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Checklist of diatoms (Bacillariophyta) from Lake Ohrid and Lake Prespa (Macedonia), and their watersheds

ZLATKO LEVKOV¹ & DAVID M. WILLIAMS²

¹*Institute of Biology, Faculty of Natural Sciences, Gazi Baba bb, Skopje, R. Macedonia*
Email: zlevkov@iunona.pmf.ukim.edu.mk (corresponding author)

²*Department of Botany, The Natural History Museum, Cromwell Road, London, United Kingdom*



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Abstract

A century of diatom research on Lakes Ohrid and Prespa (Macedonia) has yielded 900 different taxonomic entities including species, varieties and unidentified species. This checklist is based on a comprehensive compilation of diatom names sourced from all available published data. The intention is to provide a basis for future diatom research on these diverse ancient lakes and their watersheds. The checklist is organized around the classification in Round *et al.* (1990), with a few minor modifications.

Introduction

Lake Ohrid and Lake Prespa are considered to be ancient lakes; their estimated age is 2–10 my (Stanković 1960; Dumurdzanov *et al.* 2004; Albrecht & Wilke 2008). Both Ohrid and Prespa form an unusual lake system. According to Stanković (1960), the two lakes were one at the earliest stage of their existence; today, Lake Prespa lies about 160 m higher than Lake Ohrid. Yet some studies have revealed that water from Lake Prespa does flow to Lake Ohrid via karst channels (Anovski *et al.* 1980; Eftimi & Zoto 1997).

Compared to other ancient lakes, Lake Ohrid is relatively small with a total surface area of 358 km² and maximum depth of 288 m. Despite its size, the lake is characterized by considerable diversity and endemism of aquatic species, including diatoms (Bacillariophyta). According to Albrecht & Wilke (2008), of the 1200 species reported, 212 are considered endemic; no data concerning diatoms were provided.

Both Lake Ohrid and Lake Prespa are under strong human influence. According to Matzinger *et al.* (2006a), a considerable amount of phosphorus is discharged from Lake Prespa to Lake Ohrid, making it very sensitive to eutrophication. On the other hand, the water quality, especially near the towns, is significantly decreased. The littoral region near Podgradeci (40.87°N, 20.70°E) is dominated by tolerant species that grow in a wide range of conditions, from oligotrophic to eutrophic waters (Miho & Lange-Bertalot 2003). Significant changes in planktonic communities have been also observed, with the dominance of eutraphentic species (Mitić 1987, 1990). More recent observations of planktonic communities (Patceva 2005) show considerable changes in species composition, especially in the littoral regions near the mouth of Sateska River.

More recently, palaeocological research on Lake Ohrid and Lake Prespa has intensified. Several of these studies show that Lake Ohrid is very sensitive to climate changes (Matzinger *et al.* 2006b; Matzinger *et al.* 2007; Reed *et al.* 2010). It has been suggested that current and potential future human activities will continue to have a major impact on the characteristics of Lake Ohrid, which will most likely affect its levels of endemism (Reed *et al.* 2010).

Bearing in mind that both lakes and their watersheds are threatened by eutrophication, pollution and climate change, compiling inventories of species currently inhabiting them is an important task. This checklist is an attempt to capture current knowledge on diatom research and diatom diversity for both Lake Ohrid and Lake Prespa.