A 'mid'-Cretaceous piece of Burmese amber with a new genus and two new insect species

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A ‘mid’-Cretaceous piece of Burmese amber with a new genus and two new insect species (Odonata: Burmaphlebiidae & ‘Psocoptera’: Compsocidae)

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ABSTRACT

Pouillonphlebia burmitica gen. et sp. nov. Ngô-Muller, Garrouste and Nel, second genus and species of the ‘mid’-Cretaceous damsel-dragonfly family Burmaphlebiidae, is described from the Burmese amber. This discovery suggests that this family diversified during the early Cretaceous in the ‘Burmese’ island that detached earlier from the Gondwana and was isolated in the Tethys Ocean at that time. We also described from the same piece of amber a small compsocid psocodean *Burmacompsocus pouilloni* sp. nov., third species belonging to this genus, only known from the ‘mid’-Cretaceous Burmese amber. This discovery confirms that the Compsocidae were certainly much more diverse during the Cretaceous than nowadays.

Keywords:

Odonata

Psocodea

Epiproctophora

Epiophlebioptera

Troctomorpha

Myanmar

1. Introduction

The 'mid'-Cretaceous Burmese amber represents a crucial hotspot for insect palaeobiodiversity during the late Mesozoic. It is especially true for the Odonata, with no less than 21 families, 29 genera and 35 described species till 2019; and for the Psocodea (Psocoptera) with no less than nine families, 11 genera and 17 described species. The Burmese amber Odonata belong mainly to the suborder Zygoptera, even if few larger Anisoptera are recorded. The so-called 'Anisozygoptera', paraphyletic stem group of Anisoptera, are represented by first record of the Stenophlebiidae in amber and the monospecific family Burmaphlebiidae. These last damsel-dragonflies are especially interesting because, if the anisopteran stem group is quite diverse during the Mesozoic, there are very few fossils of this 'group' in amber. Here we describe the second representative of the Burmaphlebiidae as a new genus and species, also from the same Burmese amber. This Odonata is fossilized with five beetles (two Staphylinidae, a possible Byrrhoidea and two undetermined species, A. Kirejtshuk, pers. comm.), an undetermined Sciaridae, and a new species of Psocodea that we also describe in this paper (Fig. 1).

2. Materials and methods

The fossils are in a small piece of clear Burmese amber, 2.0x1.0x0.5 cm, cut, shaped, and polished. Some are well preserved while others are smashed and unidentifiable. The damsel-dragonfly wings and body segments seem to be embedded across a separation between two

layers, nearly perpendicular to it, with resins of different colors and aspect at the limit. This probably indicates that it was caught first by the head and legs and half of the body before being covered by a second resin flow. The abdominal segments of the damsel-dragonfly and the Byrrhoidea are empty and filled with resin.

The specimens were examined with a Nikon SMZ 1500 and a Nikon SMZ25. Photographs were taken with a Nikon D800 digital camera mounted on the stereomicroscopes lenses; photographs were processed using the image editing software Adobe Photoshop CS. Helicon focus software was used for staking the different photographs. Line drawings of the venation were prepared directly with the aid of a camera lucida and drawn with Inkscape Software. Wing venation terminology for the Odonata follows that of Riek and Kukalová-Peck (1984), and the phylogeny is mainly based on Bechly (1996). For the Psocodea, we follow in part the catalogue of Lienhard and Smithers (2002), and the works of Smithers (1972; 1990) as essential tools for the systematic of the order. We follow the nomenclature of wing venation and body structures of Smithers (1972).

The piece of Burmese amber was collected from deposits in the Hukawng Valley (Kachin), North of Myanmar (Dong et al., 2015). The age of amber is given by radiometric analysis of zircons as earliest Cenomanian, *ca.* 99 Ma. (Shi et al. 2012), but it could be a little older (Mao et al., 218). This manuscript has been registered in ZooBank under the number: urn:lsid:zoobank.org:pub: xxxx

Abbreviations. Ax, primary antenodal cross vein; arc, arculus; dc, discoidal cell; sn, subnodus; C, Costa; RA, Radius anterior; RP, Radius posterior; IR, Interradius; Rspl, Radial supplement; M Median vein; MA, Media anterior; MP, Media posterior; Mspl, Median supplement; CuA, Cubitus anterior.

3. Systematic paleontology

Order: Odonata Fabricius, 1793

Suborder: Epiophlebioptera Bechly, 1996

Superfamily: Epiophlebioidea Muttkowski, 1910

Family: Burmaphlebiidae Bechly and Poinar, 2013

Type genus: *Burmaphlebia* Bechly and Poinar, 2013

Other genus. *Pouillonphlebia* gen. nov. Ngô-Muller, Garrouste and Nel

Emended diagnosis. Very small damsel-dragonfly species characterised by the following set of characters: wing length only about 13mm (autapomorphy); secondary antenodals present in both rows (plesiomorphy); arculus (arc) only slightly distal of Ax1 (autapomorphy); nodus and subnodus (sn) very oblique (autapomorphy); postnodals not aligned with subnodals (plesiomorphy); pterostigma very short (1.5 cells) (autapomorphy), but distinctly braced (plesiomorphy); discoidal cell (dc) basally closed (at least in one of the wing pairs), undivided and with acute distal angle (plesiomorphy); first branching of RP recessed midway between arculus and nodus (plesiomorphy); origin of IR2 below nodus (in *Pouillonphlebia* gen. nov.) or more basal between arculus and subnodus (in *Burmaphlebia*); RP2 originates two cells distal of nodus (autapomorphy); lestine oblique vein absent (autapomorphy); IR1 long and straight (plesiomorphy); shorter convex intercalary vein between IR1 and RP2; a longer concave and a shorter convex intercalary vein in the distal expanded area between IR2 and RP3/4; cubito-anal field not expanded and with a single row of cells (autapomorphy); wing slender and wing base only briefly stalked.

Genus ***Pouillonphlebia*** Ngô-Muller, Garrouste and Nel gen. nov.

Type species: *Pouillonphlebia burmitica* Ngô-Muller, Garrouste and Nel sp. nov.

Etymology. Named in honor of Dr. Jean-Marc Pouillon, who authorized us to study the type specimen, and the Greek word phleps (gen. phlebos) for vein.

Diagnosis. Base of IR2 slightly basal to nodal brake (autapomorphy); three antenodal crossvein of first row and two antenodal crossveins of second row distal of Ax2; base of RP2 less than one cell distal of subnodus; a complete secondary antenodal crossvein between Ax1 and Ax2.

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Pouillonphlebia burmitica Ngô-Muller, Garrouste and Nel sp. nov.

(Figs 2-3)

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Holotype. MNHN.F.A71319 (1/8) (JMPB001 1/8, Collection Jean-Marc Pouillon), deposited in the Muséum national d'Histoire naturelle, Paris, France.

Locality and horizon. Burmese amber (Burmite), Lower Cretaceous, lowermost Cenomanian; Noije Bum 2001 Summit Site, Hukawng Valley, south-west of Maingkhwan in Kachin State (26°20'N, 96°36'E) in Myanmar (Burma).

Etymology. Named after Burma.

Diagnosis. As for the genus.

Description. The fore- and hindwing of a fossil damsel-dragonfly, with missing wing apices. Wings hyaline, maximum width of fore wing 3.6 mm; hindwing slightly broader than fore wing, maximum width 3.8 mm; venations of both wing pairs very similar; distance arculus to nodus 3.6 mm (fore wing), 3.8 mm (hindwing); distance from nodus to pterostigma 6.97 mm (hindwing); a very oblique nodal veinlet and oblique subnodus; two primary antenodal crossveins Ax1 and Ax2 with a single well aligned secondary antenodal inbetween, distance between Ax1 and Ax2 1.36 mm (fore wing), 1.27 mm (hindwing); three secondary antenodals between Ax2 and nodus in first row and two in second row; three antesubnodal crossveins between arculus and subnodus; nine postnodals and six postsubnodals in fore wing, six postnodals and five postsubnodals in hindwing, non-aligned; pterostigma not preserved, but

strongly braced; discoidal cells basally closed, free (not divided by cross veins), small, quadrangular with acute distal angle, that of hindwing slightly broader than that of fore wing; subdiscoidal cell elongate, narrow and free; arculus angulate and very close to Ax1; sectors of arculus (RP and MA) separated at origin; only a single antefurcal crossvein basal of midfork; midfork (first branching of RP) recessed slightly distal of midway between discoidal cell and nodus, distance between arculus and base of RP3/4 2.38 mm; origin of IR2 one long cell distal of RP3/4 and below subnodus; origin of RP2 one postnodal cell distal of subnodus; lestine oblique vein absent; IR1 long and straight; shorter convex intercalary vein between IR1 and RP2; a longer concave and a shorter convex intercalary vein in distal expanded area between IR2 and RP3/4; cubito-anal field not expanded and with a single row of cells.

Two complete segments of abdomen (probably third and fourth) plus distal half of second and a fragment of fifth; small spines on dorsal crest and on intertegmental sutures of segments. No trace of a secondary genital abdominal apparatus on second segment (probably a female).

Discussion. *Pouillonphlebia* gen. nov. has nearly all the diagnostic characters of the monospecific Burmese amber family Burmaphlebiidae as defined in Bechly and Poinar (2013) (see emended diagnosis above). Only the character 'pterostigma very short (1.5 cells long)' is unknown in *Pouillonphlebia* gen. nov.

Bechly and Poinar (2013) already discussed the position of *Burmaphlebia* and concluded that it can be placed into the Epiproctophora ('Anisozygoptera' + Anisoptera), and more precisely in the superfamily Epiophlebioidea. We confirm the hypothesis of these authors about the presence of a basally closed discoidal cell in both wing pairs.

Pouillonphlebia gen. nov. differs from *Burmaphlebia reifi* Bechly and Poinar, 2013 in the base of IR2 slightly basal to nodal brake, while it is recessed midway between arculus and nodus in the later. This character of *Pouillonphlebia* gen. nov. is remarkable because the baseof IR2 is generally much more basal in the Epiproctophora and especially in the extant Epiophlebiidae.

Pouillonphlebia gen. nov. has also three antenodal crossvein of first row distal of Ax2 instead of two in the later; and the base of RP2 is less than one cell distal of subnodus instead of being one postnodal cell in *Burmaphlebia reifi*. The first character is sufficient for a generic separation between *Pouillonphlebia* gen. nov. and *Burmaphlebia*.

Order: Psocodea Hennig, 1953

Suborder: Troctomorpha Roesler, 1944

Family: Compsocidae Mockford, 1967

Genus ***Burmacompsocus*** Nel and Waller, 2007

Type species. *Burmacompsocus perreaui* Nel and Waller, 2007; other species. *Burmacompsocus coniugans* Sroka and Nel, 2017, *Burmacompsocus pouilloni* sp. nov.

Burmacompsocus pouilloni Ngô-Muller, Garrouste and Nel sp. nov.

(Fig. 4)

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Holotype. MNHN.F.A71319 (2/8) (JMPB001 2/8, Collection Jean-Marc Pouillon, in the same piece of amber with the damsel-dragonfly, showing three legs of the same side attached to fragments of thorax; fore- and hindwings situated apart), deposited in the Muséum national d'Histoire naturelle, Paris, France.

Locality and horizon. Burmese amber (Burmite), Lower Cretaceous, lowermost Cenomanian; Noije Bum 2001 Summit Site, Hukawng Valley, south-west of Maingkhwan in Kachin State (26°20'N, 96°36'E) in Myanmar (Burma).

Etymology. Named in honor of Dr. Jean-Marc Pouillon, who authorized us to study the type specimen.

175 *Diagnosis*. M not fused to RP; a deep area between branches of RP (ratio distance between
176 apices of RP1 and RP2 / distance between apex of RP2 and fork of RP = 2.75); a deep area
177 between M2 and M3 (ratio distance between apices of M2 and M3 / distance between apex of
178 M2 and base of M1+2 = 4.2).
179 *Description*. Fore wing hyaline, glabrous, micro-vestitute of membrane in form of short points,
180 wing 1.74 mm long, 0.64 mm wide; pterostigma closed basally, not sclerotized, 0.32 mm long;
181 areola postica 0.43 mm long, 0.12 mm wide, not joined to M by a crossvein; M not fused to Rs;
182 nodulus present; two anal veins not fused distally.
183 Hindwing hyaline, 1.5 mm long; first segment of Rs absent; vein M two-branched.
184 All tarsi three-segmented, t1 the longest; pretarsal claw with two preapical denticles; pulvillus
185 not visible.
186 *Discussion*. Because of the incompleteness of this fossil, we can only use the leg and wing
187 venation characters to determine its affinities. Nevertheless, according to Smithers' works
188 (1972, 1990) on psocopteran families, *Burmacompsocus pouilloni* sp. nov. falls into the family
189 Compsocidae due to the following diagnostic features: macropterous; tarsi three-segmented;
190 body (preserved parts) and wings without flattened scales; fore wing venation not reduced to
191 two parallel, partially evanescent, longitudinal veins; pterostigmal cell closed basally and not
192 thickened or more opaque than the rest of the membrane; fore wing with a nodulus; fore wing
193 with two anal veins; hindwing with M forked; tarsal claws with one preapical tooth, claws of
194 each pair similar to one another. The absence of the first section of RP in hindwing and the
195 forewing membrane with fine points excludes affinities with the extant genus *Compsocus*
196 Banks, 1930. The fore wing anal veins not joining plus the vein M bifurcating into M1+2 and
197 M3 would let it fall near the Burmese amber genus *Burmacompsocus* Nel and Waller, 2007
198 (Azar et al., 2016). *Burmacompsocus pouilloni* differs from *Burmacompsocus coniugans* in the
199 very long branches of M. *Burmacompsocus pouilloni* is clearly more closely related to

Burmacompsocus perreaui, with which it shares longer branches of M. Nevertheless, *Burmacompsocus pouilloni* differs from the later in the deeper area between the branches of RP (ratio distance between apices of RP1 and RP2 / distance between apex of RP2 and fork of RP = 2.75 in *B. pouilloni* contra 2.1 in *B. perreaui*). The area between M2 and M3 is also deeper in *B. pouilloni* than in *B. perreaui*, viz. ratio distance between apices of M2 and M3 / distance between apex of M2 and base of M1+2 = 4.2 in *B. pouilloni* contra 2.5 in *B. perreaui* (compare Fig. 4 with the photograph of the type of *B. perreaui* on internet site https://mediaphoto.mnhn.fr/media/1548340289885P3qcMA6HT2KMulSm). Therefore we consider our fossil as a new species of *Burmacompsocus*.

4. Conclusion

Pouillonphlebia gen. nov. is the second taxon of this family only currently recorded from the Burmese amber. Bechly and Poinar (2013) considered that the Epiophlebioidea are Liassic; thus their presence in the 'mid'-Cretaceous of Mynamar is not surprising. The small family Burmaphlebiidae possibly appeared and diversified during the Early Cretaceous in the Burmese island that was in the 'middle' of the Tethys Ocean at that time. *Burmacompsocus pouilloni* sp. nov. is the fourth accurate compsocid species in the Burmese amber, in two extinct genera, while this family comprises only two extant genera and species. It confirms that this family was much more diverse during the Cretaceous than nowadays.

Acknowledgements

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Fig. 1. MNHN.F.A71319, general view, Byr Byrroidea, Sciar Sciaridae, Staph Staphylinidae, Pso Psocodea. Scale bar represents 2 mm.

Fig. 2. *Pouillonphlebia burmitica* gen. et sp. nov., holotype MNHN.F.A71319 (1/8). Habitus. Scale bar represents 0.2 mm.

Fig. 3. *Pouillonphlebia burmitica* gen. et sp. nov., holotype MNHN.F.A71319 (1/8). (A) drawing of forewing; (B) drawing of hindwing. Scale bars represent 1 mm.

Fig. 4. *Burmacompsocus pouilloni* sp. nov., holotype MNHN.F.A71319 (2/8). (A) two wings with legs and thorax; (B) second hindwing; (C) hind leg. Scale bars represent 0.5 mm (A, B); 0.2 mm (C).

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Holotype. MNHN.F.A71319 (1/8) (JMPB001 1/8, Collection Jean-Marc Pouillon), deposited in the Muséum national d'Histoire naturelle, Paris, France.

Locality and horizon. Burmese amber (Burmite), Lower Cretaceous, lowermost Cenomanian; Noije Bum 2001 Summit Site, Hukawng Valley, south-west of Maingkhwan in Kachin State (26°20'N, 96°36'E) in Myanmar (Burma).

Etymology. Named after Burma.

399 *Diagnosis*. As for the genus.

400 *Description*. The fore- and hindwing of a fossil damsel-dragonfly, with missing wing apices.
401 Wings hyaline, maximum width of fore wing 3.6 mm; hindwing slightly broader than fore wing,
402 maximum width 3.8 mm; venations of both wing pairs very similar; distance arculus to nodus
403 3.6 mm (fore wing), 3.8 mm (hindwing); distance from nodus to pterostigma 6.97 mm
404 (hindwing); a very oblique nodal veinlet and oblique subnodus; two primary antenodal
405 crossveins Ax1 and Ax2 with a single well aligned secondary antenodal inbetween, distance
406 between Ax1 and Ax2 1.36 mm (fore wing), 1.27 mm (hindwing); three secondary antenodals
407 between Ax2 and nodus in first row and two in second row; three antesubnodal crossveins
408 between arculus and subnodus; nine postnodals and six postsubnodals in fore wing, six
409 postnodals and five postsubnodals in hindwing, non-aligned; pterostigma not preserved, but
410 strongly braced; discoidal cells basally closed, free (not divided by cross veins), small,
411 quadrangular with acute distal angle, that of hindwing slightly broader than that of fore wing;
412 subdiscoidal cell elongate, narrow and free; arculus angulate and very close to Ax1; sectors of
413 arculus (RP and MA) separated at origin; only a single antefurcal crossvein basal of midfork;
414 midfork (first branching of RP) recessed slightly distal of midway between discoidal cell and
415 nodus, distance between arculus and base of RP3/4 2.38 mm; origin of IR2 one long cell distal
416 of RP3/4 and below subnodus; origin of RP2 one postnodal cell distal of subnodus; lestine
417 oblique vein absent; IR1 long and straight; shorter convex intercalary vein between IR1 and
418 RP2; a longer concave and a shorter convex intercalary vein in distal expanded area between
419 IR2 and RP3/4; cubito-anal field not expanded and with a single row of cells.
420 Two complete segments of abdomen (probably third and fourth) plus distal half of second and
421 a fragment of fifth; small spines on dorsal crest and on intertegmental sutures of segments. No
422 trace of a secondary genital abdominal apparatus on second segment (probably a female).

Discussion. *Pouillonphlebia* gen. nov. has nearly all the diagnostic characters of the monospecific Burmese amber family Burmaphlebiidae as defined in Bechly and Poinar (2013) (see emended diagnosis above). Only the character 'pterostigma very short (1.5 cells long)' is unknown in *Pouillonphlebia* gen. nov.

Bechly and Poinar (2013) already discussed the position of *Burmaphlebia* and concluded that it can be placed into the Epiproctophora ('Anisozygoptera' + Anisoptera), and more precisely in the superfamily Epiophlebioidea. We confirm the hypothesis of these authors about the presence of a basally closed discoidal cell in both wing pairs.

Pouillonphlebia gen. nov. differs from *Burmaphlebia reifi* Bechly and Poinar, 2013 in the base of IR2 slightly basal to nodal brake, while it is recessed midway between arculus and nodus in the later. This character of *Pouillonphlebia* gen. nov. is remarkable because the baseof IR2 is generally much more basal in the Epiproctophora and especially in the extant Epiophlebiidae. *Pouillonphlebia* gen. nov. has also three antenodal crossvein of first row distal of Ax2 instead of two in the later; and the base of RP2 is less than one cell distal of subnodus instead of being one postnodal cell in *Burmaphlebia reifi*. The first character is sufficient for a generic separation between *Pouillonphlebia* gen. nov. and *Burmaphlebia*.

Order: Psocodea Hennig, 1953

Suborder: Troctomorpha Roesler, 1944

Family: Compsocidae Mockford, 1967

Genus ***Burmacompsocus*** Nel and Waller, 2007

Type species. *Burmacompsocus perreaui* Nel and Waller, 2007; other species. *Burmacompsocus coniugans* Sroka and Nel, 2017, *Burmacompsocus pouilloni* sp. nov.

Burmacompsocus pouilloni Ngô-Muller, Garrouste and Nel sp. nov.

448 (Fig. 4)

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450 *Holotype*. MNHN.F.A71319 (2/8) (JMPB001 2/8, Collection Jean-Marc Pouillon, in the same
451 piece of amber with the damsel-dragonfly, showing three legs of the same side attached to
452 fragments of thorax; fore- and hindwings situated apart), deposited in the Muséum national
453 d'Histoire naturelle, Paris, France.

454 *Locality and horizon.* Burmese amber (Burmite), Lower Cretaceous, lowermost Cenomanian;
455 Noije Bum 2001 Summit Site, Hukawng Valley, south-west of Maingkhwan in Kachin State
456 (26°20'N, 96°36'E) in Myanmar (Burma).

457 *Etymology*. Named in honor of Dr. Jean-Marc Pouillon, who authorized us to study the type
458 specimen.

459 *Diagnosis*. M not fused to RP; a deep area between branches of RP (ratio distance between
460 apices of RP1 and RP2 / distance between apex of RP2 and fork of RP = 2.75); a deep area
461 between M2 and M3 (ratio distance between apices of M2 and M3 / distance between apex of
462 M2 and base of M1+2 = 4.2).

463 *Description*. Fore wing hyaline, glabrous, micro-vestitute of membrane in form of short points,
464 wing 1.74 mm long, 0.64 mm wide; pterostigma closed basally, not sclerotized, 0.32 mm long;
465 areola postica 0.43 mm long, 0.12 mm wide, not joined to M by a crossvein; M not fused to Rs;
466 nodulus present; two anal veins not fused distally.

467 Hindwing hyaline, 1.5 mm long; first segment of Rs absent; vein M two-branched.

468 All tarsi three-segmented, t1 the longest; pretarsal claw with two preapical denticles; pulvillus
469 not visible.

470 *Discussion*. Because of the incompleteness of this fossil, we can only use the leg and wing
471 venation characters to determine its affinities. Nevertheless, according to Smithers' works
472 (1972, 1990) on psocopteran families, *Burmacompsocus pouilloni* sp. nov. falls into the family

473 Compsocidae due to the following diagnostic features: macropterous; tarsi three-segmented;
474 body (preserved parts) and wings without flattened scales; fore wing venation not reduced to
475 two parallel, partially evanescent, longitudinal veins; pterostigmal cell closed basally and not
476 thickened or more opaque than the rest of the membrane; fore wing with a nodulus; fore wing
477 with two anal veins; hindwing with M forked; tarsal claws with one preapical tooth, claws of
478 each pair similar to one another. The absence of the first section of RP in hindwing and the
479 forewing membrane with fine points excludes affinities with the extant genus *Compsocus*
480 Banks, 1930. The fore wing anal veins not joining plus the vein M bifurcating into M1+2 and
481 M3 would let it fall near the Burmese amber genus *Burmacompsocus* Nel and Waller, 2007
482 (Azar et al., 2016). *Burmacompsocus pouilloni* differs from *Burmacompsocus coniugans* in the
483 very long branches of M. *Burmacompsocus pouilloni* is clearly more closely related to
484 *Burmacompsocus perreaui*, with which it shares longer branches of M. Nevertheless,
485 *Burmacompsocus pouilloni* differs from the later in the deeper area between the branches of RP
486 (ratio distance between apices of RP1 and RP2 / distance between apex of RP2 and fork of RP
487 = 2.75 in *B. pouilloni* contra 2.1 in *B. perreaui*). The area between M2 and M3 is also deeper
488 in *B. pouilloni* than in *B. perreaui*, viz. ratio distance between apices of M2 and M3 / distance
489 between apex of M2 and base of M1+2 = 4.2 in *B. pouilloni* contra 2.5 in *B. perreaui* (compare
490 Fig. 4 with the photograph of the type of *B. perreaui* on internet site
491 https://mediaphoto.mnhn.fr/media/1548340289885P3qcMA6HT2KMulSm). Therefore we
492 consider our fossil as a new species of *Burmacompsocus*.
493
494 **4. Conclusion**
495 *Pouillonphlebia* gen. nov. is the second taxon of this family only currently recorded from the
496 Burmese amber. Bechly and Poinar (2013) considered that the Epiophlebioidea are Liassic; thus
497 their presence in the 'mid'-Cretaceous of Mynamar is not surprising. The small family

Burmaphlebiidae possibly appeared and diversified during the Early Cretaceous in the Burmese island that was in the 'middle' of the Tethys Ocean at that time. *Burmacompsocus pouilloni* sp. nov. is the fourth accurate compsocid species in the Burmese amber, in two extinct genera, while this family comprises only two extant genera and species. It confirms that this family was much more diverse during the Cretaceous than nowadays.

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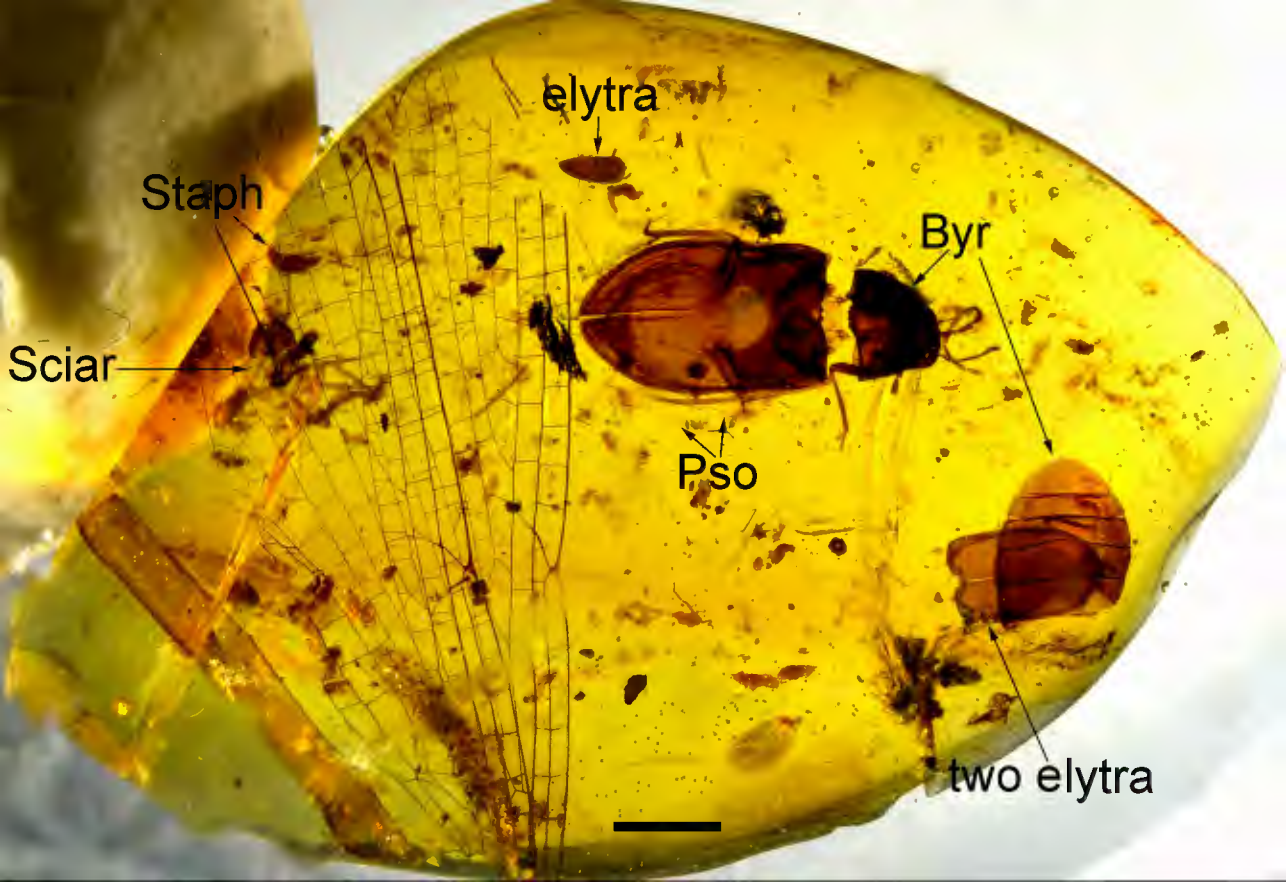
Fig. 1. MNHN.F.A71319, general view, Byr Byrroidea, Sciar Sciaridae, Staph Staphylinidae, Pso Psocodea. Scale bar represents 2 mm.

Fig. 2. *Pouillonphlebia burmitica* gen. et sp. nov., holotype MNHN.F.A71319 (1/8). Habitus. Scale bar represents 0.2 mm.

Fig. 3. *Pouillonphlebia burmitica* gen. et sp. nov., holotype MNHN.F.A71319 (1/8). (A) drawing of forewing; (B) drawing of hindwing. Scale bars represent 1 mm.

Fig. 4. *Burmacompsocus pouilloni* sp. nov., holotype MNHN.F.A71319 (2/8). (A) two wings with legs and thorax; (B) second hindwing; (C) hind leg. Scale bars represent 0.5 mm (A, B); 0.2 mm (C).


elytra
Staph
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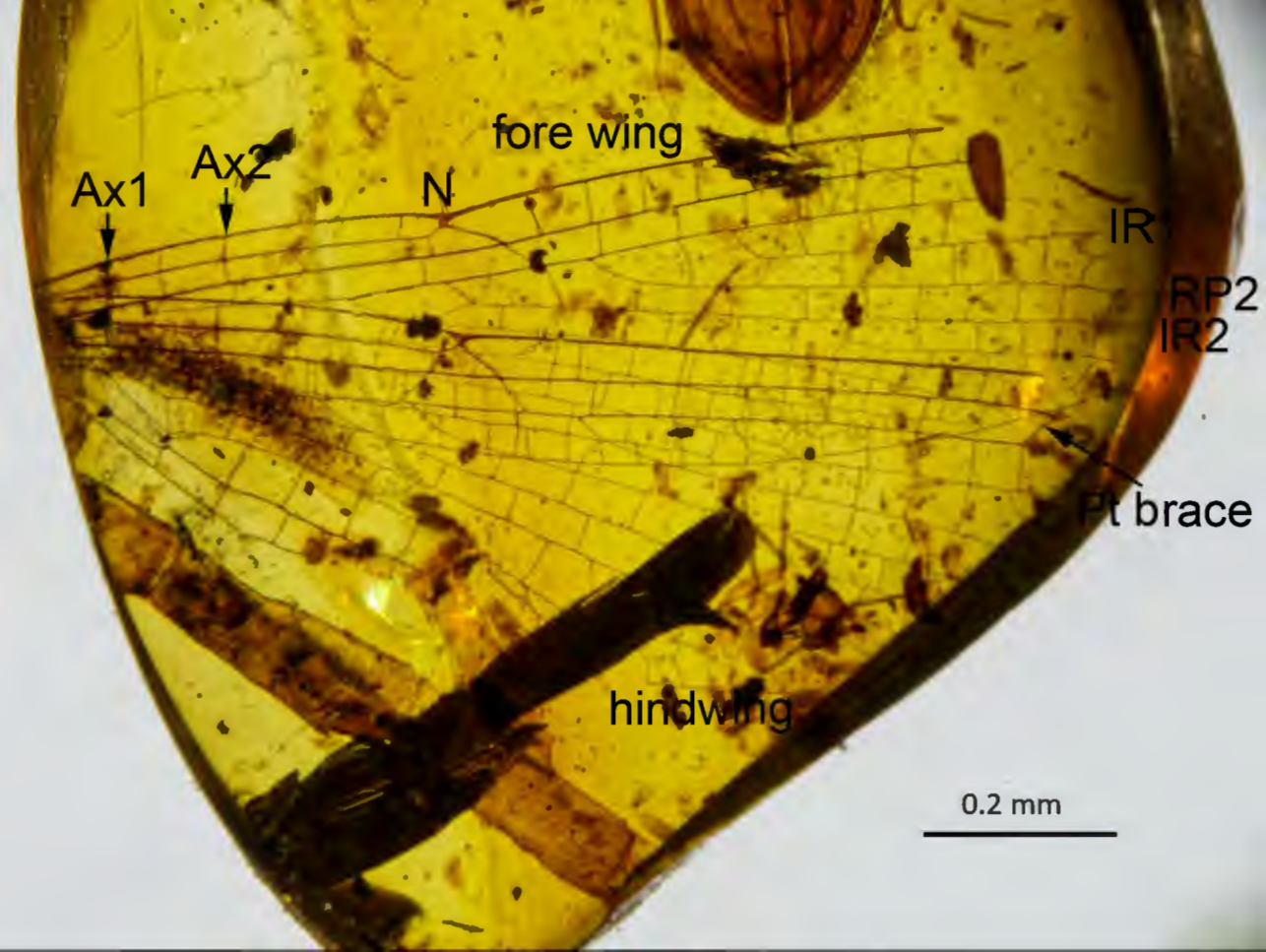
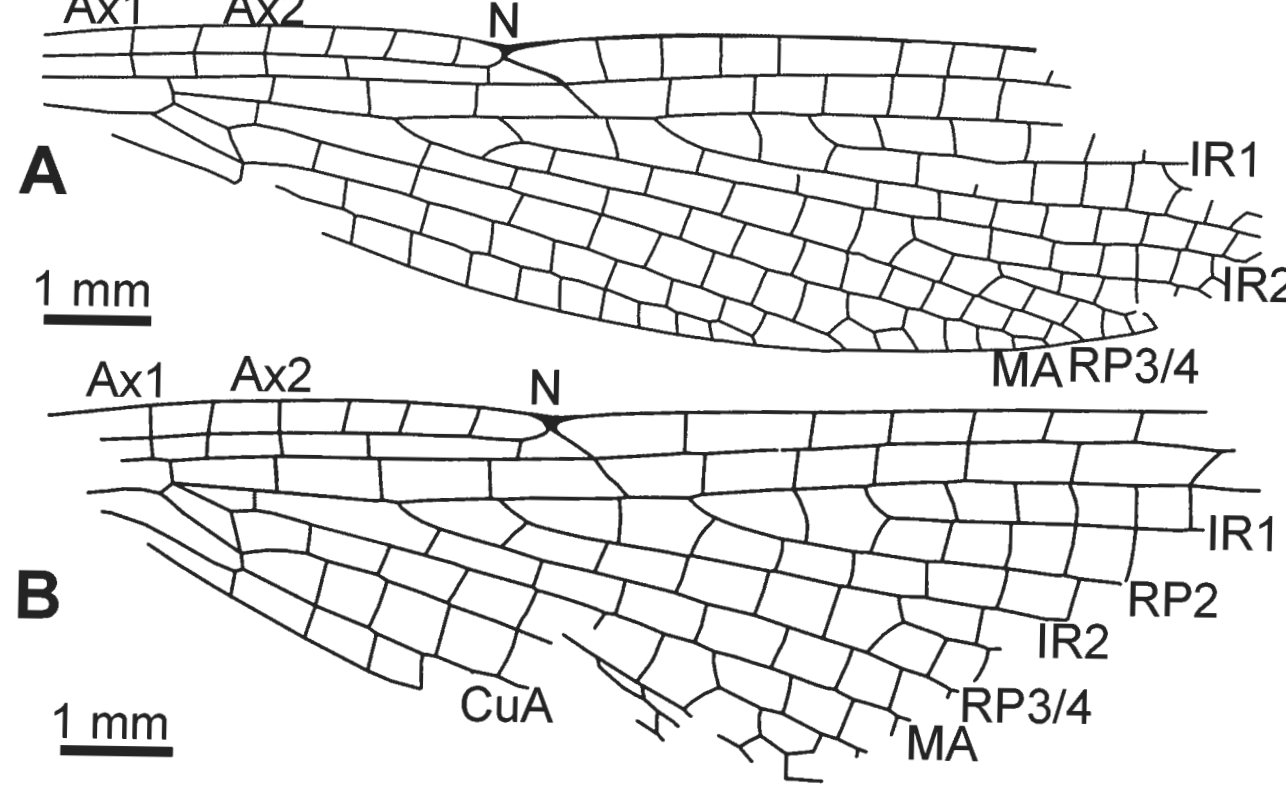

fore wing
Ax1
Ax2
N
IR
RP2
IR2
Pt brace
hindwing
0.2 mm


Ax1
Ax2
N
A
IR1
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1 mm
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RP3/4
Ax1
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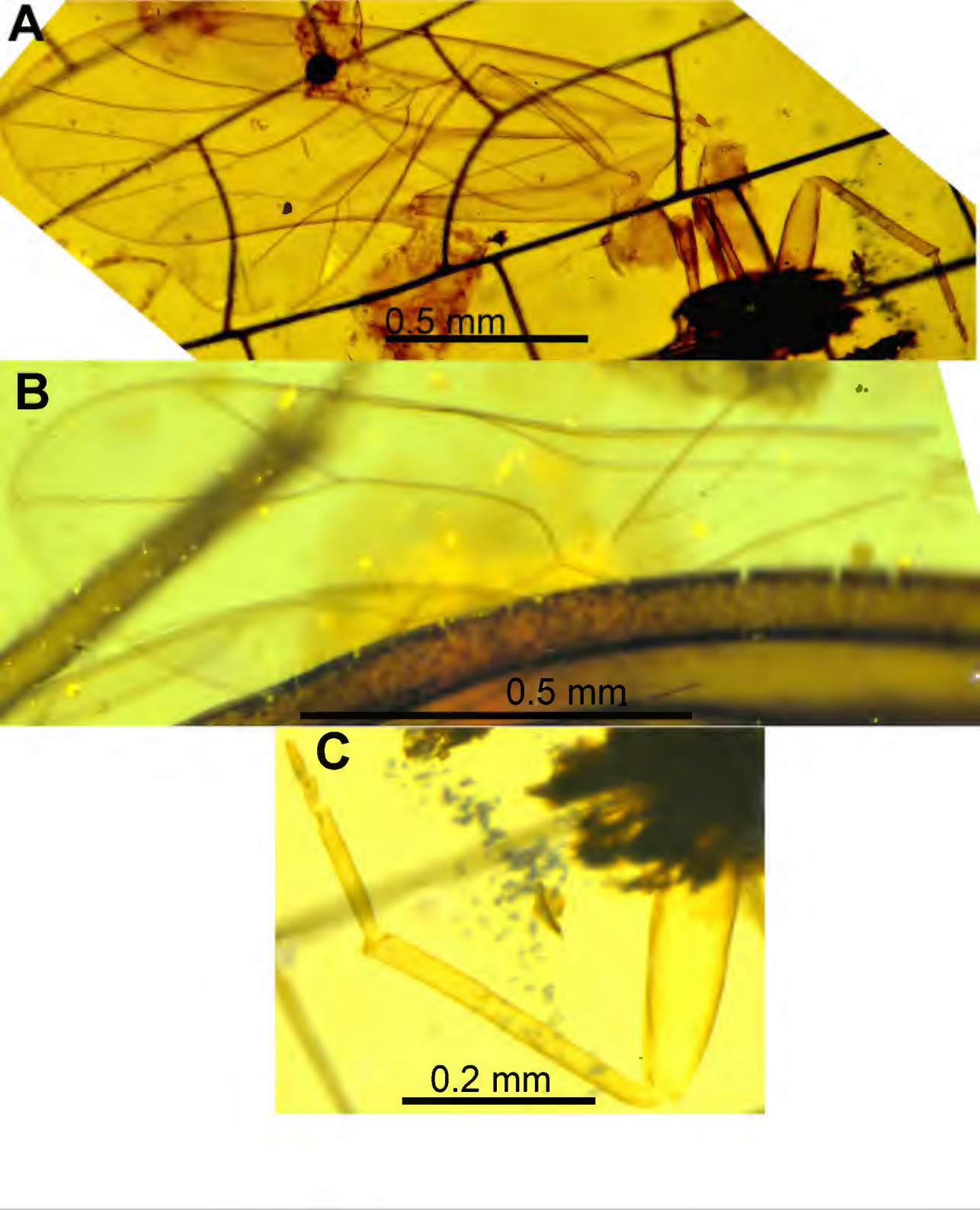
N
IR1
B
RP2
IR2
CuA
RP3/4
MA
1 mm


A
0.5 mm
B
0.5 mm
C
0.2 mm