7 Capniidae

Two different classification practices were followed by North American plecopterists in the first half of this century regarding the family Capniidae, which was erected by Klapálek (1905). Recognition of the family as a distinct entity apart from Nemouridae was given by Needham & Claassen (1925), Claassen (1931, 1940), Frison (1935, 1942) in his proposed new classification, and by Hanson (1942) in his detailed morphological study and revision. This represented a departure by Needham & Claassen (1925), who had considered the other Klapálek (1905) families Leuctridae and Taeniopterygidae as subfamilies of Nemouridae.

On the other hand, Ricker (1943, 1950) included Capnia, Allocapnia, Eucapnopsis, Isocapnia, and Nemocapnia in the subfamily Capniinae of the family Nemouridae. He continued that practice (Ricker 1952, 1959b), as did Jewett (1959, 1960, 1968) in major taxonomic works and keys, until Illies (1966), who concurred (in part) with the Frison (1935) system, gave all Plecoptera subgenera generic status. The Illies (1966) and Zwick (1973) classifications have been followed by most workers during the past two decades.

Nymphs of the Capniidae have remained the poorest known of all North American families. Except for reference to Capniidae nymphs by Claassen (1931) and Frison (1929, 1935), major taxonomic works and keys, including Hanson's (1942) revision of Capniidae and Ross & Ricker's (1971) revision of Allocapnia, have dealt primarily with adults. The only comparative study of North American nymphs at the generic and species level that has used nymphal characters rather than developing adult characters visible through the nymphal skin (Frison 1929, 1935, Claassen 1931, Harden & Mickel 1952) has been that of Harper & Hynes (1971b). They discussed the frustrating homogeneity of Capniidae nymphs in general and presented descriptions and a preliminary key with illustrations to the 15 common species in four genera found in eastern Canada. There has never been a comparative study of nymphs of all North American genera. The keys of Ricker (1959b) and Baumann et al. (1977) do not allow definitive separation of nymphs of any of the nine currently recognized North American genera (except Isocapnia and Paracapnia). Harper & Stewart (1984) presented an improved key incorporating recent changes in the generic classification of Capniidae, but it still would not enable definitive separation of nymphs of Bolshecapnia, Capnia, Mesocapnia, and Utacapnia to genus. Furthermore, the separation to species of nymphs of the larger genera Allocapnia (41 species), Capnia (48 species), Isocapnia (11 species), Mesocapnia (12 species) and Utacapnia (10 species) is virtually impossible because so few of them have been correlated with adults and adequately described and illustrated. Harper & Hynes (1971b) were able to separate known species of Capnia and Allocapnia nymphs from eastern Canada primarily using distribution and size of hairs on various parts of the body.