

## International workshop »SOS PROTEUS: Implementation of monitoring and practical actions for the conservation of *Proteus* in Slovenia« / Mednarodna delavnica »SOS PROTEUS: Zagon monitoringa in praktičnih ukrepov za varstvo človeške ribice v Sloveniji«

Gregor ALJANČIČ & Magdalena ALJANČIČ

Tular Cave Laboratory, Society for Cave Biology, Oldhamska c. 8a, SI-4000 Kranj, Slovenia;  
E-mails: gregor.aljancic@guest.arnes.si, magda.naparus@gmail.com

Within the project »With *Proteus* we share dependence on groundwater«, the Tular Cave Laboratory (Society for Cave Biology) organised, together with its hosting partner, the Municipality of Dobropolje, the international workshop »SOS PROTEUS: Implementation of monitoring and practical actions for the conservation of *Proteus* in Slovenia«. It was held on 12. 12. 2015 in Videm – Dobropolje, Slovenia, in memory of the cave laboratory in Podpeška jama (1928–1931), and in celebration of 55 years of the Tular Cave Laboratory.

The International workshop gathered 40 researchers and experts on *Proteus*, speleobiology, karstology, water quality, herpetology, conservation and public outreach from Slovenia, Italy, Bosnia and Herzegovina, the Netherlands and Brazil (Fig. 1). The program of the workshop was divided into three sessions: 1. Present status and threats; 2. New methods and approaches; 3. Discussion, conclusions and next steps (Aljančič & Aljančič 2015). Most lectures from the 1st and 2nd sessions are resumed in this issue of *Natura Sloveniae*.



**Figure 1.** Participants of the international workshop »SOS PROTEUS: Implementation of monitoring and practical actions for the conservation of *Proteus* in Slovenia« (photo: Gregor Aljančič).

**Slika 1.** Udeleženci mednarodnega posveta »SOS PROTEUS: zagon monitoringa in praktičnih ukrepov za varstvo človeške ribice v Sloveniji« (foto: Gregor Aljančič).

The discussions in the 3rd session focused on three main topics composed of the critical issues presented below:

1. Implementation of monitoring schemes and conservation management of *Proteus*

- Systematic collection of reliable data on *Proteus* and groundwater status is urgently needed; standards of future monitoring scheme should be carefully defined.
- Protection of *Proteus* groundwater habitat has only recently been associated with the management of the groundwater dependent ecosystems, hence the ecosystemic approach should be integrated in conservation of *Proteus*; the current assessment of chemical parameters should be supplemented by ecological monitoring of groundwater.
- The implementation of monitoring alone cannot improve the status of *Proteus* if not followed by conservation actions.
- Decision-makers should promptly response to emerging threats, and financial support should be provided for research and conservation of *Proteus* and groundwater in order to meet national, EU and international environmental commitments.
- The extremely rare population of *Proteus anguinus parkelj* is particularly in need of urgent protection; a new threat is rising from overuse of biogas slurry in intensive agriculture, and conservation authorities fail to consider the high vulnerability of karst terrains to pollution caused by nitrates from agriculture.

2. Interdisciplinary partnerships, involvement of the international conservation community
  - Participants expressed the necessity to strengthen the impact of the *Proteus* and karst groundwater research and conservation community by fostering partnerships and interdisciplinary approaches.
  - Sharing knowledge and experience on the preservation of *Proteus*, best practices, particularly on the implementation of the Natura 2000 network is needed among all countries of the Dinaric Karst, particularly in Bosnia and Herzegovina where only around 100 ha are presently protected, with no clear conservation measures defined.
  - The present taxonomic status of *Proteus* as a single species does not reflect its true evolutionary diversity and hence hampers appropriate conservation attention to the most endangered evolutionary units.
  - Pressure on decision-makers, including petitions and support from environmental lawyers should be applied in order to fully implement obligations from national legislation and EU Directives.
  - Major international conservation organizations (herpetological in particular) and EU institutions should be promptly informed on current *Proteus* and groundwater status in the Dinaric Karst in order to raise their attention in urgent search for solutions; a report on the workshop should be sent to the Societas Europaea Herpetologica and IUCN.
  - Reassessment of the present status of *Proteus* in the IUCN Red List should be considered.
3. Role of public promotion at local and international levels
  - All available communication channels (local, national and international) should be used to raise public opinion, explaining the status of *Proteus* and groundwater, emphasizing importance of groundwater ecosystem services such as drinking water supply.

The discussion was closed by a report of Brazilian colleagues on the karst of Minas Gerais, where a rich subterranean biodiversity is threatened by large scale habitat degradation (Travassos 2015). To conclude, the workshop showed that *Proteus* as a flagship species of the endangered subterranean biodiversity could symbolise the joint aspiration of conservationists around the world to solve environmental problems in karst landscapes.

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