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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.

บทคัดย่อ –*Crinitella permkami* sp. nov. เป็นแมลงชีปะขาวชนิดใหม่ในสกุล Ephemerellidae ได้ถูกรายงานจากภาคใต้ของประเทศไทย ในที่นี้ได้นำเสนอรูปวิธานลักษณะด้านบน และส่วนประกอบของปาก แมลงชีปะขาวชนิดนี้เป็นชนิดแรกของ *Crinitella* และหนึ่งในห้าชนิดของแมลงชีปะขาวในสกุล Ephemerellidae ที่ได้ถูกรายงานจากประเทศไทย

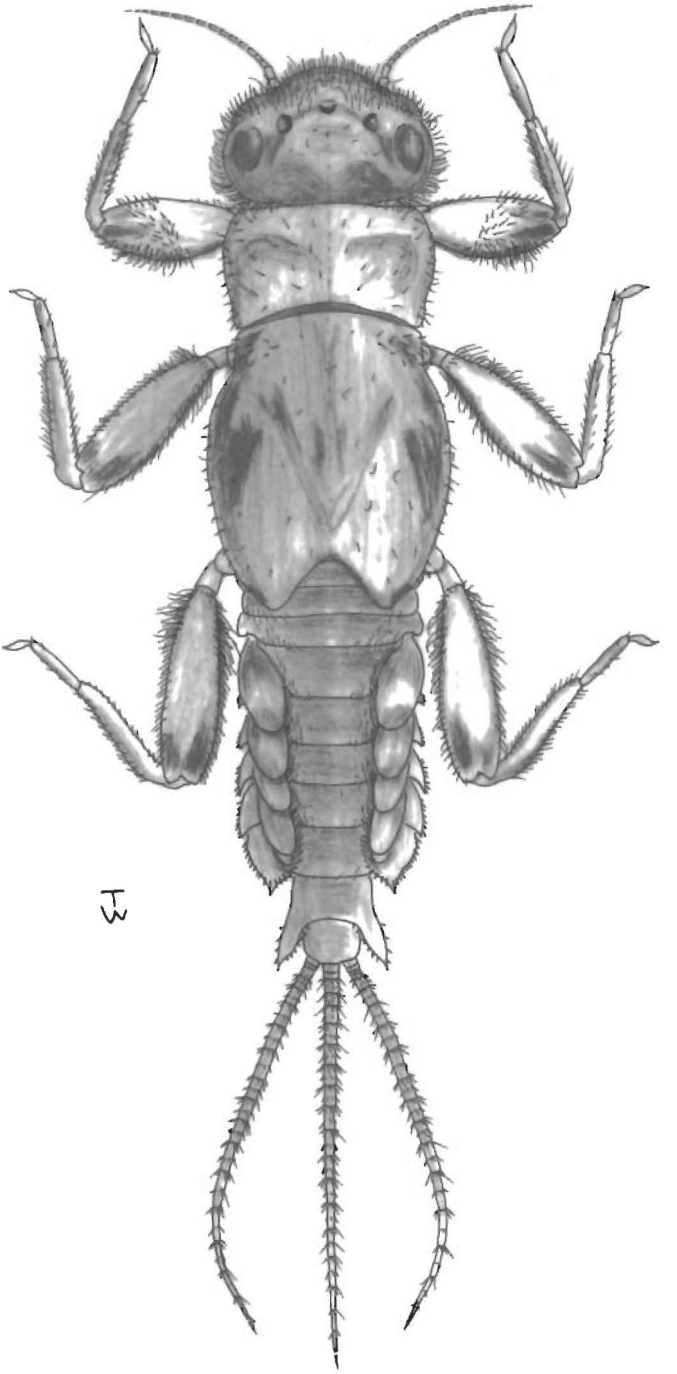
Key Words. Thailand, Ephemeroptera, Ephemerellidae, *Crinitella permkami,* new species.

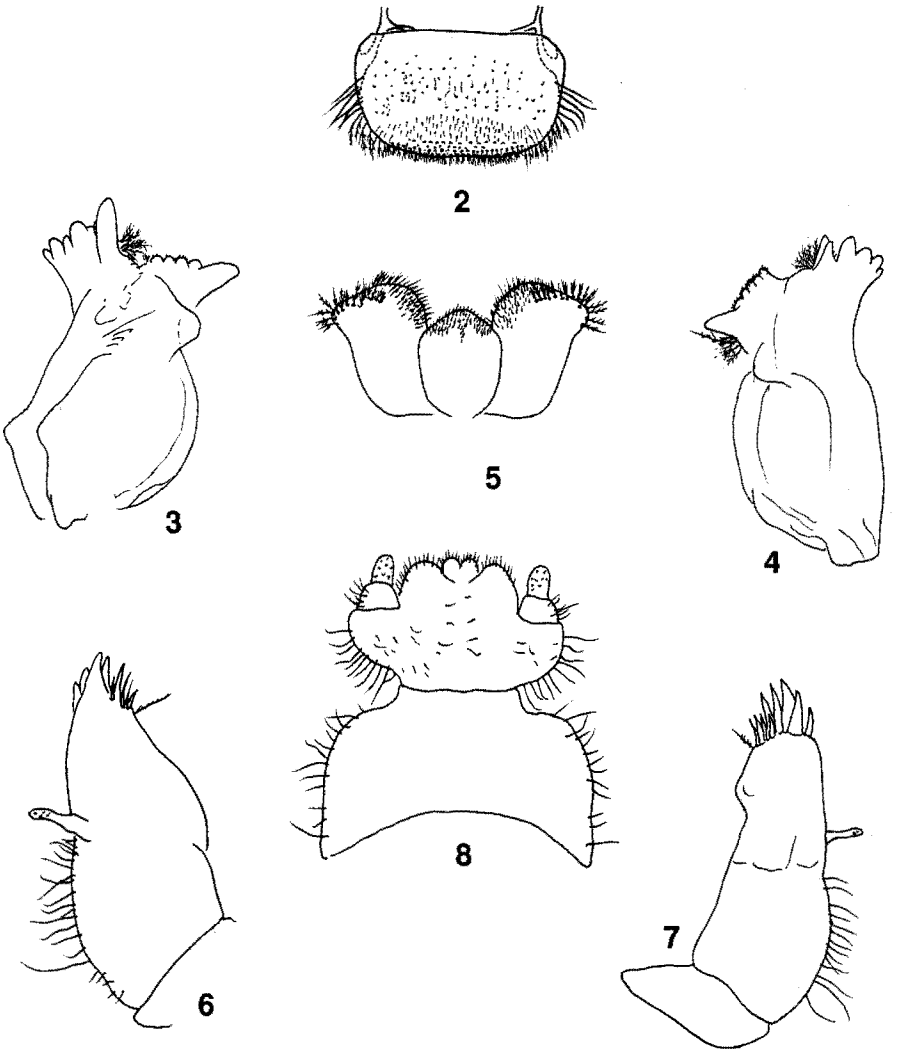
The genus *Crinitella* (Ephemeroptera: Ephemerellidae) is restricted to the Old World and has been treated at various taxonomic ranks. *Crinitella* was introduced as a monotypic subgenus (Allen and Edmunds 1963) within *Ephemerella*. In a review of the subfamilies of Ephemerellidae, Allen (1965) listed *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.

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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 superlinguae, linguae slightly pointed (Fig. 5); maxillae 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 setae; 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 lamellae dark basally; abdominal terga with long setae 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 Permkam, 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. insolta* (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 guerillas 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 & Permkam, 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.**, Chawang Rd., ca. 8 km S. of Khao Luang Nat. Pk., roadside stream, 12.vii.1997, Sites & Permkam, 2 specimens (MU); stream from Khao Luang Nat. Pk., 12.vii.1997, Sites & Permkam, 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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