



The present day status of a remarkable protected area: Tăușoare Cave, Romania

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Abstract. Bistrița-Năsăud county from Romania has few remarkable caves. The most important is Tăușoarelor cave, discovered in 1955 and placed third from the length point of view and the deepest cave in our country. It is located in Rodnei mountains, at 950 m altitude, near Rebrîșoara village, having 20 km galleries length and 413.5 m depth. It contains cave bear bones, carstic formations, four underground rivers, a 15 m high cascade and a specific fauna. It has only a scientific importance being closed for the mass tourism. Only speleologists full equipped are allowed in the cave, but not more than 120 each year.

Key Words: karst, cave, altitude, Rodna Mountains, bat, ecosystem.

Introduction. In Rodna Mountains, northern Romania, around 90 caves have been mapped (Chiș 2010a), the most prominent one being the Tăușoare Cave, also known as Tăușoarelor Spring Cave ($47^{\circ}26'41.82''N$, $24^{\circ}31'37.87''E$), which is located close to Gersa valley, Rebrîșoara village, on the Bistrița-Năsăud county territory (Figure 1). It was discovered in 1955 by teacher Leon Bârte (Orghidan & Negrea 1984) (Figure 2), who observed some steam emerging from a rock in one of his trips on the mountain; following the steam, he discovered the cave entrance, later exploring few hundred meters with a minimum specific equipment (<http://pesteratausoare.ro/istoricul-descoperirilor/index.html>). The cave entrance is situated at an altitude of 950 m after some authors (Constantinescu 1987; Ghinea 2002; Drăgușin 2013), 964 m after the latest information (<http://pesteratausoare.ro/istoric/index.html>). In terms of altitude this site has a drop of 413.5 m, calculated based on laser telemetry measurements made in 2004 by the Romanian Speleology Federation (Mureșianu et al 2011), which places it as the deepest cave in Romania (Crăciun et al 1979; Constantinescu 1987; Ghinea 2002; Băca 2015; Ciortescu 2015). The cave has 20 kilometers of galleries (Figure 3), thus being the greatest length of the galleries in the Eastern Carpathians (<http://complexulmuzealbn.ro/sectii/pestera-tausoare>; Mureșianu et al 2011; Drăgușin 2013; Ciortescu 2015) being the third in Romanian karst from this point of view, after Vântului Cave from Apuseni Mountains and Topolnița Cave from Mehedinți Plateau (Viehmänn 2004; Sara 2013).

After its discovery the cave immediately drew the interest of scientists in speleology and related fields, because of the special features of this endokarst. The first scientific research of the cave was made by the karst scientist Iosif Viehmänn (Viehmänn & Șerban 1963; Viehmänn et al 1964; Onac 2016). After that it was explored by successive generations of speleologists, both Romanian and from abroad (Viehmänn 1973), the cave arousing most interest in the 7th decade of the past century (Mureșianu et al 2011).

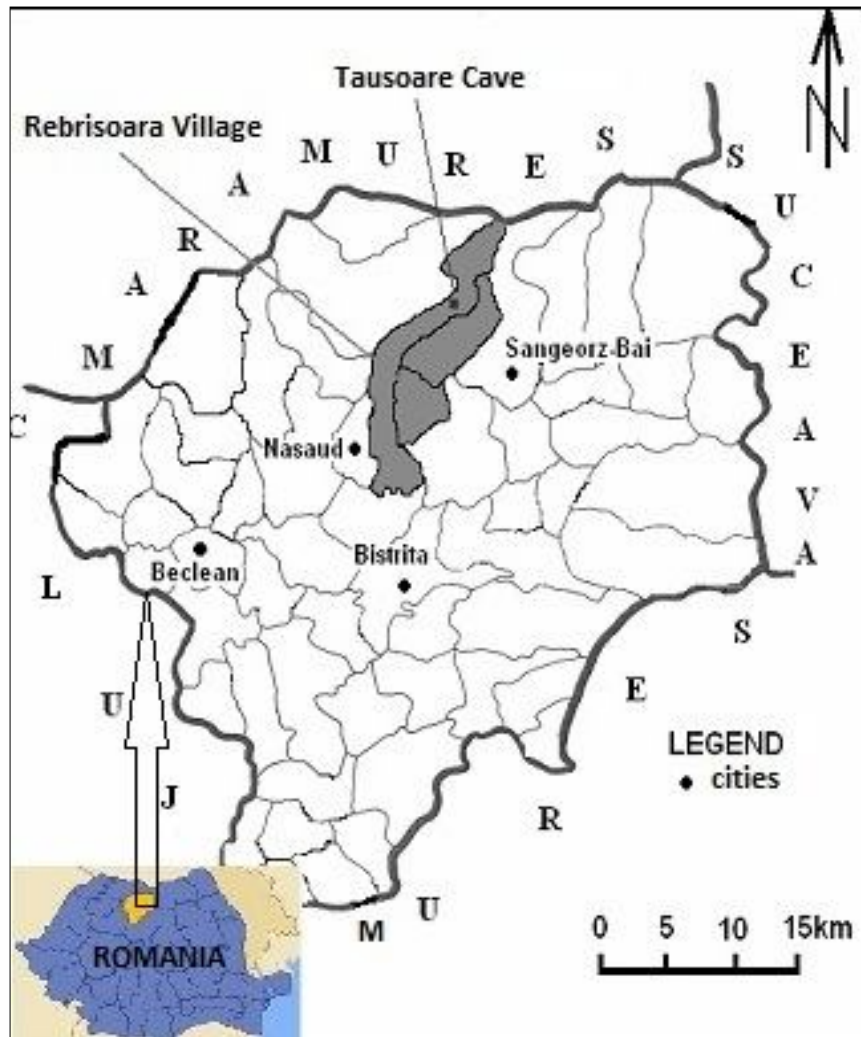


Figure 1. The localization of Tăușoare Cave, Bistrița-Năsăud county.



Figure 2. A plaque with the name of the discoverer of the cave, Leon Birte (Source: iubitoriinaturii.blogspot.ro).

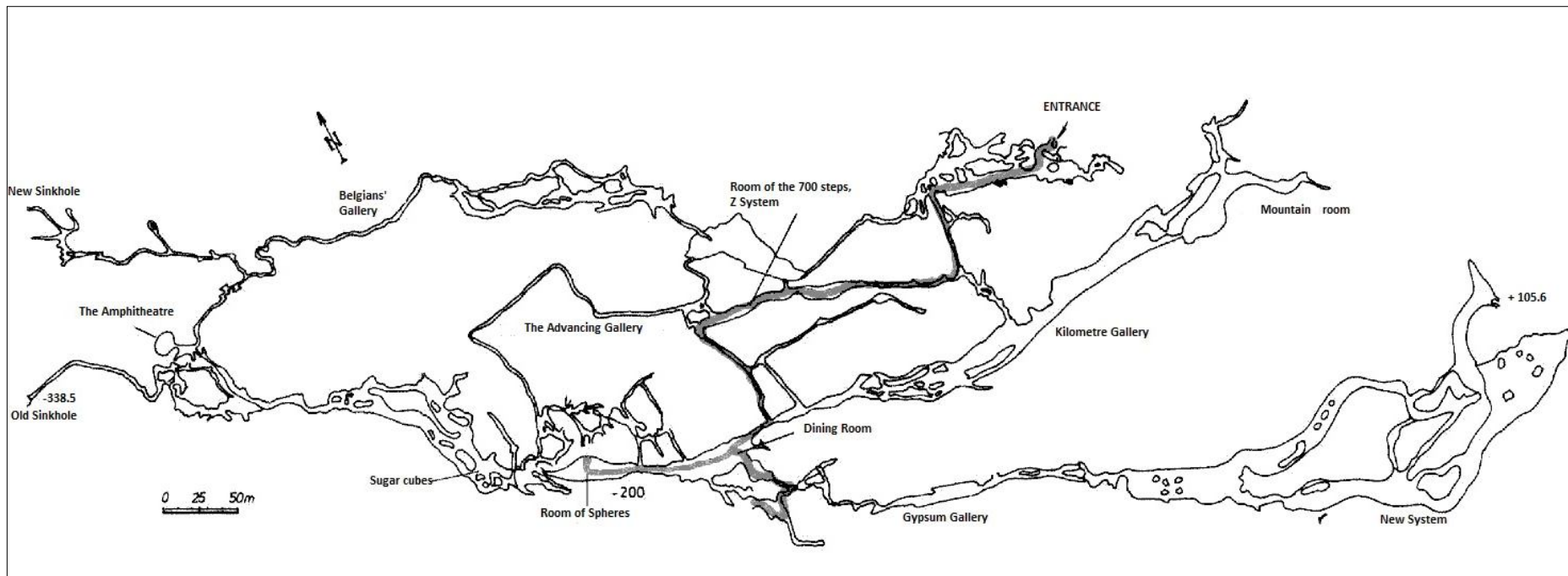


Figure 3. The plan of Tăușoare Cave (after Mureșianu et al 2011).

The relief and climate of the Tăușoare cave. The cave is of tectonic origin (<http://complexulmuzealbn.ro/sectii/pestera-tausoare>; Cocean 1995). Inside the cave you can find some rare and also well preserved speleothems which give the site its very unique and special scientific importance:

- a mineral called mirabilite or "cave hair" (Figure 4), which is an acicular crystal formed in the cave many years after its discovering, on a small surface of only 5 m² in the hall called Dining Room (Silvestru 1990; Onac et al 2001; Mureșianu et al 2011). This mineral is unique in Romania and present only in a few caves in the world (Ciortescu 2015);

- oulopholite or "cave flowers" found especially in the Gypsum Gallery (Mureșianu et al 2011), which are fibrous speleothems, constituted of crystals shaped in a spectacular arrangement (Figure 5);

- the calcareous nodules or so-called "balls" from Tăușoare, in number of 40 (Sara 2013), found in the Room of Spheres (Mureșianu et al 2011) (Figure 6).



Figure 4. Mirabilite ("cave hair") in Tăușoare Cave (photo by Radu Damian).



Figure 5. Oulopholite ("cave flowers") in Tăușoare Cave (photo by Radu Damian).



Figure 6. The calcareous nodules ("balls") in Tăușoare Cave (photo by Radu Damian).

Inside the cave there are 6 water courses along with few minor infiltrations; the cave temperature varies between 6.5 and 8°C with an average of 7.2°C, and the relative humidity is almost 100% during the whole year period (<http://pesteratausoare.ro/istoric/index.html>). It is assumed that the cave has two entrances, the second one remaining to be discovered (<http://pesteratausoare.ro/istoric/index.html>).

The fauna inside the Tăușoare cave. From the microbiologic point of view, the cave is very scarce. There are few arthropod species (amphipods, cyclopids, collembolans, and dipteres). The cave provides shelter for 4 bat species (*Myotis myotis*, *Myotis blythii*, *Rhinolophus hipposideros*, *Rhinolophus ferrumequinum*), who hibernate here during the cold season in big colonies of thousand of individuals (Figure 7) (<http://complexulmuzealbn.ro/sectii/pestera-tausoare>; Chiș 2010b; Mureșianu et al 2011).

The Tăușoare Cave also shelters a fossils deposit of cave bear (*Ursus spelaeus*) and brown bear (*Ursus arctos*) bones, mixed together in a room situated at 4 km distance from the entrance (Mureșianu et al 2011) (Figure 8).



Figure 7. Bats inside the Tăușoare Cave (Source: <http://pesteratausoare.ro/galerie-foto/index.html>).



Figure 8. Fossil deposit of cave bear bones in Tăușoare Cave (Source: <http://pesteratausoare.ro/galerie-foto/index.html>).

Tăușoare cave protection. Since its discovery the cave benefited of no protection measure until 1970, when a wooden gate was installed at the entrance. Starting with that moment the cave was under protection of "Emil Racoviță" Speleological Institute from Cluj-Napoca and a local warden was hired until 1989, when another warden took his place until 2004 (Mureșianu et al 2011). Starting with this year the cave benefits of the

custody of a real speologist. Since 2005 a new gate made of iron is installed at the cave's entrance (Figure 9).



Figure 9. The iron gate at the cave's entrance (Source: iubitoriinaturii.blogspot.ro).

The cave received the first governmental protection in 2000. Starting with 2007 the cave was integrated in the European ecological network Natura 2000 (SAC –Special Areas of Conservation), established through the *Habitats Directive* (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora). Under these circumstances, the cave receives the indicative ROSC10193 Peștera Tăușoare (Mureșianu et al 2011; Băca 2015; <http://apmbn.anpm.ro/-/natura-2000---sci-in-judetul-bistrita-nasaud>). The custody of the cave was finally granted to the Museum Complex Bistrița-Năsăud in 2010 (<http://complexulmuzealbn.ro/sectii/pestera-tausoare>). A comprehensive and updated information concerning the cave can be found on its website (<http://www.pesteratataușoare.ro/>), the only disadvantage being that the content of the website is written only in Romanian. In the end we wish to clarify one more important issue. It was stated on some mass-media channels that the cave is open for the mass tourism, which is totally untrue. The cave can be only visited for scientific, ecological and didactic purposes, no more than twice a month, no more than 120 people in a year in order to preserve the integrity of this remarkable place.

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