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Short articles



CUSSAC CAVE (LE BUISSON-DE-CADOUIN, DORDOGNE, FRANCE):

Application of the Principles of Preventative Conservation to the Case of a Recent Discovery

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Cussac Cave was discovered on September 30, 2000 by a speleologist, Marc Delluc. On October 8, when he returned to the cave with Hervé Durif and Fabrice Massoulier, they found several engraved panels on the walls and human remains in bear hibernation nests on the ground. The cave is composed of a long gallery with an entrance in the middle delimiting an upstream sector and a downstream sector (figure). After Norbert Aujoulat and the Direction Régionale des Affaires Culturelles d'Aquitaine (DRAC) were informed of the discovery, the most urgent task was to secure the entrance (artificial tunnel and security gate). The procedure for classification as a Historical Monument was immediately initiated (preliminary classification on November 23, 2000, definitive classification on July 3, 2002). The official expertise, work by N. Aujoulat on the parietal art (Gravettian), and the dates obtained from bones collected from the same loci as the human remains ($25\,120 \pm 120$ BP), all showed the exceptional nature of this site associating large engravings with human remains.

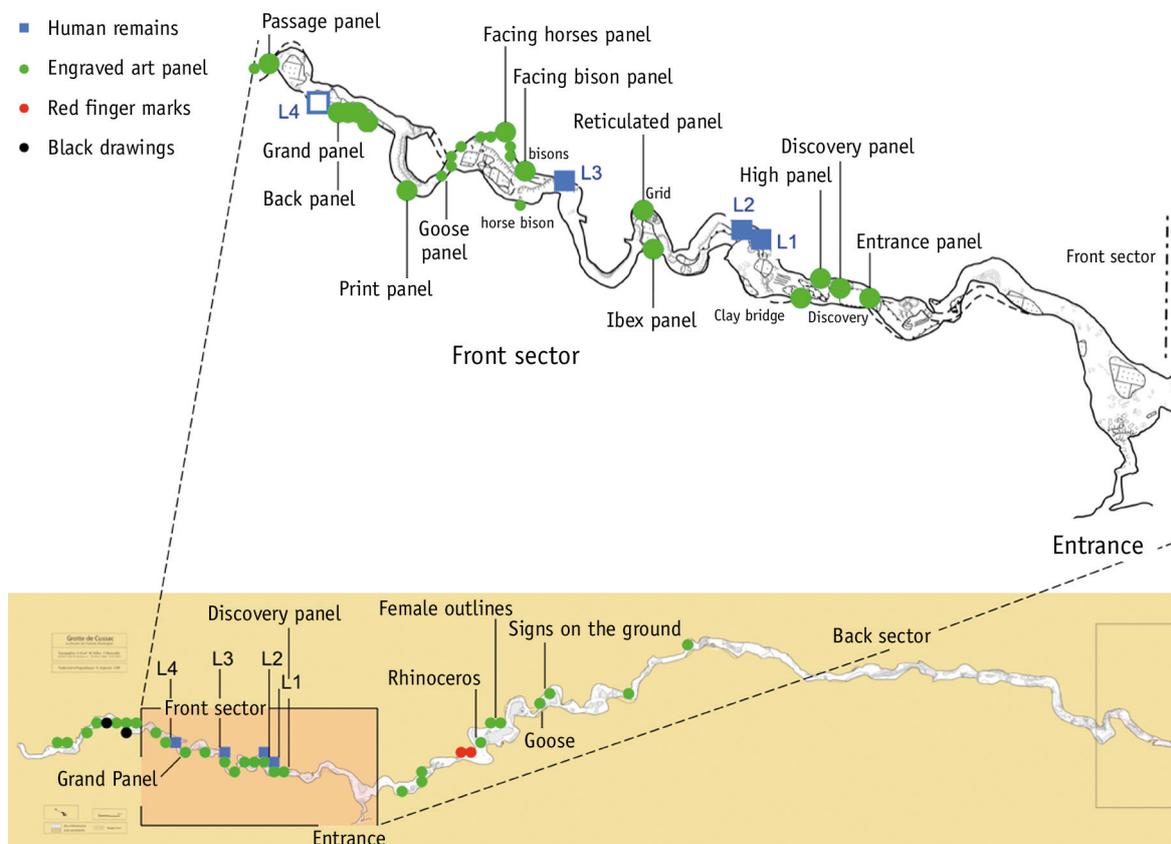
The land title investigation showed that the land was divided among thirteen owners and the municipality: land acquisition and management thus became a high priority. Continual relationships maintained by the DRAC with the owners facilitated sales propositions through friendly negotiations from 2007 to 2010. Aided by discussions with the France-Domaine service, in charge of property evaluations, estimations acceptable to the different parties were obtained. In mid-2011, with the acquisition of two additional properties, the State will own the entire downstream sector in addition to the sectors already acquired in January 2010 in the upstream sector. This land acquisition is the only way to legally realize the modifications to the cave and analyses necessary for the preventative conservation of the site, and to guarantee that the research data will be useable.

For conservation purposes, it is also necessary to regulate the human presence in the cave, which is inaccessible during half of the year anyway due to high CO₂ levels. The decision to close the site to the public was made immediately after its discovery due to the particularly fragile nature of the archeological remains and parietal art, as well as to the difficulty of access and circulation within the cave. Most human incursions are limited to the downstream sector, up to the "Grand Panel" (a dozen incursions upstream), and must respect a strict protocol. Visitors circulate on a path, the same as that of the discoverers, which is protected by stainless steel walkways or delimited by bilateral markings. Access to the cave is strictly limited to personnel of the Ministry of Culture and Communication, designated enterprises or laboratories (to perform installations or analyses), scientific experts (archaeologists, physical anthropologists, curators), the owners, and, of course,

the Research Team since 2009, equaling a total of 162 persons since the discovery. During the visits, all “incidents” are recorded in order to ensure knowledge of all current anthropogenic factors so that they may be distinguished from past anthropogenic phenomena.

Some material modifications must still be made to the cave in the entrance and the upstream sector. Furthermore, we still do not know the impact of human presence in this cavity with often imposing volumes, nor the resting time necessary for the cavity after each of our incursions. It is thus essential to obtain this information through the development of climatic recording methods.

Understanding the environmental conditions that regulate Cussac Cave at the scale of the massif has been a priority since the discovery (recording of climatic conditions since 2003). Knowledge concerning the hydrogeological functioning of the cavity acquired in 2006 in the framework of its classification as a Site has allowed us to monitor the elements that influence the environment in a perimeter defined based on criteria adapted to the object being protected. A research program (funded by DIREN / DREAL, DRAC, FEDER) was developed in the framework of a Doctoral dissertation allocated by the University of Bordeaux 1 and realized in the GHYMAC laboratory (Nicolas Peyraube, defense June 24, 2011). While the main goal was to define the “watershed” of the cavity, the results are much broader; they include a geomorphological approach to a vast sector, and the recording of several annual cycles of measurements of flow rates and analyses of the waters inside the cave and neighboring springs, in association with the climatic records.



General plan of the cave and the locations of the main archaeological remains (topography: Delluc, Durif, Massoulier, Aujoulat).

Three concentric zones, delimited based on a scale of vulnerability, have been established. The most distant one is that retained as the perimeter for the future classified site. The official classification is expected in early 2012 and will be supported by a management plan that is already effective and whose recommendations cover several domains. Some are the object of productive collaborations between the State, the public services of local governments and the individuals concerned (sanitation, agricultural practices, ...). This work has already set an example, which should be communicated and followed, of how an important heritage site can be integrated into its modern territory.

The tenth anniversary of the discovery corresponds to the end of a period marked by the development of a collective research project (Jaubert *et al.*, this volume). The challenge is now to reconcile demanding heritage conservation policies with the progressive acquisition of scientific knowledge.





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