



Invertebrates in overlooked aquatic ecosystem in the middle of the town

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Abstract

Background and Purpose: Fountains are common, but usually overlooked anthrotelmata. To date, little attention has been paid to these ecosystems. This study reveals the first, more comprehensive evidence about seasonal changes of fauna in urban fountains and their insect and non-insect biodiversity.

Materials and Methods: The biodiversity of aquatic organisms from 6 fountains in the city center of Prešov (Eastern Slovakia) were studied and basic environmental characteristics, such as pH, temperature, oxygen saturation and conductivity were measured during 2014. Water depth of studied fountains varied between 10 – 30 cm and water volume from 1.9 to 51 m³. For statistical evaluation nonparametric analyses were used.

Results and Conclusion: In total, over 66 taxa of the systematic groups Rotifera, Nematoda and Arthropoda were found. The most abundant insect group was Diptera. *Zavrelimyia nubila* (Diptera: Chironomidae) was recorded in Slovakia for the first time. Relative abundance of the evaluated insect taxa differed depending on the sampling date, and by water characteristics. Water volume and depth correlated negatively, but not significantly with relative abundance of all evaluated insect groups. Water pH showed positive significant correlation with relative abundance of beetles, and negative, but not significant, correlation with the relative abundance of flies and mayflies.

INTRODUCTION

Urban fountains are in general basins or ponds with sprinkling water or anthrotelmata (sing. *anthrotelma*) – a wide variety of small, temporary water habitats artificially created as a result of human activities (1). Fountains are widely distributed and frequently visited spots in urban areas with historical, esthetical and sanitary function (2). Beside human usage fountains are widely exploited as a water source for birds and other vertebrate and invertebrate taxa. They are often used also by dispersing aquatic insects as a temporary shelter (3). Fountains, as indicated by Smolák et al. (3) are common urban anthrotelmata and can be utilized as breeding sites of epidemiologically significant mosquitoes, and could serve as ideal model systems for studies of island biogeography, colonization dynamics, assembly rules and other ecological topics. Urban fountains could play an important role in the spreading of epidemiologically significant species, e.g. in such habitat in Switzerland, Schaffner et al. (4) found invasive mosquito *Aedes japonicus* (Theobald, 1901). Hamerlík (5), Hamerlík & Brodersen (6) and Bukvová & Hamerlík (7) present a number of records concerning fountains,