

The Rufford Small Grants Foundation

Final Report

Grant Recipient Details

Your name	Jana Bedek
Project title	The Conservation of <i>Eunapius subterraneus</i> , the Only Subterranean Freshwater Sponge in the World II– Croatia
RSG reference	26.07.06
Reporting period	December 2007 – February 2008
Amount of grant	£4968.00
Your email address	jana.bedek@inet.hr
Date of this report	21 October 2008

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Produce educational posters (1000)		YES		We produced 800 educational posters and distributed them to local schools and communities. We decided to produce a smaller number than planned due to higher than expected design and printing costs.
Lectures at local schools (April, May 2007), speleological societies, the Faculty of Science			YES	We organised: two open lectures in the town of Ogulin; two lectures at speleological clubs; two children role plays at the library; a lecture at the Croatian Speleological Meeting and a lecture at a local school; eight lectures in total.

Educational trip to one important karst locality for local school children			YES	On 11 November 2007 we organized an educational trip for Zagorje Regional School of the Ogulin First Primary School during our Waste Dumping Clean-up Action for Zeleno jezero (Green Lake) and Ponor Rupećica submerged cave.
Research of One Population's Ecology (Sinjac spring)			YES	We decided that Zeleno jezero (Green lake) is a better site for sponge monitoring than the Sinjac Spring. Although we planned a visit to the lake every two months, we decided that once-a-month monitoring would be more efficient instead.
Research of <i>Eunapius's</i> Distribution			YES	We had 20 fieldwork days (instead of 5 planned). We obtained more funds for this purpose. 2 more localities of Ogulin cave sponge were discovered.
Sources of Endangerment Research			YES	We mapped all sources of endangerment we encountered, tried to find new ones by asking around in the local community and to establish communication with stakeholders to deal with these problems.
Research of Subterranean Biodiversity of the Area			YES	All visited sites were biospeleologically explored.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

Technical problems during the **Research of One Population's Ecology** – In addition to diving in low temperatures and total darkness, muddy water and algae growing on the measuring frame posed a serious problem, which made visibility even more difficult. Likewise, due to data quality, we decided to go diving once a month instead of once in every two months, as originally planned. This required more funds, but fortunately, we obtained additional research funds from the Ministry of Culture.

We planned to conduct the **Research of *Eunapius's* Distribution, Endangerment Sources and Subterranean Biodiversity of the Area** during September 2007, but the groundwater level was high and it was impossible to proceed. We postponed the timetable until the end of January, beginning of February 2008.

3. Briefly describe the three most important outcomes of your project.

1. Due to our activities and media coverage we achieved great results in local awareness. Approximately over 200 local people and children participated in our lectures and the educational trip, but many more people obtained information through media coverage and broadcasting. The results can be shown in several outputs:

I) The Ogulin cave sponge photograph is on the cover page of the local scientific collection of papers, "Modruški zbornik".

II) The "Ecological Group" of Zagorje Regional School of the Ogulin First Primary School presented this Action in "Lijepa naša" Ecological Quiz of Primary and High Schools in 2007/2008 In the Karlovac County, the Quiz was held on 28th October 2008 and they won the **third** place.

III) We were invited to arrange a permanent exhibition on caves and subterranean fauna at **Ogulin Local History Museum**.

2. The Project was noticed by Stakeholders. It can be shown in several outputs:

I) All State institutions for nature protection (Department of Nature Protection, Ministry of Culture; State Institute for Nature Protection) contact us for any issues concerning groundwater protection in the Ogulin region, but also in the country as a whole. The Ogulin cave sponge has truly become an **umbrella species** for subterranean fauna.

II) We obtained some State funds (Department of Nature Protection, Ministry of Culture) for the first time, but also some funds from big state companies like Croatian Waters, "Gojak" Hydroelectric Power Plant and Croatian Electricity Company.

3. We collected very important scientific data through research activities. Another two new finding sites of the sponge were recorded. The data collected about the sponge biology and living conditions are necessary for active conservation of its living area. We have had important achievements regarding other subterranean fauna. We have found several new species of Croatian fauna.

4. Briefly describe the involvement of local communities and how they have benefited from the project (if relevant).

The local community is slowly becoming aware of groundwater as an important source of drinking water and its unique subterranean fauna. All lectures in the Town of Ogulin were organized by "**MI**" **Catholic Committee** from Ogulin. They helped us with all our activities. Members of "**Sv. Juraj**" **Cultural and Artistic Society** from Zagorje were involved in the Waste Dumping Clean-up Actions for Zeleno jezero (Green Lake) and Ponor Rupećica submerged cave. They arranged cheap accommodation for us during research at their hut. The children from the "**Ecological Group**" of **Zagorje Regional School** of the Ogulin First Primary School also participated in the Clean-up Action, which they presented in "Lijepa naša" Ecological Quiz of Primary and High Schools in 2007/2008. In the Karlovac County, the Quiz was held on 28th October 2008, and they won the **third** place. We were invited by

"Katedra Čakavskog sabora Modruše" local organization from Modruš to present project results in the local scientific collection of papers, "Modruški zbornik". The photograph of Ogulin cave sponge is on the cover page.

The main local community benefit from this project is their awareness of the importance of groundwater as an irreplaceable source of drinking water. This is the only way to preserve it. Likewise, the knowledge about extremely high subterranean biodiversity can be very useful for local communities in the future. Unique and interesting species can be used as regional symbols and presented in all types of tourist events, educational activities etc.

5. Are there any plans to continue this work?

We plan to continue with all aspects of our previous work. We plan to arrange a **permanent exhibition** about caves and subterranean fauna at Ogulin Local History Museum to raise public awareness. Objects and photographs that will be shown in the exhibition must be inspected and all additional material gathered or photographed during field activities. We also plan to install **educational boards** at important sites. Dealing with field threats is also one of the main future goals. We will organize more underground **Clean-up Actions**.

It is also important to continue with **scientific research** since it forms the basis of all other activities.

6. How do you plan to share the results of your work with others?

We have already published some results in several different journals:

Bilandžija, H., Bedek, J., Jalžić, B. & Gottstein, S. 2007: The morphological variability, distribution patterns and endangerment in the ogulin cave sponge *Eunapius subterraneus* Sket & Velikonja, 1984 (Demospongiae, Spongillidae). *Natura Croatica* 16 (1), Zagreb. 1-17.

Jalžić, V., Bilandžija, H., Jalžić, B., 2007: Cave diving and biospeleological research of the Town of Ogulin wider area. *Speleoronilačka i biospeleološka istraživanja šireg područja grada Ogulina*. *Speleolog* 54, Zagreb. 36-39.

Bedek, J., Bilandžija, H., 2007: Ecological Clean-up Actions: Rupećica, Zeleno jezero, Izvor Zagorske Mrežnice. *Akcija čišćenja Rupećice i Zelenog jezera*. *Zbornik predavanja sa 8. skupa speleologa, Kastav*. 7-8.

Bedek, J., Bilandžija, H., 2007: Ogulin submerged underground clean-up action. *Akcija čišćenja Rupećice i Zelenog jezera*. *Subterranea croatica* 9, Zagreb. 46-47.

Bedek, J., Bilandžija, H., Jalžić, B., 2008: Ogulin cave sponge *Eunapius subterraneus* Sket & Velikonja, its Distribution, Species and Habitat Ecology. *Ogulinska špiljska spužvica Eunapius subterraneus Sket & Velikonja, 1984, rasprostranjenost i ekologija vrste i staništa*. *Modruški zbornik* 2. 103-130.

The results of this project are used in preparations of the Red Paper of Subterranean Fauna in Croatia.

We have offered our results to the Department of Nature Protection, Ministry of Culture, State Institute for Nature Protection and other institutions involved with nature protection to use them for similar purposes. Our results have already been used for preliminary protection of the Cave in the Tounj Quarry. We also use them to propose new protected areas and sites around Ogulin (Rupečica..), but we have not had any luck so far. Likewise, our results are useful when attempts are made to stop interventions (planned railway, a new hydroelectric power plant on the Dobra River), which are not only harmful to the underground, but also to the entire nature in the area.

7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

We planned to conduct the project in one year, from October 2006 to September 2007. Since the funds arrived in November 2006, we started to work in December 2006. The last project action was organised in February 2008 due to unfavourable weather conditions, as already mentioned. In total, instead of the planned 12 months the project lasted 15 months.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Counterparts wages for fieldwork	£1792.00	£3545.00	£ 1753.00	Additional research
Overnight costs	£216.00	£560.00	£ 344.00	Additional research
Travel	£470.00	£1060.00	£ 590.00	Additional research
Food	£680.00	£1350.00	£ 670.00	Additional research
Alcohol	£10.00	£10.00	0	
Sampling bottles	£10.00	£10.00	0	
Storage bottles	£6.50	£6.50	0	
Tweezers	£7.50	£7.50	0	
Cave led diode lights	£48.00	£48.00	0	
Battery	£125.00	£125.00	0	
Lights for subterranean diving	£200.00	£200.00	0	

Diving suites	£300.00	£300.00	0	
Developing photographs	£200.00	£85.00	£ -115.00	We used digital cameras, so we did not need to develop so many photographs.
Poster design + printing	£300.00	£300.00	0	
Counterparts wages for laboratory work	£600.00	£600.00	0	
TOTAL	£4968.00	£8207.00	£ 3242.00	

£1 = HRK 9.19

9. Looking ahead, what do you feel are the important next steps?

It is vital to continue raising public awareness, especially the children's, and with attempts to preserve important sites in the region. Our next main goals are:

1. To arrange a **permanent exhibition** about caves and subterranean fauna at Ogulin Local History Museum
2. To install **educational boards** at important sites.
3. To organize more underground **Clean-up Actions**.
4. To continue with **scientific research**.

10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

We produced educational posters illustrating drinking water problems and the effects of garbage and other types of pollution on water quality ("Everything you dump in the karst ends up in the glass of water you drink eventually.") with RSGF logo.

The project was covered by different media that mentioned the RSGF:

1. 3 articles in daily newspapers
2. 1 article in weekly newspapers
3. 5 articles in different journals
4. 1 broadcasting on the Croatian National Television
5. 1 broadcasting on local radio (Ogulin)
6. 6 articles on different web sites.

11. Any other comments?

We thank The Rufford Small Grants Foundation for their kind support and we hope to receive more support for our next project to be able to continue with our work!

12. I agree to this report being published on the Rufford Small Grants website

Signed (or print name) _____

Jane Bedek