Ecologia della Grotte di Frasassì

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CAVERNICOLE TROPHIC STRUCTURE

Primary source of energy: allochthonous organic matter

Detritivores and decomposers

Consumers I

Consumers II
CAVERNICOLE TROPHIC STRUCTURE

Oligotrophic environment

Distribution of cave organisms: strictly connected to displacement of food resources

Branches and chambers without allochthonous energy input remain uninhabited

Detritivores and decomposers

Consumers I

Consumers II
MOVILE CAVE
Long isolation (500000 years)

No allochthonous energy input

Sarbu et al., 1996
MOVILE CAVE
48 invertebrate species (33 endemics)

Chemoautotrophic ecosystem: methane and sulfur oxidising bacteria
Sarbu et al., 1996
FRASASSI CAVE

Connected to the surface, habitat continuum

Spotted allochthonous organic matter

In the deeper section chemoautotrophic production
67 animal species (15 in sulfidic areas)

Troglobites and troglophilics

Sarbu et al., 2000
Androniscus dentiger

Most abundant terrestrial invertebrate in the cave, endogeanean and hypogean.

Well studied among Italy and within Frasassi cave system (presence of population structure within the cave system. (Gentile and Sarbu, 2004)).

Gentile and Sbordoni, 1998; Gentile, 1998; Gentile and Allegrucci, 1999
Population feeding on food indirectly based on photosynthesis are isotopically differentiated.

Invertebrate communities are based on different trophic sources.

Sarbu et al., 2000
Sampling sites

Mutually isolated

No connections with Grotta del Fiume
CONCLUSIONS

This study highlighted high and unexpected level of structure in populations of
A. *dentiger* within Grotta del Fiume

Although Grotta del Fiume is an open system, the trophic sources displacement can cause, through stochastic and deterministic microevolutionary processes, the differentiation of populations even in absence of geographic barriers.

The sulfidic areas of Frasassi Cave should be carefully managed to ensure adequate conservation of the microevolutionary processes within the cave.
THANKS