



## A new genus for *Libanoconis siberica* Makarkin & Perkovsky, 2019 (Coniopterygidae: Aleuropteryginae) from the Cenomanian of northern Siberia

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Dustywings (Coniopterygidae) are minute lacewings characterized by the white waxy covering their bodies and wings with relatively reduced venation. Today, the family is comprised of less than 600 species distributed across the globe (Oswald & Machado, 2018). Currently, 51 fossil species in 27 fossil extinct genera are known (see Xiao *et al.*, 2024: table 1; Azar & Engel, 2025). Most of these are adequately described as they are fossilised in amber with clearly preserved characters.

Here, we describe a new genus for *Libanoconis siberica* Makarkin & Perkovsky, 2019 as it was erroneously assigned to that genus. *Libanoconis* Engel, 2002 now includes two species from the Barremian of Lebanon: *L. fadiacra* (Whalley, 1980) and *L. medialis* Azar & Engel, 2025, both of which belong to the thermophile fauna of north-eastern Gondwana (Maksoud & Tabakian, 2025). The occurrence of *Libanoconis* in northern Siberia required special explanation (see Perkovsky *et al.*, 2024) that is no longer relevant.

**Material and methods.** We follow the venational terminology of Makarkin & Ansoerge (2024). Crossveins are designated by the longitudinal veins to which they connect and are numbered in sequence from the wing base, e.g., 2r-m, second crossvein between RP and M/MA. Character states of compared taxa are provided in brackets.

Abbreviations: A1, A2, first to second anal veins; CuA, anterior cubitus; CuP, posterior cubitus; M, media; RA, anterior radius; RP, posterior radius; RP1, proximal-most branch of RP; Sc, subcosta.

Order Neuroptera Linnaeus, 1758

Family Coniopterygidae Burmeister, 1839

Subfamily Aleuropteryginae Enderlein, 1905

Genus *Dolganconis* gen. nov.

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Type species. *Libanoconis siberica* Makarkin & Perkovsky, 2019.

**Etymology.** From the Dolgans, one of the indigenous peoples of the Taimyr of northern Siberia, and *conis*, a traditional suffix for generic names of Coniopterygidae. Gender feminine.

**Diagnosis.** May be distinguished from similar genera of Aleuropteryginae by a combination of the following venation character states. Forewing: RP forked at level of origin of distal branch of M [RP forked much proximad origin of distal branch of M in *Cycloconis* Li, Wang & Liu in Li *et al.*, 2019]; M trifurcate [bifurcate in *Garnaconis* Perrichot & Nel in Perrichot *et al.*, 2014, *Alboconis* Nel *et al.*, 2005]; crossvein between RP and M connects anterior branch of M and stem of RP [connects anterior branch of M and RP1 in *Burmaleuropteryx* Bai, Wang & Liu in Li *et al.*, 2019]. Hind wing: M bifurcate [trifurcate in most Cretaceous genera except *Burmaleuropteryx* and *Garnaconis*].

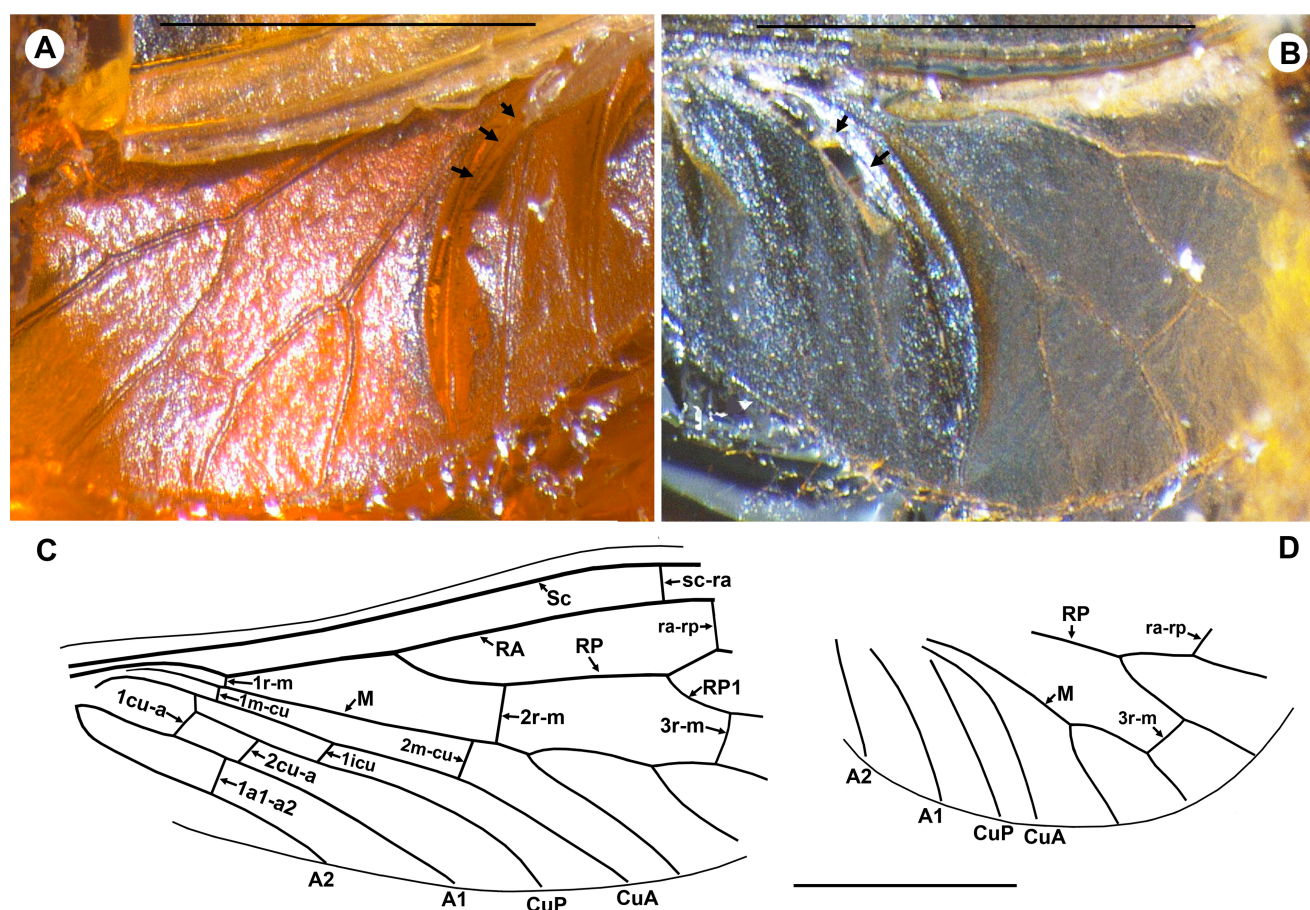
*Dolganconis siberica* (Makarkin & Perkovsky, 2019) **comb. nov.**

(Fig. 1)

Holotype. PIN 3426/237-1, deposited in the Paleontological Institute [PIN], Moscow, and collected in 1973 during a PIN expedition; an incomplete specimen in amber broken into six pieces (## 1–6).

Locality and horizon. Russia: Krasnoyarsk Region: Taimyrsky Dolgano-Nenetsky District: western Taimyr Peninsula: Agapa River Basin: right bank of the Nizhnyaya Agapa River, 40 km below its source, Ladonnakh Lake, Nizhnyaya Agapa locality (“lens 16”); upper horizons of the Dolgan Formation, late Cenomanian.

**Remarks.** A detailed description of the species was given previously (see Makarkin & Perkovsky, 2019), but the hind wing was re-examined here. The revised wing venation is shown in Fig. 1C, D. Superficially, the venation of the new genus most resembles that of *Cycloconis* from Burmese amber. Li *et al.* (2019) noted that the position and direction of the distal part of the hind wing CuA in *D. siberica* and the basal branch of MP of *Cycloconis* are similar. Although the basal-most portion of the



**FIGURE 1.** *Dolganoconis siberica* (Makarkin & Perkovsky, 2019), the holotype. **A**, Hind wing, ventral view (piece #1). **B**, Hind wing, dorsal view (piece #2), arrows show CuA. **C**, Forewing venation. **D**, Hind wing venation. Scale bars: 0.5 mm.

wing of *D. siberica* is not preserved, it is clearly visible that CuA (as interpreted here) and M are nearly parallel in their preserved proximal parts (see Fig. 1A, B). Therefore, our CuA cannot be the basal branch of MP. Moreover, CuA and CuP appear to be fused proximally or connected a short crossvein, but this portion of the hind wing is poorly preserved and slightly crumpled, and so this cannot be confirmed.

**Discussion.** *Libanoconis siberica* was assigned to the monotypic genus *Libanoconis* based mainly on the erroneous presumption that the hind wing M is bifurcate in *L. fadiacra* (Makarkin & Perkovsky, 2019), however, recent examination shows that it is trifurcate (Azar & Engel, 2025). It is obvious now that *L. siberica* belongs to a different genus. Only two other monotypic genera of Aleuropteryginae from the Mesozoic have a bifurcate hind wing M: *Burmaleuropteryx* from Burmese amber, and *Garnaconis* from Turonian Vendean amber (France). However, these genera differ from *L. siberica* by many characters (see diagnosis of the new genus).

The bifurcate hind wing M makes the position of *Dolganoconis* **gen. nov.** in the subfamily Aleuropteryginae uncertain. *Libanoconis*, to which the species was initially assigned, belongs to the tribe Fontenelleini, but all Cretaceous genera of this tribe have a trifurcate M in the hind wing. So, the tribal affinity of *Dolganoconis* **gen. nov.** is currently unclear. The two other genera with a bifurcate hind wing M

(*Burmaleuropteryx* and *Garnaconis*) are also not included in Fontenelleini (Perrichot *et al.*, 2014; Li *et al.*, 2019).

It is interesting that the bifurcate hind wing M is found in the majority of Coniopteryginae, both the oldest and extant taxa, *i.e.*, the Early Jurassic Toarciconiopteryginae; the mid-Cretaceous Cretaconiopteryginae; all Cenozoic and extant Aleuropteryginae; the majority of Cenozoic and extant Coniopteryginae, and *Paradoxoconis* Chen *et al.*, 2022 whose subfamily is unclear (Meinander, 1972; Li *et al.*, 2019; Chen *et al.*, 2022, 2023; Makarkin & Ansoerge, 2024). The trifurcate hind wing M of the Cretaceous Fontenelleini is apparently an apomorphic state.

*Dolganoconis* **gen. nov.** is unique among Aleuropteryginae in having a trifurcate forewing M and bifurcate hind wing M. In the vast majority of extant Aleuropteryginae M is bifurcate in both the fore- and hind wing, except *Coniocompsa* Enderlein, 1905 whose M is simple in both wings. By these character states, *Burmaleuropteryx* and *Garnaconis* are most similar to extant taxa, and *Dolganoconis* **gen. nov.** appears to be intermediate between the states of the Cretaceous Fontenelleini and extant taxa of this and other tribes, where the forewing M is bifurcate.

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