

A New Synonym in the Genus *Caenis* Stephens 1835 (Ephemeroptera: Caenidae)

by

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Caenis rhenicola Malzacher 1976 is shown to be a new synonym of *Caenis pusilla* Navás 1913. A description of the diagnostic features is given as well as new records from the Mediterranean region.

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In 1913, Navás described *Caenis pusilla* (which means the tiny little *Caenis*) as a new species from the environs of Zaragoza in Northern Spain. One can take from the description that it concerns a very small species with dark head and thorax and white abdomen. For 65 years, the species was never again found. It was impossible to check the vague description of Navás because of inavailability of the types. Therefore, Illies (1967) and Puthz (1978) placed *Caenis pusilla* (sub. nom. *C. pusillus*) amongst the dubious species in the Limnofauna Europaea.

In 1976, *Caenis rhenicola* Malzacher was described, which seemed to be limited to a single large population in the Upper Rhine, at the border between Germany and Switzerland. No connection with the dubious *Caenis pusilla* from Spain was suspected.

Only when the type-specimens of *Caenis pusilla* – 2 males and one female – were found by one of us (Alba-Tercedor) in the Museo de Zoología del Ayuntamiento, Barcelona, we discovered by comparison of the male genitalia that both species are identical. The formal synonymy is:

Caenis pusilla Navás 1913, p. 63

= *Caenis rhenicola* Malzacher 1976, pp. 130-135;

invalid; new synonymy

Caenis pusilla can be separated from the other European *Caenis* species by the following combination of characters: Male: very small; length of body 2.0-2.7 mm, length of wings 2.0-2.5 mm. Head and dorsal part of the thorax dark blackish-brown. Much black epidermal pigment is deposited in the abdominal tergites, sometimes also in the sternites. Forceps and sclerites of the styliger dark brown. Black epidermal pigment in the basal and lateral parts of the 9th sternite. Penis shaped like an anvil (variable, depending on the position of the penis-lobes). Styliger sclerite more or less rectangular or semicircular (variable, see Fig. 1); at the base of the broad apophyses there is laterally a characteristic indentation in the coloring of the sclerite. Forceps with a strong spine on the inwardly bent apical end. With a scanning electron microscope, it is seen to consist of several coalesced bristles. The shape of the forceps is also variable (Fig. 2).

Larva: hind-margin of the 9th abdominal sternite slightly incurved. Lateral sides of the second gills and the abdomen trimmed with short blunt bristles. A row of short, broad and apically blunted spines runs transversely across the fore femora. On the underside of the second gill there is one row of broad microtrichia, standing close together. This row doesn't reach the middle of the hind margin of the gill.

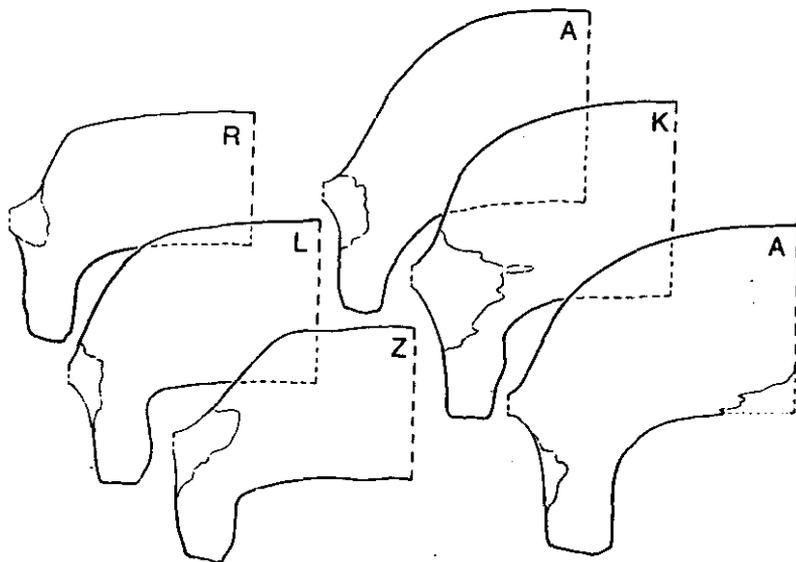


Fig. 1: Variability of the styliger-sclerite (left half) of *Caenis pusilla*. For letters, see figure 2.

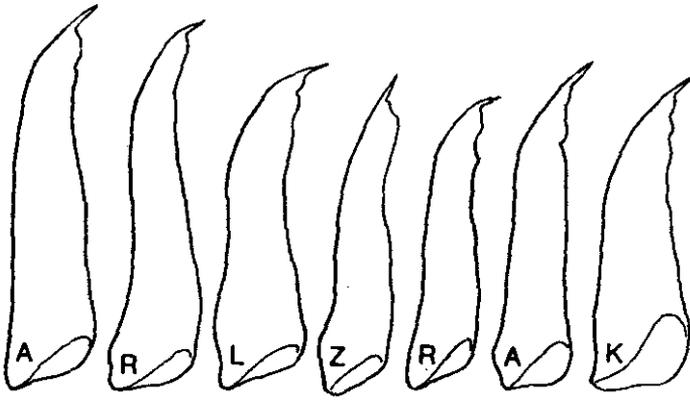


Fig. 2: Variability of the forceps of *Caenis pusilla*. The specimens are from: A = Rio Aguas Blancas, K = Kalamas river, L = Rio Lanjaron, R = Rhine. Z = Zaragoza

All diagnostic features are more or less variable. In populations of different geographical origin, all variants of a feature can usually be found, although they occur not with the same frequency. For instance, in the Rhine-population broad rectangular styliger-sclerites are predominant, whereas most of the specimens taken from the Rio Aguas Blancas, Sierra Nevada, have styliger-sclerites with a rounded convex hind margin.

Caenis pusilla shows a Mediterranean distribution with few exclaves north of the Alps. In the case of Upper Rhine and Lake Constance, a number of Mediterranean species of different insect orders invaded this area through the Belfort gap.

Caenis pusilla is known from: Spain: Zaragoza (locus typicus) (Navás 1913, Alba-Tercedor 1981); Sierra Nevada, in several rivers (Alba-Tercedor); Burgos (leg. Puthz); Barcelona (leg. Malicky). France: Aude, Gard, Vaucluse (leg. Puthz); Var (leg. Malzacher). Italy: Lazio (leg. Belfiore), Greece: Kalamas river (leg. Malicky); Tunisia (leg. Malicky); Switzerland and Germany: Upper Rhine (Malzacher 1976, 1981). Czechoslovakia: Southern Bohemia (Soldán 1983).

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