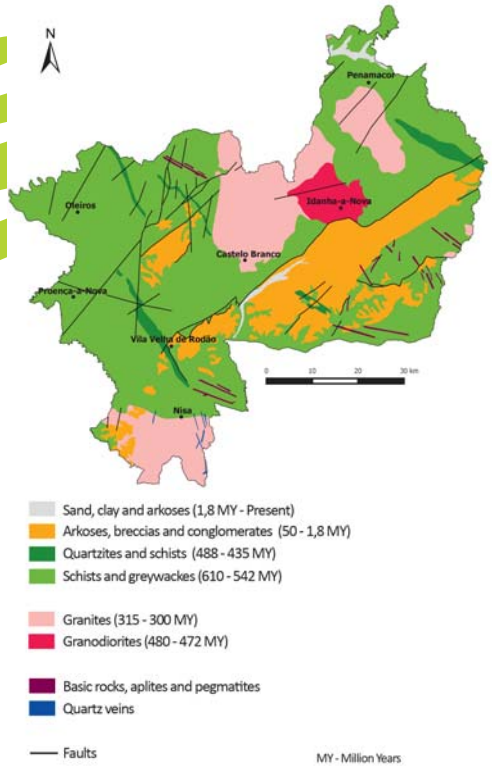
In the boat trip through Tagus river, and going up to the Açafal riverside, we see a meandering stream water fit in the Tagus confluence. The riverside has this morphology by the lateral migration of the river bed, because of the recent tectonic activity that changed the ground slope, related to the Ponsul Fault activity which produced a scarp limiting the horizon by lifting up the Castelo Branco plain in relation to the Alto Alentejo plain.

The Açafal riverside from Google Earth© image developing tight bends - meanders.

In the Tagus right margin it is possible to observe a staircase of fluvial terraces, which marks a sucession of levels where the river has been stoped during the evolution of its valley in the last million years. In the Foz do Enxarrique terrace there is an archeological site, dated from 33000 years ago, where it has been found archeological artefacts and fossils of animals (eg.: *Elephas antiquus*, the last one in Europe) characteristic of temperate and humid conditions.

Foz do Enxarrique fluvial terrace, where about 33 thousand years ago Tagus flowed 16 meters above the actual river- bed.



Naturtejo Geopark geological map.

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By boat through the Portas de Ródão

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Naturtejo UNESCO Global Geopark

Naturtejo Geopark was the first European and Global Geopark to be included under UNESCO, in Portugal. It has a territory with 5067 km^2, which includes Castelo Branco, Idanha-a-Nova, Nisa, Oleiros, Penamacor, Proença-a-Nova and Vila Velha de Ródão municipalities.
Geopark main aims are the promotion of sustentable development of the region, through innovation and knowledge projects, responsible tourism, environmental education, which are based in the geological heritage.

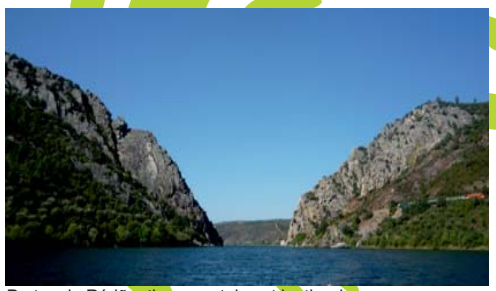
Portas de Ródão taken from Tagus river.

The Boat Trip

In the boat trip through the Natural Monument of Portas de Ródão, protected by the Institute for Nature Conservation and Biodiversity in 2009, you will get the whole picture of the geological opulence of this site, the presence of a diverse biodiversity and remains of human activity for more than 150 thousand years.
In this amazing trip, you are going to learn the natural history of this Monument, which goes back about 600 million years ago...

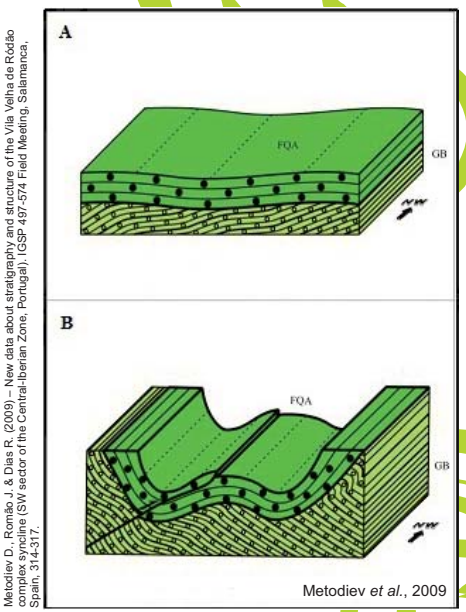
Enjoy and appreciate this pleasant site!

Going through Portas de Ródão, the Natural Monument *ex-libris,* there are two quartzite mountains, side by side. The Talhadas and Perdigão mountains are, concerning the geology, a syncline, a geological structure that had been deformed through millions of years because of a continental colision, and acquiring the U shape that we can distinguish in it nowadays.



Portas de Ródão, the mountain cut by the river.

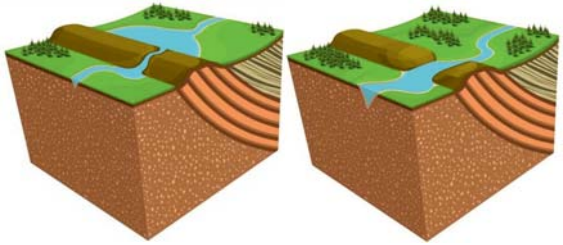
Right before crossing the Portas de Ródão, we can distinguish the quartzite syncline, composed of rocks with sedimentary origin that have been formed about 480 million years ago from sands rich in quartz mineral deposited in a primitive ocean that existed here in those times. These sands were deposited in a sucession of horizontal layers (A), and have been intensively deformed, building the Ródão syncline (B), about 400 to 280 million years ago. This is the reason why quartzite, a very hard rock, are extremely fractured.



Metodiev D., Romão J. & Dias R. (2009) – New data about stratigraphy and structure of the Vila Velha de Ródão complex syncline (SW sector of the Central-Iberian Zone, Portugal). IGSP 497-574 Field Meeting, Salamanca, Spain, 314-317.

Quartzite beds folding, with the development of the Ródão Syncline.

In the last 4 million years, with the orogeny responsible for the Alps mountain belt and the climate changes, the stream waters had to reajust themselves to the landform, changing their pathway and eroding the river bed, scraping deep valleys in this region, which was, until then, incredibly smooth. In the Portas de Ródão Natural Monument the presence of Tagus river is highly marked, which in the past flew above the quartzite mountains smoothing the top. Tagus river took advantage of the weakness parts in the rocks created by four faults which cross-cut themselves here, scraping and taking Tagus river into an opened "door" during its reajustment process to the new equilibrium state.



Portas de Ródão formation by differential erosion of the distinct rocks that occur in the Tagus valley.

Along the quartzite abysms it is possible to see griffon vulture, which nidify here in the largest colony existing in the Portuguese territory, as well as the rare black stork. These scarps are full of native flora of this quartz-rich environment, which has a great interest for conservation, like the juniper.

Griffon vulture (*Gyps fulvus*).

Black stork (*Ciconia nigra*).

Crossing the Portas de Ródão we can find, in the right Tagus margin, the Virtudes "island", a result from the sand exploitation for the Cedillo dam. Behind the Virtudes island, and near the leafy alders, we find the Virtudes Fountain, which is a thermal spring water that bubbles out at 23°C temperature. This water has been used as medicin for skin deseases.

Virtudes "island" and spring, near the alders.

In the left margin appears the Conhal do Arneiro, where once existed an huge gold mine by the Roman times. From these 70 ha exploitation resulted a wide area of heap, which consists in stacked quartzite rocks disposed in conic piles or aligned for more than 100 meters that marks the channel trajectory where water flew to be used in the gold-rich sand washing.
The way out of these channels to the Tagus river can be observed in the Conhal river slope.

Conhal do Arneiro from the Ródão viewpoint.

Arriving to Vale riverside, in the western part of the quartzite mountain, we find a site tack with alders and a diverse fauna. It stands out Tagus traditional boat, the "picareto", moved by rows, that has been used in the fishing activity, passenger and local agriculture products transport, taking advantage of the river as an important mean of comunication for thousands of years, till the middle of the XIX century.

Fresh water tortoises in the Vale riverside.

"Picareto" in the Vale riverside.