

31-P Incorporating invertebrate conservation concern in prioritization of groundwater habitats.

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Selection of priority areas in conservation biology should incorporate an evaluation of the conservation concern of the species that compose different assemblages. In the groundwater dependent ecosystems (GDEs), stygobiotic, strictly GDE-dependent, microhabitat specialised, endemic species are more important – from a conservation point of view – than non-stygobiotic, opportunistic, habitat generalist and widely distributed taxa. To evaluate the conservation importance of GDE assemblages, we used the Crustacea Copepoda as surrogates of the total invertebrate fauna, and developed a conservation priority index based on the degree of stygobization, GDE-dependency, microhabitat specialization and endemism of the species that compose an assemblage. To calculate this index, each species was scored for each of these traits and then received an overall conservation value score that was the sum of the various trait scores. Species scores were finally combined to prioritize sites according to their species assemblages.

To cope with practical difficulties in identifying groundwater invertebrates to species level, we have also developed a second, similar index that expressed conservation priorities on the basis of degree of stygobization, dependence on GDEs and microhabitat specialization at supra-specific level. Focusing on these traits established at supra-specific level, and not requiring the taxonomic identification to the species level, means that even non-specialists can use this index. For this, we considered not only the Copepoda, but also Mollusca, Ostracoda, Isopoda, Amphipoda and Syncarida. Supra-specific level varied among taxa, from species-group to superorder according to ease of identification. Due to the use of supraspecific taxa, we did not consider here endemism. We tested the two indices both karstic and alluvial aquifers in the Lessini Massif (northern Italy). The aquifers were analysed by sampling boreholes in order to allow comparison among sites sampled with the same procedure, thus avoiding the sampling bias related to differences in sampling devices. We found that the two indices tend to be correlated, which suggests that the second one may be used for practical purposes when identification to species is difficult due to the lack of taxonomic expertise. The same approach has also been applied to the smaller aquifer of the River Vomano (central Italy), and the results obtained were similar, suggesting the informative potential of the indices at different spatial scales.

31-P Isotopic assessment of groundwater patterns in an aquifer of the Poopo Basin, Bolivia. *Etzar*

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In the Bolivian highlands, groundwater has become the most important and safe source of water for consumption when rivers and lakes have been reduced due to the effects of climate change. However, thermal saline intrusions and mining activities have reduced the quality of the water in the region. During the Quaternary the Central Bolivian Altiplano was the site of several transgressions and regressions of paleolakes reported throughout that period. The last lake in the region is called Poopo and is the most important discharge zone in the enclosed catchment, although it was declared dried up in 2015 by the Bolivian State due to intense evaporation. The material deposited by the fluvial-lacustrine activity are composed of coarse to fine grain sediments in which the most productive porous aquifers are contained. Decades of exploitation of these groundwater reservoirs, combined with the limited information required to understand the circulation patterns, represent a challenge for the groundwater management. In this study, isotopic compositions of deuterium and 18-oxygen in different stages in the hydrologic cycle are analysed to assess flow patterns in an aquifer supplying Oruro, the biggest city in the region. The most extensive data records of stable isotopes, tritium, radiocarbon and electrical conductivity, have been collected in the alluvial fan of Paria River where a well-field has been exploiting the aquifer in the last fifty years. This study estimates about 80 % of the annual precipitation over the region falls during the summer, from December to March. It is comprised of the most depleted stable isotopic values. This fingerprint is similar to the majority of the groundwater samples collected in wells. The linear tendency of the groundwater isotopic compositions below the Global Meteorological Water Line exposes the effect of evaporation in shallow and intermediate circulation systems. Modern precipitation is the most important recharge source until about 100 m below