



*Elongated limestone ridges forming an island archipelago in the inner Oslo fjord. City of Oslo in the background. (Photo: Jon A. Markussen)*

## **Management plan for protected geosites in the counties Oslo and Akershus, Norway**

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The two counties around Oslo (Oslo and Akershus) have a land area of some 5500 km<sup>2</sup> and a population of 1.2 million people. In a Norwegian context this is heavily populated and in a European context, the part of Norway most similar to the rest of Europe.

Central in the landscape around Oslo is the Oslo fjord, not really a glaciated overdeepened Norwegian fjord, but a graben structure developed during late Carbonif

erous-Permian time. Within the graben structure Paleozoic sedimentary rocks consisting of limestones and shales have been preserved. These rocks have been folded as a distant effect of the Caledonian mountain formation and form today limestone ridges going in the direction from southwest to northeast. In the fjord these ridges form elongated islands.

East of the Oslo fjord main fault line we find Precambrian rocks. In the west, Permian Lava plateaus and both in the north and south Permian deep eruptives.

The area is in the centre of what traditionally is called the Oslo field (in the very old literature: The Christiania field).

This geological setting has been the object for research for a long time and here issues of geoconservation have been important also for a long time. Especially the stratigraphy and fossil content of the Paleozoic rocks have been in focus. In 1988 a protecting plan for fossils was established with several geosites of this area included.

Protected areas also include Permian rocks and Quaternary deposits with some key localities for Norway's ice-age features.

Traditionally the work with nature protection in Norway has been focused on including areas into the protection system, not so much how to manage these areas. This has gradually changed and it is now realized that the management issue is important and may hold considerable challenges with many time-lagged issues to take care of. This is also true for the geosites.

The management resources are, however, scarce and it may be a problem to cover all the areas that need protection. It has therefore been worked with a management plan for geosites in the counties of Oslo and Akershus. This plan covers 35 separated protected geosites including 5 geosites in the neighboring county of Buskerud which form a continuity in a series of protected areas with Akershus near its border.

Most of these geo sites are fairly small sites of stratigraphic importance. Several contain regional type locality and some with scientific qualities that made them candidates as world stratotypes when this system was discussed within the Silurian and Ordovician systems.

Especially the coast localities are important, as these are free from vegetation and easy to study. The folding result in repeatedly long time sequences in the outcrops, but these sites are also highly sought after as recreational localities for an increasing population in the best summer months each year. Bathing, grilling and sunbathing form the main activities together with boating. Especially small fires and one-time grills are threats to geological values on these sites when people are not aware of the value of these rocks and think mainly of the danger of starting fires in nearby vegetation.

All the sites in the management plan were visited and it was encouraging to observe that the amount of direct damage was limited over the 25 years that has passed since the protection was established. Although several problem points have been identified, the overall impression is that the protection has worked and the sites still contain their qualities and function.

Besides fire damage, graffiti, small constructions near the water have been identified as the main problems. For the use of the geosites in scientific work, education and for common geological experience other challenges have also been identified for the management.

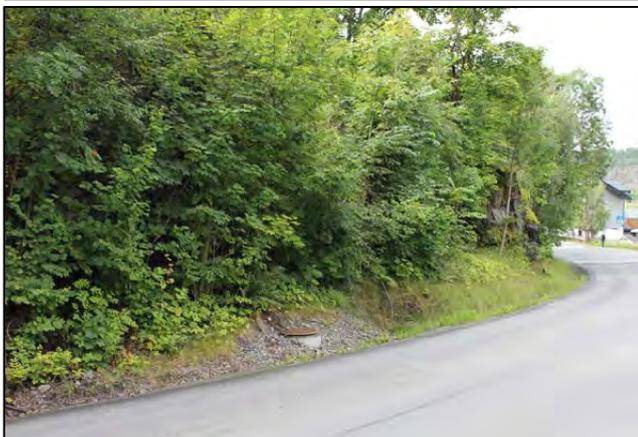


*One of the geosites protected in 1988 is one of the most popular beaches in Oslo, here on a hot summer day in 1930.*

*Photo: Oslo City Museum.*

Foto: Oppi, Eberh. B.; ukjent person

Oslo Museum



*Small fires and one-time grills have the potential of rock destruction within the geosites (upper picture, photo: Hans Arne Nakrem). Overgrowing of bushes and trees, some places also lichens and mosses make the outcrops difficult to study (lower picture, photo: Ole A. Hoel).*

The main problem is overgrowing which can be seen in most of the localities that do not form a direct coastline. Lichens, mosses, bushes and trees are covering many outcrops and make them difficult to study. The main future management challenge is to improve in the clearing of vegetation on key outcrops, and keep them open so they can fulfill their task as a scientific and educational resource.

Most of the sites have signposts that inform that the area are protected and normally also the destruction of the rock surface (including hammering and collection of samples) are forbidden. This message is normally stated in Norwegian, English and German. What is lacking is better geological interpretation so it is easier to understand why the site is protected, what you can see there and the overall context to understand this specific area within the region. This is important to raise awareness and support for the protection and will be an important task in the years to come.

Scientific investigation and sampling is possible, but dependent of a specific special dispensation from the management authorities (the "Fylkesmannen in Oslo and Akershus"). The scientific work must be of significance and alternative places of sampling not available. Sampling should be done carefully with a minimum of damage.

Every now and then, such dispensations are given and therefore published scientific work, which includes these protected localities, becomes available. Better system of application procedures, report systems and monitoring is however identified as a need.



*Typical signpost on these geosites. (Naturminne = Natural monument. Ikke lovlig = not legal, that is "forbidden"). Photo: Ole A Hoel.*

Management needs resources. It is therefore vital that the understanding of the need for geoconservation is steadily improved and developed. The protected area of the counties of Oslo and Akershus is important in this respect for Norwegian management. We hope that the state of these protected geosites not only will

be stable in the years to come, but their state will be improved by better management related to the overgrowing issue, better information and increased awareness by the population.



*Students on top of the Permian lava plateau looking down to the Oslo fjord with the limestone ridges and in the far distance the main fault line of the Oslo graben. Photo: Hans Arne Nakrem*



*Typical shore-line of the Oslo Fjord situated on the elongated island to the right in the front picture. Photo: Lars Erikstad*

## Portuguese inventory of geosites now available online

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The initiatives in Portugal towards the protection of geoheritage started in the beginning of the 20th century but these were mainly local actions and limited in time. Concerning the national inventory of geoheritage, it was only in 2012 that a systematic and truly national endeavor was concluded. During five years, the University of Minho coordinated a research project with other Portuguese universities as partners, in order to define a national geoconservation strategy. This project has produced several outputs, namely:

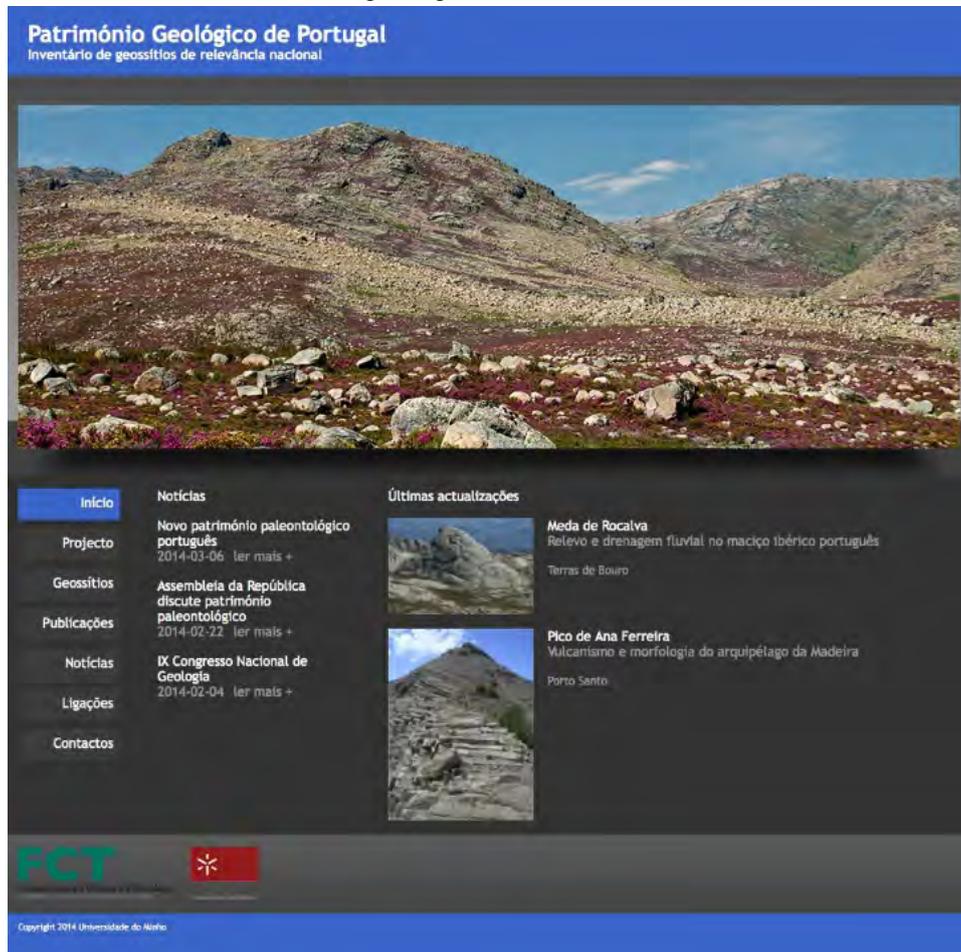
- An inventory of geosites of scientific value with national and international relevance;
- Legislative proposals about geoconservation;
- A selection of the most important Portuguese geosites and submitted to national authorities, requesting their official designation and integration in the national network of protected areas;
- Integration of geosites in the national database of natural heritage, together with fauna

and flora;

- Scientific cooperation between Portuguese and Spanish geoconservationists for the identification of geosites with Iberian relevance;
- An outreach book addressed to general public.

The national geosites inventory followed the method proposed by ProGEO and already applied in several European countries. Twenty-seven geological frameworks were defined and about 330 representative geosites were selected and assessed for their scientific value, representing a national endeavor carried out voluntarily by 70 geoscientists. Geosites were selected based on the following criteria: representativeness, rareness, diversity of geodiversity elements, integrity, and scientific knowledge.

The national geosites inventory is now available online at the website of the ProGEO Portuguese group ([geossitios.progeo.pt](http://geossitios.progeo.pt)). This online resource is an effective tool to integrate geoheritage in nature conservation actions and land-use planning, at the municipal and national levels. The access to this database is free but the exact location of sensitive geosites is not available to general public to prevent eventual damages.



Homepage of the Portuguese inventory of geosites (available at: [geossitios.progeo.pt](http://geossitios.progeo.pt)).



## Co-operation between ProGEO and EuroGeoSurveys

EuroGeoSurveys (EGS) is the organisation of the Geological Surveys of Europe. At the moment 32 national geological surveys are members of EGS. EGS promotes the contribution of geosciences to European Union affairs and action programs to publish, or see its Members publishing, expert, neutral, balanced and practical pan-European technical advice and information for the European Union Institutions.

Over the last year, ProGEO has discussed with EGS the possibility of a closer cooperation between EGS and ProGEO. At the 36th EGS General Assembly meeting, held in Brussels on Tuesday March 25th, EGS signed a Memorandum of Understanding (MoU) with ProGEO in the presence of EGS members as well as the invited special guests from all around the world.

The aim of the agreement is to promote a co-ordinated European policy for Geoconservation, the recognition, categorisation and documentation of sites of geological interest (geosites).

The agreement expresses a mutual desire to co-operate on a range of issues in the field of the conservation of geological heritage, in particular, the following affairs:

- Promotion of a coordinated European policy for Geoconservation
- Recognition, categorisation and documentation of sites of geological interest (geosites)
- Co-organisation of scientific and dissemination events
- Production of relevant publications
- Identification of possibilities to apply for European Union funding for the development of common projects on geo heritage evaluation and protection

Both organisations will establish a liaison link to ensure good information flow and co-operation.

ProGEO will contribute to EGS in developing:

- Guidelines to establish best practices in registration and documentation of geosites
- Guidelines to assess geo heritage values in georesource development and geo hazard mitigation
- Geoconservation and geodiversity dissemination

EGS will:

- Propagate the importance of geoconservation in European policies
- Promotion of ProGEO's best practices on geoconservation
- Assist in database developments and geoconservation outreach
- Request ProGEO assistance in geosite issues

ProGEO hope that this agreement will help us in fulfilling our aims on the European level as well aiding the work with geoconservation nationally, and we look forward to a fruitful co-operation with EGS.



*From the signing of the memorandum on the EGS General Assembly. The document was signed by Secretary General Luca Demicheli for EGS and Executive Secretary Lars Erikstad for ProGEO*

## ProGEO Albania - 2013

*Afat Serjani*

ProGEO Albania was founded in 1995, during the ProGEO meeting in Sofia. Since then, ProGEO-Albania has done a lot of projects and studies, supported by Geological Survey of Albania:

- The study on geological heritage in Albania.
- The First Inventory on Geological sites of Albania.
- The Map of Geological sites of Albania.

The popularity and interest for ProGEO membership in Albania is growing. The most interested are geologists, geographers, and geoscientist. They represent different institutions and universities of Albania from Tropoja at the foot of the Albanian Alps north, to Vlora City at the seaside of Adriatic Sea and the Ionian Riviera in the south.

During 2013 ProGEO have had 50 members from Albania. 32 are geologists, geographers, geophysicists and 18 of them are students. They are working in the Geological Survey of Albania, in the Institute of Geosciences of Albania, in the Tirana, Durrës, Vlora and Korça Universities (professors in geographical departments), teachers in medium schools, retired specialists etc.

Of the 2013 activities can be mentioned the promotion of the book: *Gjeomonumente (Geomonuments)* by member of ProGEO, Prof. Dr. Alfred Frasherri on the 2nd February 2013, in the Hall of the Academy of Sciences. In this book geological sites, and many nice landscapes and geological outcrops of Albania are presented. One of the most important events of the year was the participation of ProGEO-Albania in the 5<sup>th</sup>



*Kelcyra springs, and Vjosa River terraces (Foto A. Serjani).*



*Lengarica Canyon (Foto L. Moisiu)*

International Symposium of Geography: "Landscapes: Perception, Knowledge, Awareness and Action" held 17-19 May, 2013 in Bucharest-Giurgiu, Romania, organised by Madalina-Teodora Andrei. In this international symposium 23 members of ProGEO-Albania participated with oral and poster presentations.

Another important International Meeting held in Tirana, on October 23-26, 2013, was 'The 3-rd Steering Committee Meeting of SEE River Project and 1-st Toolkit Transnational Evaluation Workshop'. This Meeting in Albania, was organised by ProGEO members Ledi Moisiu and Albert Avxhi, coordinators of the Project. In this meeting were participants from Balkan and European countries.

During 2013 ProGEO members in Albania, have worked with protection of geological sites. Especially, protests through internet, media and publication for protection of the Lengarica River has been important. The river is in danger as two hydropower stations are planned. The Lengarica canyon and waterfall, karst caves and thermal sulfur-water springs constitute an important geopark of complex values. Protection of geological sites and geoparks was discussed in a workshop organised on December, 18-th 2013 by REC (Regional Environment Center) and SENIORA (The support for Environmental Organisations of Civil Societies in Albania). A study on Unique Inventory of Geological Sites of Albania is also in work. This study is supported by Geological Survey of Albania, which intends to include geological sites in its strategy as natural resources of our country.

The Geological Congress of the Carpatho-Balkan Geological Association, in Tirana the coming September, will include a special session on "Geological Heritage and Geotourism". We hope to welcome ProGEO ProGEO members from Balkan and the rest of Europe to this event.

## ProGEO Turkey 2013

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JEMIRKO (initials of J Eolojik MI Rasi K Oruma D erneği) = The Turkish Assoc. Conserv. Geol. Hert.) is the ProGEO association in Turkey. We are proud that we have become a voting member of the Turkish UNE SCO (UNESCO National Commission of Turkey).

The main strategy for ProGEO activities is to introduce the significance of geosites to different groups of the society, particularly to students.

In the last years geopark and geotourism has become popular topics due to requests from municipalities and local public groups. JEMIRKO is trying to lead the geopark activities in Turkey. The Kizilcahamam-Camlidere Geopark project at Ankara (the capital of Turkey) which is a pioneer for similar works has started by efforts of JEMIRKO as a joint project of Ankara University, Ankara Municipality and Kizilcahamam Municipality.

Other geoconservation activities in 2013 has been a geoheritage and geopark session in the 66th Turkish Geological Congress held 1 - 5 April 2013. Eight oral and four poster presentations were presented.

The fresh graduates from geology departments of Ankara, Hacettepe and Middle East Technical Universities in Ankara was honored by geoconservation medals together with a geologist hammer in May 2013.

JEMIRKO led the organization of the 3rd International Workshop on Geoconservation, Geotourism and Geopark Management 16-18 May 2013 with the participation of 95 delegates from seven countries (Iran, Iraq, Yemen, Germany, Greece, Morocco and Turkey).




Düzenleyen Kuruluşlar / Organizing institutions

KIZILCAHAMAM - ÇAMLIDERE JEOPARK GİRİŞİMİ  
KIZILCAHAMAM - ÇAMLIDERE GEOPARK INITIATIVE  
Davet Eder / Invites you to

**3. ULUSLARARASI JEOKORUMA,  
JEOTURİZM, JEOPARK YÖNETİMİ ÇALIŞTAYI**  
3rd INTERN. WORKSHOP ON GEOCONSERVATION,  
GEOTOURISM AND GEOPARK MANAGEMENT  
16 - 18 Mayıs/May 2013 Kızılcahamam / ANKARA

Plant 15 myrs old 15 milyon yıllık bitki

JEOPARK PROJESİNE DESTEK VEREN KURULUŞLAR  
Supporters of the geopark project

Katılan Ülkeler / Participating countries

Germany Greece Iraq Kazakhstan Morocco Turkey Yemen

Çalıştay Bilgileri / Information about the workshop

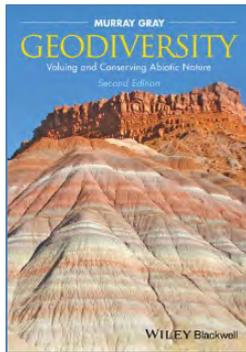
Yer : Asya Termal Oteli, Kızılcahamam  
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b) Müzaffer ERER, Koordinasyon Merkezi  
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<http://calistay.turkjeopark.org>

Following the opening ceremony which was attended by high bureaucrats (local governors, mayors, ministers etc), fourteen talks were presented. Two half-days tours in the Kizilcahamam-Camlidere Geopark Project were also included.

JEMIRKO was elected to the executive committee of UNESCO-TR for 2013 as a NGO. Just after this nomination, we could manage to set a special "geopark group" under the umbrella of the national commission. Members of the geopark group are earth scientists and four of five are members of JEMIRKO. This membership and the geopark group are good achievements of geoconservation at an official level of the government.

Thanks to the efforts of JEMIRKO, UNESCO-TR, the local municipality and other institutions, the first geopark, Kula Volcanic Geopark became members of GGN and EGN in 20 August 2013.

We participated in a training site-project for disabled university students in the Kizilcahamam-Camlidere Geopark area together with a sister NGO in September. After this, local authorities decided to make special arrangements at the geopark for disabled people. We also prepared and published (appeared in early January 2014) an article about the natural and geoheritage stones of Turkey, which was well received by earth scientists.



## Geodiversity – Valuing and Conserving Abiotic Nature

*Murray Gray. 2013. Geodiversity – Valuing and Conserving abiotic Nature. Wiley Blackwell.*

The second edition of Murray Gray's book has now been issued. For ten years this book has been one of the major reference works for all who work within the field of geoconservation. It has been extremely important that such a book have been in existence and that it has been possible to link activities to a published framework of this sort.

Now the second edition is here, and it is good to realize that the book will indeed keep up its position as a standard reference within geoconservation. The content is updated, for the status on European geoconservation not least by the inclusion of information ProGEO has published in our book "Geoheritage in Europe and its conservation (Wimbledon and Smith-Meyer 2012). It is nice for us to see the impact of our work in this way.

The discussion about valuation of geodiversity has also been updated with the growing use and theories linked to the term ecosystem services. As all terms linked to biology and ecology, this one needs some discussion before it is directly relevant for the abiotic world. Murray Gray show how important geodiversity is for biodiversity, how it is and must be included in ecosystem understanding, but do also discuss if we need a separate word (geosystem services) to ensure the relevance of our field in its own right.

Information from the rest of the world has also been updated and here lies the highest value of this book, that it truly binds together experiences and information on geodiversity, geoheritage and geoconservation from all over the world. The book will be useful for all geoconservationists, but should also be of interest for geoscientists in general and ecologist interested in the total nature diversity found on this planet.

*Lars Erikstad*

## Next ProGEO conference - 2015

The next progeo conference will be in September 2015 in Iceland. The meeting is under planning, but will include scientific sessions, general assembly of progeo as well as excursions in a landscape dominated by recent geological processes.

The first circular may be expected this autumn and more information will then be available in ProGEO NEWS and on [www.progeo.se](http://www.progeo.se).



*The geyser "Strokkur", Island. Photo: Lars Erikstad*

## Coming events:

### The 4th International Symposium on Karst in the South Mediterranean Area – Karst Geosites

The Organizing Committee of CIRS invites us to join to the meeting in Erice, Trapani in Sicily, May 30 to June 2.

Please visit <http://www.cirs-ragusa.org/blog/> and read the [first circular](#).

### Geodiversity and Geoheritage – International summer workshop

Please take the opportunity to participate in this workshop. Our President José Brilha and the organisers invites us to Terras de Cavaleiros Geopark in Portugal, June 26–28, 2014. Please visit <http://www.geosite.pt> and see the [poster](#).

### The XX Congress of Carpathian Balkan Geological Association, CBGA 2014

The Organizing Committee of CBGA 2014 would like to invite you to attend the XX Congress of Carpathian Balkan Geological Association, a jubilee Congress, which will be held from 24 to 26 September 2014 in Tirana, Albania.

Please visit <http://www.cbga2014.org/> and find all necessary documents and information. Now the second circular and is available for download. Please note Special session SS13: Geoheritage and geotourism.

### Exploring the values of geological heritage in south Aegean archipelago

Within the [Distributed European School of Taxonomy \(DEST\)](#) a training course on the geological heritage of the south Aegean archipelago:

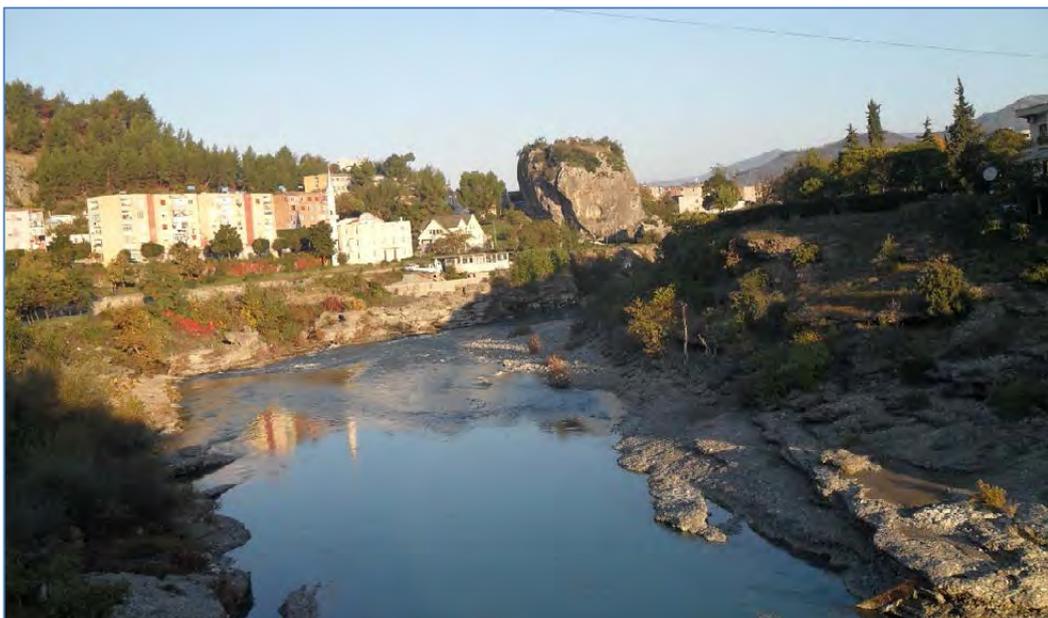
<http://www.taxonomytraining.eu/content/exploring-values-geological-heritage-south-aegean-archipelago>

Taught by Dr. C. Fassoulas and Dr. C. Voreadou, Natural History Museum of Crete - University of Crete, from 29 September – 3 October 2014  
Registration deadline is 16 June 2014

### Meetings on EGN and GGN geoparks

The coming events and meetings of the European Geoparks Network (EGN) are announced on their web site <http://www.europeangeoparks.org/>.

The coming events and meetings of the Global Geoparks Network (GGN) are announced on their web site <http://www.globalgeopark.org/english/> and on Unesco's web site <http://www.unesco.org/new/en/natural-sciences/environment/earth-sciences/geoparks/>.



*Permeti Town's Stone, Albania (Foto A. Serjani)*



**Earth Heritage**, the UK's geological and landscape conservation magazine, is available in downloadable electronic format at [www.earthheritage.org.uk](http://www.earthheritage.org.uk). The magazine showcases geodiversity conservation and promotional activities and is published twice a year, in late winter and late summer. Back issues are also available.

## Deadline next issue of ProGEO NEWS: July 4<sup>th</sup> 2014

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

[www.progeo.se](http://www.progeo.se)

Please send your contributions 500 – 2000 words with photographs, maps and figures clearly marked as a ProGEO NEWS contribution to:

[lars.erikstad@nina.no](mailto:lars.erikstad@nina.no)

If longer texts are needed, please contact the editor

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