

Adding to the diversity of Katlasidae (Hemiptera: Fulgoromorpha: Fulgoridoidea) – a new genus and species from mid-Cretaceous Kachin amber of northern Myanmar

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ABSTRACT

A new genus and species – *Lucidusmacula lihanjieae* gen. et sp. nov. is described from mid-Cretaceous amber of northern Myanmar. It is the third genus and species of the planthopper family Katlasidae, and clearly differs from the two other known genera of Katlasidae by the combination of morphological characters of the frons, pronotum, tegminal venation and its structure. This taxon adds new morphological information for Cretaceous fulgoridioid planthoppers.

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INTRODUCTION

Hemiptera Linnaeus, 1758 is the order with the highest species number among the hemimetabolous insects, and includes over 330 known extant and extinct families (Szwedo, 2018; Boderau et al., 2025). As an important group of Hemiptera, the planthoppers (suborder Fulgoromorpha Evans, 1946) contain three extinct superfamilies (Coleoscytoidea Martynov, 1935, Surijokocixioidea Shcherbakov, 2000 and Fulgoridioidea Handlirsch, 1939), three extant superfamilies (Delphacoidea Leach, 1815, Fulgoroidea Latreille, 1807 and Mee-noploidea Fieber, 1872), and several other families with no precise superfamily attribution (e.g., Jubisentidae Zhang, Ren et Yao, 2019, Mimarachnidae Shcherbakov, 2007a, Neazoniidae Szwedo, 2007 and Perforissidae Shcherbakov, 2007b) (Bourgoin and Szwedo 2022, 2023; Deng et al., 2025).

Kachin amber is currently the Cretaceous amber with the highest diversity of bioinclusions in the world (Ross, 2025), containing various fossils such as vertebrates, invertebrates, plants. Insects are the most abundant group in Kachin amber. Among them, twelve planthopper families have been discovered: Achilidae Stål, 1866 (Brysz et al., 2023), Cixiidae Spinola, 1839 (Luo et al., 2021; Wang et al., 2022), Derbidae Spinola, 1839 (Emeljanov and Shcherbakov, 2020), Dorytocidae Emeljanov and Shcherbakov, 2018 (Emeljanov and Shcherbakov, 2018; Song et al., 2021), Fulgoridiidae Handlirsch, 1939 (Poinar et al., 2022), Inoderbidae Emeljanov and Shcherbakov, 2021 (Shcherbakov and Emeljanov, 2021; Luo et al., 2022), Jubisentidae Zhang, Ren et Yao, 2019 (Zhang et al., 2019; Shcherbakov, 2020), Katlasidae Luo, Jiang and Szwedo, 2020 (Luo et al., 2020b; Zhang et al., 2023), Mimarachnidae Shcherbakov, 2007a (e.g., Shcherbakov, 2017), Nogodinidae Melichar, 1898 (Luo et al., 2023), Perforissidae Shcherbakov, 2007b (Shcherbakov, 2007b; Zhang et al., 2017; Luo et al., 2020a; but see reservation in Bucher et al., 2024 and Ross, 2025), and Yetkhatidae Song, Szwedo and Bourgoin, 2019 (Song et al., 2019). The unique preservation of these planthoppers in Kachin amber allows for a detailed morphological examination, shedding light on the evolutionary processes that shaped the diversity of planthoppers during this period (Bourgoin and Szwedo 2022, 2023; Deng et al., 2025; Boderau et al., 2025).

Katlasidae Luo, Jiang et Szwedo, 2020 is a planthopper family established by Luo et al. (2020b), representing a unique group within Fulgoridioidea (Zhang et al., 2023). Katlasidae contains

two genera and species, i.e., *Katlasus xiai* Luo, Jiang et Szwedo, 2020 and *Dumpyawmus hpungwanus* Zhang, Luo et Szwedo, 2023, both from Kachin amber (Luo et al., 2020b; Zhang et al., 2023).

Herein we describe the third genus and species of this family, *Lucidusmacula lihanjieae* gen. et sp. nov., from mid-Cretaceous Kachin amber in Myanmar, adding new data on the taxonomic diversity and morphological disparity of both the family and planthoppers as a whole.

MATERIALS AND METHODS

The studied specimen comes from a Cretaceous amber mine, near Danai (Tanai) Town (26°21'03.41" N, 96°43'11.88" E; palaeolatitude 5.0 ± 4.7°S) in the Hukawng Valley of Myanmar, see figure 1 in Jiang et al. (2019) (Thu and Zaw, 2017; Westerweel et al., 2019). Radiometric U-Pb zircon dating of the volcanoclastic matrix of the amber constrained a refined age of 98.79 ± 0.62 Ma (earliest Cenomanian) (Shi et al., 2012), which is also supported by the ammonite trapped in the amber (Yu et al., 2019).

The amber piece was collected in 2015, before November 2017 when the Myanmar military closed the Kachin amber mine. The fossil reported in this study was not involved in armed conflict and ethnic strife in Myanmar or linked with such events in any conceivable way. The amber piece with the holotype LYU-BL2003 described here is now permanently deposited in the Institute of Geology and Paleontology at Linyi University in Linyi, China, in full compliance with the International Code of Zoological Nomenclature (ICZN, 1999), Statement of the International Palaeoentomological Society (Szwedo et al., 2020), and the policies proposed by Haug et al. (2020).

Observations were performed using a Zeiss Stemi 508 microscope. The photographs were taken with a Zeiss Stereo Discovery V16 microscope system in the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing, China; and measurements were taken using CorelDraw 2023 graphic software. Photomicrographic composites of about 20 individual focal planes were digitally stacked as obtained using the software Helicon Focus 6.7.1 for a better illustration of 3D structures. Photographs were adjusted using Adobe Lightroom Classic and line drawings were prepared using CorelDraw 2023 graphic software.

Morphological terms are used after the proposals of Anufriev and Emeljanov (1988), Bartlett

et al. (2014) and Brožek et al. (2024). The nomenclature of the fore wing (tegmen) follows the interpretation proposed by Bourgoin et al. (2015) and Stroiński (2020), for hind wings after Anufriev and Emeljanov (1988): CA, costal margin (costa anterior); Pc+CP, precosta + costa posterior; ScP+R, subcosta posterior + radius; RA, radius anterior; RP, radius posterior; MP, media posterior; CuA, cubitus anterior; CuP, cubitus posterior; Pcu, postcubitus; A1, first anal vein; A2, second anal vein. The morphological terminology used in this study mostly follows Luo et al. (2020b).

SYSTEMATIC PALAEOONTOLOGY

Order HEMIPTERA Linnaeus, 1758

Suborder FULGOROMORPHA Evans, 1946

Superfamily FULGORIDIOIDEA Handlirsch, 1939

Family KATLASIDAE Luo, Jiang et Szvedo, 2020
in Luo et al., 2020b

Genus *LUCIDUSMACULA*

Wang, Szvedo et Luo, gen. nov.

(Figures 1–6)

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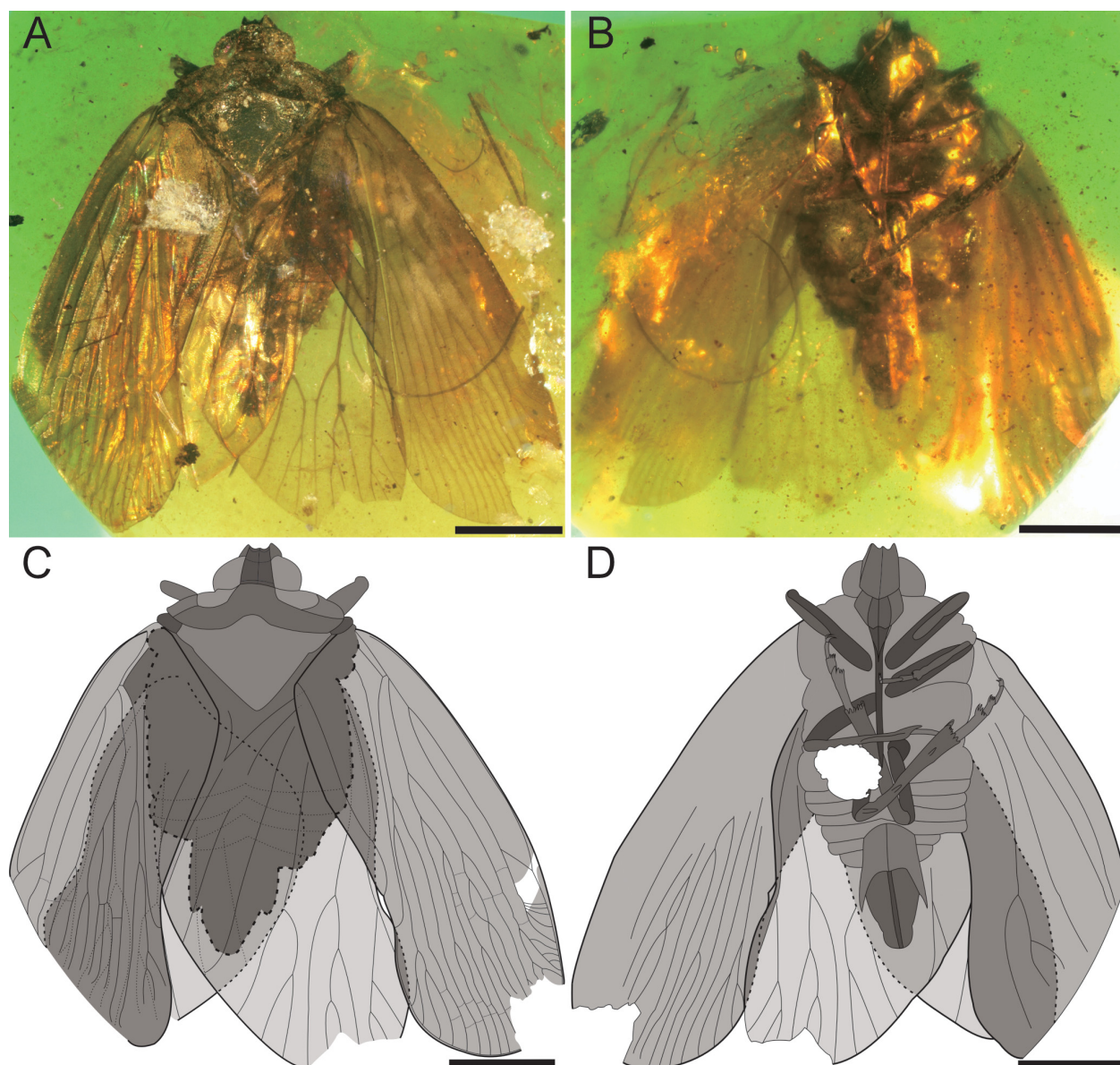


FIGURE 1. Holotype of *Lucidusmacula lihanjieae* gen. et sp. nov. (LYU-BL2003). **A**, the dorsal view. **B**, the ventral view. **C**, line drawing of the dorsal view. **D**, line drawing of the ventral view. Scale bars: 2 mm (**A–D**).

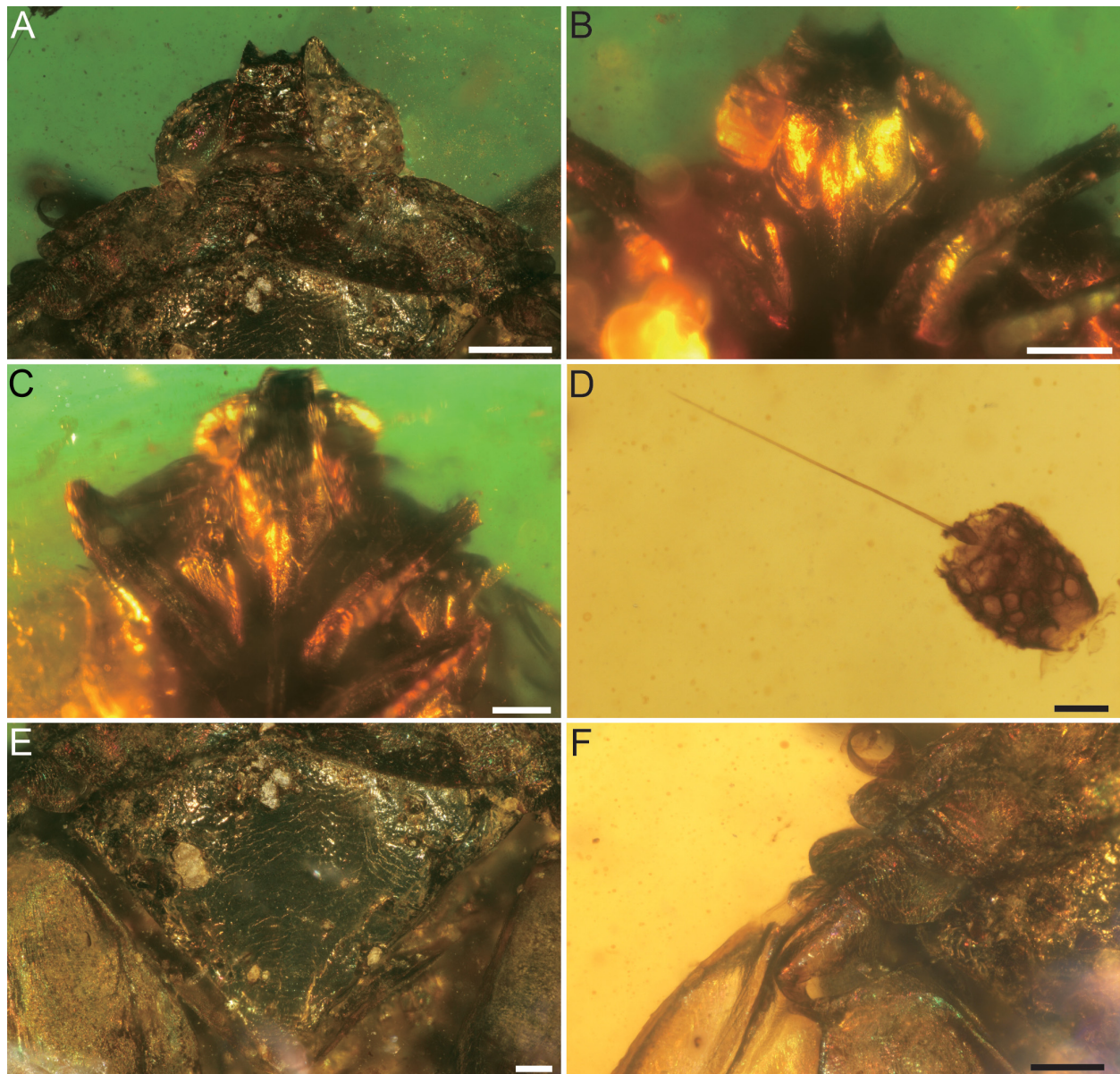


FIGURE 2. Detailed photographs of the head, pronotum and mesonotum of *Lucidusmacula lihanjieae* gen. et sp. nov. (LYU-BL2003). **A**, head and pronotum in dorsal view. **B**, head in ventral view. **C**, head and pronotum in ventral view. **D**, detached antenna. **E**, mesonotum in dorsal view. **F**, left tegulae. Scale bars: 0.5 mm (**A**, **B**, **D**); 0.2 mm (**F**); 0.1 mm (**C**, **E**).

Type species. *Lucidusmacula lihanjieae* Wang, Szweo et Luo, sp. nov.; by present designation and monotypy.

Etymology. The generic name is derived from the combination of two words in Latin, “lucidus”, meaning “brighter” and “macula”, meaning “spot” and refers to the distinct brighter area present between ScP and RA on tegmen. Gender: feminine.

Diagnosis. vertex with trigons visible in dorsal view (not visible in *Katlasus*); frons with distinct median carina, extending almost to postclypeus,

postclypeus with median carina and two lateral carinate (same as *Katlasus*, not visible in *Dumpyawnus*); rostrum clearly exceeding metacoxae (same as *Dumpyawnus*, just reaching metacoxae in *Katlasus*). Antennal pedicel barrel-shaped (same as *Katlasus*, pedicel cone-shaped in *Dumpyawnus*). Pronotum without distinct median carina (median carina present in *Katlasus*). Tegmen with a distinct brighter area between ScP and RA, terminals of ScP+RA all single (same as *Katlasus*, forked with two terminals in *Dumpyawnus*),

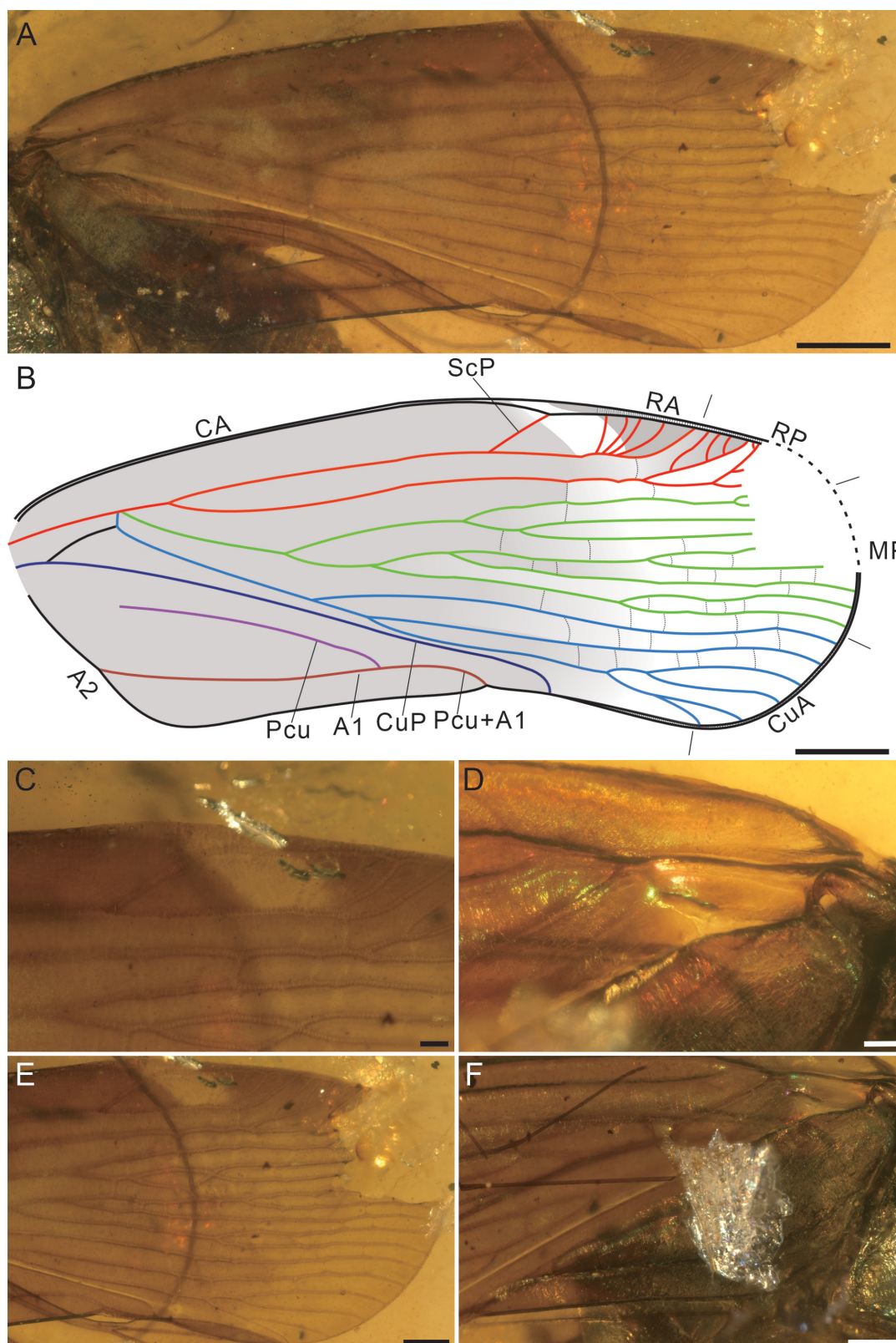


FIGURE 3. Detailed photographs and line drawing of the tegmen of *Lucidusmacula lihanjieae* gen. et sp. nov. (LYU-BL2003). **A**, the right tegmen in dorsal view. **B**, line drawing of the right tegmen in dorsal view. **C**, a distinct brighter area between ScP and RA. **D**, the basal cell of the left tegmen. **E**, the apical part of the right tegmen in dorsal view. **F**, claval apex of the left tegmen. Scale bars: 1.0 mm (**A**, **B**); 0.5 mm (**E**, **F**); 0.2 mm (**C**, **D**).

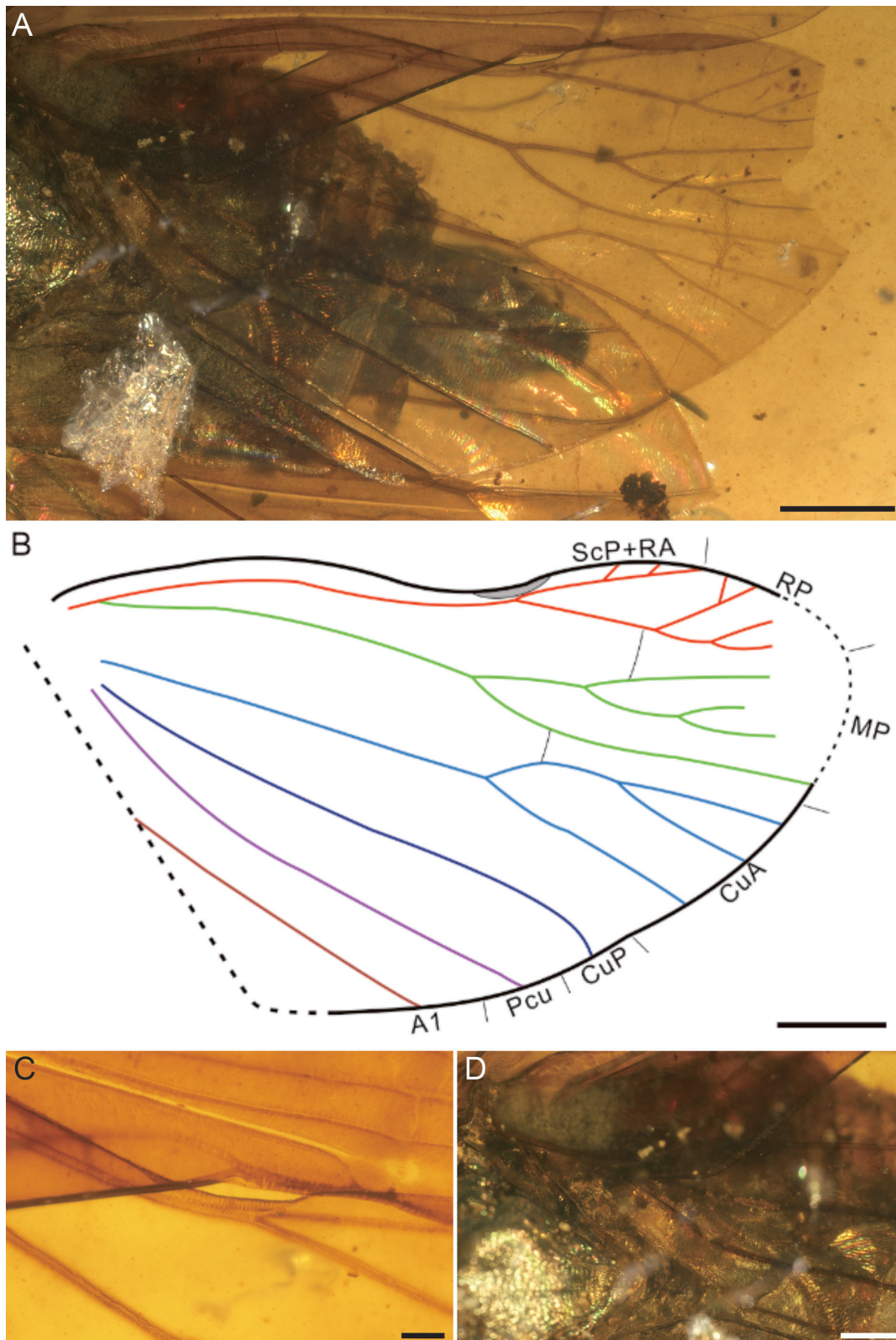


FIGURE 4. Detailed photographs and line drawing of the hind wing of *Lucidusmacula lihanjieae* gen. et sp. nov. (LYU-BL2003). **A**, the right hind wing in dorsal view. **B**, line drawing of the right hind wing in dorsal view. **C**, wing-coupling lobe (WCL) of hind wing. **D**, the basal part of the right hind wing in dorsal view. Scale bars: 1.0 mm (**A**, **B**), 0.5 mm (**D**), 0.2 mm (**C**).

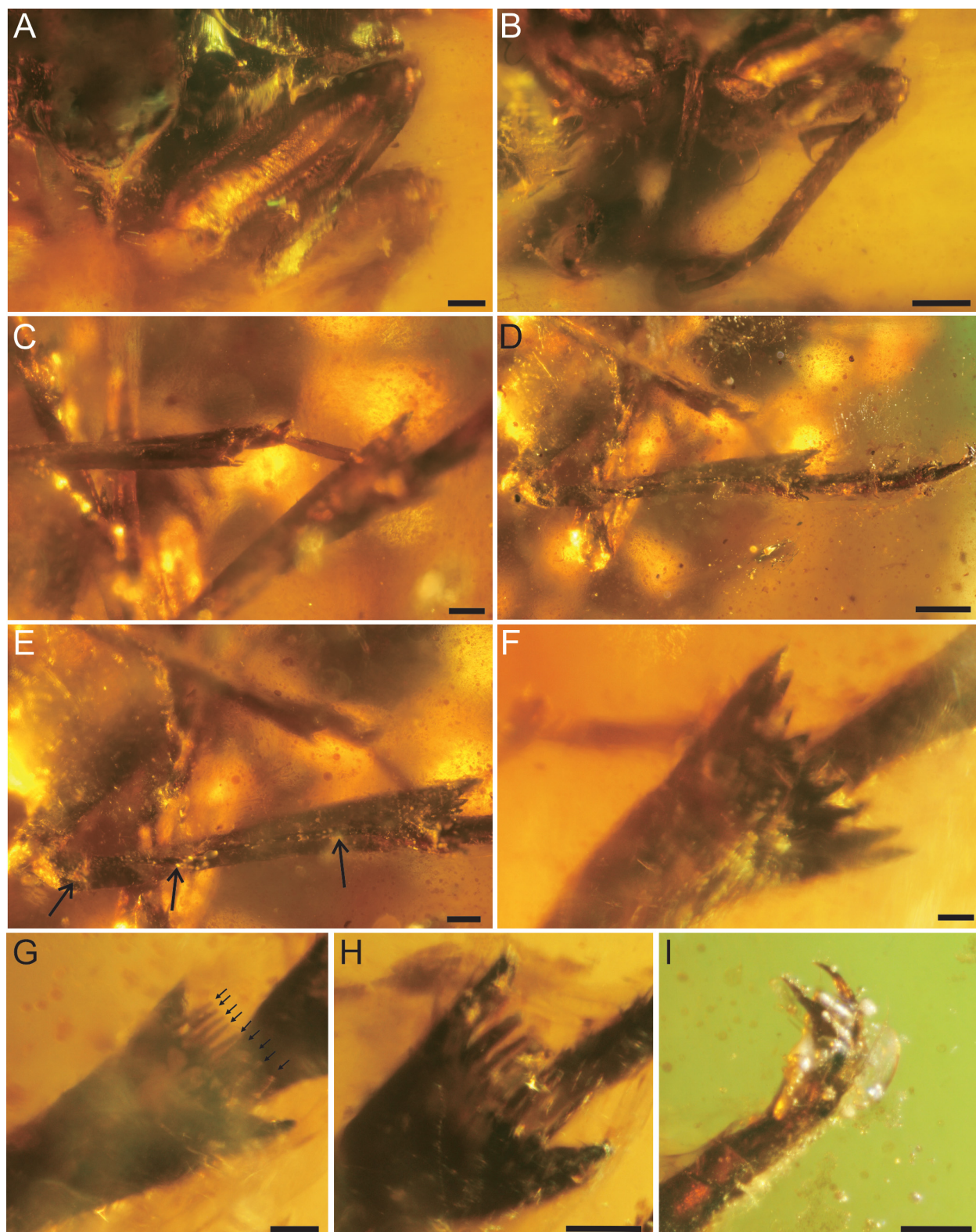


FIGURE 5. Detailed photographs of legs of *Lucidusmacula lihanjieae* gen. et sp. nov. (LYU-BL2003) **A**, the left fore leg. **B**, the left mid leg. **C**, mesotibia of the right mid leg. **D**, the right hind leg. **E**, metatibia of the right hind leg, note 3 lateral spines (arrowed). **F**, the apical teeth of the right metatibia. **G**, the apical teeth of the right basimetatarsomere, note numerous subapical platellae (arrowed). **H**, the apical teeth of the right midmetatarsomere. **I**, the claw of the right leg. Scale bars: 0.5 mm (**B, D, E**), 0.2 mm (**A, C**), 0.1 mm (**F–I**).

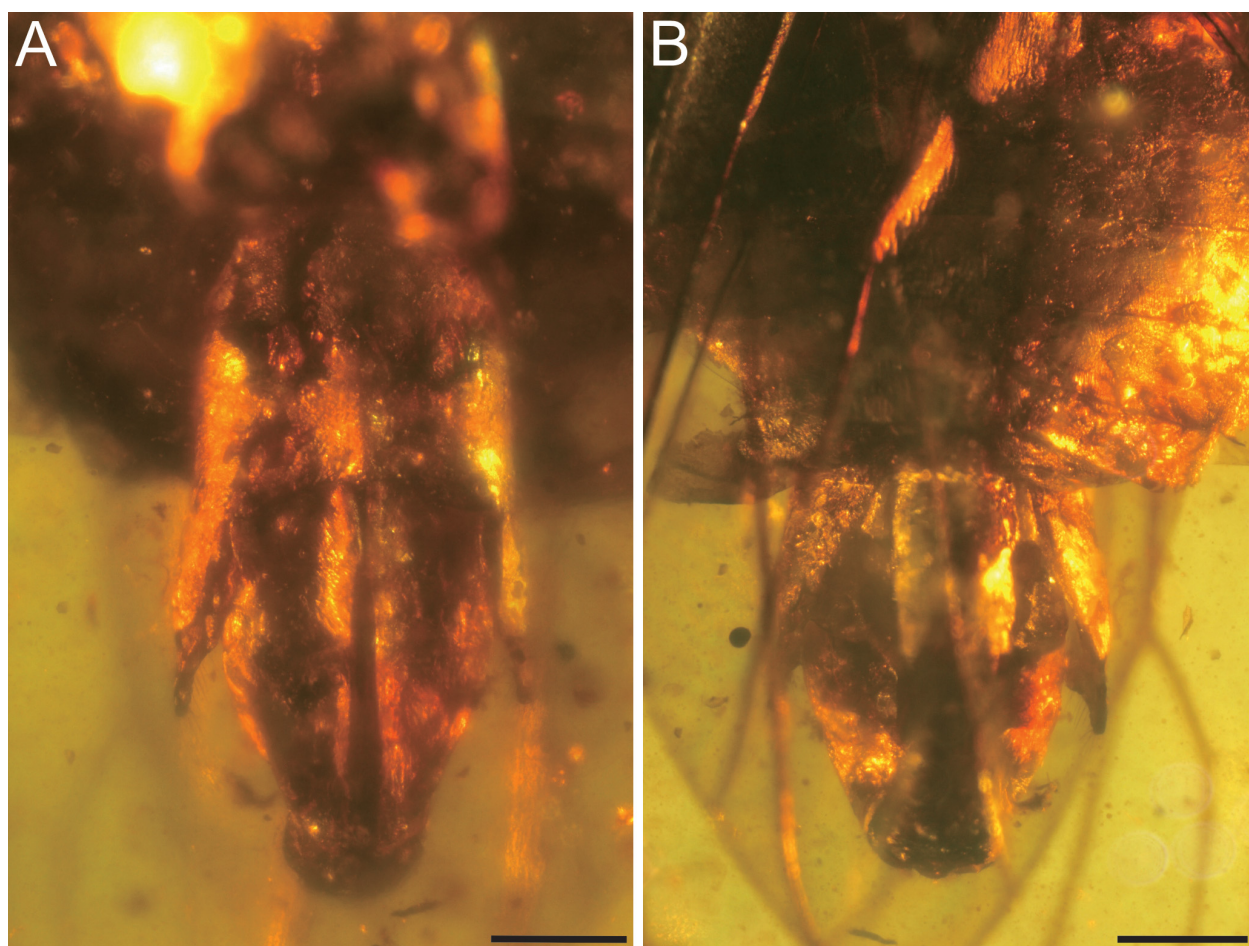


FIGURE 6. Terminalia of *Lucidusmacula lihanjieae* gen. et sp. nov. (LYU-BL2003). **A**, the ventral view. **B**, the dorsal view. Scale bars: 0.5 mm (**A**, **B**).

ScP single, RA with about five terminals (ten terminals in *Dumpyawnus*, nine terminals in *Katlasus*); RP with at least eight terminals (only two terminals in *Katlasus* and *Dumpyawnus*); MP with about nine terminals (*Dumpyawnus* with only five terminals and the *Katlasus* with 14 terminals); MP₃ forked; CuA_{2a} single; CuA_{2b} with about four terminals. Hind wing with ScP+RA forked with three terminals (same as *Katlasus*, four terminals in *Dumpyawnus*), RP forked with about four terminals (five terminals in *Katlasus*, three terminals in *Dumpyawnus*); MP₁₊₂ forked with three terminals (two terminals in *Katlasus* and *Dumpyawnus*), MP₃₊₄ single (two terminals in *Katlasus* and *Dumpyawnus*); CuA forked with three terminals (same as *Katlasus*, five terminals in *Dumpyawnus*). Metatibia with three ectodermal lateral spines (as in *Dumpyawnus*; two visible spines in *Katlasus*).

Age and occurrence. Mid-Cretaceous (lowermost Cenomanian); amber from Kachin State, northern Myanmar.

Lucidusmacula lihanjieae
Wang, Szweo et Luo, sp. nov.
(Figures 1–6)

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Etymology. The specific name is dedicated to Hanjie Li, the daughter of Mr. De Zhuo's friend.

Material. Holotype. Kachin amber, cabochon, 23 × 20 × 9 mm. No syninclusions. Specimen No. LYU-BL2003, deposited in the Institute of Geology and Paleontology at Linyi University in Linyi, China.

Locality and horizon. Kachin amber, from deposits near Tanai Village in the Hukawng Valley of northern Myanmar, lowermost Cenomanian.

Diagnosis. As for the genus.

Description. Adult, male (Figure 1). Total length ca. 10.79 mm, body 8.15 mm long. Head with compound eyes 1.71 mm wide (½ as wide as pronotum). 0.88 mm long in midline. Compound eyes large, bulging laterally, anterior margin distinctly exceeding half of head length; right compound eye

0.67 mm long, 0.57 mm wide, left compound eye 0.68 mm long, 0.56 mm wide. Vertex double trapezoid, 0.56 mm long in mid line, 0.59 mm wide, lateral margins converging anteriad, carinate, anterior margin slightly concave (Figure 2A), posterior margin concave, slightly elevated. Frons with a distinct median carina, almost extending to postclypeus, lateral carinae converging anteriad (Figure 2B, C). Frontoclypeal suture slightly concave, distinct. Postclypeus somewhat shield-like, with distinct median carina extending to anteclypeus, and two lateral carinate; anteclypeus narrow, with median carina; rostrum long (in total 2.68 mm), clearly exceeding metacoxae. Antennal pedicel barrel-shaped, with few distinct sensory plaque organs, 0.29 mm long, 0.18 mm wide; flagellum whip-like, 0.83 mm long (Figure 2D).

Pronotum saddle-shaped, 0.75 mm long in mid line, 3.27 mm wide, with two incomplete, diverging posteriad lateral carinae, delimiting disc. Postocular carinae present, widely diverging behind compound eyes; pronotal disc elevated; lateral sections of pronotum descending laterad; anterior margin of disc slightly convex, anterolateral margins widely diverging posteriad, anterolateral angles acute, posterolateral angles obtusely angulate, posterior margin widely concave (Figure 2A). Mesonotum transversely lozenge-shaped, convex, slightly transversely wrinkled on its surface, mesoscutellum not distinctly, delimited by sculpture, with rounded apex; mesonotum 1.87 mm long in mid line and 2.85 mm wide, without distinct carinae (Figure 2E).

Tegula relatively large (0.51 mm long, 0.39 mm wide from the dorsal view), strongly arched (Figure 2F).

Tegmen (Figure 3) macropterous, membranous, translucent, brown at basal $\frac{3}{4}$ of its length (corium) and becoming brighter at distal $\frac{1}{4}$ of its length, on membrane (Figure 3A, B); a distinct brighter area present in stigmal area, between ScP and RA; Figure 3C), tegmen broadest at slightly apicad of $\frac{3}{4}$ of its length, about 2.6 times as long as wide, tegmen 8.55 mm long, 3.24 mm wide (Figure 3A, B). Costal margin slightly arcuate at base, then slightly arcuate; anteroapical angle widely rounded, posteroapical angle rounded, apical margin mildly rounded, tornus arcuate, claval margin slightly concave, postclaval margin concave. Margin of tegmen surrounded by ambient vein from basal part of costal margin to end of Pcu+A₁, with densely transverse veins between ambient vein and margin from slightly before distal end of costal area to claval apex. Basal cell elongated, about five times as long

as wide (Figure 3D), basal cell 0.93 mm long, 0.18 mm wide. Stems ScP+R and MP leaving basal cell from same point (terminal of basal cell). Stems ScP+RA and RP with a short common stalk, then forked; stem ScP+RA arcuate, then forked at slightly basad ? of tegminal length; branch ScP single, branch RA with five terminals reaching margin basad of anteroapical angle; branch RP slightly sinuate, then forked at slightly basad of $\frac{3}{4}$ of tegminal length, reaching margin with at least eight terminals at about anteroapical angle. Stem MP leaving basal cell with a short stalk, about 1.5 times as long as basal cell, reaching margin with at least nine terminals in total; stem MP slightly concave, then forked at slightly basad of $\frac{1}{3}$ of tegminal length; branch MP₁₊₂ arcuate, then forked at slightly apicad of $\frac{1}{2}$ of tegminal length; MP₁ sinuate, then forked at slightly apicad of $\frac{4}{5}$ of tegminal length, reaching margin with two terminals at least; MP₂ reaching margin with at least two terminals; branch MP₃₊₄ slightly concave, then forked at slightly apicad of $\frac{2}{5}$ of tegminal length; MP₃ arcuate, then forked at half of tegminal length; MP_{3a} slightly arcuate at base, then slightly concave, then forked, reaching margin with at least two terminals; MP_{3b} sinuate, single; MP₄ slightly sinuate, then forked at of 0.7 of tegminal length, reaching margin with two terminals. Stem CuA with six terminals in total; stem CuA slightly concave at base, then almost straight, then forked at $\frac{1}{3}$ of tegminal length; branch CuA₁ sinuate, single; branch CuA₂ straight, then forked at slightly apicad of $\frac{1}{3}$ of tegminal length; CuA_{2a} straight, then arcuate, single; CuA_{2b} slightly sinuate, then forked at of 0.7 of tegminal length, reaching margin with four terminals. Stem CuP slightly arcuate, then almost straight, then arcuate distally, reaching margin at about $\frac{3}{5}$ of tegminal length (Figure 3E). Claval veins Pcu and A₁ fused at slightly apicad $\frac{2}{5}$ of tegminal length, common portion Pcu+A₁ distinctly shorter than free portion of Pcu; Pcu almost straight, then slightly arcuate distally; A₁ concave; common portion of Pcu+A₁ arcuate distally, reaching claval margin (vein A₂) at slightly apicad of $\frac{1}{2}$ of tegminal length (Figure 3F). Transverse veinlets (cross-veins) are mostly distributed in apical half of tegmen and not arranged in regular lines. Costal area absent; cell C₁ longest, about 5.3 times as long as basal cell, delimited posteriorly by a transverse veinlet *ir*, 4.95 mm long, 0.33 mm wide; cell C₃ shortest, about 2.4 times as long as basal cell, 2.26 mm long, 0.33 mm wide; cell C₅ shorter than cell

C1, about 4.75 times as long as basal cell, delimited posteriorly by a transverse veinlet *icu*, 4.42 mm long, 0.27 mm wide.

Hind wing (Figure 4) membranous, transparent, subtriangular, shorter than tegmen, about 1.75 times as long as wide, 7.88 mm long, 4.52 mm wide (Figure 4A, B). Costal margin arcuate, then concave; anteroapical angle widely rounded, posteroapical angle rounded, tornus curved, wing-coupling lobe (WCL) present (Figure 4C). Margin of hind wing surrounded by ambient vein at least from anteroapical angle to distal end of postclaval margin, with densely transverse wrinkles between ambient and margin from anteroapical angle to near distal end of postclaval margin. Stem ScP+R subparallel to margin, then forked at about $\frac{3}{5}$ of length of hindwing; stem ScP+RA arcuate, then forked slightly before 0.7 of length of hindwing, reaching margin with three terminals; branch RP almost straight, then forked at about $\frac{3}{4}$ of length of hindwing, reaching margin with four terminals at least. Stem MP slightly arcuate, then forked apicad of $\frac{1}{2}$ of length of hindwing; MP₁₊₂ slightly arcuate, then forked slightly before 0.7 of length of hindwing; MP₁ single(?); MP₂ concave, then forked at slightly basad of $\frac{4}{5}$ of length of hindwing, reaching margin with at least two terminals; MP₃₊₄ concave, single. Stem CuA slightly arcuate at base, then almost straight, forked at basad of $\frac{3}{5}$ of length of hindwing; CuA₁ strongly arcuate at base, then forked, with two terminals; CuA₂ single. Stem CuP almost straight, then arcuate distally, single. Stem Pcu concave, then almost straight at distally, single. Stem A1 concave, then almost straight at distally, single. Transverse veinlets sparse, with one *r-m* and one *m-cu*.

Proleg (Figure 5A): profemur margins carinate, covered with few short setae, left profemur 2.23 mm long, 0.35 mm wide, right profemur 2.24 mm long, 0.36 mm wide; protibia narrow and long, margins carinate, dorsally incised, left protibia 1.12 mm long, 0.14 mm wide, right protibia 1.35 mm long, 0.13 mm wide; tarsomere not visible. Mesoleg (Figure 5B, C): mesofemur margins carinate, covered with few short setae, left mesofemur 1.82 mm long, 0.28 mm wide, right mesofemur 1.09 mm long, 0.41 mm wide; mesotibia distinctly narrower and longer than mesofemur, margins carinate, covered with few setae, dorsally incised, apical with few longer setae, left mesotibia 1.31 mm long, 0.14 mm wide, right mesotibia 2.34 mm long, 0.16 mm wide; mesotarsomere distinctly narrower than mesotibia, basimesotarsomere shortest, dorsally incised, left

basimesotarsomere 0.10 mm long, 0.21 mm wide, right basimesotarsomere 0.07 mm long, 0.20 mm wide; midmesotarsomere longer than basimesotarsomere, left midmesotarsomere 0.30 mm long, 0.16 mm wide, right midmesotarsomere 0.26 mm long, 0.13 mm wide; apical mesotarsomere longest, left apical mesotarsomere 0.51 mm long, 0.08 mm wide, right apical mesotarsomere 0.42 mm long, 0.08 mm wide; claws invisible. Metaleg (Figure 5D–I): metafemur narrow and long, margins carinate, left metafemur 1.34 mm long, 0.37 mm wide, right metafemur 1.58 mm long, 0.27 mm wide; metatibia narrow and long, margins carinate, widened apical, apical part dorsally incised, with three lateral spines (Figure 5E), with nine apical teeth (Figure 5F), left metatibia 2.59 mm long, 0.31 mm wide, right metatibia 2.63 mm long, 0.37 mm wide; metatarsomere distinctly narrower than metatibia, basimetatarsomere longest, distinctly widened apicad, covered with numerous setae, dorsally deeply incised, with at least eleven apical teeth and numerous subapical platellae (robust setae-like structure; see also figure 6D of Brysz et al., 2024), except lateral teeth (Figure 5G), left basimetatarsomere 0.87 mm long, 0.17 mm wide, right basimetatarsomere 0.83 mm long, 0.16 mm wide; midmetatarsomere distinctly widened apicad, covered with numerous setae, dorsally deeply incised, with at least nine apical teeth and subapical platellae, except the external teeth (Figure 5H), left midmetatarsomere 0.39 mm long, 0.14 mm wide, right midmetatarsomere 0.41 mm long, 0.15 mm wide; apical metatarsomere shortest, becoming narrower apicad, left apical metatarsomere 0.54 mm long, 0.10 mm wide, right apical metatarsomere 0.53 mm long, 0.08 mm wide; claws small, without distinct arolium (Figure 5I).

Abdomen 5.04 mm long with male terminalia. Male terminalia (Figure 6A, B) tubular, 2.2 mm long, 1.3 mm wide; visible median carina on ventral side of genital plate, genital style narrow toward apex and rounded apically.

DISCUSSION

Lucidusmacula gen. nov. can be assigned to Hemiptera according to its piercing–sucking mouthparts and can be attributed to Fulgoromorpha due to the structure of the head capsule with carinae, antennae positioned below the compound eyes, “Y-shape” veins on the clavus (Pcu and A1), the tegmen with wrinkled peripheral membrane and the presence of the metatibio-tarsal pecten (Bourgoin and Szewo, 2022, 2023). *Lucidusmacula* gen. nov. can be placed in Katlasidae Luo,

Jiang et Szwedó, 2020 mainly based on its tegminal structure: absence of the costal area, closed clavus, elongated tornus, widened membrane, increased branching complexity in ScP+RA, MP, and CuA₂ veins; unforked CuA₁; absence of nodal line, the first fork of CuA₂ occurs basal to the claval apex, as well as the hind wing venation ScP+RA, RP, MP, and CuA veins has three to five terminals (Luo et al., 2020b; Zhang et al., 2023).

However, *Lucidusmacula* gen. nov. clearly differs from the other two genera of Katlasidae by a set of characters. The head with trigons is visible in *Lucidusmacula* gen. nov. in the dorsal view, which is not the case in *Katlasus*. The rostrum of *Lucidusmacula* gen. nov. clearly exceeds the metacoxae, a condition shared with *Dumpyawnus*, which is longer than the rostrum of *Katlasus* (just reaching the metacoxae). The pronotum of *Lucidusmacula* gen. nov. lacks a distinct median carina, which is also different from the pattern observed in *Katlasus*. Numerous shared and differing characters are present on the tegmen, for example, the presence of a distinct brighter area at stigmal area (between ScP and RA) is a striking feature of *Lucidusmacula* gen. nov.; such structure is absent in *Katlasus* and *Dumpyawnus*. The single terminal ScP of *Lucidusmacula* gen. nov. is shared with *Katlasus*, while it is forked with two terminals in *Dumpyawnus*. *Lucidusmacula* gen. nov. also clearly separates from the other two genera in having RA forked with five terminals, whereas *Dumpyawnus* exhibits a branching pattern characterized by over ten terminals, and *Katlasus* has nine terminals. Striking differences are also observed in RP, which bears at least eight terminals in *Lucidusmacula* gen. nov., compared to only two in both *Katlasus* and *Dumpyawnus*. Regarding the number of MP terminals, *Lucidusmacula* gen. nov. occupies an intermediate position with nine terminals. This contrasts with *Dumpyawnus*, which possesses five terminals, and *Katlasus*, which exhibits 14 terminals. Significantly, *Lucidusmacula* gen. nov. shares the characters of a single CuA_{2a} with *Dumpyawnus*, whereas *Katlasus* has two terminals. Furthermore, CuA_{2b} in *Lucidusmacula* gen. nov. has four terminals, differing from *Katlasus* (five terminals) and *Dumpyawnus* (six terminals). The hind wings also provide diagnostically significant characters. For example, ScP+RA bearing three terminals is identical to the condition in *Katlasus* but contrasts with *Dumpyawnus* where it presents four terminals. RP is forked, resulting in four terminals in *Lucidusmacula* gen. nov. Conversely, *Katlasus* exhibits a higher count of five RP terminals, while

Dumpyawnus displays a reduced count of only three terminals. CuA forked with three branches, represents a shared character state between *Lucidusmacula* gen. nov. and *Katlasus*. In contrast, CuA in *Dumpyawnus* bears five terminals.

The presence of a new representative of Katlasidae in Kachin amber adds new morphological information for Cretaceous fulgoridoid planthoppers. The oldest Fulgorididae – belonging to the family Szeiniidae Zhang, Jiang, Szwedó et Zhang, 2021 – is known from the Late Triassic of Huan-glong County, Shaanxi Province, China (Zhang et al., 2021). The Jurassic was dominated by numerous Fulgorididae Handlirsch, 1939 (Szwedó et al., 2004; Bucher et al., 2024), with the latest known representative described from Kachin amber – *Stonymetopus megus* Poinar, Brown et Bourgoin, 2022 (Poinar et al., 2022). Inclusions of the Fulgorididae in Kachin amber represent high taxonomic diversity and morphological disparity, offering a number of extinct families of this lineage: Dorytocidae Emeljanov et Shcherbakov, 2018 (Emeljanov and Shcherbakov 2018; Song et al., 2021), Inoderbidae Shcherbakov et Emeljanov, 2021, with two subfamilies (Shcherbakov and Emeljanov 2021; Luo et al., 2022; Zhang et al., 2024), and Katlasidae Luo, Jiang et Szwedó, 2020 (Luo et al., 2020; Zhang et al., 2023). In addition, several taxa described from Kachin amber that were originally placed in other families have been moved to this lineage (Bucher et al., 2024). Morphologically, this new fossil of Katlasidae matches the set of diagnostic characters proposed by Bourgoin and Szwedó (2022) for Fulgorididae, viz. a long stem ScP+RA, CuA posterior branch CuA₂ forking again at least once well before the nodal line, anterior branches at these nodes leaving anteriorly, posterior branches almost aligned with previous ones. Its tegminal structure clearly places *Lucidusmacula* gen. nov. in Katlasidae, adding new data on morphological disparity of this family. Katlasidae presents another interesting feature – presence of lateral spines on the metatibia – the structure has recently been discussed in Cixiidae (Brožek et al., 2024), but in Katlasidae, this structure developed as ectodermal expansions, similarly as in Fulgoroidea. Also, the presence of subapical platellae appears to be another important feature of Katlasidae, as these were shown as structures of importance for classification and evolutionary reconstructions; however, this structure requires more attention and further investigations (e.g., Song et al., 2019; Brysz et al., 2023; Brožek et al., 2024; Deng et al., 2025).

CONCLUSION

The third genus of the planthopper family Katlasidae is described from mid-Cretaceous Kachin amber. The discovery of this new genus significantly advances our understanding of phylogenetic diversity and structural disparity within Katlasidae and Fulgoridioidea, giving a new insight to their evolution. However, more specimens are needed to reveal the precise systematic position of Katlasidae within Fulgoridioidea.

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