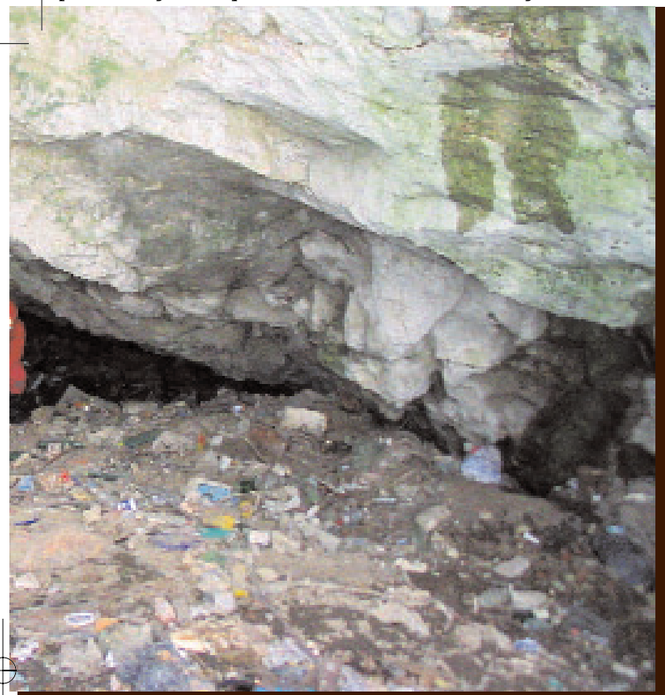

Waste dumping at the entrance of Medvedica cave
Photo: J. Bedek

There are numerous causes which endanger the underground waters and fauna of the Ogulin region. Among the most threatening is the large hydrologic engineering and watercourse changes (e.g. during the construction of the Gojak power plant), next in range are the waste and sewage dumping underground, and the irrational use of pesticides and fertilizers in farming; a physical cave endanger adding to these (as in the Tounj quarry). Major threats also come from many roads and the highway because of possible spillage of dangerous chemicals from traffic accidents. The social and industrial developments have considerably changed the nature of waste, so modern polluting substances such as dangerous chemicals, pesticides, herbicides, detergents, and others are filling the underground water system.

What are everyday protective measures for ordinary people? Primarily, individual waste care is required, followed by rising of environmental awareness. Participation in ecological groups or non-governmental organisations might urge local self-government bodies to appeal for permanent solution to environmental issues instead of taking temporary measures.

Exit from Tounjčica cave in summer and winter
Photo: B. Jalžić and J. Bedek

- There are about 7000 speleological objects registered in Croatia, and at least the same quantity of unregistered ones.
- The longest cave registered in Croatia is the cave system of Đulin ponor-Medvedica, which spreads its length over 16 km lengthwise under the town of Ogulin.
- The deepest hole in Croatia is the hole system of Lukina jama-Trojama in Sjeverni Velebit, and it reaches a maximum depth of 1392 m, making it the 13th deepest hole in the world.

If you want to join and support us in researching and protecting the Ogulin cave sponge, please contact us:
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Design: Sunčica Hrašćanec

Project on the Protection of the Ogulin cave sponge

(*Eunapius subterraneus*), the only subterranean freshwater sponge in the world.

Photo: B. Jalžić

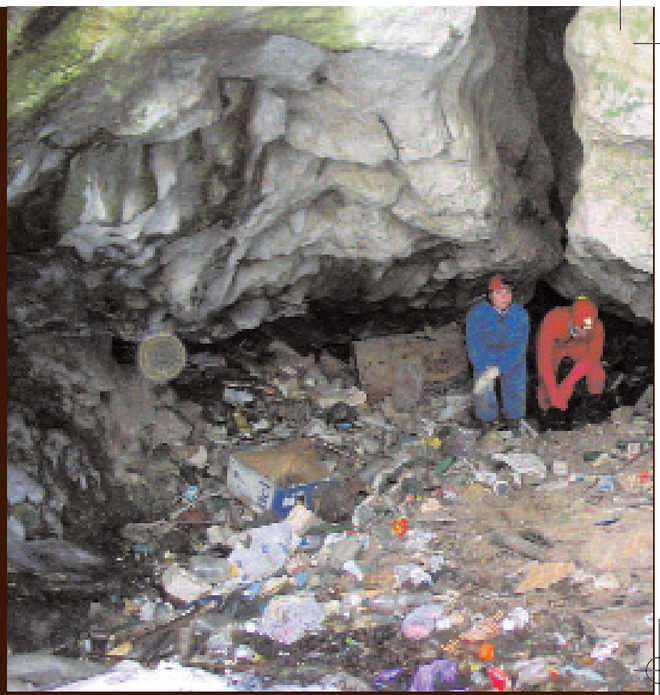
HEAD OF PROJECT: The Rufford Maurice Laing Foundation

IMPLEMENTATION: Croatian Biospeleological Society in cooperation with
- Faculty of Science, University of Zagreb, Biology and Chemistry dept.;
- Croatian Natural History Museum in Zagreb;
- Croatian-Catholic Choir MI, Ogulin.

PROJECT COORDINATOR: Jana Bedek, BSc in biology.

SCHEDULE OF IMPLEMENTATION: preliminary research was accomplished within November 2003 and November 2004. Forward planning of multidisciplinary investigations and permanent observation of the subterranean fauna.

The project is also embodied into the scheme of the Croatian Biospeleological Society: "Conservation of the Croatian subterranean fauna through inventarisation, mapping, education and popularisation II".



The Earth has 70 percent of its surface covered with water, 97 percent of this is saltwater, leaving only 3 percent to freshwater. Human health and social development depend upon water supplies that meet the needs in quality and quantity. There are around 1.2 billion people without access to sufficient drinking water. Underground waters remain a considerable source of drinking water, and it is worthwhile mentioning that 70 percent of European households are supplied by underground water. As the problem of potable water is growing worldwide, it is only to be expected that drinking water reserves will become one of the most important resources. As shown, drinking water should be cared for and used sparingly.

Karst underground streams have a poor natural purification ability against all kinds of pollution. The only way to sustain underground water reserves is to protect the entire underground ecosystem against all modes of pollution, including preservation of the surface karst environment. Opposed to this is the uncontrolled waste and sewage dumping (very much in practice in the area of Ogulin), which endangers ecosystems in all its aspects.

Due to rain and snow melting a variety of toxic and dangerous materials and microorganisms seep into the underground that means to the drinking water reserves: ALL THE WASTE THAT YOU DROP SEEPS INTO THE KARST SYSTEM, AND HENCE YOU WILL EVENTUALLY DRINK IT.

In conclusion, clean karst water is not only crucial to the subterranean fauna but also it is a vital source of potable water, basic to the sustainable development of a region.

The Dinaric karstic area is acknowledged worldwide as the richest reserve of the subterranean water fauna, where the Ogulin region is one of the hot spots of biodiversity with high number of endemic species. This huge variety of water fauna is not only subject to a great scientific interest but also draws attention to the water quality of the region. There have been some 30 true subterranean species recognized so far, with a considerable number of endemic species, but researchers have not yet complete their study of the underground fauna. Among the more important species stated are: Proteus anguinus, olm, strictly protected and put on the European Union list of endangered species; Velikovrhia enigmatica, a unique cave hydroid; Monolistra caeca meridionalis, the Kordun cave waterlouse; Troglocaris anophthalmus intermedia, Babić's cave shrimp; Marifugia cavatica, a cave tube-worm; Dendrocoelum subterraneum, the Ogulin cave planarian, and many others.
The importance of the Ogulin region has also been recognized by the Karst Waters Institute, West Virginia, USA. In 2003 they proclaimed it one of the world's top ten endangered karst ecosystems.

Cave waterlouse in the Spring Rupečica near village Ivanci Photo: B. Jalžić

Ogulin cave sponge (left) Photo: I. Čukušić

In Zala cave near village Gornje Dubrave 17. December 1977, the day when the sponge was found (down left) Photo: B. Jalžić

Olm in the Sinkhole Rupečica near village Ivanci (down) Photo: B. Jalžić

The Ogulin cave sponge belongs to a multitude of over 300 endemic species of the underground fauna in Croatia. It dwells exclusively in the karst subterranean waters of the Ogulin region, and apart from being endemic in Croatia, it is the only known subterranean freshwater sponge, a phenomenon of the world! Investigations so far have proved it most probably a true cave animal, with no proof of any surface habitat in existence. This finding is also supported by some of its functions adapted to life in cave, like the absence of pigmentation, slow metabolism, changes in the physiology of cells and the entire organism, modified multiplication etc.

Sponges are the earliest primitive multi-cell animals. Their stable (non - migratory) life does not give the image of ordinary animals. Most people are not even aware that sponges are animals. Having no real tissue nor organs, their structure is very simplistic. They feed by filtrating water with special cells that stir and soak water so as to absorb the nutritive intake and throw out waste. In this way the Ogulin cave sponge does not differ much from its surface equivalent, but its food supply is meagre. Hence the necessity to adapt metabolism and come to a more efficient use of food intake. Further investigation will explain all its adaptability to unfavorable conditions.

Cavediving in Tounjčica cave near the town of Tounj Photo: H. Bilandžija

Ice stalactites in Tounjčica cave near the town of Tounj Photo: J. Bedek