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# Recovery and Conservation Plan for the species of Dunes, Sandbanks and Coastal Cliffs in Andalusia

**Fernando Sanz[1], Hedwig Schwarzer[2], Miguel Arrufat[2], Laura Fernández[2], Guillermo Ceballos[1] & Working team of the Recovery and Conservation Plan for the species of Dunes, Sandbanks and Coastal Cliffs in Andalusia.**

[1]Consejería de Sostenibilidad, Medio Ambiente y Economía Azul, Junta de Andalucía, Spain.
[2]Agencia de Medio Ambiente y Agua de Andalucía, Junta de Andalucía, Spain.

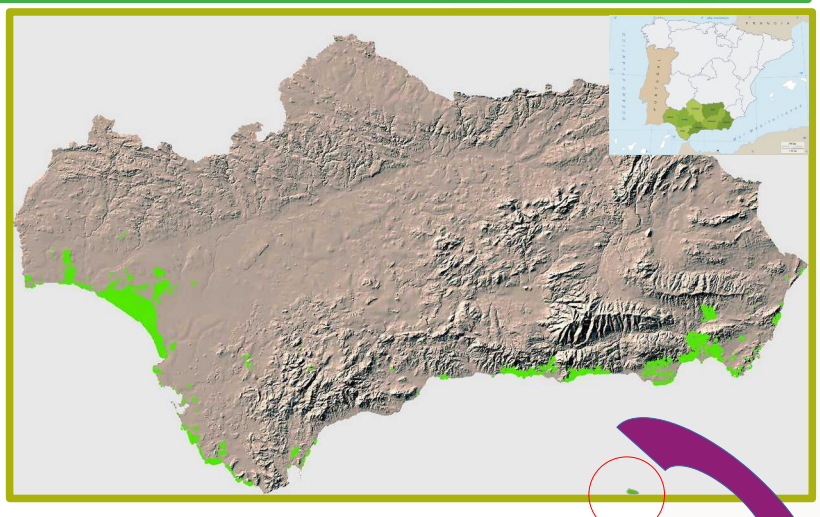
**OBJECTIVE**: To improve the conservation status of the endangered species of the Andalusian coast included in the Andalusian Catalogue of Endangered Species.

**MEASURES**:
✔Determine the criteria to establish at what point a species can be reevaluated.
✔Improve habitats and ecosystems.
✔Improve the conservation status of populations.
✔*Ex situ* conservation measures. To conserve the greatest genetic variability of the populations and to develop protocols related to the reproduction of the species.
✔Detect trends, threats and advance in the knowledge of the species.
✔Describe the most urgent lines of research to improve species management.
✔Connect with society. To raise awareness of the importance of the ecosystem values of the coastline and the conservation of its species and habitats.
✔Cooperation and coordination. Improve communication between administrations, as well as other sectors of society.

**SCOPE OF ACTION:** Andalusia, with more than 1,000 km of coastline is home to a great diversity of habitats and taxa, many of which are endemic. The white and gray dunes, the Mediterranean salt steppes, the argal groves, or the coastal formations of pine forest, juniper, cork oak and wild olive grove are of great interest and are home to most of the **36 species in the Plan.**

**Main threats:**
✔Habitat loss (Urban development; Intensive cultivation; Roads and highways).
✔Comunication infrastructures, irrigation and agricultural management.
✔Excesive public use.
✔Competition with invasive exotic species.
✔Poor silvicultural practices.

**Some strengths:**
✔Good number of localities in Protected Areas.
✔Opportunity to take advantage of the maritime-terrestrial public domain.
✔Opportunity to take advantage of publicly owned forests, military outpost, etc.



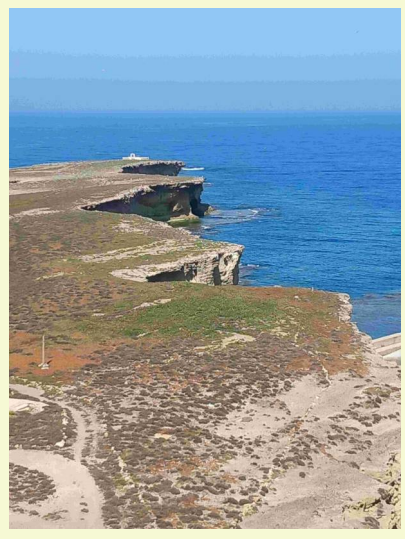
## CASE STUDY: CONSERVATION ACTIONS AND MONITORING OF THE SPECIES *DIPLOTAXIS SIETTIANA*, *SENECIO ALBORANICUS* AND *ANACYCLUS ALBORANENSIS* IN ALBORAN ISLAND.

Alboran Island is home to the only known natural populations of three plant endemic species that are currently protected by current legislation on the conservation of flora: *Diplotaxis siettiana* (EN), *Senecio alboranicus* (VU), *Anacyclus alboranensis* (VU). A permanent naval detachment has been stationed on this small island (7.12 ha) since 1997. The collaboration of the Ministry of Defense is key to the preservation of the island's biodiversity and the success of conservation measures.

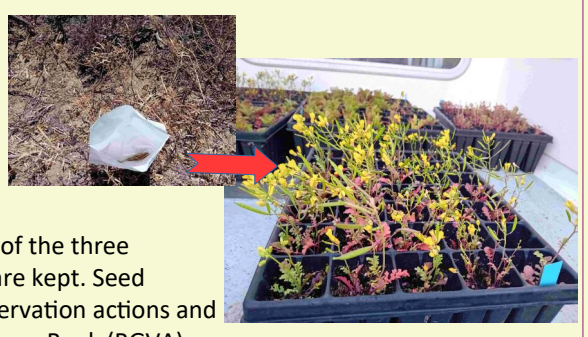
*Diplotaxis siettiana* in flower and developing siliques

*Senecio alboranicus.* Detail of flower heads

*Anacyclus alboranensis* in full flower



### Seed collection and living collection in the Botanical Garden of El Albardinal (Almeria)

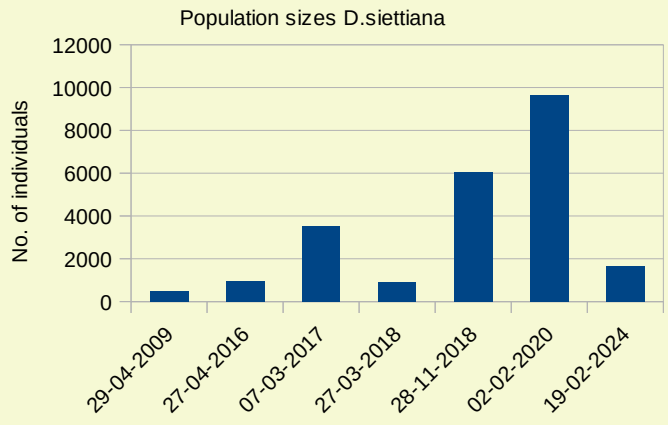


*Diplotaxis siettiana*

At the JB El Albardinal living collections of the three catalogued species present in Alborán are kept. Seed collections are also carried out for conservation actions and storage in the Andalusian Plant Germplasm Bank (BGVA).

### Monitoring of *Diplotaxis siettiana*

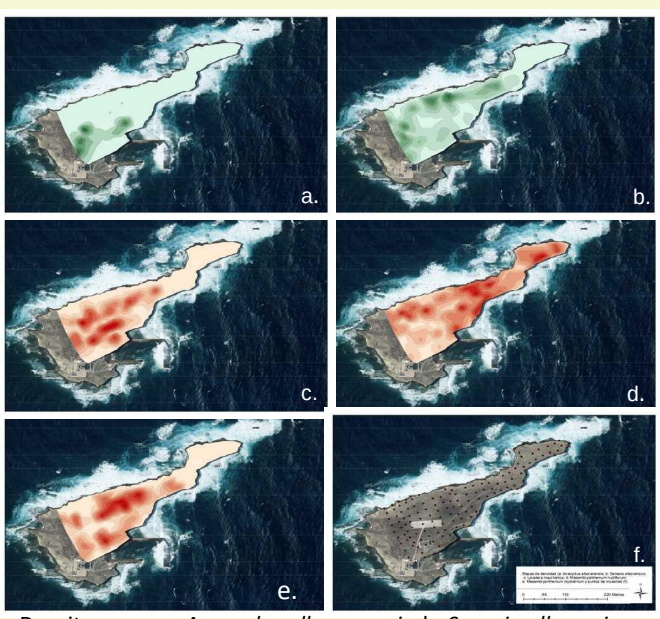
Although with intra- and inter-annual fluctuations, since it was declared extinct and after several reintroductions, the resulting data show population sizes exceeding 1,500 individuals in recent years.




### Fixed monitoring plots and density maps of target species and competitor species

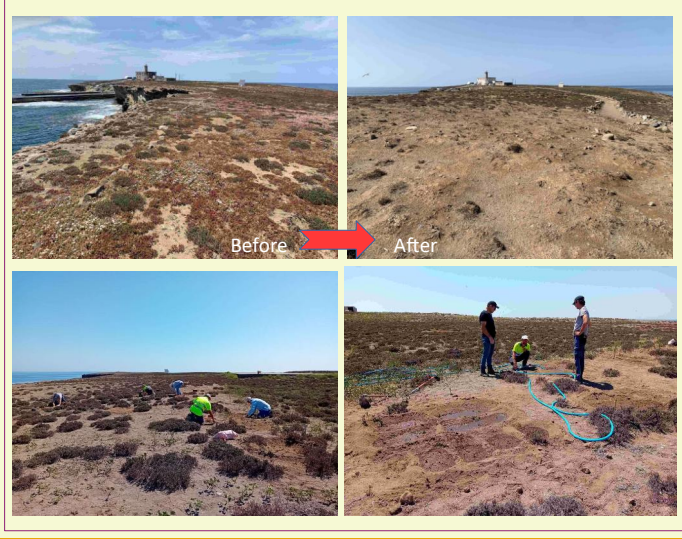
In 2018, four fixed plots of 25 m² were established to assess the impact of *M. crystallinum* on the plant community.

On the oder hand, the density maps obtained and their repetition in the future will provide us with sufficient information on the advance or retreat of both threatened and competing species.




Density maps. a: *Anacyclus alboranensis*; b: *Senecio alboranicus*; c: *Lavatera mauritanica*; d: *Mesembryanthemum nodiflorum*; e: *Mesembryanthemum crystallinum* and sampling points (f).

### *In situ* conservation actions. Elimination of exotic and competing species and population reinforcement




During 2024 important actions have been undertaken such as the control of *M. crystalinum* and the population reinforcement of the three endangered species within the Proyect for the restauration and conservation of the dock and cliffs of Alboran island (Directorate General for Sustainable Fisheries. Ministry of Agriculture, Fisheries and Food (MAPA).

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