



Hypericum balearicum L., an endemic shrub of the Balearic Islands, threatened by global change? Management opportunities within the framework of Serra de Tramuntana, World Heritage Site

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Aranda I, Cardona C, Far TJ, Fernández de Simón B, Flexas J, Mir PM, Perea R, Capó M

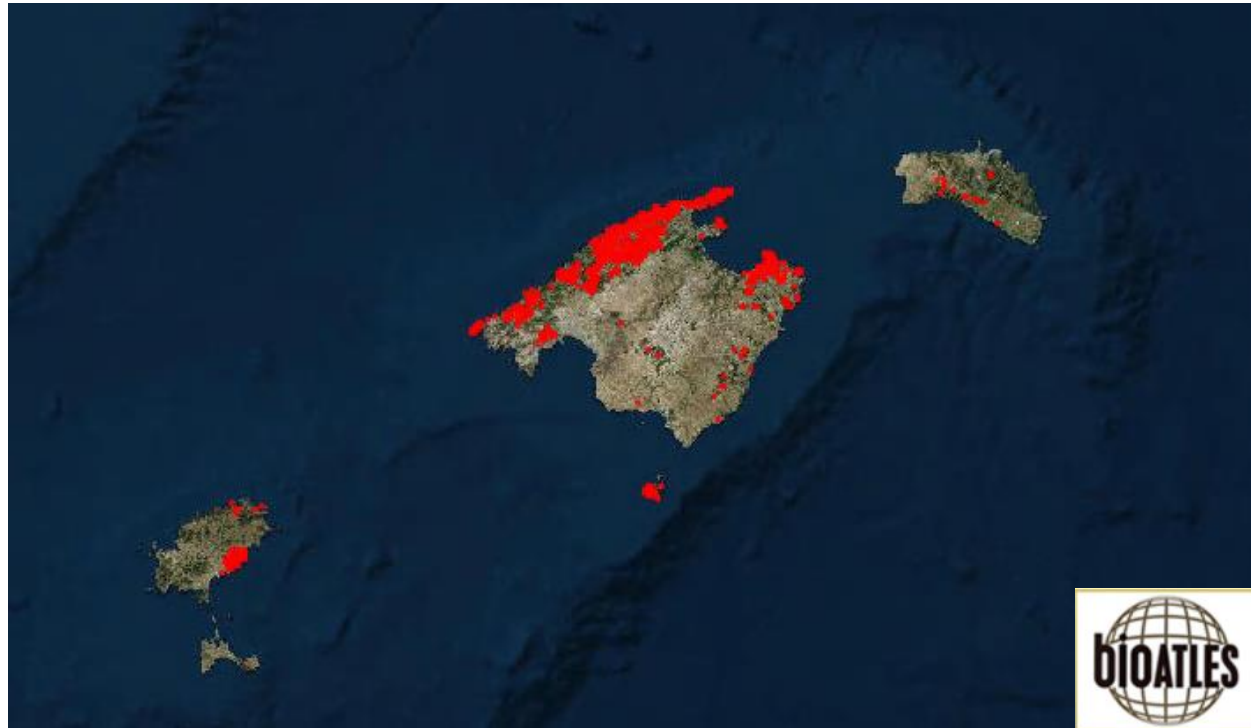
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Hypericum balearicum L., threatened by global change?

- Mediterranean shrub
- Endemic species of the Balearic Islands



A red circular badge with white text and logos. At the top right, there are logos for 'UCM' and 'RED LIST'. The main text in the center reads 'LEAST CONCERN' in large, bold, uppercase letters, with 'LC' in smaller letters below it. A white arrow points to the right on the right side of the badge.

Hypericum balearicum L., threatened by global change?



1375 m.a.s.l. (Puig Major)



38 m.a.s.l. (Cala Bóquer)

Hypericum balearicum L., threatened by global change?



Forest margin (Cala Murada)



Rocky surface (Cabrera Island)

Hypericum balearicum L., threatened by global change?

- Iconic endemism of the Balearic Islands.
- **Mortality in adults is apparently limited**
- Seedlings are **rarely found** in the field.



Hypericum balearicum L., threatened by global change?



4th Mediterranean Plant Conservation Week

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GERMINATION



- Germination is **not limited** by the environment in which *H. balearicum* lives.
- **Optimum germination temperature** within normality in Mediterranean species



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Flora

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Highlighted Student Research

Local conditions effects on seed germination of *Hypericum balearicum* L. in response to temperature

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Limited seedling recruitment does not appear to be related to germination.

OBJECTIVE

To evaluate the impact of several global change stressors, such as **drought** and **predation by alien herbivores** (mainly wild goats), on the **seedling recruitment capacity** in several populations of *H. balearicum*.



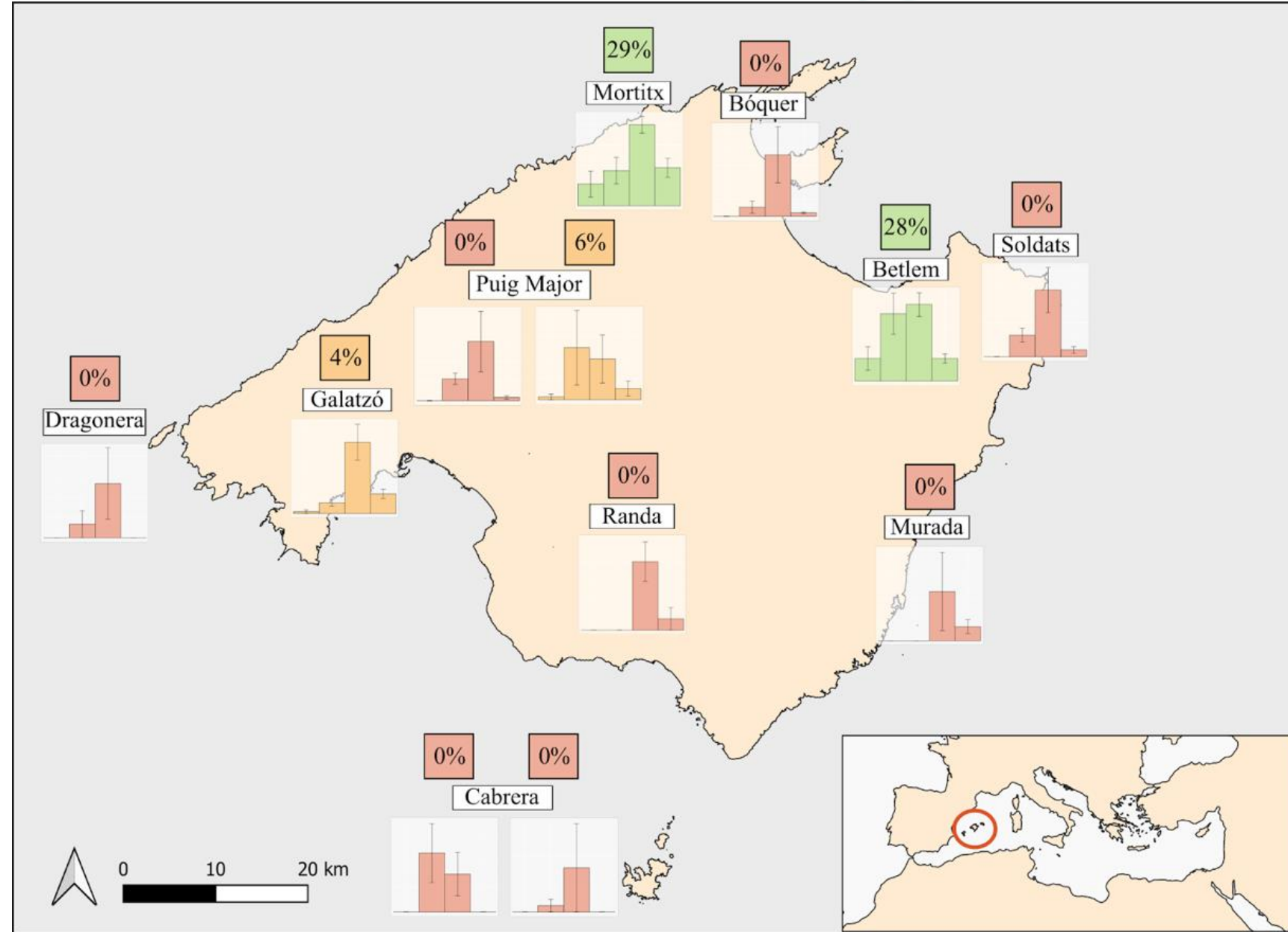
DEMOGRAPHY 2022

8 pop. → No seedlings

2 pop. → < 10% seedlings

2 pop. → > 10% seedlings

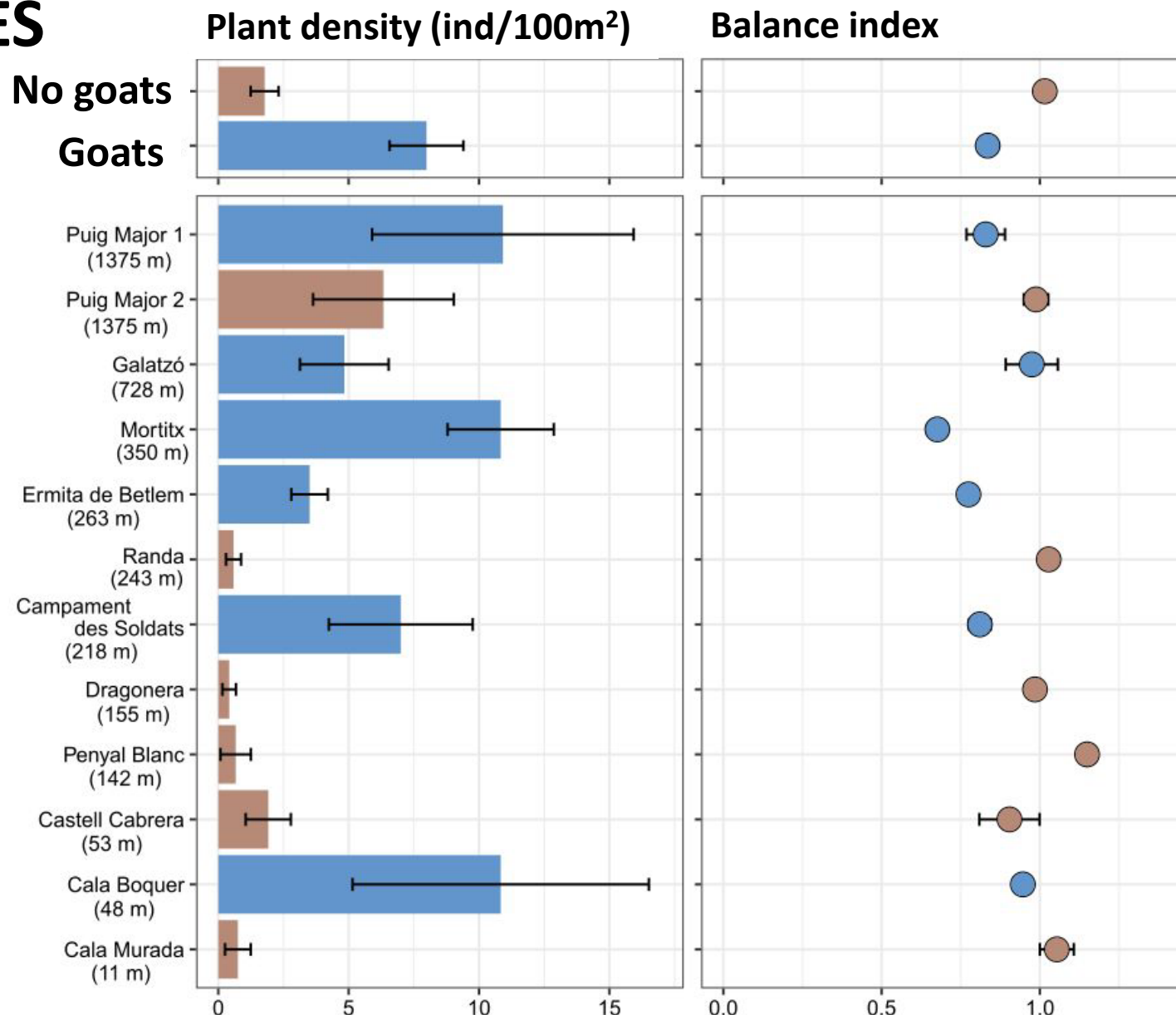
**Seedling recruitment
was very scarce**



PREDATION BY ALIEN SPECIES

- Seedlings were found in areas with **goat presence**.
- Plant density was higher in areas with **goat presence**.
- Balance index was higher in areas with **no goat presence**.

Goats favor the expansion of *H. balearicum*



Hypericum balearicum L., threatened by global change?



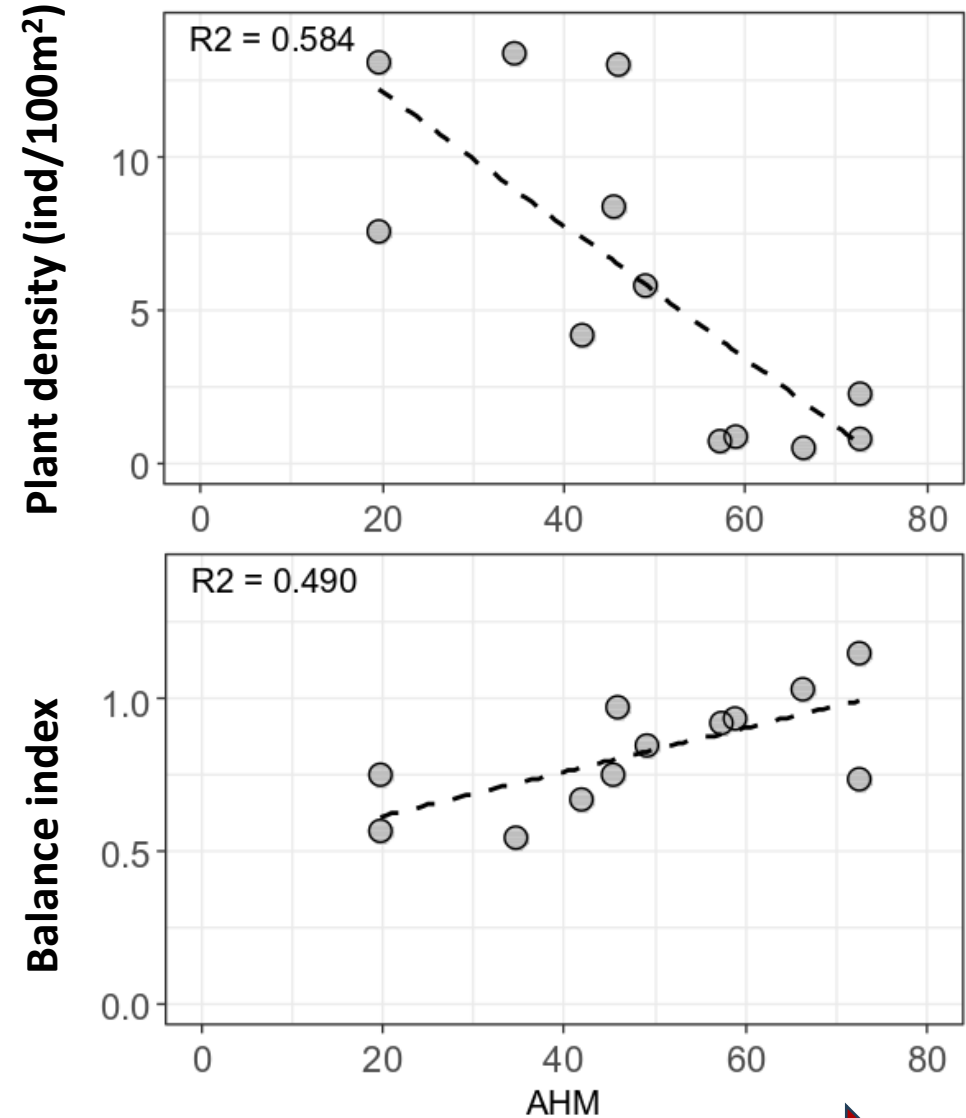
CLIMATE

AHM – Annual Heat-Moisture Index = $(MAT+10)/(MAP/1000)$

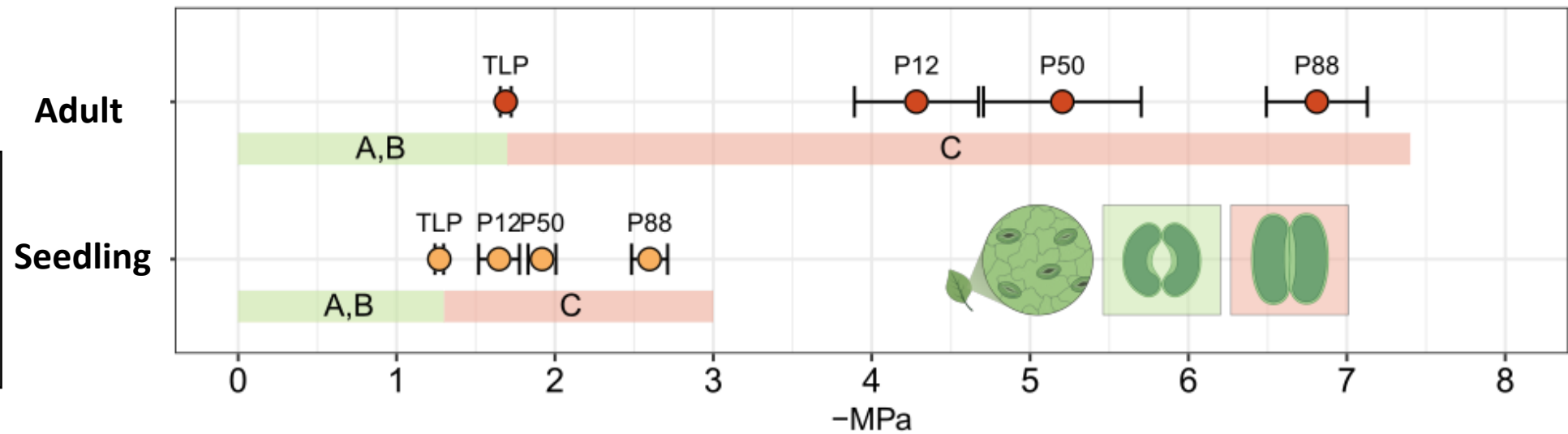
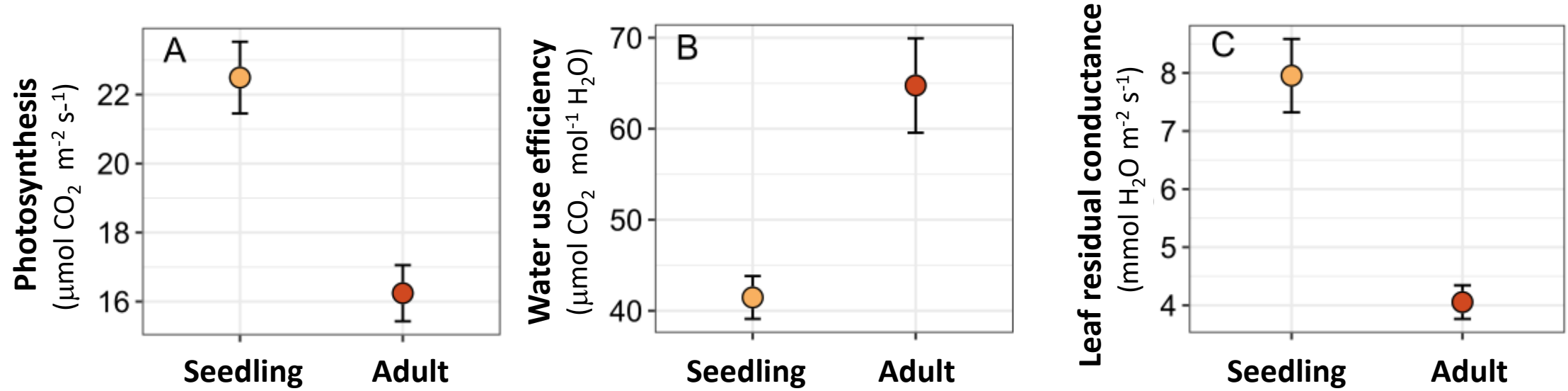
Data from nearest AEMET station (<10 km)

- Populations in **drier areas** present **lower plant density** and **older populations**

Aridity limits seedling recruitment



PHYSIOLOGICAL DROUGHT RESISTANCE



Seedlings are more vulnerable to drought

SUMMER DROUGHT

Experimental plantation

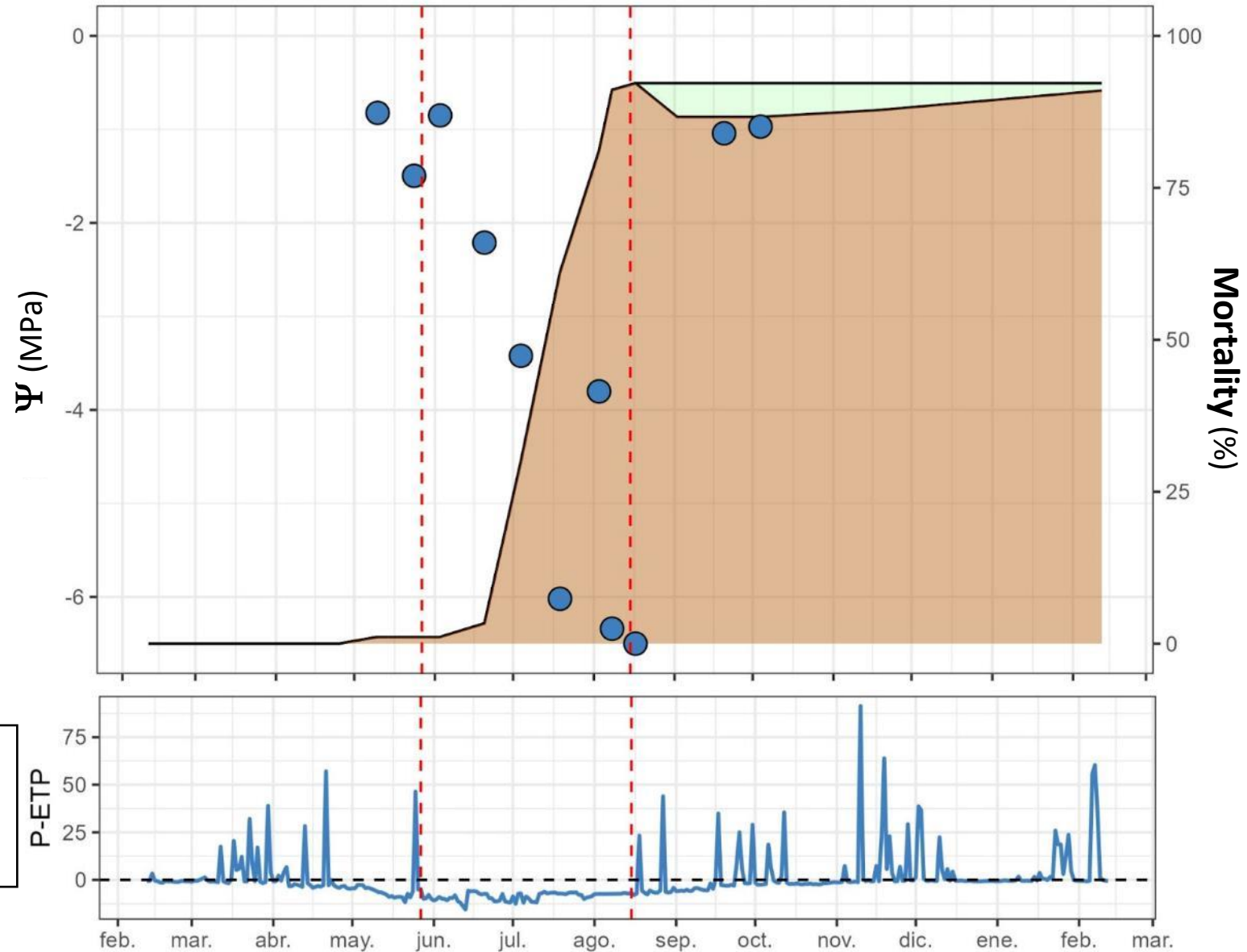
- 90 seedlings
- Planted on February 2022 in the wettest region of Mallorca
- Monitored biweekly for one year



SUMMER DROUGHT

- Seedling **water status** worsens drastically in summer
- **> 90% mortality** in summer
- Reduced autumn **resprout**, but with no survival ability
- **No predation** by herbivores

Drought is the main threat to seedling recruitment.



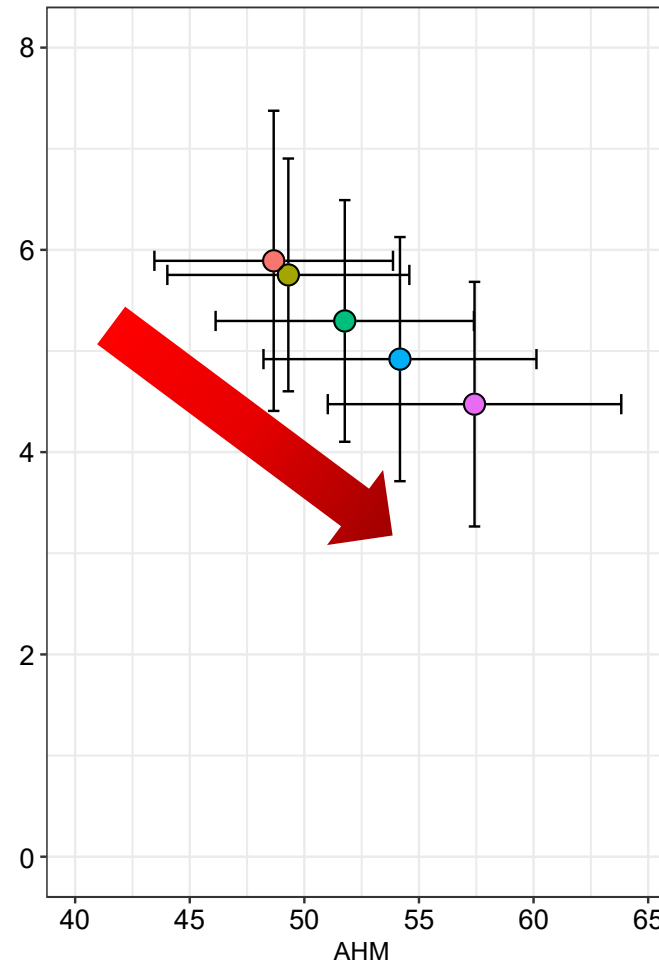
CLIMATE PROJECTIONS

Climond - IPCC IV SRES A1B

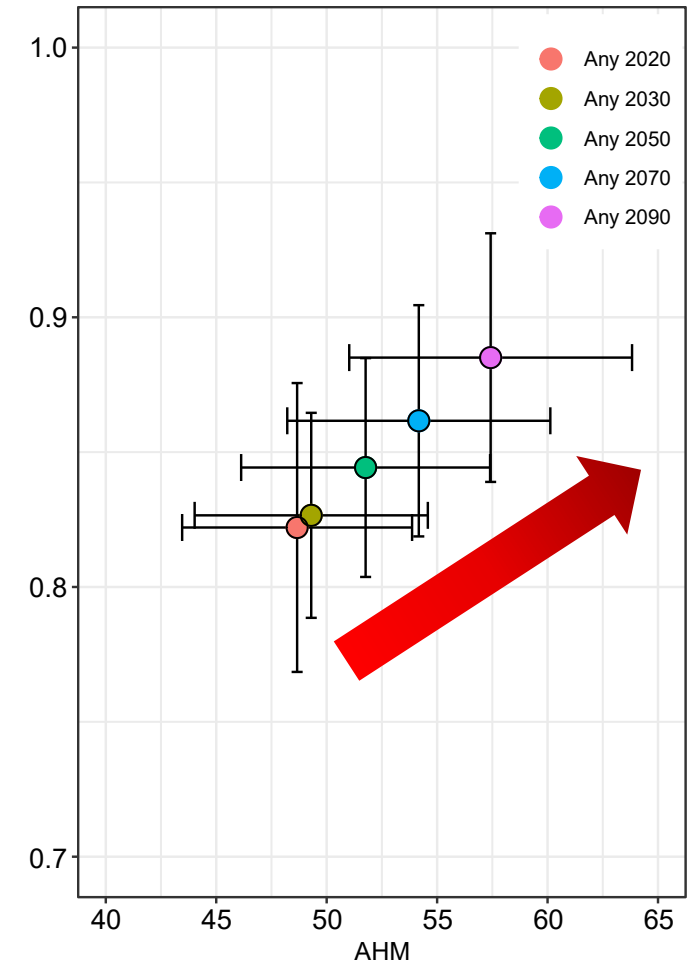
Plant density (ind/100 m²)

Population	2030	2090
Cala Boquer	6.35	4.68
Cala Murada	3.52	1.24
Soldats	6.48	4.88
Cabrera 1	0.47	0
Cabrera 2	0.47	0
Dragonera	1.81	0
Betlem	7.23	5.77
Galatzó	5.70	4.18
Mortitx	8.87	7.81
Puig Major	12.16	11.64

Density (ind/100m²)

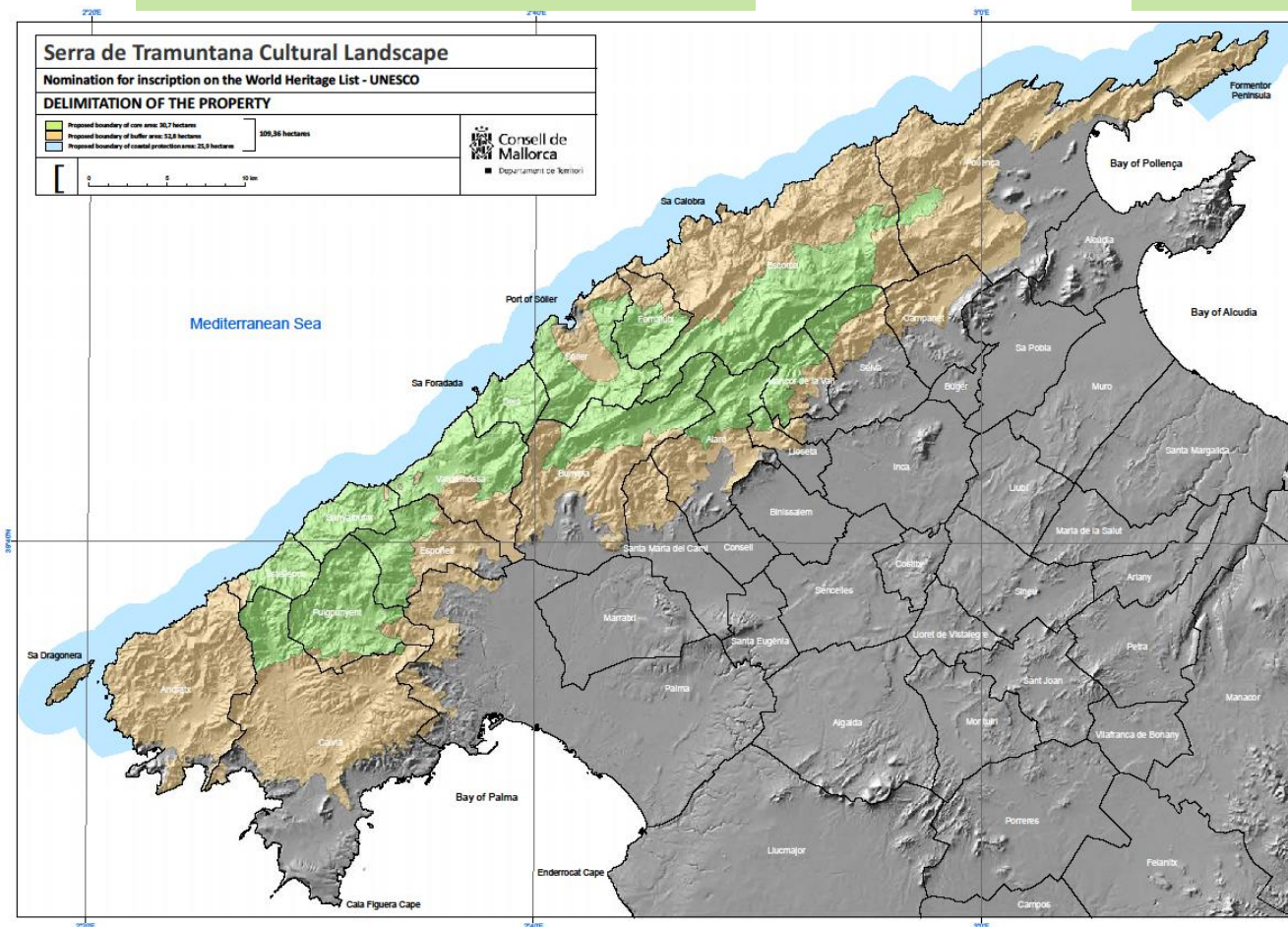


Balance index



MANAGEMENT OPPORTUNITIES

- **Serra de Tramuntana**, recognized as a UNESCO World Heritage Site, offers the most favorable conditions for the survival of *H. balearicum*.



MANAGEMENT OPPORTUNITIES

- *H. balearicum* is compatible with sheep grazing and with the traditional cultivation of olive trees.





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Thank you for your attention Marc Carriquí

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Project

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Project

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