



'Lower Lias' mudrocks near Charmouth, within the 'Jurassic Coast' World Heritage Site (Sinemurian to Lower Pliensbachian, Lower Jurassic). Inset shows typical excavation by fossil collectors in the area.

Consultation on fossil collecting within the 'Jurassic Coast' World Heritage Site, Dorset and East Devon UK:

Response by ProGEO and the International Subcommission on Jurassic Stratigraphy 2011.

Kevin Page, Convener, Geoconservation Working Group, International Subcommission on Jurassic Stratigraphy, c/o School of Geography, Earth and Environmental Sciences, University of Plymouth (kpage@plymouth.ac.uk)

Introduction

The Dorset and East Devon World Heritage Site in south-west England was listed by UNESCO in 1999 for its famous coastal exposures of Jurassic rocks with their rich palaeontological heritage. As the area has a long history of intensive fossil collecting, often for commercial gain, rather than seek to actively reduce exploitation, the management of the World Heritage Site (based in the local government offices of Dorset County Council), implemented a voluntary Fossil Collecting Code of Conduct in 1999 (Edmonds 2011). Remarkably for a World Heritage Site, this Code lacks an objective scientific framework and its application consolidates and promotes the commercial interests of local fossil collectors (as most recently discussed by Page and Wimbledon 2009). In an attempt to establish

a more scientifically guided and objective approach to palaeontological heritage management, the Geoconservation Working Group developed a classification of Palaeontological Heritage as a guide to Conservation in 2002 (Page 2002, 2004, etc). These recommendations (as reproduced below), however, have been consistently rejected by the World Heritage Management Group in Dorset as have many other scientifically based representations...

The implications for science and heritage are clear – is the ‘real value’ of palaeontological heritage and geo-scientific research material as part of a shared global heritage, or is it no more than a tradeable commodity subject to the whims of a globalised economy? And with the West Dorset Code promoted and managed in its present form, using commercial value as virtually the sole management tool, what implications will this have for conservation and research elsewhere? (especially if other local government authorities chose to go down the same road as Dorset County Council and place more emphasis on local economy and politics than national and global heritage).

Whether UNESCO, which oversees the management of all World Heritage sites, really understands the implications of the promotion of a commercially-biased fossil collecting code in Dorset has never really been clarified, but it is certainly at odds with the stated principles of the World heritage Convention (UNESCO 1972), the management of UNESCO Geoparks (www.unesco.org/science/earthsciences/geological_heritage) as well as the Council of Europe’s ‘Recommendation on Conservation of the Geological Heritage and areas of Special Geological Interest’ (2003) and the International Union for the Conservation of Nature’s Motion CGR4.MOT055 on the Conservation of geodiversity and geological heritage (2008).

The Consultation

In June 2011, however, the management group for the Dorset and East Devon World Heritage Site launched a three month open consultation on its ‘Fossil Collecting Code of Conduct’ (<http://www.jurassiccoast.com/299/managing-the-site-37/whs-management-167/fossil-code-review-803.html>), notification of which was provided in ProGEO News 2011/2 (Edmonds 2011). This new consultation provided an opportunity for a broader scientific community to make representation on these important matters to the Dorset World Heritage Group, in particular on how management systems in place could be improved and placed on a better scientific and heritage footing. However, as it is likely that recreational and commercial fossil collectors would respond in significant numbers so as to protect their private interests, it was essential that that as many robust scientifically-informed re-

sponses were received by the Dorset Group, if any changes in the system in place could be hoped for.

As the consultation of the Dorset Coast Fossil Collecting Code included an extensive justification for its application, both in the notification by Edmonds (2011) and on the consultation site itself (web link provided above), it is important that these ‘alternative’ views are also made more widely available. Reproduced below, therefore, are extracts from the approved, official representations of the International Subcommittee on Jurassic Stratigraphy (ISJS), as prepared, respectively, by the Convener of the Subcommittee’s Geoconservation Working Group, Kevin Page, and on behalf of ProGEO by the Association’s, Executive Secretary, Lars Erikstad.

In Dorset, as elsewhere, issues of specimen collecting continue to be the most emotive aspect of geological heritage conservation and it is indeed remarkable that despite all the advances that have been made in geoconservation in recent years – including most recently the publishing of ProGEO’s protocol (Wimbledon 2011 – accessible from www.progeo.se), local and national governments still maintain highly diverse approaches. This is clearly an issue which needs further attention, and ProGEO is perhaps the only international organisation able to take the initiative and promote a more informed and objective approach - and one that emphasises objective, heritage and scientific considerations first, rather than local economic and political ambitions...

Responses to the consultation questionnaire

“Question 1. Overall are the priorities of the code correct or flawed? In your view do the objectives that the working group adopted at the time remain valid? Need revision? Need additions?”

ISJS response: “The priorities of the Dorset Code are flawed as they reflect the requirements of fossil collectors, rather than science (Page 2006) and have led to significant underreporting and hence loss of palaeontologically important specimens from the area (Page 2006, Page and Wimbledon 2009). The Code, therefore, requires revision to better represent objective scientific priorities in both its categorisation of finds and the conservation measures taken to ensure the safeguard of such finds – in particular deposition in an appropriate institute where they will remain available for future study. Such a categorisation and guide to appropriate conservation measures was developed by the Geoconservation Working Group of the ISJS in 2002 (Page 2002, 2004) and is reproduced in Question 5 below. It is recommended that this classification and guide is adopted in Dorset to ensure that the conservation of the area’s rich palaeontological heritage is adequately scientifically informed.



World Heritage Site Heritage Centre at Charmouth, Dorset, with fossil shop below. Inset: Advertising board for fossil shop, note "Hammers for sale or rent. Good display of fossils found locally, all at competitive prices".

In addition, the Code and procedures in place fail to take into account recent international advances in the philosophy and practice of palaeontological heritage conservation, and do not even conform to UNESCO's own stated principles under the World Heritage Convention 1972 ...including in Articles 4 and 5:

"Each State party to this Convention recognises that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage referred to in Articles 1 and 2 and situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and , where appropriate, with any international assistance and co-operation, in particular, financial, artistic, scientific and technical, which it may be able to obtain" [Article 4].

"To ensure that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage situated on its territory, each state Party to this Convention shall endeavour, in so far as possible...: [including]"

"3.To develop scientific and technical studies and research and to work out such operating methods as will make the State capable of counteraction the dangers that threaten its cultural or natural heritage;"

"4. To take the and appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage..." [Article 5, extracts]

[...whilst noting that] "...the deterioration or disappearance of any item of the cultural or natural heritage constitutes a harmful impoverishment of the heritage of all nations of the world." [introductory text to the convention].

...as well as contradicting the principles under which UNESCO Geoparks are managed (www.unesco.org/science/earthsciences/geological_heritage), e.g.:

"No loss or destruction, directly or via sale, of the geological values of a European Geopark may be tolerated". [European Geoparks Network Charter: Against trading in geological objects, 2000]

The Dorset Code is also an odds with the principles of the Council of Europe's 'Recommendation on Conservation of the Geological Heritage and areas of Special Geological Interest' (2003)...in particular Appendix 4 on Protecting moveable geological heritage:

"The legal protection of areas of special geological interest (geosites, geoparks, geotopes, etc.) will provide protection from a variety of damaging activities, including protection from damage due to removal (collecting) of materials of scientific interest. Moveable geological materials may be collected for various reasons, such as: scientific study; commercial sale; educational use; curiosity value.

In certain circumstances, collection from areas of geological importance may be damaging to the area itself, or cause loss of valuable scientific information, for various reasons: physical damage may be caused to rock formations by excessive, inexpert or careless collecting; specimens may be destroyed or damaged during the act of collection; collection of rare/unusual specimens by non-specialists or commercial collectors may result in the disappearance of important scientific specimens into private collections; specimens collected in one country may be exported to collectors or museums in another country, with a perceived loss of "cultural" heritage for the country of origin.

Many European countries make use of wildlife legislation, nature conservation legislation, monument protection legislation or other legal instruments to protect areas (sites) from damage through collecting. In other cases control is exercised by educational programmes and voluntary codes of conduct.

Proposed action: Governments of member states should review their existing legal and voluntary supervision methods to ensure that moveable geological heritage is protected by appropriate legal means, in the national and international context." [Appendix 4, 2004]

...and the essence of the International Union for the Conservation of Nature's Motion CGR4.MOT055 on the Conservation of geodiversity and geological heritage (2008)...including in recalling both the World Heritage Convention and the Council of Europe statement, as cited above.

ProGEO response: "ProGEO accepts the fact that the management of collectable (moveable) geoheritage resources is difficult and that the balance between strict Geoconservation and collecting (both for commercial and private interests) may be difficult to obtain, especially in areas where commercial collecting has a long and locally strong tradition. The arguments about all the collectors that for 200 years have contributed are relevant, but must not override the concern for the geoheritage itself. It is of vital importance to focus on Geoconservation. The ultimate test if this is obtained will be that the defined geoheritage value is not reduced, but preferably enhanced in all protected and managed areas with a geological conservation aim. On a general basis, the overall geodiversity of any area (protected or not) should not be reduced. This means that the fossil content (any type), the stratigraphic geoheritage, as well as landscapes (landforms and recent processes) have their place in this discussion. Excavations or collecting should not be dealer led, i.e. be biased. There should be the strong input, guidance and leadership from the scientific community. By that we mean specialists who have actively made a contribution to geological science on this coast.

One main concern with the code is the significant underreporting of collected specimens (stated by the ISJS – see under "any other comments"), and hence a loss of knowledge about this geoheritage. This represents a challenge for the management and it is important that this information is integrated in the discussion of the strategy. If the information is challenged, it is important to seriously test the alternative information with enough detail. Independent of management strategies, this monitoring of the management effects must always be a central element. Monitoring must feed the management with updated information. This information must be open for criticism and adjustments from research. In this way the management can be knowledge-based and able to adjust and to respond to the need of the conservation aims of the area."

"Question 2. What are the barriers and issues relating to acquisition and how can they be overcome?"

ISJS response: "The Dorset Fossil Collecting Code relies on a significant financial input by the state to facilitate the purchase of collected specimens. As such it establishes and promotes a market place for fossils which can only adversely affect scientific and heritage concerns as 'ability to pay' takes priority over scientific importance. This approach is short sighted and ultimately highly damaging, as few institutions or researchers are able to compete in this marketplace – indeed it is highly unlikely that research grant awarding organisations, especially in the current global financial context, would even consider funding the purchase of research materials. What makes the situation even more remarkable in Dorset, setting aside the World Heritage listing of the area, is that existing conservation legislation and land-ownership rights could be invoked to make any such market-led approach

unnecessary and ensure deposition in appropriate institutions. It is recommended that the later approach is adopted and that the managers of the World Heritage site in future seek to work closer with a scientific community rather than a commercial fossil collecting community."

ProGEO response: "It is important that the scientific interest of the area is acknowledged. Important specimens should be open for research and display. The existing system seems to include a reporting element and a compensation element if the specimen is of scientific interest. The comments of ISJS are concerned with the effect of the commercial element of the code. This has two dimensions:

The need to secure the report procedure and a relevant monitoring of the development and policing of existing rules.

The problems linked to lack of resources to obtain relevant specimens and the general effect of accepting commerce in the management.

The first point is commented above. The second point is more complex as there is a market already functional that it is difficult to ignore. It is, however, important to take this seriously, keep the debate open and take into account new research on the effects of different strategies. In any case, it is vital to budget with enough resources so that this scientific important heritage can be secured. Such funding is necessary either in securing these specimens from collectors and (or) policing conservation rules and fund a relevant monitoring of the area."

"Question 3. "The West Dorset coast is a robust site subject to high erosion rates. Ex situ collecting effort is high but the coast remains in 'favourable condition' and research can be undertaken. Do you agree or disagree with that statement? What is the evidence to support claims of damage to the scientific interest within this site? Statements, views or opinions will be of more value if supported by evidence."

ISJS response: "Some areas of the coast, in particular cliffs between Lyme Regis and Charmouth, do erode rapidly but elsewhere, foreshore exposures can be relatively stable and cliffs protected by high storm beaches, boulder shores and landslip/talus platforms. This statement is therefore highly misleading and in reality the coast could be zoned as to effective erosion rates. Unfortunately many scientifically informed statements about loss of palaeontological heritage and damage to the site have been consistently ignored by the administrators, whilst promoting the contradictory and unscientifically-informed views of others such as commercial fossil collectors. This is to be regretted.

One case history has been described, however, and demonstrates the level of palaeontological loss through the application of the current fossil collecting code:

"Analysis of the register of finds provides an indication of the level of this loss, when compared to scientifically gathered records from an adjacent road scheme. These figures indicate that over 1300 specimens of particular scientific note should have been recorded from the World Heritage site over the period 1999-2002. The actual figure reported of only 36 specimens over the period, even allowing for a

few unrecorded academic studies, demonstrates that the code has delivered little scientific benefit. Even with figures up to 2005, only around 40 specimens more are recorded, around 30 of which are small insect fragments, most of which are likely to have been discarded as larger fossils were prepared in local workshops (Page 2005, 2006).” [Page and Wimbledon 2009]

Even up to 2011 as recorded in the documents supplied with this consultation, only 265 specimens’ of scientific importance’ have been recorded in the 12 years since the area was listed as a World Heritage site – an average overall of only around 20 specimens a year – if the area is truly of such great international palaeontological importance these figures should be much higher. Again this indicates the failure of the current code to adequately record and safeguard the rich palaeontological heritage of the WH site, with potentially great consequences for science.”

ProGEO response: “The robustness stated for the area is linked to its size and its exposure to erosional processes, but the degree of vulnerability for the geoheritage to human activity such as collecting, is variable as should be expected in an area of this size. It is important that the existence of robust parts do not cause mismanagement of less robust areas. A relevant tool would be to include a management plan that not only divides between different fossils and their need for conservation, but also divides the area into zones with different conservation needs according to their vulnerability. One aim of the code should be to promote the idea that geological material should be possible to be viewed in situ. The culture of collecting is in this respect problematic and cannot be argued to be sustainable if it results in the loss of important geoheritage. The practice will then not conform to the norms of geoconservation good practice. It would be good also to see promotion of no collecting, but only looking as a part of the code. The loss of material and data in the form of invertebrate fossils is reported to be a concern. In some places, the index species for zones or a typical fossil fauna may be absent and they consistently cannot be demonstrated to a visiting educational group. On a coast famous as a classical standard for the Jurassic and Cretaceous, the reason it is a WH Site, this is indeed regrettable.”

“Question 4. Is there an alternative, more effective, practical and affordable way to achieve the objectives set out in the code or alternative objectives that you have identified?”

ISJS response: “Yes – revise the Code to reflect scientific principles (see below) and enforce existing conservation and landowner-related legislation and bylaws. Establish genuine scientific working groups, for instance including representatives from the ISJS and other national and international scientific organisations, and develop and train volunteer groups to monitor the coast and report and recover key finds without sale. This use of ‘voluntary wardens’ and ‘site curators’ has worked well in many other countries.

In addition, it would be useful for the Dorset WH management group to reform procedures based on existing scientifically informed and adequately consulted guidance such as the excellent fossil collecting code produced by Scottish Natural Heritage in 2008.”

ProGEO response: “See points [previously stated] concerning monitoring and management plans with zonation according to robustness and vulnerability.

It is reported doubt to us if the nature of consultation on the E.D/D WH Coast is effective enough. There may be a need for improved direct and concerted liaison and involvement of researchers on the coast. It is important to secure mechanisms for assaying the activity of geologists on the coast keeping up-to-date with their research, and effectively canvassing their views when developments and threats arise. A small research budget (and a small research committee) for investigation and research in the WH site may prove useful in this respect. This can be used to cover, amongst other things, rescue digs, excavations and collecting where some conservation and scientific imperative exist. This has been suggested before and we think it is a good suggestion that can counteract some of the problems and worries expressed comments.”

“Question 5. Defining scientific importance. Are the categories defining scientific importance correct and if not why not? What is missing?”

ISJS response: “The recommendations of the Geoconservation Working Group of the ISJS...provide a scientific context for the wise management of palaeontological heritage [Page 2002, 2004]. It is recommended that these principles are adopted in Dorset.

Category 1: Specimens of typological importance for the definition of fossil species as regulated by the International Commission on Zoological Nomenclature (a UNESCO project), including holotypes, lectotypes, neotypes and syntypes.

Every type specimen is a global reference for the species it defines, it is therefore irreplaceable. The type specimen of even the smallest oyster species is more important, in heritage protection terms, than a skeleton of a large dinosaur, if the latter has no typological significance.

Scientific method therefore dictates that all Category 1 fossils must be deposited and protected in nationally recognised scientific and cultural institutions and legal systems should aim to achieve such ends.

Specimens only become types, however, after scientific study, which can only be facilitated by free and open access to palaeontological localities for bone fide geological study.

Legal systems should on the one hand ensure that such access can take place and on the other hand seek to guarantee that institutional deposition and full protection of the relevant specimens is achieved once study is completed.

Category 2: Specimens figured or cited in scientific papers or unique, rare or exceptionally complete specimens or assemblages of specimens of fundamental importance to actual or future scientific studies.

Specimens belonging to Category 2 are fundamental to the science of palaeontology, both as the evidence for published studies and as the raw material for ongoing or future studies.

Conservation and legal systems or practice should, therefore, ensure, including through the use of expert advisors or assessors, that such specimens are deposited and protected within nationally recognised institutions, where they will remain accessible for future study and appreciation.

Category 3: Key specimens of stratigraphical or palaeobiological significance, material complementary to ongoing scientific studies, specimens of especial suitability for museum display or educational use, by virtue of completeness or other features of instructive value.

Category 3 specimens are not only important for ongoing scientific research, they are also important for scientific education. They would include rare records of important taxa better known at other localities and assemblages of ecological or stratigraphical importance in place in natural outcrops. Specimens of high educational value are included, even if their research potential is more limited.

Conservation and legal systems or practice should aim, therefore, to promote the wise management of this resource by preventing the over-exploitation of Category 3 fossils and ensuring that the needs of educational and research are not prejudiced by activities such as commercial or unregulated recreational collecting.

Wherever possible, these procedures should encourage the deposition of Category 3 fossils in national or regional institutions, to maximize availability for future scientific study or educational use.

Category 4: Common and representative species and specimens, well represented in national museums and other institutions, or sufficiently abundant that any non-scientific collecting or removal will not prejudice future scientific work; specimens collected loose, for instance from scree, rubble or beach material, where the lack of stratigraphical information significantly reduces scientific use.

Such specimens can be very abundant, even rock-forming and may even become part of a commercial mineral resource, such as limestone or coal. The use of such specimens for teaching, public education and personal enjoyment provides opportunities to promote a respect and understanding for geological heritage, without prejudicing its long-term conservation.

Category 4 fossils do not normally require legal protection, especially when they lie outside of protected areas. It is therefore recommended that legal systems adopt a degree of flexibility to allow more public experience of palaeontological heritage belonging to Category 4, but at the same time providing guarantees, guidelines and statutes to ensure that any new finds assignable to categories 2 and 3, or potential to Category 1, can be fully protected.

Categories 1-3 would be considered to be of "significant scientific importance" in the context of palaeontological heritage management with only Category 4 specimens considered to be as "not of significant scientific importance".

ProGEO response: "It seems that the categories are very linked up against collectors and the specimens themselves and perhaps lack links to scientific importance of stratigraphy etc. A better link to other systems such as commented by ISJS may be useful."

"Question 6. Quality of the records. Is the level of detail enough? Suggestions are welcome."

ISJS response: "No – the records have not been scientifically reviewed and are often incomplete or potentially inaccurate. In addition, the failure if the Code to record many types of specimen means that the listings are of limited use, except perhaps to vertebrate palaeontologists, as the recording of such specimens is better promoted by the Code."

"Any other comments"

ISJS comments: [Bibliography included, incorporated below].

ProGEO comments: "ProGEO considers that, as a unique World Heritage Site (WHS), the Geoheritage and the Geoconservation of the Jurassic Coast must be in the forefront when developing its management strategies. As an international site, it is also clear that the management of this unique World Heritage site is of international interest. It is therefore reasonable to express content over the open process to collect opinions about the code. ProGEO have received the comments issued by the International Subcommittee for Jurassic Stratigraphy (ISJS) of the International Union of Geological Sciences and have on this basis some general remarks that we think are of great importance. Many of the questions in the questionnaire are very detailed and it is difficult for ProGEO as an European Association to answer them specifically. We have therefore made our comments more general. Our comments do not necessarily mean that these aspect are forgotten in the code, but it important never the less to highlight the principles necessary to develop a sustainable management of such an unique heritage.

To achieve the necessary level of geoheritage conservation and management, it is important to take into account recent advances in the philosophy and practice of this heritage such as the Council of Europe's 'Recommendation on Conservation of the Geological Heritage and areas of Special Geological Interest' and the International Union for the Conservation of Nature's Motion CGR4.MOT055 on the Conservation of geodiversity and geological heritage. It is also interesting to note that the principles under which UNESCO Geoparks are managed goes far in establishing quite different principles concerning geoheritage management and put up central management questions for relevant discussions also for a WHS.

However much local or national authorities want to support collectors and an established collecting tradition, the point must be to see that when the scientific loss is greater than the gain, management does not function effectively. We want

to stress two things about the outcome of the management of the area.

It must reflect the principles, intentions and decisions of a WHS. The effective management must be a consequence of the decision to designate the area as a WHS. We feel that there should be a short and very clear statement that the aim of the WH site's management is the conservation of the site and its scientific materials, and that this aim should always involve consideration of scientific and heritage gain first, before any individual's or group's financial gain.

Plans on management must be pro-active to include collectors in the process to conform to the principles of WHS management. We appreciate the problem of locally sensitive issues, but such issues should not override this main principle."

References/ Bibliography

COUNCIL OF EUROPE 2003. 'Recommendation on Conservation of the Geological Heritage and areas of Special Geological Interest' (<https://wcd.coe.int/ViewDoc.jsp?id=740629&Lang=en>).

EDMONDS, R. 2001. Fossil collecting on the West Dorset Coast: a new voluntary Code of Conduct. In: BASSETT, M.G. et al. A Future for Fossils: 46-51. National Museum of Wales Geological Series 19, Cardiff.

EDMONDS, R. 2011. Review of the West Dorset (UK) fossil collecting code of conduct. ProGEO News 2/ 2011: 1-6.

INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE 2008. Motion CGR4.MOT055 on the Conservation of geodiversity and geological heritage (http://www.progeo.pt/pdfs/iucn_geod.pdf).

PAGE, K.N. 2002. Geoconservation Working Group: proposed statement on the conservation of palaeontological heritage and stratotypes. In: MARTIRE, L. (ed.), 6th International Symposium on the Jurassic System, Mondello, Sicily, Italy (September 12-22, 2002): Third Circular. International Subcommission on Jurassic Stratigraphy: Appendix (electronically published).

PAGE, K.N. 2004. The protection of Jurassic sites and fossils: chal-

lenges for global Jurassic science. *Rivista Italiana di Paleontologia e Stratigrafia* 110: 373-379.

PAGE, K.N. 2005. Reconciling science and heritage protection: Recommendations from the Geoconservation Working Group of the International Subcommission on Jurassic Stratigraphy In: Hanzo, M. (coord.), *Colloque Hettangien à Hettange, de la science au patrimoine, Hettange, 1-3 avril 2005*: 129-123. Université Henri Poincaré, Nancy.

PAGE, K.N. 2006. Report of the Geoconservation Working Group. International Subcommission on Jurassic Stratigraphy, Newsletter 33: 21-25 (electronically published).

PAGE, K.N. 2008. Report of the Geoconservation Working Group. International Subcommission on Jurassic Stratigraphy, Newsletter (electronically published).

PAGE, K.N. and WIMBLEDON, W.A. 2009. The conservation of Jurassic heritage in the UK – a critical review of current practice and effectiveness. *Volumina Jurassica* 6: 163-173.

PAGE, K. 2010. World Heritage 'For Sale' – state supported trade in global palaeontological heritage in Dorset, UK – and its consequences. (Abstract). In: Mügge-Bartolović, V., Röhling, H.-G. and Wrede, V. (eds), *Geotop 2010: geosites for the Public, Palaeontology and the Conservation of Geosites*. Schriftenreihe der Deutschen Gesellschaft für geowissenschaften 66:

SCOTTISH NATURAL HERITAGE 2008. Scottish Fossil Code. Scottish Natural Heritage, Edinburgh (available from www.snh.org.uk/pdfs/fossilcode)

UNESCO 1972 World Heritage Convention (<http://whc.unesco.org/en/conventiontext>).

WIMBLEDON, W.A.P. 2011. Protocol on geoconservation. ProGEO News: 3/2011: 1-2.

ProGEO NEWS welcomes further views, perspectives and experiences on this issue. How to manage geoheritage is a central issue for Geoconservation and ProGEO NEWS wants to be a meeting point for such debates.
The editor



Illegal excavation of a ?partial ichthyosaur skeleton from the Lower Lias of the Axmouth-Lyme Regis National Nature Reserve, west of Lyme Regis (Hettangian, Lower Jurassic). Inset shows trace of paddle. The reserve is in theory one of the most 'protected' parts of the 'Jurassic Coast'

Paleogene small mammals from Babušnica-Koritnica Tertiary basin

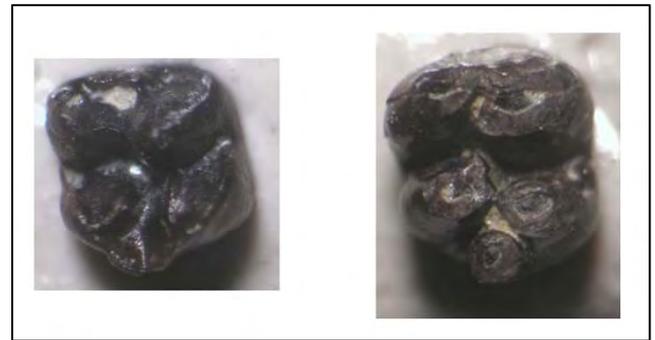
Zoran Markovic, Nature Museum in Belgrade, str Njegoseva 51.

Due to the results of the project "The evolution within isolated ecosystems: Neogene lake systems of the Dinarides", which brought together experts from the Natural History Museum in Vienna, Institute of Earth Sciences at Utrecht University and Natural History Museum in Belgrade, in the past five years, more Paleogene and Neogene sites in Bosnia and Herzegovina and in Serbia, with numerous remains of mammals, have been discovered. New species and genera, primarily small mammals, emphasize the importance of the role of the central Balkans in the development of Neogene fauna of Europe, Asia and Africa. The results of the project were an incentive for the beginning of the detailed research in freshwater Paleogene sediments on the territory of Serbia.

In spring 2010 the two-member team of the Natural History Museum in Belgrade started the preliminary sampling along Koritnica and Babušnica (Lužnica) Tertiary basin. Based on previous findings of flora, fish and diverse paleomagnetism, the marl from the highest parts of the series was identified as one of the Oligocene age. Southwards from Babušnica, in the villages of Strelac, Raljin and Valniš, the lowest layers of banked sandstone, sandstone, clays and conglomerates were discovered. From relatively thin intercalations of clay (10-50cm) with visible fragments of mollusks and coal, numerous remains of vertebrates were found using washing methods. These vertebrate remains were represented by fragments of bones and teeth of small and large mammals, teeth, bones and cover plates of crocodiles, and ribs, forks and plates of smaller reptiles and amphibians.



Site Strelac 1



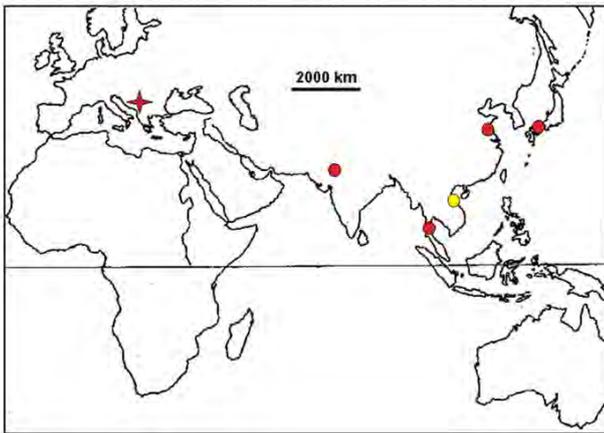
Diatomyidae teeth from sites near Babušnica

Excavations were carried out on several occasions during 2010 and 2011. The greatest amount of material was collected in September 2011 when the Belgrade Museum team together with experts from Utrecht participated in the research. Over 10 000 kg of sediments were collected manually and mechanically. Sieving was done in the field using static and vibrating sieve. Over 800 small mammal teeth (Lipotyphla and Rodentia) were separated from the excavated material. Identification was done in parallel at the Natural History Museum in Belgrade and at the Institute of Earth Sciences in Utrecht. Based on teeth, so far it has been concluded the remains of over ten species of rodents. Some of them show similarities with forms from Turkish Thrace and Lower Caucasus in Turkey, while others are new to science. All these genera, and therefore first finds in the Balkans. For example, a representative of family Diatomyidae is new, not only for Europe, but for this part of the world too. In fact, geographically the closest finding of now known representatives of this family came from Pakistan. Other rare fossils are known from the Tertiary of the Far East, where only a relic of the family is present (in Laos). Based on some similarities with the aforementioned fauna of Turkey, it is assumed that the age of the findings in Serbia is on the Eocene-Oligocene boundary. All other known representatives of the family Diatomyidae are geologically younger. It suggests that the form from Serbia can be considered as parent form, at least for now. This is not surprising because the results of the recent surveys of fossil small mammal from central Balkans have given a whole new picture of their evolution.

The great importance of the findings from the vicinity of Babušnica for addressing the diversity of Paleogene mammalian fauna ("Grande Coupure"), requires further multidisciplinary research in the laboratory.

As a part of the Struma "zone", Babušnica basin extends along its southwestern part, towards the Bulgarian border. Therefore, along with research in Serbia, another research should be started in Bulgaria. The only known finding from sediments in Bulgaria is the remains of the genus *Anracotherium*.

In any case, the work of the team from the Natural History Museum in Belgrade has shown the necessity of fossil mammal research. Over twenty new Paleogene and Neogene sites in Serbia, Bosnia and Herzegovina and Croatia can no longer be ignored in mapping the distribution of fossil mammal fauna, which has so far been quite common.



★ Strelac, Valniš and Rajin ● Other findings of fossil remains of diatomide. ● The area of only one recent representative.

This map shows how remote are the sites where the remains of Diatomidae has been found.

Online publication available:

Earth Heritage, the geological and landscape conservation magazine.

Seabury Salmon

The magazine can be viewed and downloaded as a pdf file at www.earthheritage.org.uk. The new issue of Earth Heritage, number 36 is now available.



What is Geotourism

José Brilha, jbrilha@dct.uminho.pt

The International Geotourism Congress was held at the Arouca Geopark (Portugal). The Portuguese Group of ProGEO was one of the associated organizations. Jonathan B. Tourtellot (Founding Director, National Geographic Center for Sustainable Destinations - <http://travel.nationalgeographic.com/travel/sustainable/>) and responsible for the National Geographic concept of geotourism that, as you know, has a slight different scope when compared with the European (and Australian) geotourism concept, was present. One of the aims of the congress was to try to define a unified concept that could be embraced by all. During the closure session a text, "Arouca Declaration" was agreed on. The text is sited below and represents a new possibility for a more unified understanding of the geotourism concept. National Geographic will now follow this geotourism definition.

AROUCA DECLARATION

The International Congress of Geotourism, under the auspices of UNESCO, took place in the Arouca Geopark (Portugal) from 9th to 13th November 2011. The theme was Geotourism in Action - Arouca 2011. As result of the discussions that took place during this event, the Organizing Committee, in keeping with the principles put forth by the Center for Sustainable Destinations – National Geographic Society, presents the Arouca Declaration, which establishes the following:

1. We recognize that there is a need to clarify the concept of geotourism. We therefore believe that geotourism should be defined as tourism which sustains and enhances the identity of a territory, taking into consideration its geology, environment, culture, aesthetics, heritage and the well-being of its residents. Geological tourism is one of the multiple components of geotourism.
2. Geological tourism is a basic tool for the conservation, dissemination and cherishing of the history of Life on Earth, including its dynamics and mechanisms. It enables visitors to understand a past of 4600 million years so as to view the present from another perspective and project possible shared futures for the Earth and humankind.
3. Appreciation of geological heritage through geotourism should try to break new ground and prioritise the use of new technology over the use of traditional information posters.
4. Knowledge and information about geological heritage is often not presented a way that is easily understood by the general public. As a rule, this information comes in the style of scientific treatises which, besides using highly specialised language, leave visitors in the dark and limit touristic impact. Information must be accessible and intelligible for the general public, presented in a few basic concepts and with clarity,

resulting in the combined efforts of scientists, interpretation experts and designers.

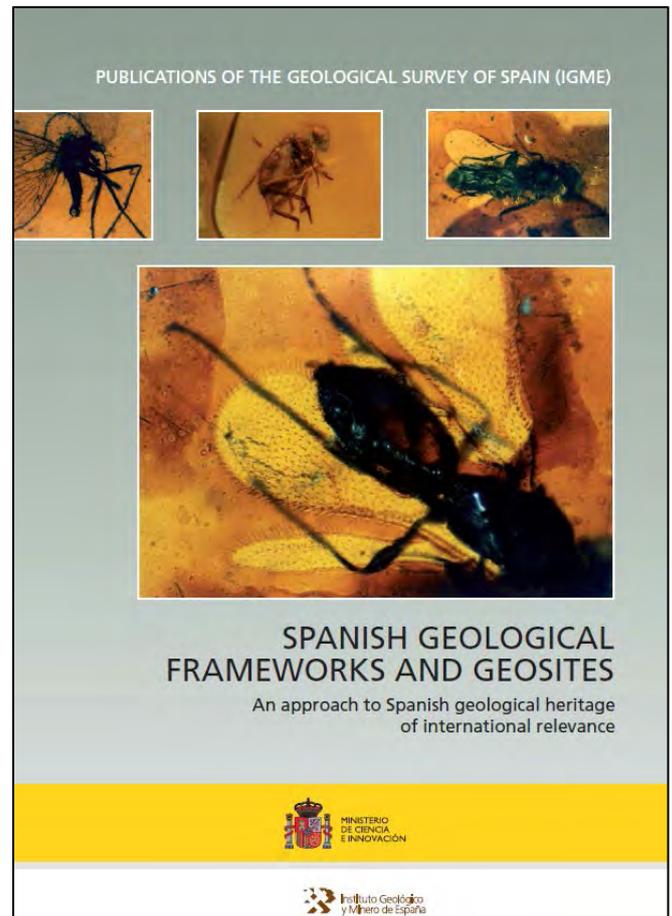
5. We thus believe the time has come to resurrect the basic principles of interpretation proposed in 1957 by Freeman Tilden and apply them to geological heritage:

- Any presentation of geological heritage that does not somehow relate to something in the personal experience of the visitor will be sterile;
- Information is not interpretation. Interpretation is revelation based on information. The two things are entirely different, but all interpretation includes information;
- The interpretation of a natural space must provoke and arouse curiosity and emotion much more than teaching;

6. We encourage territories to develop geotourism focused not only on the environment and geological heritage, but also on cultural, historical and scenic value. In this sense, we encourage the effective involvement of local citizens and visitors, so they are not restricted to the role of tourist spectators, thus helping to build a local identity and promote what is authentic and unique in the territory. In this way we ensure that the territory and its inhabitants obtain environmental integrity, social justice and sustainable economic development.

Of course argument of the meaning of “geo” within the term will certainly still exist, but now the geological element in geotourism is clearly visible and agreed on. For more discussions including comments from Tom Hose see:

<http://newswatch.nationalgeographic.com/2011/11/16/unesco%E2%80%99s-%E2%80%9Cgeoparks%E2%80%9D-embrace-geotourism/>



Spanish geological frameworks and geosites

Enrique Diaz-Martinez, e.diaz@igme.es

The English version of the book: "Spanish geological frameworks and geosites: An approach to Spanish geological heritage of international relevance" is now available in the following URL: <http://goo.gl/bD5Ze>. Copies of the CD are also available upon request.

VII International Symposium Pro-GEO on the Conservation of the Geological Heritage

Bari, Italy, 23-28 September 2012

Please check out the first circular at: <http://www.geoheritagesymposium-bari2012.org/>

Or: www.progeo.se



Dear IUCN Members, Colleagues, Friends,

As the year 2011 draws to a close, we wish to extend our heartfelt thanks for all that you are doing to conserve nature so that our beautiful planet may have a chance to sustain present as well as future generations. It is heartening that nature is increasingly recognized for the solutions it provides to challenges such as climate change, food security and poverty.

We look forward to seeing many of you at our World Conservation Congress in Jeju, Republic of Korea next September, and to continuing our work as a Union with a growing and diverse membership, a vibrant community of experts volunteering their time and talent to our Commissions, and our dedicated global Secretariat team.

With best wishes to you and your families for a healthy and peaceful New Year.

Julia Marton-Lefèvre
Director General

Ashok Khosla
President

Deadline next issue of ProGEO NEWS: Mars 15th 2012

Please do not forget to send contributions to ProGEO NEWS. Members are interested in things that happen all over the world, your experiences, geosites, everyday geotopes and landscapes, geoconservation and geotourism efforts! ProGEO news is published on the internet after ½ year:

www.progeo.se

Please send your contributions 500 – 2000 words with photographs, maps and figures to:

lars.erikstad@nina.no

If longer texts are needed, please contact the editor

ProGEO: European Association for the Conservation of the Geological Heritage. • **Address:** Box 670, SGU, SE-751 28 Uppsala, Sweden. • **Treasurer:** Sven Lundqvist. • **Bank:** SWEDBANK, SE-105 34 Stockholm, Sweden. Swiftcode: SWEDSESS. **IBAN:** SE91 8000 0838 1613 7672 5782. • **Membership subscription:** personal: € 50 (including GEOHERITAGE subscription), 25/yr.(without journal subscription), institutional: €185/yr. • **President:** W.A.P. Wimbledon, Postgraduate Research Institute for Sedimentology University of Reading, Whiteknights, READING RG6 6AB, United Kingdom. • **Executive Secretary:** Lars Erikstad, NINA, Gaustadaleen 21, NO-0349 Oslo, Norway. **ProGEO NEWS** - A ProGEO newsletter issued 4 times a year with information about ProGEO and its activities. Editor: Lars Erikstad, NINA, Gaustadaleen 21, NO-0349 Oslo, Norway, Phone: + 47 40 46 20 53, Fax: +47 73 80 14 01, e-mail: lars.erikstad@nina.no. Contributions preferred by mail (Unformatted Word- or ASCII-format).

ProGEO NEWS produced with support from the Norwegian directorate for Nature Management