

The Beja Public Geological Trail – Geology in the garden

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[Abs, Int. Cong. Geotourism, Arouca Geopark, pp. 59-62.](#)



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Geology in the Beja public garden, the project concept:

- QREN INALENTEJO project promoted by the Beja Municipality, dedicated to the development of cultural and scientific activities in the city central area, where the 19th century main garden occurs
- Promote Geosciences to students and the general public
- Expose the geodiversity of the south of Portugal, in particular the ALENTEJO REGION geodiversity – **all rock considered must be exclusive from the Alentejo**
- Associated project – ATLANTERRA Interreg Space Atlantic Area. Collaboration between LNEG and the Irish Atlanterra partners Geological Survey of Ireland, Copper Coast Geopark and Castlecomer Discovery park.



Alentejo Geodiversity:

● Variscan basement:

Galicia-Trás-os-Montes Zone (GT)

(Upper , Intermediate and Lower Allochthonous Complexes, Parautochthon Complex)

Central-Iberian Zone (CIB)

Ossa Morena Zone (OMZ)

South Portuguese Zone (SPZ)

(Iberian Pyrite Belt)

● Meso-Cenozoic Basins:

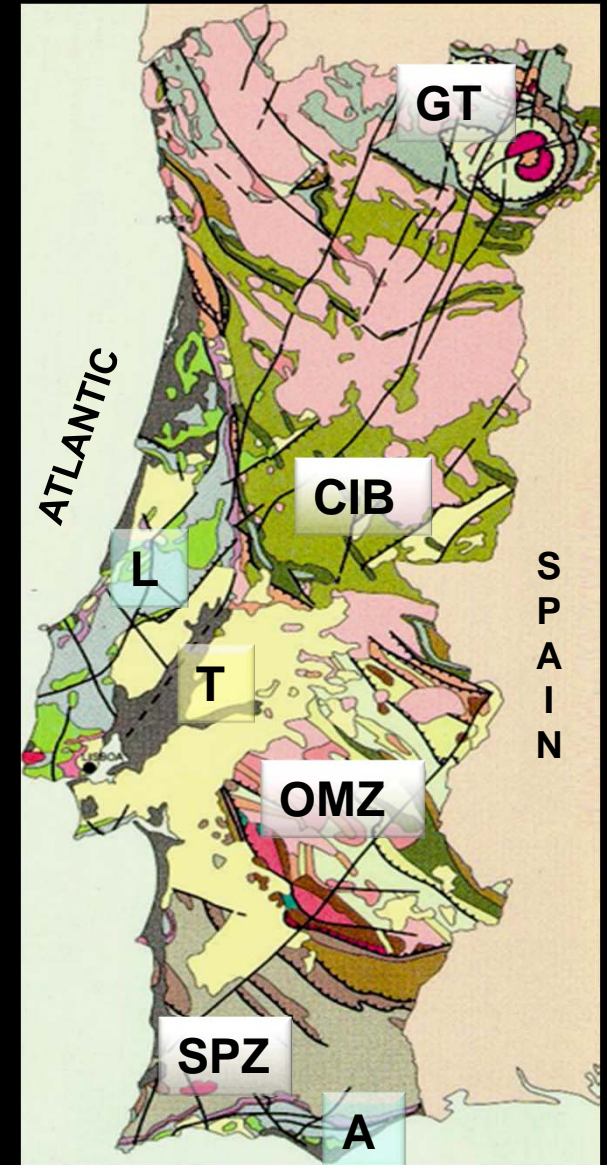
Lusitanian (L)

Algarve (A)

Tagus-Sado (T)

● Extractive industry:

Neves Corvo and Aljustrel (Cu), marbles, aggregates



Adapted from LNEG/SGP 1992



The project in the Beja public garden:

● The Irish example – Atlanterra cooperation and best practices exchange:



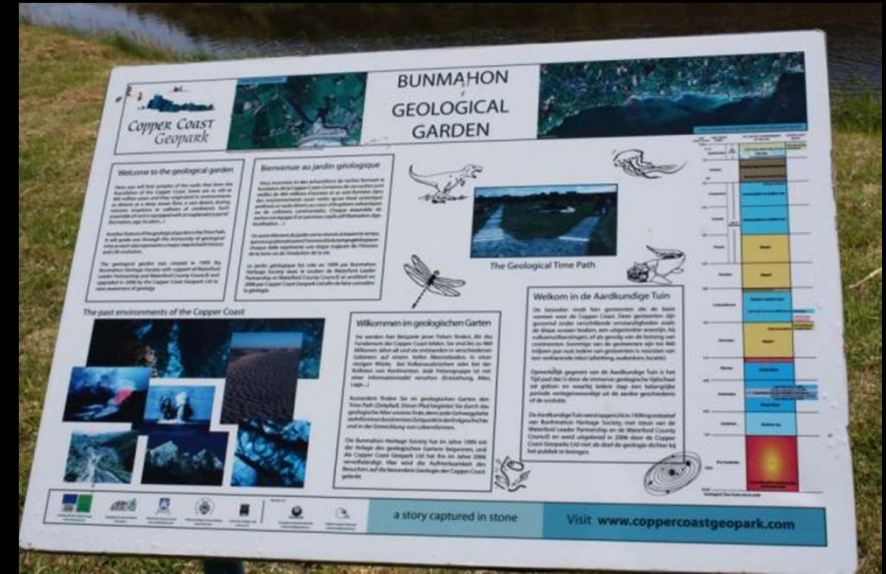
Geological Time Trail in Bunmahon village, Copper Coast Geopark

Small trail in the garden; Interpretation panels (Earth History)

Rock samples

The project in the Beja public garden:

 The Irish example – Atlanterra cooperation and best practices exchange:



Geological Time Trail in Bunmahon village, Copper Coast Geopark

Small trail in the garden; Interpretation panels (Earth History)

Rock samples



The project in the Beja public garden:



- The Beja Garden architecture, the linear Geological Time Trail
- The total scale of Earth History: ~4600 Ma (~920 m) between the city Hospital and the city garden
- The available time data of the Alentejo Geology: ~1000 Ma
- The Trail scale: 200 m = 1000 Ma (linear path)



1000 Ma (Neoproterozoic)

(Present time) 0 Ma



The project in the Beja public garden:

- **The rock selection criteria:**
 - Alentejo Region (geography)
 - Significant geological heritage/geodiversity
 - Fossil record
 - Georesources – extractive industry

- **The *Time Cube*: geological time milestone**

- Rock sample information and AGE number
- Trigaches Marble cube, a common Beja city building rock



1000 Ma (Neoproterozoic)

(Present time) 0 Ma



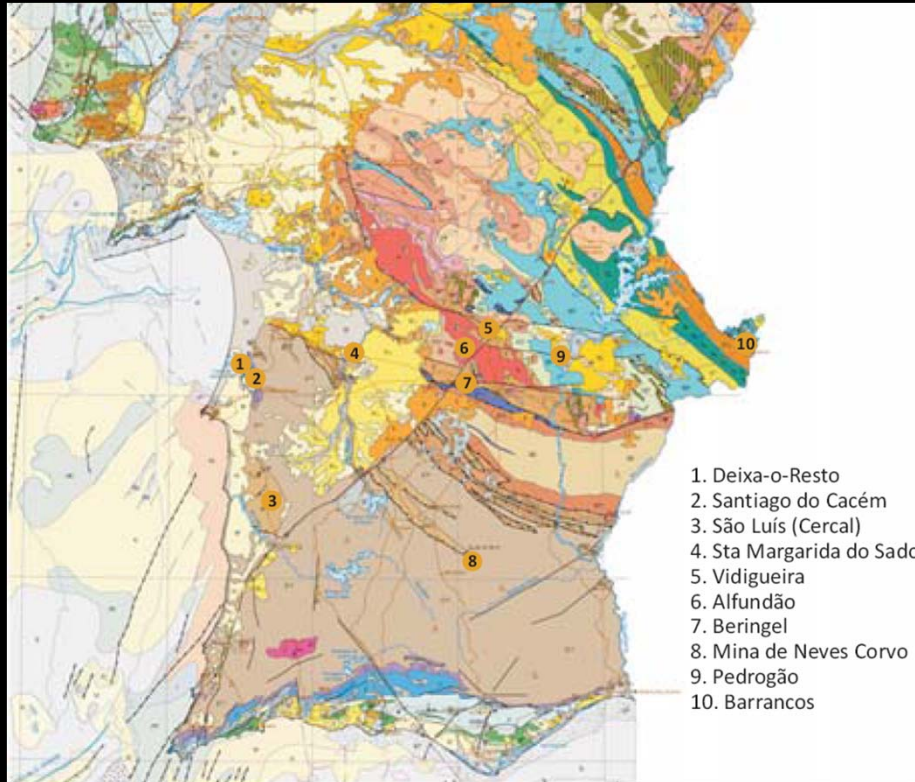
The selection criteria:

Ma	Geological unit	Era/Period/Epoch	Area	Fossils
1000	Micaschist	Neo-Proterozoic	Vidigueira	-
520	Marbles of Trigaches	Cambrian	Trigaches (Beja)	-
470	Shales of Barrancos	Ordovician	Barrancos	Ichnofossils
443	Quartzites of Colorada	Ordovician/Silurian	Barrancos	Ichnofossils
428	Nodules Shales	Silurian	Barrancos	Graptolites
360	Volcano-Sedimentary Comp.	Devonian	Cercal, Neves Corvo	Palynomorphs
330	Flysch of Mértola	Carboniferous	Mértola	Bivalves
310	Beja Igneous Complex	Carboniferous	Beja	-
300	Pedrogão Granite	Carboniferous	Pedrogão	-
230	Silves Sandstone	Triassic	Santiago do Cacém	-
180	Bioclastic Limestone	Jurassic	Santiago do Cacém	Ammonoids
7	Carbonate sandstones	Miocene	Alfundão	Oysters
5	Sandstones	Pliocene	Melides	-
0	Alluvium and Dunes	Quaternary	Guadiana, S. Torpes	-

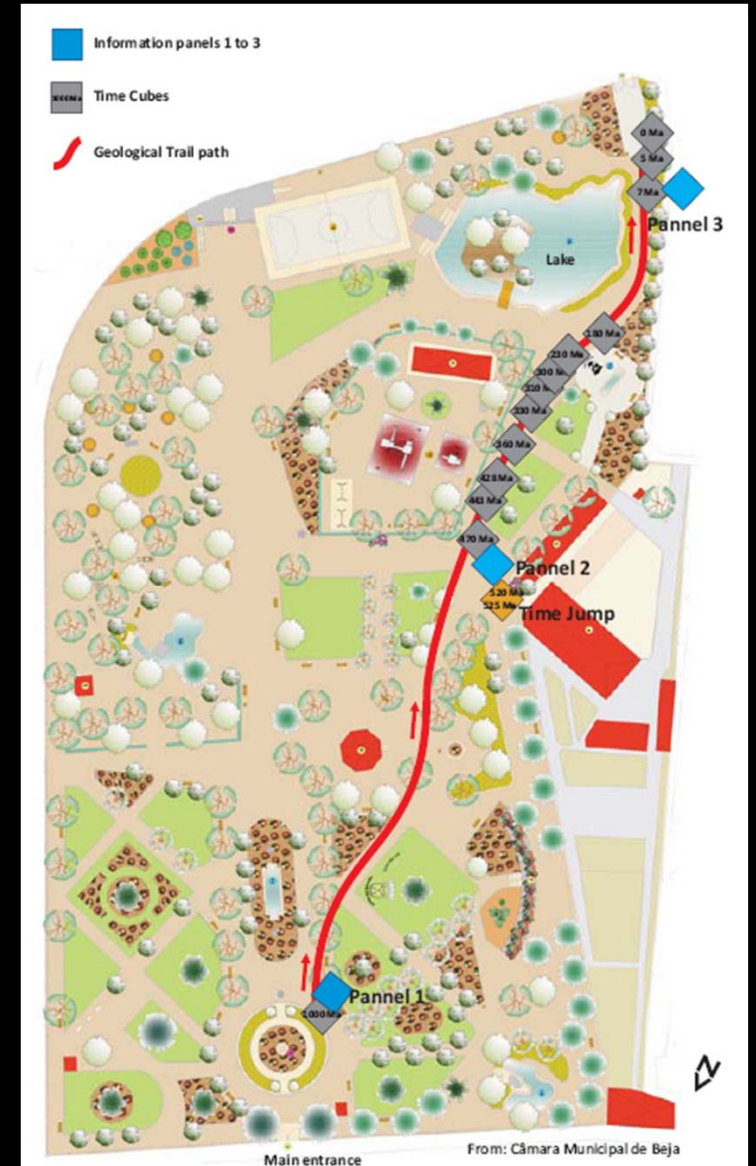
Rock type: sedimentary, plutonic, metamorphic (sediments), metamorphic (volcanics and ore)



The project in the garden:



Rock source, map at 1M scale LNEG 2010



Hard logistics:



Black cherts (lidites), Xistos Nódulos Fm., Silurian, Barrancos

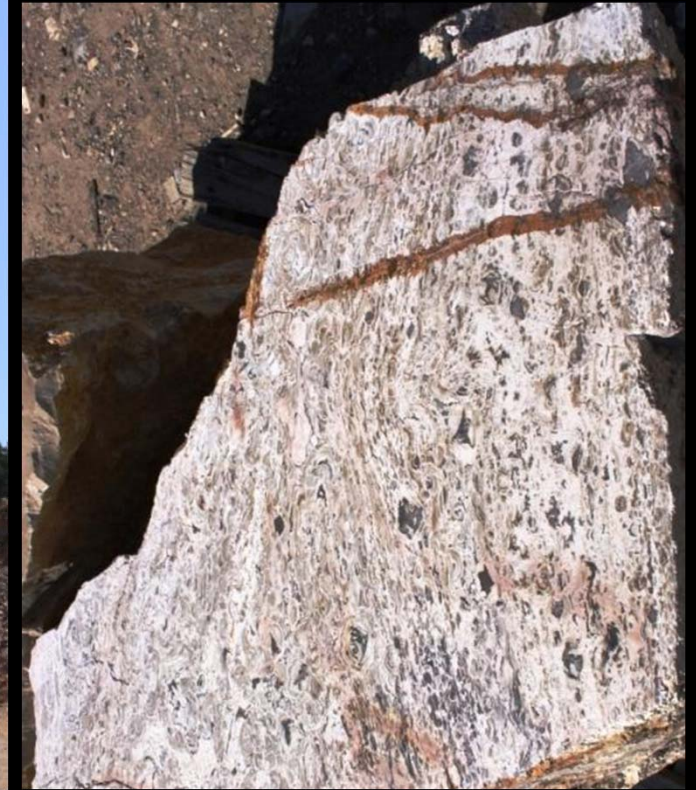


1000 Ma

Samples distribution through time

0 Ma

Hard logistics:



Felsic volcanics, Volcano Sedimentary Complex, Devonian- Carboniferous, São Luís



1000 Ma

Samples distribution through time

0 Ma

Hard logistics:



Greywackes, Azinheira de Barros, Mértola Formation, Carboniferous



1000 Ma

Samples distribution through time

0 Ma

Hard logistics:



Gabbro, Beja Igneous Complex, Carboniferous, Beringel

Granite, Carboniferous, Pedrogão



1000 Ma

Samples distribution through time

0 Ma

Hard logistics:



Bioclastic limestones, Jurassic, Deixa-o-Resto

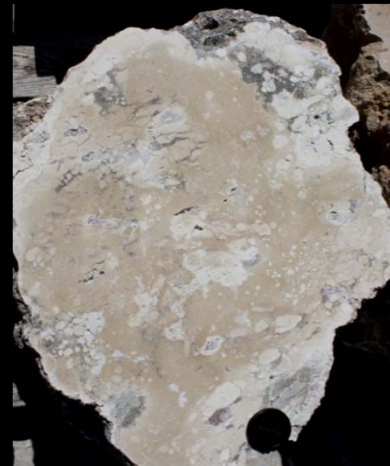


1000 Ma

Samples distribution through time

0 Ma

Hard logistics:



Alfundão oysters from a laguna environment, Miocene, Alfundão

Calcretes, Miocene, Beringel



1000 Ma

Samples distribution through time

0 Ma

Hard logistics:



Sado River alluvial sediments, Quaternary, Santa Margarida

Alvalade basin sedimentary model, fluvial and dune sediments in acrylic box



1000 Ma

Samples distribution through time

0 Ma

Hard logistics:

Micaxisto

(Rocha metamórfica)

Formação de Águas de Peixe

Era: Neoproterozóico, Período

Local: Vidigueira

LNEG



Legend

Time Cube construction

Hard logistics:



Block transport and preparation

Presentation and opening to the public (27/09/2011):



On the trail....



On the trail....

The Time Jump!

1 m = 5Ma



On the trail....



On the trail....



On the trail....



Atlanterra partners visit to the trail....



“TRILHO GEOLÓGICO” on Facebook

The image shows a screenshot of the Facebook page for 'Trilho Geológico'. The page header includes the Facebook logo and a search bar. The main content area features a large cover photo with the text 'TRILHO Geológico JARDIM PÚBLICO BEJA'. Below the cover photo is a grid of smaller images showing geological sites. The page is categorized as 'Visitas/Passeio turístico · Beja' and has an 'Editar informação' link. A 'Mural' section is visible, showing a grid of images and the text 'O Jardim Geológico de Beja'. Below the mural are logos for 'LNEG' and 'Beja'. The right side of the page shows a post by 'Trilho Geológico' titled 'Ciência na Rua', scheduled for Friday at 15:30. The post has 100 impressions and 1% of opinions. Below the post is a comment by 'Zélia Pereira' and a text input field for a new comment. At the bottom, there is a post titled 'Desafio II: Minério de tipo "stockwork"'. The left sidebar contains navigation options: 'Mural', 'Publicações ocultas', 'Informação', 'Fotos', and 'Eventos'.

facebook

Pesquisar

Trilho Geológico

Visitas/Passeio turístico · Beja · [Editar informação](#)

Mural Trilho Geológico · Todos (Mais recentes)

Partilhar: [Estado](#) [Foto](#) [Ligação](#) [Vídeo](#) [Pergunta](#)

Em que estás a pensar?

Trilho Geológico criou um evento.

Ciência na Rua
Sexta-feira às 15:30
Estremoz a 5 e 6 de Novembro

100 impressões · 1% de opiniões

[Gosto](#) · [Comentar](#) · [Partilhar](#) · Sexta-feira às 10:47

[Zélia Pereira](#) gosta disto.

Escreve um comentário...

Trilho Geológico

Desafio II: Minério de tipo "stockwork"

O Jardim Geológico de Beja

LNEG Beja

Mural

Publicações ocultas

Informação

Fotos

Eventos



LNEG Beja

TRILHO
Geológico
JARDIM PÚBLICO BEJA

“TRILHO GEOLÓGICO” on Facebook – Challenge II: Neves Corvo Stockwork





LNEG Beja

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Geológico
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“TRILHO GEOLÓGICO” on Facebook – Challenge II: Neves Corvo Stockwork





“TRILHO GEOLÓGICO” on Facebook – Challenge II: Neves Corvo Stockwork





“TRILHO GEOLÓGICO” on Facebook – Challenge II: Neves Corvo Stockwork



Future work:

- **Promote the project** to the schools at local and regional levels
- **Workshops** dedicated to teachers, university and polytechnic schools
- **Facebook** and **webpage**, geological models discussion
- Introduction of new themes along the time trail:
 - **Earth climate change through time**
(Atlanterra cooperation activity between LNEG, GSI (Ireland) and IGME (Spain))
 - **Fossil record** – first plant, first fish, dinosaurs, opening of the Atlantic opening Ocean, others
- **Samples changes and maintenance**
- **Documentation in English**



Acknowledgments and support:

- Beja Municipality
- LNEG Beja staff
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- Mármoreos Sintra e Filhos, Lda
- Câmara Municipal de Barrancos
- Somincor-Soc. Mineira de Neves-Corvo SA
- Maurício-LTO, Construções SA
- Transbrasil-Centrais de Britagem, Lda
- Ribafreixo, Soc. Agrícola, Lda
- QREN INALENTEJO



● Please follow us at...

“Trilho Geológico”



page and discuss the challenges!

● Visit the Beja Public Garden! Amazing rocks to see!!!

