

# **Ecoética post-fires:** Recovery of burned area in Leiria



### **Interventioed zone:**

Leiria National Forest near Vieira Beach, parish of Vieira de Leiria, municipality of Marinha Grande, district of Leiria

### **Date of intervention:**

November 20, 2020

### **Context:**

The intervened land, as well as almost the entire National Forest of Leiria, were seriously affected by forest fires in October 2017. It belongs to the Portuguese State and is under the management of ICNF – Institute for Nature and Forest Conservation, I.P..

### **Interventioed area:**

7 hectares

### **Partners:**

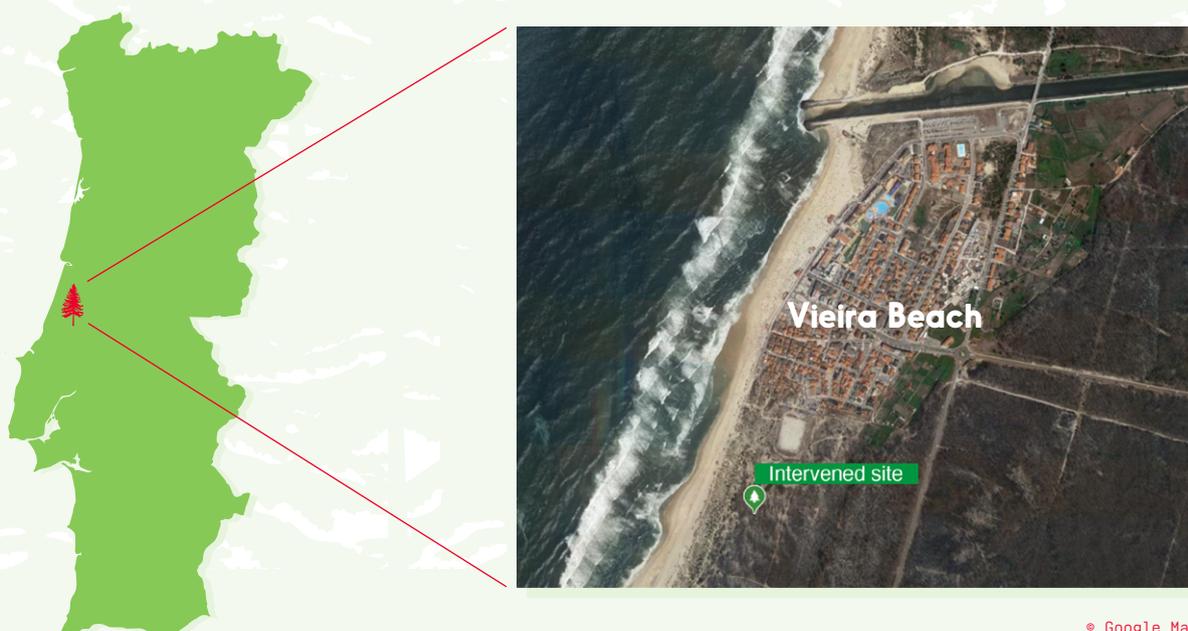
Millennium BCP - Banco Comercial Português, S.A., Aldi Portugal - Supermarkets, Lda., Endered Portugal, S.A., Fapil, AOC Group - Aníbal de Oliveira Cristina, Lda., MEOS Program, Movicortes, Nerlei - Leiria Region Business Association, Pilmat - Matos Industrial Plastics, S.A., SIE - Industrial Packaging Society, S.A..

### **Support:**

ACILIS - Leiria Region Trade, Industry, Services and Tourism Association, ACISO - Ourém Business Association - Fátima, Cefamol - National Mold Industry Association, FCT Fablab, Grace, Valchromat by Investwood.

### **Investiment:**

70,000€



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**Figure 1** Location of the intervention area, next to Vieira Beach  
(Geographical Coordinates: 39°52'11"N 8°58'23"W)

## The pine forest

The initial planting of the Leiria National Forest, also known as Leiria Pine Forest or King's Pine Forest, dates back to the 13th century and it was planted in order to stop the advance of the sands in the central coastal region (near Leiria). The person responsible for the initial planting of the pine forest is not clear in the literature, with some authors pointing out D. Afonso III (1258-1279) while others refer to D. Sancho II (1223-1248). It was, however, during the reign of D. Dinis "The Farmer" (1261-1325) that the great maritime pine planting took place and the first administration that managed the then "Crown's Forest" was created. D. Dinis was thus the great driving force behind the largest and oldest national forest, which throughout its seven centuries of history has always had a great natural and environmental importance and still played a prominent role in the Portuguese Discoveries, by providing wood for the construction of ships. Given the importance of D. Dinis in planting the Leiria Pine Forest, the motto chosen for this reforestation action by AML was "Let's all be Dinis".

Currently, according to ICNF, the Leiria National Forest, located in the parishes of Marinha Grande and Vieira de Leiria, municipality of Marinha Grande, district of Leiria, has a total area of 11,080 ha and is mostly made up of pure maritime pine groups (*pinus pinaster*). The property is part of the PROF (Regional Forestry Planning Programs) of the Coastal Center, in the homogeneous sub-regions of Gândaras Sul and Coastal Dunes and Lower Mondego, having the following functions, in order of priority, ranked in: 1st - Production; 2nd - Protection; 3rd - Support for Recreation in forest areas.

## The 2017 fires

On October 15, 2017, a large forest fire devastated the National Forest of Leiria. According to the 10th Interim Forest Fire Report – 2017, prepared by ICNF, about 9,476 hectares were burned, which corresponds to 86% of the total area of the largest and oldest national forest.

With 86% of the Leiria Pine Forest affected by this fire, the negative consequences and environmental impacts are many and varied. Generally speaking, environmental impacts can be immediate or subsequent to fire. Immediately following the fire, effects occur on trees and vegetation, living soil organisms, birds and mammals, soil, and huge volumes of woody and plant material are also combusted. Regarding the impacts following the fire, namely in the medium and long term, it is important to highlight the attack of diseases and pests, the reduction in the growth of trees, possible changes in species (neglected reforestation), local changes in the forest microclimate, contamination of groundwater, effects on fauna, landscape and soil. The bare soil, exposed to wind and rain erosion, suffers from the degradation of its surface part. Flows of water, sediment and nutrients are altered, with frequent increases in runoff and sediment production. Some of the medium and long-term environmental impacts arising from the great fire that occurred on October 15, 2017 in Leiria Pine Forest are already starting to be visible. Invasive species, namely acacias, are advancing in the pine forest, compromising maritime pine. There is also concern about the consequences that may result for the territories east of the Forest (Marinha Grande, Vieira de Leiria, etc.), as they will be exposed to the winds and sands coming from the West, if there is no quick and orderly reforestation.

## The intervention on the ground

This intervention, and in general the whole year of 2020, was undoubtedly marked by the Covid-19 pandemic, which forced the cancellation of the volunteer action prepared by AMI for the 20th and 21st of November, with about 200 connected companies and also individually registered participants. Instead, a small action took place on 20 November with a reduced team from AMI, which collaborated in planting around 200 trees with the help of technicians from AbraMud and Sentido Verde. This action also aimed to show and publicize the 7,000 trees planted in the days prior to the action by technicians from AbraMud and Sentido Verde, a company specialized in the area contracted by AMI to carry out the land reforestation process.

The exact location of the plantation was plot no. 18 of the Leiria National Forest, which can be seen in the annex. In the intervened area, 7,000 trees were then planted (one tree for every 10 m<sup>2</sup>) in accordance with the technical indications of the ICNF. The species planted, also indicated by the ICNF, was maritime pine (*pinus pinaster*), a species that was devastated by forest fires and is already well adapted to the sandy terrain of that region.

The reforestation action is not just about planting trees. In this sense, the intervention plan prepared by AbraMud and Sentido Verde comprises two phases. The first phase, carried out between the second half of October 2020 and December 31, 2020 encompasses, among others, the following activities: selection, preparation, certification and issuance of a plant passport of 7,000 plants, bush cleaning using bush cutters and brushcutter, collection and crushing of leftovers, marking the planting lines in the compass indicated by the ICNF, planting with respective fertilization and action on November 20, 2020. In the planting activity, the fertilizer plays an extremely important role as it contains the various nutrients needed for tree growth. This fertilizer is encapsulated by resin spheres that dissolve over time and as needed by the pine tree. In a second phase, which will take place between the fall of 2021 and the fall of 2025, the plantation will be monitored, with annual visits to the land in order to assess the evolution of the new forest. It is also at this stage that trees will be planted again to replace the specimens that may eventually die due to natural conditions.

# Photo gallery

© AMI



Figure 2 Maritime pine

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Figure 3 Pinetrees to be planted

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Figure 4 Reforestation Works

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Figure 5 Maritime pine

# Photo gallery

• AMI



Figure 6 Reforestation Works

• AMI



Figure 7 Planted pinetree

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Figure 8 Burnt pine forest area

• AMI



Figure 9 View over the dune of the intervened terrain

# Photo gallery

• AMI



**Figure 10** View over the dune of the intervened terrain

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**Figure 11** Detail of tree hit by fires



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