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ABSTRACTS

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Census of supposedly troglobiotic and stygobiotic faunas of the Balkan Peninsula

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After the synopsis and thorough analysis by Gueorguiev (1977) for terrestrial fauna and lists in Botosaneanu (1986) for aquatic fauna, this will be a preliminary, updated census and analysis of obligate subterranean faunas of the region. Preliminarily, taxa can be only counted by political regions (states) while a more natural division of the territory will be used for future evaluations.

For Western Balkans (in this study the states of the former Yugoslavia) approximately 16,640 entries (species/locality) have been listed, mainly from the literature; there is approximately 10% redundancy, but a similar amount of published data may have been still left not listed. A high number of new taxa and locality data will be added after study of existing collections.

Balkan Peninsula subterranean fauna (with inclusion of Alpine parts of Slovenia) revealed approximately 1,000 terrestrial and 680 aquatic species; the inclusion of the subspecies would enlarge this number remarkably. By far the richest terrestrial group are beetles (Coleoptera) with over 380 species, which is mainly (93%) Cholevidae: Leptodirinae and Carabidae: Trechinae. Amphipoda, Gastropoda, and Copepoda distinctly dominate the aquatic fauna, with 140-175 species each.

The Balkan subterranean fauna seems to be the richest in the World. The aquatic fauna is particularly rich in the extreme Northwest of the region. Southeastern parts of the Dinaric region are particularly rich in troglobiotic Coleoptera; unique in Dinarides are extremely troglomorphic, leptodiroid, cholevids. Highly troglomorphic carabids are more evenly distributed and present also outside the Dinaric karst.

Some hotspots of species richness and endemism of the genus *Niphargus* (Crustacea, Amphipoda) in Italy: ecological and historical explanations

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The distribution of the species of the genus *Niphargus* in Europe and in the Italian territory is not homogeneous and displays some interesting hotspots of species richness. In Italy few major hotspots of *Niphargus* biodiversity were recognized; the

Venezia Giulia region (close to the Slovenian border), the Lessinian Mountains (Venetian Pre-Alps) and some Ligurian areas are the most important; high biodiversity values were found in some areas of the alluvial Padanian plain as well, while the southern Appennines and the major islands are species poor. Hotspots play a major role in the conservation of groundwater fauna, and several researchers focused their attention on biodiversity patterns during the last twenty years; moreover, the location of European hotspots of groundwater biodiversity is one of the major research topics of the E.C. project Pascalis recently started. Considering that most of the Italian species of *Niphargus* are narrow endemics, biodiversity hotspots may be considered endemism and rarity hotspots as well, increasing their interest. Notwithstanding the importance of hotspots, there is no simple answer to the question: "Why are there hotspots of species richness"? Both historical and ecological factors may concur in explaining their existence; the major aim of this communication is to explore the main factors which determined the location of the major hotspots of *Niphargus* biodiversity in Italy.

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Genetic divergence between cave and surface populations of *Astyanax* in Mexico (Characidae, Teleostei)

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We performed a study of genetic diversity at microsatellite loci to assess genetic relationships among four Mexican cave (Pachon, Sabinos, Tinaja, Chica) and four surface populations of *Astyanax fasciatus* (Characidae). The cave populations with the exception of the Chica form are all characterized by an extremely low microsatellite variability.

Due to the rapid accumulation of microsatellite diversity and the date of origin of cave forms this cannot be explained by low founder population sizes. As the recent population sizes are not low and can also not account for this, it is supposed that bottleneck events may be responsible for this. The genetic differentiation (FST) indicates that no gene flow between all cave and surface populations exists. Except between Sabinos and Tinaja only potential of gene flow can be assumed. For the Pachon cave population we assume that introgression has occurred. The alleged hybrid Chica fish cannot clearly be associated with either the other cave or surface populations. Our microsatellite data indicate multiple origin of *Astyanax* cave populations.