



Recent events in Tăușoare Cave, Romania

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Abstract. Many explorations took place within the cave in the last 5 years. New galleries and vents have been discovered and explored; many old equipments have been both repaired and replaced, other new ones were placed in new areas for future expeditions. The bat populations increased constantly from year to year, the beech marten has nested in the cave, the bear fossils were brought to light for further classification and conservation. In the near future, a wide chamber in the cave could be open for the tourism. Without a doubt, the cave still has many places and wonders to be discovered.

Key Words: expedition, equipment, bat, fossil, tourism.

Introduction. Rodnei Mountains are located in northern Romania, and more than 90 caves were mapped so far from this area (Chiș 2010a). Without a doubt, the most remarkable one is Tăușoare Cave which, from a scientific point of view, is among the most important caves in Romania, and all kinds of research have been done since its discovery, continuing in the present days as well (Viehmänn & Șerban 1963; Viehmänn et al 1964; Viehmänn 1973; Silvestru 1990; Manolache et al 1991; Cocean 1995; Onac et al 2001; Chiș 2010b; Mureșianu et al 2011; Drăgușin 2013; Gavriiloaie et al 2016).

In this paper we will briefly discuss about few events and discoveries related with Tăușoare Cave which took place in the last 5 years.

Asaltul Tăușoarelor” („The assault of Tăușoare”) expeditions. A series of expeditions took place each year, starting with 2016, continuing in 2017, 2018, and 2019. We do not have any data for the year 2020. The series was named „Asaltul Tăușoarelor” (or „The assault of Tăușoare”).

The first expedition involved a number of more than 20 people (the cave’s custodian, from the Museal Complex of Bistrița-Năsăud county, along with speleologists from Oradea), and took place on 7-9 October 2016, for approximately ten hours daily (Gavrilaș 2016). During these days, the explorers climbed 8 vertical vents (suming 70 meters in total), which represented 25% of the unexplored vents, totalling of 70 m. A new chamber has been discovered (20 m height, 15 m length and 5 m width), and it was name Sala Jderului (Marten’s Chamber) because of the numerous track and feces of the beech marten (*Martes foina*) found on the chamber’s floor. One of the expedition members also discovered a new gallery of 215 m length, which was named Polaris gallery.

The second expedition took place on October 14, 2017, and involved three teams (Sabău 2017a). The exploration started at 10:00 am, when all the three teams entered the cave, the last team leaving the cave at 23:00 pm. One of the teams explored a new vertical vent of 25 m height, and discovered a new active gallery (with 6 diverticula), suming a total length of 250 m. The explorers also left some climbing equipment at the spot for the next expeditions. Few repairs of the old equipment settled on few cascades have been made. The other teams moved to the furthest cave area, escalated a new vent of 25 m height, and discovered a new gallery of 12 m length. Other old equipments

established in the cave were repaired or replaced. During the expedition, the scientists sampled the soil and the percolation water and also analysed the status of the five bat species inhabiting the cave.

The third expedition from this series took place on 27-29 July 2018 (Timponline 2018a). The speleologists mapped one of the galleries, and climbed and explored new vents.

The 4th expedition took place in the last week of October 2019, for three days, involving a number of 14 explorers (Bradea 2019a), which worked for 8 hours each day. This time, the speleologists did not visit the sectors sheltering the karst fauna, along with the sectors with installed equipments which monitor the physico-chemical properties of certain areas. In exchange, one of the main galleries was arranged with specific materials and equipment for the future explorations.

Tăușoare Cave and tourism. Few years ago, few mass media sources (both television channels and newspapers) stated that it is a matter of time until the opening of the cave for the mass tourism. This is not true. It was never about the mass tourism in this cave, because of the very special character of its environment. Any slight change could have huge impacts on the karst itself and on the fauna (Onac et al 2001).

However, local politicians and the cave's official custodian (Museum Complex of Bistrița-Năsăud county) took into consideration to make a compromise between the need of cave's protection and the tourism approach (Sabău 2017b; Timponline 2018b; Bradea 2019b). The intention is to open a new entrance from the Sala Muntelui (Mountain's Chamber), which its peak is only 6 meters below the mountain's surface (see Gavriiloaie et al 2016 for the Sala Muntelui position within the cave). This new entrance could help the speleologist to leave the cave in case some rocks could fall and block the actual entrance. Such massive fall already happened in the past (Gavriiloaie et al 2017a) and the process is continuing nowadays, at a smaller scale. A short touristic circuit could be arranged in this chamber only, all the other galleries, vents, chambers and so on continuing to be forbidden for regular tourists. This could also be a good opportunity for ecological education for the public. So far, the County Council granted a 40,000 RON for a feasibility study concerning the tourism within the cave. There are no other recent information about this matter.

Updates concerning the fauna of Tăușoare Cave. One remarkable fact is a recent shift in the beech marten's behaviour. Its tracks and feces have been observed in the cave few years ago (Gavriiloaie et al 2017a). More recently, deep in the cave, a nest with two dead offspring has been discovered (Gavriiloaie et al 2020). From a troglone species, beech marten shifted to a more troglophile one (Sket 2008). Other similar situations could also be discovered in other caves in the near future, especially in the ones with a severe protection regime.

It is known that the Tăușoare Cave is the habitat of five bat species. From 2014 to 2019 the bat population constantly increased (Figure 1), which shows, on one hand, the destruction of other habitats nearby and, on the other hand, the cave provides optimal conditions both for hibernation and reproduction (Timponline 2019). Until recently, it was thought that the cave is only used for hibernations, but it became a maternity as well, since, starting with the year 2017, there were observed females with offspring in a distant and bottomed gallery (Figure 2). This provides a safe shelter for the females and their youngsters (Gavriiloaie et al 2017b; Sabău 2017b).

The Tăușoare Cave shelters a deposit containing fossils of cave bear (*Ursus spelaeus*) and brown bear (*Ursus arctos*) bones, mixed together in a chamber situated at 4 km distance from the entrance (Mureșianu et al 2011). In May 2019, the bones were brought to the Muzeul Grăniceresc Năsăudean (Năsăud Border Museum) to be listed and conserved (Mesagerul BN 2019) (Figure 3). As a consequence of this action, we hope for interesting scientific results in the future.

DATA	18.11.2014 PH	15.03.2015 H	18.12.2015 PH	17.03.2016 H	24.11.2016 PH	17.03.2017 H	29.03.2017 H	03.03.2018 H	31.03.2019
M.myotis/M.blythii	548	6.480	2.236	3.072	1422	2438	3.148	2.140	3.855
M.emarginatus	4	-	43	-	-	-	-	-	-
Rhinolophus ferrumequinum	39	19	20	11	19	18	20	25	59
Rhinolophus hipposideros	24	19	56	30	61	48	52	37	47
TOTAL	615	6518	2.355	3.113	1502	2504	3.220	2.202	3.961

Figure 1. The bat population estimates during 2014-2019
(Source: <https://timponline.ro/efectivele-de-lilieci-din-pestera-tausoare-in-refacere-spectaculoasa/>).



Figure 2. An offspring (red circle) in a bat colony inside the Tăușoare Cave
(Source: <http://mesagerulbn.ro/video-puii-de-lilieci-de-la-pestera-izvorul-tausoarelor/>).



Figure 3. The bear bones from Tăușoare Cave, arranged in Muzeul Grăniceresc Năsăudean (Source: Mesagerul BN 2019).

Tactical exercise in Tăușoare Cave. On June 14, 2018, a simulation of two types of accidents took place both inside the cave and on the surface (Bradea 2018c; Gheorghe 2018). In the first simulation, 5 speleologists entered the cave and one of them suffered a hypothetical accident caused by a rock fall at 400 m distance off the entrance. He needed to be moved outside, using a gurney (Figure 4). In the second hypothetical accident, another team of 3 speleologists was exploring the surface outside the cave and suddenly the terrain collapsed and two team members suffered multiple injuries. A huge human resource was involved in these exercises, including The Emergency Situations Inspectorate, Salvamont teams (one from Cluj-Napoca county and another one from Bistrița-Năsăud county), Police, Gendarmerie, and others.



Figure 4. Tactical exercise inside the Tăușoare Cave (Source: Gheorghe 2018).

Other aspects. In addition to the above discussed aspects, we also have to mention that the cave was the subject of many educational explorations. There were many documentaries produced by few national television channels, dozens of articles have been written in local and national newspapers. The cave's custodian (Crin T. Theodorescu) made dozens of explorations as well. Basically, each time a television team wanted to produce a reportage or a documentary, the custodian was the one who lead them within the cave. He also gave many interviews for the mass media.

Conclusions. As we can see, Tăușoare Cave is very attractive both for the scientists and the publics. Many important actions took place in the last five years both inside the cave and its surroundings. Many scientific discoveries have been made (including interesting observations on the cave's fauna), many equipments were replaced and other new ones were established in different spots in order to be used in further explorations. Despite the fact that a small portion of the cave is intended to be open for tourism, we hope this will not bring any harm to the very sensitive cave environment. The cave surely has many other wonders to be discovered.

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