

## THE SCIENTIFIC IMPORTANCE OF THE CIOCLOVINA 2 CAVE (THE ȘUREANU MOUNTAINS, SOUTHERN CARPATHIANS, ROMANIA)

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### Summary

**The scientific importance of the Cioclovina 2 Cave (The Șureanu Mountains, Southern Carpathians, Romania)**

The Cioclovina 2 Cave (The Șureanu Mountains, Southern Carpathians, Romania) has an indisputable scientific value due to the evidence on the use of the cave as a continuous habitat for the primitive man and for the animals of the Quaternary period. The deposit of the guano-phosphates found here preserved the cave bear (*Ursus spelaeus*) skeletons and some objects manually processed.

**Key words:** Cioclovina 2 Cave, Șureanu Mountains, Romania, scientific importance

### Rezumat

**Importanța științifică a Peșterii Cioclovina 2 (Munții Șureanului, România)**

Peștera Cioclovina 2 (Munții Șureanului, Carpații Meridionali, România) are o incontestabilă valoare științifică prin dovezile aduse cu privire la utilizarea peșterilor ca habitat permanent de către omul primitiv și animalele specifice perioadei cuaternare. Depozitul de guano-fosfati de aici a conservat schelete de urs de peșteră (*Ursus spelaeus*) alături de obiecte prelucrate manual.

**Cuvinte cheie:** Peștera Cioclovina 2, Munții Șureanului, România, importanță științifică

## INTRODUCTION

Situated in the Șureanu Mountains (Southern Carpathians, Romania), The Natural Park of the Grădiștea Muncelului-Cioclovina is distinguished by the harmonious combination of natural elements that can be seen here as relief, hydrography, vegetation with those that come from human activities: fortresses, water mills, sheepfolds. The dominant note of the landscape is given by the karst relief that occupies the western, south-western and the central

part of the mountains (TRUFAŞ, 1986). The contact with the crystalline rocks and the underground waters lead to complex hydrogeological systems.

The most important caves are *the Şura Mare Cave* (The Karst Basin No. 2065), *The Ponorici-Cioclovina cu Apă Cave* and *The Cioclovina Uscată Cave* (The Karst Basin No. 2063). The Cave *Cioclovina 2* is a part of the Karst Basin No. 2063, situated in the north-western part of the Şureanu Mountains (TOMUŞ et al. 1999).

### The history of *The Cioclovina 2 Cave*

Situated near the entrance of *The Cioclovina Uscata Cave*, *The Cioclovina 2 Cave* was discovered on 1-st of May 1985 by Adrian Farcaş, an amateur speleologist, member of the Speleological Club „Proteus” of Hunedoara town. The first surveying and topography were realized by Ion Nicu, Aurel Circo and Gabriela Circo, members of the Proteus Speleological Club (Fig. 1). In the same time the first scientific observations were done. MARIŞ (1986) described four objects with clearly processing traces.

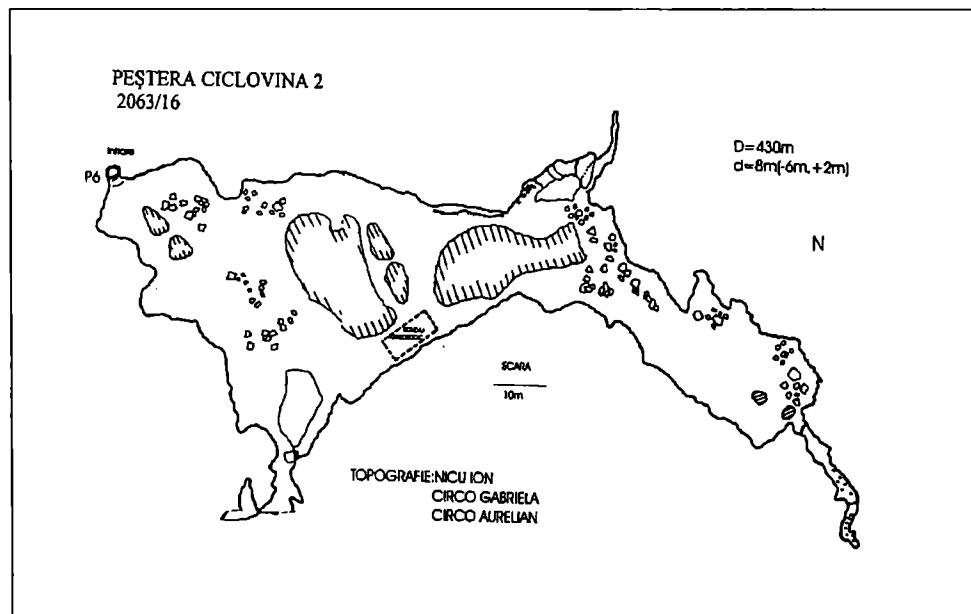


Fig. 1. The Cioclovina 2 Cave. Topography and cartography  
/Peştera Cioclovina 2. Topografie și cartografie  
(after TOMUS et al. 1999)

In 1987, for the restarting of the guano-phosphates exploitation a forest road to the Cioclovina Uscată Cave entrance was made and the access to the area began easier.

Until 1990, many caves, including *The Cioclovina Uscată Cave* and *The Cioclovina 2 Cave*, were explored for their resources of useful substances (BREBAN et al., 2003). A

geological report concerning the guano-phosphates deposits of *The Cioclovina 2 Cave* was prepared by Fusa L. Human works have changed the morphology of the cave and their air traffic system. An anthropic tunnel of 29 m and 20 prospecting wells were effectuated. Quantitative analysis and chemical analysis were carried out. The species of *Ursus spelaeus*, *Cervus* sp., *Mustella* sp., *Canis lupus* and *Crocuta spelaea* were identified in the sedimentary deposits of the cave. At that time the cave floor has kept the marks bunks of the hibernation, coprolites and two skulls of *Ursus spelaeus* Rosenm in a crust of calcite. During 1988-1989 many sections of various depths were made and impressive quantities of cave bear bones have been unearthed. The majority of the osteological fragments of *Ursus spelaeus* are preserved in the collection of the Museum of Deva (Hunedoara County). ONAC, TĂMAŞ & BREBAN (2000) have reported the presence of the „Barenschliffs” (friction marks of *Ursus spelaeus* on the cave wall). In 2004, by starting the project of the National Geographic the cave entered again to the attention of researchers and public.

### **The morphology of *The Cioclovina 2 Cave***

The entrance of the cave is situated in the hill of Dănceşti, at 852 m altitude, on the same alignment with the entrance of *The Cioclovina Uscată Cave*, but with 82 m higher. In the cadastre (land register) of the caves of Romania, the Cave of Cioclovina 2 can be found at no. 16/2063.

The cavity enlargement is 430 m and the dislevelment is of 8 m (-6 m, +2).

The access to the cave is possible nowadays through the natural entrance (a - 6m shaft, with a disclosure of 40/60 cm) (Fig. 2). The anthropogenetic tunnel excavated during the geological prospecting is crumbled. The labyrinthine character of the cavity is given by many pillars which break a unique and great tunnel (about 10-15 m width and 8-10 m in length). Two small lateral and upwards galleries exist, corresponding to some fissures oriented perpendicular to the direction of development of the cave. The shaping of the main gallery was made in two periods: during a phreatic regime (the argument is the marmites of the cave ceiling) and in vadose mode (of free flowing), when, as an effect of the corrosion, the great pillars were formed.

The structure and the granulometry of the sediment deposit, its positioning in the tunnel indicate the different mode of the formation of the sediments. By their origin, two categories of sediments were identified:

Allochton Sediments • sand from an unkarstifiable substratum;

- recent organogenous marks (leaves, snail shells)

Autochthon Sediments • calcite crusts

- osteological deposits

As a regard to the subject matters of speleology the cave is poor in speleothems: small stalactites and stalagmites, stylolites, small veins of calcite, rimstone dams (or gours), microgours (Fig. 3). The barenenschliffs of the cave wall are extremely interesting. They are grouped on 3 m extension at 1-1.30 m from the current level of floor and are located in a narrowing of the gallery. The barenenschliffs indicate the frequent entry of the cave bear in this sector (Fig. 4).

### The Fauna of the cave

**The fossil fauna** is very well represented. The osteological deposit is formed by fragments of *Ursus spelaeus* Rosenm. and other species. The *Ursus spelaeus*'bones are represented by fragments of skull of juvenile or adult individuals, fragments of mandible, isolated teeth, especially canine tooths, limb bones (many fragments of humerus, radius, femur, tibia, metacarpian and metatarsian elements), cervical, thoracic and lumbar vertebrae and fragments of pelvis bones. It is assumed that in the past the access to the cave was represented by other entry as the present one, to small and continued with a shaft.

**The actual cavernicol fauna** is represented by chiropterans such as *Rhinolophus ferrumequinum*, *Rhinolophus hipposideros* and *Myotis myotis*. Some individuals of Araneae, Diptera and Collembola have also seen on the parietal or the floor of the cave. *Scoliopteryx libatrix* and *Triphosa dubitata* (Ord. Lepidoptera, Sord. Heterocera) were collected at the light trap (250 Watt) installed near the entrance of the Cioclovina 2 Cave. *Inachis io* and *Vanessa atalanta* (Sord. Rhopalocera) have been seen hibernating in the cave. *Duvalius budai* Ken., a species of Coleoptera was also found at the entrance of the cave.

### The Degree of the Preservation

The speleothems of the ceiling and walls are perfectly preserved. In the entrance area some smoked inscriptions were seen. Unfortunately, the cave was affected in the period when the access was made by the anthropic gallery. Two great aragonite blocks with traces of burst

to extract crystals exist. The most affected is the osteological deposit as a consequence of the geological prospectings made in the past and of the piracy in the present.

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Fig. 2. The natural entrance of The Cioclovina 2 Cave /  
Intrarea naturală a Pesterii Cioclovina 2



Fig. 3. Rimstone Dams (gours)/Gururi



Fig. 5. Osteological fragments of Ursus spelaeus discovered in The Cioclovina 2 Cave / Ursus spelaeus. Fragmente osteologice descoperite în Pestera Cioclovina 2



Fig. 4. Barendschliffs / Barendschliffs-uri