

## The olm of Hermann's Cave, Harz Mountains, Germany – eggs laid after more than 80 years

### Močerili iz jame Hermannshöhle v Nemčiji po več kot 80 letih odložili jajca

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Since 1931, live individuals of *Proteus anguinus*, the proteus or olm (Fig. 1), have been kept in an artificial environment in the show cave Hermannshöhle (Hermann's Cave) in Rübeland, Harz Mountains, Sachsen-Anhalt, Germany. In 1956, more animals were brought to Rübeland. Originally all animals came from the Postojnska jama and were brought unlawfully to Rübeland (Völker 1981). A total of 20 animals were taken to Rübeland over a period of 25 years (Knolle et al. 2016). In 2015, almost 60 years after the last animal had been put into the artificial lake in the cave, nine of the animals were still alive.



**Figure 1.** The olm in Hermann's Cave (photo: Harald Schütz).

**Slika 1.** Močeril iz jame Hermannshöhle (foto: Harald Schütz).

The situation in January 2015 was as follows: the total number of animals in Rübeland had dropped below 10. The sex of the animals was unclear, but

there seemed to be only males. Reproduction or sexual activity had never been observed during more than 80 years. A decision was made to try to improve the conditions in order for the animals to reproduce. Since the olm is severely endangered, reproduction of the olms seemed an important objective. We also wanted to take the chance to inform the general public about this fascinating species, its origins and importance. First of all, gender determination of the animals was necessary. With the support of Olivier Guillaume from Moulis, France, we identified five females and four males. The determination of the sex was possible because all females bore eggs and males displayed aggressive behaviour. Due to nature conservation there was no authorization to mark the animals individually. All animals were in good shape (Knolle et al. 2016). According to these results, it was decided to find a grant for the further investigation of the olms in Hermann's Cave and for the optimization of the conditions of keeping it.

The objectives of the project, which was supported by Lotto Sachsen-Anhalt and Tourismusbetrieb Stadt Oberharz am Brocken and was conducted by the Harz Speleological Working Group, were: accurate observation and care of the animals, improvement of conditions for the olms in Hermann's Cave, documentation of the situation in the cave (films, photos), establishment of contacts and cooperation with experts abroad, and scientific exchange, all serving to preserve the animals in Rübeland. The project started in November 2015 (Knolle et al. 2016).

In the winter of 2015/2016, new hiding places were created in the pond. The animals started to display sexual behaviour (territorial, slightly aggressive, the females became larger) and we embarked on checking for eggs and spermatophores. In early February 2016, the first spermatophore was found and at the end of February the first egg was detected (Fig. 2).

The eggs were distributed into small basins. Altogether, six eggs were found (Knolle et al. 2016). Unfortunately, the eggs did not develop, with even the last egg drying out in late October 2016. But the animals currently show territorial behaviour and seem to be ready to reproduce.

We would like to cooperate more closely with the laboratories in charge of the olm. With the help of

experts from abroad we hope to further improve the conditions in Hermann's Cave, if necessary. Our aim is to raise awareness among the general public for the needs of protecting this species. In the process we intend to promote the protection of other cave animals as well as the conservation of their habitats. We have applied for additional funding in order to study the olms more thoroughly, for example the animals could become the subject matter of a doctoral thesis.

In the meantime the continuation of the project was ensured by finding a sponsor for another year of work. We will enhance our collaboration with the University of Halle-Wittenberg and other experts.

#### Acknowledgements

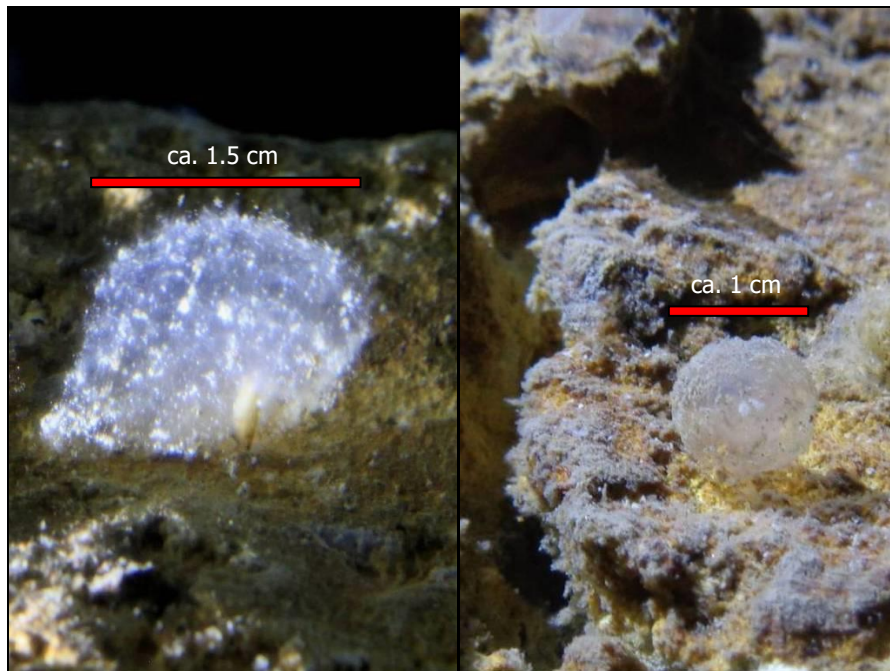
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**Figure 2.** Spermatophore and egg of the olm in Hermann's Cave (photo: Ute Fricke).  
**Slika 2.** Spermatofor in jajce močerila v jami Hermannshöhle (foto: Ute Fricke).