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1. SPELEOLOGICAL SOCIETY 'ĐULA-MEDVEDICA' AND PRESENTATION OF THE PROTECTION NEEDS AND CONSTRAINTS FROM THE TOWN OF OGULIN

Speleological society 'Đula-Medvedica' is a new society found to promote protection and conservation of the 'Špiljski sustav Đulin ponor – Medvedica'(cave system) which consists of 16.396 metres long network of tunnels.

The Speleological society was founded 29.11.2011., and immediately started its activities by promoting the protection of this cave system. Although the Society is young, the founding members of the Speleological society have years of experience practicing caving in other societies and in addition professional qualifications and understanding of issues of nature conservation and caves protection. Professional qualifications in terms of internships and working in Public Institution for the Protected Natural Values Management of the Karlovac County (Javna ustanova za upravljanje zaštićenim prirodnim vrijednostima Karlovačke županije) „Natura viva“ and execution of the projects in this sector.

The specific feature of the cave system is that it spreads right under the urban area, that is, under the town centre. The town of Ogulin is a unique area which unites the town core, its centre, and the endless network of tunnels and labyrinths situated underneath. There are three entrances into the cave system in the very centre, but they are, due to long-term negligence and reckless disposal of garbage, in a very bad condition. The entrances called Đulin ponor (sinkhole in canyon of river Dobra), Badanj and Medvedica are partially blocked by various waste, garbage, driftwood, plastic packaging, glass, household equipment wrecks, slaughterhouse waste and all other kinds of waste. Large amounts of drifted wood and other debris during periods of high water level periodically cause clogging of Đulin ponor (sinkhole in canyon of river Dobra) and consequently trigger floods in town Ogulin. Đulin ponor is natural sinkhole of the river Dobra in river Dobra canyon.

Moreover, the canals of the cave system are also the place where the sewage from a part of households in the town centre is released. Our wish for protection and conservation of the cave system is even more motivated by the fact that, when Republic of Croatia becomes a member of EU in July 2013, the Špiljski sustav Đulin ponor – Medvednica (cave system) will also become a part of the eco-network Natura 2000.

The most serious limitations, in this case, are the lack of financial input by the town of Ogulin governing bodies, and the fact that its citizens are unaware of the uniqueness and vulnerability of the system. In addition, there is a problem of inexperience in the law provisions application by which this cave sistem, because of long-term negligence and ignoring of the town of Ogulin that influence the situation in its cave system, should be immediately protected .

Through the project "Speleological Educational Path Đula-Medvednica" we, the Speleological Society „Đula-Medvedica“, would like to influence the awareness of the town government, its citizens, and all the people who visit Ogulin and make them pay their attention to this unique phenomenon under our feet. We believe that the project is an ideal, non-evasive and acceptable way to present the unbelievable beauties of the cave system to general public.



The partners in this project are the Town of Ogulin and the Public Institution for the Protected Natural Values Management of the Karlovac County (Javna ustanova za upravljanje zaštićenim prirodnim vrijednostima Karlovačke županije) „Natura viva“, associates are Croatian Biospeleological Society and the Speleological Society Velebit.

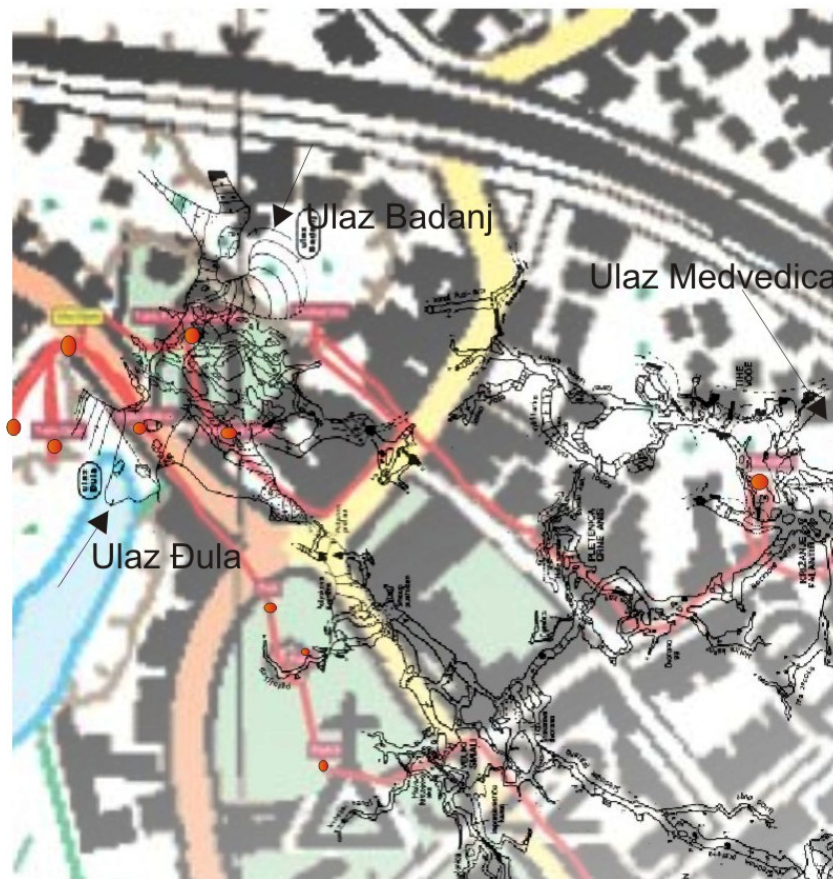
1.1. Project Budget

The total cost of the project development is €26.973,00, including the worth of the voluntary work and our own money which is about €1.878,00.

2. IMPLEMENTATION OF THE PROJECT AND THE RESEARCH

Speleological society “Đula – Medvedica” is running this project from February 2012 to June 2013, but in June 2013 our initiative its not over. We can say that the first phase is at the end and now we can start with other ideas and plans.

Members of the society carry out all the necessary activities for the realization of this project. The planned activities include: organization, gathering and analysis of existing sources on the Špiljski sustav Đulin ponor - Medvedica (cave system), field research, laboratory work and work in the cabinet, preparation of the final elaborate and preliminary and final design of “The Speleological Educational Path Đula – Medvedica”, engagement of the Society in the project related promotion activities and making of texts, translations, illustrations, photos, videos and a bilingual guide “Špiljski sustav Đulin ponor – Medvedica Caving Guidebook”.



Picture 1: Layered display of position of the cave system beneath Town of Ogulin center, one of results of the research.

In cooperation with the institutions and organizations mentioned above, members of the Speleological Society “Đula – Medvedica” did research in order to determine optimal and easily accessible locations for the display boards. We also conducted several underground research of the Špiljski sustav Đulin ponor - Medvedica (cave system) needed for the high quality realization of the educational path. In the underground tours, geological phenomena,

geomorphologic landforms, hidrogeological characteristics, underground fauna and other specific features of this natural phenomenon below Ogulin have been photographed and documented.



Picture 2: Reaserching geological features in cave system.



Pictures 3 and 4: Making of speleological survey for cave entrance Medvedica.

Based on the collected material, the definite plan of "The Speleological Educational Path Đula – Medvedica" with all needed content is made. That includes the making of the plan of the path with a scheme of the exact arrangement of the display boards with their textual description.

For the purposes of this project Speleological Society "Đula - Medvedica" achieved cooperation with the Department for Professional Affairs of the Public Institution for Management of Protected Natural Values of Karlovac County, responsible for legislative oversight and protection of this cave system. Cooperation has been archived with the

administration of Town of Ogulin, which enabled the placement of informative - educational contents in the urban area. Society also has entered into an agreement on cooperation and sharing information of results for expert studies conducted by the Speleological Society Velebit in the period 1984. – 1987.. We also concluded an agreement on cooperation and sharing information for expert materials from the area of biospeleology with Croatian Biospeleology Society.

While doing underground research of the Špiljski sustav Đulin ponor - Medvedica (cave system), the existing sources of pollution, accumulated trash and waste, are photographed and documented. The areas of pollution are analyzed, as well as its effect on the environment during that particular period, conclusions are shown to interested parties of this area.



Picture 5 and 6: Reaserching poluted parts of the cave system.



Picture 7: Squeezing over jammed logs.

Picture 8: Passage filled with logs and other debris.

3. MAIN RESULTS

3.1. Placement of 10 educational panels

Main results of this project is placement of 10 educational panels with the details and photographs of the subterranean area and instructive texts dealing with the cave system right above the underground cave canals. The education panels are placed all over the town area, above the most attractive locations in the cave system which are, because of the entrance distance and the complexity of the cave system, mostly out of reach.



Pictures 9: Educational board marking the position of the pothole entrance Badanj, behind the old castle.

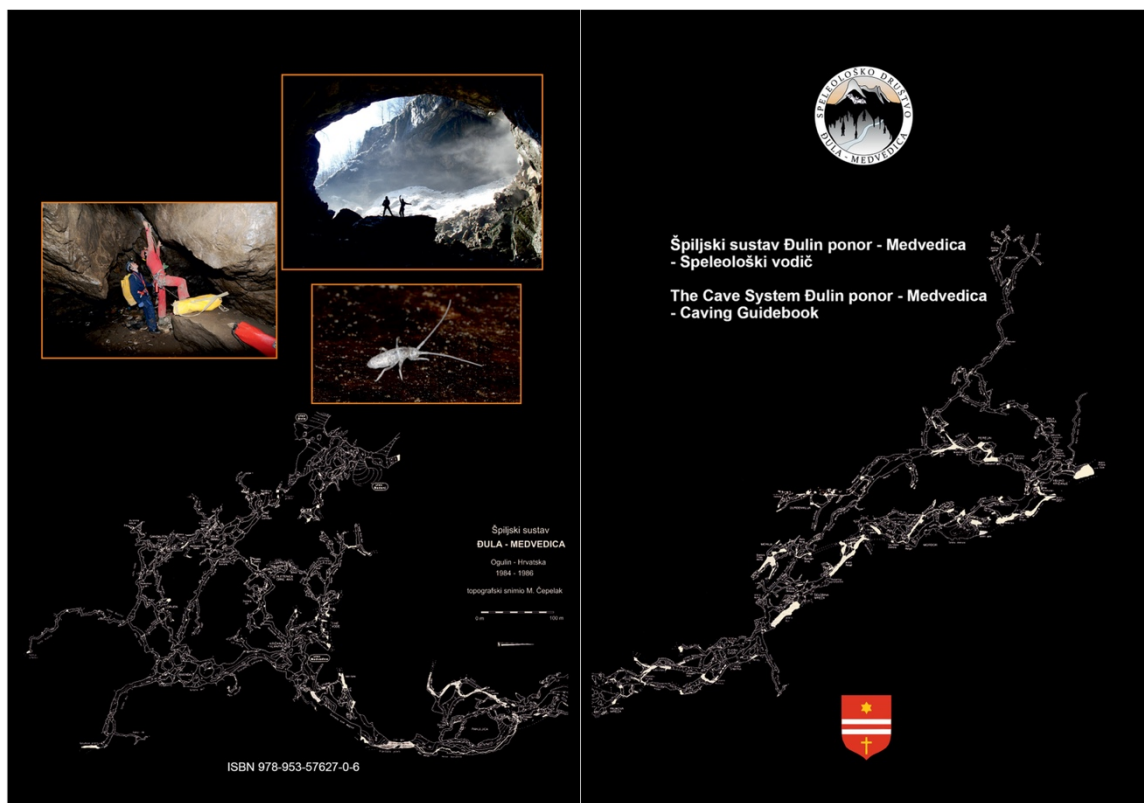


Picture 10: Educational board in the main park of town Ogulin.

We use such approach, the informational/educational, because we would like our visitors to see the cave system without actual entering into the underground canals. Namely, the whole system has a role of the active underground bed of the river Dobra with permanent water-flow inside. During the high water level of the river, the whole system is completely flooded. Besides, the network of tunnels, 16.396 meters long, is extremely complex and demanding, inadequate for sightseeing. The existent situation in the cave system is rather serious because the drift brought by the river Dobra and different kinds of waste have caused the plugging of the cave system syphon and the pollution of the deeper parts of the system. This plugging does not allow the river Dobra to flow away through the system during its high-level periods. In such a case, the tunnels get flooded in a very short time. That is why any visitation of the untrained and unprepared people would be extremely risky.

3.2. „Špiljski sustav Đulin ponor – Medvedica Caving Guidebook“

Apart from the infrastructure part, the instructional paths, we published bilingual speleological manual „Špiljski sustav Đulin ponor – Medvedica Caving Guidebook“ which will provide more information on the cave system.



Picture 11: Bilingual manual: The Cave System Đulin ponor – Medvedica – Caving Guidebook.

3.3. Positive influence on public and administration of Town of Ogulin

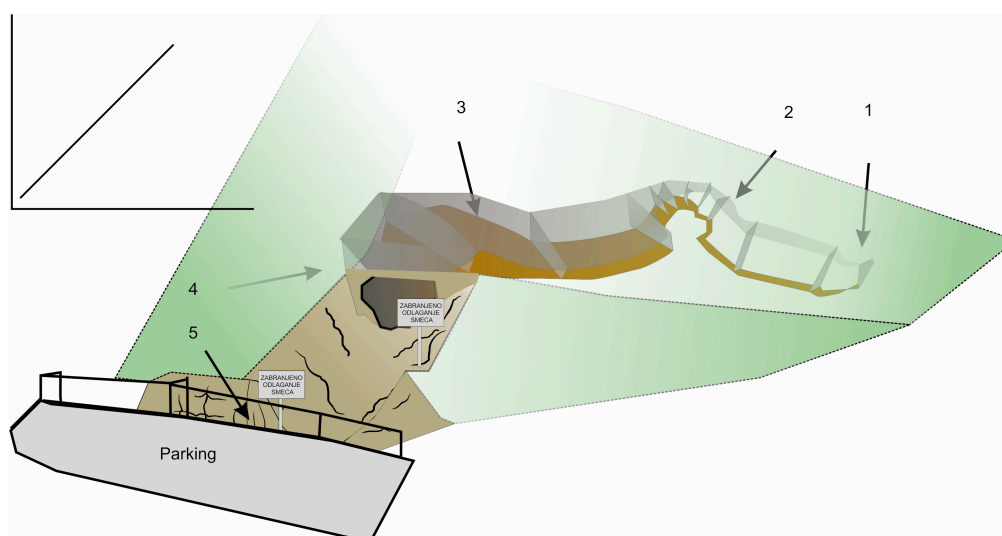
In the Republic of Croatia, all speleological objects are protected by the law. However, the cave which lies beneath the town is exposed to numerous harmful factors. Therefore, our

main idea is to emphasize the importance of protection and preservation of the Špiljski sustav Đulin ponor - Medvedica (cave system) and to start an initiative to properly valorize this natural underground space. This new approach is the first step towards the forthcoming sustainable management of the cave system for the benefit of all citizens and visitors of Ogulin.

The expected results are the higher level of public awareness about this unique phenomenon in Ogulin and the development of the cooperation with the local government and other government institutions in order to finalize the valorization and protection of the Špiljski sustav Đulin ponor - Medvedica (cave system). We consider this project the first step to instigate the legislative protection initiative of the valorization of the cave system by raising the level of public awareness about the uniqueness of that particular area: the town and the cave as a whole. This is accomplished through this noninvasive approach acceptable to all people of the area: by displaying underground beauty in an innovative manner, without physically entering the very cave system which could further devastate the system or endanger the visitors' safety.

3.4. Cleaning of the Cave Medvedica (one of the entrances in cave system)

Apart from the above mentioned informational/educational project, the Society has started removing the waste from the cave system. During 18 full day cleaning activity the Speleological Society “Đula – Medvedica” managed to clean up part of the cave entrance of Medvedica – one of the entrances most seriously damaged by pollution. The estimated area cleared up during these activities is 80 meters long. We worked inside the cave, on the vertical parts exposed to the worst pollution and in the space in front of the cave. The amount of 25 cube metres of domestic waste, glass, plastic package, the bones of slaughterhouse waste and certain amount of medical waste has been removed from Medvedica. The waste was properly deposited and remediated on the municipal waste disposal site by the town of Ogulin utility company.



Picture 12: Areas affected by cleaning from no1 to no5. Estimate area of 80 meters.



Picture 13. Different kinds of garbage.



Pictures 14 and 15: Different kinds of garbage in hard accessible parts of the cave.



Picture 16: Garbage ready for disposal.



Pictures 17 and 18: One small part of the cave entrance Medvedica before cleaning up.



Pictures 19 and 20: The same part after cleaning up.

By cleaning and removing the waste from the entrance of the cave Medvedica, we want to prevent further accumulation of garbage and therefore the amount of pollution. We want to set a good example and influence people to simply stop throwing the garbage into the cave system in the first place. By caring for the cave system, we want to be a good example to citizens of Ogulin and start a positive trend in order to take care of the waste accumulated in the cave system and three cave entrances in Ogulin. We also hope to initiate the local government to take care of the improper waste disposal problems.



4. THINGS LEFT TO DO

To the end of this year we plan to realize modern LED lights on the educational panels so that educational panels will be clearly visible at night. Also, its necessary to continue with cleaning activities in the areas of cave system entrances and other parts of the cave system affected by pollution. We will continue with our promotional activities regarding speleology and this unique cave system.