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The "written stones" of the Montesinho Natural Park: Where palaeontology meets popular legend

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Deep in the memory of the inhabitants of the region of Montesinho (NE Portugal), there is a legend which talks about the existence of enigmatic *pedras escrevidas* ("written stones") in the mountains near the village of Guadramil. In the first half of the 20th Century, what used to be considered some kind of rock engravings in quartzite, were studied by archaeologists, which interpreted these signs as a kind of very old (and unknown) pre-Roman writing. A modern geological mapping of the area of the Montesinho Natural Park allowed us to rediscover the original sites of these structures and interpret them as ichnofossils. They occur on the Lower Ordovician quartzites, towards the top of the lower member of the Marao Formation (Floian), which crops out extensively in the area, generating the mountainous relief of the Barreiras Brancas-La Culebra sierra. The study of the locality required two excavating campaigns, supported by the Portuguese Ministry of Science, which involved 40 high-school students during the summer of 2002 and 2003 in an area located 5 km north of Guadramil and very close to the Spanish border. It resulted in the exposure and cleaning of an exceptional surface of 40 square meters with a very vast ichnofossil accumulation, reaching a maximum of 2,000 individual specimens by square metre. All of them correspond to horizontal sections of conical structures created by the spiral displacement of steeply inclined J-shaped burrows, assigned to the arthropycid forms *Daedalus halli* (Rouault) and *Daedalus labechei* (Rouault). Both ichnotaxa are widely known in the "Armorican Quartzite" facies of the Lower Ordovician of SW Europe, where massive occurrences reflect

opportunistic colonization events on storm generated sandstones. The spectacular bedding plane concentration of these conical burrows in the locality, and the good preservation of the active backfill on their typical spreite (wing-like) structure, is currently being mapped with the purpose of determining the mathematical model underlying the burrowing pattern and ecospace interaction between the sedimentivorous producers. Anyway, this outstanding palaeontological site of the "pedras escrevidas" has no other counterpart in the world, and is of undisputable value for the Iberian geological heritage. In the near future the locality will be protected and included in the touristic programmes and guides enhancing the natural heritage of the Montesinho Natural Park. The detailed ichnological study of this outcrop is being financed through the PATRIORSI project of the Spanish Ministry of Education and Science (CGL2006-07628/BTE, years 2006-2009) and by the project "Identification, Characterization and Conservation of Geological Heritage: a Geoconservation strategy for Portugal", sponsored by the Portuguese Foundation of Science and Technology (PTDC/CTE-GEX/64966/2006, years 2006-2009).

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