



Skeiðarársandur, Iceland.. Photo: Lars Erikstad

Geoconservation in an IUCN context

Enrique Díaz-Martínez and Lars Erikstad

ProGEO has been a member of IUCN for about one year. Working with IUCN is a major part of a strategy to incorporate geoconservation in the wider nature conservation community and philosophy. In a rather late response to the IUCN work of making a European program for the years 2013 to 2016 ProGEO has together with the Geological Society of Spain produced some suggestions. The letter is printed below. Moreover ProGEO has been involved in the process of suggesting some activities including an intensive course on geoheritage and geodiversity on the IUCN congress in Korea this year. For more information: http://www.iucnworldconservationcongress.org/forum_exhibition/forum/information_organizers/

Draft IUCN European Program 2013-2016

Contribution from ProGEO (IUCN member IN25211) and the SGE (IUCN member NGO24994)

Introduction

ProGEO is the European Association for the Conservation of Geological Heritage (IUCN member IN25211) and SGE is the Geological Society of Spain (IUCN member NGO24994) which is represented by its Commission for Geological Heritage on issues relating to geoheritage and geodiversity. Both are Earth science organizations grouping hundreds of European scientists working on the management and conservation of geoheritage and geodiversity, including its appropriate use and restoration.

Although they would have liked to, none of these two organizations were able to attend the discussions

taking place during the IUCN European Members Forum in Bonn in September 2011, and thus were not able then to directly submit their opinion on the draft IUCN European Program 2013-2016.

The purpose of this brief note is to emphasize a few key points on the program, with the hope that they will be considered and incorporated where possible.

Need for a holistic approach towards nature conservation

IUCN works for the conservation of nature, and nature consists not only of living organisms (biota) but also of an inorganic substrate (gea) that underpins it. Thus, natural diversity consists both of biodiversity AND geodiversity, and natural heritage consists both of biological heritage (species, habitats and ecosystems) AND geological heritage: minerals, rocks, fossils, structures and landforms recording past life, landscapes and processes on Earth, grouped under the term geoheritage. So, it should not cause any problem to acknowledge that geodiversity ALSO forms part of natural diversity, and that geoheritage ALSO forms part of natural heritage. These few basic concepts should be incorporated in all IUCN documents and strategies. We realize that the current paradigm giving most of the weight to biodiversity may be hard to overcome, but we believe that this holistic approach to nature conservation would benefit both bioconservation and geoconservation. Reference to nature in the program should not forget the natural diversity not covered by biodiversity (i.e., geodiversity), and the natural heritage not covered by species, habitats and ecosystems (i.e., geoheritage). Hence, we herein propose reference to geodiversity and geoheritage in the program, or at least the use of the terms nature, natural diversity and natural heritage where appropriate.

Council of Europe Recommendation Rec(2004)3

The Committee of Ministers of the Council of Europe adopted recommendation Rec(2004)3 on the conservation of the geological heritage and areas of special geological interest in May 2004. This European policy constitutes a major achievement towards nature conservation in Europe, and has been the basis for successful legislation and strategies towards geoheritage and geodiversity conservation in many European countries. The background experience and knowledge (know-how) obtained in Europe on geoconservation must not be ignored, and IUCN European Programme 2013-2016 should incorporate its basic principles as a specific contribution towards global nature conservation. Reference to these recommendations, and promotion of the principles therein, should be part of the

European contribution to IUCN European Programme 2013-2016.

IUCN Resolution 4.040

The General Assembly of IUCN passed Resolution 4.040 in the 4th WCC at Barcelona 2008. This resolution states some of the basic principles also mentioned above, and promotes further actions towards the Forum that will take place in the upcoming 5th WCC at Jeju 2012. The Geological Society of Spain was the main promoter of the motion in 2008 and, together with ProGEO, will promote a new motion towards further consideration of geoheritage and geodiversity in IUCN policies and strategies. We expect support from the IUCN European Office in this regard, and we are open to suggestions on best practice recommended to achieve these goals, including the improvement of IUCN Program 2013-2016.

Geoconservation supports and underpins bioconservation

The conservation of geodiversity and geoheritage (geoconservation) supports and promotes the conservation of species and habitats (bioconservation). The diverse landforms and substrates originated by volcanism, fluvial sedimentation and erosion, or karstic processes, are directly related with biodiversity and ecosystem evolution. Understanding this relationship and incorporating its significance into land planning and protected area management will help nature conservation and serve towards the social and economic development of local communities. Several European countries have already incorporated these principles into their legislation and achieved sufficient experience on the implementation to help others learn from their mistakes and successes.

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In memory of Carl Erik Johansson, our former president

Carl Erik Johansson passed away a month ago, 80 years of age. Many of us in ProGEO will remember him with great warmth and his loss is deeply felt. Carl Erik was our third president in order, between 1995 and 1997, after George P. Black and Walter Krieg. He was elected at the General assembly in Sigtuna, Sweden, in May 1995 – a meeting arranged by Sweden and Finland together, with Carl Erik (at the time at the Swedish environmental protection agency, SEPA) playing a key role together with Veli Suominen and Lars Karis (Geological Surveys of Finland and Sweden respectively).

As President he became very appreciated, a wise, social and uniting force in the early years of the association. He received many good words for his outstanding good job when leaving the post. As Past president he continued participating in the Executive Committee and after his retirement he kept being engaged in ProGEO internationally as well as home in Sweden and the Nordic region. He was always appreciated for his engagement, subtle sense of humor, cheerfulness, his driving force and supporting personality.



*Carl-Erik on ProGEO excursion in Lithuania 1997.
Photo: Jon Markussen*

Several members have expressed their appreciation for Carl Erik, friendly introducing them into ProGEO. Carl Erik had a background in his youth as an orienteer and school teacher in his region of birth, the county of Småland in south-eastern Sweden. With his great interest for nature he then studied geography, geology, biology and zoology at the university in Lund. He started early on with nature conservation, making natural gravel inventories. This made him interested in the structure of glaciofluvial deposits, and through experimental sedimentological research he received his doctor's degree, and became a senior lecturer in physical geography in Uppsala.

For Swedish nature conservation and geoconservation in particular, Carl Erik has played a vital role. As principal administrative officer at SEPA in Stockholm, from 1977 until his retirement in 1996, he led several major projects, for example the national wetland inventory of the most valuable mires in Sweden. It is still one of the most comprehensive nature conservation databases in the Nordic countries. In the early 1990 he also managed the final design of the project "Areas of national importance for nature conservation", which led to a comprehensive database balancing other economic and demographic classifications of national importance.

Carl Erik participated in the Nordic co-operation for nature conservation as well as the practical landscape conservation on local level at home in Stockholm. He initiated the ProGEO regional working group of Northern Europe. He participated in joint Nordic projects supported by the Nordic Council of Ministers editing Geodiversity in Nordic Nature Conservation (2000), now a standard in the field of geoconservation terminology.

In Sweden in later years he was engaged together with members in the Royal Swedish Academy of Sciences in trying to initiate a pilot project in the area of Lake Siljan (a giant meteorite crater) as a model for geoparks in Sweden. Time was not right at the moment, however now it seems like rocks are rolling with new local enthusiasts.

As a colleague and friend for us in the Nordic countries, he always offered his support, knowledge and contacts. We will always remember Carl Erik, with his very own expression, as an "honorable pal". And we salute him a final time with his famous phrase (at least in Swedish):

"Health and welfare!"

For ProGEO friends and colleagues

Lars Karis and Gunnel Ransed

Geoheritage: Protecting and Sharing

The 7th International Symposium ProGEO on the Conservation of the Geological Heritage and 3rd Regional Meeting of the ProGEO SW Europe Working Group will be held in Bari, Italy the 24-28 September 2012.

The second Circular is now out and can be found on www.progeo.se or <http://www.geoheritagesymposium-bari2012.org/>. The Symposium will take place in Bari (Apulia, Italy) on September 25-26 2012, and will be preceded by one day field-trips (two choices on September 24) and will be followed by a two days field-trip (on 27-28 September).

Bari is among the biggest towns in southern Italy, served by the international airport "Karol Wojtyła" and also easily reachable by train and ship.

The main aims of the Symposium are to discuss land-use planning, threats and constraints; the recent developments in geodiversity assessment methodologies and geosites inventories in Europe; the legal framework supporting geoconservation strategies; to encourage a possible convergence between geoconservation and geotourism; to discuss sustainable management policies and geosites exploitation within geoparks; to promote the best practices and lessons learned in geoparks for local development; to enhance geotourism and its potential for regional development; to implement the most effective outreach methods for successful communication with the public and decision- and policy-makers; to improve international cooperation and local initiatives for the education and divulgation of science; to establish links between geoconservation specialists, mainly in Mediterranean area and to support special measures and guidelines for conservation of our shared geoheritage.

The Symposium program includes plenary lectures, scientific sessions highlighted by invited keynote lectures and selected oral presentations. All participants are encouraged to contribute with posters. Subscribers are invited to the welcome concert and to the symposium dinner, as well as to other cultural events (detailed information will be given in the next circular). Pre- and post-Symposium field trips are focused on Apulia and Basilicata geosites.

Participants are invited to attend the pre- and/or post-Symposium field trips to the Gargano National Park, Salento Peninsula, Southern Appennine –Appennino Lucano National Park and Matera and the Apulia Foreland – Alta Murgia National Park.



Given the clayey Pleistocene bedrock, in a wide area across the Potenza and Matera Provinces developed a typical badland landscape created by the age-old surface run off. The badlands, "calanchi", in Italian, characterize the rough landscape of south-eastern Basilicata. The charm of this scenery has been described by Carlo Levi in its novel "Cristo si è fermato ad Eboli" (Christ Stopped at Eboli), published in 1945. A regional park has been established to protect and preserve the wild beauty of this area. From the conference website.



The steep scarp near the town of Spinazzola separates the Murge hills, in Apulia, from the Bradano trough, in Basilicata. This area is part of the Alta Murgia National Park, the first ever rural park in Italy. The breathtaking landscape is enriched by several awesome expressions of karst processes that shaped the Cretaceous bedrock for tens of millions years, such as the reddish bauxite deposits (quarried until the '80s of the last century in the Murgetta Rossa locality) and two among the biggest dolines in Italy: the Pulicchio, near Gravina, and the Pulo near Altamura. On the top of the scarp there is the impressive Rocca del Garagnone, the ruins of a castle built during the middle ages. From the conference website.

More information on the Symposium programme will be given in the Symposium web site. For any additional information, please do not hesitate to contact the Organizing Committee:

info@geoheritagesymposium-bari2012.org.

All participants are kindly asked to submit their contribution before April 30th, 2012. For registration fees and deadlines, please refer to the Symposium web site.



Record 275. A large and spectacularly disarticulated ichthyosaur discovered on Christmas Day 2011 from the Blue Lias Gumption Shale Bed 32 (Lang) Bucklandi Zone early Sinemurian. This montage image was taken after approximately 120 hours of preparation. Scale 0.5 meter. Interestingly, this specimen supports findings in a recently published paper linking low sea levels to disarticulated marine reptiles: 'Float, explode or sink: postmortem fate of lung breathing marine vertebrates' Achim G. Reisdorf, Roman Bux, Daniel Wyler, Mark Benecke, Christian Klug, Michael W. Maisch, Peter Fornaro, Andreas Wetzel. Springer (2012)

Review of the West Dorset fossil collecting code of conduct

Summary of the consultation, views, issues and actions - March 2012

The West Dorset Fossil Collecting Code, adopted in the late 1990s, aims to provide a practical and affordable means of managing collecting within this part of the Jurassic Coast World Heritage Site involving all those with an interest; landowners, conservation agencies, researchers, museums and collectors. A primary purpose is to provide the very best chance for scientifically important fossils to be recovered and recorded rather than destroyed by the sea on this dynamic and rapidly eroding coastline.

The Code has recently been reviewed through a consultation with various stakeholders. As a result of the strong balance of positive endorsements of the Code received, it will remain in operation without fundamental amendment. A plan to improve the implementation of the Code will be drawn up based on the suggestions made by respondents. A list of actions has been identified. This report was approved by the World Heritage Site Steering Group on March 15th 2012.

Background to the consultation

The West Dorset Fossil Collecting Code of Conduct (the Code) was developed by a working group with representation from the UK national conservation agencies, landowners, the scientific community including museums, and collectors and following consultation and a trial period, was adopted in the late 1990s. It applies to the coast between Lyme Regis and Burton

Bradstock or stratigraphically, the Lower and part of the Middle Jurassic. A review of the Code was started in June 2010 with the publication of a consultation paper. The responses to that consultation have been considered by the Jurassic Coast Science and Conservation Advisory Group (SCAG) and the West Dorset Fossil Code Working Group and this document now summarises our discussion of the issues raised and explains the actions that we propose to take.

This was a consultation open to all but was specifically sent to: The Jurassic Coast Science and Conservation Advisory Network (31 individuals), geological and/or palaeontological societies/associations (13), museum curators and the Jurassic Coast Museum Partnership (16), geoconservation organisations (15), UK university Earth science departments (26) and fossil collectors (30).

Articles about the review were published through: ProGEO Newsletter (Vol 2 No. 3, 2011), Geoconservation UK (VOL2 No.3), BGS News, Dorset Coast Forum e-mail magazine, Shoreline (Charmouth community magazine) and the Western Morning News. Presentations were made to the History Of Geology Group (April 2011) and the Society for Vertebrate Palaeontology & Comparative Anatomy (Sept 2011).

The original consultation documents can be found on the Jurassic Coast web site at:

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

The full responses to the consultation will also be placed on this web site. NOTE: this address may change with the revision of the web site. The full code can be accessed at

<http://www.charmouth.org/chcc/downloads/WestDorsetFossilCode.PDF>

Responses from the consultation

We received 32 responses and of those: Personal views: 15, Organisational: 9, Academics: 13, Geoconservation: 5, Landowners: 4, Collectors: 5 and Other: 2. NOTE: the totals do not add up to 32 as it is possible to respond on behalf of more than one interest category.

The consultation went to at least 130 individuals directly but was also widely circulated through newsletters and networks. There were also requests to forward the consultation through societies, associations, networks and every university department in the UK with an earth science faculty.

The response was disappointingly small but 28 of the respondents were either completely supportive of the Code or supportive with comments for improvement. The operation of certain elements the code, notably the quality of the records, attracted considerable criticism. The remaining four respondents expressed more serious concerns and made a number of suggestions for the modification of the Code and the overall management approach. Considerable parts of three of these four responses used identical wording.

We believe that it would be reasonable to assume that the vast majority of people consulted but who did not respond do not hold concerns about the Code or the condition of the West Dorset coast for the simple reason that if they did, they would be more motivated to respond.

What follows is a broad summary of the consultation and the issues raised a brief discussion of these issues and, as a consequence, the actions that we propose to take forward as part of the on-going development of the Code. For clarity and convenience, these can be found listed together at the end of this document.

Question 1. Overall are the priorities of the Code correct or flawed?

23 of the 32 responses clearly expressed general satisfaction with the Code. 2 offered suggestions for improvement but with no fundamental change. 4 expressed deep or considerable concern while the re-

maining 3 were unclear in their response to the question but were certainly not critical of the overall approach.

The majority felt that the objectives of the Code are clear and appropriate and that we must continue to work with people and encourage responsible collecting. Responses include:

'The overall priorities are correct. The only thing certain about fossil collecting on the Jurassic Coast is that if specimens are not collected they will be destroyed, usually quickly. Ones collected by private individuals may eventually reach recognized museums. Therefore we should encourage collecting, but also encourage people to report what they find.'

'If a specimen of outstanding importance is eroded from a cliff and becomes part of a private collection, despite all efforts to accession within an Accredited collection, it may be suggested that this is preferable to the specimen being abandoned to erosion. At least as part of a private collection, there is a chance the specimen in due course ending up in an Accredited museum.'

'My feelings remain the same that encouraging co-operation between collectors and researchers rather than attempting any kind of heavy-handed regulation is going to be far more productive in maintaining the conservation value of the site, because you simply cannot police 90 miles of coast. Therefore self-regulation and voluntary collaboration remain a key part of the Code. Any more restrictions will lead to more-damaging clandestine collecting, I think.'

There was also wide recognition that there are complex challenges in managing a site such as this and a number of issues were identified including that better promotion of the Code is required alongside clarification of how the Code sits within the context of the Jurassic Coast Management Plan, together with a clear link between the Code and science as a primary driver, and better links with the scientific community. Categories defining scientific importance were also discussed with suggestions for revisiting them along with establishing more effective systems to keep track of specimens. Concerns were raised about potential under reporting/recording of specimens with comparative evidence offered from the Charmouth By-pass collecting scheme. It was questioned whether the Code's approach is in line with global thinking. There was one suggestion that the Code gives 'free licence' to collectors to essentially do what they want and that there is a bias in favour of professional collectors and a claim of large-scale excavations taking place everywhere and that excavations are 'dealer led'.

The concern of under reporting is covered under question 3 and specimen categorisation under question 5.

In relation to concerns about the Code providing 'free licence', it is important to note that the Code requires

permission for in situ excavation and therefore safeguards those fossils particularly for stratigraphic studies. Whilst very limited digging or prospecting in situ along the Flatstone Bed (Bed 83h Lang) does continue, regular monitoring has shown that it is very much less than it was pre code and there is no evidence that the scientific integrity of the site is compromised. Researchers can obtain and have obtained permission to collect in situ for scientific study from the Flatstone and other nodule beds. Persistent digging in situ in the Flatstone Bed by one individual has been challenged through legal action in the form of a civil injunction taken by our landowner partners on the grounds of trespass and theft, as although the activity could not be shown to be damaging the scientific interest of the site, it was expressly against the wishes of the landowners and the Code. It took several years to achieve this result and involved very considerable cost. The Code and associated recording scheme also restrict how collectors may sell or otherwise dispose of specimens defined as being of key scientific importance. There remains a degree of random and ill-informed tourist digging in the cliffs but this in no way represents a threat to the scientific integrity of the site. Our summer warden is employed specifically to help lead these people back onto the beach where they will be able to look for fossils in a safer location.

Questions were raised about whether the Code remained in line with global thinking on the management of palaeontological heritage. The UNESCO World Heritage Convention, Council of Europe recommendations and the European Geopark Charter were cited while the Scottish Fossil Collecting Code was recommended as a model of good practice.

Some clarification may be valuable here: It is important to note that the Code was endorsed by UNESCO as part of the Management Plan for the original nomination and inscription of the Jurassic Coast as a World Heritage Site in 2001. The Jurassic Coast Management Plan has subsequently been revised in 2010 and again endorsed by the UK Government and UNESCO as an effective way of managing this type of site which includes the management of fossil collecting. Some of the concern centres around 'loss' and here we draw attention to the Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO) that includes: '*Considering that deterioration or disappearance of any item of the cultural or natural heritage constitutes a harmful impoverishment of the heritage of all the nations of the world,.....*'. The priority on our coast must be to protect the fossils from deterioration or disappearance to the sea. Collectors, with open access to the coast are the mechanism that best achieves that. This theme appears elsewhere in the consultation and is discussed further.

With regard to the Council of Europe Recommendation (Rec 2004) 3 on conservation of the geological heritage and areas of special geological interest, Appendix 3 sets a clear context for national and local policies that reflect both the physical nature and scientific interest of the area:

Appendix 3:

- *Management of areas (sites) of special geological interest must be appropriate to the scientific interest and physical nature of the area concerned. Management of geological areas of interest must also take account of biodiversity issues and cultural considerations.*
- *Effective management of areas of geological interest requires certain basic levels of information and understanding as to the nature, distribution and condition of sites. Clear scientific understanding of the value of areas of interest is an important prerequisite to effective management.*
- *On a rapidly eroding and extensive coast with open access, collecting is an essential part of the conservation of the interests contained within the site.*

Furthermore, we note Appendix 4:

- *Legislation for protecting areas of special geological interest and moveable geological heritage*
- *Management of areas of special interest in terms of geology, geomorphology or biodiversity requires a combined approach, using education, the development of management plans and the use of appropriate legal protection measures. Education (awareness-raising) and effective management planning are essential but need to be underpinned by the law.*
- *Legal measures to protect "environmental capital" in the form of biodiversity or geodiversity will vary according to individual national approaches. These approaches will reflect:*
 - *national legal systems;*
 - *different cultural approaches to protection of the environment;*
 - *the physical differences in national landscapes;*
 - *the different historical perspectives underlying current legal measures;*
 - *traditional rights and activities.*

The Code is very much based on the physical nature of the site (i.e. a rapidly eroding coast). It is supported by the science through the Geological Conservation Review which informs the categorisation of fossils. It sits within national English guidance on fossil collecting whilst legal action has been taken against one collector not following the Code. It follows a long and indeed celebrated history of collecting and selling fossils. We also have excellent provision of educational activity provided by visitor centres, museums and individuals. Our approach on a site such as this where collecting is sustainable and indeed essential, recognises the valu-

able role that collectors provide while curtailing excesses that could happen without the Code in place.

With regard to the European Geopark Charter Section 2, it states:

'European Geoparks are managed within the framework established by the Global Geoparks Network Charter' and that states: '.....Where clearly justified as a responsible activity and as part of delivering the most effective and sustainable means of site management, it may permit sustainable collecting of geological materials for scientific and educational purposes from naturally renewable sites within the Geopark. Trade of geological materials based on such a system may be tolerated in exceptional circumstances, provided it is clearly and publicly explained, justified and monitored as the best option for the Geopark in relation to local circumstances.' The full charter is accessible at: <http://www.europeangeoparks.org/isisite/page/8,1,0.asp?mu=4&cmu=26&thID=0>

Furthermore, we note the recent protocol on geoconservation and geoheritage published by ProGEO (<http://www.progeo.se/progeo-protocol-definitions-20110915.pdf>):

'Sites with geological interests may be fragile or robust. In some circumstances, where sites are sufficiently robust and specimens are plentiful, it is perfectly acceptable that collecting should occur, and there is sometimes even scope for the sale of common rock, mineral and fossil specimens. In such circumstances, there can be an appreciable economic gain to local communities, with no scientific or heritage loss.'

Our approach is compatible with the above; indeed the protocol recognises that sensitivity to collecting depends on the nature of the site. However we also allow the sale of rare specimens since it takes a very considerable amount of time, effort and skill to find, rescue, conserve and prepare them. Many of the collectors are regarded as very accomplished by museum curators and academics.

Finally, our attention was drawn to the Scottish Fossil Code which is put forward as an example of best practice and one that we should aspire to follow. Two of the responses to this consultation cited the Scottish code and stated that our approach was very much in line with it:

'I chaired the SNH [Scottish National Heritage] committee that produced the Scottish Fossil Code for the Scottish Government. That code has a broader remit than yours, but we agree on the basic philosophy.'

And;

'As one of the steering group which produced the Scottish Fossil Code I am pleased to see that the objectives and priorities of your document is in close alignment with ours, and has established a working arrangement that is achieving the required goals.'

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

The main barrier to acquisition was seen as funding and capacity within museums. There was a clear desire (also in response to Question 1) to establish a local Jurassic Coast museum which would increase museum capacity. Currently the Lyme Regis Museum is developing a bid to expand its gallery space and, if successful, this would help to fulfil this need, albeit, a considerable time in the future. In the longer term, the future relocation of the Charmouth Heritage Coast Centre is being considered to a position less vulnerable to coastal erosion and again this may offer opportunities for new museum/display space. However, neither fulfils some local collectors' expectations of a dedicated fossil museum for this part of the World Heritage Site.

Several respondents discussed the need to extend the Treasure Act to ensure that important specimens are placed in accredited museums. The Danish approach using 'Danekrae' was cited as a model to consider. It was also suggested that collectors should consider opportunities that may be available to reduce their inheritance tax in cases where their estate might exceed the tax threshold by making provision to donate specimens or collections.

There was a suggestion that the management of this section of the coast is driven by market forces rather than science. There was a concern that the Heritage Lottery Fund (HLF) Collecting Cultures funding, secured by Dorset County Council's Museum Service in 2008, might provide the incentive not only to record specimens but also to drive prices higher. However, there was and is already sufficient incentive to record specimens since, under the code, ownership of fossils of key scientific importance is not transferred from landowner to collector until they are recorded. In this instance, all the specimens acquired (bar one, where the collector was unaware of the Code) were recorded before the funding became available or were found and recorded during the time of that funding stream. With regard to the concern over higher prices, this is difficult to prove or disprove, but the prices of the higher value specimens were tested through independent valuation. A concern was expressed as to what would happen once the HLF funding ran out. Grant funding for museum specimen acquisition is available although somewhat limited, and a more sustainable funding source needs to be secured. This has been recognised within the new World Heritage Site Management Plan (2010) and the establishment of a 'Mary Anning Fund' for specimen acquisition is now proposed. The six month offer period for category 1 specimens was also questioned; should it be longer? The quality of the records

and the need for more information about the specimens was raised and is covered in Question 1 above.

Question 3. QUALITY OF THE SITE: 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?

Of the responses, 13 agreed completely with the statement, 7 were unclear in their response, 9 provided no specific response to the question and 3 were clearly not satisfied. Zoning was proposed as a means of managing more sensitive areas and concerns were raised about the impact of people, encouraged to collect at Charmouth and Lyme Regis, moving onto other less robust areas of the World Heritage Site. Under-reporting and recording of key specimens, and their consequent loss to museum collections, was raised as an issue and a comparison with collecting on the Charmouth By-pass offered as evidence of that claimed under-reporting.

A measure of 'favourable' condition is the degree of ability to collect specimens for scientific study. In relation to site condition, this is particularly pertinent to stratigraphical studies which rely primarily on ability to collect from in situ (see discussion regarding question 1). We had one response telling us about ongoing work on ammonite zonation within the Lower Jurassic of the West Dorset coast and another stating that ammonite specimens used in two papers were found on public fossil walks. In addition, we received an application to collect for research purposes within the nodule beds of the Charmouth Mudstone Formation (i.e. the nodules that contain the highly desirable and well preserved ammonites, insects etc). This work was successfully undertaken in situ with permission from the landowner and with assistance from a local collector. Another similar application has just been approved and we wish to encourage more of these. These cases provide us with evidence that the site is in good condition and continues to be available for on-going research. There have been claims of damage to the scientific integrity of the site but no supporting evidence has ever been provided. The clear majority view indicates that current collecting effort is not damaging the scientific integrity of the Site.

Zoning can be an appropriate mechanism for managing collecting reflecting different levels of sensitivity but it must be practicable and manageable on the ground. The West Dorset coast is already effectively zoned through the Code restrictions that apply to in situ collecting while across the whole World Heritage Site the only places that we promote to the public to collect

fossils are Charmouth and Lyme Regis. Site sensitivity is a leading consideration when attempting to identify the most effective management of palaeontological sites (see: 'A site based approach to the sustainable management of palaeontological sites' by Edmonds, Larwood & Weighell, as yet unpublished but available at: <http://www.geoconservation.com/EHWH/Docs/fossil.htm> and is central to Natural England's new guidance on the management of geological specimen collection which is currently being developed.

Under-reporting of specimens and the concern that specimens are 'lost' to collectors and/or the commercial market was raised but, as noted by a number of respondents, far greater is the threat of loss to the sea through erosion. As collecting is the only mechanism to prevent that loss and as, in our view, it is impossible to provide the current level of collecting effort which typically rescues the important specimens just in time, (they can only be found once exposed by erosion) it follows that working with collectors on the basis of trust and mutual respect will increase the chances of important specimens being placed in accredited museums, while adopting a more legislative approach is liable to increase the loss to the sea and/or drive collecting underground. The recording scheme means that specimens are not 'lost' to private collectors. Even if these specimens reside in private collections that must be preferable to their total loss to the sea. The principle adopted on the Jurassic Coast is that collecting, if undertaken in a responsible manner and following the principles set out in the Code, is an essential part of conservation and study on this site. Maximising reporting in accordance with the Code and maintaining efficient records is critical to the successful management of the site.



The West Dorset coast from Lyme Regis. A large swell wave on the 16th December 2011, destroyed at least one fossil fish on Monmouth Beach and led to the discovery of a large ichthyosaur on Broad Ledge (record 275).

The Charmouth bypass analysis was used by the four critical responses (one individual and three professional scientific or conservation organisations) as evidence for underreporting and therefore failure of the Code. The presentation of the Charmouth Bypass analysis is published in the International Subcommission on Jurassic Stratigraphy Newsletter 33 pages 22-25. Our concerns about the validity of the work are expressed in Newsletter 34/2 by D. Sole on pages 24-27 and J. Larwood on page 33 and the response to those concerns is provided in ISJS Newsletter 35/2, pages 22-27. In summary, it is our view that there are substantial and crucial differences between the circumstances relevant to collecting, recording and retaining specimens on the Charmouth bypass compared to those on the West Dorset coast including stratigraphical extent, volumes of available material, method of exposure, collecting approach, the degree of control that was possible and the categorisation of recorded fossils considered to be of scientific importance. These differences in our view challenge whether the collecting approach adopted for the Charmouth bypass provide a valid analogy for calculating the numbers of key scientifically important specimens that should have been recorded from within the Code area in the chosen three year study period. We urge people to follow the articles and discussion in the ISJS newsletters as outlined above and form their own opinion.

Monitoring and measuring the success of the Code is important and complex and there are a number of indicators that should be considered together. The ability to continue to undertake scientific research is an indicator that collecting remains within sustainable levels and is not impacting on the scientific integrity of the site. Monitoring the level of in situ excavation without permission provides an indication of the level of compliance with the principles of the Code, and currently excavations without consent along the fossil rich horizons are few. Some random and ill-informed tourist digging still takes place in the summer months despite our best efforts to stop it. We know of only one example of a fossil of key importance being unreported, due to the collector being unaware of the need to do so, but local collectors act as the eyes and ears on the ground and they are not telling us of specimens not being recorded, although some collectors can be slow in recording their finds. It is worth pointing out that prior to the establishment of the Code and recording scheme there was no systematic recording of important specimens coming from this coast, although certain most important vertebrate fossils did come to the attention of the academic community on a more informal basis.

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?

10 of the responses were very clearly in favour of the adopted approach while 10 were unclear in their response, 9 made no response to the question and 3 suggested adopting an entirely different approach.

We agree that the management approach must be science led and here it is important to restate that the original Code and categories were established with support and advice from scientists and museum curators together with landowners, conservation agencies and experienced collectors. We also have the Science and Conservation Advisory Group and the Science and Conservation Advisory Network, the latter providing ongoing scientific support as and when requested. Communication and involvement with a range of specialists is always critical to the success of the Code and we will seek to strengthen links. It must always be borne in mind that management has to be practical, realistic, and enforceable.

It was suggested that trained 'volunteer groups' should 'report and recover key finds without sale', but this suggestion did not elaborate on how these volunteer groups would relate to other collectors with whom they would clearly be in competition. If it was intended to supplement the efforts of other collectors in saving the fossils, then of course the suggestion is to be welcomed and no doubt training could be organised. If, however, the intention is that they would replace the existing collectors, then that would raise some difficult issues, not least as to how to provide the high level of time, effort, skill and commitment needed to successfully recover the fossils. Presumably existing collectors would have to be more strictly controlled or even stopped altogether because of the degree of competition they would provide and the uncertainty over the destination of the fossils they find. Issues around access and control are discussed further under the next question. It should be remembered that we already rely on an army of volunteers to recover the fossils, some of whom are prepared to donate while others sell some or all of what they find.

Monetary value is a challenge. The Collecting Cultures Fund has demonstrated in a very practical way the complexity of valuing specimens (time collecting, time preparing, scientific value, aesthetic value) but also the benefits of an acquisition fund. The proposed Mary Anning Fund could be the start of something more sustainable.

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

9 responses expressed satisfaction with the categories though several had suggestions to expand their scope to varying degrees. 9 were unclear in their response to this question, 11 made no response to the question and 3 recommended a very different approach.

Amongst those expressing satisfaction, it was felt that the categories broadly work but would benefit from fine tuning and a number of offers were made to help. A third category was suggested which would be very open and general, encouraging a much wider range of collectors to record their finds. This could be a Jurassic Coast wide recording scheme. It was also suggested that we need to extend the 6 month offer period which collectors are required to give to museums where fossils of key scientific importance are being offered for sale or donation.

One respondent claimed that the categories defining scientific importance reflect the interests of the collectors and not science. However, the criteria were drawn up in consultation with academics and museum curators and the emphasis on vertebrates, for instance, simply reflects the scientific interest of the site which is defined by the Geological Conservation Review. Most ammonites recovered ex situ have less scientific use while museums contain many such specimens already and that is why there is a lesser requirement to record them.

The alternative approach advocated by the three respondents was that the system of specimen classification proposed by the ISJS Geoconservation Working Group (as set out in their responses) should be adopted as appropriate management for the site. We agree that key scientifically important specimens should ultimately be placed in accredited museums. The challenge on an open eroding coast is how best to achieve that. The principal and fundamental difference between the Working Group's proposal and the Code is reliance by the former on enforcement by law whereas we are convinced that the emphasis should be on working with collectors on a basis of trust and cooperation, within the limited restrictions required by the Code, as being the most productive and practical approach to conserving the fossils.

We consider that it would be impossible to enforce the Working Group's proposals effectively particularly bearing in mind the open access to the coast by the public, the length of the coastline and the number of access points. There is a risk that collectors, faced with the prospect of having to surrender their best finds to the authorities might not report those finds at all. The

inevitable consequence is that more thorough and intrusive policing would be needed and serious questions would arise over cost, the practicalities of enforcement and indeed civil rights. In the absence of sufficient evidence to bring a criminal prosecution i.e. for damage to the scientific interest (a crime under the Countryside and Rights Of Way Act 2001), or theft, the only means of enforcement would be through landowners taking action through the civil courts which is slow, very costly and offers no guarantee of success. This is a site with open access and it would be impractical, if not impossible, to stop and search people and perhaps even eject them from it. Such a restrictive approach would be highly undesirable, unlikely to have landowner support or ultimately be supported by the law. Landowners could state their intention to retain ownership of all fossils on their land (as they do under the code at present, but with ownership being transferred to those who follow the code) but the same issues of effective control apply as discussed above. The restrictive approach advocated by the Working Group would also be likely to damage the constructive relationship we have built with collectors, the great majority of whom appear to accept the terms of the code to be justifiable on this World Heritage Site.

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

Only 2 people were happy with the level of detail and quality of the records while 9 were not, 6 were unclear in their response and 15 made no comment.

It was widely felt that it is good to have a record of what is being found. Offers were made to help with expert input which are most welcome and will be followed up. However, a common concern centred on the quality and accessibility of the records. Specifics and recommendations included better records (included as metadata) in the form of detailed measurements, together with systematic use of scale in photographs, keeping track of where the specimens are currently located and who made the identification, better locality information, better accessibility of both records and photos and better spelling and grammar.

Question 7 Awareness of the Code. Have you used the recording scheme? Are you aware of it? Comments are welcome.

7 said yes, 5 said no, 16 provided no answer and the remaining 4 were unclear in their response.



Record 272. Close up views of parts of an as yet unidentified fish, possibly a condroctian, found by three different collectors from the Spittles landslide in the autumn of 2011. No one has seen anything like it from the Lower Jurassic in this area. Despite the local collecting effort, several blocks have probably been lost to the sea or possibly remain to be washed out of the landslide. Scale: the 1 pence piece is 2 cm (One of the code review recommendations; use standard scales!)

Question 7. Other comments

It was suggested that the Code should be extended west of Lyme Regis to include the Undercliffs National Nature Reserve as the geology is essentially the same (many of the same Geological Conservation Review sites extend in that direction).

A bibliography should be maintained and updated regularly. The Dorset Natural History & Archaeological Society has a bibliography provided by Ensom and Thomas but it is quite a task to update. Experts within their field should already be aware of what is being published in the literature. That said, a bibliography would be very useful and we will look into it.

It would be beneficial to log major events and long term changes such as the decline in supply of fossils due to the natural evolution of landslides etc. This is an interesting point. From about fifty years ago until quite recently, the Black Ven landslide (1958/9) yielded numerous nodules from the Charmouth Mudstone Formation while today hardly any are washed out even in the biggest storms as this and other more recent productive landslides have largely been washed away. We already record, as best we can, landslides and cliff falls. The Strategic Monitoring Programme run by the Channel and Plymouth Coastal observatories (www.channelcoast.org) will provide the necessary monitoring of the longer term changes through aerial photography and LiDAR.

The imbalance of funding for the Earth sciences is recognised. We were successful in obtaining significant funding from the Heritage Lottery Fund and have hope-

fully demonstrated the public interest in fossils. It is clear to us that an important role is in working to facilitate the acquisition of specimens for accredited museums but funding will probably always be a challenge.

The landowner respondents identify concerns around health and safety. This is a complex area of legal responsibility. Safety signs are currently provided by a range of different organisations and services and they may sit on one landowner's ground, the access point, but apply to others further along the eroding coastline. There is also a clear duty of care or responsibility for people to be aware of their own safety. Cliffs, for instance, are not playgrounds but parents quite frequently allow their children to use them as such. The important aspect for landowners and operating authorities is that everything that is reasonable is done to make people aware of the potential hazards in any area that they may visit. In terms of publicity for fossil collecting, we always endeavour to provide the basic and obvious safety and conservation messages.

Concluding remarks

We do not claim that the West Dorset Fossil Collecting Code is perfect; but we feel that it is the most practical and effective way to manage a site such as this. It aims to provide the very best chance for scientifically important fossils to be recovered and recorded rather than destroyed on this dynamic and rapidly eroding coastline. Many involved in this consultation recognise the complex nature of the site and the pragmatic approach that needs to be taken. This is indeed a unique World Heritage Site and the management reflects that. We intend to continue dialogue and discussion around many of the observations, suggestions and issues that have been raised and will now draw up an action plan and implement it in order to improve the Code for the future. Some elements are relatively easy to deliver while others are rather more complicated and involve a number of interest groups, organisations and even national policy makers.

We would like to thank all those who contributed to the consultation.

Points to be addressed in an action plan for improving implementation of the code

- The quality of records, their accessibility and promotion of the code
- Improve the promotion of the Code and continue to monitor participation in the recording scheme.
- Improve the accessibility of the recording scheme including remotely i.e. on-line data and a 'virtual museum'.
- Review the detail of the categories.
- Improve the quality of the record keeping and establish a more effective mechanism for tracking

specimens. Consider possible improvements to the fossil recording form.

- Aim to establish a list of expert consultants guaranteed to respond to queries and place a clear expression of interest with the records where there is research potential/interest together with a possible appropriate museum destination for that specimen.
- Aim to develop fossil fact sheets with more detail about current and potential scientific interests.
- Consider a third category for commoner fossils that might also form part of a site wide recording scheme.

Acquisition of key scientifically important specimens

- Support Lyme Regis Museum in its bid to expand, along with the possibility of a replacement building for the Charmouth Heritage Coast Centre.
- Explore the possible application of the law of Treasure Trove and the Danish Danekrae approach for the acquisition of fossils for museums noting that both operate at a national level and are therefore likely to be complex to change.
- Establish a Mary Anning Fund to support acquisition. This is likely to sit within the role of the Jurassic Coast Trust.
- Review the six months offer period required for key specimens and consider extending it.
- Encourage collectors to consider the opportunities that may be available to reduce inheritance tax.

Engagement with the scientific community

- Seek better engagement with the scientific community. We commissioned and received a Research Strategy (2009) which has helped to clarify our role and we will continue to implement the recommendations made where we can.
- Redouble our efforts to strengthen the relationship between collectors, researchers and museums including by encouraging collaboration in the acquisition of important specimens.
- Continue to support applications for scientific studies through the Jurassic Coast research fund and Jurassic Coast Trust subject to availability of funding, and encourage more collaboration between the collectors, the WHS team and researchers when developing such bids.

National and international geoconservation policy

- Continue to work with UNESCO and the IUCN, to ensure that the Code remains in keeping with the World Heritage Convention, and maintain and encourage an on-going and open dialogue with the national and international geological community.

Monitoring

- Continue to monitor the condition of the site.
- Encourage others to continue to contribute views on site condition. This could include requests to accompany visiting academic field parties to the coast.

Landownership and health and safety considerations

- Review issues and responsibilities in relation to health and safety particularly around Open Access under the Countryside and Rights Of Way Act in the context of the Code.

Other

- Consider the extension of the Code to the west of Lyme Regis, into the Undercliffs National Nature Reserve.
- We will look at the practical issues of maintaining an up to date bibliography.

West Dorset Fossil Code review

ProGEO has received the following letter. We have included the extensive response from the consultation above and urge our members to read it as well as the previous comments in the last two numbers of ProGEO NEWS. The search for good methods in conserving geoheritage is imperative and one of the main methods of achieving it is research and discussions! We thank the SCAG for the opportunity to be a part of this process and hope that the management of the formidable geoheritage within the Dorset and East Devon Coast World Heritage Site will develop to the benefit for both geoheritage and local communities. We look forward to learn even more from continuous discussions and scientific results and will be glad to include part of these in ProGEO NEWS in the future!

The editor

"Thank you for your contribution to the consultation and review of the West Dorset Fossil Collecting Code. The responses to the consultation and our consideration of them are now available on our web site at:

http://www.jurassiccoast.com/downloads/WHS%20Management/fossil_code_review_responses_consideration.pdf

http://www.jurassiccoast.com/downloads/WHS%20Management/fossil_code_review_responses_to_the_consultation.pdf

We will be taking forward a series of actions from the review in order to improve the Code. We do not see this as the end of a process, far from it, and remain interested in any further views, observations, concerns, developments or discussions around this subject.

Yours sincerely, Professor Vincent May, Chair Science and Conservation Advisory Group (SCAG), Dorset and East Devon Coast World Heritage Site"

Coming events

- 7th International Symposium on the Conservation of the Geological Heritage. Bari, Italy, 24–28 September 2012. <http://www.geoheritagesymposium-bari2012.org/>.
- 34TH INTERNATIONAL GEOLOGICAL CONGRESS (IGC) 5-10 AUGUST 2012, BRISBANE. Including Symposium: "Geoheritage, Geoparks and Geotourism Symposia". <http://www.34igc.org/>
- IUCN World Conservation Congress. 6-15 September 2012. Jeju, Korea. Including Conservation Campus: Intensive course on geoheritage and geodiversity: new concepts and applications in nature conservation and Knowledge Café: Contribution of geoconservation to nature resilience. <http://www.iucnworldconservationcongress.org/>
- Volcandpark Congress. 1st international congress on management and awareness in protected volcanic landscapes. Olot, Spain, 21–25 May 2012. <http://www.volcandpark1.com/>.
- International Earth science colloquium on the Aegean region (IESCA). Izmir, Turkey, 1–5 October 2012. <http://www.progeo.se/IESCA-Izmir2012CallForPaper.pdf>
- 2nd EuroSpeleo Protection symposium. Muotathal, Switzerland, 29 September–1 October 2012. http://www.eurospeleo.eu/index.php?option=com_content&view=article&id=38&Itemid=50.
- 11th European Geopark Conference. Arouca Geopark, Portugal, 19–21 September 2012. <http://www.2012egnconference.com/>.
- International Conference. Appreciating Physical Landscapes: Geotourism 1670–1970 The Geological Society, London. October 22–23, 2012. <http://www.geolsoc.org.uk/geotourism12>

Deadline next issue of ProGEO NEWS: June 1th 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

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