

NON-MARINE DIATOMS (BACILLARIOPHYTA) FROM ULU PENINSULA  
(JAMES ROSS ISLAND, NW WEDDELL SEA, ANTARCTICA)

Kateřina Kopalov<sup>1</sup>, Jana Vesel<sup>2</sup>, Josef Elster<sup>2,3</sup>, Linda Nedbalov<sup>1,3</sup>, Myriam de Haan<sup>4</sup>, Jiř Komrek<sup>2,3</sup> & Bart Van de Vijver<sup>4</sup>

<sup>1</sup>Charles University in Prague, Faculty of Science, Department of Ecology, Vinin 7, CZ-12844 Prague 2, Czech Republic ([K.Kopalova@hotmail.com](mailto:K.Kopalova@hotmail.com))

<sup>2</sup>University of South Bohemia, Faculty of Science, Department of Botany, Na Zlat stoce 1, CZ-37005 esk Budjovice, Czech Republic

<sup>3</sup>Academy of Sciences of the Czech Republic, Institute of Botany, Section of Plant Ecology, Dukelsk 135, CZ-37982 Třebo, Czech Republic

<sup>4</sup>National Botanic Garden of Belgium, Department of Bryophyta & Thallophyta, Domein van Bouchout, B-1860 Belgium ([vandevijver@br.fgov.be](mailto:vandevijver@br.fgov.be))

Several years ago, a detailed study on the taxonomy of non-marine diatoms on James Ross Island was started. James Ross Island (64°10'S, 57°45'W) is situated in the north-western part of the Weddell Sea, close to the northern tip of the Antarctic Peninsula. More than 75% of the island is covered with a permanent icecap, leaving only the northern part (=Ulu Peninsula) ice-free. In 2006, a new Czech Antarctic station was constructed on the island and during the austral summers between 2004 and 2009 a large number of samples was collected from seepage areas, streams and lakes.

The aim of our present study is to investigate the diatom communities living in these habitats and the ecological factors determining their composition, diversity and presence. Until recently, most of the non-marine diatom species were believed to have a cosmopolitan nature, mainly due to the use of non-appropriate taxonomic literature. Only a very low percentage of the listed species in the literature showed an Antarctic distribution. However, the results of our study contradict entirely this statement.

A total of more than 100 diatom taxa was identified during the survey. Following detailed morphological research, based on light and scanning electron microscopy, several species have been described as a new for science, such as the endemic *Eolimna jamesrossensis*, *Luticola truncata* Kopalov & Van de Vijver and *Diademsis inconspicua* Kopalov & Van de Vijver (Kopalov et al. 2009) while several others including *Chamaepinnularia gerlachei* Van de Vijver & Sterken, *Craticula antarctica* Van de Vijver & Sabbe and *Luticola austroatlantica* (Esposito et al. 2008, Van de Vijver et al. 2010) were described from James Ross Island but also occur on neighbouring islands. Recently, five new *Luticola* species have been recorded in the lake samples.

Using multivariate analysis, we were able to characterize ecologically several typical diatom communities with specific conductance, soluble reactive phosphorus, alkalinity and total phosphorus as main determining parameters.

The poster illustrates the morphology of some of the new species and discusses the results of the ecological analysis. The biogeographical relationships of the diatom flora of James Ross Island with other Antarctic localities such as the South Shetland Islands and the Antarctic Continent are briefly demonstrated.

References:

Esposito R.M.M., Spaulding S.A., McKnight D.M., Van de Vijver B., Kopalová K., Lubinski D., Hall B., Whittaker T. (2008) Inland diatoms from the McMurdo Dry Valleys and James Ross Island, Antarctica. *Botany*, 86:12, 1378-1392

Kopalová K., Elster J., Nedbalová L., Van de Vijver B. (2009) Three new terrestrial diatom species from seepage areas on James Ross Island (Antarctic Peninsula Region). *Diatom Research*, 24, 113-122.

Van de Vijver B., Sterken M., Vyverman W., Mataloni G., Nedbalová L., Kopalová K., Elster J., Verleyen E. & Sabbe K. (2010) Four new non-marine diatom taxa from the Subantarctic and Antarctic Regions. *Diatom Research* 25(2): 431-443.

ORAL