



**Protocols for the ASsessment and CConservation of Aquatic Life  
In the Subsurface**

**CNRS - Université Claude Bernard Lyon1**

## **Symposium on World Subterranean Biodiversity**

*Villeurbanne 8, 9 and 10 December 2004*

**Programme and abstracts**

## **ASSESSING THE CONSERVATION VALUE OF GROUNDWATER SPECIES**

**Stoch Fabio**

Dipartimento di Scienze Ambientali, University of L'Aquila, Via Vetoio, Coppito, 67100 L'Aquila (Italy)  
[fabio.stoch@faunaitalia.it](mailto:fabio.stoch@faunaitalia.it)

Indicators used to assess the conservation value of species are of paramount importance for management plans. Usually scores and indices, being simple surrogates of more complex mathematical models, may be easily used in GIS software and are a powerful tool to fill the gaps between hydro geologists, conservation ecologists, cartographers and decision managers, allowing them to deal with the conservation value of species and communities. Conservationists usually assess species conservation value using two kinds of indices: indices of status (e.g. intrinsic properties of species, as endemism or phylogeny) and indices of risk (e.g. influenced by anthropogenic pressure, summarized in the IUCN categories). While widely accepted criteria exist for calculating the indices of risk, the indices of status are usually based on expert systems, and they may be subjective and open to criticism. For this reason, the main objective of the present contribution was to develop a standard method to build conservation indices based on the information stored in the PASCALIS database and on the grid cells used to map the distribution of species over Europe.

Indices to assess degree of endemism, range-size rarity, habitat selection and taxonomic isolation (included phylogenetic relictuality) were developed using normalized values extracted from the database and local biodiversity assessments. Maps of the mean values of each index and of a cumulative index for assessing the intrinsic conservation value of groundwater species in each grid cell were produced. The relationship between spatial patterns of conservation value and diversity (measured as species richness) of local assemblages were studied, and implications for selecting priority areas for conservation are discussed ; furthermore, the limitations to this procedure due to the high level of rarity and endemism of stygobitic species (more than 83 % of them can be defined as strict endemics) are also examined in detail.