Natural History Museum of Crete
UNIVERSITY OF CRETE

LIFE PHOENIX

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LIFE22-NAT-ES-LIFE Phoenix

«The LIFE Phoenix Project: Restoring and improve the Priority Habitat 9370* "Palm groves of *Phoenix*" in Crete»

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Introduction

101113584 – LIFE22-NAT-ES-LIFE Phoenix – LIFE-2022-SAP-NAT

Partners: 5 from **Spain** (Canary Islands) & **4** from **Greece**

Collaborative efforts for research, restoration & sustainable management

- Unique *Phoenix* palm forests in Europe
- Priority habitat 9370* "Palm groves of *Phoenix*" (EU Habitats Directive)
- **Goal:** Improve conservation status & ensure long-term protection

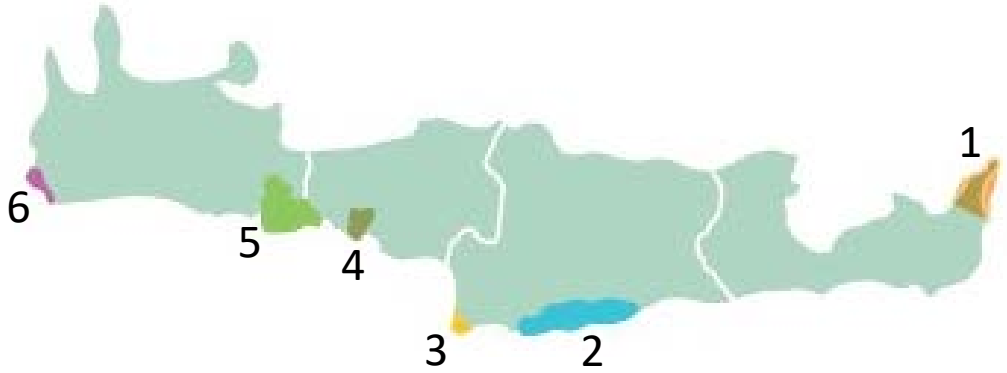
The Cretan palm, *Phoenix theophrasti*, is an endemic species of E. Mediterranean, with the main populations in Crete and few small populations in the Mugla region, SW Turkey.

It plays a critical role in local ecosystems, contributing to biodiversity and providing suitable habitat for various species.

Distribution in Crete

- It spreads sparsely throughout Crete, mainly on coastal areas, ravines with streams and riparian zones;
- The project focuses at **six (6) NATURA 2000 sites** in Crete, which represent critical habitats for the Cretan palm.

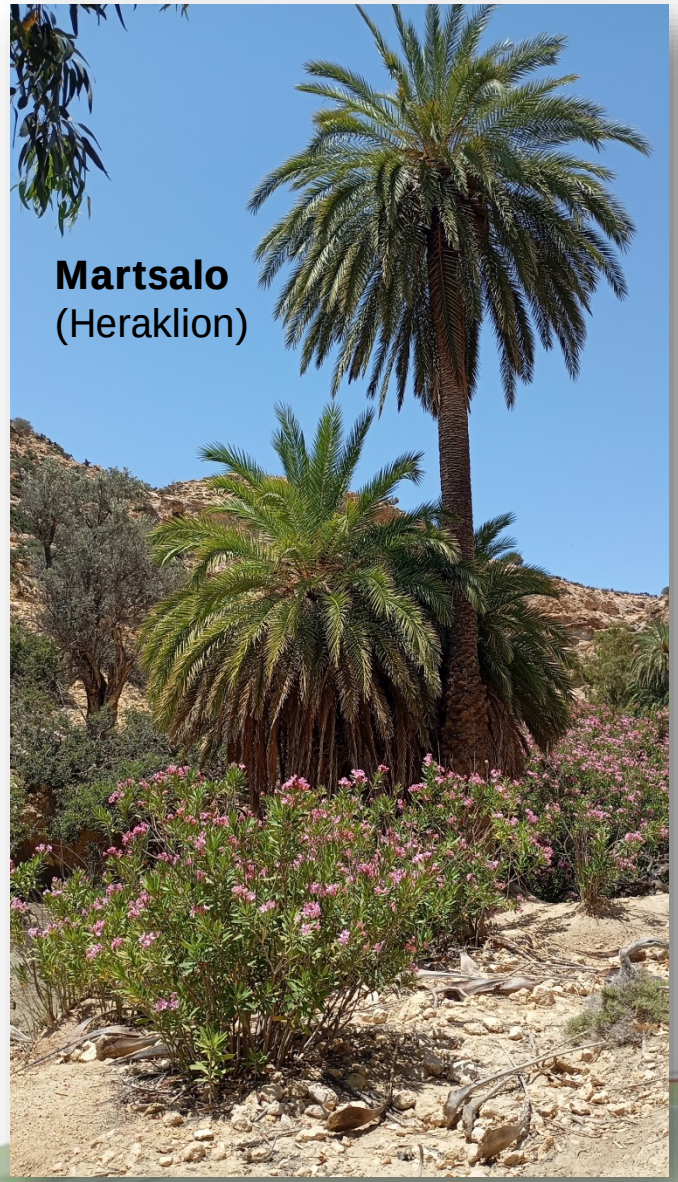
1. The Vai palm forest - the largest population in the entire species' range;
2. Agios Nikitas - small population, quite compact;
3. Martsalo Gorge - the smallest population in Crete;
4. Preveli palm forest - the second largest population;
5. Souda in Plakias - medium population size;
6. "White beach" of Chrysoskalitissa - very small, sparse and fragmented population.



Objectives of LIFE Phoenix project

Aim of the **LIFE Phoenix project** is to improve the conservation status of Priority Habitat 9370* in the islands of Gran Canaria (ES) and Crete (GR) by developing a **comprehensive strategy** including: **a)** mitigation of the main general risks (droughts, forest fires, overgrazing, visitors' pressure, hybridization); **b)** restoration of natural palm groves through appropriate management techniques; **c)** prevention and control of pests and IAS; and **d)** reforestation, environmental governance and awareness rising.

Main Threats



1. Overgrazing:

- Destroys young vegetation and small palm seedlings;
- reduces regeneration;
- depletes soil nutrients.

Impedes habitat restoration

Main Threats

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2. Uncontrolled tourism:

- contributes to trampling and soil compaction;
- illegal camping;
- pollution.

Further degradation of Palms' habitat

Preveli – Kourtaliotis gorge (Rethymno)

Main Threats

3. Infestation of *Rynchophorus ferrugineus:*

one of the most dangerous pests that threatens palm trees, causing internal damage to the trunks and leaves.

Leads to death of the palm

Red weevil caught in the Vai palm forest (eastern Crete) in 2024

Main Threats

4. Invasive alien species

Eucalyptus spp. (invasive) **compete for resources (water)**

changing the ecosystem dynamics

5. Climate change: increasing drought, fires, soil erosion → affect the health of palm trees.

6. Hybridization: with non-native species (hotels, gardens, etc.) → risk of genetic modification of natural populations.

Baseline Studies

1. Genetic Diversity and Hybridization

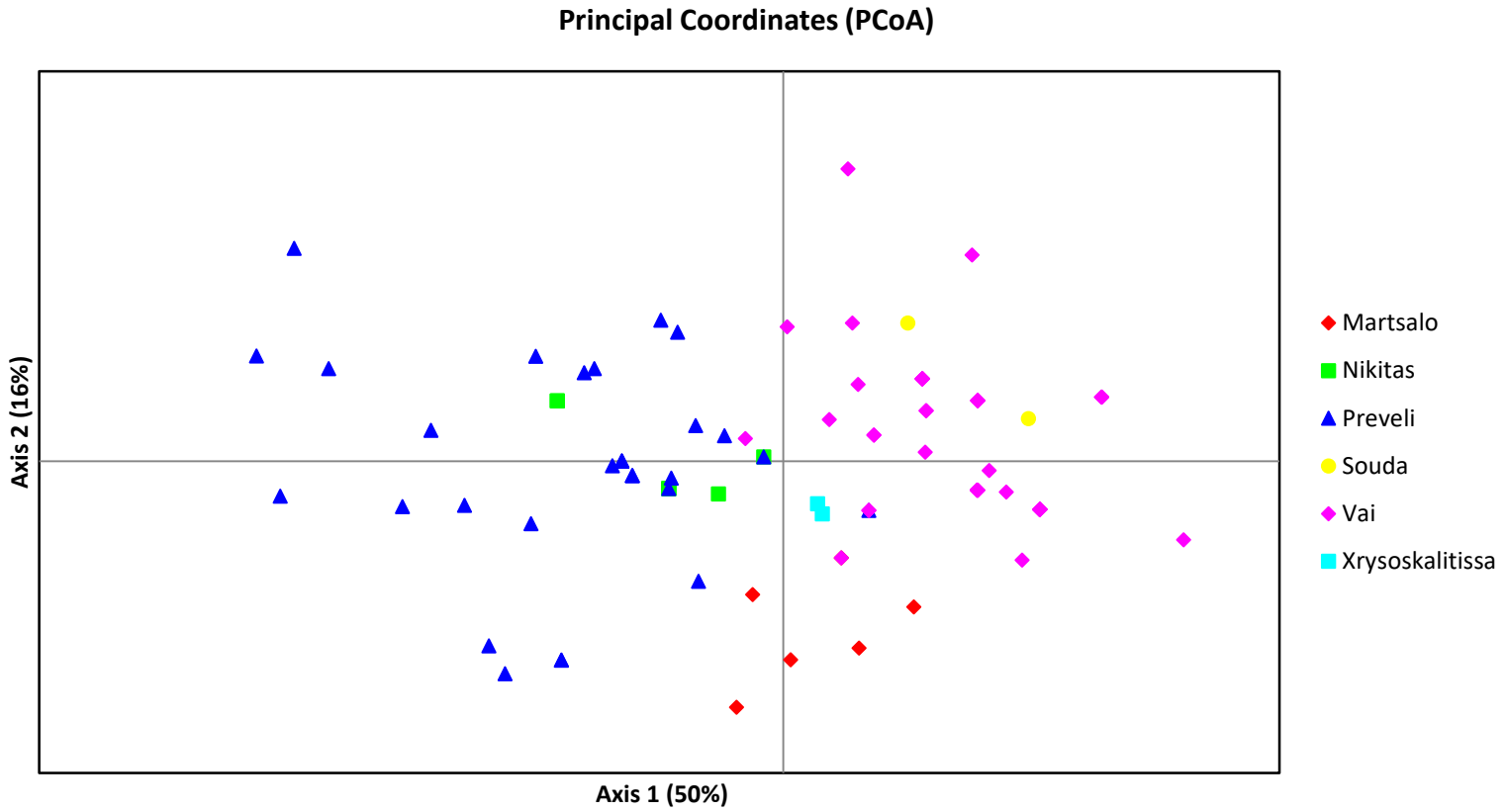
1. Investigate the genetic diversity of the populations of Cretan palm.

2. Check potential hybridization between *Phoenix theophrasti* with other *Phoenix* species.

Results

1. **<u>Very low genetic diversity.</u>** Almost no differentiation found between the populations of the island.

Populations of **Vai** (eastern Crete) and **Preveli** (south-central Crete) seem to have a slight differentiation, but still insignificant.



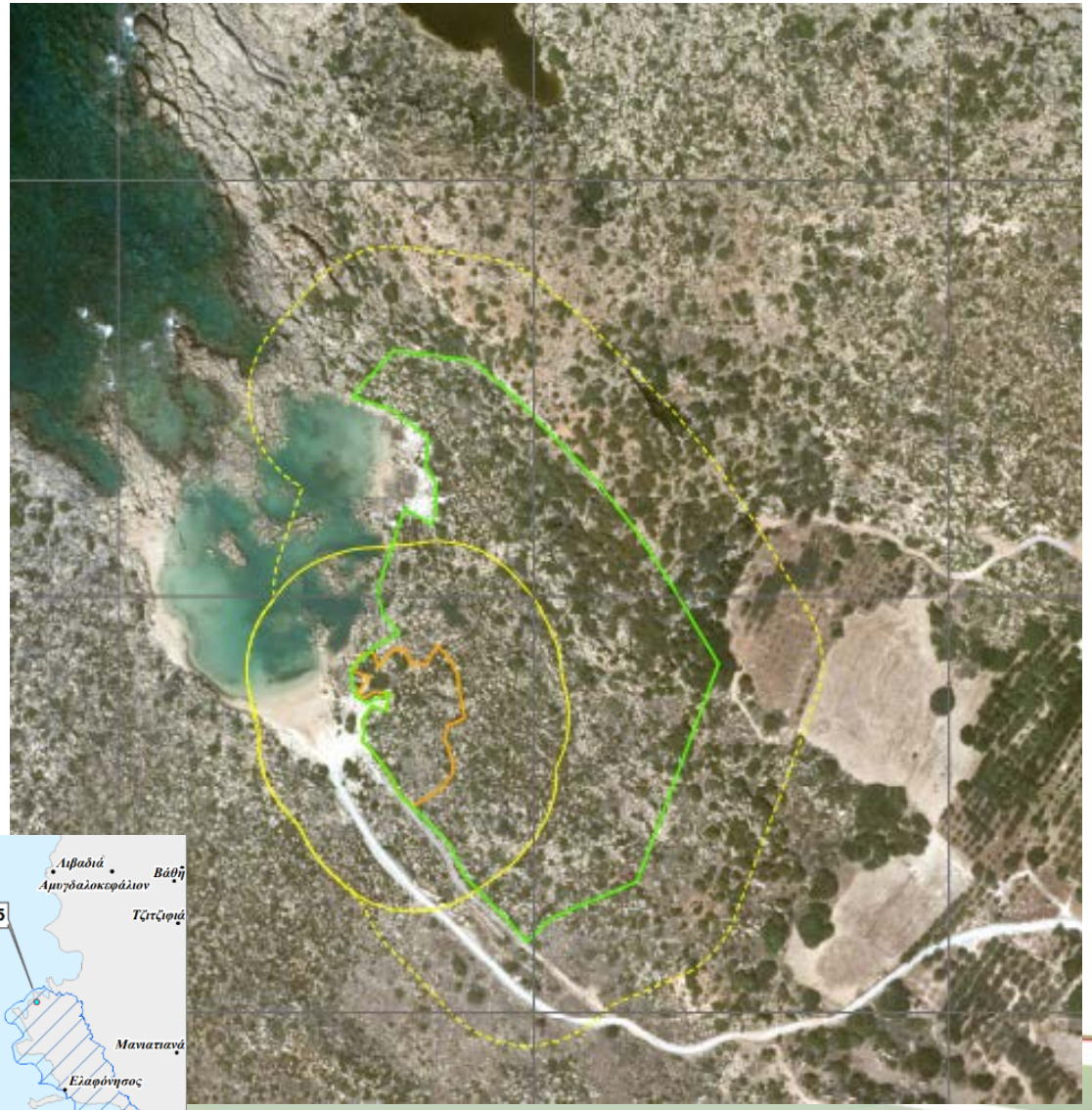
2. **<u>No indication of hybridization with other *Phoenix* species.</u>**
   Natural populations are genetically distinct. Caution is needed to avoid the possibility of hybridization in the future.

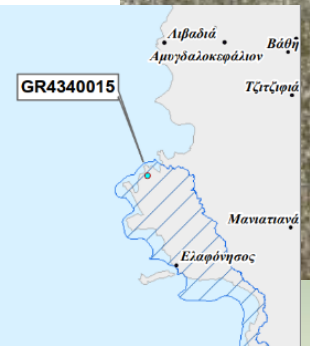
2. Monitoring and recording *Rynchophorus ferrugineus* beetle

Aim→ Detailed field survey and study on the existence and condition of the red beetle in the six (6) palm populations in Crete.

Only in Vai palm forest the red beetle was observed and recorded

9370* stands in Chrysoskalitissa GR4340015 Chania



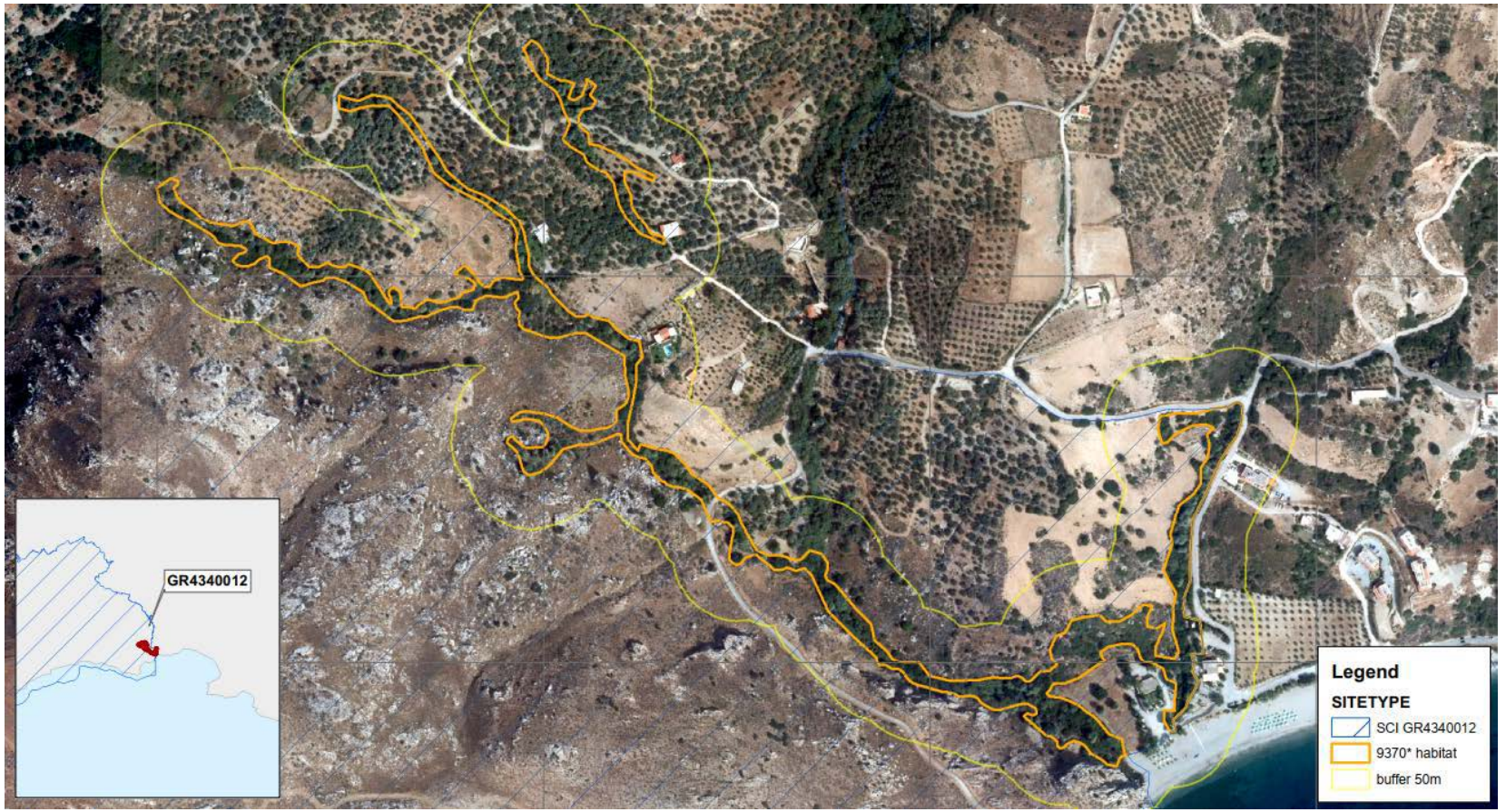


- **Overgrazing**
- **Tourism**
- **Climate change (already degraded ecosystem)**
- Wildfires
- Pests (NO)
- Hybridization (NO)

Future plans

- **Hand pollination**
- **Fencing / protection of grazing**
- **Greening – enrich populations with new plants *(500 new siblings)***
- **Vegetation removal around the 70 *P. theophrasti* individuals**
- **Information / Interpretation Board**

Souda – Plakias GR4340012
RETHYMNO



- **Wildfires**
- **Tourism**
- Overgrazing
- Climate change
- Pests (NO)
- Hybridization (NO)

Future plans

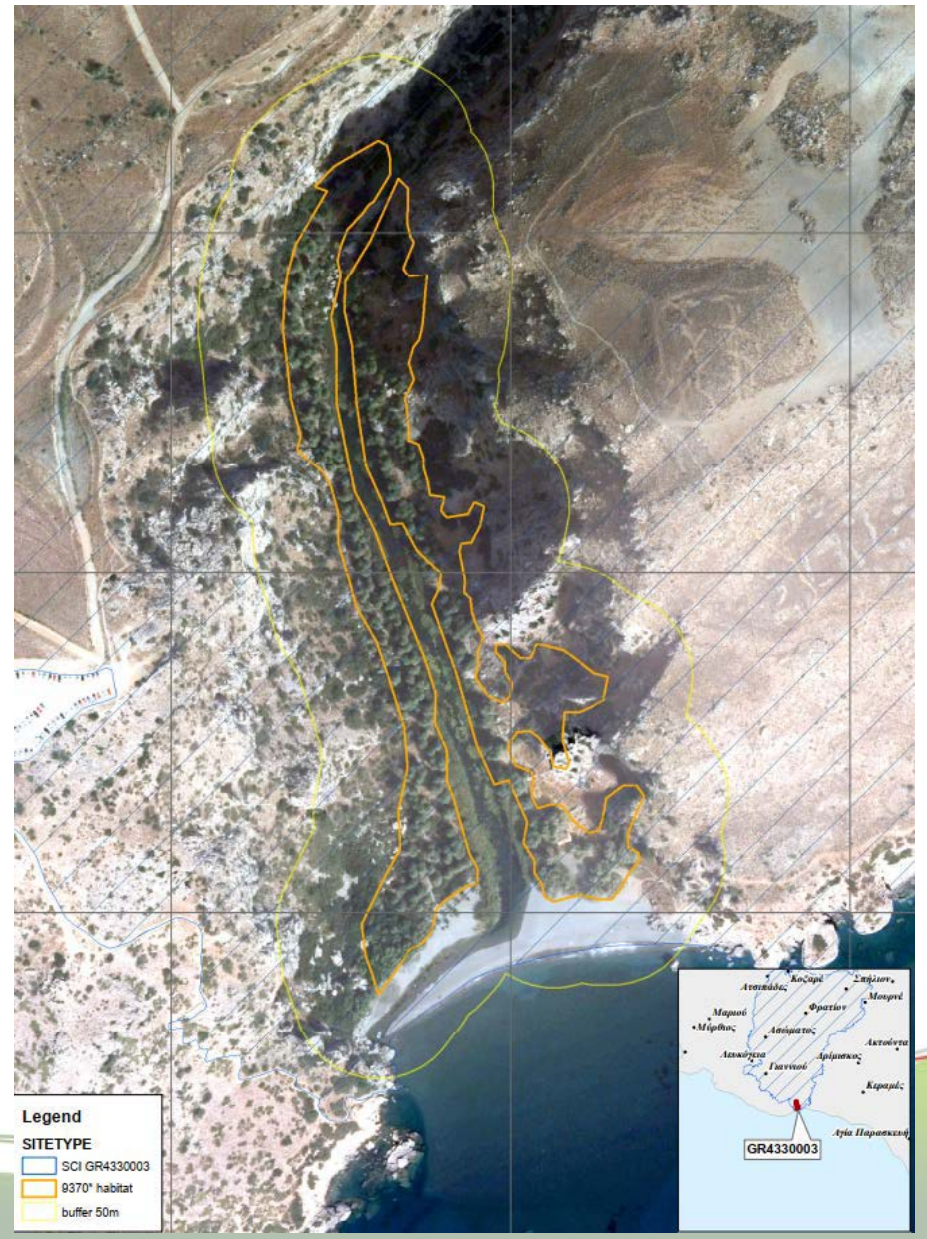
- **One Information Board**
- **No fencing, as *P. theophrasti* clusters are into ravines and properties**
- **Extended water tank network, based on olive trees irrigation system of local monastery**

Preveli GR4330003
RETHYMNO

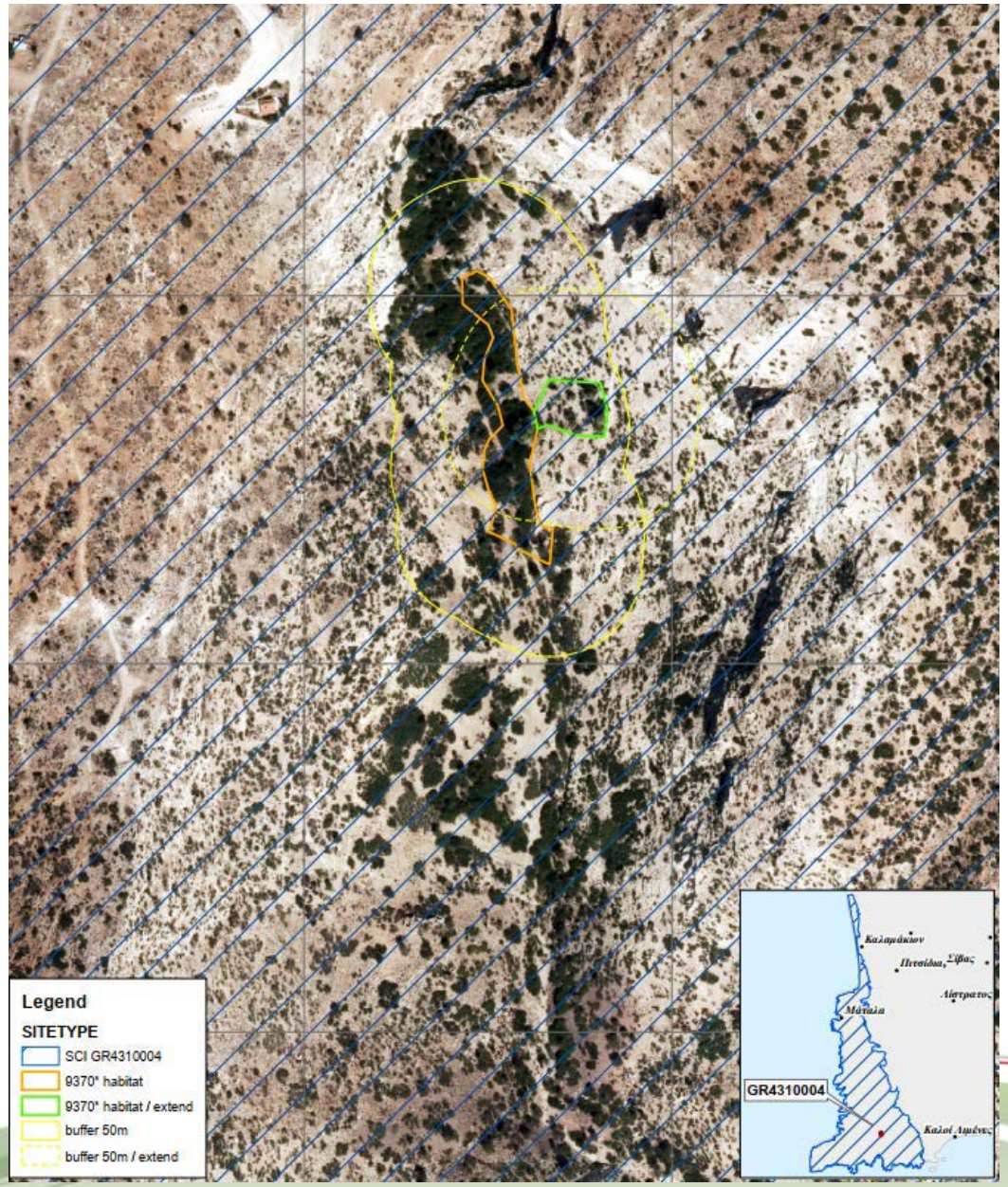
- **Tourism**
- **Wildfires**
- Climate change
- Pests (NO)
- Hybridization (NO)

Future plans

- **Paths along the riverbanks, 920 m in total**
- **Fencing 170 m**
- **2 Information / Interpretation boards**



Martsalo Gorge GR4310001
HERAKLION



- Overgrazing
- Climate change
- Wildfires
- Pests (NO)
- Hybridization (NO)

Future plans

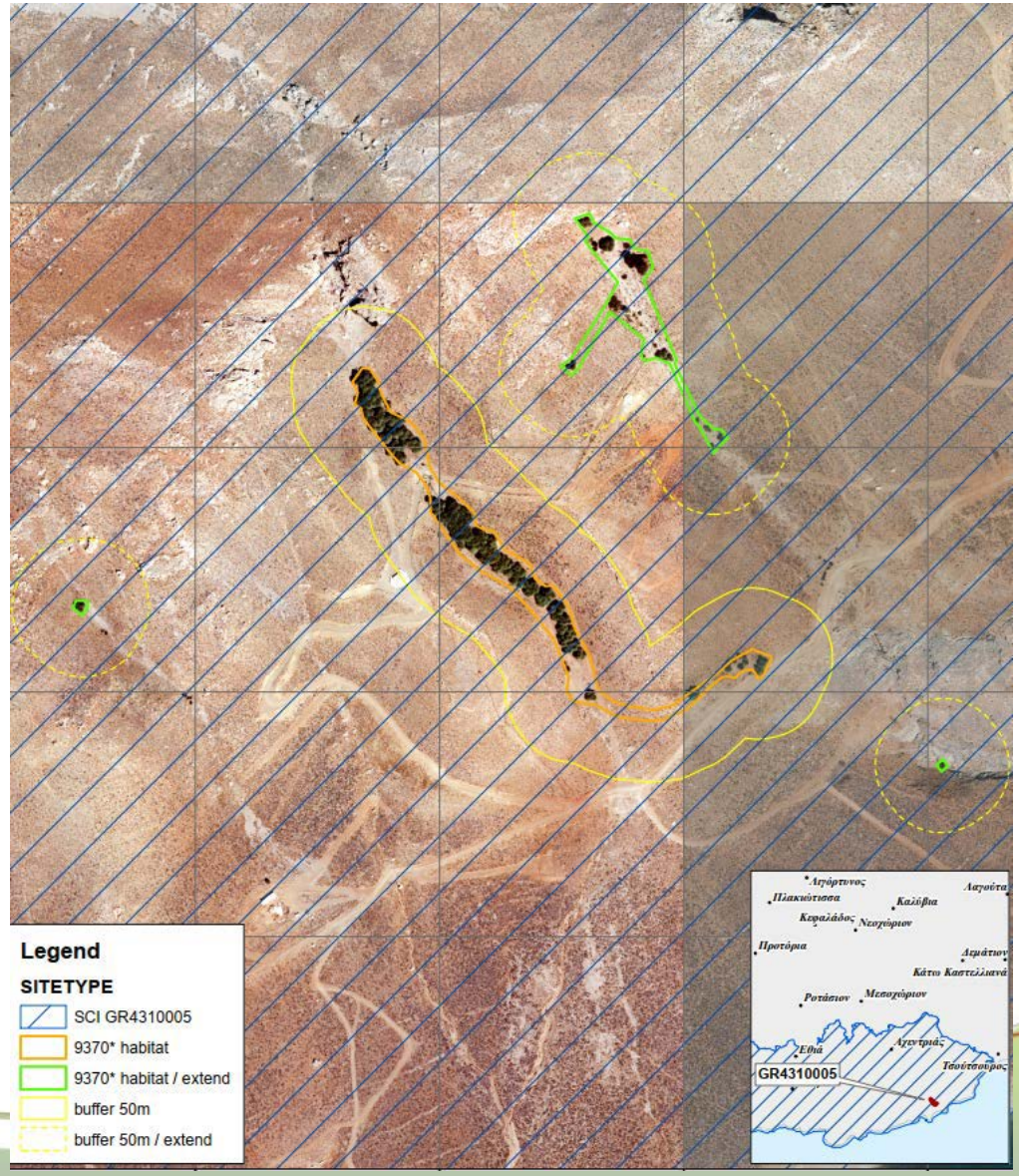
- **Habitat expansion based on *Phoenix* presence**
- **Enrich population with new plants**
- **Proper fencing / protection of grazing**
- **Anti-erosion measures**
- **Dry wall construction**
- **Wire mesh gabions**
- ***Eucalyptus sp.* removal**
- **Information Board**

Agios Nikitas GR4310005
HERAKLION

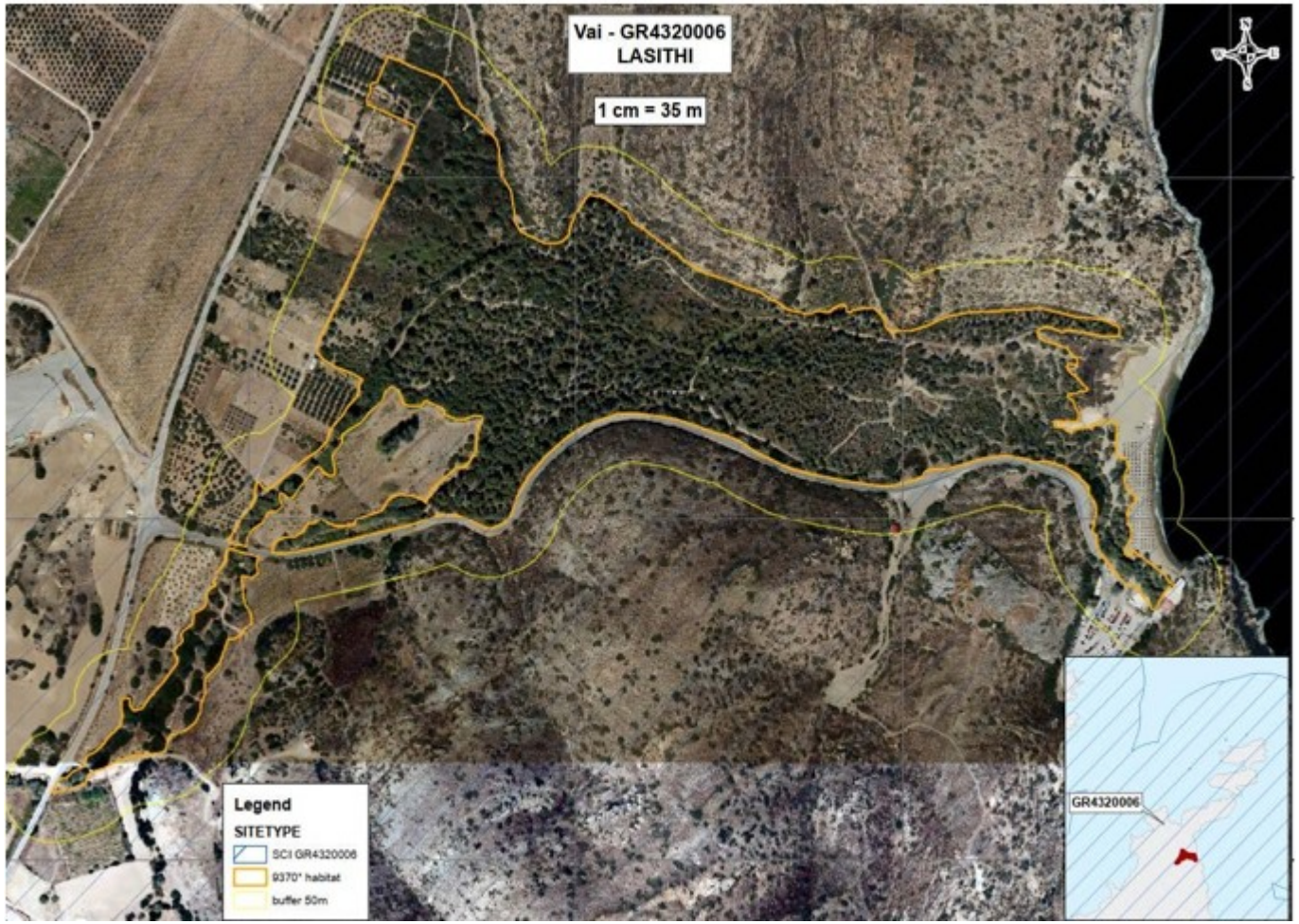
- **Overgrazing**
- **No Regeneration**
- **Breached fences**
- **Climate change**
- Wildfires
- Pests (NO)
- Hybridization (NO)

Future plans

- **Habitat expansion based on *Phoenix* presence**
- **Enrich populations with new plants *(520 new siblings)***
- **Fencing / protection of grazing**
- **Water tank installation & repairs on existing ones**
- **Information / Interpretation Board**



Vai GR4320006
LASSITHI



The most extensive and well-known palm forest of *Phoenix theophrasti* n Europe

- **Pests**
- **Hybridization (NO)**
- **Tourism**
- Climate change
- Wildfires

Future plans

Pest control for 2024

- **300 pheromone traps in radius of 5 km (already installed)**
- **Pest control for 2025 (Continuation)**

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Thank you

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Cabildo de Gran Canaria

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ICIA Instituto Canario de Investigaciones Agrarias

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ULPGC Universidad de Las Palmas de Gran Canaria

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