

ProGEO Symposium

Postponed to 2021

by: **Editorial board**

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We begin this new issue of ProGEO News with the breaking news on the postponement of our X International ProGEO Symposium, originally planned to take place in Segovia (Spain) in June 2020. Due to the current pandemic COVID-19, which arrived in Europe late February and began spreading fast since early March, the issue was raised amongst the Executive Committee. Many international events were being cancelled, even many months ahead, and the prospective of full recovery from the global crisis seemed to be far and certainly not achieved before summer.

The Geoheritage Unit of the Geological Survey of Spain (IGME) is acting as Organizing Committee for the X ProGEO Symposium. We appreciate the efforts they have so far undertaken in the organizing process, and thank them for their commitment with all the ProGEO community to maintain the venues, prices and programmes so far established. Under the official 'State of Alarm' decreed in Spain on March 14th due to the COVID-19 situation, and the restrictions on the movement of people progressively being imposed in and around Europe, IGME Organizing Committee was forced to postpone the event to 2021. The organizing committee communicated the situation and the associated difficulties to the Executive Committee of ProGEO. Hence, at its meeting on March 16th, the Executive Committee of ProGEO approved the decision to postpone the symposium and all its activities to June 2021. The only exception will be the 1st Workshop on Geoheritage of Volcanic Islands, which will be postponed to this autumn of 2020, with specific dates yet to be announced.

Up to the beginning of March 2020, the registration and abstract submission process had been developing normally, quite similar to most previous events. A total of 96 participants had already formally registered, 54 of which were ProGEO members, and with a total of 96 abstracts submitted. All the activities had already reached sufficient numbers of participants to be developed: 18 for the intensive course on geoheritage interpretation, 15 for the fieldtrip to Natural Protected Areas of Central Spain, 19 for the fieldtrip to Molina - Alto Tajo UNESCO Global Geopark, 26 for the fieldtrip to the Basque Coast UNESCO Global Geopark, and 42 for the farewell dinner. All these activities will be developed during the rescheduled symposium in 2021, so all those participants who already paid their fees will be able to maintain their reservations.



**BUILDING CONNECTIONS
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New dates for the event

Segovia, Spain
7-10th June 2021

www.igme.es/patrimonio/Xprogeo2020
www.progeo.ngo



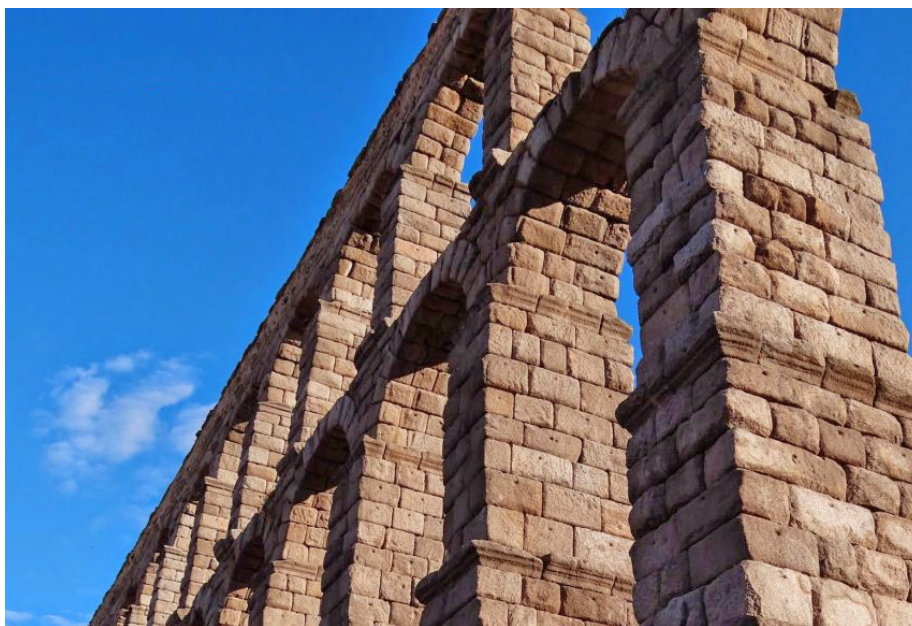
Session	Presentations
1 - Inventories and research	22
2 - Management and conservation	22
3 - Education and public outreach	19
4 - Geotourism, UG Geoparks and local development	17
5 - Geoconservation in protected areas	3
6 - Moveable geoheritage	1
7 - Geoheritage and cultural heritage	12
Total number of abstracts	96

Most of the abstracts had already been sent to reviewers, and some of them had already responded and sent back their reviews. The review process was stopped and will be reconsidered analysing case by case according to the different options chosen by participants as a result from the postponement of the symposium. The three options offered to them in a message sent on March were:

1. Continue with the registration process for the Symposium in 2021 as it is now, maintaining both the fee already paid and the abstract(s) already sent to be presented next year.
2. Continue with the registration process for the Symposium in 2021, maintaining the fee already paid for next year, but publishing the abstract(s) in ProGEO News along this year 2020 (or fully withdrawing it/them) and submitting new abstract(s) for next year.
3. Discontinue the registration process for the Symposium in 2021, fully withdrawing the abstract(s), and recovering the fees already paid (after deduction of bank charges).

The response received so far (up to April 1st) from participants was: 21 for Option 1; 7 for Option 2; 15 for Option 3; and the rest (more than half of the participants) not yet responding. We assume that the lack of response is most probably due to the current confinement (lockdown) situation in most countries globally, with complex conditions for communication and access to work computers and/or e-mail boxes, and that participants will hopefully and gradually respond in coming months. This issue of ProGEO News hence already includes 4 of the aforementioned abstracts already submitted but which authors decided not to wait until 2021, but instead make them available for all those interested. We appreciate the effort made by all authors, and thank all those who have already shown their interest to maintain their contribution for the X ProGEO Symposium to take place in June 2021 in Segovia.

Today many of us work from home and there has been an explosion of the use of digital tools for contact between people. Tools like TEAMS, ZOOM and others perform better for meetings than we ever have seen before. In times of isolation, contacts are more important than ever. This goes both for professional contacts as well as private. Take initiatives for such contacts. Perhaps national meetings can be arranged digitally. Perhaps we can use the same tools for regional groups? And perhaps someone may want to arrange a digital workshop on geoheritage issues? As we now will publish some abstracts from the postponed symposium in this issue of ProGEO NEWS, maybe these may inspire some ideas along these lines. If you have ideas, but are unsure how to do it, take contact and together we may find solutions. Then we can look forward to the X ProGEO Symposium in Segovia with hope, exactly 30 years after this series of symposia was started in Digne, France in June 1991.



These are times of uncertainty and worry.

A few months ago, nobody would have been able to predict the current situation of pandemic and confinement of the population globally. This has generated obvious concerns about the social and economic effects that it may have on our societies, apart from the tragic loss of thousands of lives that we are already seeing and suffering close to each of us. At the same time, during this global crisis we are all becoming ever more aware of the changes that our society will be facing in the near future, as we come out of it. As a professional community devoted to the conservation of a significant part of nature, it is our task to continue our job in geoconservation with even stronger conviction and dedication. We would like to encourage all members of ProGEO to maintain your efforts and collaboration towards the sustainable management and conservation of geological heritage.

Be careful and stay safe.

On behalf of the Organising Committee, we are pleased to invite you to take part in the Oxford Geoheritage Virtual Conference, to be hosted online by the Oxford University Museum of Natural History. The meeting will take place from 25-28 May 2020.

This conference is open to all who are interested in geoheritage, including scientists, students, professionals, policy-makers, and managers. We welcome contributions from all fields of geoheritage including geoconservation, management, classification, geodiversity, legislation, geoparks, geotourism, geoheritage and cultural heritage, and interpretation. Geoheritage is an inherently interdisciplinary field: we also encourage those from affiliated fields who have something to contribute to attend and submit an abstract.

The Organising Committee have rapidly set up OxGVC in response to the cancellation of a number of meetings in 2020 due to COVID-19. Recognising the often dispersed nature of workers within geoheritage, and therefore the vital role meetings play, we hope OxGVC can help to bring together the geoheritage community, wherever you may be, at this difficult time.

We are pleased to announce that the following Keynote Speakers will be presenting at OxGVC, with more to be announced soon:

- Prof. Murray Gray - Honorary Professor of Geography, Queen Mary University of London

Geodiversity: redundant term or evolving, multi-faceted, geoscience paradigm?

- Prof. Heather Viles - Professor of Biogeomorphology and Heritage Conservation, University of Oxford
Integrating the conservation of geological, biological and cultural heritage: challenges and prospects
- Prof. José Brilha - Director of the Centre for Applied Research in Earth Sciences, University of Minho
Geoethical principles in geoconservation

Key Dates:

April 1st: Registration and abstract submission opens

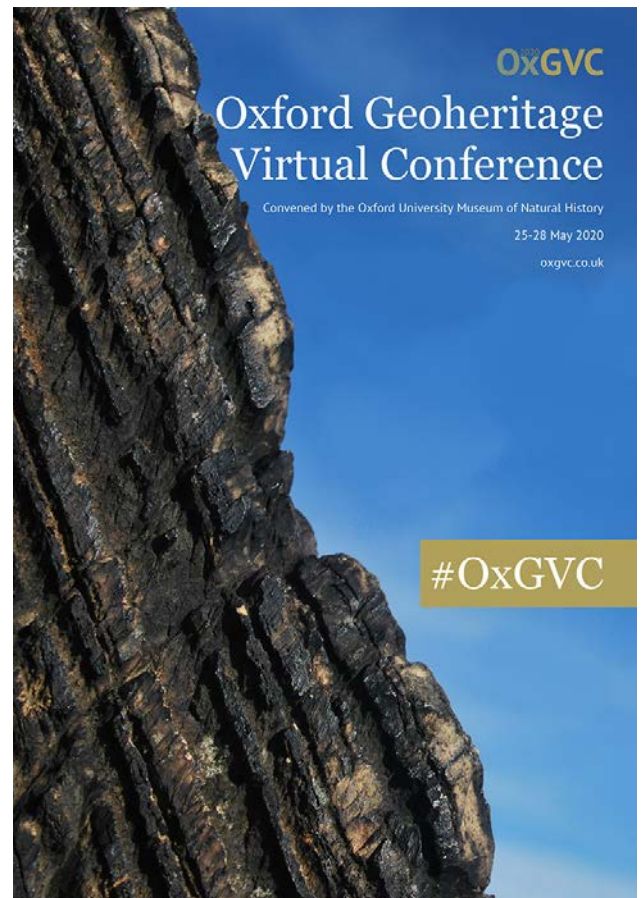
April 29th: Deadline for abstract submission

May 6th: Announcement of Conference Programme

May 18th: Deadline for registration

To try and make the conference as accessible as possible, wherever you may be in the world, each day will be 3 hours long, from 2pm – 5pm British Summer Time (UTC+1). The conference is free to all, both to register and submit abstracts – we are grateful to the Oxford University Museum of Natural History, and the Oxford Policy Exchange Network for their support for OxGVC. Presentations will be in two formats: a standard talk of 15 minutes, or a flash talk of 5 minutes with a maximum of 3 slides.

Full details, and registration and abstract submission forms, can be found online at oxgvc.co.uk. We very much hope you can make it, and look forward to seeing you at the end of May, virtually!



Geoconservation strategies framework: analysis from case studies in Brazil

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Keywords: Brazil, geoconservation strategies, geoheritage

Introduction

Geoconservation can be understood as a group of actions focused with the aim of the conservation of the abiotic heritage of nature, and that may be implemented by means of a series of steps (Cendrero Uceda 2000, Sharples 2002, Brilha 2005, Henriques et al. 2011, Carcavilla 2012). These steps may be integrated as sequential and/or simultaneous sets in a framework that includes data collection, selection and assessment of geosites, evaluation of conservation aspects, and outreach strategies. The observation of this strategic framework might improve the chances to achieve the best practices in any actions involving conservation and use of geoheritage. However, excluding a few exceptions, these steps are rarely completely put into practice in the world (Prosser et al. 2018). The main aim of our work herein is to analyse key local examples of geoconservation actions in Brazil under the light of these integrated sets, in order to identify strengths and weaknesses that might be associated with the non-observation of these steps, and to evaluate the role of these systematic methods in the whole geoconservation chain.

Methods and results

Six Brazilian representative case studies were chosen, and their status regarding the classic geoconservation framework and associated steps is shown on Table 1.

- Inventory of geoheritage of the state of São Paulo: The first inventory in Latin America to follow a systematic methodology at a state scale and with the participation of the geoscience community. Its main aim is to select geosites with scientific interest and to set the background for future geoconservation actions.

- Inventory of geoheritage of Chapada Diamantina: This inventory proposed the first method exclusively structured for the Brazilian scenario. Its main aim is to assess sites of scientific and touristic interest, and to propose a geoconservation plan for the most relevant or endangered sites.

- Holocene stromatolites in Lagoa Salgada: One of the few rare occurrences of Holocene stromatolites in the world, located in the territory of the Costões e Lagunas Geopark Project. Due to a seaport enterprise, only half of the lagoon's surface was included into a protected area by state decree.

- Poty Mine Geosite: Part of a series of publications by the Brazilian Commission on Geological and Palaeobiological Sites (SIGEP), this geosite is located in an active quarry and has been recently opened for public visit, along with interpretive panels and other means of valorisation.

- Seridó Aspiring Geopark: One of the two new Brazilian aspiring projects for UNESCO Global Geopark, its geosites range from Neoproterozoic to Cambrian, alongside with Paleogene and Neogene. There is already an important cultural involvement between local communities and their geoheritage.

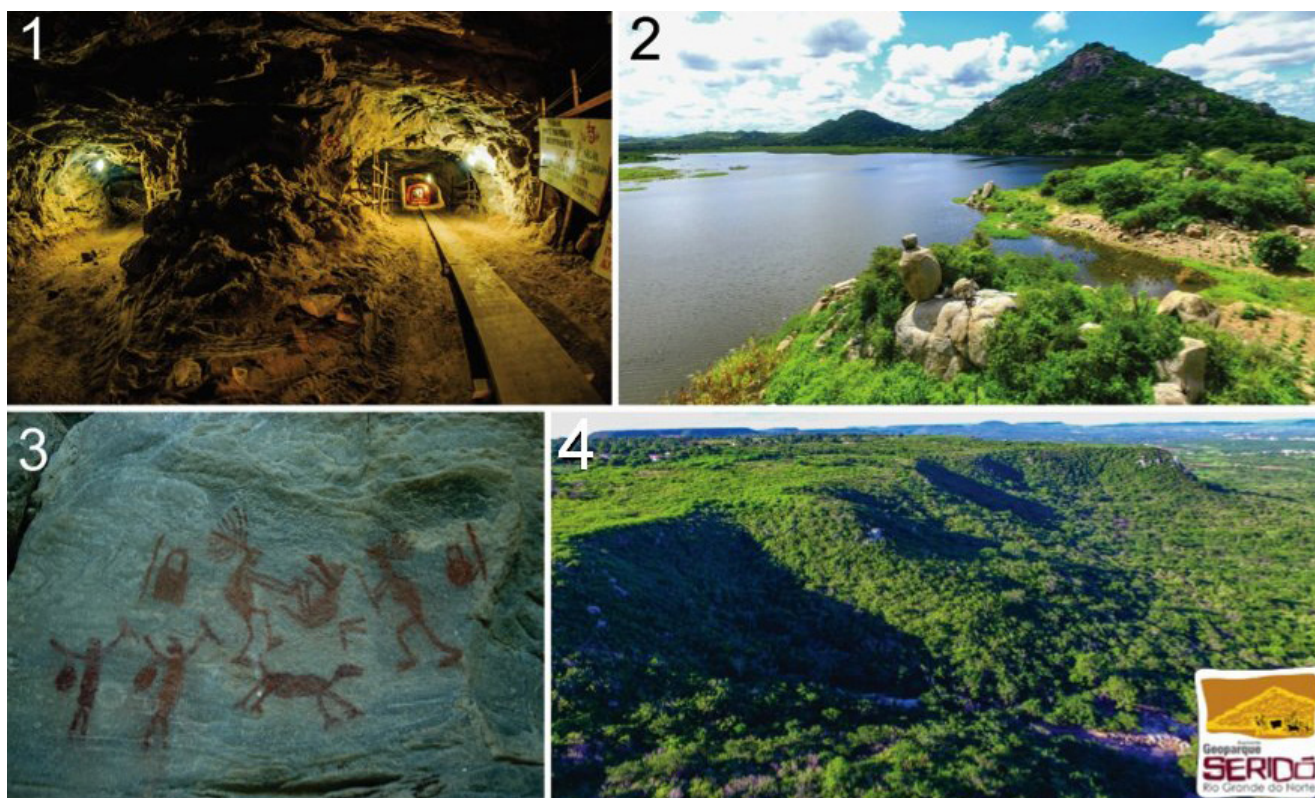
- Projeto Caminhos Geológicos (Geological Paths Project): A pioneering project in Brazil, with the initial aim to popularize the geology of the State of Rio de Janeiro through interpretive panels, and which later evolved to adopt geoconservation principles. More than one hundred panels were implanted.

Steps		State of São Paulo Inventory	Chapada Diamantina Inventory	Holocene Stromatolites in Lagoa Salgada	Poty Mine Geosite	Seridó Aspiring Geopark	Caminhos Geológicos Project
Diagnosis	Inventory	Yes, systematic	Yes, systematic	Yes, systematic mapping	Yes, ad hoc	Yes, systematic	Yes, systematic
	Quantitative assessment	Yes	Yes	Yes	Yes	Yes	In part
	Characterisation	Yes	Yes	Yes	Yes	Yes	Yes
	Indications of use	Yes	Yes	Yes	Yes	Yes	Yes
Conservation	Legal protection	In part	Yes	In part	Yes	In part	In part
	Geosite conservation	Locally	Yes	Yes	Yes	In part	In part
	Monitoring	No	No	Yes	Yes	No	In part
Promotion	Valorisation	Locally	In part	Locally	Yes	Yes	Locally
	Interpretation	Locally	In part	Yes	Yes	Yes	Yes
	Dissemination	Locally	Locally	Locally	Yes	Yes	Yes
	Education use	Locally	No	Yes	Yes	Yes	Yes
	Tourism use	Locally	Yes	Yes	No	Yes	Yes

Table 1. Status of selected Brazilian case studies regarding their geoconservation framework and associated steps.

Discussion and conclusions

Our data show that the items related to the diagnosis are the most prevalent in relation to conservation and promotion. Inventory, characterisation and indications of use were carried out in all the case studies, although some of them lack quantitative assessment of geosite value. Regarding promotion, except for the Holocene Stromatolites and the Poty Mine, which constitute specific geosites, the other examples show good levels of valorisation and dissemination, especially for the Seridó Aspiring Geopark and Caminhos Geológicos, which constitute primarily geotourism/educational projects. The conservation seems to be the most complex set of steps, especially when considering monitoring, but legal protection and geosite conservation are also insufficient, which might be worrying because these aspects are directly related to the integrity and safeguard of the sites. These results reflect the fact that most of the people involved in diagnosis and related items, as well as in promotion actions, are academic geoscientists with multidisciplinary skills and expertise. On the other hand, conservation is an issue that involves the participation of national and local government administrators, and which also requires the existence of adequate legislation concerning geoheritage. In this context, an integrated approach will only be achieved by means of the cooperation between academia, public administrations and society.



Selection of geosites in the Aspiring Geopark Project of Seridó: 1, Underground gallery open to visitors at the Mina Brejuí Geosite; 2, Pico do Totoró Geosite, with the Pedra do Caju (Cashew Stone) geoform in front; 3, paintings on quartzite at the Xiquexique Geosite; 4, aerial view of the Nascente do Potengi Geosite, where the main river of the state is born, ending 170 km downstream at Natal, the state capital.

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Pliocene palaeontological heritage reserves in the Romanian Carpathian foreland – values and vulnerabilities

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Keywords: Dacian Basin, Eastern Paratethys, mammals, mollusks, sandy deposits

Introduction

In 2019, GeoEcoMar was granted funding for a new project on protection and valorization of the national geological heritage. For four years, this geoconservation project will assess the main values of geological and palaeontological heritage sites (palaeontological reserves) from the main geotectonic units in Romania, their current conservation state, as well as major vulnerabilities and threats to site integrity. We will also propose new reserves and carry out educational activities. This paper presents the main results of fieldwork and documentation studies concerning the Middle-Upper Pliocene (Romanian) palaeontological reserves designated on the area of the Moesian Platform, occupied during the Neogene Period by the Dacian basin, a remnant of the Eastern Paratethys.

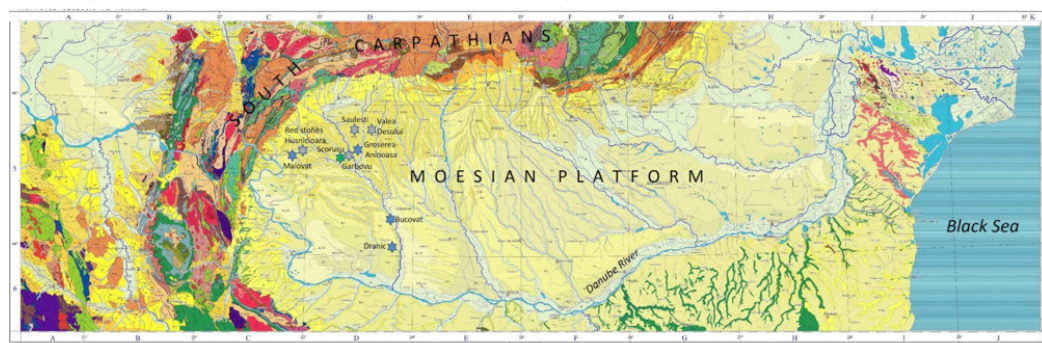


Figure 1 - Location of the Middle-Upper Pliocene palaeontological reserves of the Moesian Platform, represented as stars on the geological map of Romania at 1:1.000.000 (Săndulescu et al., 1978). Blue: good state of preservation; grey: destroyed due to human or natural causes; green: new proposal.

Methods and results

Palaeontological reserves of the Moesian Platform

Eight palaeontological reserves established in the western part of this platform were meant to protect exposures of fluvio-lacustrine sands and clays with coal layers, which had yielded mollusk and vertebrate faunas of Romanian age (Fig. 1). These are reference sites for the stratigraphy and palaeontology of mollusks and vertebrates from Eastern Europe, recording the evolution of life and climate during the Pliocene, and providing information on the main sedimentary environments of the Eastern Paratethys realm.

An assessment of the palaeontological reserves enabled a selection of the three most important geosites concerning their scientific and educational value: (1) 'Bucovăț fossil site', classical for the Romanian of the Dacian basin, with 62 species described (34 bivalves and 28 gastropods) (Bleahu et al., 1976); (2) 'Drănic fossil site', Early-Middle Romanian, with four main faunal units including bivalves, gastropods and micromammal remains (insectivores and rodents) (Rădulescu & Samson, 2001; Rădulescu et al., 2003); (3) 'Groșerea-Aninoasa fossil site', Middle Pliocene (Middle Romanian, zone MN 16a) (Fig. 2), with large mammals (*Mammuth borsoni*, *Anancus arvenensis*, *Stephanorhinus elatus*, *Equus* sp., *Metacervoceros pardinensis*, *Cervus* cf. *perrieri*, and the monodactyl horse *Equus* cf. *simionescui*) (Rădulescu et al., 2003).



Figure 2 - The fossil site at Groșerea, a succession of horizontal and cross-bedded yellow sands, yielded bivalves (unionids), gastropods and a fossil assemblage of Middle Pliocene (Middle Romanian) large mammals. Note that some sand layers are eroded following heavy precipitations, accumulating as small fans which partly obscure the lower part of the exposure.

Field research revealed that one of the reserves (Malovăț fossil site) is obscured by underbrush on a remote valley with difficult access.

By 2010, four paleontological reserves could not be identified anymore, three of them being destroyed by quarrying for local construction building, and another one destroyed due to coal extraction: Husnicioara Red Stones, IUCN Category III (Natural Monument), established in an active open pit mine (Pătruțoiu, 2010).

Vulnerabilities and threats

The Pliocene palaeontological reserves were established starting in 1949, and declared in 2000 by Law 5/2000 regarding the approval of the National Territory Planning – Secțiun III – protected areas, without evaluating or establishing their state of conservation. These sites occur as 5-30 m high, steep walls in sand-dominated outcrops. Some of them appeared as a result of sand excavation for the supply of local constructive use, and others appeared due to sliding. With a sand-dominated lithology and clay interbeds, the outcrops are prone to landsliding and are easily covered by vegetation, which pose serious problems for conservation.

Active sand exploitation contributes to the maintenance of exposures, and although it removes material, it also provides new fresh surfaces for scientific observation. In time, without human intervention, such exposures in abandoned quarries become completely obscured by vegetation and erosional processes, so they need landscape restoration.

With two exceptions, namely Drănic fossil site (Fig. 3) and Malovăț fossil site, the six remaining palaeontological reserves are not included in the Natura 2000 Network of Protected Areas, so there is no institutional responsibility for their management or protection. An alternative exposure, the Scorușu fossil site, was identified and already proposed instead of the Gârbovu palaeontological reserve (Pătruțoiu, 2010), and this site is still in a good state of preservation. Our project intends to identify alternative sites to replace other reserves destroyed by landslides or human activities, and to carry out awareness increasing campaigns to contribute to proper site management and conservation.



Figure 3 - One of the bivalve-rich layers at the Drănic paleontological reserve.

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Scientific value of the only palaeontological geosite declared as Site of Cultural Interest (BIC) in the province of Alicante (Spain): El Porquet

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Keywords: Alicante, Site of Cultural Interest, Messinian, legal protection, palaeontological site

Since 1998, the Autonomous Community of Valencia has had legislation (Act 4/1998 of the Valencian Cultural Heritage) that specifically defines and promotes the inventory and legal protection of palaeontological sites as Palaeontological Zone, a type of Site of Cultural Interest (BIC - Spanish acronym). The geological knowledge and the inventory development, carried out by different institutions, identified a display of several tens of potential sites to be legally protected in this Autonomous Community. Despite of this, 22 years later, only one palaeontological site has been legally declared as Palaeontological Zone: “El Porquet 1” (fig. 1).

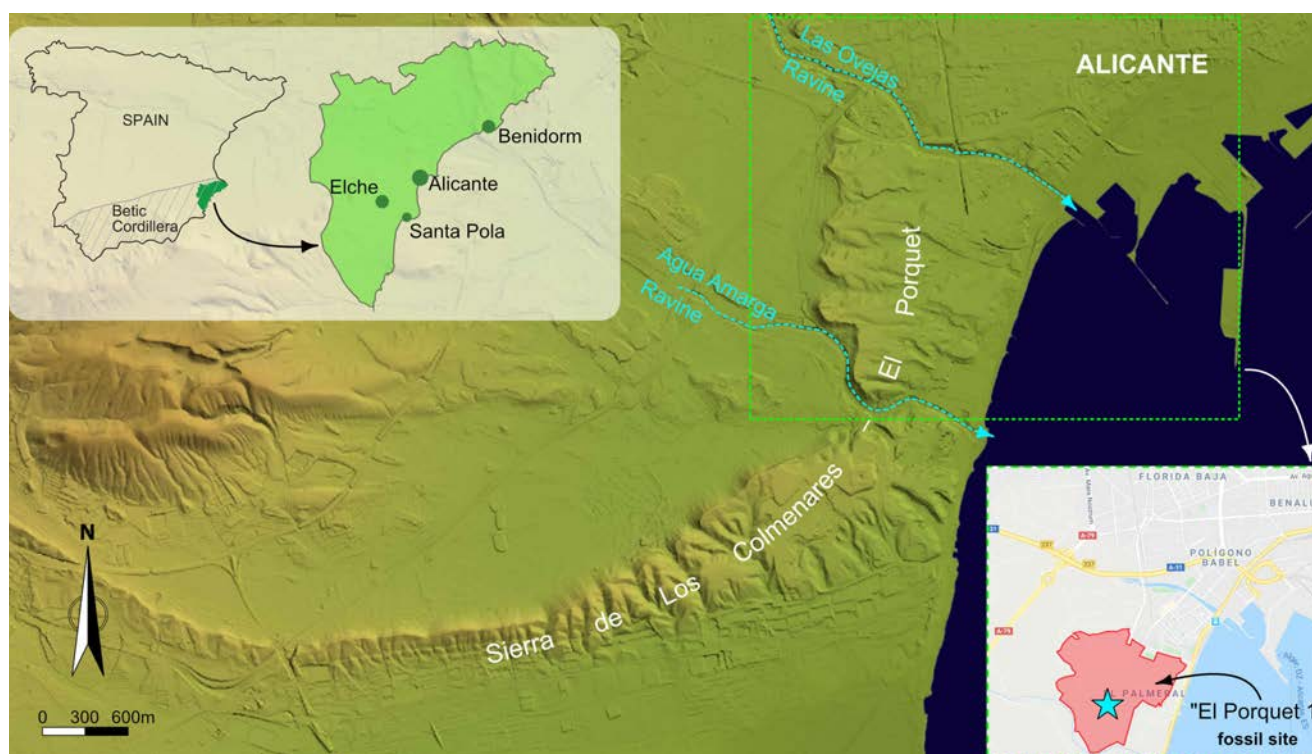


Figure 1 - General location map of “El Porquet 1” fossil site, southwest of the city of Alicante (Spain), indicating the protection perimeter and fossil site (star) on the detailed square.

The palaeontological site of “El Porquet 1” is a carbonate layer with mammal ichnites located in the Messinian II synthem (MII) of the northern margin of the Bajo Segura Basin. On this site, the Cidarís Foundation carried out a systematic palaeontological excavation in 2011 which allowed us to record 7 trackways and a total of 96 mammal ichnites (Fierro et al., 2014) (fig. 2). With respect to the trackways, two of them were produced by an ursid, and we have also documented several trackways produced by two different artiodactyl taxa. Several mastodon ichnites have also been preliminarily recognized. As a consequence of the discoveries resulting from the 2011 systematic excavation (Fierro et al., 2013), legal protection was promoted by the Government of Valencia. The “El Porquet 1” site (BIC) was published on February 2017, with two formal boundaries set by law: a fossil site perimeter, and a protection perimeter (BOE-A-2017-1662 document, published on BOE no. 41, pages 11022 to 11024). The latter one protects a very big extension that includes almost all the hills of the El Porquet area (fig. 1).

Over the past few years, our team has applied two different scientific assessment models to “El Porquet 1” fossil area: the methodology of the Spanish Inventory of Sites of Geological Interest (IELIG, from the Spanish acronym; García-Cortés et al., 2019) and the FOPALI model (Sánchez Ferris et al., 2019).

Their results are shown here:

- a total score of 5.5 over 10 points, applying the IELIG methodology to the total area of the BIC protection perimeter,
- a total score of 5 over 10 points, applying the IELIG methodology exclusively to the fossil site perimeter, and
- a total score of 5.5 over 10 points (55 %), applying the FOPALI model to the total area again.

Even if the results of the scientific assessment are similar in score, the result obtained for the IELIG method is considered a high value (between 3.33 and 6.65), whereas for the FOPALI model it is considered an intermediate value (2.2 over a maximum of 4). It is worth comparing with the rest of the province of Alicante, and to analyze if there are fossil sites with higher score obtained from the scientific assessment. We know at least two others sites with published data: the “Crevillente 2” vertebrate site (total score of 8.5; IELIG inventory), and the Santa Pola coral reef (total score of 8 with both FOPALI and IELIG methods; Corbí et al., 2017). Despite the higher values of these two latter, “El Porquet 1” is currently the only palaeontological site legally protected in the Province of Alicante. Hence, apparently, there is no relation between the scientific value of these palaeontological sites and what has been legally protected. The reason for this is that neither the province of Alicante, nor the Regional Government of Valencia, has a formal management strategy to protect and preserve palaeontological sites. The crucial issue here is that the objective assessment of heritage value is not included amongst the legal requirements for BIC declaration of a site.

Even if it is clear that most palaeontological sites have no relation with cultural heritage (for an interesting discussion about this: Fierro, 2018; Vegas-Salamanca et al., 2018), the region of Valencia, like other autonomous communities in Spain, has a legal framework that considers and regulates fossil sites as part of the cultural heritage. This is the legal context within which we have to work in Alicante. As a result, for example, to publish this abstract, our team needed to have legal approval from the regional cultural administration.



Figure 2 - Systematic palaeontological excavation carried out on June 2011.

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In the Footsteps of Darwin: Geoheritage, Geotourism and Geoconservation in the Galapagos Islands

Marsh Christian Trust Earth Sciences book award 2019

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In the *Footsteps of Darwin: Geoheritage, Geotourism and Geoconservation in the Galapagos Islands*, is a contribution to Springer's Geoheritage, Geoparks and Geotourism Conservation and Management Series, which has been developed in conjunction with agencies such as UNESCO. Given the benefits, but also the very real difficulties of developing geotourism in a fragile ecosystem such as the Galapagos, this book is very timely.

The Galapagos are well known because of Charles Darwin's visit, which changed our understanding of natural history forever. His first impressions weren't favourable - "*Nothing could be less inviting- A broken field of black basaltic lava- everywhere covered by stunted, sun-burnt brushwood*". However, Darwin later says that "*the natural history of these islands is eminently curious, and well deserves attention*", setting the stage for this book's discussion of the history, and future, of these islands in our age of tourism.

The book comprises interlinked and very well-illustrated chapters. The authors make the very important point that it is the geology and geodiversity of the Galapagos that shapes the ecology of the animals and plants that live there. The focus is often on these biotas, but the geology of the Galapagos, most notably the volcanos and associated features, has incredible potential to be important for tourism and for Geotourism. And, these 'Geoheritage features' are more robust and stable, and more amenable to visits by tourists, compared to the often fragile and endangered wildlife and plants.

The history of the Galapagos as a UNESCO World Heritage site is also discussed, with a frank discussion of some of the tensions and difficulties that have arisen. However, the focus is to the future, with a final chapter listing the Geosites available for tourism, including ones outside the Galapagos National Park.



Lava fields on Isabella with Sierra Negra in the distance – a classic, active shield volcano

This very accessible and compelling book on the Galapagos islands combines geology, ecology, history, conservation, culture, but with a firm focus on the importance and potential of geology and geological features- the Geoheritage of the Galapagos- to contribute to tourism as a positive driver for the Galapagos, and as the judges of the Marsh Award thought, setting an example for other parts of the world as well.

First legal protection applied by the Autonomous Community of Valencia based on geoheritage assessment: the K/Pg boundary at Agost (Alicante, Spain)

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Despite its internationally-recognized scientific relevance (e.g., Sorensen, 2012), the legal protection of the K/Pg boundary site at Agost (SE of Spain) (fig. 1a) was not promoted until June 2018 (Natural Monument by the Law 11/1994 of Natural Protected Areas of the Autonomous Community of Valencia). Most of the scientific studies (more than 80 references on July 2017) of the Agost site were carried out on a few outcrops, but the rest of the area is poorly known. This geosite is included in the Spanish Inventory of Sites of Geological Interest as “PT003 Clay Bed of the K/T Boundary at Agost” (<http://info.igme.es/ielig/>), and it is Geosite KT003 of the Spanish inventory of geological sites of international relevance (García-Cortés, 2008).

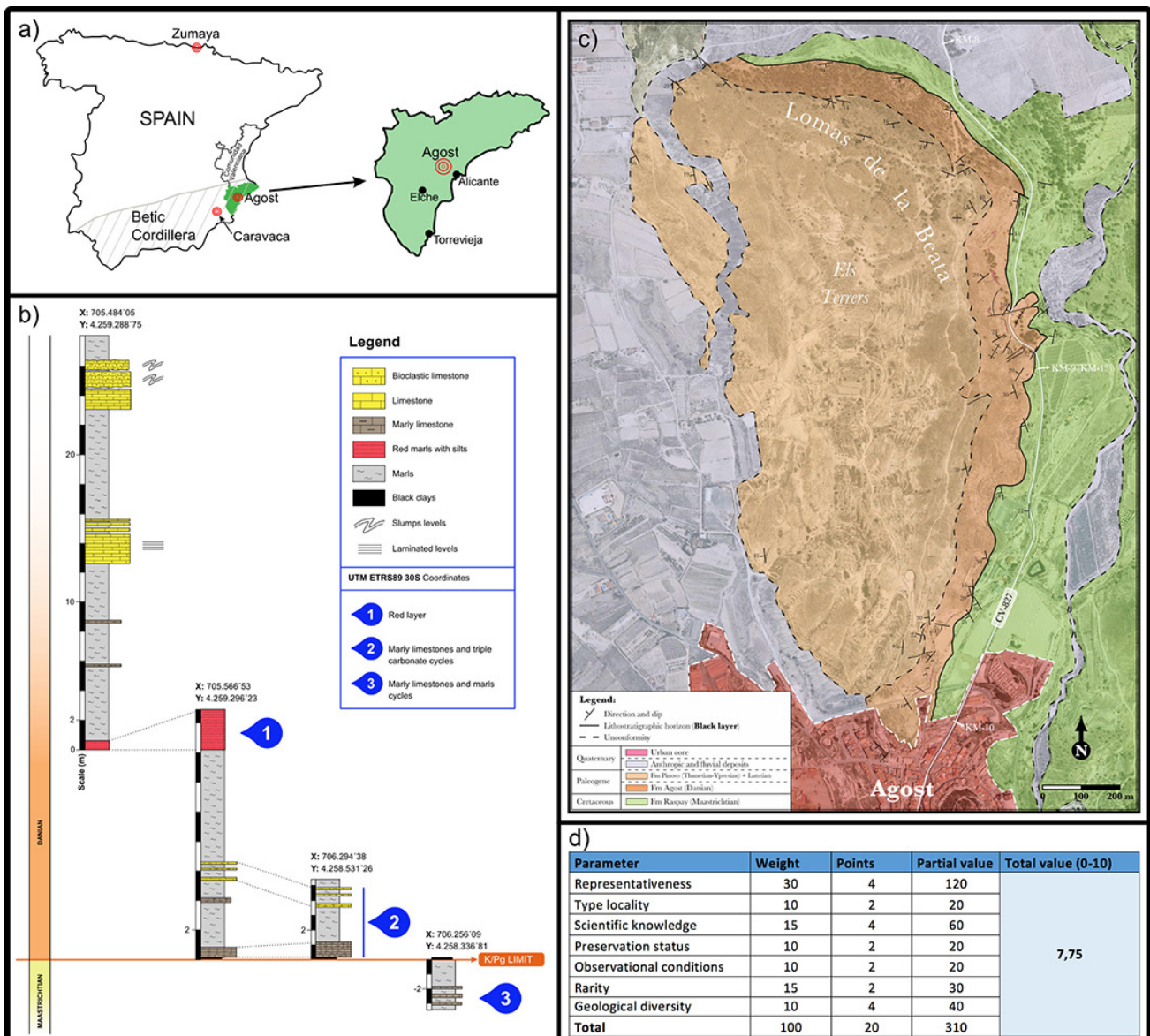


Figure 1 - General location of the geosite “PT003 Clay Bed of the K/T Boundary at Agost” (a). Lithostratigraphic criteria used to identify the K/Pg boundary in the field (b). Geological map of Lomas de la Beata, north of Agost locality, where the K/Pg boundary is located (c). Assessment of the scientific interest of this geosite based on the IELIG methodology (García-Cortés et al., 2019) (d).

The collaboration between different administrations and entities (Regional Government of Valencia, Municipality of Agost, Department of Earth Sciences and Environment of the University of Alicante, Cidaris Foundation, and GeaLand Patrimonio S.L.) in 2017 enabled the development of a project focused on the legal protection of this geosite (Fierro et al., 2017). During the project, we carried out a geoheritage report, an assessment of the scientific interest of the outcrop, and fieldwork for the detailed mapping of the K/Pg boundary. The assessment of the scientific interest has been based on the methodology developed for the Spanish Inventory of Sites of Geological Interest (IELIG: acronym in Spanish) (García-Cortés et al., 2019). Bibliographic, lithostratigraphic and biostratigraphic criteria have been used for mapping and outlining the outcrop. Fig. 1b shows several markers used for the location of the K/Pg boundary at Agost. In addition, we also used biostratigraphic criteria based on planktonic foraminifera of levigated marls and on biostratigraphic research published about the site (e.g., Arenillas et al., 2004; Molina et al., 2004). We obtained a detailed geological map of the area using units previously described for the Eastern Prebetic (Martín-Chivelet, 1994; Chacón & Martín-Chivelet, 2005) (Fig. 1c). Furthermore, the assessment of the scientific interest of the site gave a value of 7.75 out of a maximum of 10, which implies a “very high” value for this parameter (Fig. 1d).

Last but not least, the scientific information derived from all these geological studies was used to set up the basis for the legal protection of the site. As a result of all this work, developed within the framework of the FOPALI Strategic Plan of the Cidaris Foundation, the national geosite PT003 and Global Geosite KT003 of the K/Pg Boundary at Agost is the first area declared Natural Monument in the province of Alicante based on geological criteria (designation approved, formal declaration process in press; Press Clipping of the Communication Cabinet of the Autonomous Community of Valencia from April 3rd, 2020, www.agroambient.gva.es). The future of the Agost geosite now depends on the management of research, preservation and outreach.

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