

Coliboaia Cave - protecting a unique prehistoric site in Romania

1/ presentation of the protection needs and constraints from the applicant region/country (642 words)

This project aims at long-term protection of caves located in the western part of Romania, in Apuseni Mountains, on the administrative territory of the Apuseni Natural Park. Coliboaia Cave is located on the Sighiștel Valley of Bihor Mountains, it is active, the river enters the underground through several ponors, but also through the Dealul Secăturii Cave, one of the most deep and beautiful caves in Romania. In terms of explorative, caves in the region are investigated by the Speological Association Speowest Arad and Speodava Stei Caving Club, two cooperating associations, which have received an agreement to conduct their activities in the Apuseni Natural Park Administration.

Coliboaia Cave was explored over time in stages, due to restrictions in areas where galleries are flooded water at higher flow rates, so, speleologists are blocked to submit to the earliest cave. After a break of ten years, the cave hasn't been explored by cavers, but a team of club members: Speological Association Speowest Arad and Speodava Stei Caving Club succeeded overcoming a difficult semisump and reached the gallery system. There were also found important information to the level of international from the archaeological point of view. Thus, in the context of new findings and identify new areas to explore with great potential, the exploration team has announced new findings from Romanian Federation of Speleology (FRS) and from the Apuseni Natural Park Administration (APNAP). These two institutions have received administrative and logistical support from the French Federation of Speleology (FFS) and also from the Association France Romania Speleology (AFRS), represented by Marcel Meyssonier, Valerie Plichon and Francoise Prud'Homme and scientific support from Jean Clottes, Bernard Gely and Yanik Le Guillou. By collaborating with them to make a first assessment of the site, stakeholders decided to close the cave in the shortest time with a metal gate in order to limit access to underground only to the researcher and exploration teams and of the site.

Target groups: researchers, caving clubs, institutions.

Scientists are concerned because the cave have been identified: significant bone deposits, and on the walls of a gallery fossils there were found more than one design monochrome, made in charcoal, representing largely extinct animals of prehistoric origin. These drawings are the type first to be discovered in Romania and even in this part of Europe, new findings may be a link missing on the prehistoric map art. Also in the sector after the sump, on a clay terrace it has been found a skull of *Ursus speleaeus* and behind it, a bone stuck in clay upright, probably from a prehistoric human ritual important as well.

Caving clubs: other speleological groups or members legitimated FRS, who want involvement in the study and inventory of karst phenomena in the region.

Institutions entitled: all institutions (museums, universities, local governments) have the ability and right to direct involvement in action research, conservation and protection.

Beneficiaries: Apuseni Natural Park (PNAp), local community and speleology, visitors. *PNAp*: will not only have expertise in prehistoric cave in Coliboaia Cave, but also in other caves on the administrative territory of the park.

Local community and speleology: The protection of this cave, ensure the conservation of speleological heritage unique in the region, nationally and internationally. The scientific uniqueness of this cave and the beauty of the landscape where the cave is, it gives the region a chance to assert itself internationally and can be an engine of sustainable development area by promoting responsible tourism. Also, at the end of research, by informing the community there will be given new information about caves what does it shelter, and the way how much important is to protect and preserve it for future generations.

Visitors: Setting up a network of caves in the region of interest with the aim of realizing a potential of the region organized in forms of speleological tourism, and visitors to protect the caves.

2/ long-term integrated ecological sustainability (482 words),

The decision of the target groups, of beneficiaries (administration, specialists) and of the exploration team (the applicant) for Cave Coliboaia closure with a metal gate immediately after the announcement of new discoveries, which have an extremely important archaeological value for this region of Europe, can be considered beneficial for protecting against destruction of the underground levels by visitors without notice. The protection systems installed by the exploration team currently allow access to underground only to the research or exploration teams, which are designed to assess the potential archaeological, palaeontological and speleological of the cave, the identification, study, protection and preservation of all traces of original paleontological and speleological values, biospeleological etc.

In the same time, fitting the doors, it is a benefit not only for the underground archaeological site protection but also for the environmental underground as over times it has suffered a significant decline especially at the entrance area heavily visited by tourists. They penetrated into the cave with torches and carbide lamps which smoked walls and that were left behind waste, and it seriously disturbed underground fauna, especially species of bats, which form colonies during winter hibernation and spring and on summer form significant maternity colonies.

Such measures of protection shortly after reporting the new findings it has a direct effect on protecting the cave and all levels underground, it is also an effective management model and a model of good practice among speleological community in Romania and even abroad.

Protective actions can be taken as a model for all speleological communities who need to understand the importance of the new findings, accurate assessment and conservation in its original condition as possible to the cave, with a minimum environmental impact and underground fauna.

On long terms it is wanted a partnership between cavers, APNAP, FRS, and teams of researchers, partnership leading to effective management and lasting values of the ground, getting the most accurate and rich information that can further be disseminated both within the local community and the scientific world through books and magazines and to be a model for collaboration between groups with different specialties and with a common purpose to study the environmental and underground.

Sustainability:

Finance: Actions undertaken to date, including protection were made from own funds, will be identified as future sources of funding (from local authorities APNAp and external donors) to support research activities and protection by exploiting information achieved by team work.

Institutional: The benefits of Tarii Crisurilor Museum in Oradea involvement (MTC) as a research institution, which has signed a cooperation agreement with Orgnac - Grand Site de France et Musée Régional de Préhistoire Grotte (France).

Policies: The aim is to publish information on the rules of conduct in caves decorated with prehistoric art, which is included in Speleo Charta, a document of the Romanian Federation of Speleology cave protection at national level document that is adopted by the national associations speleological.

3/ scientific and technical foundations of the chosen solutions (329 words)

In order to protect Coliboaia Cave, on the recommendation of the French research team specialized in prehistoric art, but also after receiving the Apuseni Natural Park Administration Agreement it has been chosen the version to close the cave by the exploration team with a system of metal gates, that limits the access to an underground environmental for a better protection and in particular the underground designs of prehistoric bone deposits and cave bat colonies.

Thus, by mutual agreement between all parties the decision was fitted to two underground protective gates that restrict access to other foreign nationals. Because of the importance of new discoveries, the place location, and as the cave is visited by many tourists, the decision was fitted to two separate gates. Therefore, if the first entrance gate is destroyed, the access in the special protection area, where are located the paintings, to be limited by the second gate. The first gate was installed immediately at the entry, in a sector where the gallery is only a smaller section 2x1,5 m and the second gate was set at about 300 m further inside, on a small fossil gallery with more modest scale than the rest of the galleries of the cave, which exceed a short and impenetrable sump. From this gate, the gallery still continues 100 m to connect with the semisump where the drawings were found.

Because the cave is inhabited throughout the year by the chiropters (bats), especially during the summer, and also to avoid climate change or the movement of air currents in underground construction it was chosen the variant of metal gates with horizontal bars. They have the advantage of limiting the environmental changes within the subsurface and to promote easy access to the chiropters underground. The assemblance and weld metal gates were made at a workshop, then they were transported to the cave and the walls were fixed with metal anchors, not to bother with noise and gas fumes the bat colonies.

4/ technical quality of the implementation (302 words),

For as high strength and durability over time and a minim environmental impact on underground it was decided to build a large iron gate with high resistance, which was assembled by cutting and welding as a project made underground, in the place where they were supposed to be attached. After acquiring the materials needed to build the two gates in order to protect the cave, they were cut and assembled in a specialized workshop in the city of Ștei, from where we also rented the required all the equipment for material cutting and gates construction.

After the two gates, they were transported by own cars and then with a horse cart up near the cave. The project, the manpower and the transport from workshop to the cave were supported by the speleologists who ensured the gates to be installed the locations stated above.

For fixation the first iron gate it was chosen in an front area where entry is a lower section to the maximum limit of environmental speleology impact and to get as much resistance as the bolt from destruction by malicious and bad persons, and the second iron gate was mounted inside the cave on a narrower fossil gallery, where a possible attempt to destroy is weakened by lack of space within the drive.

The metal gates were built so as to allow easy access of underground to chiropters (bats), as metal doors have many horizontal bars positioned with a clearance of minim 15 cm among them, where bats can fly easy. The iron gates were set between the gallery walls and rocks using metal bolts and locks were sealed with high resistance to burglary, difficult to open without the right key and much of the entrance gate was strengthened with many blocks stone to prevent any attempt at destruction.

5/ expected results of the project (235 words)

The main expected outcomes of the project and therefore the closure of Coliboaia Cave are creating a system of effective and sustainable environmental protection by closing underground cave with two metal gates installed at key points to restrict access underground, making it possible to preserve „in situ” of the newly discovered paleontological and archaeological remains vestige. Cave closure will limit access to special conservation area, access is reserved only for exploration and research teams to establish the importance of the cave in terms of archaeological, paleontological, biospeleological. After obtaining the first results there will be determined the next steps for the protection and conservation. Closing the cave can be considered the most beneficial action taken after the new discoveries, such limitation to allow a minimum of negative effects of uncontrolled visits to the underground environment.

As the cave is provided with a gate located near the entry, this will reduce human impact on the environment primarily due to underground visits of inexperienced tourists, who by their presence in underground seriously disturb bat colonies or let their wastes or other traces of their passage. So, we do expect a beneficial evolution of cave wildlife and limit the negative effects of practicing a disorganized speleotourism.

Another result is to inform the local community and speleological cave and karst protection, and after thorough research results, they will be informed about the existence, importance and protection of cave paintings.

6/ project impact study results (212 words)

The expected impact protection through the project of Cave Coliboaia aims more goals: from protecting the cave and its archaeological, pale ontological and biological potential in underground environment, to preserve the fauna, representing in this set of measures a model that can be followed by other speleological representative communities.

Closing the cave may have a beneficial effect on chiropters (bats) first housed underground, who are much less disturbed by reducing visits from people, especially during summer, when the cave

is visited more frequently. Another impact of the closure of the cave is to limit the access inside it, particularly in the special protection area, as it reduces the risk of destruction of archaeological, paleontological and biological environment identified by teams of specialists who will determine areas of scientific importance and set a few areas specially built for restricted access.

Because of recent discovery of cave paintings, the cave might be visited by persons who might not be careful enough and thus damage the paintings.

Thus the results fitted impact protection systems will be monitored over time by comments made on their impact on wildlife and to the environment generally underground, and in terms of durability and their resistance or their impact on speleological community, local and of tourists visiting the region.

7/ chronological implementation program (277 words),

The discovery of cave paintings sector on 9/20/2009 by a team of five cavers, they exceed a semisump in the Cave Coliboaia and identified a series of cave paintings and significant bone deposits.

The implementary for protective measures were taken in Coliboaia Cave immediately after reporting new findings by the team of the Romanian Federation of Speleology exploring the Apuseni Natural Park Administration.

There were contacted relevant bodies just a week after the discoveries were made. After providing the information and contacting local institutions it was made a first assessment, there were informed the representatives of the museum in the region, also the representatives of PNAP, a team of cavers and foreign researchers, it was also made an evaluation after which the closure decision was taken to an emergency cave system gates, the task is now upon the speleological community involved in new discoveries.

Achieving closure plan and the project was conducted during the visit period of the 24th till 27th.10.2009 during the specialists French team. Thus, immediately after the decision of closing the cave, a team of cavers in the cave made a closure plan, being elected seats to be mounted in the doors, then a draft of their construction. After buying the necessary materials, the doors were made and carried to the cave by a team of cavers; their labor and transportation were provided by them.

Mounting and fixing doors in 10/29/2009. Gates were installed in locations determined by cavers, being fixed to the walls of galleries and stone blocks by means of metal anchors, which were strengthened after the settlement other large blocks of stone covering and fastening systems give additional security throughout closure.

8/ involvement of the local cavers (151 words),

Given that exploring the cave and thus new archaeological, palaeontological and biospeleological discoveries were made by a team of local cavers, they together with other members of speleological clubs belonging, participated in actions to close the iron gates of Cave Coliboaia.

After receiving special consent from Apuseni Natural Park Administration (APNAP) to install the metal doors, a team of cavers made a project of closing the cave, setting the location to be mounted iron gates, sizes and form. After acquiring the necessary materials and cutting the two metal gates which were made in a workshop and were transported by several cavers to cave, finally they were installed.

In the future, the involvement of Speleologists in the region of Sighistel Valley will be not only crucial for monitoring and maintenance of gates and closures, but also for exploration, cave mapping and support the research activities that will be conducted in the cave.

9/ involvement of external partners (160 words),

In the protection in actions outside speleological groups involved directly in exploration campaigns, it has been used a number of local and foreign partners such as APNAp - which endorses all activities with speleological character in the region, FRS, MTC - as a body empowered to assess and carry out archaeological activities and more foreign partners specialized in the assessment of prehistoric archaeological or paleontological sites (Ornac - Grand Site de France et Musée Régional de Préhistoire Grotte (France).

Apuseni Natural Park Administration has favored access to the cave and endorsed speleologists emergency closure of the cave to protect it, and the FRS was a representative body and the relationship between cavers, competent institutions and external partners (experts in cave art, AFRS, Musée Régional de Préhistoire), which conducted an initial assessment was the result of which the cave was closed. The in future, there will be evaluations and trial stages of the cave on the archaeological heritage, paleontological, speleology etc.

10/ communication to the speleological community (101 words),

Given the importance of maintaining discretion over new discoveries for additional protection, at present people who have information about the reasons for closing the cave and closed it originates only from partner associations exploration, Romanian Federation of Speleology (FRS) staffs, Apuseni Natural Park Administration (APNAp), the few archaeologists in the country and French experts teams.

Along with assessing the significance of the cave in all respects, to obtain the results of a thorough investigation, information will be communicated to the entire community speleological country and abroad, but only when all necessary measures to ensure protection to prevent any environmental damage underground.

11/ communication with media and public (127 words).

Actions and milestones of the project implementation will be posted on the website of the association A.S. Speowest Arad: (www.speowest.ro) and other partner sites, the FRS (www.frspeo.ro), PNAP (www.parcapuseni.ro). Information on the need to protect the cave will be presented in a particular community in the region and local speleological communities aware of the need to protect the cave by its closure and long-term beneficial effects on speleological values, archaeological, paleontological and biospeleological, particularly in underground colonies of bats that this will be adequately protected. Also when there will be obtained first results these will be communicated to the public including in scientific circles, speleological or the general public through press conferences in which it will present the project and participation in scientific sessions in the field.

12/ main past references / experience of the organization in the field of Cave Protection (188 words)

Cave Coliboaia - protecting a unique prehistoric site in Romania is a project promoted by the Speleological Association Speowest Arad, who has supported the implementation of actions to protect the cave in terms of administrative, financial and logistical activity being also supported by APNAP, FRS and members Stei Speodava Caving Club. Also the association by its members has developed over time more karst environmental action and education campaigns speleological youth. Thus in recent years the association has important caves exploration activity, it has been restored or has been changed protection systems with closures of old with new and more sustainable, they are checked and maintained regularly, especially in a context where some are forced repeatedly by uncivilized tourists. Also beautiful areas of some caves were explored immediately after exploration beacons for more effective protection of important beautiful areas or paleontological, archaeological, etc. The association has installed gates at caves in custody for effective protection speleological values for the protection of archaeological and paleontological sites, protection of bat colonies severely disrupted by the occasional tourist or cavers or to prevent local access to the caves with high risk of injury.