

## Introduction to the Special Issue

In spite of being one of the main components in the longitudinal zonation of lotic systems, spring habitats have received much less attention than lakes and streams/ rivers, and are still widely understudied.

However, springs, are seriously threatened by several direct and indirect impacts, the most important being their capture to obtain drinking water, hydroelectric power, etc. This pressure will increase even more in the future: due to climate change, a reduction in, and increasing irregularity of, precipitation being predicted for many areas, including the Alps. In spite of anthropogenic pressures, springs are frequently the last unpolluted, high quality freshwater environments in densely populated areas, acting as refugia for the most pollution-sensitive organisms. The outstanding importance of these habitats for the conservation of freshwater biodiversity is slowly but increasingly being recognized. In an attempt to contribute to the spread of knowledge on crenobiology and to promote awareness of the relevance of these habitats for nature protection, the idea of grouping contributions on crenic biology and ecology in a special issue of an international journal arose. This soon became a viable project thanks to the interest with which our proposal was welcomed by the Editorial Board of the *Journal of Limnology*. Most of the proposed contributions for the Special Issue focused on biodiversity and habitat conservation aspects, so this volume is mainly devoted to these aspects of crenobiology. We think that this is particularly appropriate as the editorial initiative reached its final phase in 2010, the United Nations International Year of Biodiversity. We believe that crenic habitats, if they survive exploitation and can be used in more sustainable ways, will indeed make a valuable contribution to the fulfillment of the motto of the EU Action Plan Halting the loss of Biodiversity by 2010 - and beyond with respect to freshwater. This is especially important since freshwaters, despite covering only a tiny fraction of our Planet's surface,

contain a significant proportion of the overall biodiversity (although often insufficiently appreciated by the general public), and are unfortunately affected by far greater declines in biodiversity than even the most threatened terrestrial ecosystems.

The core dataset that encouraged us to propose a special issue was obtained during a large regional project, CRECODAT ("Biodiversity assessment and integrity evaluation of springs of Trentino - Italian Alps - and long-term ecological research", 2004-2008) initiated and funded by the Autonomous Province of Trento, Italy, south-eastern Alps. During this project a detailed investigation of more than 100 springs, located over a wide range of altitudes and lithologies in the Province were studied. All available spring morphological types, from seepages and tufa springs to large karstic rheocrenes, were considered. The involvement of many taxonomic experts provided the opportunity to study a wide range of different organisms.

In addition, calls for papers from international research groups dealing with crenic habitats allowed the inclusion of contributions from other geographical areas.

This Special Issue contains 13 papers, at least 7 of which are mainly based on results obtained during the CRECODAT Project. Most papers deal with the biodiversity and community ecology of a variety of autotrophic and heterotrophic, macroscopic and microscopic groups of organisms. Several evaluate the relative importance of morphological (from microhabitat to large scale), physical, and chemical factors in determining community composition and structure. Some discuss the conservation implications of the observed patterns. One even applies palaeolimnological techniques to a crenic habitat, showing the effects of land use and management practices around the spring-head. Spatial and temporal changes (from seasonal to long-term) are also considered.

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