## NOTE

## Feeding Habits of Two Capniidae (Plecoptera) Species from Southern Iberian Peninsula<sup>1</sup>

Manuel Jesús López-Rodríguez<sup>2</sup> and José Manuel Tierno de Figueroa

Departamento de Biología Animal, Facultad de Ciencias, Universidad de Granada, 18071, Granada, Spain

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The taxonomic family Capniidae (Order Plecoptera) is composed by 17 genera and 311 species with a mainly Holarctic distribution (Fochetti and Tierno de Figueroa 2007, Hydrobiol. 595: 365-377). In the Southern Iberian Peninsula, the most diversified Capniidae genus is *Capnioneura* Ris with 4 species. *Capnopsis* Morton, also present in this area, is a monospecific genus (Tierno de Figueroa et al. 2003, Plecoptera, Pg. 1-404, Fauna Ibérica, vol. 22, Museo Nacional de Ciencias Naturales, Madrid).

Two species belonging to this family, *Capnioneura libera* (Navás, 1909) and *Capnopsis schilleri* (Rostock, 1892), were collected in Las Perdices stream (U.T.M. coordinates 30SVG574277, 1380 m.a.s.l.) during a monthly sampling program between October 2003 and September 2004, although nymphs only were present from December 2003 to February 2004. Las Perdices stream, located in Sierra de Huétor (Southern Spain), does not flow the entire year with drought from July to October. A total of 104 individuals of *C. libera* and 14 of *C. schilleri* were collected. We analyzed gut content following methods used in previous Plecoptera feeding studies (Tierno de Figueroa and Sánchez-Ortega 1999, Ann. Entomol. Soc. Am. 92: 218-221; López-Rodríguez and Tierno de Figueroa 2005, Bol. Asoc. Esp. Entom. 29: 87-97; López-Rodríguez and Tierno de Figueroa 2006, Ann. Soc. Entomol. France 42: 57-61). This consists of clearing individual insects with Hertwigs' liquid (a modification of Hoyer's liquid), placing them in an oven at 65°C during 24-26 h, and examining microscopically (40x and 400x) to estimate the absolute gut content and identify the relative percentage of each component related to the total gut content.

Both species are mainly detritivorous (% gut content  $91.9 \pm 15.7$  for *C. libera*;  $91.9 \pm 11.5$  for *C. schilleri*) and can be catalogued as gathering-collectors (Cummins and Merrit 1996, Ecology and distribution of aquatic insects, Pg. 74-86, *In* An Introduction to the Aquatic Insects of North America, Kendall and Hunt, Dubuque, IA). Other components, such as diatoms (% gut content  $1.8 \pm 6.3$  for *C. libera*;  $1.3 \pm 2.9$  for *C.* 

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<sup>&</sup>lt;sup>2</sup>Address inquiries (email: manujlr@ugr.es)

*schilleri*), fungal hyphae (% gut content 5.5 ± 13.5 for *C. libera*; 2.8 ± 8.6 for *C. schilleri*) and spores (% gut content  $0.8 \pm 3.8$  for *C. libera*; 2.7 ± 8.6 for *C. schilleri*), pollen (% gut content  $0.1 \pm 0.4$  for *C. libera*;  $0.6 \pm 1.4$  for *C. schilleri*) and phyllidia (the latter just in the case of *C. schilleri*: % gut content  $0.8 \pm 2.0$ ) were present in the gut content, but in a low percentage suggesting that these species may have ingested them accidentally.

Based upon these results and those with other species of Capniidae, it appears that plant fragments constitute a significant proportion of the diet, such as in *Capnia bifrons* (Newman) (Brinck 1949, Opusc. Entomol. suppl. 11: 1-250) or *Capnia nigra* (Pictet) (Hynes 1941, Trans. Royal Entomol. Soc. London 91: 459-557; Brinck 1949; Azzouz and Sánchez-Ortega 2000, Zool. baetica 11: 35-50). Other Capniidae, such as *Capnioneura mitis* Despax (López-Rodríguez and Tierno de Figueroa 2004, XI Cong. Ibérico Entomol. p. 121; unpubl. data) and *C. petitpierreae* Aubert (Navarro-Martinez et al. 2007, Illiesia 3(8): 65-69), are mainly detritivorous.

It is apparent that there is great variation in food resources for the Capniidae nymphs. Furthermore, generalizations at the family level must be made with caution, given that closely related species (even the same species in different streams) may feed on different resources. Thus, additional data on resource selectivity could elucidate these facts, and studies should be developed and initiated to this end.