

GEOHERITAGE Newsletter



No. 5, February 2021



Kosciuszko National Park contains mainland Australia's highest mountain, part of the Great Dividing Range, with fine examples of cirques, moraines, glacial lakes, periglacial features and limestone caves – a remarkable geodiversity that provides a platform for the area's outstanding natural and cultural history. Graeme Worboys was a powerful advocate for the Park's conservation and co-authored with Deirdre Slattery, *Kosciuszko: a Great National Park*. (Photo: © Roger Crofts).

Welcome to Newsletter No. 5 of the IUCN WCPA Geoheritage Specialist Group. Despite the coronavirus pandemic, 2020 has seen positive outcomes for geoconservation in protected areas, but also great sadness in the loss of Graeme Worboys. As Roger Crofts notes below, Graeme was a tremendous supporter of geoconservation, providing wise advice during the establishment of the GSG and through his contributions to its activities. But he also made much wider contributions to nature conservation and protected area management (see: www.iucn.org/sites/dev/files/content/documents/mountain_update_dec_2020.pdf). I met Graeme a number of times at GSG meetings and during his visit to Scotland in 2015 and corresponded with him on geoconservation issues. I was struck by his professionalism, dedication and unstinting efforts to progress conservation, and particularly by his unfailing courtesy, personal kindnesses, encouragement and sound advice based on his vast experience of protected area management. He will be greatly missed.

It was particularly pleasing to see the publication in November of the WCPA Best Practice *Guidelines for Geoconservation in Protected and Conserved Areas*, the culmination of several years' work by GSG members. Another highlight of 2020 was the adoption of two further IUCN Resolutions, which should help to progress effective measures to protect and manage geoheritage. One of these, WCC 2020 Resolution 074, supports the development of detailed preparatory work for a future IUCN initiative on Key Geoheritage Areas, complementary to the Key Biodiversity Areas Programme, in order to protect geoheritage sites of global conservation significance. This will be a key future work area for the GSG.

John Gordon

Message from the Chair

First of all, I feel very sorry that we could not meet at all last year due to the terrible COVID-19 pandemic . We are still struggling in many parts of the world, but I am sure that we will fight against this terrible virus and get over it soon. We were supposed to have a special GSG workshop and a regular Steering Committee meeting last year in Spain during the ProGEO meeting and I hope we will be able to meet virtually this June during the re-scheduled online event (see forthcoming meetings below).

Despite this terrible situation there is some good news for all of us. Above all, the publication we have longed for was released last November. It was one of the IUCN Best Practice Guideline series, titled 'Guidelines for geoconservation in protected and conserved areas'. The Geoheritage Specialist Group should be very proud of this achievement because all the authors are very active members of our group. Special thanks should be given to Roger Crofts who made the most significant contribution to the publication as well as other authors. It was also very special because this was the first publication by IUCN dealing with geoconservation in protected areas. I am sure, and hope, that this will be very helpful to managers and practitioners in many protected areas of the world in the future.

Another achievement is the adoption of the IUCN resolution (WCC-2020-Res-074) which refers to Key Geoheritage Areas. GSG have been working very hard for this, because significant global geoheritage sites have been neglected and not properly conserved for future generations in the world. It is one of the most important working goals for GSG to establish a new IUCN program to change the world. ProGEO proposed the motion for the resolution, and special gratitude should go to many GSG members involved in this procedure. Of course this program will provide suitable candidates for potential World Heritage sites as well as aspiring geoparks. Also this program will find a gap for recognition and conservation of numerous geoheritage sites of national and international significance in the world and may be able to provide enough information on protection measures at a national level. We should try our best to achieve this goal for the establishment of a new IUCN program in 2024.

Sad news came to us last year. I was struck to hear the news that our dear friend, Graeme Worboys, passed away. I met Graeme during the IUCN field evaluation mission to China Danxia in 2009 for the first time. We really enjoyed the mission together and he became one of my sincere friends since then because we had the same mutual interest. Based on his good experience in WCPA he has given me thoughtful advice many times to continue GSG activities vividly. Of course he was one of the core members during the establishment of the GSG. I remember we met in Korea again for discussion together with other members and had a wonderful time together. Graeme was the one who gave us an idea of a 'Key Geoheritage Areas' program in IUCN. He was the co-author of my recent article (Geological monitoring in protected areas) dealing with geological monitoring, which was published in *International Journal of Geoheritage and Parks* in 2019. Even though he has left us, his spirit for geoconservation will remain in our hearts forever.

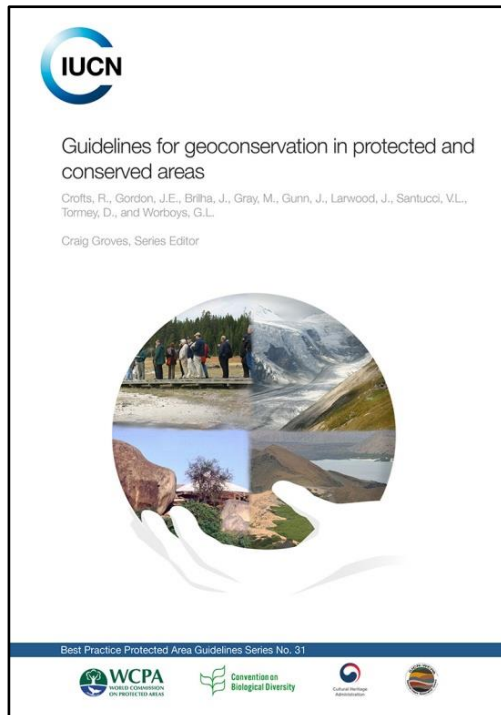
Keep safe and all the best to all of you,

Kyung Sik Woo

Publication of the IUCN WCPA Best Practice 'Guidelines for Geoconservation in Protected and Conserved Areas'

Roger Crofts

Crofts, R., Gordon, J.E., Brilha, J., Gray, M., Gunn, J., Larwood, J., Santucci, V.L., Tormey, D., and Worboys, G.L. (2020). *Guidelines for geoconservation in protected and conserved areas*. Best Practice Protected Area Guidelines Series No. 31. Gland, Switzerland: IUCN.



This publication was launched at a zoom meeting of the GSG on 23 November, 2020. It is free to access and available from:

<https://doi.org/10.2305/IUCN.CH.2020.PAG.31.en>.

Please use this link rather than copying the pdf when circulating it.

We have widely circulated the document within IUCN and within the international governmental, charitable and convention organizations dealing with nature conservation. If you have more examples or case studies, please let us have them as we would like to continue the compilation of best, and worst, practice. Send them to me at roger.dodin@btinternet.com.

This IUCN Best Practice Guidelines publication, number 31 in the series, is the first to address a fundamental part of nature – geodiversity and

geoheritage and their protection and conservation, following the broadening of the IUCN definition of a protected area to embrace all of nature. Written by an international team of experts within the GSG, the guidelines are intended principally for use by protected area managers and staff and their advisors. As a starting point, it spells out why geoheritage conservation (geoconservation for short) is needed, and describes the commonly accepted values of geoconservation, including the all-important links with biodiversity conservation through ecosystem functionality. Nine fundamental principles of geoconservation are set out and examples provided. The guidelines then focus, in particular, on how to establish geoconservation protected and conserved areas alone or as an addition to existing systems for biodiversity and cultural diversity conservation. The setting up of management and monitoring systems is addressed, and specific attention is given to the management of threats from human activities, including climate change, and what steps should be taken to deal with them. Examples are given for four situations: cave and karst areas, glacial and periglacial areas, volcanic areas, and mineral and fossil localities. Best practice in educating the public completes the guideline. Throughout, examples and case studies on best practice are provided from around the world.

A comprehensive and up-to-date reference list is included. To facilitate readability by the

intended users, relatively few technical terms are used in the text, and for the first time in IUCN, a comprehensive glossary of earth science terms is provided.

Launching the publication, lead author and production manager Roger Crofts said “embracing all aspects of nature, recognising their interactions and ensuring conservation of features and processes is even more important now than ever before. I hope that these guidelines, with the examples provided, will help managers staff, and their partners recognise the importance of geoconservation and improve its achievement in practice.”

Dr Kathy MacKinnon, the WCPA Chair, states in her Foreword: “I commend these guidelines on geoheritage to all involved in the establishment and management of protected and conserved areas to ensure that we protect our geodiversity as well as biodiversity heritage.”

The volume is dedicated to Dr Graeme Worboys, one of the authors and a global figure in geoconservation, who sadly died before its completion.

Adoption of IUCN Resolutions WCC-2020-Res-074 and WCC-2020-Res-088

José Brilha and Enrique Díaz-Martínez

The last Newsletter reported on the preparation of two motions on geodiversity and geoheritage for the World Conservation Congress that was due to be held in June 2020 in Marseille, France. Although the Congress was postponed due to the coronavirus pandemic, electronic votes on these and other motions were conducted in the autumn. Both motions were approved and adopted as IUCN Resolutions in November 2020. The adoption of these Resolutions, WCC-2020-Res-074 and WCC-2020-Res-088, builds on earlier Resolutions WCC-2008-Res-040, WCC-2012-Res-048 and WCC-2016-Res-083 and represents a significant step forwards for geoconservation. In particular, WCC-2020-Res-074 addresses the collection and publication of data on geoheritage and geodiversity in protected areas, detailed work to support the development of a future IUCN initiative on Key Geoheritage Areas complementary to the Key Biodiversity Areas Programme, provision of information and interpretation to increase visitor awareness and geoheritage assessments, and the implementation of effective geoconservation measures through national legislation; while WCC-2020-Res-088 addresses enhanced protection and conservation of mining environments for their natural heritage values. There is also encouragement to adopt more integrated approaches linking geodiversity and biodiversity in above-ground and underground environments. These new resolutions are now fully in force and do not await the re-scheduled Marseille Congress. They should help to strengthen recognition of geoconservation within IUCN and among its members, and support national efforts in geoconservation, including enhancement and integration of geoconservation within nature conservation.

The following additional details are reproduced, with permission, from ProGEO News No. 4, 2020.

Every four years, the IUCN General Assembly approves new motions presented by its

Members. Once adopted, these motions are called Resolutions if they affect IUCN's bodies and/or its members, and therefore become part of IUCN's general policy; or they are called Recommendations if they affect entities outside IUCN, such as companies, governments or non-governmental organizations that are not members of IUCN. As it has happened with many other events due to the Covid-19 pandemic, IUCN's World Conservation Congress, with its Forum and General Assembly, have been postponed: they were to be held in Marseille (France) in June 2020, were originally postponed to January 2021, and only recently have been assigned a definitive date: 3-11 September, 2021. Nevertheless, the electronic vote on IUCN motions took place between 7-21 October, 2020. IUCN Members were asked to vote on 109 motions, and 729 of the 1176 Members eligible to vote participated. Three of these were the scientific societies working on geoconservation and which recently became members of IUCN: the Geological Society of Spain (SGE) since 2008, ProGEO since 2011, and the Spanish Society for the Protection of Geological and Mining Heritage (SEDPGyM) since 2015.

In 2019, during the congress' motions process, ProGEO submitted a motion aiming to raise awareness on geoheritage and geoconservation amongst the IUCN membership, and to influence international nature conservation policies. Motion "089 – Geoheritage and protected areas" was prepared by ProGEO in collaboration with the other "pro-geo" members, and was finally approved by 97% of all IUCN Members! Because some motions were combined or dropped out during the discussion and voting processes, the final number allocated as a resolution changed from the original number as a motion. In the case of motion 089, it is now called Resolution 74, with the code 7.074 or WCC-2020-RES-074. After the other "pro-geo" resolutions previously adopted in 2008, 2012, and 2016, this new resolution plays an important role in strengthening the importance of geoconservation in nature conservation. The motion was submitted by ProGEO with 8 co-sponsors but the final motion was in fact supported by a larger list of 33 co-sponsors in total.

Resolutions have two distinct parts: a preliminary set of principles and statements that provide the background argumentation, and an operational part which specifies what should be done and who should do it.

Resolution WCC-2020-Res-074: Geoheritage and protected areas

The operational part of this new resolution is as follows:

"The IUCN World Conservation Congress 2020, at its session in Marseille, France:

1. REQUESTS the Director General and WCPA to:

a. mobilise IUCN Regional Offices and the IUCN Global Programme in support of national efforts to collect, compile and publish data on geoheritage and geodiversity in protected areas, including proper inventories, research, and sustainable management and protection of geological substrate, landforms and active geological processes;

b. support the development of a detailed study envisaging the establishment of a future IUCN initiative on Key Geoheritage Areas, as a complement to the existing Key Biodiversity Areas programme, in order to protect geoheritage sites of global conservation significance and move towards more integrated nature conservation;

c. encourage work, including by protected area managers, to enhance the information and proper interpretation of geodiversity and geoheritage in order to increase the awareness of visitors of all natural features inside natural cavities and protected areas and the ways in which geological, biological and cultural elements are often inter-linked; and

d. engage with the Commission on Ecosystem Management (CEM) to encourage a concerted effort to conduct ecosystem Red List assessments of geologically interesting ecosystems, and to incorporate geoheritage assessments as part of the normal procedure for red-listing and ecosystem assessments;

2. ENCOURAGES national Member organisations, other nature conservation organisations, civil society, academia and managers of protected areas and outstanding underground sites to:

a. foster knowledge about geodiversity and geoheritage inside and outside protected areas and to integrate nature conservation principles and methods into the management of protected areas to ensure the effective protection of this component of natural heritage;

b. establish or improve national legislation concerning the protection of geoheritage, and enabling the necessary conditions to ensure the implementation of effective conservation measures; and

c. encourage the respectful exploration and study of underground environments and their interrelations with the surface; and

3. CALLS ON states, non-governmental organisations, universities, researchers, economic stakeholders and protected area managers to take into account the specific issues linked to underground environments in the definition and implementation of nature conservation policies and to adopt a holistic approach to the management of underground natural environments, considering all relationships between biological and geological elements.”

Resolution WCC-2020-Res-088: Conservation of the natural diversity and natural heritage in mining environments

At the same time, and also with ProGEO support, SEDPGyM presented another motion affecting geoheritage that was also approved in 2020. Motion “104 – Conservation of the natural diversity and natural heritage in mining environments” became Resolution 88, with the code 7.088 or WCC2020-RES088, and its operational part reads as follows:

"The IUCN World Conservation Congress 2020, at its session in Marseille, France:

1. CALLS ON the Member States to conserve mining environments, both underground and surface (opencast mines and quarries), whose value derived from the conservation of their natural heritage, both geological and biological, is considered greater than the value of their restoration; and

2. ASKS the Member States to launch initiatives to guarantee that the natural heritage of these

mining environments is used for biodiversity conservation, and also to promote scientific, educational, cultural and/or tourist purposes, and to this end:

- a. encourages the Member States to draw up inventories of the natural and cultural heritage resulting from mining activities, both historical and current, and to take the necessary legal action to conserve them;
- b. urges the Member States to ensure that mining authorisations and their environmental impact studies include a requirement for initiatives for the conservation and sustainable use of the natural heritage that arises during the activity and/or after it finishes, in mining restorations;
- c. asks the Member States to support public and private initiatives for the sustainable scientific, educational and tourist use of mining environments, with the proper safety measures; and
- d. calls on the Member States to take steps to raise positive awareness and to educate civil society, companies, nongovernmental organisations and public authorities regarding the conservation of the natural and cultural heritage generated in mining environments.”

With these two new IUCN resolutions, geoconservationists have additional tools that can be used to ask national and local authorities to implement effective measures to protect and manage geoheritage. For example, the resolutions should be considered in strategies, management plans and action plans. It is also worth noting that the Geoheritage Specialist Group and ProGEO are strongly committed to promoting these two motions inside the IUCN structure and amongst its membership.

The complete texts of the resolutions, in English, French and Spanish, including their preambles, are available from:

Resolution WCC-2020-RES-074 – <https://portals.iucn.org/library/node/49213>

Resolution WCC-2020-RES-088 – <https://portals.iucn.org/library/node/49227>

Thematic Study on Revision of Criterion (viii) for World Heritage

Since the first meeting at IUCN in August 2019, a manuscript has been written, revised and approved by all authors. It has been edited for publication at the forthcoming World Heritage Committee session in July 2021. Five members of the WCPA Geoheritage Specialist Group are currently involved in this project and providing expert advice.

Report from the Caves and Karst Working Group (CKWG)

John Gunn (Chair) & Baerbel Vogel (Secretary)

PROGRESS WITH CKWG GOALS

The CKWG goals, set at the Vilm 2018 GSG meeting, were:

1. revision of IUCN Guidelines for Cave and Karst Protection first published in 1997;
2. production of a report on Caves and Karst in international protected areas other than WHS.

Goal 1. During 2020, the CKWG provided input to *Guidelines for Geoconservation in Protected and Conserved Areas*, which includes one section devoted to 'Karst and cave protected and conserved areas'. This will be complemented by the updated *Guidelines for Cave and Karst Protection*, which will give more detailed, targeted and holistic guidance that addresses conservation of both earth science and biological features in cave and karst areas. This project is being undertaken with support from the International Union of Speleology (UIS) as a contribution to the International Year of Caves and Karst. The aim is to have a digital publication ready for the UIS Congress in July 2021 and to subsequently approach IUCN-WCPA to seek their endorsement. David Gillieson and John Gunn are editing the document which will comprise 14 main sections. By the end of 2020, material for five sections had been received and edited, lead authors had been identified for six sections and lead authors were being sought for three sections.

Goal 2. Databases have been compiled listing MAB Biosphere Reserves, Ramsar Sites, UNESCO Global Geoparks and World Heritage Properties that contain areas with caves and karst formed on carbonate or evaporite rocks. A paper describing this work has been published in *Hydrogeology Journal* [Gunn J (2020). Karst groundwater in UNESCO protected areas: a global overview] and can be read at: <https://rdcu.be/b53fg>. In addition, a talk: 'How well is cave and karst geoheritage protected by UNESCO protected area designations?' was presented at *KARST 2020 Conservation of Fragile Karst Resources: A Workshop on Sustainability and Community in support of UNESCO Science Programs*. As a spin-off from this goal, the CKWG has established a working relationship with CaveMAB, an informal network of biosphere reserves around the globe that treasure natural and cultural phenomena related to caves. During 2021 further work will be undertaken to add caves and karst on other lithologies to the database.

Further details of these projects are given in CKWG Newsletter #3 and #4 available from Baerbel Vogel.

MEMBERSHIP OF THE CKWG

Anyone who is presently a member of the GSG and who has an interest in Caves and Karst is welcome to join the CKWG - just email Baerbel with your contact details and interests. If you are reading this but are not presently a member of GSG, then if you wish to become a member of CKWG you must first join GSG. However, we recognise that there are many scientists who have an interest in the conservation and management of caves and karst but may not wish (or

be eligible) to become a member of GSG (for example members of the IUCN SSC Cave Invertebrate Specialist Group). For these people we have introduced the category 'Supporter of the CKWG'. Anyone wishing to be a supporter needs only to send their contact details to Baerbel and we will send you copies of the CKWG Newsletter and other information.

FUTURE MEETINGS OF CKWG

Providing Covid restrictions are lifted in time, the 18th International Congress of Speleology will be held at the Savoie Mont Blanc University, Chambéry, France from 25 July to 1 August 2021. The theme of Symposium 1 is 'Karst Heritage and Resources' and this is the flagship theme for the whole meeting. CKWG are involved in the organisation of this Symposium and the main meeting of CKWG in 2021 will be during the Congress.

INTERNATIONAL YEAR OF CAVES AND KARST (IYCK)

The IYCK is an initiative of the International Union of Speleology (UIS), which aims to enhance protection of caves and karst through increasing understanding of their value to society. The GSG is one of the UIS partners and the main contribution of the CKWG to IYCK will be through the revised *Guidelines for Cave and Karst Protection* and through the 18th International Congress of Speleology. The Opening Ceremony for the IYCK took place on 26 January. It was initially planned for UNESCO Headquarters but due to the pandemic was instead held virtually. The ceremony was recorded and is available at: <https://www.youtube.com/channel/UCzSiErLj5x6viNbvAdehDvA>. It is intended that a celebration of the International Year will be held at UNESCO later in 2021 when the pandemic is over.

GSG Membership News: Invite Your Expert Colleagues to Join our Specialist Group

Wesley Hill
GSG Administration

As a valued member of the WCPA Geoheritage Specialist Group (GSG) and Geoheritage, Caves and Karst Protected Areas Network, and since you may work with other geoheritage experts within your country or globally, we ask you to send a personal email and our official letter of invitation asking your colleagues to join the WCPA and the Geoheritage Specialist Group (GSG). Save the official letter of invitation (attached), and please email this invitation, along with the application information form (attached), to your recommended colleagues. We need more geoheritage and cave and karst experts to join our network and to be involved in our work.

Graeme Worboys

Roger Crofts

What a privilege it has been to have known and worked with this very fine man for so many years; to share work time and play time in many interesting places and to get to know what makes him tick.

One word describes Graeme to me – “dedicated”.



Graeme and Roger at the Highland Boundary Fault in the Loch Lomond and The Trossachs National Park in Scotland.
Photo: © Roger Crofts.

Graeme was dedicated to conservation at all scales from the largest connected corridors to the smallest sites. He led with distinction the production of the valuable tome, *Connectivity Conservation Management: a global guide*, published in 2010, as well as leading the Connectivity Group in WCPA. He had a lifelong dedication to the protection and management of Kosciuszko National Park in Australia. He was delighted to read the reaction to the brilliant book he co-authored with Deirdre Slattery, *Kosciuszko: a great national park*. I treasure the copy he sent me and most especially the insights it contains.

It is of no surprise to all who knew him, that Graeme was dedicated to campaigning against injustice to nature whenever and wherever he felt that change was needed. To the end, for example, he campaigned vigorously against feral horse damage in the Kosciuszko National Park, and on many other issues, as his Australian friends will testify.

Graeme was dedicated to working partnerships in his Australian and his international work, both in collective groups and with individuals. He was tireless in supporting the mountains work when taking over from the redoubtable Larry Hamilton as Vice Chair for the Mountains and Connectivity Conservation Specialist Group of WCPA. He gave his insights and wise advice to us in the setting up of the Geoheritage Specialist Group. Indeed, despite time differences, he was always ready and willing to have a chat over the phone to help move matters forward.

Graeme was dedicated to the highest standards throughout his work. This is obvious to us all in working with him on the *Protected Areas Governance and Management* book, published in 2015. He was meticulously organised, great at communicating with all participants, supportive and gently nudging everyone forward and providing a helping hand when needed.

As we all know, Graeme was dedicated to communicating best practice and making sure that

changes occurred when the practice was not up to scratch. Hence, the 4 books that I have the good fortune to have as my bibles on conservation management practice.

Graeme was practical, serious and good humoured, mildly self-deprecating and action orientated. It was a delight to spend time with him in the field with his penetrating questions and insightful discussions. His camera, Nicy as he called it as it was a high spec Nikon, was a treasured possession. The results were of the highest order as we have seen in his authored publications. He carried his knowledge of geology, protected area management and conservation lightly. But, in assessments, like the one he produced following our visit to China in 2015, were incisive and penetrating, and did not pull their punches.

He showed remarkable perseverance through the years of treatment for the rare uveal cancer since it was diagnosed 2014, undergoing surgery, radiation, clinical trials and immune therapy, with the dedicated support of Bev, his wife, and the technical team in Sydney. He was positive to the end feeling that there was no point in not being so. What an amazing person!

We owe so much to Graeme Worboys, we mourn his loss, but will forever remember and honour the contribution he made to the serious work of conserving nature.

Proposal to Establish an International Geodiversity Day

Murray Gray (Queen Mary University of London)

On May 22, 2020, when there was publicity surrounding the day being International Biodiversity Day, Zbigniew Zwoliński (Adam Mickiewicz University, Poland) and I independently wrote an email to José Brilha (University of Minho, Portugal) proposing that we should try to establish an International Geodiversity Day (IGD). This was on the eve of the Oxford Geoheritage Virtual Conference (OxGVC) being organised by Jack Matthews (Oxford University Natural History Museum, UK) and colleagues. Therefore, José, Jack, Zbigniew and I prepared a brief proposal which was put to the 600 conference delegates from over 60 countries who agreed to support it. We then started to approach geoscience and nature conservation organisations and individuals around the world seeking letters of support for this initiative. This brought in over 100 letters including from the International Union for the Conservation of Nature (IUCN) and the International Union of Geological Sciences (IUGS) which agreed to forward the proposal to UNESCO's Division for Earth and Ecological Sciences.

There has then been a series of meetings and communications with UNESCO staff based in Paris, which has resulted in a paper to be put to UNESCO's Executive Board in April 2021 and, if approved there, would be considered by UNESCO itself in November. The UNESCO Executive Board is composed of a limited number of Member States and in order to gain their support we have prepared a briefing paper and asked supporters to use this to lobby their UNESCO National Commissions or Delegations. At the time of writing, we are starting to receive commitments of support from UNESCO Member States.

The proclamation of an International Geodiversity Day would provide an annual reminder of

the essential role of geodiversity for human well-being. It provides the foundations and habitats for all living things. It is the source of materials that build our towns and cities; it provides our energy resources, including renewable energy and the materials mined to manufacture wind turbines and solar panels; it allows us to bury our waste, provides us with freshwater and attenuates our pollution; it helps us to understand and predict natural hazards; and it inspires our artists and provides us with incredible landscapes from mountains to coasts. Geodiversity gives us evidence of past climate and landscape changes and their causes, and therefore helps us to understand and plan for the impacts of future environmental changes.

You can read more on the website: <http://www.geodiversityday.org>.

Geodiversity and Geoconservation: a New Theme of PANORAMA Solutions

Enrique Díaz-Martínez
ProGEO and IGME

PANORAMA – Solutions for a Healthy Planet (<https://panorama.solutions/en>) is a partnership initiative, including IUCN, established 'to document and promote examples of inspiring, replicable solutions across a range of conservation and sustainable development topics, enabling cross-sectoral learning and inspiration'. Several geoheritage case studies have already been uploaded to Panorama's online platform and database of solutions under a new theme, 'Geodiversity and Geoconservation'. The geoconservation community is encouraged to upload further examples.

The European Association for the Conservation of Geological Heritage (ProGEO), a member of the International Union for Conservation of Nature (IUCN), together with the PANORAMA consortium, organized on 14 January, 2021, a live webinar on “Geodiversity and geoconservation: a new theme of PANORAMA solutions”. The seminar was in English, and the development consisted of an introduction to the concepts and initiatives of geoconservation, explaining how proper management of geological heritage and geodiversity contributes to the conservation of natural heritage and natural diversity. The PANORAMA initiative and its web platform were also discussed, showing how it allows conservation professionals to share and reflect on their experiences, increase recognition of good practices, and discover how similar challenges have been addressed in other parts of the world. Participants had the opportunity to learn about the benefits of contributing to PANORAMA with examples of nature-based solutions, and received guidance on how to contribute to this initiative with their own examples of conservation and enhancement of geological heritage and geodiversity.

The webinar platform was provided by the Geological Survey of Spain (IGME), a public research body that works to improve and promote the knowledge and management of geological heritage in Spain and worldwide.

The event was attended by 118 people from from universities, research centers, geoparks,

protected natural areas, and tourism agencies in America (Canada, Mexico, Venezuela, Colombia, Ecuador, Brazil, Bolivia, Chile and Argentina), Africa (Morocco, Tunisia, Mali, Congo, Democratic Republic of the Congo (former Zaire), and Mozambique), Asia (India, Indonesia, Iran, Philippine Islands, Lebanon, Myanmar, Thailand, Taiwan, East Timor and Vietnam) and Europe (Spain and Croatia, and also from Bosnia-Herzegovina, Denmark, France, Germany, Greece, Ireland, Norway, Poland, Portugal, Romania, Russia, Switzerland and the United Kingdom), highlighting the range of international interest in geoconservation.

A video of the event is now available on the IGME YouTube channel, and can be accessed through the following link: <https://www.youtube.com/watch?v=0iL5RpttAYM>

New Protected Area in Iceland

Roger Crofts

It is pleasing to announce that protection has been given to an important geoheritage area in Iceland. The Kerlingarfjöll Nature Reserve and Landscape Protected Area is a unique



Kerlingarfjöll Nature Reserve and Landscape Protected

combination of geothermal activity and glaciation. It was under threat for development of renewable energy sources because of the high level of geothermal activity. It was reviewed by the statutory body which advises the government and parliament through The Master Plan for Nature Protection and Energy Utilization process. The area does have some small-scale skiing, but it does not significantly affect the geoheritage or wider nature conservation interest. It is a popular

area for walking and there are caves in some of the larger glaciers. Otherwise, most of the glaciers are very small, a few tens of metres square, and melting fast and may will disappear in a few years' time.

Geoheritage Activities in the USA in 2020

Tom Casadevall

Despite the COVID pandemic restrictions on travel, U.S. geoheritage scientists were very active on both the domestic and international geoheritage stage. Members of the **U.S. Advisory Group on Geoheritage and Geoparks** had planned to participate in both the 2020 ProGEO meetings in Spain and the UNESCO Global Geoparks Conference in Korea, but both meetings

have been postponed to 2021. With the postponement of in-person meetings, there were many opportunities to join and participate in virtual geoheritage meetings.

In addition to the monthly virtual meetings of the U.S. Advisory Group on Geoheritage and Geoparks, key activities for members of the U.S. Advisory Group for Geoheritage in 2020 included:

America's Geoheritage Workshop II: Identifying, Developing, and Preserving America's Natural Legacy

The principal activity for the Advisory Group was planning and implementation of this Workshop, held over a period from September 2020 to January 2021. This event was organized by the National Academies of Sciences, Engineering, and Medicine (NASEM)'s Board on International Scientific Organizations-U.S. National Committee for Geological Sciences, supported by the NSF, and sponsored by the Association of American State Geologists, the American Geosciences Institute, the Geological Society of America, the National Association of Geology Teachers, the National Park Service, and the U.S. Geological Survey.

Due to the COVID pandemic, the workshop was reorganized from an in-person meeting into a virtual workshop conducted in two distinct parts. Part I consisted of a Distinguished Speakers Webinar series of 8 webinars conducted between September-December 2020 and Part II consisted of a virtual writing workshop held in January 2021.

The Distinguished Speakers Webinar Series included presentations by 30 speakers on topics including a survey of geoheritage activities in the U.S. (Federal and at the State Geological Surveys), issues of geoheritage and cultural heritage, economic development and geotourism, and geoheritage in education and in research initiatives. The list of speakers, titles of the presentations, and all webinars are posted and free to view at: <https://www.nationalacademies.org/our-work/americas-geoheritage-ii-a-workshop>.

The writing workshop took place on January 10-15, 2021. The introductory plenary session included presentations by Tom Casadevall (USGS emeritus) and José Brilha (University of Minho, Portugal). More than 100 Part II participants were grouped in 12 focus groups, which presented report-outs of their respective deliberations. The list of focus groups and additional information can be found at: <https://www.nationalacademies.org/event/01-10-2021/americas-geoheritage-workshop-ii-identifying-developing-and-preserving-americas-natural-legacy-part-ii-geoheritage-virtual-writing-workshop>.

The NASEM is preparing a proceedings-in-brief that will represent the strong contribution of the 30 speakers and the enthusiastic work of the ~100 participants in the virtual writing workshop, so the whole community can learn from this very successful two-part event. The document, to be released later in 2021, will be posted on the National Academies Press' website for free downloading.

Topical scientific sessions on Geoheritage at meetings of the Geological Society of America

At the North Central sectional meeting of GSA, May 2020, a topical session was held on *Unique Geology and Geoheritage of the Lake Superior Region*. Abstracts for this session are available at: <https://gsa.confex.com/gsa/2020NC/meetingapp.cgi/Session/50691>.

At the Annual GSA meeting in October 2020, the Advisory Group sponsored a day-long technical session on *Promoting Geoheritage Awareness in North America* with 11 presentations. Abstracts for these presentations are available at: <https://gsa.confex.com/gsa/2020AM/meetingapp.cgi/Session/50268>.

KARST 2020, August 2020

On August 18-20, 2020, Western Kentucky University (WKU), the George Wright Society (GWS), and UNESCO's Mammoth Cave Biosphere Region (MCBR) hosted an international meeting on *Conservation of Fragile Karst Resources: A Workshop on Sustainability and Community*. Originally planned as an in-person event to be held at WKU with field excursions in and around Mammoth Cave National Park, the meeting was postponed due to the Covid-19 pandemic and instead was hosted virtually. Sarah Gaines represented the U.S. Geoheritage and Geoparks Advisory Group, serving on the meeting's Advisory Committee. This event also represented the first meeting of a new global network of cave and karst properties within UNESCO's Man and the Biosphere (MAB) Program called CaveMAB. Information about the meeting's outcomes can be found at the following links:

- Meeting proceedings: <https://karst2020.com/proceedings/>
- All sessions and presentations can be viewed on the meeting YouTube channel: <https://karst2020.com/zoom-recordings-by-session/>
- Karst2020 in light of the UNESCO Man and the Biosphere Program: <https://cavemab.com/karst-2020-in-light-of-the-unesco-mab-program/>

For more information about the U.S. Advisory Group for Geoheritage and Geoparks, please contact Tom Casadevall at tcasadev@gmail.com.

IV Workshop on Brazilian Geological Heritage

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On September 28, 2020, the IV Workshop on Brazilian Geological Heritage took place, with the theme *Regional inventories in the context of the national inventory*. The event was promoted by the Centre for Research Support on Geological Heritage and Geotourism (GeoHereditas) – <https://www2.igc.usp.br/geohereditas/> – based at the Institute of Geosciences of the University of São Paulo (IGC/USP), in partnership with the Geological Service of Brazil (CPRM) – <https://www.cprm.gov.br/>.

The objective of the workshop was to promote integration and exchange of experiences among professionals involved in various regional inventories, coordinated within universities and also by CPRM. The theme of the event comes as a support to the CPRM initiative in carrying out a national inventory, coordinated within the scope of the 'Map of the geological heritage of South America', approved by the Commission for the Geological Map of the World (CGMW) in 2018.

The event included the participation of Prof. José Brilha (Portugal), responsible for the Portuguese inventory, and CPRM professionals directly linked to the national inventory project, such as Dr. Carlos Schobbenhaus. Coordinators of three state inventories presented their results: São Paulo, which was the first systematic inventory in the country; Rio de Janeiro, which is the pilot area for the national inventory; and Paraná, an ongoing project that has been following ProGEO's and IGME's methodology. Researchers from universities that work directly with the theme of inventories were also present.

The states invited to the event are geographically contiguous, aiming to open discussion about a possible integration of the sites that include these inventories and the national heritage inventory project and a form of collaboration between universities and the Geological Service of Brazil. The organizers intend that the event will open a series of discussions about the definition of geological contexts and strategies to achieve this integration. Moreover, it may highlight the need to follow well-defined methods and criteria, and the importance of defining the focus of the inventory, so that the final product is a coherent listing, which allows a characterization of the protection and use priorities and which can be effectively used for different purposes.

It was a great opportunity for everyone who works with geoconservation in Brazil and who have inventories as basic premises for the proper management of geological heritage. The workshop was broadcast on the GeoHereditas YouTube channel (<https://www.youtube.com/watch?v=WmXlcQVQfsI>) – in Portuguese.

Other Geoheritage Meetings Held in 2020

Oxford Geoheritage Virtual Conference, 25-29 May 2020

The abstract volume is available from the conference website, and several of the presentations can be viewed on the OxGVC YouTube channel: see <https://www.oxgvc.co.uk> for the links.

1st Virtual Workshop on Geoheritage of Volcanic Islands, Spain, 14-16 October 2020

Keynote address by Tom Casadevall on *Volcanic Island Geoheritage* is available on the IGME Youtube channel: see <https://www.youtube.com/watch?v=iKtyV9GhLfU>

The UNESCO Global Geopark Concept for Africa and the Arab States: Webinars hosted by Tanzania and Morocco, December 2020

The objective of the webinars was to show the importance of geoheritage for sustainable development and to enable governments to support emerging geoheritage initiatives. Links to the programmes and videos of the webinars are available in English, French and Arabic on YouTube: see <http://www.unesco.org/new/en/natural-sciences/environment/earth-sciences/unesco-global-geoparks/> for the links.

Recent Publications of Geoheritage Interest

Osipova, E., Emslie-Smith, M., Osti, M., Murai, M., Åberg, U., Shadie, P. (2020). IUCN World Heritage Outlook 3: A conservation assessment of all natural World Heritage sites, November 2020. IUCN, Gland. <https://doi.org/10.2305/IUCN.CH.2020.16.en>

Sadry, B.K. (2020). The Geotourism Industry in the 21st Century. The Origin, Principles, and Futuristic Approach. Apple Academic Press, Boca Raton.

Singh, R.B., Wei, D., Anand, S. (2021). Global Geographical Heritage, Geoparks and Geotourism. Springer Nature, Singapore.

Earth Heritage Magazine

Issues 53 and 54 of Earth Heritage Magazine were published during 2020. The magazine includes news and popular articles on geoconservation and is freely available online at: www.earthheritage.org.uk

Forthcoming Meetings of Interest 2021

- vEGU21 Gather Online 19-30 April, 2021. Virtual session on: 'Visages of geodiversity: time-spatial scales, uncertainty of assessments, promotional activities' (GM1.3/OS5/BG2). Further details at: <https://meetingorganizer.copernicus.org/EGU21/session/40267>
- The X International ProGEO Symposium, Spain, 7-10 June, 2021. This event, postponed from 2020, will be a free, live online event, including courses, technical sessions, workshops and meetings. Further details about registration and abstract submission will be sent to those previously registered and posted in mid-February at <http://www.igme.es/patrimonio/xprogeo2021/>
- 18th International Congress of Speleology, Savoie Mont Blanc University, Chambéry, France, 25 July to 1 August, 2021. Further details at: <https://uis2021.sciencesconf.org/resource/page/id/2>
- IUCN World Conservation Congress (WCC) 3-11 September, 2021, Marseille, France. <https://www.iucncongress2020.org/newsroom/information-new-dates>

Useful Links

IUCN-WCPA Geoheritage Specialist Group: <https://www.iucn.org/commissions/world-commission-protected-areas/our-work/geoheritage>

The European Geoparks Network: <http://www.europeangeoparks.org/>

Asia Pacific Geoparks Network: <http://asiapacificgeoparks.org/>

Global Network of National Geoparks: <http://www.globalgeopark.org/>

UNESCO Earth Sciences: <http://www.unesco.org/new/en/natural-sciences/environment/earth-sciences/global-geoparks/>

ProGEO (The European Association for the Conservation of the Geological Heritage): <http://www.progeo.ngo/>

International Union of Geological Sciences (IUGS): <https://www.iugs.org/commissions>

IUCN WCPA Geoheritage Specialist Group

The Geoheritage Specialist Group (GSG) provides specialist advice and guidance on all aspects of geodiversity and geoheritage in relation to the establishment and effective management of protected areas, and to support the integration of geodiversity into all relevant IUCN programmes.

Further information about the GSG is available at: <https://www.iucn.org/commissions/world-commission-protected-areas/our-work/geoheritage>

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Secretary General: Wesley Hill (wesleymhill@gmail.com)

To become a member of GSG, geoheritage experts must be members of the WCPA.

GSG also maintains a list of 'advisors' in the wider geoheritage community, who are not WCPA/GSG members. If you would like to be included on this list and to receive details of announcements and copies of the Newsletter, please send an email to Wesley Hill, including your full contact details (address, email, country, and your geoheritage interests).

The GSG Newsletter is compiled by John Gordon. Please send contributions to: jgordon0914@gmail.com