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CAVE BEAR (*URSUS SPELAEUS ROSENMÜLLER & HEINROTH*) MALES' DEN FROM VELIKA PEĆINA IN DUBOKA NEAR KUČEVO (EASTERN SERBIA)

by

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More a 100 years after the first research in the cave Velika pećina in Duboka near Kučevo cave bear remains were discovered in a small chamber cut off from the passable channels by a 7 m high slope. A whole skull, bones of a forearm in articulation, and other skeleton parts were laying on the cave floor en-crusted in travertine cover and in some places overgrown by stalagmites. Bones belonged to adult males, which found there the shelter to hibernate, in a short epizode that ended by closing the channels that once linked this part of the cave to a surface.

Key words: cave bear, Upper Pleistocene, Serbia.

После више од 100 година од првих истраживања у Великој пећини у Дубокој код Кучева откривени су остаци пећинског медведа у малој дворани одвојеној од проходних канала одсеком високом 7 m. Цела лобања, кости предње ноге у природном положају и други делови скелета лежали су на поду пећине местимично прекривени карбонатном превлаком и сталагмитима. Припадали су одраслим мужјацима, који су у пећини нашли склониште током зимског сна у једној краткој епизоди која је завршена затварањем канала који су некада повезивали овај део пећине са површином.

Кључне речи: пећински медвед, горњи плеистоцен, Србија.

GEOGRAPHICAL POSITION AND GEOMORPHOLOGY OF THE CAVE

Velika pećina (Great cave) in Duboka is situated 2.5 km north of the village Duboka near the small town of Kučevo in Eastern Serbia (Fig. 1). Locally it is also known as "Dubočka" cave, or as "Gaura Mare". It is formed in carbonate uphill of Dubočka

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Rudina, in the region named Krš. Out of the cave, below the noticeable slope of several tens of meters in height, a short current rising and flowing into the rivulet Valja Mare. The total length of the cave is 2734 m.



Fig. 1. Geographical position and position of passages of Velika pećina in Duboka in relation to topographic surface.

Сл. 1. Географски положај и положај канала Велике пећине у Дубокој, у односу на топографску површину.

Fig. 2. Entrance to Velika pećina in Duboka, photographed from the east in November 2001.

Сл. 2. Улаз у Велику пећину у Дубокој, снимљен са истока новембра 2001.

The first one to research the cave was Jovan Cvijić who published the results already in 1895, such making Velika pećina in Duboka one of the first caves to be ex-

plored in the history of Serbian karstology. After Cvijić, the cave was researched by Branislav Jovanović (1951), and Student speleologic and alpinistic club (ASAK) (Stošić, 2000).

Velika pećina in Duboka is formed in Tithonian limestone, overlaid by Lower Cretaceous limestone. Upper Miocene deposits (sands, gravel and clays) laying over Paleozoic bedrock are found east to the carbonate massive (Kalenić & Hadži-Vuković, 1980).

The cave is of a tunnel type, and is passable from the stream-sink (inflow entrance) to the spring (outflow entrance). Inflow entrance is found at the altitude of 375 m, and outflow at 345 m. Main passage is hydrologically active in wet season, while in the course of dry periods water remains only in few small lakes along the passage. Continual hydrological activity characterises the lowermost horizon of the cave, which is passable 40 m of its length. This lowermost horizon is found approximately 20 m beneath the main passage. The water flowing through it appears at the spring located below the outflow entrance. The main channel has expressive erosional morphology, with characteristic shapes in bedrock like erosion potholes and large quantities of debris, while chemical deposits are found only in the ceiling. Chemical sediments are common in two lateral passages, and clastic deposits are finer grained, while water is present only in the form of drip-water. The second lateral passage is particularly interesting since it encompasses the sole connection between the upper and lower horizon (through a pit 18 m deep). Moreover, it contains the so-called "High passage", which differs in structure, lithology, as well as morphology from other parts of the cave (Zlokolica-Mandić et al., 2001). The entrance to the "High passage" is above 7m high vertical slope, and has been discovered just recently (Stošić, 2000), more than 100 years after the first research in the cave. Eastern branch of the "High passage" is a rising, cascading passage, covered with calcite. It leads into the so-called "Collapse chamber". This chamber has dimensions of 10×25 m, and it is covered with large quantities of blocks and rock fragments from which many tall and thin stalagmites are rising. In the continuation of the "Collapse chamber" another chamber is situated, which is named "Cave bear chamber" (Figs. 3, 4). It is an irregular chamber with three branches, filled with clay and rock fragments overlaid by a travertine cover with small stalagmites. Its distance from the outflow entrance is approximately 1200 m.

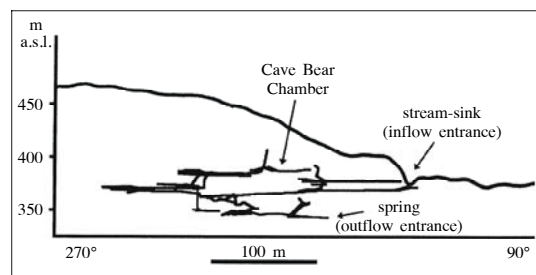


Fig. 3. Projected section of Velika pećina in Duboka and topographic section (projection to plane 270–90).

Сл. 3. Пројектовани профил Велике пећине у Дубокој и топографски профил (пројекција на раван 270–90).

Paleontological findings in this chamber drew attention to the possibility of its former direct connection to the topographic surface, since it is highly improbable that ani-

mals would come into the chamber throughout the main and the second lateral passages, and across the vertical slope beneath the entrance into the "High passage". The entire eastern branch of the "High passage", and especially the "Cave bear chamber" are positioned close to the recent topographic surface. The limestone cover layer is approximately 20 m thick. It is reliable that direct connection with surface existed in the past. The causes of its closing may be either filling up of the passages with large quantities of clastic sediments, formation of calcite deposits which closed the passages, or rock collapse induced by tectonic activity.

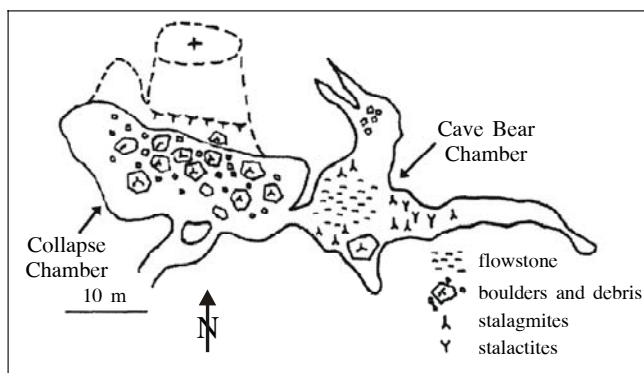


Fig. 4. Ground-plan of "Collapse chamber" and "Cave bear chamber" in the "High passage".
Сл. 4. План Саломне дворане и Дворане пећинског медведа у Високом каналу.

THE CIRCUMSTANCES OF FOSSIL BONES DISCOVERY

The first notion of the fossil bones in Velika pećina in Duboka is made by members of the ASAK speleological club (Stošić, 2000). In November 2001 the joint expedition is organized in which the authors of this paper took part, as well as Ana Skočajić and Slobodan Stokić, members of the ASAK speleological club. Thereafter, the chamber in which the fossil bones were found was called "Cave bear chamber".

Seven meters high vertical slope that has to be overwhelmed in order to reach chamber with fossil finds, although making paleontological expedition difficult, gave an extraordinary situation where fossil bones were found undisturbed since Pleistocene.

The fossil bones were laying on the cave floor: a skull, vertebrae and tibia near a large stalagmite close to the southern wall of the chamber (Fig. 5); bones of the forearm in articulation under the group of stalagmites clustering at the entrance to a channel stretching from the chamber to the east (Fig. 6), and fragmented skull, mandible, left and right innominates and femora close to the wall of the northern, bifurcated channel. The bones laying on the ground were coated by few millimetres thick calcium-carbonate cover. On some of them there were stalagmites, like a group of small stalagmites on the distal parts of articulated ulna and radius (Fig. 6), or 23 cm high stalagmite on the incisive part of a mandible (Fig. 7). Many bones were variously stained in reddish and blackish shades, originating from manganous and ferrous oxides precipitated under high humidity conditions.



Fig. 5. Cave bear skull (A), epistropheus (B) and tibia (C) on the cave floor *in situ*.
Сл. 5. Лобања (А), епистрофеус (В) и тибија (С) пећинског медведа *in situ*.



Fig. 6. Cave bear bones of a forearm in articulation: A– humerus, B– ulna, C– radius.
Сл. 6. Кости предњег екстремитета пећинског медведа у артикулацији: А – хумерус, В – улна, С– радијус.

The situation in which the bones have been undisturbed since Pleistocene is rather rare, and we considered the option to leave them as they are. But, since it would not be possible to study bones at the spot and come to conclusion on their disposition, and that they would be accessible for observing only for a small number of trained speleologists, we concluded that better solution would be to collect fossil material and transport it for studying, taking care not to make more disturbance in the "Cave bear chamber" than necessary.

Lifting the bones from the ground required in some instances, i.e. when lifting the skull, breaking travertine encrust. Beneath lifted bones mostly angular limestone debris appeared with wet clay in interspace. Dimensions of angular particles averaged 5–10 cm. It was almost impossible to dig through this limestone debris layer, and wherever we probed it appeared not to contain fossils except within its superficial part.

Fossil bones are well preserved. There are no traces of transportation, either by water current, or the so-called dry transport (*charriage à sec*). There are no damages made by animal gnawing, neither anthropogenous breakage nor disturbance. Unfortunately, bones were not easy to excavate without damage. Those that were carbonate encrusted remained perfectly preserved, but in few instances broken when lifted from the ground. Bones that were in contact with wet clay were prone to disintegration and their damage was not always possible to avoid during both the excavation and transport.

In the course of our digging undertaking, we tried to gather as much as possible complete and representative sample, but were confronted to both time and carrying capacity limits. We intentionally omitted to bring several vertebrae and ribs, and left behind some bones whose separating from travertine encrust would take too much effort.

Numerous bones of bats that still inhabit the cave were found on the cave floor. Mostly those bat bones are recent and subrecent, but their earlier existence is ascertained too, since few are found beneath the travertine crust on the cave bear skull.

CAVE BEARS REMAINS

Material

4 skulls: DUB 01/1 (profile length 445 mm, muzzle height 79.8, infraorbital height 98.6, frontal height 144.9, cerebral height ≈ 118.2 , muzzle breadth 108.5, infraorbital breadth 95.4, frontal breadth 135.2, zygomatic breadth 274.8, posterior cranial breadth < 208.0 , C–M2 length 176.7 mm, mesio–distal breadth canine crown 20.4, P⁴–M² length 90.9, P⁴ length 20.1, P⁴ breadth 14.8, M¹ length 29.1, M¹ breadth 20.5, M² length 46.4, M² breadth 24.7), DUB 01/2 (cerebral height 123.9, zygomatic breadth 277.8, posterior cranial breadth 203.2, greatest breadth of the occipital condyles 80.5 mm, P⁴–M² sin. length 87.3, P⁴ length 20.0, P⁴ breadth 15.1, M¹ length 29.2, M¹ breadth 19.2, M² length 43.0, M² breadth 23.3), DUB 01/5 (greatest breadth of the occipital condyles 94.3), DUB 1/4 (fragment of the brain case with coalescence point of sagittal and occipital crests, and basal portion of left zygomatic arch with mandibular articular fossa).

3 left mandibles: DUB 01/6 (mesio–distal breadth canine crown ≈ 21.5 mm, P₄ length 15.2, P₄ breadth 10.3), DUB 01/7 (height vertical ramus 156.5 mm, mesio–distal

breadth canine crown 24.2, length canine – articular process 288.5, alveolar length P₄–M₃ 108.9, M₁ length 31.2, M₁ breadth 15.8, M₂ length 30.6, M₂ breadth 19.5, M₃ length 25.5, M₃ breadth 21.0), DUB 01/8 (height vertical ramus 131.2 mm, length P₄–M₃ 102.7, P₄ length 15.2, P₄ breadth 10.1, M₁ length 29.7, M₁ breadth 14.4, M₂ length 30.6, M₂ breadth 18.6, M₃ length 26.2, M₃ breadth 19.7),

epistropheus DUB 01/13 (greatest corpus length including the dens, 88.7 mm, arch length 103.3, cranial articular breadth 84.5, height 111.5),

cervical vertebra DUB 01/14 (breadth cranial articular surface 50.2 mm)

3 costae,

3 left distal scapulae: DUB 01/18 (maximal breadth of processus articularis 109.4 mm, glenoid length 80.5, glenoid breadth 57.4), DUB 01/19 (glenoid breadth ≈52), DUB 01/20 (glenoid length 75.6, glenoid breadth 52.8),

right pelvis fused with sacrum, DUB 01/21 (physiological sacrum length – from the anterior centre of the first sacral to the posterior centre of the last pseudosacral 255 mm, breadth of sacral cranial articular surface 83.8, acetabulum length 71.2),

left and right pelvis: DUB 01/37 (acetabulum length 70.2 mm, ilium height 60.6), DUB 01/23 (acetabulum length 71.7, ilium height 58.8),

right humerus: DUB 01/24 (proximal breadth 90.8 mm),

left and right femora: DUB 01/25 (length 475 mm, proximal breadth 130, smallest breadth of diaphysis 44.4, distal breadth 102.8), DUB 01/26 (length 475 mm, proximal breadth 132, smallest breadth of diaphysis 46.5, distal breadth 103.7),

left and right radii: DUB 01/27 (proximal breadth 50.2 mm), DUB 01/28 (proximal breadth 56.6),

2 left and one right ulnae: DUB 01/29 (length 395 mm, greatest breadth across coracoid process 64.2, depth across processus anconeus 83.6), DUB 01/31 (length 384, greatest breadth across coracoid process 63.1, depth across processus anconeus 77.4), DUB 01/30 (greatest breadth across coracoid process 66.4),

left and right tibiae: DUB 01/33 (proximal breadth ≈100.6 mm), DUB 01/32 (length 310.4, distal breadth 77.7),

left fibula: DUB 01/34 (length 254.7 mm),

right third metacarpal: DUB 01/35 (length 81.6 mm, distal breadth 25.2),

and right fourth metacarpal: DUB 01/36 (length ≈80.6 mm, distal breadth ≈24.7).

Measurements are taken after Cordy (1972) (cranial) and Drieck von den (1976) (cranial and postcranial).

Cranial remains are most numerous, and they show that we deal with remains of at least four individuals. In addition to one almost complete skull (DUB 01/01) and one rear portion of the skull with complete braincase and fragmented maxillae (DUB 1/2), there is one damaged braincase with occipital condyles and one braincase with sagittal and occipital crests coalescence at the highest point of the skull.

The best preserved skull (Fig. 5A) was found laying on its basal side and covered with few millimetres thick carbonate coat which from the sides of the skull was continuing into the travertine cover of the cave floor. The base of the skull together with its teeth lay in the wet sediment consisting of carbonate angular debris with clay. The inci-

sive part didn't survive removing from the ground and transporting the skull from the cave, since the wet alveolar bone practically disintegrated, and only right I³ remained in its alveoli. Occipital condyles were also broken in the course of the removing the skull from the ground.

A strong sagittal ridge and protruding frontals, so-called glabella, mark a skull profile contour. This is utterly characteristic for the cave bear, *Ursus spelaeus* Rosenmüller & Heinroth in contrast to other members of bear family including contemporary and still living brown bear, *Ursus arctos* Linnaeus, or the Middle Pleistocene cave bear ancestor *Ursus deningeri* Reichenau. Protruding glabella is also a sex marker, indicating that this skull belonged to a male, which is supported also by size of canines (mesio-distal breadth of crown 20.4 mm). Although some overlapping in male/female canine size in the entire species range does occur, their distinction is evident in particular populations (Kurten, 1955). Among cave bear remains from Serbia it is established that mesio-distal breadth of canine crown in females hardly reach 17 mm, while mostly this dimension in males is above 19 mm (Dimitrijević, 1991, 1997).

The size of the skull is compared to the size of cave bear skulls known from the Pleistocene cave deposits of Serbia: two males from Risovača, two males from Prekonoška, a male from Vreška and a male and a female from Petnička cave (Dimitrijević, 1997, Table 6, Fig. 41). It is found to be similar to a rather small male skull from the Vreška cave. Almost all cranial sutures are ossified, except those between maxillary and nasal bones. Teeth morphology is typical for cave bears: P⁴ is a single premolar, and molars have broadened crowns with many accessory cusps. Canines are apically worn out, while premolars and molars are in advanced wear stage. Accordingly, skull belonged to a mature bear.

The second skull was much more damaged in the course of excavation, and its cerebral portion could not be reconnected to the belonging left and right maxilla. It is somewhat larger than the first skull, according to its zygomatic breadth, although its premolar-molar tooth row is slightly shorter. Marked glabella and strong sagittal crest point to a male too, and teeth wear pattern to a mature animal, but slightly younger than the first one. The third skull was consisting of the basal part with occipital condyles and bases of zygomatic arches. Brain case is damaged in the region of sagittal crest and anteriorly broken at pterigoids. Breadth of the occipital condyles point to a larger skull than two previously described, and most probably a male. Pitting at squama occipitalis and zygomatic bases indicate osteoporosis, while roughens of muscle insertion surfaces show that most probably skull belonged to a mature if not to a senile animal.

The fourth skull is represented by two fragments impossible to reconnect: a fragment of the brain case with the summit where sagittal and occipital crests are coalescing, and fragmented left zygomatic arch with mandibular articular fossa. Closed sutures, robustness of brain cases and sagittal and occipital crests indicate adult animal, most probably a male.

Among three left mandibles recovered, two belong to adult males according to the size of canines, while canine of the third is not observable since it is completely enveloped by a stalagmite (DUB 01/8) (Fig. 7). One of the mandibles (DUB 01/6) is found on the same place with the damaged skull consisting of the brain case and left and right

maxillae, their wear stage is similar, and it may be possible that they belonged to the same animal. It has only canine and fourth premolar in alveoli. Canine size indicates a male. Another mandible (DUB 01/7) has canine and three molars in alveoli. Molar crowns show advanced stage of wear, indicating mature bear. Mandible with stalagmite has complete premolar–molar row. Teeth crowns worn to dentine indicate mature animal and similar wear stage as in the skull DUB 01/1. These mandible and skull are found close to each other, they are of corresponding size and wear pattern, so presumably they belonged to a single animal.



Fig. 7. Cave bear lower jaw (A) with a stalagmite 23 cm high grown up above its incisive part.
Сл. 7. Доња вилица пећинског медведа (А) са сталагмитом висине 23 cm излученом на њеном предњем крају.

An epistropheus and another cervical vertebra are found near the skull, but not in the anatomical position. A proximal tibia, broken at the middle of diaphysis was at the same place. Epistropheus and tibia were enveloped in the thick carbonate cover of white colour (Fig. 5). Contrary to all other remains, cervical vertebra might belong to a not fully-grown animal: its caudal articular surface is not fused.

Left and right innominate, and left and right femora probably belonged to a single animal, according to their size and fitting of femora caputs into the pelvic acetabuli. The bones are unbroken and bear similar shades of blackish and reddish staining. Another right innominate is found fused with sacrum. The sacral body consists of seven completely fused sacral and pseudosacral vertebrae. Tendency to ankylosis in the sacral region in old animals is common in cave bear (Reynolds, 1906).

Belonging to the same animal is certain for the bones of a forearm – right humerus, ulna and radius, found lying on the cave floor in anatomical position (Fig. 6). All three bones were whole when found, but humerus and radius distal parts damaged when lifted under the stalagmites. Beside these, there are more findings of the whole extremity bones: another complete ulna, a tibia, and a fibula, as well as two metacarpals. While whole metapodials and short bones are not rare findings in cave deposits, this is not the case with long bones: there are only few specimens with measurable length collected from caves in Serbia (Dimitrijević, 1997, Table 8).

CAVE BEAR HIBERNATES REMAINS IN SERBIAN CAVE DEPOSITS AND THE CASE OF VELIKA PEĆINA IN DUBOKA

Cave bear is a Middle Pleistocene descendant of *Ursus deningeri* that exists to and disappears in the Last Glacial stage. Its area of distribution is limited to karst regions (Kurten, 1972; Musil, 1985). It is probably the best known Pleistocene species since its remains are found in innumerable caves in Europe (Musil, 1981). Multitude of cave bear bones in cave deposits is a consequence of their common habit of hibernating in protected cave environment, which also provided favourable fossilisation conditions for preservation of their remains. To the accumulation of their remains contributed significantly the fact that some of the caves are used as a hibernating dens over a long period of time (Philippe, 1997).

In Pleistocene cave deposits of Serbia cave bear remains are the most frequent among fossil vertebrates (Dimitrijević, 1997, 1998). Numerous cave bear bones and teeth are found in Risovača, Jerinina, Prekonoška, Ceremošnja, Petnička, Pećina u crvenim stenama, Smolučka, Pećurski kamen, Vasiljska, Ledena, Visoka, Mirilovska and Kovačevića caves, while its remains are also recorded in Golema dupka, Vrelska, Popšićka, Lazareva, Šalitrena, Ravanička, Pećina kod Senja, Baranica and Ošljarska caves. However, most of cave bear remains are highly fragmented. In some localities water or dry sediment redeposition, or chemical destructive actions during fossilisation cause this fragmentation. In others, biogenic factors influenced damaging and fragmentation. Where large predators were present, like cave hyena, bones were broken and gnawed. Also, the cave bears movements inside the caves caused breaking of their predecessors' bones. Man inhabiting caves also added to bear bones fragmentation and disturbance. Thus, there are only few examples of unbroken and undisturbed cave bear remains in Serbian caves. Perfectly preserved and unbroken cave bear bones which did not undergo any destructive process before laying into the sediment or during fossilisation are found in Ceremošnja (Dimitrijević, 1997). Two whole skulls, several whole lower jaws and other cave bear bones were found in one place in Petnička cave protected by huge blocks of rocks (Dimitrijević, 1994). In Smolučka cave, a single accumulation was formed of whole cave bear bones, which belonged to a large adult male, its stratigraphic position suggesting the ultimate cave den (Dimitrijević, 1991).

Most of the cave bear remains in Pleistocene cave deposits of Serbia are found to be originating from animals hibernating in caves. This conclusion was supported by the finds of milk teeth and established age groups distribution, which pointed to the presence

of the cubs hibernating their first and the second winter in the caves. Smolučka and Mirilovska caves are found to be hibernating dens of females with cubs, with occasional occupation of adult males (Dimitrijević, 1991, Dimitrijević & Jovanović, in print).

Cave bear occupation of "Cave bear chamber" in Velika pećina in Duboka seems to be an example of a den used by adult male bears, apart from females and cubs. At least four animals are recorded, three of them certainly but all of them most probably, males. The skull morphology, obliteration of the sutures, as well as teeth wear pattern, indicate adult, mostly mature or even old animals.

The sole indication of the presence of a young animal is a vertebra with an unfused articular surface. It is therefore possible that in spite of our effort to collect representative sample, some remains which might help reconstructing the hibernating pattern and, more precisely the number of individuals involved, escaped our observation.

Nevertheless, the quantity of animal bones found, and unbroken and undamaged condition of remains indicate that the chamber was inhabited in a short period, and probably several seasons, when considering male bears solitary attitude. Cutting off the excess from the surface disabled later intenders to enter, and the remains of the hibernates and circumstances under which they occupied the den remained conserved.

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РЕЗИМЕ

ЈАЗБИНА МУЖЈАКА ПЕЋИНСКОГ МЕДВЕДА (*URSUS SPELAEUS* **ROSENMÜLLER & HEINROTH**) ИЗ ВЕЛИКЕ ПЕЋИНЕ У ДУБОКОЈ КОД КУЧЕВА (ИСТОЧНА СРБИЈА)

Велика пећина у Дубокој (Гаура Марѐ) налази се 2,5 km северно од села Дубока код Кучева у Источној Србији (сл. 1, 2). Прва истраживања Велике пећине вршио је Јован Цвијић и резултате објавио још 1895. године. Припада типу тзв. тунелских пећина и проходна је од понора до извора. Понорски улаз се налази на апсолутној висини од 375 m, а изворски на 345 m. Главни канал је хидролошки активан само у влажном делу године, док се током сувих периода вода задржава једино у неколико језера дуж канала. Укупна дужина пећинских канала је 2.734 m. Фосилни остаци су откривени у дворани која је добила име "Дворана пећинског медведа" (сл. 3,4), на око 1.200 m од изворског (низводног) улаза. По дну ове дворане неправилног троугаоног облика налазе се углавном глина и дробина прекривене травертинском превлаком са мањим сталагмитима. Од главних канала одвојена је одсеком високим 7 m. Претпоставља се да је за време горњег плеистоцена, од када датирају налази, постојала веза са топографском површином, а да је узрок прекида ове везе запуњавање канала кластичним седиментима, формирање калцитних творевина које су постепено преграђивале проходне делове, или саламање и обурвавање услед тектонске активности.

Фосилне остатке открили су чланови спелеолошко–алпинистичког клуба АСАК, а новембра 2001. године организована је експедиција у којој су узели учешћа аутори овог рада и чланови клуба.

Фосилне кости лежале су на поду дворане: лобања, пршљенови и тибија у близини великог сталагмита уз јужни зид дворане (сл. 5); кости предњег екстремитета у природном положају испод групе сталагмита распоређених испред улаза у канал који се од дворане наставља према истоку (сл. 6); и фрагментована лобања, доња вилица, лева и десна карлица, лева и десна бутна кост у близини зида северног, двоугаоног канала. Кости су биле прекривене неколико милиметара дебелом травертинском кором, а на неким од њих били су излучени сталагмити, као на пример, на костима предње ноге у артикулацији, и једној доњој вилици на чијем предњем делу се налазио сталагмит висине 23 cm (сл.7).

"Дворана пећинског медведа" у Великој пећини у Дубокој је пример јазбине одраслих мужјака пећинског медведа. Установљено је да су пронађени остаци најмање четири животиње, од којих су три сигурно, а највероватније и све четири мужјаци. Изузев једног пршљена, сви остаци потичу од одраслих – зрелих или старих медведа. Количина остатака, број животиња и делови скелета у артикулацији, указују да је дворана насељена у кратком периоду, вероватно у неколико наврата, с обзиром да мужјаци медведа обично период зимског сна проводе усамљено. Затварање пролаза ка површини онемогућило је приступ следећим генерацијама медведа, другим животињама и човеку. Захваљујући томе, конзервисани су остаци пећинског медведа и окружење у коме су угинули током зимског сна.