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CORETHRELLA ANDERSONI (DIPTERA: CORETHRELLIDAE), A NEW SPECIES FROM LOWER CRETACEOUS BURMESE AMBER

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Abstract.—***Corethrella andersoni*, n. sp.** (Diptera: Corethrellidae), is described from Lower Cretaceous Burmese amber. The new species can be distinguished from all previously described extinct and extant *Corethrella* Coquillett by the very short wing veins R_2 and R_3.

Key Words: *Corethrella andersoni*, Corethrellidae, Burmese amber

The dipterous family Corethrellidae includes the single genus *Corethrella* Coquillett with over 60 extant species, all which occur in warm climates (subtropics and tropics) (Borkent 1993). Females have biting mouthparts (with one exception) and are reported to feed on frogs, mammals and birds (Williams and Edman 1968).

All previously described fossil corethrellids are males in Miocene-Oligocene Dominican amber (*Corethrella nudistyla* Borkent and Szadziewski 1992), Eocene Baltic amber (*C. prisca* Borkent and Szadziewski 1992, *C. miocaenica* Szadziewski et al. 1994) and Lower Cretaceous Lebanese amber (*C. cretacea* Szadziewski 1995).

The present study describes the first female fossil corethrellid from Burmese amber.

MATERIALS AND METHODS

Amber from Myanmar (Burma) occurs in lignitic seams in sandstone-limestone deposits in the Hukawng Valley. Palynomorphs obtained from the amber beds where the fossil originated have been assigned to the Upper Albian (~ 100–110 mya) of the Lower Cretaceous (Cruickshank and Ko 2002).

Observations and photographs were made with a Nikon SMZ-10 stereoscopic microscope and Nikon Optiphot optical microscope (with magnifications up to 650×). Drawings were made with a camera lucida.

Whereas the majority of the fossil corethrellid is intact (Fig. 1), the terminal abdominal segments separated and are now adjacent to the wing apex, the left wing is incomplete with only the base preserved, the mid legs have tarsomeres 2–4 separated, tarsomeres 3–5 of both hind legs are missing, and the left palpus, while complete, is separated from the proboscis.

Family Corethrellidae Edwards, 1932

Genus *Corethrella* Coquillett, 1902

Corethrella andersoni Poinar and Szadziewski, new species

(Figs. 1–8)

Description.—Female (Fig. 1): Body length about 2.5 mm. Proboscis slightly

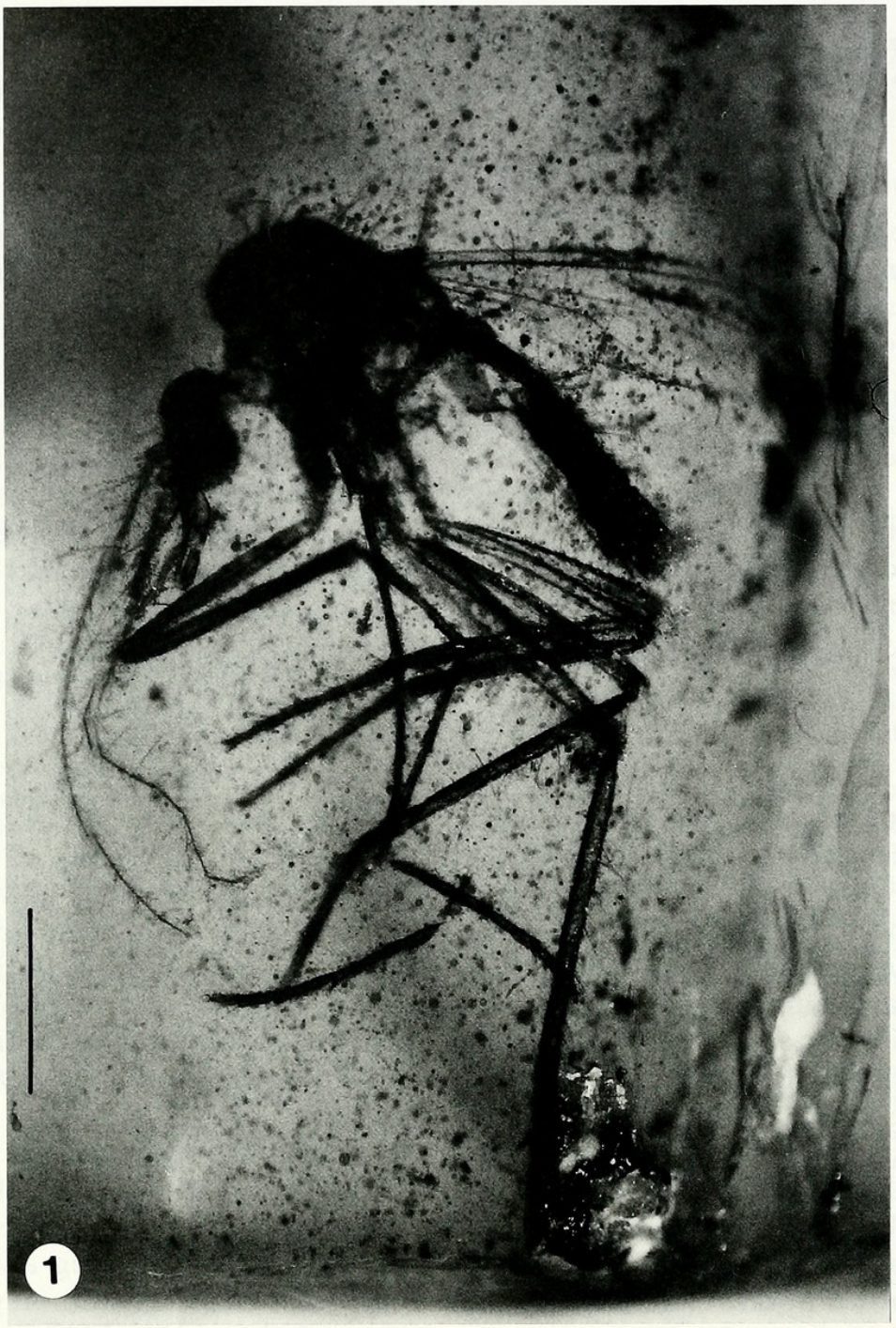
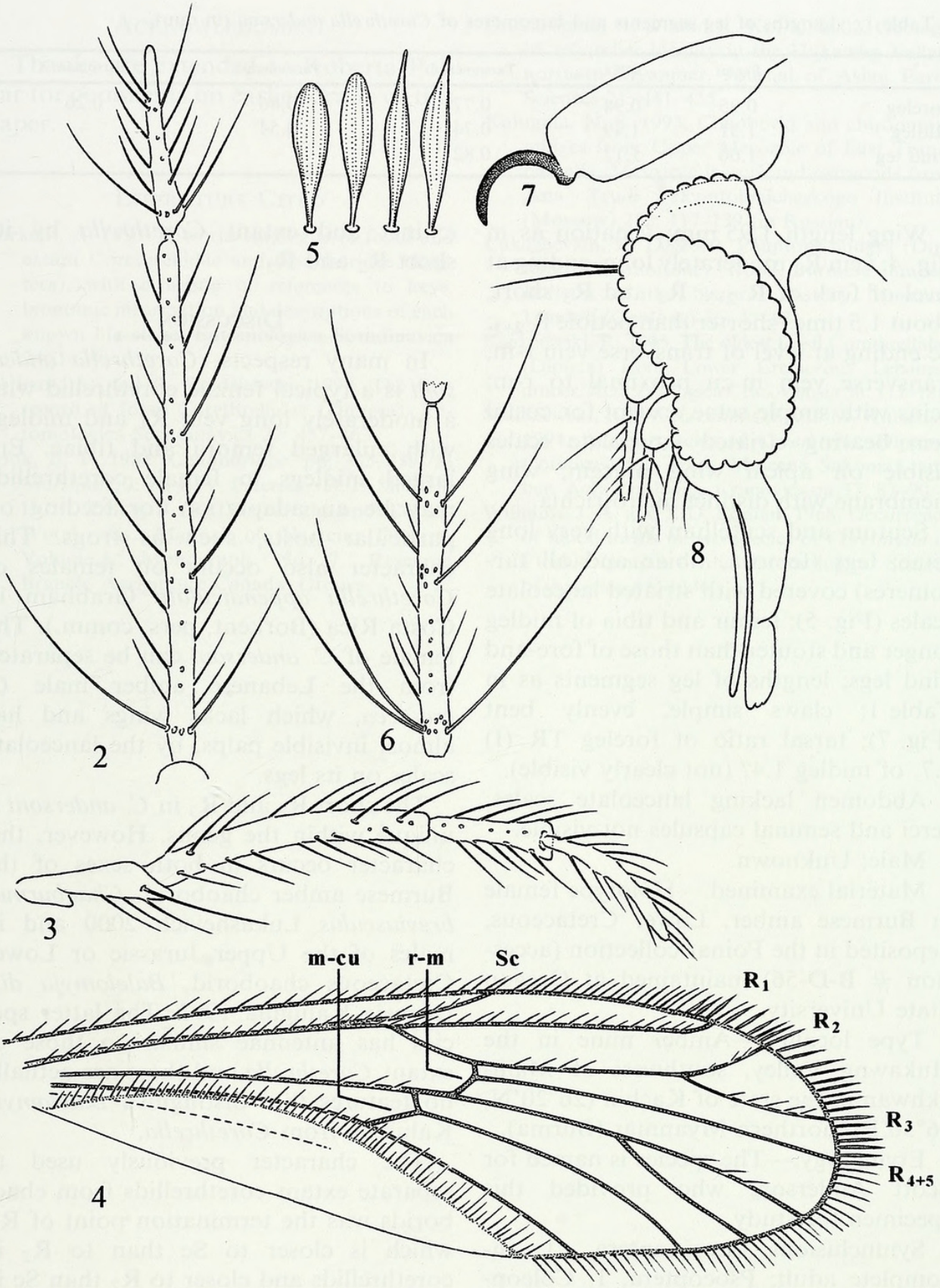


Fig. 1. Holotype female of *Corethrella andersoni*, lateral view. Bar = 0.83 mm.

elongate, as long as height of head (Fig. 8); eyes above antennae narrowly separated; pedicel slightly enlarged; flagellum very long, 2.20 mm, with 13 slender flagellomeres; first flagellomere 385 μm long, almost 2.3 times longer than flagellomere 2 (170 μm); all flagellomeres with distinct basal whorl of long setae; flagellomeres 2–12 with 2–3 more or less distinct whorls of longer setae (Figs. 2, 6); flagellomeres 3–13 subequal, between 164 μm and 180 μm in length.

Clypeus and proboscis with simple setae; palpus 5-segmented (Fig. 3), 370 μm long, longer than proboscis. Third palpal segment 268 μm long; fourth 133 μm; fifth 185 μm; labrum distinct, long, slender; mandibles and laciniae not visible.



Figs. 2–8. *Corethrella andersoni* in Burmese amber. 2, Flagellomeres 1 and 2. 3, Palpus. 4, *Wing*. 5, Striated scales from femur. 6, Flagellomere 5. 7, Fifth tarsomere of mid leg. 8, Head, lateral view.

Table 1. Lengths of leg segments and tarsomeres of *Corethrella andersoni* (in mm).

	Femur	Tibia	Tarsomere 1	Tarsomere 2	Tarsomere 3
Foreleg	0.95	0.94	0.77	0.46	0.26
Midleg	1.31	1.49	0.74	0.54	–
Hind leg	1.06	1.12	0.82	–	–

Wing length 1.95 mm; venation as in Fig. 4; vein R_1 moderately long, ending at level of fork of R_{2+3}; R_2 and R_3 short, about 1.5 times shorter than petiole R_{2+3}; Sc ending at level of transverse vein r-m; transverse vein m-cu proximal to r-m; veins with simple setae, except for costal vein bearing striated lanceolate scales visible on apical wing margin; wing membrane with distinct microtrichia.

Scutum and scutellum with very long setae; legs (femora, tibiae and all tarsomeres) covered with striated lanceolate scales (Fig. 5); femur and tibia of midleg longer and stouter than those of fore-and hind legs; lengths of leg segments as in Table 1; claws simple, evenly bent (Fig. 7); tarsal ratio of foreleg TR (I) 1.7, of midleg 1.4? (not clearly visible).

Abdomen lacking lanceolate scales; cerci and seminal capsules not visible.

Male: Unknown.

Material examined.—Holotype female in Burmese amber, Lower Cretaceous, deposited in the Poinar collection (accession # B-D-56) maintained at Oregon State University.

Type locality.—Amber mine in the Hukawng Valley, southwest of Maingkhwan in the state of Kachin (26°20′N, 96°36′E), northern Myanmar (Burma).

Etymology.—The species is named for Scott Anderson, who provided this specimen for study.

Syninclusions.—Lepidoptera, 1 incomplete adult; Psocoptera, 1; Coleoptera, 1.

Diagnosis.—This is the first description of a corethrellid from Burmese amber. The species can be distinguished easily from all previously described extinct and extant *Corethrella* by its short R_2 and R_3.

Discussion

In many respects, *Corethrella andersoni* is a typical female corethrellid with a moderately long vein R_1 and midlegs with enlarged femora and tibiae. Enlarged midlegs in female corethrellids may be an adaptation for feeding on particular hosts, such as frogs. This character also occurs on females of *Corethrella appendiculata* Grabham in Costa Rica (Borkent, pers. comm.). The female of *C. andersoni* can be separated from the Lebanese amber male *C. cretacea*, which lacks wings and has almost invisible palps, by the lanceolate scales on its legs.

The short R_2 and R_3 in *C. andersoni* is unique within the genus. However, this character occurs in both sexes of the Burmese amber chaoborid, *Chaoburmus breviusculus* Lukashevich 2000 and in males of the Upper Jurassic or Lower Cretaceous chaoborid, *Baleiomyia discussoria* Kalugina 1993. The latter species has antennae similar to those of extant *Corethrella* and there are actually no features that distinguish *Baleiomyia* Kalugina from *Corethrella*.

The character previously used to separate extant corethrellids from chaoborids was the termination point of R_1, which is closer to Sc than to R_2 in corethrellids and closer to R_2 than Sc in chaoborids (Cook 1981). However, this feature can vary between the two groups and other characters, such as enlarged midlegs and closely approximate eyes, are now used to distinguish corethrellids.

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