

A pilot network of coastal plant micro-reserves in tourist areas of Western Crete - GR

1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space

2. Key Approaches

- Participation
- Ecosystems based approach

3. Experiences that can be exchanged

Developing plant micro-reserves as a means to conserve rare and threatened coastal plant species of national and Community importance particularly where other uses add to the pressure. Potential for transfer nationally and internationally is great - in Greece alone there are more than 1000 endemic species which require protection.

4. Overview of the case

On Crete, a network of plant micro-reserves were established as a means to conserve a number of coastal species threatened by tourism and other land uses. Management plans were developed and a mechanism to warden the areas and guarantee their long-term survival.

5. Context and Objectives

a) Context

The idea of establishing Plant Micro-Reserves (PMR) is a recent, novel approach to the conservation and management of rare and threatened plant species and other important plant populations. The concept emerged around 1990 in the Valencia region of Spain and was first put into practice in 1994. Micro-reserves are areas of less than 20 ha and are ideally used in a network, with the aim of preserving a selected sample of the rarest or most threatened plant species in that area. They can be used to provide germ-plasm to wild-plant seed banks and to develop into focal points for plant-conservation activities. Their aims make them complementary to the large-site strategy of Natura 2000. During the past decade, the concept has received Europe-wide recognition. But apart from the extended network in Valencia, few PMRs have actually been implemented. This was the first attempt to apply this innovative concept in Greece.

The island of Crete is situated in the southernmost part of Greece and hosts an amazingly large part of the Greek endemic flora. The western part of the island (Prefecture of Chania), in particular, constitutes a plant biodiversity 'hotspot', as within its boundaries 6 of the 28 Community priority plant species of Greece as well as 4 Community priority coastal habitats (Posidonia beds, coastal dunes with Juniperus spp., Mediterranean temporary ponds and Palm groves of Phoenix) occur.

b) Objectives

The initiative aimed to create a pilot network of coastal plant micro-reserves in Western Crete, all within the boundaries of four proposed Sites of Community Interest (SCIs). The objectives were to preserve rare species that form part of the area's natural heritage and to collect data that would inform future regional and national biodiversity planning.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

The partners who participated in the designation and implementation of this initiative were the National and Kapodistrian University of Athens, the Mediterranean Agronomic Institute of Chania and the Forest Directorate of Chania. The latter will continue to play a key role in the subsequent management of the PMRs. There was also a significant contribution to this effort by local authorities viz. the Municipalities of Inahorion, Sfakia, Kissamos and An. Selino.

b) ICZM tools

One of the micro-reserves was to cover an area of Phoenix palm groves – a priority habitat. The others would each conserve a priority plant species of the Habitats Directive 92/43/EEC. These were:

- *Androcymbium rechingeri*: a small, bulbous plant found only in coastal areas of Western Crete but now suffering badly from the effects of tourism.
- *Anthemis glaberrima*: a small annual which grows only among the calcareous coastal rocks of the island's north-west corner. It is considered one of the 50 most threatened Mediterranean island plants.
- *Hypericum aciferum*: a perennial shrub found on coastal rocks in the south-west of the island and, like the others, nowhere else in the world.

The project succeeded in identifying and characterising priority plant species and establishing micro-reserves to protect them. It marked a significant advance for the Habitats Directive. Priority plant species were successfully propagated in-situ and mechanisms were introduced to ensure their long-term conservation. The project mapped the seven PMRs - producing detailed digital maps - and properly enclosed or marked them with signs and information boards to avoid interference by visitors and tourists. Low-level management initiatives were carried out to favour the targeted plants. In addition, nine meteorological micro-stations were set up with environmental sensors, data-loggers and video cameras to help monitor the sites. These will continue to provide invaluable information for the future protection of the plant life. Reports were compiled on the genetic diversity of the targeted plants. Seeds were collected, stored and germinated for further study and re-planted at other sites. All but one - the palm trees - of the target species were successfully re-planted, including in two Alpine Botanical Gardens established as part of the initiative.

To ensure real long-term conservation of the flora at the micro-reserve sites, each one now has a management plan and an on-site warden. Legal protection was also achieved by having the areas proclaimed as Wildlife Refuges within existing regional legislation. They can now be protected by the local forestry services. These measures will seek to tackle the ongoing challenges facing the sites and their flora. These include the persistent threat that the palms may become extinct because there is no natural regeneration and attempts at artificial reproduction have not succeeded.

The maintenance and possible future expansion of the PMR network in Western Crete is considered to perform best within a framework of sustainable local development, a framework that would be friendlier both to local communities and natural habitats. This pilot promoted alternative, mild economic activities in the area, especially in the sector of tourism e.g. co-operation with tourist agents, groups of alternative tourism (hikers, alpinists, cyclists) in order to enhance tourists' interest and awareness regarding the natural environment of Western Crete and the conservation actions taken. Co-operation with municipalities for the distribution of information leaflets in tourist points also took place as did information meetings with other professional groups (stock-breeders, farmers, trade associations) towards achieving the widest possible social consensus. To raise awareness of the sites and the plants, a permanent exhibition and visitor centre was established at the botanical gardens. To strengthen broader public awareness, a clear and informative website was set up in Greek and English.

7. Cost and resources

The total budget was € 931,650 of which there was a Life contribution of €698,738.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

Identifying and characterising priority plant species and establishing micro-reserves to protect them was carried out as planned.

9. Success and Fail factors

The most significant factor was setting up a mechanism that would allow the further policing and maintenance of the PMRs set up.

10. Unforeseen outcomes

None so far.

11. Prepared by

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12. Verified by

It has not been possible to verify this case.

13. Sources

- A pilot network of plant micro-reserves in Western Crete (2008) National & Kapodistrian University of Athens



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