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Redescription of *Limnosida frontosa* Sars, 1862 (Crustacea: Cladocera: Sididae), with evidence of possible incipient species differentiation

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Abstract

Limnosida frontosa Sars, 1862 is redescribed based on the material from over its entire range, from Norway and Finland in the west to Yakutia in eastern Siberia and the Lower Amur River basin (Far East of Russia) in the east. Morphological analysis of the species has revealed a combination of advanced and evolutionary primitive features, latter characterizing *Limnosida* as the most primitive member of the order Ctenopoda. Investigation of intra- and interpopulational morphological variability, in particular of the post abdominal claws, led to a tentative separation of the species into two main forms, occurring regionally in the north-west and east of Northern Eurasia. Their taxonomic status as yet remains unclear. Some overlap in geographical distribution of these forms and the presence of populations with intermediate morphological features probably reflects irregularity of the diversification process in *L. frontosa* s.l. within its range. This diversification may be the result of both geographic disjunction and adaptation to waters of different trophic status. The low level of intraspecific differentiation and comparatively limited geographic distribution of this species imply its young age while the genus *Limnosida* itself is presumed ancient.

Key words: *Limnosida*, species differentiation, morphological forms, Northern Eurasia, faunal genesis

Introduction

Limnosida frontosa Sars, 1862 was first described as a separate species and genus in an unpublished manuscript (G.O. Sars 1861 (1993)) and then a brief published description of the taxon without drawings was published (Sars 1862). Three years later, Sars (1865) published a new, emended description which has stood unquestioned up to recent time. However, from a modern point of view it needs certain additions and corrections (in particular, the thoracic limbs were not described fully). Lilljeborg (1901) presented the next, and most recent, rather detailed description of *L. frontosa*. Since then, the authors of manuals on zooplankton have presented only brief, superficial descriptions with illustrations either derived from Lilljeborg (Rylov 1935; Šramek-Hušek 1962; Manuilova 1964) or drawn schematically (Flössner 2000). Thus, up to now this highly specific taxon, attributed to a monotypic genus, which is widely distributed over the Northern Eurasia remains insufficiently known with respect to its morphology, ecology, and origin.

Up to recent time, only European representatives of *L. frontosa* have been studied but their preliminary comparison with ones from Siberia and the Far East has revealed prominent differences (Korovchinsky 1986, 1992, 2004). The obvious necessity was to continue morphological study of the species in more detail, comparing specimens from more localities over its entire range.

Material and methods

Material for this study was collected in the following localities:

Norway: 1) Lake Stensrudvann, 30.6.1886, 19 ad, collection of G.O. Sars, ZMOU, slide F 8460 with a label “*Limnosida frontosa* G.O. Sars”, loaned by M. Christiansen.

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