

# AgudaDune Park

Created in the spring of 1997, as a result of the approval of a LIFE program entitled, "Dunes: Know and Conserve," the Park aims to raise awareness for the protection of the dunes and help to make the options of local Councillors and other decision-makers more favourable for the conservation of the dunes, in terms of sustainable development.



## USEFUL INFORMATION

This is a Small Nature Reserve for the protection of the dunes and their biodiversity.

**Free admission**  
Open every day.

**Time Schedule**  
Summer Schedule (June – September) → 10h00 to 20h00  
Winter Schedule (October – May) → 08h30 to 17h30

**Access**  
On arriving in Aguda head north along "Avenida Gomes Guerra" and you will soon find the Dune Park of Aguda on your left.

**Special Summer Program**  
Guided tours with technical assistance, everyday from June to August. Admission and participation is free.



Consult our program of activities at  
[www.parquebiologico.pt](http://www.parquebiologico.pt)  
or the reception at each park



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# AgudaDune Park



motion.



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Parques de Gaia  
*tudo, par um bom passeio*  
  
Município de V. N. Gaia



## Mini-reserve

This authentic mini-reserve serves as a nesting site for birds, as well as an Environmental Education Centre for the phenomena of coastline erosion.

You can find a permanent exhibition on dunes and:



**A Botanical Garden of dune flora** with representation, identification and information regarding existing dune plants. Visitors circulate on a wooden walkway.

**A pilot-area** for demonstration of the recovery of dunes, where visitors can observe the dynamics of the coastal dunes and their efficient recovery.

**A micro-reserve** serving biodiversity conservation, and nesting place for birds, as well as environmental education centre for the phenomena of coastline erosion.



This program is supported by LIFE

## Plants' Adaptation to life in the Dunes

Dune plants evolved in order to cope with this harsh environment, where there are drastic temperature fluctuations between night and day and where the lack of water and nutrients are also significant.

The peculiarities of the Coastal flora are a consequence primarily due to the following factors:

- Lack of water: In order to maximize the organic content of water in a dry environment, some plant species adapted to the coast and have the ability to accumulate this element, becoming succulents, as is the case of a European Sea Rocket (*Cakile maritima*).



- Excessive water loss: In terms of leaves, the following changes are verified:

- presence of a thick cuticle or coriaceous texture and even spinescent, as in the case of Sea Holly (*Eryngium maritimum*);
- coating of a dense tomentum as in the case of the typical shrub of the Cottonweed (*Otanthus maritimus*)
- curling of the leaves, in order to reduce the evaporation surface, in the case of various graminaceous plants such as Marram Grass (*Ammophila arenaria*);
- downsizing or intertwined arrangement such as in the case, respectively, of the Curry Plant (*Helichrysum italicum* subsp. *picardii*) and the Sea Spurge (*Euphorbia paralias*);

- Mobility of the sands, burying and nutrient availability: To overcome this, some species have a large root system, such as the case of the Marram Grass which have interlocked rhizomes which retain the sand, and grow towards the surface, sprouting in the latter.

## THE AGUDA DUNE PARK

The Aguda Dune Park consists of two plots of land on the coast of approximately two acres that lie side by side in Aguda. One of the plots is not open to visitors, but the other is open to the public every day, with free access. The Park was created in the Spring of 1997, as a result of the approval of a program entitled LIFE "Dunes: Meet and Conserve".

### And why?

To raise awareness of the importance of conserving the dune ecosystem. At the time, access to the beach was made in a disorderly way and damage to the dune was easily visible. By sealing, caring and the use of palisades, the dunes were stabilized and vegetation resurfaced!

Today, after nearly 10 years, this is an example of how Nature recovers, if only humanity gives it the opportunity! From apparently barren sands, emerged a beautiful spontaneous garden where Environmental Education lessons flourish.

### What protects?

The dunes are essential to halt the advance of the ocean. In the case of Aguda, if the frontal dune disappears, the area becomes marginal and the ocean can move towards the houses...

The dunes are also habitat to many animal and plant species, some are endemic and some are rare.

The plants of the dunes attract many animals: sandpiper, lizards, numerous insects, among others.

### Do not degrade

What most destroys the plants is the trampling of the dunes, jeep transit, motorcycles, dumping of garbage, and illegal construction.



## Dune Plants

The zoning of vegetation is closely correlated with the distance to the shoreline, i.e. how far the sea exerts its influence.

This influence results in a directional variation of various ecological factors, such as the salinity, mobility of sand, wind speed and temperature variations. Going offshore, towards the shoreline, salinity, the mobility of sand and wind speed increases and thus decreases the average annual temperature in this sense too.

Throughout this complex gradient settles a series of plant communities at which in an ideal condition, increase in complexity, from the primary and embryonic dunes to the stabilized dunes.

While the communities of primary and embryonic dunes have large distribution are poor in terms of floral cover, being colonized by species also with large distribution areas, but in the secondary dunes, the diversity of the communities and endemic species is much higher.



Sand Couchgrass  
(*Elymus farctus*)



Cottonweed (*Otanthus maritimus*)



Marram Grass  
(*Ammophila arenaria*)



Sea Daffodil  
(*Pancratium maritimum*)



Sea Holly  
(*Eryngium maritimum*)



Maritime Crosswort  
(*Crucianella maritima*)



Sea Wormwood  
(*Artemisia campestris* L. subsp. *maritima*)



Curry Plant  
(*Helichrysum italicum* subsp. *picardii*)