Relation between macrophyte vegetation and environmental condition in the Ipel’ River (Slovakia) – case study

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With 6 figures and 1 table in the text

Abstract: The aquatic macrophyte vegetation along a selected part of Ipel’ River and adjacent tributaries situated between Zelené and Pincina villages was investigated in July and August 2000. In the 90 river sections of variable length (2–1000 m; overall length was almost 14.4 km) all macrophytes were mapped and their relative abundance estimated using a standard method. Abiotic variables within each section were also recorded. The distribution of plants was related to the abiotic factors. Three types of floristic-ecological zones (A–C) were recognized: habitat A represents natural meandering parts of river, habitat B represents regulated parts (including short stretches – termed B2 – characterized by weirs), and habitat C represents embanked sections, with slow water flow and thick silt. All types of habitat were characterized in terms of their plants. A total of 22 vascular taxa and 4 bryophytes were found in the study area.

Introduction

The detailed mapping of the aquatic biota (algae, aquatic plants, invertebrates, fish etc.) can provide valuable information about the quality of the water. Changes in the structure and distribution of macrophytes and vegetation along riverbanks can also provide information on ecological features in the river and adjacent landscape and detect human influences such as intensive agriculture, fertilization, livestock grazing, or water pollution. In some countries macrophytes are used for routine monitoring of water quality (Kohler & Janauer 1995; Kohler et al. 1996; Pall et al. 1996; Janauer & Wychera 2000). In Slovakia similar studies have been performed on the Danube River (Janauer & Otahelová in press) and now in the Ipel’ River. Previously, the distribution of macrophytes had been studied using a simple quantitative scale on the Morava River, the largest left tributary of the Danube River in Slovak territory (Otahelová & Husák 1992; Rydlo 1992).

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