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Fossils can be abundant following storm events; this handful is just part of a collection made in less than an hour immediately after a storm. Not surprisingly, these ammonites are common and well represented in museum collections across the country.

Review of the West Dorset (UK) fossil collecting code of conduct.

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Review of the West Dorset (UK) fossil collecting code of conduct is presently in a review process. The following text is an extract from the review document exploring the core issues and rational behind the code.

The West Dorset fossil collecting code of conduct (the code) was developed by a working group with representation from the conservation agencies, landowners, the scientific community, including museums and collectors and, following consultation and a trial period, was adopted in the late 1990's. It applies to the coast between Lyme Regis and Burton Bradstock or stratigraphically, the Lower and part of the Middle Jurassic. The code has been accepted by UNESCO as appropriate management for this type of site through the Dorset and East Devon Coast World Heritage Site Management Plan. The code continues to be administered through the fossil code working group.

This is an exceptional site; a rapidly eroding coastal section that is the source of internationally important fossils contained within an internationally significant geological section maintained by spectacular coastal processes; including episodic massive landslides and storms.

The priorities of the code are twofold. First; that fossils should be recovered before they are destroyed by the very processes that expose them; landslides and storms, and second; that everyone should have access to information about what is being found.

A rapidly eroding coastline. The Spittles landslide of May 2008, just east of Lyme Regis. Three hundred metres of Lower Lias strata collapsed onto the beach in less than an hour. Erosion is very episodic and unpredictable and can often be very dramatic.

The Code then outlines responsibilities amongst collectors. Specimens of key scientific importance should be offered first to accredited museums if they are to be donated or sold. Collecting in situ is restricted and the fossils within the cliff sections may only be removed with permission from the landowner unless these are specimens (principally vertebrates and large crinoid slabs) at immediate risk of being damaged or destroyed by the sea or found by others, where these may be extracted immediately and retrospective permission sought.

The code recognises the essential and demonstrable role that collectors, notably local collectors, have always played in the recovery of fossils, from Joseph and Mary Anning some 200 years ago to those of today, who continue to make new discoveries.

However, the Code review identifies a number of key issues and challenges associated with the ongoing collection of the fossils. These centre upon the following:

- The numbers of specimens under public control: Less than 15% of the specimens recorded and defined as being of 'key scientific importance' have so far found their way into accredited museum collections.
- The Coast as a science resource: Collecting effort is high along parts of the site, leading to the recovery of many common forms of fossils that are well represented in museum collections together with occasional, rare and highly significant specimens that are new to science. Despite this high collecting effort, fossils of great scientific interest are typically rescued 'just in the nick of time'.
- The coast remains in 'favourable condition' and fossils in situ remain reserved principally for scientific study that can and does continue.
- The educational parties using the Coast: Many geologists interest in the subject was sparked at a young age by a visit to this coast. The promotion of the Earth sciences to the general public is important to the long term profile of what many would say is an often overlooked subject. The coast, particularly around Charmouth and Lyme Regis, is a focus for major educational activities; several museums/heritage centres and individuals lead numerous guided walks for schools and the general public, throughout the year. This is an entirely sustainable activity in terms of the coast in that the common fossils are abundant and renewed by the natural erosion rates at work on the cliffs. This activity delivers significant economic benefits to the local area, manifested by the number of fossil shops and guided walks.
- Leisure visitor collectors and their safety: A small minority of tourists do continue to clamber up and pick away at the cliffs but the scientific interest is unlikely to be damaged by such activity which also makes no significant contribution to erosion rates. The concern is much more for their safety.
- Current views amongst academics of the Code: The view of the academic community to collecting is almost certainly mixed. Many we know are highly supportive of collecting while some have expressed concerns or reservations about the level of collecting effort along this coast.

A key objective of the consultation is therefore to canvass and record the full range of opinion, particularly from within the academic community. We would like input on the following issues.

- Does the site remain in good condition and are the priorities of the fossil code working group correct?
- Can scientific investigation be undertaken?
- Is it better that the specimens are recovered, even if they remain in private hands, where they may be kept, swapped, sold or donated, than to seek a more restrictive approach that essentially attempts to control the destiny of important fossils?
- Is co-operation preferable to coercion?

It is difficult to imagine how a more restrictive approach that might lead to loss of co-operation, good will or trust with collectors, would improve the chances of important specimens, particularly vertebrates, being rescued. Is there an alternative, more effective, practical and affordable way to achieve the objectives set out in the code or alternative objectives?

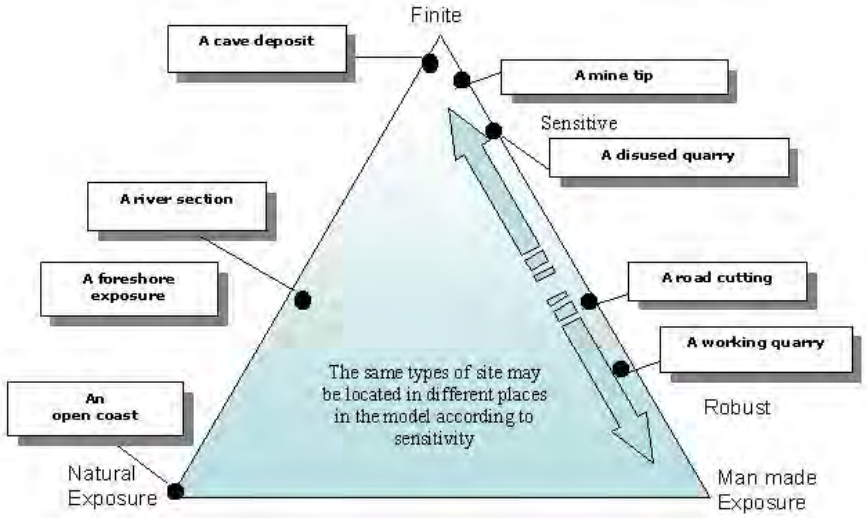
We are very keen also to get international input in this process. The full material have a documentation and a series of questions that we would like to get opinions on by the end of September 2011. The responses will be reviewed by the Science and Conservation Advisory Group and the fossil code working group and incorporated into the review of the code where appropriate. The full documentation can be accessed at (the questionnaire will be found in appendix 7):

http://www.jurassiccoast.com/299/managing-the-site-37/whs-management-167/fossil-code-review-803.html

The code would appear to have fulfilled the priorities in that fossils are recovered rather than destroyed and that everyone has an opportunity to view most of what has been found. Digging in the cliffs has been greatly reduced and supported by an unprecedented legal action by the landowners signed up to the code. The fossils of stratigraphic significance in situ remain reserved for scientific study where they can be and have been accessed for study. The earth science interests of the West Dorset coast are in favourable condition. The record of key scientifically important fossils, while not absolutely complete, does capture the history of important finds over the last decade. There is evidence to suggest that not all fossils of scientific importance are being registered but it is likely to be a small number as there is no reason why collectors would not wish to register specimens.

Broad Ledge east of Lyme Regis. Local collectors are often seen walking the ledges on a low tide. The spring tides are predictable but local conditions affect the height of the sea and the quality of the ledge. Stormy weather results in a 'poor' low tide while calm weather can cause the tide to recede a long way. Calm conditions typically result in the ledges being covered in mud making the location of marine reptiles very difficult indeed.

The clear and obvious issue for the code is that less than 15% of the key scientifically important specimens have so far been placed in accredited museum collections. The fossil collecting working group knew that this would be a challenge but what are the obstacles and how do we improve the acquisition rates? Clearly lack of funding for acquisition, lack of space to store, display and, in some cases, curate specimens, uncertainty about the ownership of specimens from certain areas of the coast, agreeing on the value of specimens, perhaps a philosophical objection to purchasing specimens amongst some and the desire by some collectors to either keep their fossils for the duration of their lives or to see a world class museum/exhibition in West Dorset, are the factors involved. The Lyme Regis Museum is seeking funding for a major expansion to provide a fossil gallery but this is an expensive project on a difficult site while most collectors would rather see



A site based approach to the management of fossil sites.

Fossils come from a wide range of sites that vary according to their sensitivity to collecting. A rapidly eroding coast or working quarry is robust to collecting effort and indeed requires collecting effort in order for the fossils to be recovered. Slowly eroding or static sites become increasingly sensitive to collecting effort; a cave deposit or old mine tip once worked, is gone for ever. Intelligent management of palaeontological sites should reflect their sensitivity to collecting effort.

Spittles landslide in the autumn of 2008. The volume of rock removed by the sea at the toe of the landslide is enormous. This area continues to release a wealth of fossils from ammonites to fish, sharks, rare lobsters, ichthyosaurs and even a dinosaur, Scelidosaurus.

a new build centre or museum in a less expensive location and where the same funding could provide a bigger space. This is a complex issue but the code certainly increases the likelihood that important specimens will be acquired while the complete resolution of this issue lies outside the code and working group in that it involves museum curators, scientists and funding agencies working together with the partners of the code, particularly the statutory agencies, the landowners and, of course, the collectors.

Are the priorities of the working group correct? Is it better that the specimens are recovered, even if they remain in private hands, where they may be kept by the collector, sold or donated, than to seek a more restrictive approach? Is co-operation preferable to coercion? There is a long history to support the former, from the days of Joseph and Mary Anning, through James Harrison, Samuel Clarke, Robert and Issac Hunter, James Jackson, Barney Hansford, Stuart Bagnoli and Martin Foster and on to the range of collectors alive today. Their finds and contribution to the science of the Site are clearly demonstrable and are celebrated by many in the scientific community.

Professional collectors are available to respond to the storms and landslides at any time. They make very significant finds; *Ichthyosaurus solei, Excalibosaurus costini, Bagnolites stuarti* and *Stokesosaurus langhami* being just a few examples. Over the last fifteen years one collector has rescued two new species of *ichthyosaur* from Seatown; *Leptonectes moorei* (pre code) now in the collections of the Natural History Museum and a second specimen yet to be described, acquired by the Royal Ontario Museum. He has two other specimens that are considered to be new to science which he wants to see in a world class exhibition in West Dorset (hence the reason why they have not been acquired under the Collecting Cultures funding).

The interesting point here is that Seatown can act as a control; it is more than reasonable to assume that these fossils have always been eroding out of the cliffs and foreshore ledges yet no one, collector or academic, has recovered them until now. The GCR interest for reptiles does not recognise the higher parts of the Lower Lias (represented at Seatown) as important but that surely now warrants revision, based on the efforts of just one collector.

Amateur collectors also make important discoveries. Some specimens are donated while it is the stated intention by others that their collection will be donated later in life or on their death. Several specimens have been available for donation but no effort has been made to acquire them. It is entirely possible that some collectors will change their minds, through personal circumstance, and be forced to sell their collection in order to pay the bills. Professional collectors also donate specimens,

Many collectors that are active today, both amateur and professional, moved to West Dorset in order to be able to respond to the events that uncover the fossils; storms, landslides and spring tides. They are so interested that they have made that lifestyle choice. Very few academics do the same thing, not least of which because there is no local university with an Earth science department within practical commuting distance of the coast. W.D.Lang was an exception. Upon his retirement he moved to Charmouth and dedicated his time to logging the Lower Jurassic in detail and gained wide recognition for doing so.

People also make collections. William Willoughby Cole, the 3rd Earl of Enniskillen, built up a superb collection of marine reptiles in the early 1800's, including specimens purchased from the Anning family that have lost their provenance. Thomas Hawkins from Street did the same thing and both collections were eventually purchased by the Natural History Museum and form the core of the national collection today. James Jackson collected and donated some 5,500 specimens, mostly ammonites, during the 1950's and 60's and donated them to the National Museum of Wales. Martin Foster built up two important and celebrated collections of ammonites, 1,700 specimens, through collecting and purchase in the 1980's and 90's that were acquired by the National Museum of Wales. We cannot tell if amateur collectors or wealthy 'gatherers'/collectors will sell or even donate their collections in years to come but they are doing the same thing as the people who formed the foundation collections for the national museums nearly two centuries ago.

Collections, including many natural history collections that are not fossils, have a value and are purchased by museums as a matter of course. That value may reflect the time taken to find them (an expedition for instance), or the fact that there were collected many years ago from pristine environments that are now no longer available, or that it would simply cost more to undertake a new expedition to recover such a collection than to acquire an existing collection. The monetary value of most fossils reflects the time and skill taken to find the specimen, the time and skill to prepare it and the scientific and/or intrinsic value that may be released as a result of all of the above. Cultural objects; art, archaeological artefacts and antiques are routinely traded even though they may form part of our cultural heritage and that trade is accepted and even celebrated in popular programmes such as The Antiques Road Show. Objects, whether declared as Treasure Trove or not, are routinely sold at market value, even if museums seek to acquire them for the benefit of the Nation (the recently discovered Staffordshire Hoard or the Crosby-Garett Roman mask being very good examples).

The fossil collecting working group felt that it was not practical to try to restrict the value of specimens and that such practice was not found in other fields. The landowners signing up to the code felt that although the fossils come from their land and indeed belong to them, they have no value without the collector's efforts to rescue them. The fossils are subject to a rescue operation 365 days a year, unlike many archaeological objects that will remain safe in the ground and are only found by deliberately searching for them. The landowners have essentially used their ownership, their influence, to facilitate good management practice on their land, i.e. the requirements and restrictions of the fossil code. They have been prepared to take legal action against the very small minority of collectors who have not been prepared to follow the code while the code very clearly separates responsible and irresponsible collectors.

The review of the specimens recorded clearly demonstrates that despite the high collecting effort specimens of great scientific importance are rescued just in time. from active landslides or wave cut platforms and display damage caused by erosion, the very erosion that enabled the collectors to find them in the first place.

The alternative to co-operation with the collectors (the current situation under the code), would be a range of increasing controls or restrictions perhaps starting as a minimum, with an attempt to apply restrictions on the fossils that collectors could keep or sell. The fossil code working group considered this when drawing up the code but felt that it was impractical to attempt to try to control the destination of specimens. Should a more restrictive regime be applied, in order to be effective, it would have to be accompanied by policing of the beaches but quite how this would be undertaken and on what legal basis is difficult to determine. Without effective enforcement, collecting would be likely to continue, a situation that is reported in many countries that have a restrictive approach on sites that cannot be or are not policed.

Restriction would lead to a loss of co-operation and goodwill with collectors, the people who, over the last two hundred years have demonstrated their value to the science of the coast or to a reduction in the collecting effort. Quite how the current collecting effort could

be maintained under a more restrictive regime is questionable but it is clearly required in order to rescue the important specimens. The prospect of imposing either ineffective restrictions (i.e. restrictions that could not be enforced), or restrictions that in reality could not be afforded (i.e. policing, with dubious legal backing and/or paid collecting effort), would lead to the loss of specimens for which this coast is rightly famous. The fossils are rescued because of the efforts of collectors. Does that give them a 'disproportionate' say in what should happen to the fossils that they find? Is there a different approach that would deliver the same or better results? No practical, costed and viable alternatives that address the challenges outlined above have been put forward to date.

The key to understanding the protection and management of palaeontological sites is to consider their individual sensitivity to collecting effort. A rapidly eroding coastline (an 'exposure' site) requires collecting in order to rescue fossils. Access to an open coast cannot be controlled. A working quarry or temporary exposure requires an approach similar to that of an open coast but the important difference is that access can usually be controlled in a working quarry and the process of exposure is predictable.

In contrast, a disused quarry may be far more sensitive to collecting while a cave deposit or abandoned mine tip are amongst the most sensitive of sites ('integrity' and 'finite' sites), and can be easily damaged by any collecting, whether scientific, educational, amateur or professional, and require control and in some cases, complete control (where it can be achieved). This common sense type of approach has been advocated in a consultation paper 'A site based approach to the sustainable management of palaeontological sites' by Edmonds, Larwood and Weighell. It is unpublished as yet but is available at;

http://www.geoconservation.com/EHWH/Docs/fossil.htm.

Note from the editor: *Any responses to the hearing would also be of interest to ProGEO NEWS. Debate over management strategies is always useful and it is an interesting perspective to compare the strategy outlined here with the strategies found in the international Geopark movement.*

A large (90cm long) fish, Furo sp from the Blue Lias reefs in front of Church Cliffs Lyme Regis. Part of the dorsal body has been washed away by the sea before the specimen was rescued. Despite the collecting effort specimens of key scientific importance remain at risk and are rescued just in the nick of time.

Beerenberg. Photo: Jan-P. Huberth Hansen

A new volcano protected

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The Island Jan Mayen is situated on the Mid-Atlantic Ridge between Iceland and Svalbard under Norwegian sovereignty. A central element on Jan Mayen is the stratovolcano Beerenberg which is recognised as the world's most northern active volcano above sea level, reaching 2277 m.a.s.l. The last eruption from this volcano was in 1985. Jan Mayen is entirely of volcanic origin and has an area of 375 km^2. Within the 12 nautical mile boundary the area is 4315 km^2. The oldest rocks on the island is younger than half a million years old.

By a royal decree dated November 19th 2010, Jan Mayen nature reserve was declared. The aim of the protection is to preserve the islands pristine character, including the sea-areas around the island, the seabed, the special landscape, active volcanic systems, flora, fauna and cultural heritage. The cultural heritage on the island is linked to hunting and fishing as well as scientific activity from several nations

The isolation of the island and the great sea depth around it creates a special ecosystem both on the island and in the marine environments around it. Seabirds fertilize the shores and are responsible for in places relative rich vegetation.

Fishing in the waters around Jan Mayen will continue as before, but fishing methods that can significantly harm the seabed are not allowed. It is an issue linked to possible petroleum-activity in the area and it is established procedures to regulate this.

Two small areas are not included in the protection. These areas contain a meteorological station and related activities. It will be worked out a management plan including both the nature reserve as well as these two areas to secure a good management covering the entire island.

With this protection Norway has protected all its three small and isolated islands in the arctic. Bjørnøya Nature Reserve was established in 2002 and Hopen Nature Reserve in 2003. In addition 65% of the land area of Svalbard is protected. These protections are a key element in the Norwegian aim of conservation and sustainable use of the arctic environments.

Sjuhollenderbukta ("Seven Dutchmen Bay") cottages. Photo: Jan-P. Huberth Hansen

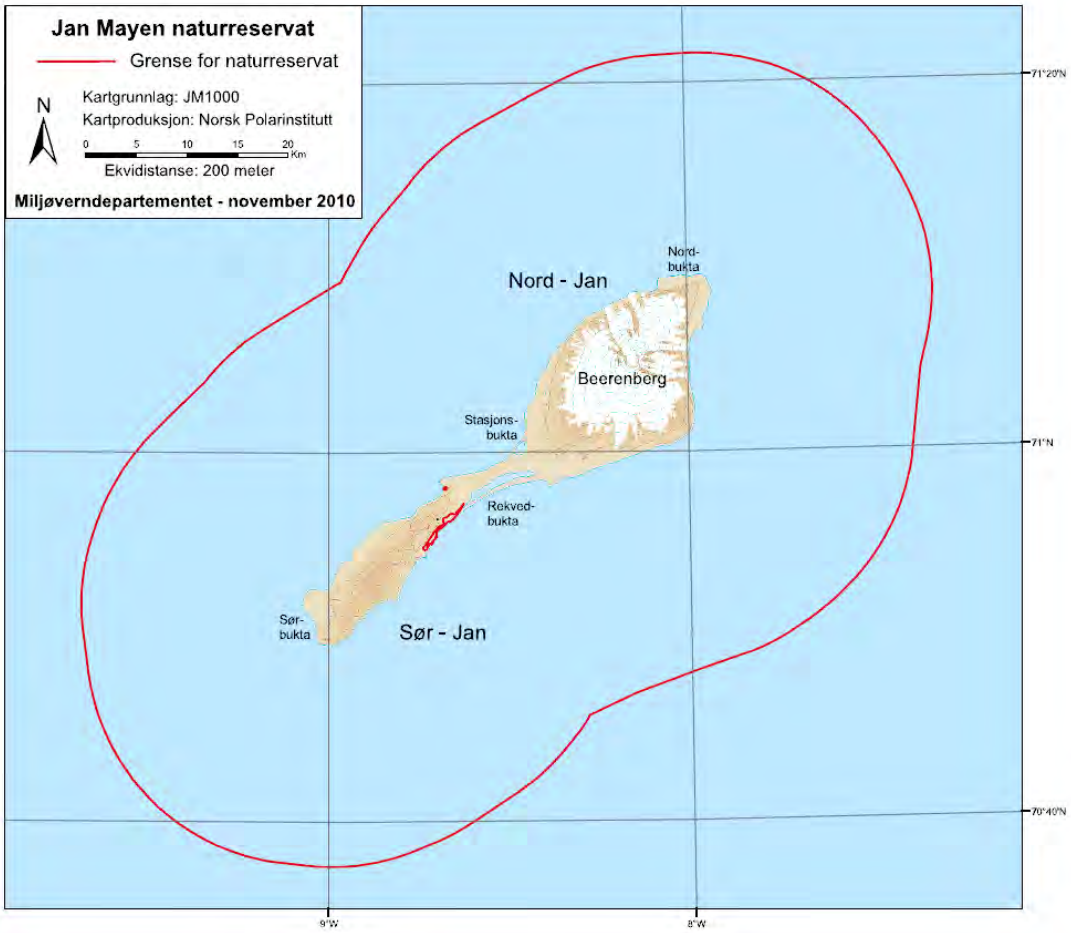
Jamesonbukta (Jameson Bay)towards Eggøya. Photo: Jan-P. Huberth Hansen

Jan Mayen was in 2007 forwarded as a Norwegian candidate for UNESCO World Heritage list together with the small Antarctic island Bouvetøya. This nomination is a part of an international series nomination including all islands on the mid Atlantic Ridge.

For more information of conservation of geological sites in the Arctic, see Dallmann 2004.

Reference:

Winfried K. Dallmann 2004. Increasing interest for the conservation of geological sites in the West European Arctic ProGEO NEWS 2004/2, www.progeo.se.



Correction:

In ProGEO NEWS article by Reza Khoshraftar the references was not included. The editor are sorry for this mistake that will be corrected in the online pdf version coming on our web-page www.progeo.se soon.

Maragheh Mammalian Fossiliferous Geosite

Reza Khoshraftar, Assistant professor, Department of Geography, Zanjan University, Iran

Two sites of Maragheh (A: Dar-e- gorg, B: Dar-e-azim).

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34th International Geological Congress 5-10 august 2012, Brisbane, Australia

Second circular is released

The Second Circular of the 34th IGC 2012 Brisbane, Australia, was released on Tuesday 24 May 2011. This is an important stage in the development of the 34th IGC. The Second Circular is being distributed electronically and posted on the IGC website at: http://www.34igc.org.

The Second Circular includes:

- Scientific themes and symposia. The Organising Committee received literally hundreds of suggestions for symposia and scientific sessions and thanks go to all contributors. The Second Circular will include a full list of symposia and topics to be presented at the congress.
- Call for abstracts. The Second Circular will include a call for abstracts and launch the on-line abstract submission system. Please note that abstracts can only be submitted via the on-line system and an abstract lodgement fee of $40 (Australian Dollars) is payable. This fee is discounted for multiple abstract submissions.
- Super Early Bird registration fee offer. Make sure you read about the Super Early Bird registration offer in the Second Circular. This significantly reduced registration fee ($895 for single delegates, $850 for 3 or more delegates to a maximum of 20 from the same organisation) will only be available until September 2011, or until 500 delegates register at this rate - whichever comes first. This offer represents the lowest cost registration fee that will ever be available for the 34th IGC.
- Exhibition Space Release. At the 34th IGC the exhibition area will be known as the GeoSpace. The release of exhibition space sales will be made in the Second Circular.
- GeoHost Scheme Launch. At the 34th IGC the GeoHost scheme shall consist of two programs, being the Training Workshop Program (TWP) and the Funded Delegate Program (FDP). There are specific criteria for each program and full details will be provided in the Second Circular. Applications for GeoHost can be made via an on-line process, which will be launched in the Second Circular.
- Pre/Post Congress Tours. A revised list of all pre and post Congress tour offerings, together with descriptions of sites to be visited and duration of each tour, will be released in the Second Circular. Regularly visit the 34th IGC website at http://www.34igc.org.

The program includes the following symposium of special interest for ProGEO: **Geoheritage, geoparks and geotourism**

Bernie JOYCE ebj@unimelb.edu.au (Australia), José BRILHA (Portugal), Ian GRAHAM (New Zealand), Patrick MCKEEVER (Ireland), Nickolas ZOUROS (Greece), Changxing LONG (China), Ross DOWLING (Australia) and Angus M ROBINSON (Australia)

This Symposium will examine the importance and diversity of geological heritage (geoheritage). Key topics will include the identification and quantification of geoheritage, geodiversity and geosites, the significance of geoconservation, UNESCO's geoparks, as well as the growth of geotourism.

Coming ProGEO events

Please see our web-site for more information:

www.progeo.se

Regional meeting of Working Group for Northern Europe. Theme: Geoconservation for the Future. Oslo, Norway, 21–23 September 2011.

International GeoScience Conference: GEOALB 2011 – Mineral Resources and their Perspective. ProGEO-Kosova, X-Soft, Mjedisi GLOBAL in cooperation with Faculty of Mining and Metalurgy will organize this conference in Mitrovicë, Republic of Kosovo, 27–30 September 2011.

Regional meeting: Geo Reg, Forum for the Regional Geosciences of France and Neighbouring Countries. Société Géologique du Nord and Geologica Belgica invites us to the meeting in Villeneuve d'Ascq, Northern France, 23–27 October 2011.

Deadline next issue of ProGEO NEWS: October 1st 2011

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

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