

# Restoring the priority habitat “Coastal dunes with *Juniperus* spp.” in Portugal, conservation practices in the Zimbral for LIFE project

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II

(*Acts whose publication is not obligatory*)

**COUNCIL**

**COUNCIL DIRECTIVE 92/43/EEC**  
of 21 May 1992

on the conservation of natural habitats and of wild fauna and flora

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 130s thereof,

Having regard to the proposal from the Commission (<sup>1</sup>),

Having regard to the opinion of the European Parliament (<sup>2</sup>),

Having regard to the opinion of the Economic and Social Committee (<sup>3</sup>),

Whereas the preservation, protection and improvement of the quality of the environment, including the conservation of natural habitats and of wild fauna and flora, are an essential objective of general interest pursued by the Community, as stated in Article 130r of the Treaty;

Whereas the European Community policy and action programme on the environment (1987 to 1992) (<sup>4</sup>) makes provision for measures regarding the conservation of nature and natural resources;

Whereas, the main aim of this Directive being to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements, this Directive makes a contribution to the general objective of sustainable development; whereas the maintenance of such biodiversity may in certain cases require the maintenance, or indeed the encouragement, of human activities;

(<sup>1</sup>) OJ No C 247, 21. 9. 1988, p. 3 and OJ No C 195, 3. 8. 1990, p. 1.  
(<sup>2</sup>) OJ No C 75, 20. 3. 1991, p. 12.  
(<sup>3</sup>) OJ No C 31, 6. 2. 1991, p. 25.  
(<sup>4</sup>) OJ No C 328, 7. 12. 1987, p. 1.

Whereas sites eligible for designation as special areas of conservation are proposed by the Member States but whereas

(<sup>1</sup>) OJ No L 103, 25. 4. 1979, p. 1. Directive as last amended by Directive 91/244/ECC (OJ No L 115, 8. 5. 1991, p. 41).

# Habitats Directive

**Contribute to ensure the biodiversity in the European Union (EU) through the conservation of natural habitats, wildlife and flora wild species.**

<https://www.rtp.pt/noticias>



Species



Habitats



<https://mivaje.com/>

## Article 6.

2. Member States shall take appropriate steps to avoid,  
in the special areas of conservation, the deterioration of  
natural habitats and the habitats of species (...)

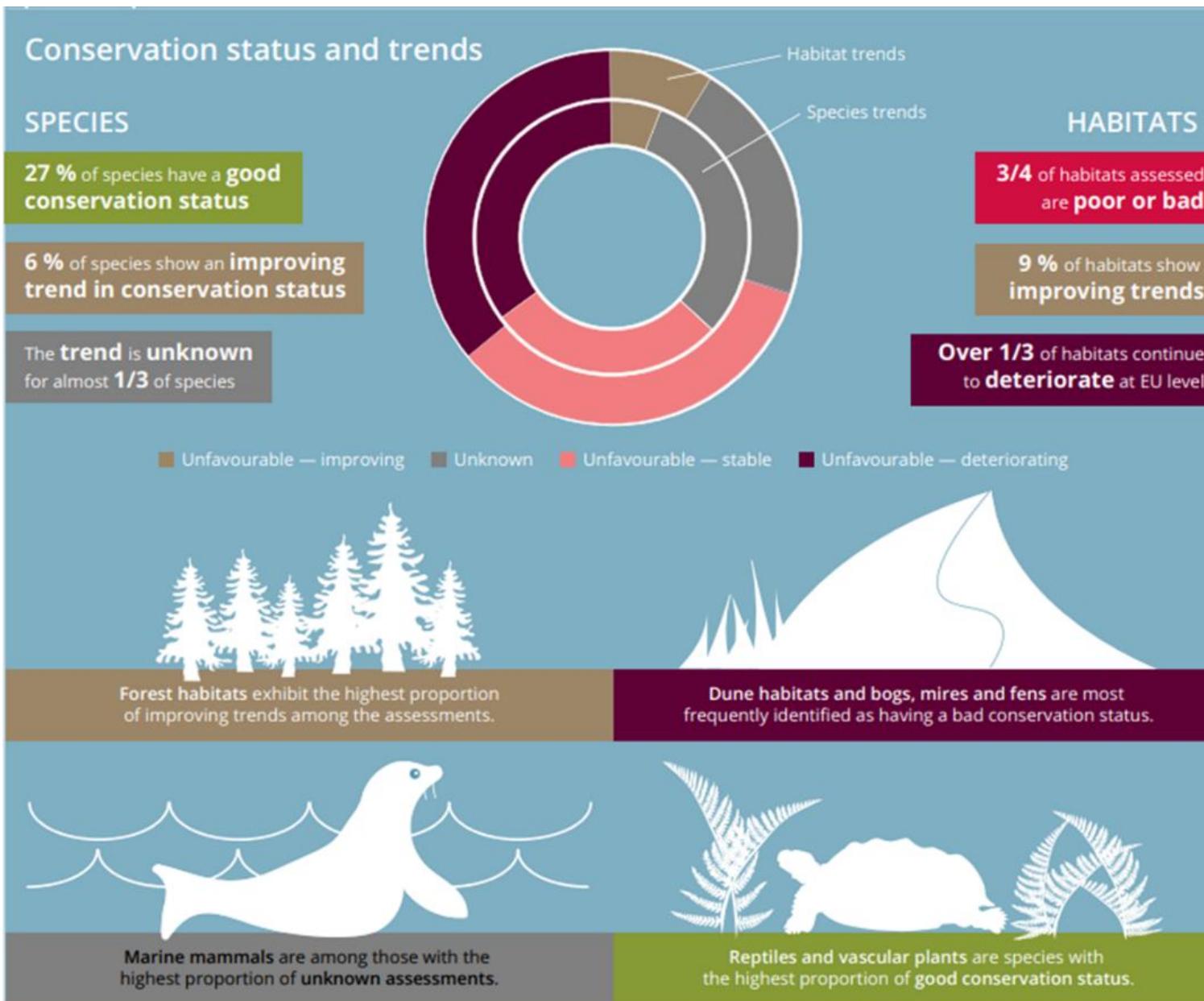
## Article 11.

Member States shall undertake surveillance of  
the conservation status of the natural habitats  
and species referred to in Article 2 with  
particular regard to priority natural habitat types  
and priority species.

## Article 17.

1. Every six years from the date of expiry of the  
period laid down in Article 23, Member States shall  
draw up a report on the implementation of the  
measures taken under this Directive. (...)





# Species and Habitats of community interest conservation status almost 30 years later

**¾** of habitats assessed as unfavarouble conservation status

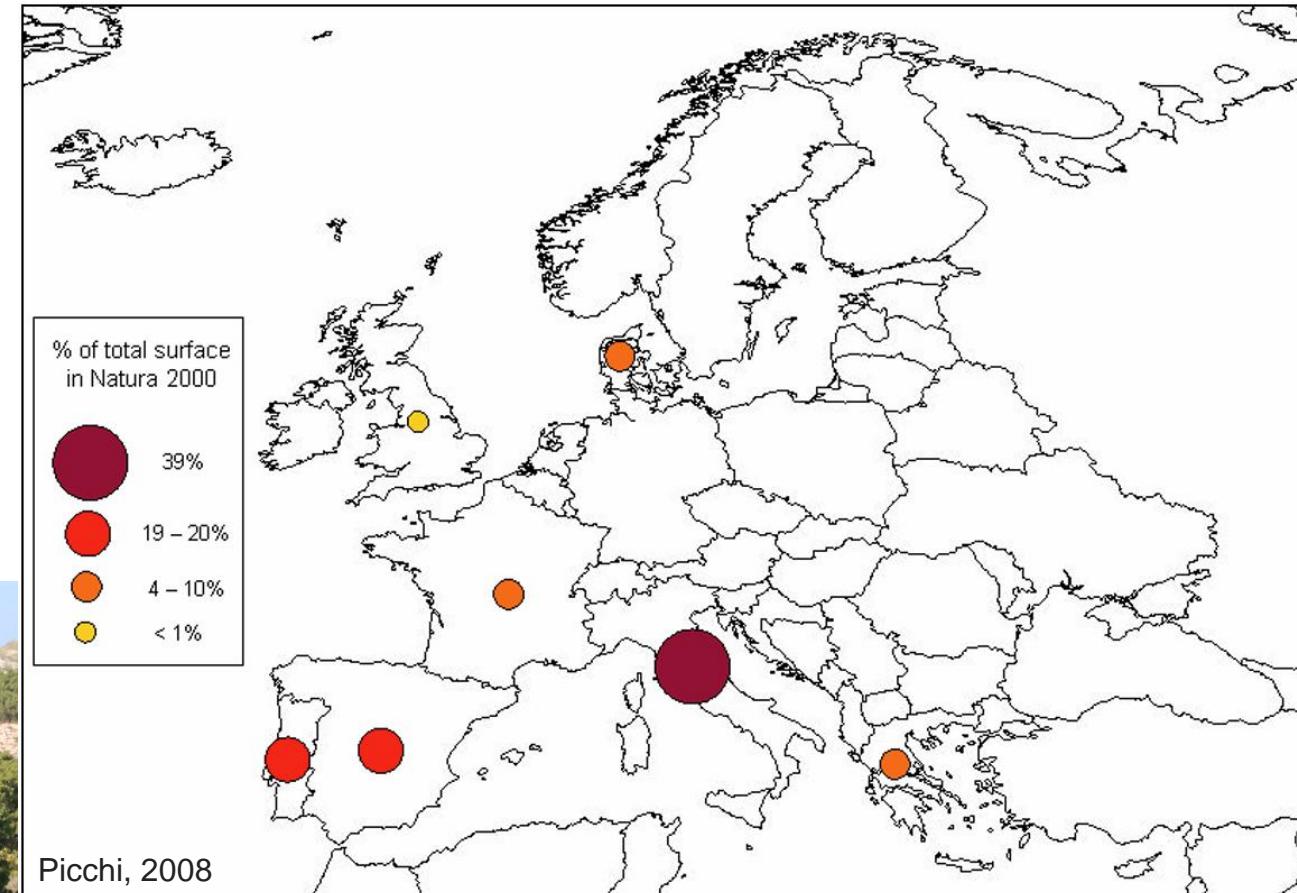
**Sand dune habitats**  
**½ Unfavourable-Bad**

# Coastal dunes with *Juniperus* spp. (habitat 2250\*)

**Juniper formations** of Mediterranean and thermo-Atlantic **coastal dune slacks** and **slopes**, and **calcareous dunes**

## Plants

*Juniperus turbinata*, *J. macrocarpa*, *J. navicularis*, *J. communis* and *J. oxycedrus*



Occurrence: **South and Western Europe**

# Coastal dunes with *Juniperus* spp.



## High conservation value

- High specific diversity
- Prominent and stable community



Resistant to disturbances

- Contributes to **coastal geomorphological dynamics**

Soil formation



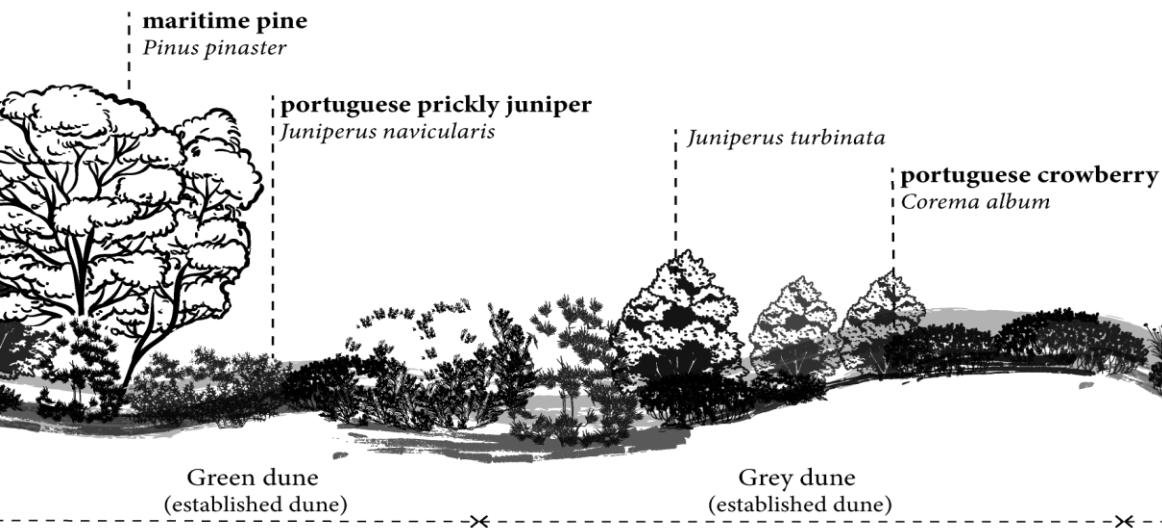
Sand retention and stabilization

- Provides **refuge, breeding areas and food** for wildlife



# Coastal dunes with *Juniperus* spp.

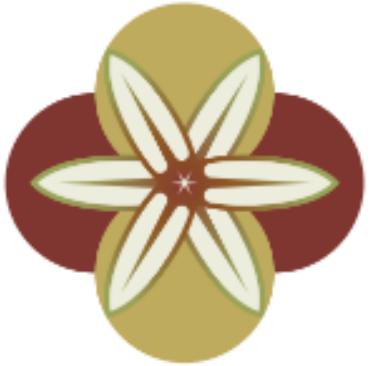
## Threats



# Coastal dunes with *Juniperus* spp.



Currently  
Unfavourable – Bad  
with decreasing tendency



Zimbral  
for Life



## Objective

Improve the conservation status of priority habitat 2250\* - **Coastal dunes with *Juniperus* spp.**, in mainland Portugal, and reverse its current trend of degradation.





**DURATION:** start 01/10/22  
end 30/09/28



**Total budget:** 3 110 066.08€

Beneficiary Coordinator



Associated Beneficiaries



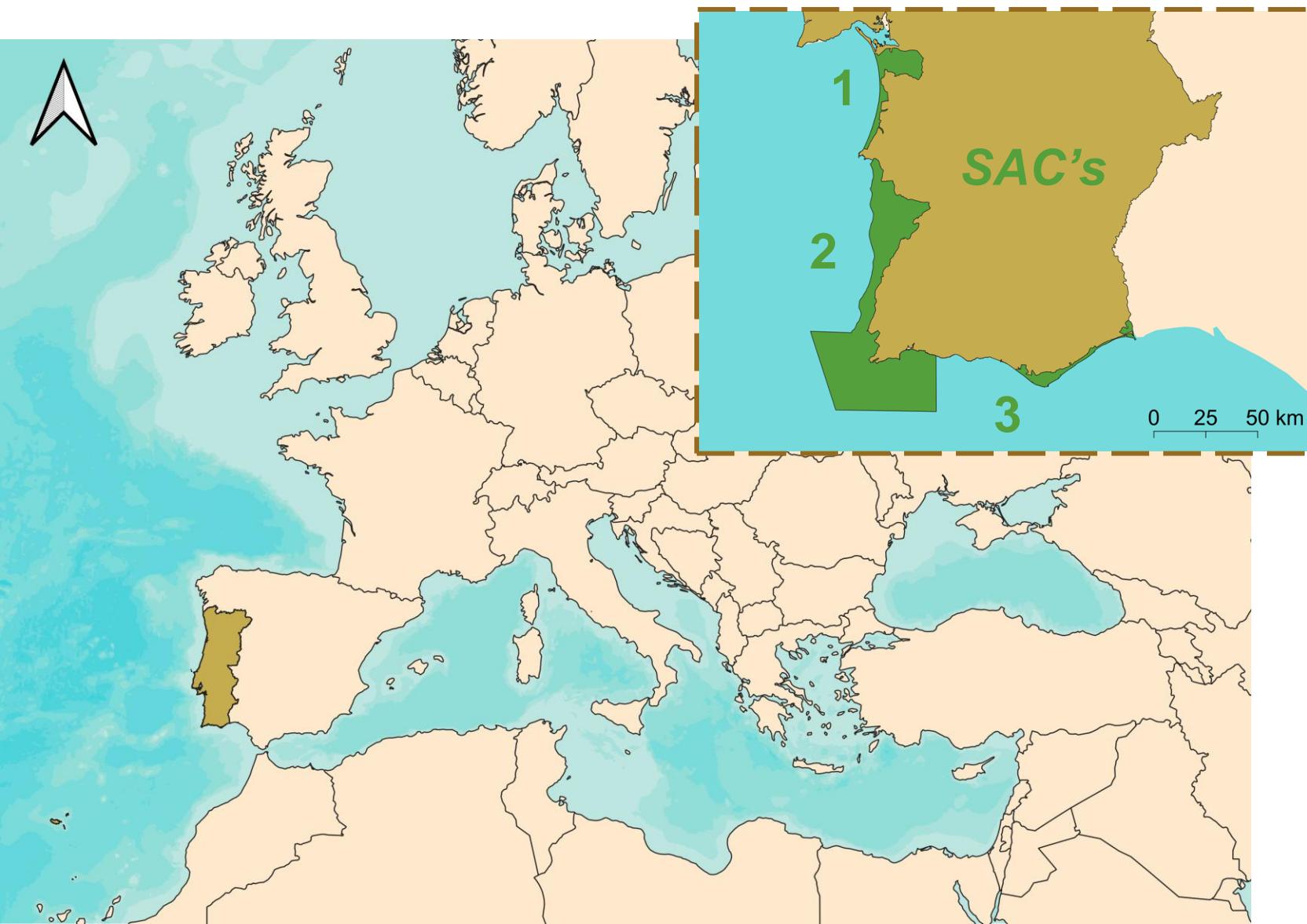
CENTRO DE INVESTIGACIONES  
CIENTÍFICAS Y TECNOLÓGICAS  
DE EXTREMADURA



Associate Partner



# Intervention Areas



- 1 Comporta/Galé**  
*Public domain*
- 2 Costa Sudoeste**  
*Private areas*
- 3 Ria Formosa/Castro Marim**  
*Public domain*

# Target species



*Juniperus turbinata*

Habitat 2250\* pt1



*Juniperus navicularis*

Habitat 2250\* pt2

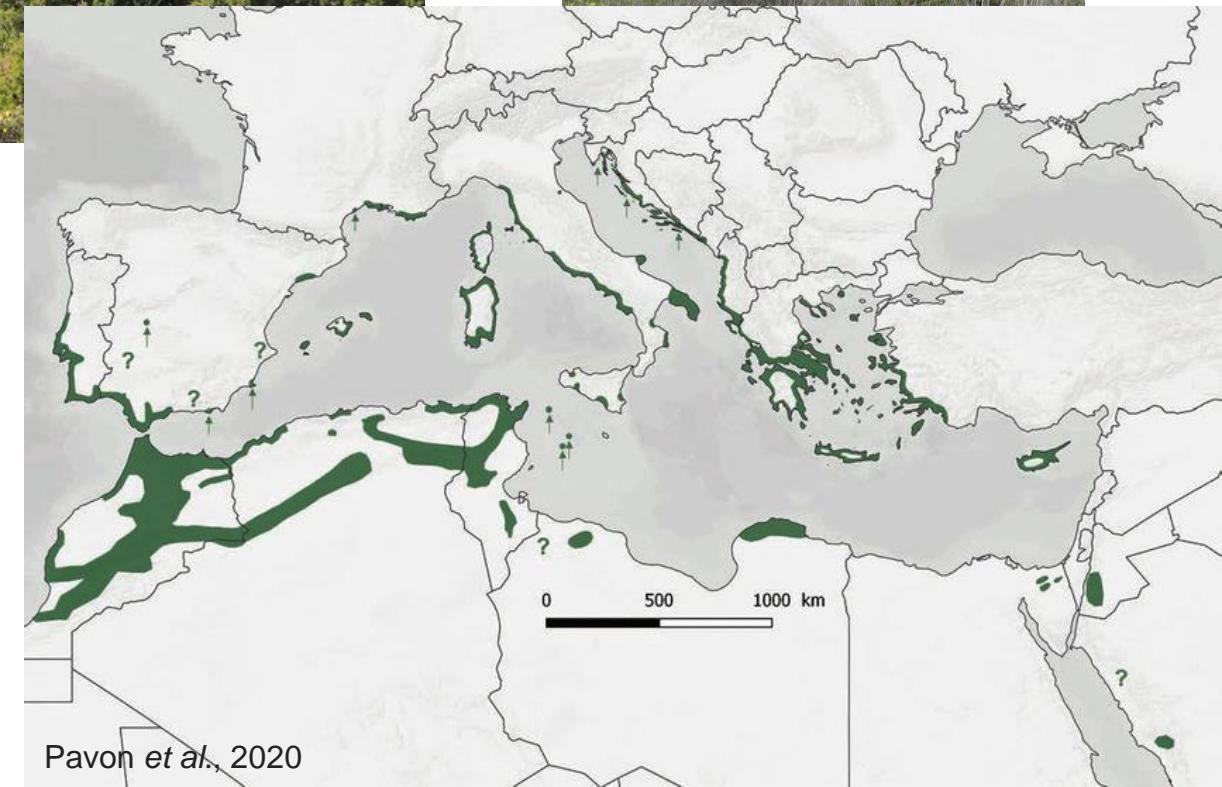
# ***Juniperus turbinata* Guss.**

Phoenicean juniper (*Juniperus phoenicea* subsp. *turbinata* (Guss.) Nyman)



Category "Near Threatened"

Red List of International Union for Conservation of Nature



Pavon et al., 2020

# *Juniperus navicularis* Gand.

Portuguese prickly juniper



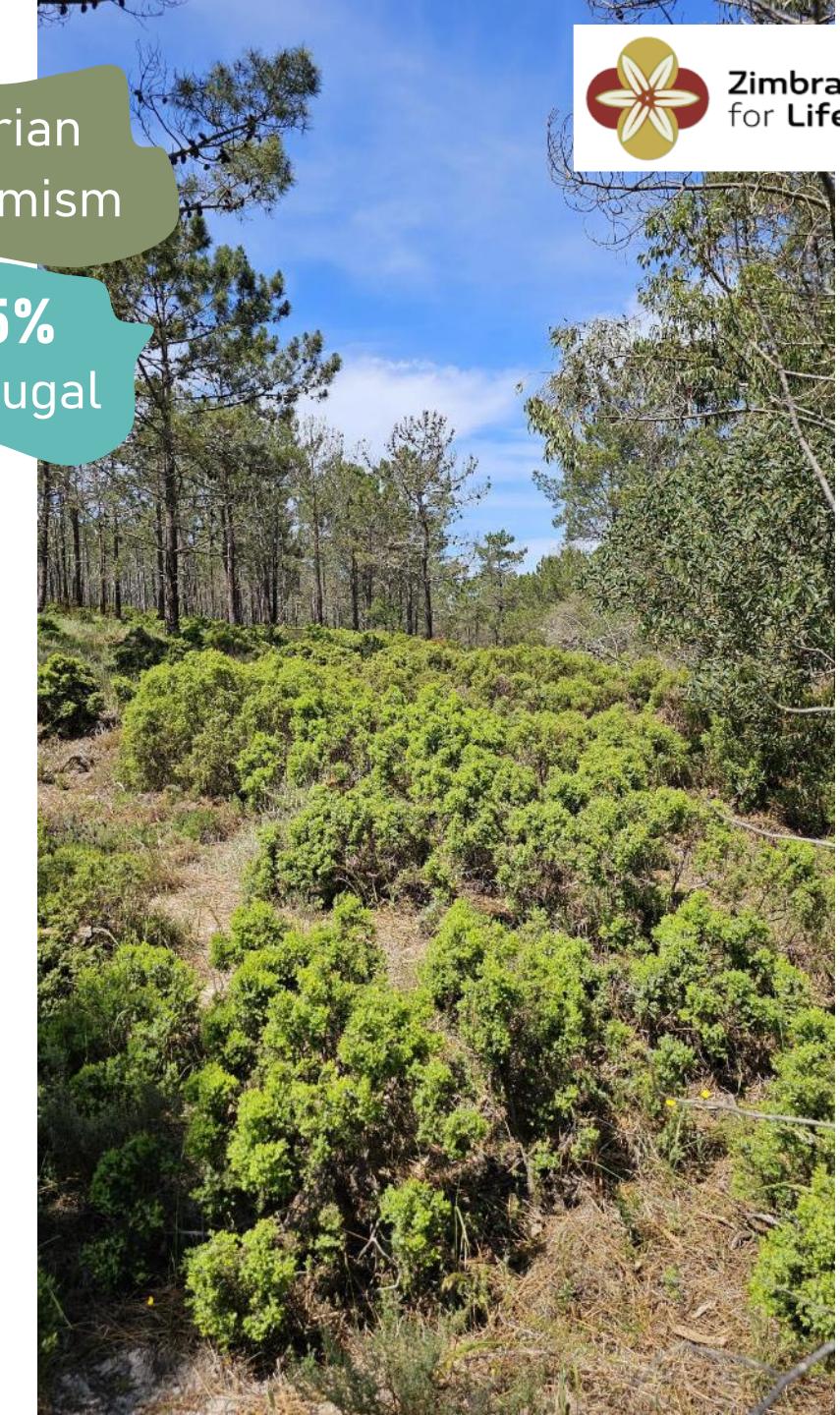
Category “Near Threatened”

Red List of Vascular Flora from Mainland Portugal



Iberian  
Endemism

95%  
Portugal



Zimbral  
for Life

# Conservation practices

**Plant production,  
plantations and  
sowing**



**Control of invasive  
alien species**



**Satellite projects**

**Vegetation  
dynamics control**

**National Action  
Plan**

# Plant production, plantations and sowing

## Species:

Habitat 2250\*  
Characteristic

and/or

With high  
conservation level

## Species multiplication protocol

CENTRO DE INVESTIGACIONES  
CIENTÍFICAS Y TECNOLÓGICAS  
DE EXTREMADURA

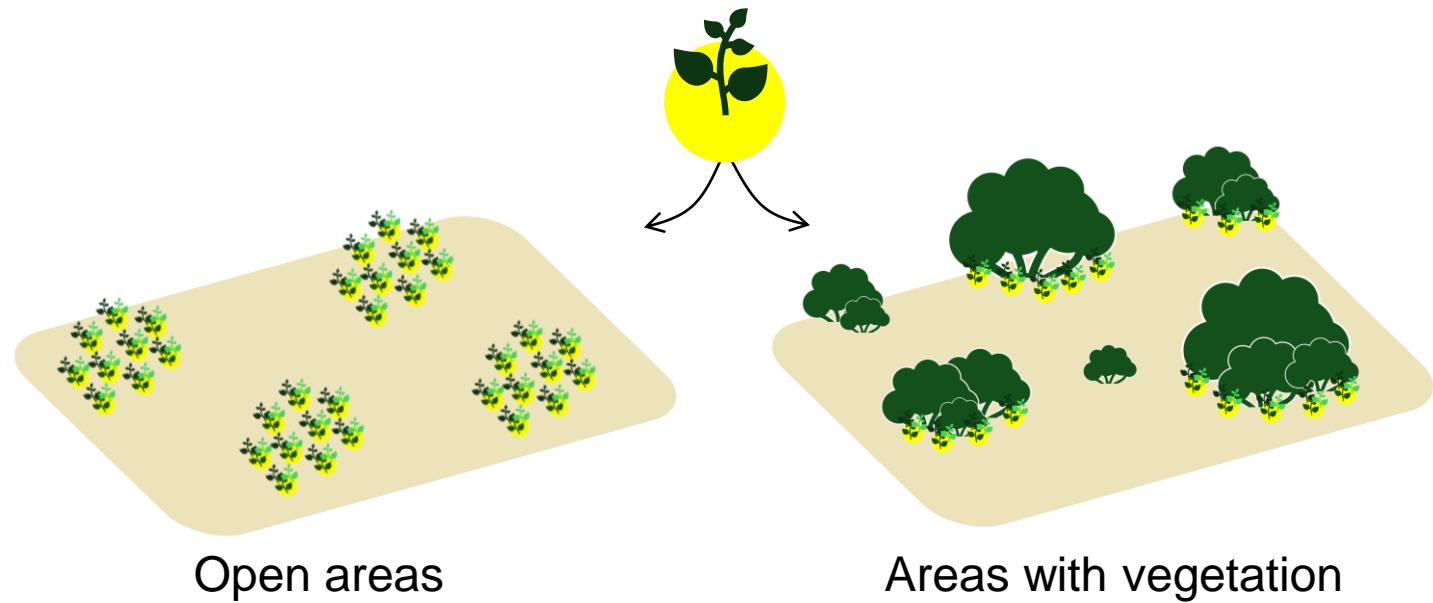


### Species listed for production

<i>Juniperus navicularis</i>	<i>Armeria</i> spp.
<i>Juniperus turbinata</i>	<i>Avenula hackelii</i>
<i>Corema album</i>	<i>Diplotaxis siifolia</i>
<i>Osyris alba</i>	<i>Ephedra fragilis</i>
<i>Osyris lanceolata</i>	<i>Herniaria algarvica</i>
<i>Phillyrea angustifolia</i>	<i>Heteranthemis viscidohirta</i>
<i>Phillyrea latifolia</i>	<i>Santolina impressa</i>
<i>Pistacia lentiscus</i>	<i>Thymus albicans</i>
<i>Quercus coccifera</i>	
<i>Rhamnus alaternus</i>	
<i>Rhamnus oleoides</i>	
<i>Rubia peregrina</i>	

# Plant production, plantations and sowing

## Applied nucleation planting method



Nursery effect

Increase Natural regeneration

Less Maintenance



# Control of invasive alien species

## *Carpobrotus edulis* and *C. acinaciformis*

Manual removal of specimens



Volunteer work with schools, NGOs, governmental institutions, etc...

# Control of invasive alien species

## *Acacia* spp.

Cut and localized application of glyphosate

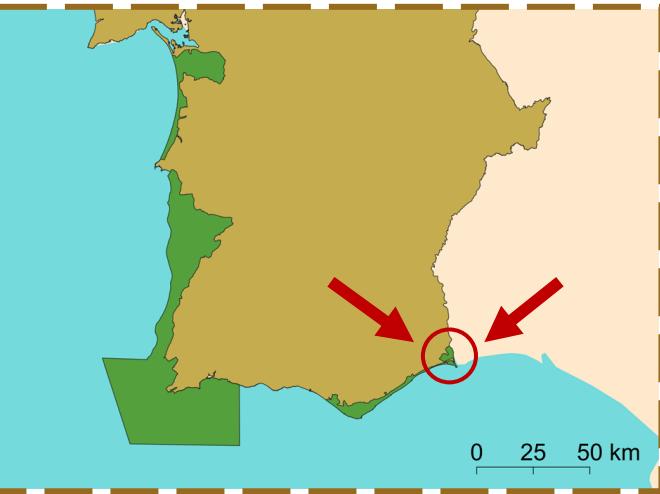
*A. pycnantha*   *A. longifolia*  
*A. saligna*   *A. cyclops*  
*A. mearnsii*



Mostly *Acacia longifolia*

# Vegetation dynamics control

## Study case: *Retama monosperma*



SAC Ria Formosa/Castro Marim



*Retama monosperma* occupies more than  $\frac{1}{3}$  of the intervention area



Nitrogen-fixing species



Changes in soil composition

# Vegetation dynamics control

## Study case: *Retama monosperma*



Herbaceous layer rich in  
**ephemeral annual shadowy  
nitrophilous communities**

CARDAMINETEA HIRSUTAE  
[*Geranio purpurei*-Cardaminetea hirsutae]



*Geranium  
purpureum*



*Fumaria* sp.



*Ceratocapnos heterocarpa*



**Non-characteristic species**

# Vegetation dynamics control

## Study case: *Retama monosperma*

Full cut of *R. monosperma*

Area of 2 ha



Monitoring:



Floristic  
composition



Juniper regeneration, growth  
and reproductive effort



Soil chemical  
composition

# National Action Plan for the Habitat 2250\*



Acquire knowledge  
at National level

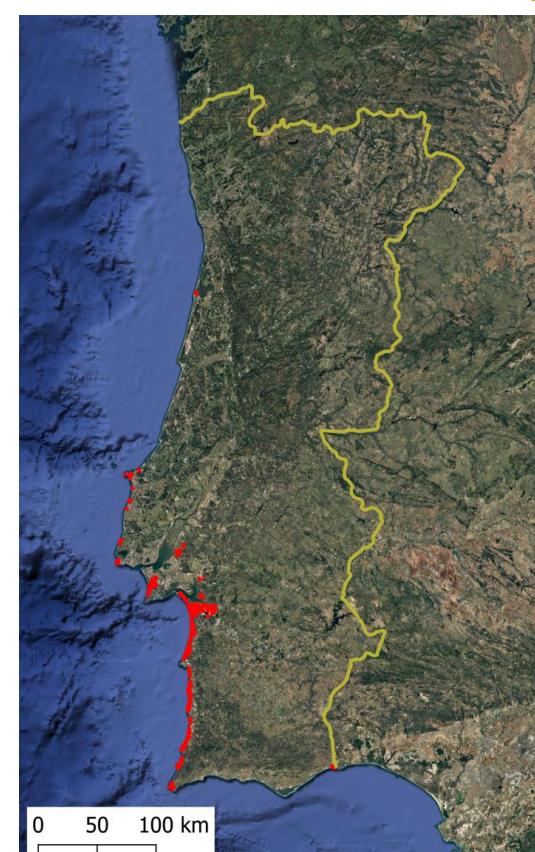
SACs with habitat 2250

Habitat specifics

Cartography



Conservation status

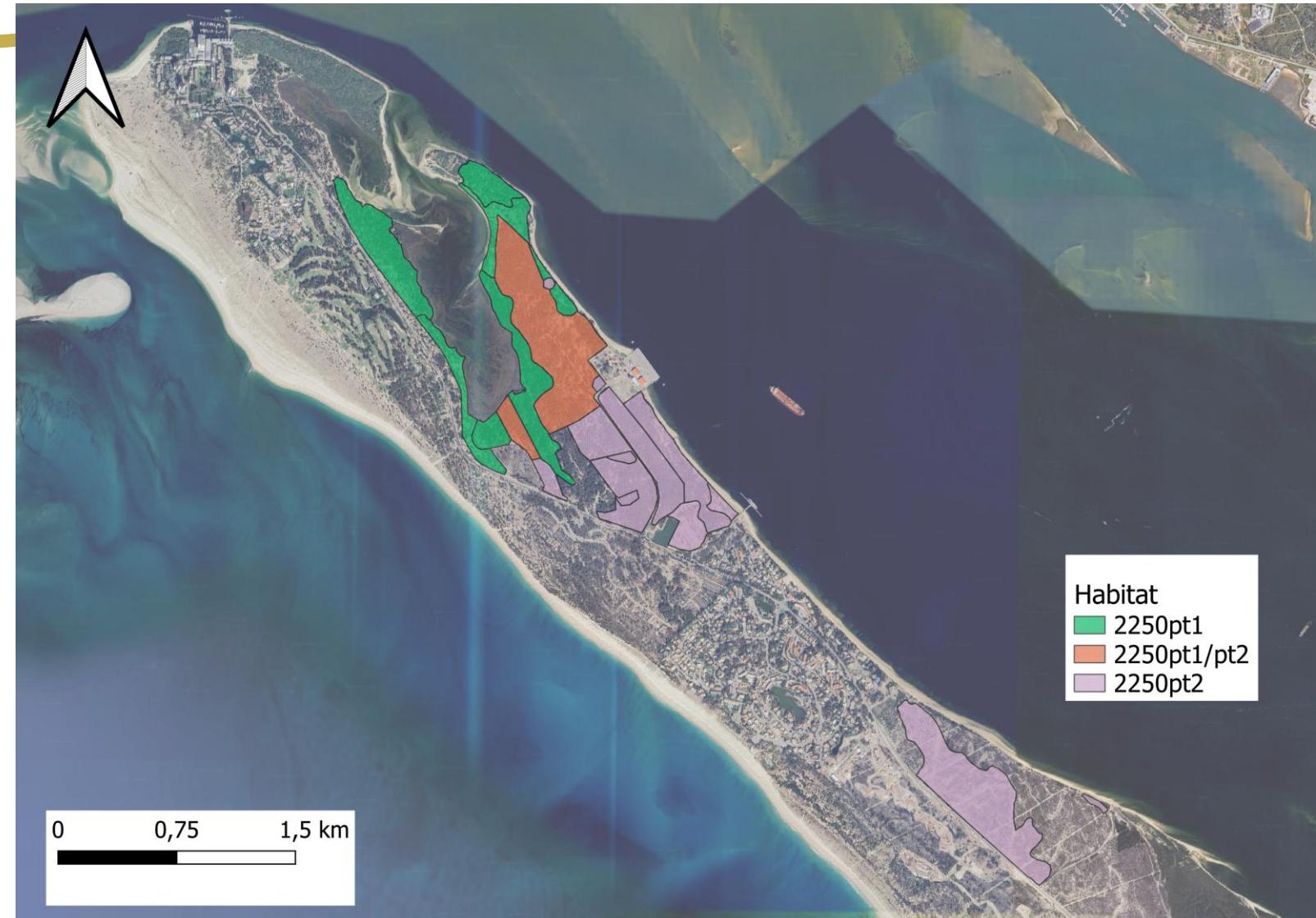


Specifics habitat measures of:

- Management
- Protection

Improve the  
conservation status  
and define Conservation  
targets

# National Action Plan for the Habitat 2250\*



# Knowledge



**Restoration  
methods**

**Main  
Threats**

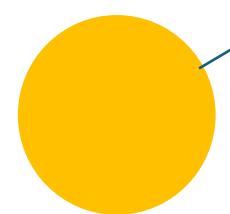
**Characteristic species  
(wildlife and flora)**

**National distribution**

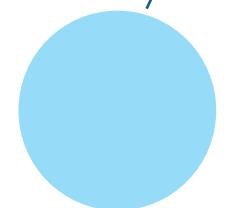
**Methods for  
assessing the  
conservation status**

**Monitoring  
methods**

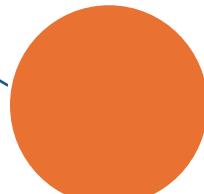
And ...



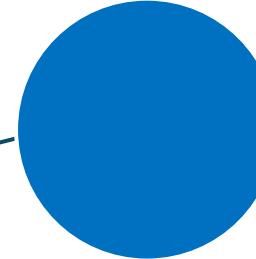
Soil



Floristic  
diversity by range



Genetic  
diversity



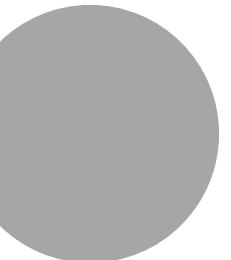
Biometry



Dendrochronology



Mycodiversity

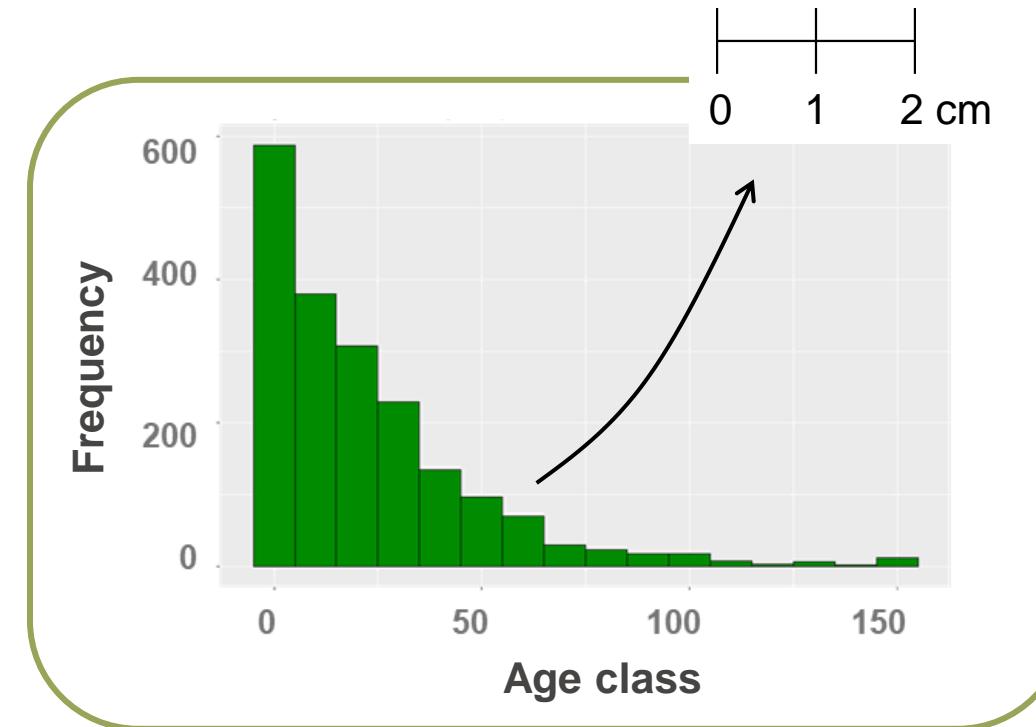


Reproductive  
biology

# Dendrochronology: *Juniperus navicularis*



61 years





<https://www.zimbral4life.uevora.pt/>



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