



ENSC news

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The significance of the flora from the Lefka Ori (White Mountains) in Crete, Greece and activities undertaken for its conservation



Ranunculus radinotrichus

Lefka Ori mountain massif is located in the western part of the Crete island of Greece (Prefecture of Chania) and belongs to the NATURA 2000 network (code GR4340008, surface of 54283ha). The site has a very variable geo-morphological profile, with 50 summits of altitude greater than 2000m, and a great number of gorges (approximately 20) of which, the Samaria Gorge is the most characteristic and famous. There are also a great number of ravines, caves, dolines, potholes, poljes, and plateaux forming a sequence of different habitats from sea level to 2453m. (Dafis *et al.* 1996)

Among the 178 Cretan endemic plant species, 56,6% (101) are found at the Lefka Ori site. Of these, 30 species are endemic to the area (Turland *et al.*, 1993).

According to "The Red Data Book of Rare and Threatened Plants of Greece", 67 threatened plant species are found in Crete of which 30 occur in the area of the Lefka Ori mountain massif. The total number of Cretan endemic and threatened plants in the Lefka Ori region is 108 (Phitos *et al.*, 1995).

Six plant species listed in Annex II of the "Habitat Directive" (EEC/92/43) have been recorded at the Lefka Ori site: *Bupleurum kakiskalae* (local endemic), *Nepeta sphaciotica* (local endemic), *Hypericum aciferum* (local endemic), *Cephalanthera cucullata*, *Zelkova abelicea* (the unique endemic tree of Crete), *Origanum dictamnus*, and an additional species, *Centaurea lancifolia*, is included in Annex IV.

A low human presence (mainly in coastal areas) and a very sparse network of secondary roads are the only visible signs of people in the area. Several areas of the site are protected by the Greek Law as Archaeological Sites, Historical Sites and Special Natural Beauty Landscapes.

The Samarian Gorge (4850ha of the site), besides being a Special Protection Area (SPA) for birds, it has been declared a National Park since 1962, has been designated as a Biosphere Reserve, has also been awarded the European Diploma of the Council of Europe, and is protected by the Barcelona Convention.

An essential element of the site's importance, in addition to its biodiversity, is that it is a vast area with low human impact and it includes many important biotic and non-biotic natural elements. The combination of all these factors results in a site of extreme natural beauty.

The major human impacts on the site of Lefka Ori is from livestock overgrazing, which in some cases is accompanied by fire. The change from traditional livestock farming to more intense practices, as well as the construction of new roads for the transportation of fodder and products, even on the alpine zones, has been observed. In addition, in the same mountainous areas, an increase in the number of tourists (hill-walkers) has the po-



Alyssum fragillimum

tential to increase the number of related tourist activities such as the construction of small hotels, new roads and paths, etc.

The first effort for the *ex situ* conservation of the endemic and threatened plants of Lefka Ori began in 2000, with the establishment of the Seed Bank of the Mediterranean Agronomic Institute of Chania (MAICh).

To date, 77 taxa have been collected and preserved. Many of them are cultivated in the Botanic Garden of MAICh and of the Forest Directorate of Chania in the area of Omalos, near the entrance of the Samarian gorge.

Currently, the National and Kapodistrian University of Athens in collaboration with MAICh and the Forest Directorate of Chania are implementing a LIFE-NATURE project named "CRETAPLANT – A pilot network of Plant Micro-Reserves in Western Crete" (LIFE04/NAT/GR/ 000104) (<http://cretaplant.biol.uoa.gr>). The main objective of the project is the protection of the six threatened Cretan endemic plants (Annex II* of Habitats Directive) and of one priority habitat.

In the framework of this project, four micro-reserves have been established in the area of Lefka Ori, for the *in situ* protection of *Hypericum aciferum*, *Bupleurum kakiskalae*, *Nepeta sphaciotica* & *Cephalanthera cucullata*, naturally grown in very restricted areas. In these micro-reserves, other important plants are also protected along with the above mentioned priority species. An interesting example is that in the micro-reserve of *Nepeta sphaciotica*, in an area of 4.8ha on the summit Svourichti of Lefka Ori, at 2300m altitude, 37 other endemic and threatened plant species are located and protected as well (MAICh, 2005).

The above conservation efforts represent only the beginning: many more things have to be done for the protection of all these valuable plant species of Lefka Ori, having in mind that several of these possess too restrict populations, other are alpine plants which are expected to be directly influenced by climate change while others will face immediate threats by human activities as they become more and more intense in the area.

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Anchusa caespitosa

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