

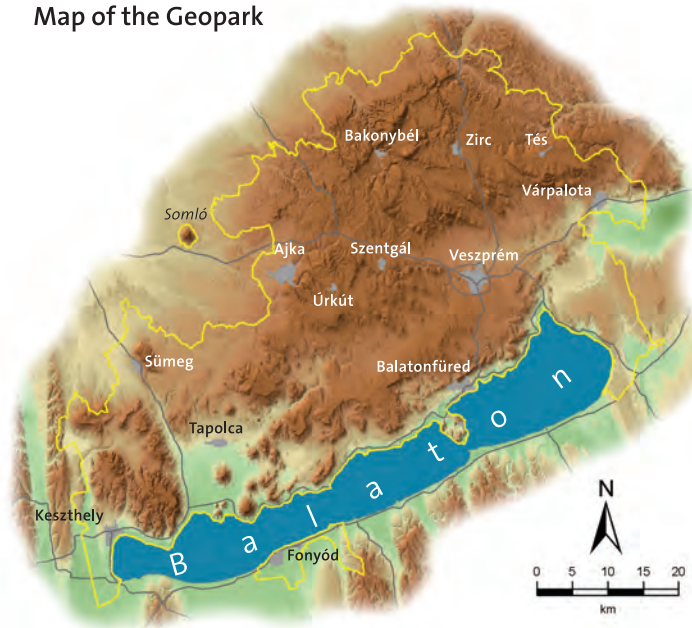
What is a Geopark?

When talking about natural values and their protection respectively, even nowadays most people think about rain forests covered by mist, colourful birds and herbaceous plants having beautiful flowers. How can one like a cliff or a road-cut or the brittle and silent rocks?...The raising of *the significance of lifeless natural values* to the same rank as that of the above-mentioned ones (beyond the protection of caves) was not particularly well received at an international level; however, after a while, more and more voices spoke up for the importance of the protection and the demonstration of our *geological heritage*. The UNESCO's Division of Ecological and Earth Sciences announced its Geopark Programme in 1997, and then in 2000 a committed group of French, German, Spanish and Greek experts established the *European Geoparks Network*, which today already has 49 members. A Geopark is a territory where numerous sites of *geological and geomorphological values* can be found. They are of outstanding significance from a *scientific and educational* point of view as well as having an *aesthetic value*, (if the word *biodiversity* was created for describing the variation of species and communities; can we not similarly use the word *geodiversity*?). Through *sustainable geotourism*, a Geopark — situated in an *adequately large territory* — would even be able to serve in the *development of the local economy*. One of the crucial tasks is to make the visitors and the local inhabitants realise the significance of the geological heritage. A Geopark would never lend a helping hand to those who make money selling geological values (for example selling fossils and minerals) nor to those who would damage these values. Emphasising the *complexity*, it is necessary to point out that in the area of the geoparks significant *historical, cultural and ecological values* can be found. The involvement of *local communities and organisations* is desirable (for example the local organisation for nature conservation can play an important role in the case of cleaning a pond or an abandoned quarry from the dumped waste products). The *council* who is responsible for managing the Geopark will work out how their organisation can join the environmental education and scientific research work together with the co-operating partners. Moreover, it consistently carries out an *operational plan*, which explains in detail how the economical interests of local inhabitants can harmonise with the protection of the various natural and regional values. And last, but not least geoparks, as members of the international networks, keep close contacts with the co-organisations, and they mutually call the visitors' attention both to the values introduced by the partners and their activities. Thus, it is to be seen that a geopark is *not a protected area* with new restrictions, it is *not only a geo-scientific park* and not only a collection of geological key sections and nature trails.

The *Balaton Uplands National Park Directorate* decided to make preparations for the establishment of the Bakony–Balaton Geopark and to join the European Geoparks Network in 2004 (and through this the UNESCO Global Network of National Geoparks).

Our prospective partners (municipalities, civil organisations, organic-farmers, eco-schools, etc.) were informed about the concept of the Geopark and the possibilities of the co-operation in spring 2006, and a great interest was shown by them. The invited future partners seemed to understand that the essential goal is not only the acquisition of a 'Marketing Diploma', but also providing the concerned region with a basically new function, which may be useful for a few communities from several points of view. By virtue of the introduction of the name (logo, etc.) of Bakony–Balaton Geopark as a trade mark of high-quality, the inhabitants of the area will get the chance to develop products and high-level services conducted on the values of *sustainable development*. In order to promote this, we have organised several trainings for local people (for example *geotour guides* were invited to the region and now they offer geotouristic programmes).

Map of the Geopark



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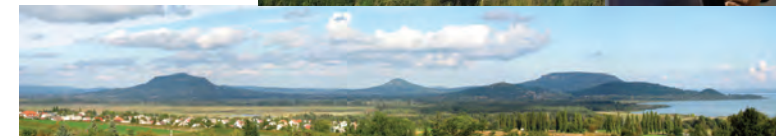
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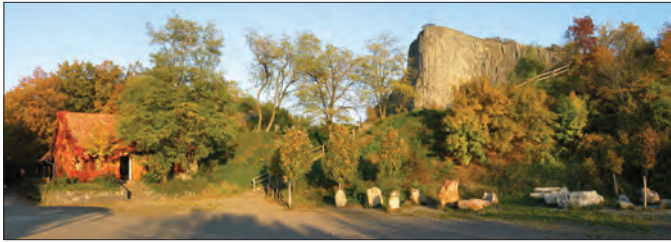
Bakony-Balaton
Geopark

Bakony–Balaton Geopark Project

Hungary



The land of the calmed-down volcanoes and dinosaurs



It can be impartially stated that the *Bakony–Balaton Geopark* area internationally has an outstandingly rich geological past and geological build-up. It is located in the *western part of Hungary* with its area covering more than 3100 square kms. It can be found North of the *Lake Balaton*, which is the largest shallow-water lake in Central Europe, and it also encompasses a large part of the *Bakony Mountains*. This leaflet can give you no more than a *taste of the most significant values of the geological and culturally historic heritage*; however, we are hopeful that this selection

encourages the Reader to take a closer look at them as a *Visitor*. Different publications and nature trails help us in the course of our „field expeditions”. They provide complete or partial information about the geological values (we can access information about them on the websites of the National Park and the Geopark, see the opposite page). Starting our imaginary excursion at the eastern end of the lake (which is a young one from a geological point of view, dating back 15000 years), the *steep walls at Balatonkenese* can be well seen from a great distance. They expose the sandy-clayey deposits of the one-time Pannonian Inland Sea, and on the top of the walls our highly protected botanical value, the *Crambe tatarica* can be found. One of the characteristic building materials of the Balaton Uplands, the *red sandstone* of Permian period can be observed at several sites. It is a flood-plain deposit. It is worth getting acquainted with this rock exposed in a quarry — which underwent landscape architecture — at the shores of the *Köcsi Lake*, near Balatonalmádi. In the *Lóczy Cave at Balatonfüred*, we can study solution forms derived from upwelling thermal waters. Since 2003 the *Tihany Peninsula*, which is famous for the most ancient Benedictine Abbey, has been the holder of the prestigious award, the *European Diploma*. The crucial factor considered in awarding this acknowledgement was the rich geological, volcanological and geomorphological heritage, which determines the landscape of the whole peninsula. The first characteristic period of *volcanism* in the area started 8 million years ago, in the late Miocene. There are several localities on the peninsula where volcanic formations can be well studied; for example, while examining the spectacular rock faces of the *Monks' cells*, we can imagine the series of explosions rapidly following each



other, and the frightful rumbling noise of *pyroclastic flows* (fast-moving currents of gas and rock travelling away from the site of the explosion). If we happen to go to the *Pécsely Basin*, after wandering over its intimate villages and vineyards, it is worth visiting the peculiar *karrenfeld* or limestone pavement of the *Kő Hill* at Kisdörög (a karst landform consist-

ing of a flat, incised rock surface of exposed limestone). At the margins of the *Kál Basin*, “*seas of stones*” can be found around a group of drowsy, little villages. The rock-forming, originally easily-erodable Pannonian sediments were cemented by solutions rich in silica. Contrary to the sandy-gravelly deposits, these rock bodies are resistant to erosional processes, and were sculptured by selective erosion; this is how these unique landscape forms developed. The *Hegyestű Geological Demonstration Site* (see on the left) is situated at the eastern margin of the basin, close to the village of Monoszló. Visitors may admire not only the columnar basalt wall of the characteristic hill, and the stunning view from the hilltop, but in the *Transdanubian Regional Stone Park* they can get acquainted with the most characteristic rocks of the wider area. It is noteworthy that — according to our plans — this area will make room for the *prospective Visitor Centre of the Geopark*, where the visitors can get acquainted with the exciting and eventful geological history of the area through amusing interactive exercises (for example in a so-called earthquake room and in the children’s interactive room). The *volcanic remnant hills in the Tapolca Basin* (Badacsony, Szent György Hill and Csobánc Hill, etc.) can be regarded as the most characteristic landscape elements of the Geopark; this area is a treasury of different volcanological landforms and sights.



In several places the so-called *maar volcanism* was followed by a relatively “calmer” volcanic activity, which produced *lava fountains* and *scoria cones*, nevertheless for most of the time it was characterised by lava flows.

Later, after the elevation of the area had commenced the uplifting and climatic changes resulted in the erosion of loose sediments from areas uncovered by volcanic formations. The characteristic landscape of the Tapolca Basin, dissected by the “calmed-down” volcanoes, has developed due to the landscape forming processes of water and wind erosion. We should not forget that the “land of the basalt organs” is rich in botanical values and cultural-historical relics. The latter include castle ruins, old press houses and lonely chapels. The main goal of the *Kamon-kő Nature Trail* — starting from the *Szigliget Fortress* — is to introduce the visitors to these values and to the heritage related to the thousand-year-old viticulture. Most of the visitors to the Lake Balaton have not the slightest idea that there is a more than 9 km-long tortuous cave system under the streets and houses of the town of Tapolca that can be reached with a ten-minute drive from the lakeshore. To be more

precise, this portion of a cave system has been explored so far... Among the 14 caves registered in the inner-city area, the longest one is the *Lake Cave of Tapolca* (which is almost 3,3 km long). Visiting its 270 m-long entrance section and making the boat trip in it provides an exceptional experience. The *Csodabogyós Cave* was formed in the Upper Triassic Ederics Limestone, which can be observed only in small patches in the *Keszthely Mountains*. A part of the cave — which is rich in stalactites and stalagmites — is opened to brave candidates for adventure tours in “caving overalls” (information/registration: www.csodabogyos.hu). Slightly North of it, the one-time flint mine at *Mogyorós-domb* is one of the earliest Neolithic flint mines in Hungary. It is close to the *Sümege Castle*, which stands on a lonely limestone cone and recalls the spirit of ancient adventure stories. Close to it there are several Nature Conservation Areas of national importance in the area of the Geopark, which were taken under protection due to their special geological values. One of them is the *Darvastó Bauxite Lense Nature Conservation Area*, which is regarded as one of the most typical occurrences of fossil tropical karst forms in Hungary. The particular “moon landscape” well demonstrates the stratigraphical conditions of karstbauxites. The landscape of the *Úrkút Paleokarst Nature Conservation Area* in the Southern Bakony is characterised by unique palaeokarstic phenomena exhibited to an extraordinary extent in respect to Hungary. (Visitors can take a walk along an excellent nature trail; see at the top, to the right).

The *Mining Museum* — which was the first open-air commemorative exhi-

bition of technical history in Hungary — can be found in *Csinger Valley*, in the outskirts of the neighbouring *Ajka*. It raises a monument to the memory of miners working underground, and it holds extensive palaeontological and mineral collections. Also in the Southern Bakony, in the area of the one-time royal hunting-field, a cave (*Szentgáli-kőlik*) will be opened to the public (its photo can be seen at the bottom, to the left). It offers adventures for those who like creeping and crawling in caves, and for those who are interested in archaeological finds, since in this cave visitors can get acquainted with the history of urns dated to the Bronze



Age (information and registration: www.szentgali-kolik.hu). The exhibition of the *Bakony Natural History Museum* in Zirc — which is regarded as the “capital” of the Bakony Mountains — emphasises the introduction of our geological heritage. It is worth visiting this exhibition, where, besides the minerals of the Carpathian Basin, mammoth remains recently found in the vicinity of the Lake Balaton, can also be admired. The latter are displayed at an exhibition (having an expressive name): “*Giants of the Ice Age*”. Talking about creatures of ancient times, the vertebrate finds (including *dinosaur remains*) of the Late Cretaceous period (85–90 million years ago) and found in the *High Bakony* area, may be considered as the *greatest palaeontological sensation* of the last few years (on the left, the photo shows the skull of a crocodile named *Iharkutosuchus*). Its significance is due not only to the fact that it is the only locality that yielded dinosaur remains, but also to the fact that the number of armoured dinosaur remains found here exceeds the number of such remains derived from other European localities. Although the remains are kept by the Hungarian Natural History Museum (Budapest), plans are being outlined to establish a “*dino park*” in the vicinity of the locality, with the co-operation of several organisations. There are carbonate rocks on the surface in a significant part of the Geopark, and the area of the *Tés Plateau* (Eastern Bakony) and its surroundings are especially rich in *karst phenomena*. Besides the caves and ponds, the *Roman Baths*, the wonderful example of the coexistence between nature and man must be mentioned (for example the old *windmills* in the fields of *Tés*). *Várpalota* is a town within the Geopark; it possesses a peculiar geological heritage in the inner city: the sedimentary sequence (see at the bottom of the page) of the *Várpalota Sandpit Nature Conservation Area* that demonstrates the extraordinary sedimentary features and the rich mollusc fauna of the Miocene seashore as an opened geo-



logical coursebook (information/registration: www.homokbanya.eu). Dear Reader (and prospective Visitor)! We hope we have aroused your interest and we can welcome you on the land of the calmed-down volcanoes and dinosaurs. *We wish you a pleasant journey in time!*