguished from other members of the *Zophoessa nicetas* (Hewitson) group primarily by the following combination of ♂ characters:

1) The black border on the forewing upper side is significantly broader than in all other species.
2) The underside ground color is darker than in all other species.
3) The yellowish discal band on the forewing underside is sharply defined and narrow.
4) The uncus, in dorsal view, has parallel sides from the base to the midpoint, differing from most other species except *Z. nicetas* (Hewitson).

♂ **characters.** A2, B1, C1, E1, F3, G2, H2.

Remarks. Although this species is closely related to *Zophoessa violaceopicta* (Poujade) and forms a monophyletic clade with the latter in the mtDNA COI gene tree, it is distinctly divergent from *Z. violaceopicta* (Poujade) as well as all other members of the group in the nuDNA gene tree. The distinct status of this new species is further strongly supported by both wing morphology and ♂ genitalia.

Range. NW Yunnan.

Postscript: A ♀ specimen collected from Pai, southeastern Tibet, likely represents an undescribed species, as it differs from all known congeners. This finding suggests that the species group is far more complex than previously recognized.

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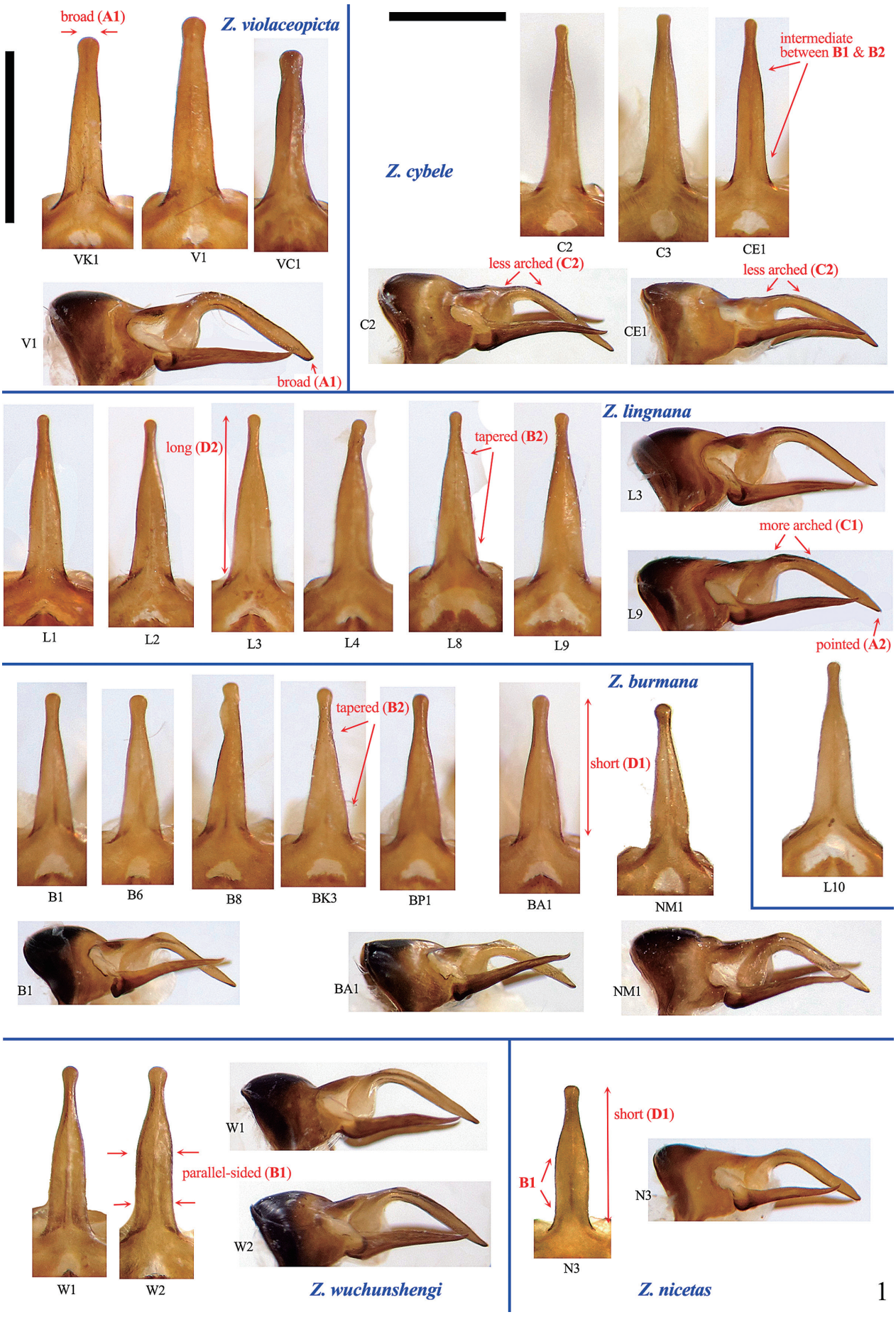


Fig. 1: Diagnostic characters of ♂ genitalia used for species differentiation.

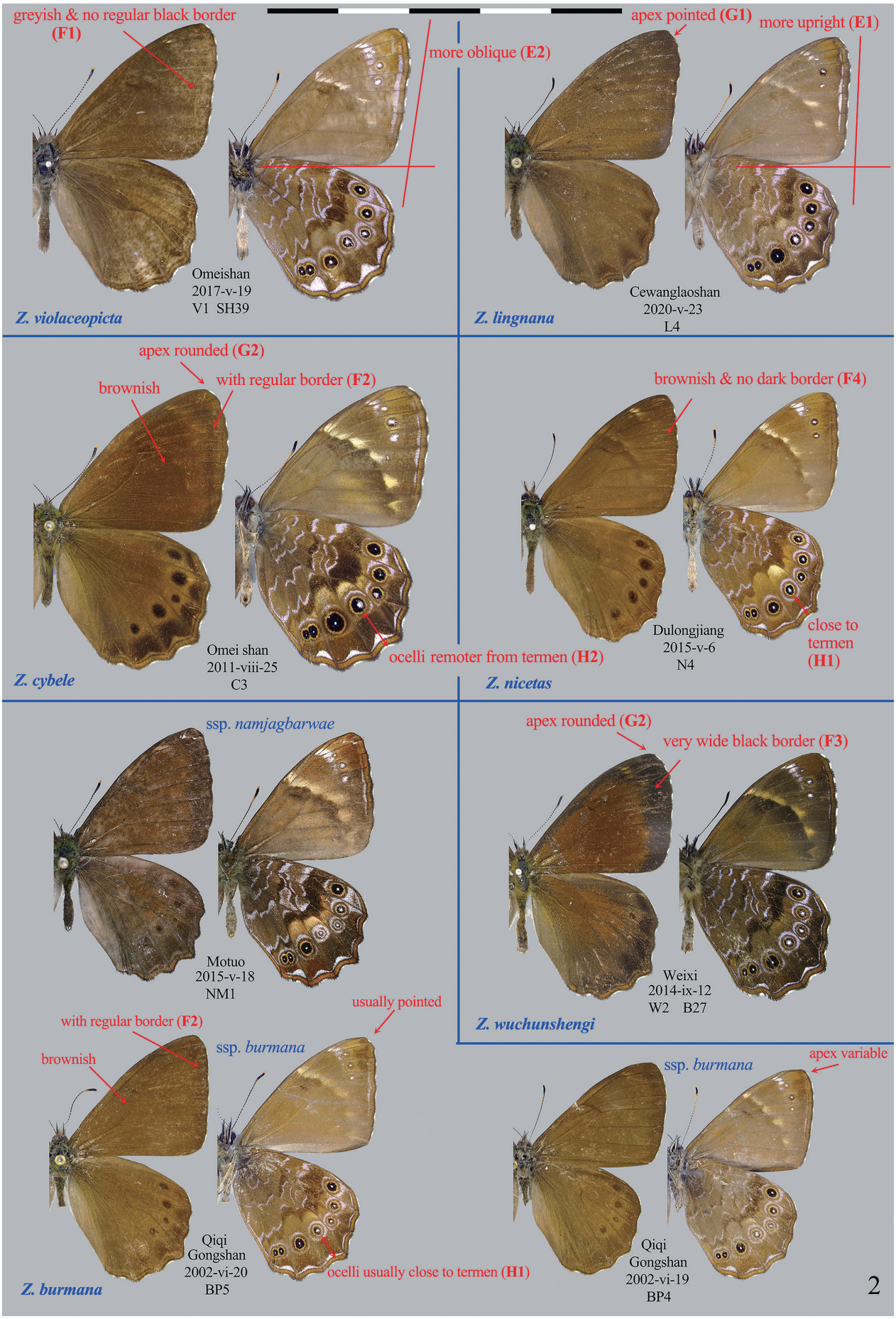
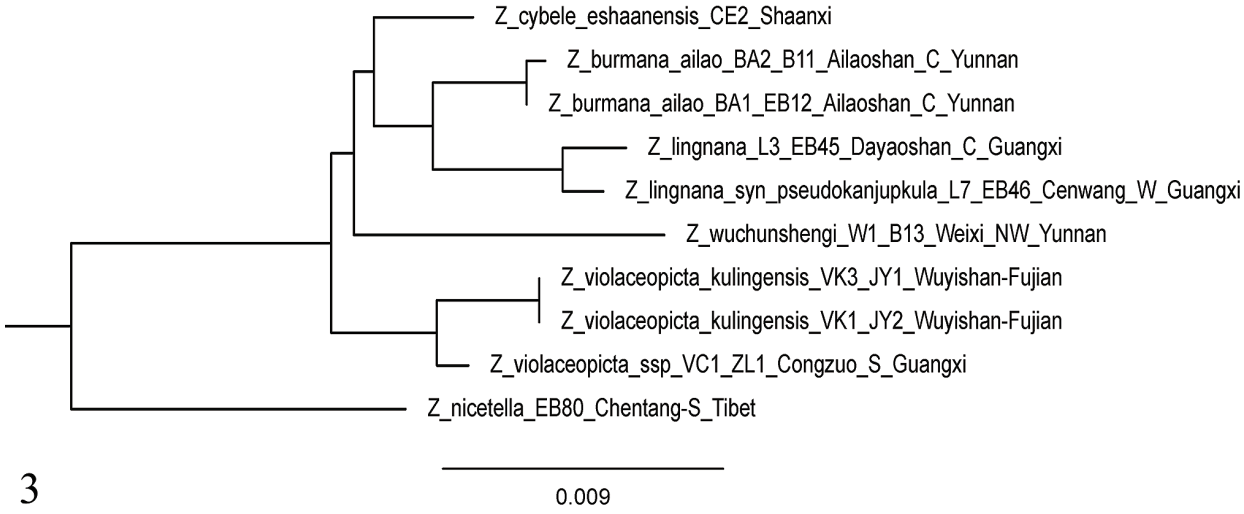


Fig. 2: Diagnostic characters of wings used for species differentiation.



3

Fig. 3: nuDNA gene tree of the *Zophoessa nicetas* (Hewitson, 1863) group reconstructed by ML method using IQ-TREE based on one Rps5 fragment (575 bp) and two EF1-alpha fragments (1114 bp in total), with Auto substitution model.

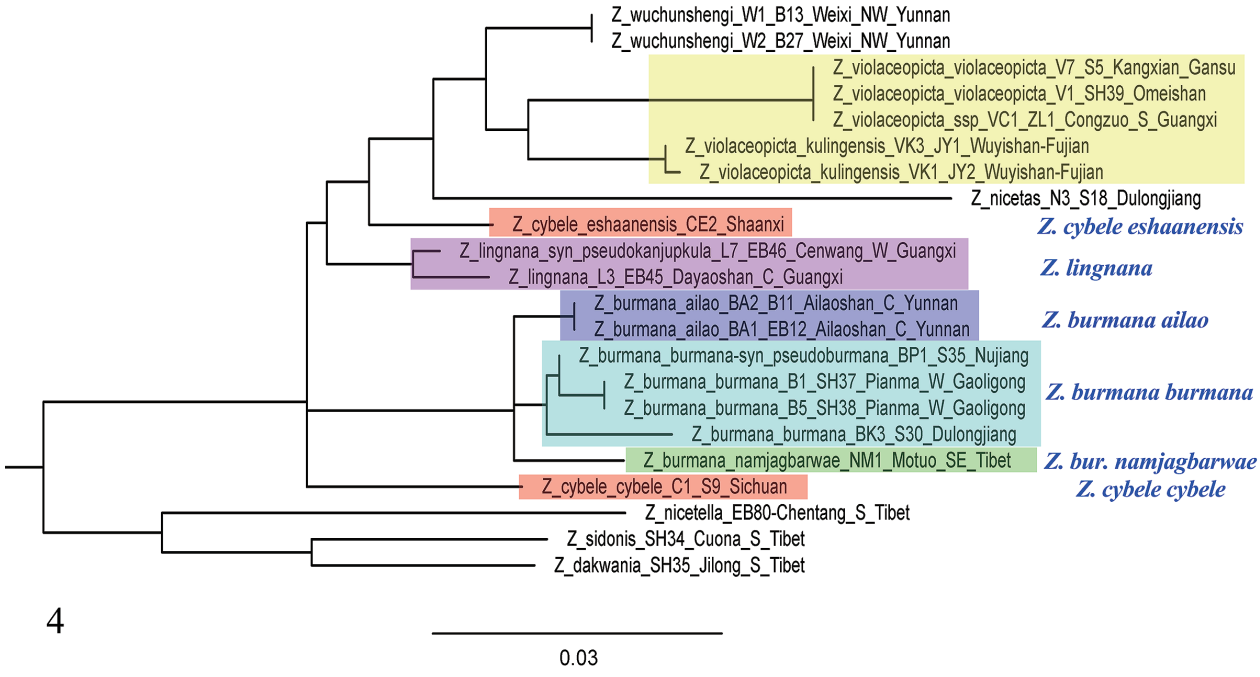


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Fig. 4: mtDNA gene tree of the *Zophoessa nicetas* (Hewitson, 1863) group reconstructed by ML method using IQ-TREE based on COI barcode fragment (688 bp).

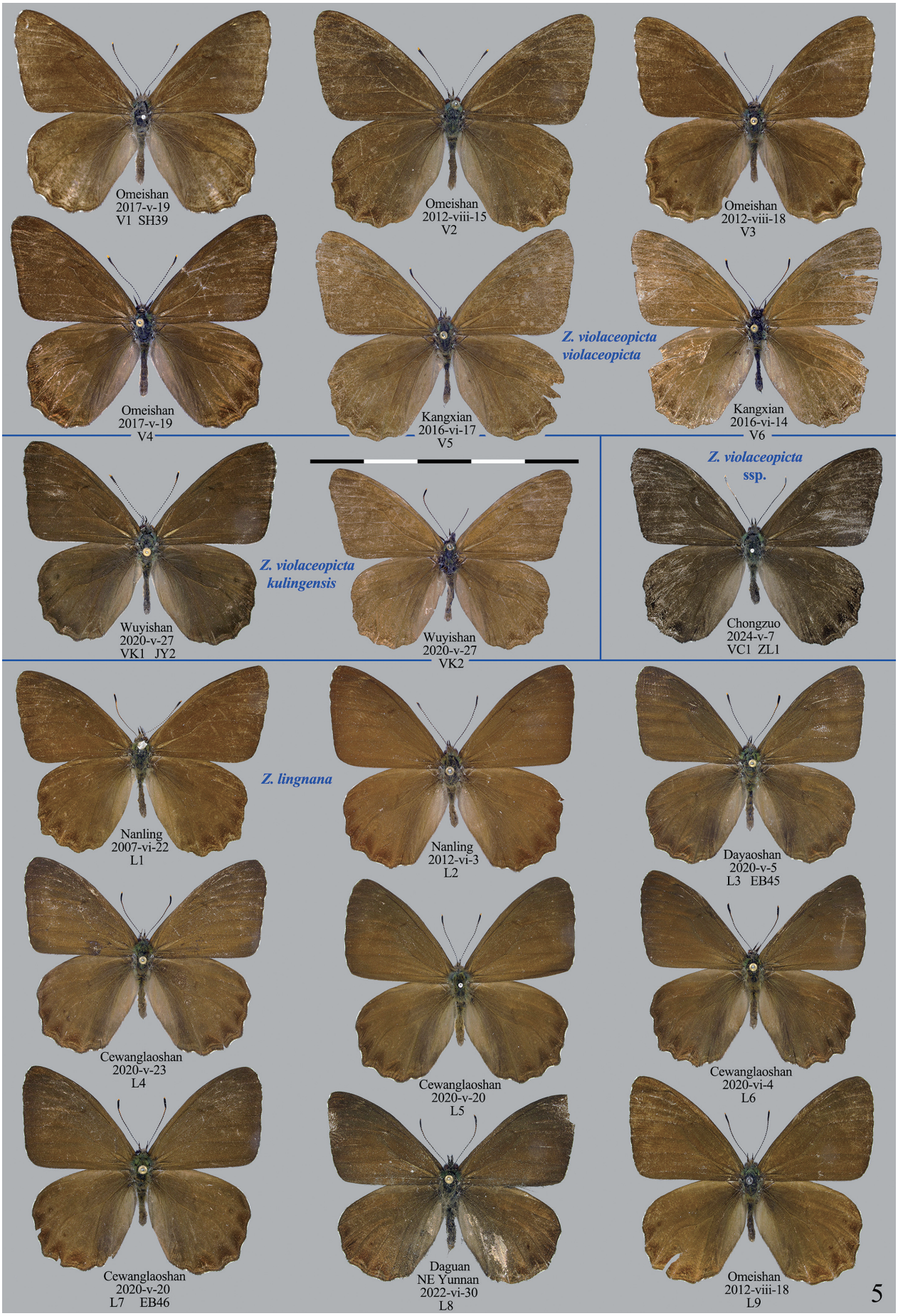

Fig. 5: Dorsal habitus of the *Zophoessa nicetas* (Hewitson, 1863) group under same scale.

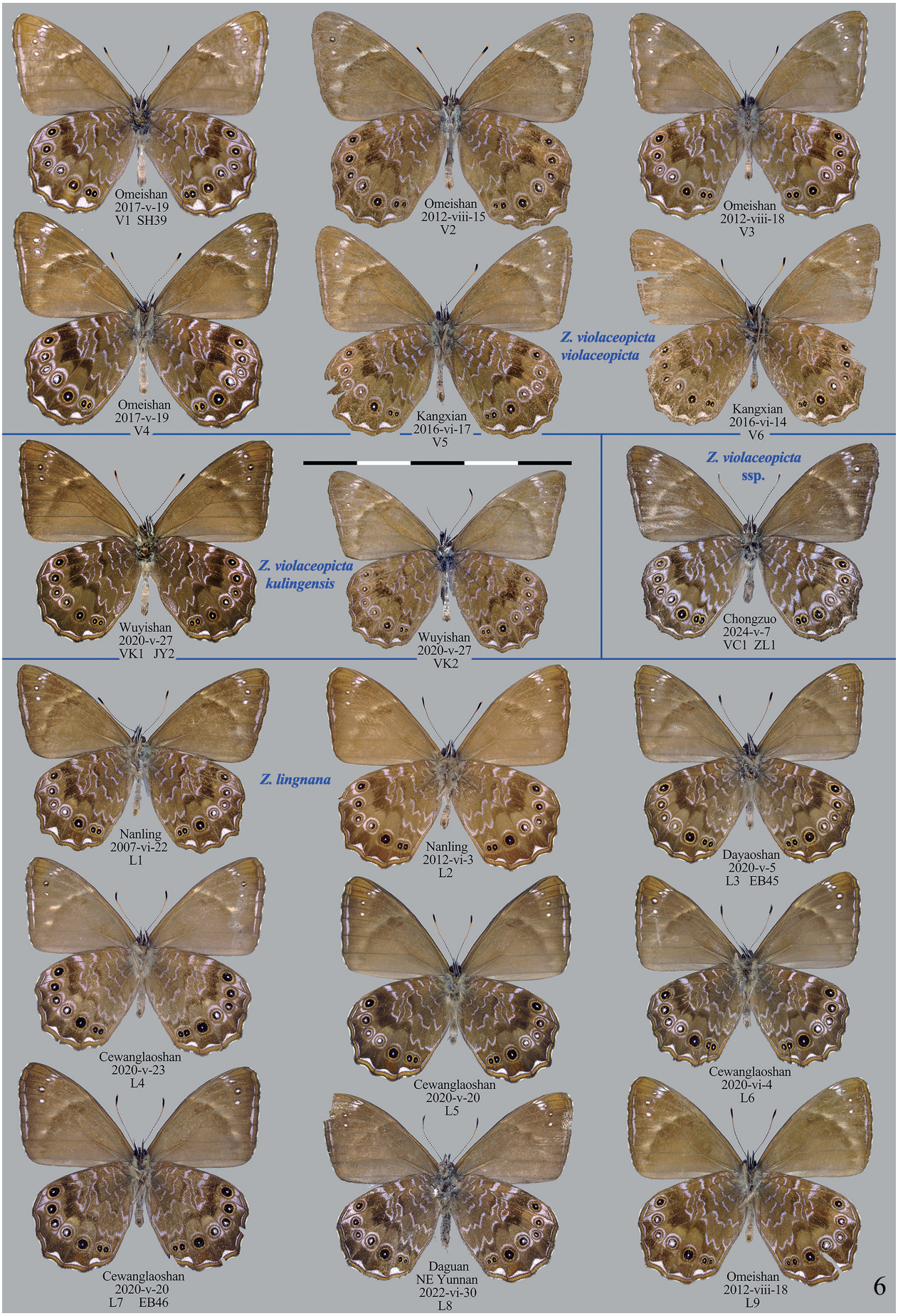

Fig. 6: Ventral habitus of the *Zophoessa nicetas* (Hewitson, 1863) group under same scale.

Fig. 7: Dorsal habitus of the *Zophoessa nicetas* (Hewitson, 1863) group under same scale, including *Zophoessa kanjupkula* (Tytler, 1914) **comb. nov.** and *Z. burmana* (Tytler, 1939) **comb. nov.** (images courtesy of NHMUK, London).

Fig. 8: Ventral habitus of the *Zophoessa nicetas* (Hewitson, 1863) group under same scale, including *Zophoessa kanjupkula* (Tytler, 1914) **comb. nov.** and *Z. burmana* (Tytler, 1939) **comb. nov.** (images courtesy of NHMUK, London).

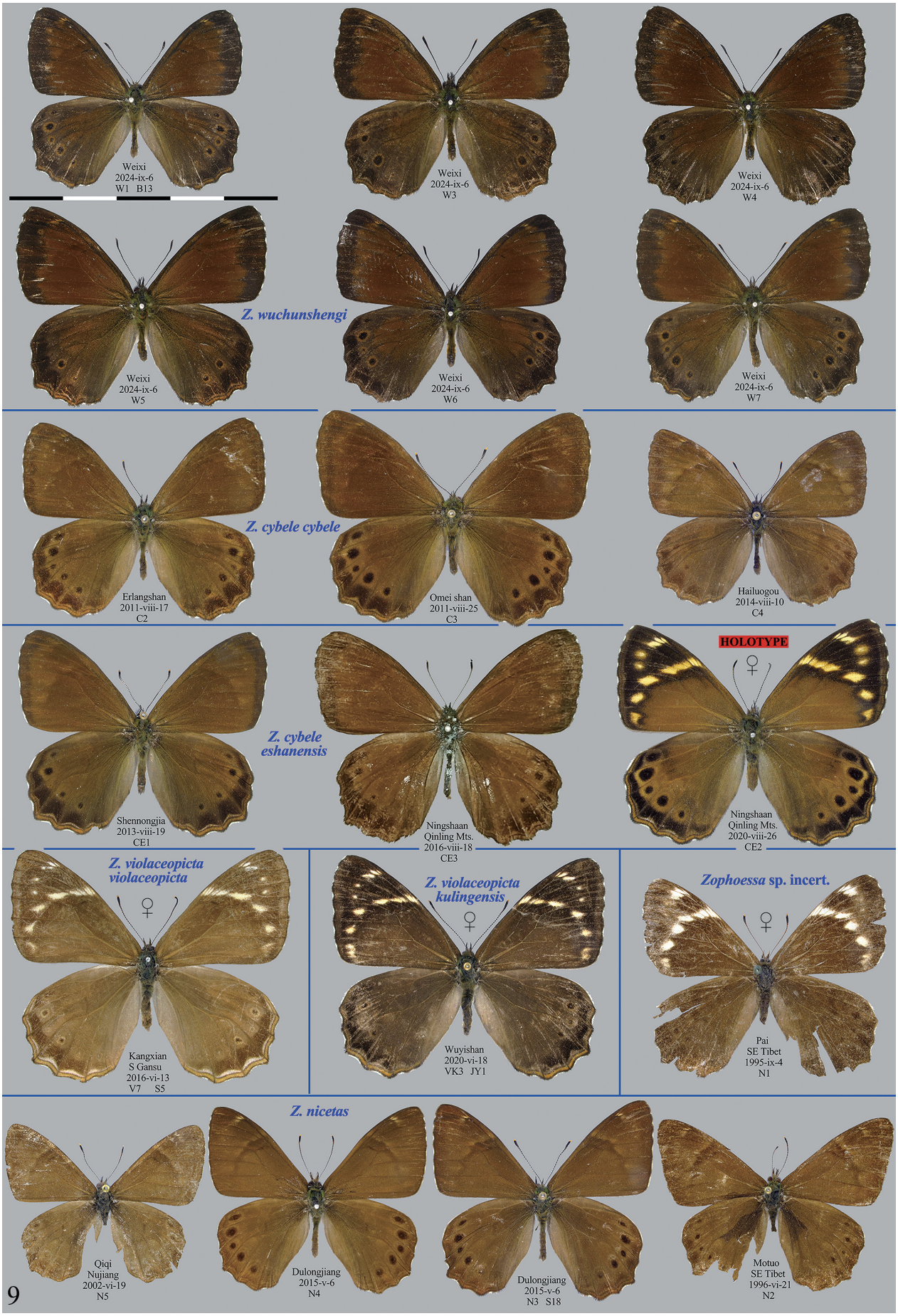

Fig. 9: Dorsal habitus of the *Zophoessa nicetas* (Hewitson, 1863) group under same scale.

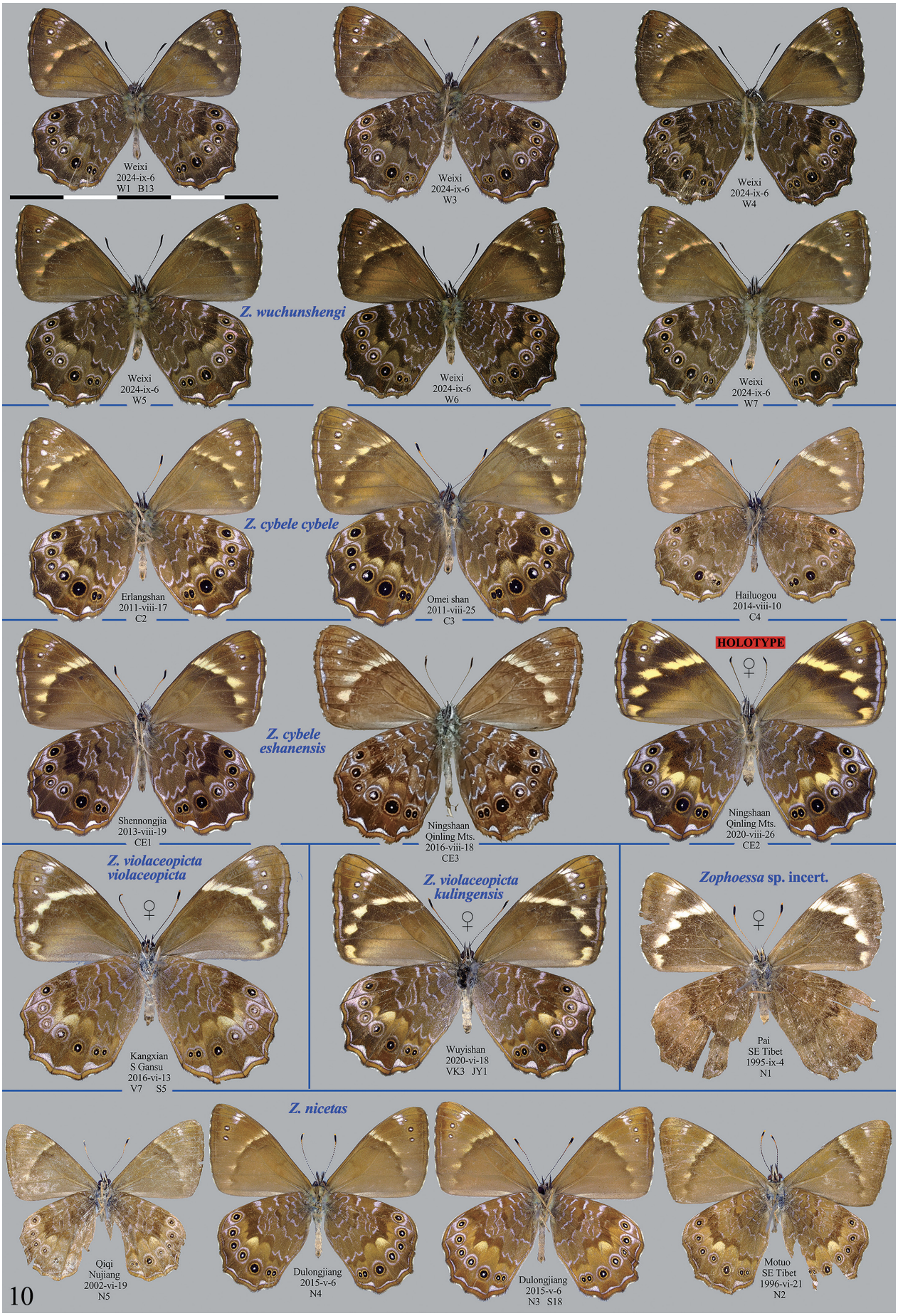

Fig. 10: Ventral habitus of the *Zophoessa nicetas* (Hewitson, 1863) group under same scale.