



The genus *Pinnularia* (Bacillariophyta) excluding the section *Distantes* on Livingston Island (South Shetland Islands) with the description of twelve new taxa

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Abstract

During the ongoing revision of the non-marine diatom flora of Livingston Island (South Shetland Islands, Maritime Antarctic Region) the taxonomy and morphology of all *Pinnularia* taxa, excluding the section *Distantes*, present in the samples from Livingston Island, have been analysed. Seventeen different *Pinnularia* taxa have been recorded. Apart from those previously described from the Antarctic Region (*P. subcapitata* var. *elongata*, *P. gemella*, *P. austroshetlandica*) and the Andes (*P. strictissima*), thirteen unknown taxa have been found. Based on their unique morphological features, twelve are described as new in this paper: *P. australodivergens* sp. nov., *P. australoglobiceps* sp. nov., *P. australomicrostauron* sp. nov., *P. australoschoenfelderi* sp. nov., *P. hamiltonii* sp. nov., *P. livingstonensis* sp. nov., *P. magnifica* sp. nov., *P. microstauroides* sp. nov., *P. pseudolaucensis* sp. nov., *P. sergiplaiana* sp. nov., *P. subcarteri* sp. nov. and *P. subaltiplanensis* sp. nov. For one, only a few specimens have been found and at present they cannot be identified with 100% certainty.

Key words: Bacillariophyta, *Pinnularia*, new species, Byers Peninsula, Hurd Peninsula, Maritime Antarctic Region, morphology

Introduction

Based on the diatom records listed in Kellogg & Kellogg (2002), 195 different taxa belonging to the genus *Pinnularia* Ehrenb., one of the largest non-marine diatom genera in the world (Krammer 2000), have been reported from the Antarctic and sub-Antarctic Regions. Although several of these have been reassigned to other genera, such as *Chamaepinnularia* Lange-Bert. & Krammer in Lange-Bert. & Metzeltin (1996), or should be considered synonyms of earlier published names, it is clear that most of the records belong to species with a cosmopolitan distribution. Recent results show that data in the older literature do not always reflect true diatom diversity, inevitably leading to incorrect interpretations of the biogeography and ecology of diatoms in Antarctic regions (Sabbe *et al.* 2003; Van de Vijver *et al.* 2005). Distinct (Antarctic) forms were sometimes lumped together as one single, morphologically variable species (see also Mann 1999) and many taxa were force-fitted into either European or North American species (Tyler 1996; Sabbe *et al.* 2003; Van de Vijver *et al.* 2005; Van de Vijver & Mataloni 2008). Taxa such as *Pinnularia borealis* Ehrenb. (1843: 420), *P. divergens* W. Sm. (1853: 57) and *P. obscura* Krasske (1932: 117) are widespread in the entire Antarctic Region (Kellogg & Kellogg 2002). On the islands in the southern Indian Ocean such as the Crozet archipelago and Iles Kerguelen, more than 30 new species of *Pinnularia* were described (Bourelly & Manguin 1954, Van