DESCRIPTION OF A NEW SPECIES OF CRINITELLA (EPHEMEROPTERA: EPHEMERELLIDAE) FROM THAILAND

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Abstract.—A new species of Ephemerellidae, Crinitella permkami sp. nov., is described from southern Thailand. Illustrations of the dorsal habitus and mouthpart structure are provided. This is the first species of Crinitella and only the fifth species of Ephemerellidae reported from Thailand.

Key Words. Thailand, Ephemeroptera, Ephemerellidae, Crinitella permkami, new species.

The genus Crinitella (Ephemeroptera: Ephemerellidae) is restricted to the Old World and has been treated at various taxonomic ranks. Crinitella was introduced as a monotypic subgenus (Allen and Edmunds 1963) within Ephemerella. In a review of the subfamilies of Ephemerellidae, Allen (1965) listed Crinitella as one of 11 subgenera of Ephemerella. Subsequently, Hubbard and Peters (1978) assigned three Pakistani species to this subgenus. Crinitella was later elevated to generic rank by Allen (1980). In a revision of Ephemerellinae, Allen (1984) listed Crinitella as one of 17 genera in the subfamily (one of which was later transferred to Teloganodidae [McCafferty and Wang, 1997]).

The four previously described species of Crinitella are C. coheri Allen & Edmunds, described from Nepal; and C. nasiri Ali, C. swatensis Ali, and C. wahensis Ali, described from Pakistan. In this paper, Crinitella permkami sp. nov. is described from southern Thailand, bringing the number of described species of the genus to five.

Crinitella permkami, new species
(Figs. 1–8)

Diagnosis. Crinitella permkami sp. nov. is closely related to C. coheri in general appearance, but it differs from the latter in its pattern of black coloration on the head, pronotum, femora, and gill 2, whereas, C. coheri is unicolorous. Further, the left mandibular molar surface of C. permkami sp. nov. is well developed, whereas that of C. coheri is reduced with a large anterior articulating condyle. In C. permkami
Figs. 2–8. (2) labrum, (3) right mandible, (4) left mandible, (5) hypopharynx, (6) right maxilla, (7) left maxilla, (8) labium.

Fig. 1. Habitus (dorsal) of *Crinitella permkami* sp. nov.
sp. nov., the apical segment of labial palp is longer than wide, whereas in C. coheri, the apical segment is wider than long.

**Description. Mature Larva.** Body color dark brown. Head with black band along compound eyes and ocelli; labrum less than two times as wide as long, anterior margin with short branched setae, lateral margin with long setae (Fig. 2); mandibles as in Figs. 3 and 4; hypopharynx with well developed superlinguæ, linguæ slightly pointed (Fig. 5); maxillæ well developed, galea-lacinia with strong apical teeth (Figs. 6, 7); labium with highly reduced glossae, paraglossae, and palpi (Fig. 8). Thorax and legs with long setæ; legs with black maculae on the subapical posterior surface of femora; tarsal claws with a single tridentate projection and palisade of five to seven long denticles. Abdominal terga 3–7 with imbricated tracheal gills (Fig. 1), gill lamellæ dark basally; abdominal terga with long setæ on submedian surface of segments 1–8 (Fig. 1); a row of long hair on terga 4–8 mesad of the gills; abdominal sterna yellow-brown, with sublateral black spots, without hair. Caudal filaments light brown. Subequal in length (Fig. 1).

**Adult.** Unknown.

**Etymology.** This species is named after Surakrai Permkmam, Chair of the Pest Management Department, Prince of Songkla University, Hat Yai, Thailand, in honor of his contribution to the collection of this new species during a visit by RWS.

**Discussion.** This is the first record of the genus *Crinitella* from Thailand. The four other described species of the genus are known from Pakistan or Nepal (see Hubbard and Peters, 1978), thus this record represents a substantial southeastward extension of the known range of *Crinitella*. The only other species of Ephemerellidae recorded from Thailand are *Cincticostella boja* (Allen), *C. gosei* (Allen) [= *Serratella thailandensis* Allen (see Edmunds and Murvosh, 1995)], *C. insolita* (Allen), and *Ephacerella commodema* (Allen). Thus, the addition of *C. permkami* sp. nov. brings the number of described species of Ephemerellidae recorded from Thailand to five. This species was taken in five provinces that extend from Yala Province near the Malaysian border to as far north as Nakhonsithammarat Province.

**Type locality.** The holotype locality was a clear, unnamed stream approximately 8–10 m in width and approximately 0.5 m in depth at the deepest points in riffles with moderate current velocity. Erosional areas were deeper. Marginal emergent vegetation was present, although the riffles where *C. permkami* sp. nov. occurred were devoid of vegetation. The other streams in which this species was collected had similar habitat characteristics to those of the type locality, although some streams were slightly wider and deeper. Early in January 1998, separatist guerrillas bombed the Hwy 401 bridge spanning the stream at the type locality. Thus, the present condition of the type locality is unknown.

**Types.** Holotype. THAILAND, Yala Prov., stream outside entrance to Banglang National Park near Than To, 14.i.1995, Sites & Nichols, riffles in stream (mouthparts slide-mounted) (deposited: MU). Paratypes: THAILAND, Yala Prov., same data as holotype, 5 specimens (3 PSU, 2 MU); Satun Prov.: Wangpachan District, Ton Bliew, 9.vii.1997, Sites & Perkmam, rocky & sandy stream, 1 specimen (MU); Songkhla Prov.: Ton Nga Chang Nat. Pk., stream at Buddhist temple, 6.i.1995, Sites & Nichols, 1 specimen (MU); same locality, 7.i.1995, Sites & Nichols, 2 specimens (PSU); same locality, 8.i.1995, Sites & Nichols, 2 specimens (PU); same locality, 6.vii.1997, R. W. Sites, 20 specimens (5 RTA, 5 PSU, 10 MU).
Additional material examined. THAILAND, Nakhonsithammarat Prov., Cha-wang Rd., ca. 8 km S. of Khao Luang Nat. Pk., roadside stream, 12.vii.1997, Sites & Pennkam, 2 specimens (MU); stream from Khao Luang Nat. Pk., 12.vii.1997, Sites & Pennkam, stream under bridge, 4 specimens (MU); Songkhla Prov., Ton Nga Chang Nat. Pk., stream at Buddhist temple, 7.i.1995, Sites & Nichols, 1 specimen (MU); same locality, 6.vii.1997, R. W. Sites, 22 specimens (MU, PU, RTA); Trang Prov., ca. 10 km E of Khao Ka Chong Nat. Pk. on Hwy 4, 12.i.1995, Sites & Nichols, 1 specimen (MU); Yala Prov., Than To, Banglang Nat. Pk., 14.i.1995, Sites & Nichols, riffles in stream, 6 specimens (MU).

Type specimen repositories. Specimens of the type series are deposited in insect collections of the following institutions: University of Missouri-Columbia (MU), Prince of Songkla University (PSU), Royal Thai Agriculture Department (RTA); Purdue University (PU).

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