

***Zavreliella marmorata* (v.d.Wulp, 1859) (Diptera: Chironomidae) — a chironomid species new to Finland from Lake Pohjalampi, North Karelia**

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The chironomid *Zavreliella marmorata* (v.d.Wulp, 1859) is reported for the first time in Finland from Lake Pohjalampi, North Karelia (62°40'N, 29°33'E). Larvae of the species were first collected in September 1993 and found regularly thereafter. The identification of the species was verified by adult material reared in the laboratory in December 1999.

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1. Introduction

Zavreliella is a cosmopolitan genus. Being spread over four biogeographical regions (Holarctic, Afrotropical, Oriental and Australian) *Z. marmorata* has the widest distribution within the genus (Reiss 1990). In the Holarctic, the larvae of *Zavreliella* are found in shallow, eutrophic standing waters rich in vegetation. *Z. marmorata* is regarded as thermophilous (Reiss 1990), and the northernmost record previously reported is from southern Sweden (57°N) (Reiss 1990, Lindegaard 1997).

2. The Finnish record

Since 1993, the bottom fauna of Lake Pohjalampi, North Karelia (62°40'N, 29°33'E) has been investigated as a part of a lake biomanipulation study (Karjalainen et al. 1999). In connection with this

study, chironomid larvae of the genus *Zavreliella* were found for the first time on the 23rd September 1993, and several times thereafter. In December 1999, a single male emerged from a stock of these larvae kept in the laboratory, and the species was identified as *Zavreliella marmorata* (v.d.Wulp, 1859) according to Reiss (1990). This is the first record of the species and the genus in Finland.

Lake Pohjalampi is a small (maximum depth 5.3 m, area 61 ha) mesotrophic lake watered mainly by nutrient-poor brooks from surrounding ridges. During the six months of ice cover, the lake often suffers from oxygen depletion and in summer, blooms of blue-green algae are common. In 1993–1998 samples of benthic invertebrates were collected in each spring and autumn. The samples were taken with an Ekman-grab from five depths (0.5 m, 1 m, 2 m, 3 m and 4 m) along nine transects. The occurrence of *Z. marmorata* in Lake Pohjalampi seems to be very restricted.

Despite effective sampling the species has only been found from one location, close to the shore at a depth of 0.5–1 m. The soft, muddy sediment was largely covered by dead leaves, mainly from alder (*Alnus incana* (L.)). Aquatic vegetation at the site was scarce, although *Zavreliella* has been mentioned to favour rich submerged vegetation (Pinder & Reiss 1983).

3. Discussion

The climate in the main distribution area of *Zavreliella marmorata* is clearly milder than that of eastern Finland. Thus, the present occurrence of *Z. marmorata* in Lake Pohjalampi may be a relic from the Holocene Warm period. A sheltered location and relatively warm (3–6 °C) spring water entering the lake via brooks or from discrete springs below the surface throughout the year may have allowed the species to persist in the lake.

The larvae of *Zavreliella* are relatively easy to recognize. They are small (4–6 mm) and pale to dark red in colour. They have a large, anteriorly directed dorsal hump on the 11th segment and a

transportable case, which is laterally flattened and constricted at the ends. Amongst Holarctic Chironomini the last two features mentioned are found together only in *Zavreliella* and *Lauterborniella*. *Zavreliella* differs from *Lauterborniella* e.g. by a circular opening of the case, long lateral tubules and simple seta subdentalis and setae submenti (Pinder & Reiss 1983).

References

- Karjalainen, J., Leppä, M., Rahkola, M. & Tolonen, K. T. 1999: The role of benthivorous and planktivorous fish in a mesotrophic lake ecosystem. — *Hydrobiologia* 408/409: 73–84.
- Lindgaard, C. 1997: Diptera Chironomidae, non-biting Midges. — In Nilsson, N.A (ed.), *Aquatic Insects of North Europe. A Taxonomic Handbook*. Apollo Books, Stenstrup, Denmark. 440 pp.
- Pinder, L.C.V. & Reiss, F. 1983: The larvae of Chironominae (Diptera: Chironomidae) of the Holarctic region — Keys and diagnoses. — *Ent. Scand. Suppl.* 19: 293–435.
- Reiss, F. 1990: Revision der Gattung *Zavreliella* Kieffer, 1920 (Diptera, Chironomidae). — *Spixiana* 13: 83–115.