



## A new species and first stage associations in *Crinitella* (Ephemeroptera: Ephemerellidae: Ephemerellinae)

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### Abstract

The alates of *Crinitella coheri* (Allen and Edmunds) are described for the first time, and morphological variability of the species is discussed. Male adults have penes with dorsal projections at the base of the gonopores and forceps with a relatively straight lateral profile. *Crinitella coheri* female alates and associated eggs have been misidentified as those of a *Hyrtanella* species. *Crinitella coheri* is reported from Vietnam for the first time. We describe *C. lacuna*, new species, based on male and female subimagos and larvae, and the species is included in *Crinitella* on the basis of genitalia morphology. Alates of *C. lacuna* are distinguished from *C. coheri* by the presence of a prominent dorsal longitudinal stripe, and larvae are distinguished by having paired median spines on abdominal terga, mouthparts that are not greatly reduced, and gills 3 that are relatively larger than those of *C. coheri*. *Crinitella lacuna* is reported from India, Thailand and Vietnam. The structures of *Crinitella* and *Hyrtanella* gill cavities are different and do not represent a synapomorphy for the two genera.

**Key words:** Ephemeroptera, Ephemerellidae, *Crinitella coheri*, *Crinitella lacuna*, new species, descriptions, Oriental

### Introduction

*Crinitella* Allen and Edmunds (Ephemeroptera: Ephemerellidae) was described originally as a subgenus of *Ephemerella* Walsh (Allen and Edmunds 1963), but Allen (1980) later elevated it to generic status. McCafferty and Wang (2000) included *Crinitella* in the subfamily Ephemerellinae of Ephemerellidae, and Jacobus and McCafferty (2003b) revised the genus such that it included one species, *C. coheri* (Allen and Edmunds), which was known only from the larval stage.

Subsequent examination of recently collected Oriental specimens led to the discovery of the winged stages of *C. coheri* and additional material that very closely resembles *C. coheri* in the alate stages. After examination of more material, the larva associated with the latter alate stages was discovered and found to be a new species.

Data associated with the new species and the previously unknown stages of *C. coheri* are of immediate practical importance to those seeking to establish biomonitoring protocols for aquatic habitats in the Oriental Region (RWS; J. Morse, personal communication; see also discussion by Jacobus and McCafferty, 2006). Furthermore, these data are important for recognizing Ephemerellinae species groups and their relationships (Jacobus and McCafferty, in progress). Thus, we provide here the first descriptions of *C. coheri* alates and describe a new species based on alates and larvae. The new species is included in *Crinitella* provisionally, based on the striking similarity of its alates to those of *C. coheri*. In light of Kluge's (2004) observations about