
Conservation for Cyprus flora and habitats: from scattered and fragmented conservation actions to holistic management



4th Mediterranean Plant
Conservation Week

VALÈNCIA | 23-27 OCTOBER | 2023

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Frederick University

October 2023



πανδώτεια

NATURA2000 Η ΦΥΣΗ ΜΑΣ ΖΕΙ



FREDERICK UNIVERSITY



The Cyprus flora

- 1649 indigenous taxa and 276 introduced naturalised taxa.
- This plant diversity is comparable to the rest of the large Mediterranean islands



Endemism

- The endemic flora of Cyprus consists of **146** taxa.
- The endemism rate at species and subspecies level is 7.4% and 8.9% of the indigenous flora, respectively.
- These figures are within the typical rate of endemism of the Mediterranean islands (5.5-10%).

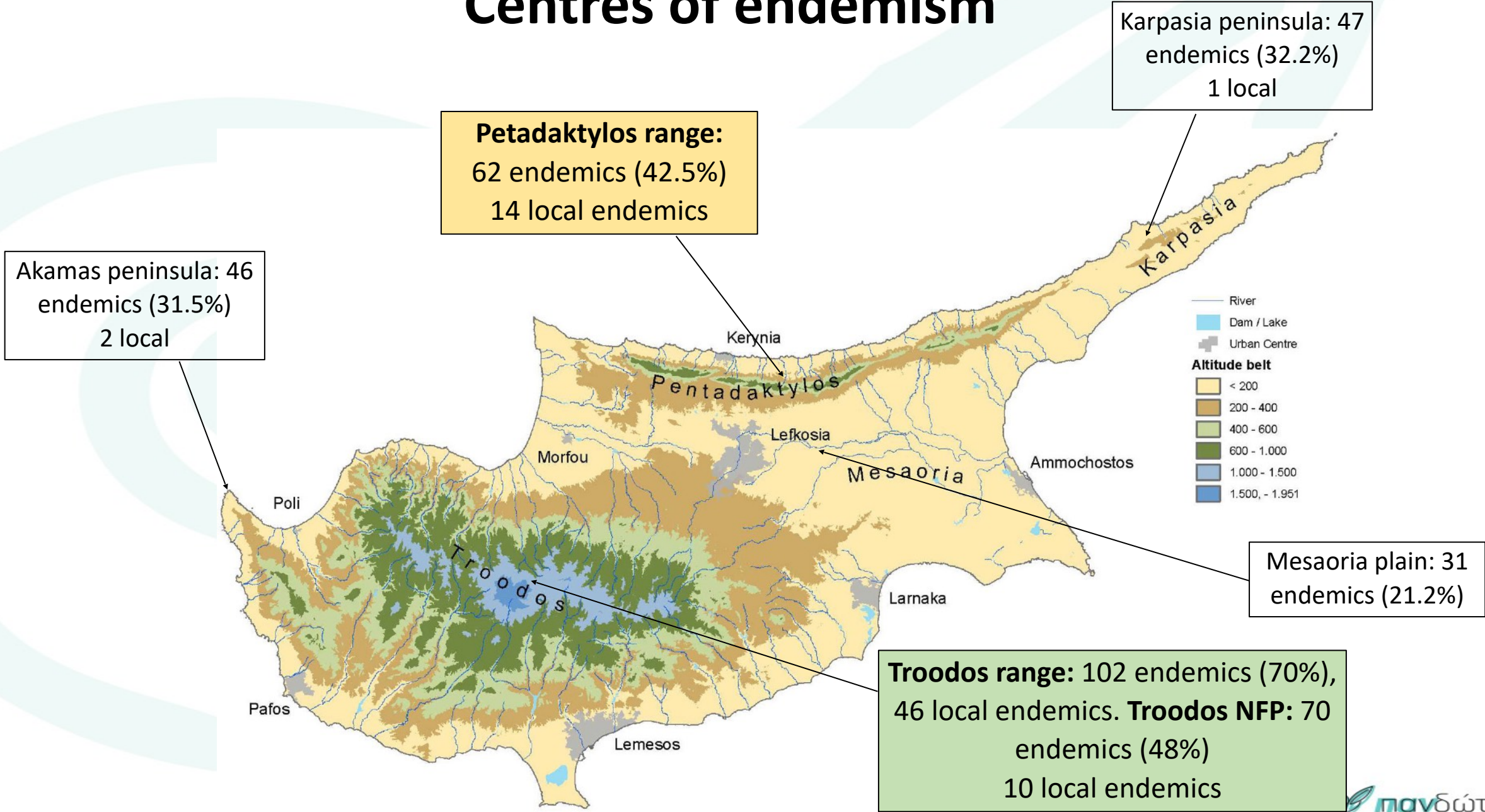


Orobanche chionistrae

Rostraria hadjikyriakou



Centres of endemism



Akamas peninsula: 46
endemics (31.5%)
2 local

Petadaktylos range:
62 endemics (42.5%)
14 local endemics

Karpasia peninsula: 47
endemics (32.2%)
1 local

**Troodos range: 102 endemics (70%),
46 local endemics. Troodos NFP: 70
endemics (48%)
10 local endemics**

Mesaoria plain: 31
endemics (21.2%)

Troodos range



Endemics of the Troodos range



Crocus cyprius (VU)



Onosma troodi (VU)



Alyssum troodi



Scilla lochiaie (VU)



Nepeta troodi



Origanum cordifolium (VU)



Erysimum kykkoticum (VU)

Pentadaktylos range



Endemics of the Pentadaktylos range



Brassica hilarionis (EN)



Salvia veneris (VU)



Sideritis cyprica (EN)



Onosma caespitosa (VU)



Teucrium kyreniea (LC)

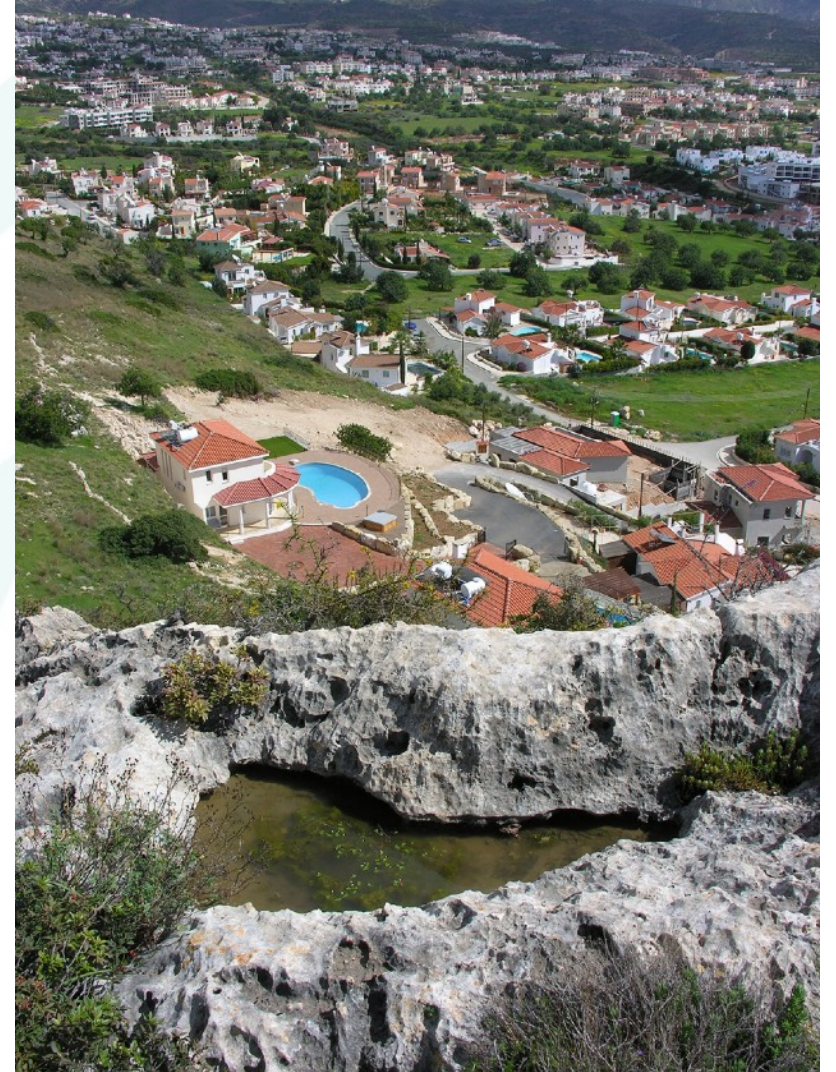


Dianthus cypricus

Main pressures and threats

- **Human activities:**
 - Building
 - Tourism development
 - Road construction
 - Quarrying
 - Agriculture (overgrazing, use of herbicides)
 - Over-collecting

Expansion of built-up area for tourism development



Main pressures and threats

- Climate change
 - rise of temperature
 - decrease of precipitation
 - mega-fires and desertification



Dieback of *Quercus alnifolia* due to prolonged drought
(2009, Machairas Forest)



Fire in *Pinus brutia* forest

Main pressures and threats

- Alien invasive species (*Acacia saligna*, *Ailanthus altissima*, *Dodonaea viscosa*, *Oxalis pes-caprae*...)



Invasion of *Acacia saligna* on sand dunes



Invasion of *Dodonaea viscosa* in phrygana

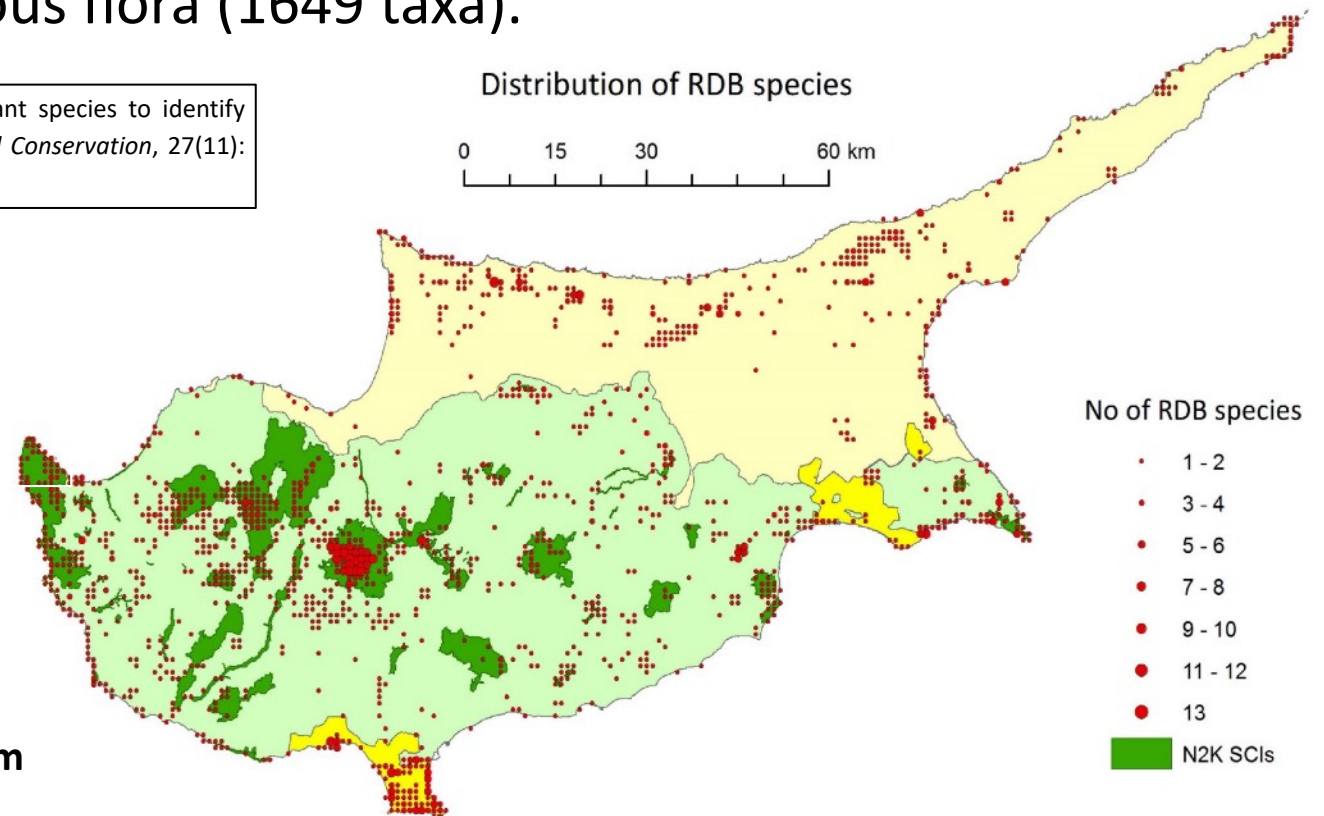
Threatened plants of Cyprus

- The **Red Data Book of the Flora of Cyprus** (published in 2007) includes 238 threatened taxa (Critically Endangered: 46, Endangered: 64, Vulnerable: 128)
- According to **new data published** the Red List includes 252 threatened taxa representing 15.3 % of the indigenous flora (1649 taxa).

Christodoulou C. S., Griffiths G.H. & Vogiatzakis I. N. 2018. Using threatened plant species to identify conservation gaps and opportunities on the island of Cyprus. *Biodiversity and Conservation*, 27(11): 2837-2858. DOI 10.1007/s10531-018-1572-4.

to the south: area under Cyprus government control (62%)
to the north: Turkish occupied area (35.2%)
in yellow: UK Sovereign Base Areas (2.8%)

Distribution map of RDB plants in grid cells of 1x1 km



History of plant conservation in Cyprus

Important milestones:

- 1879: Establishment of Department of Forest and first forest law
- 1884-1909: Mapping and delimitation of state forest land
- 1984: The first Nature Reserve (NR) for the protection of the endemic cedar forest
- 1985-2004: 6 more NR and 10 National Forest Parks followed
- 2003: Adoption (transposition to national legislation) of Habitats (92/43/EEC) and Birds Directives (79/409/EEC)

History of plant conservation in Cyprus

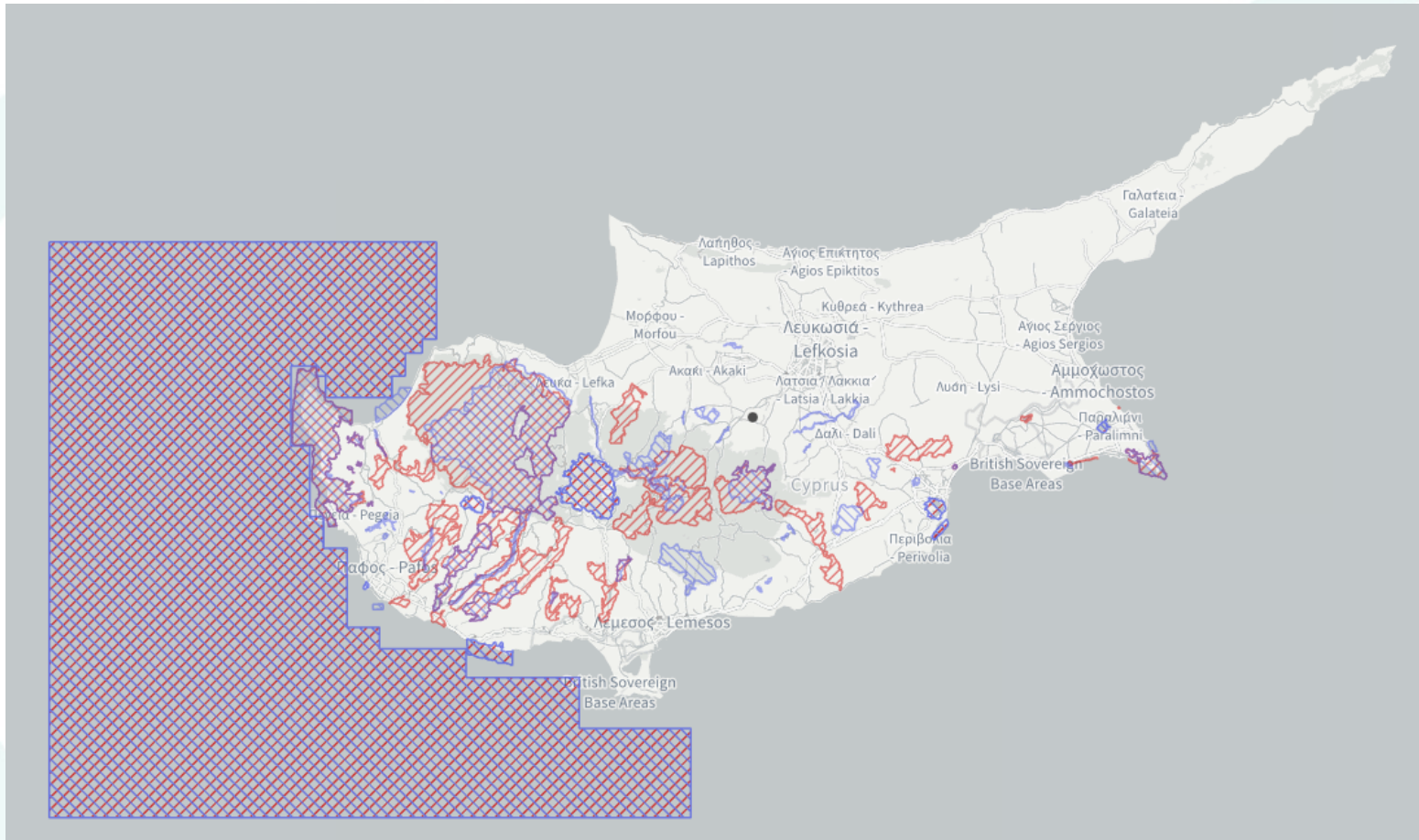
Important milestones:

- 2004: Establishment of Natura 2000 network
- 2005 – today: New academic units in Cyprus, focusing on biodiversity
- 2012: Revision of Forest Law providing more options for classification of state forests into protected areas such as Micro-Reserves

National Strategy and Action Plan for Biodiversity in Cyprus, 2020 - 2030



The Natura 2000 network (92/43/EEC)



Legend ⤴ ✕

Natura 2000 Sites (small scales)

Habitats Directive Sites (pSCI, SCI or SAC)

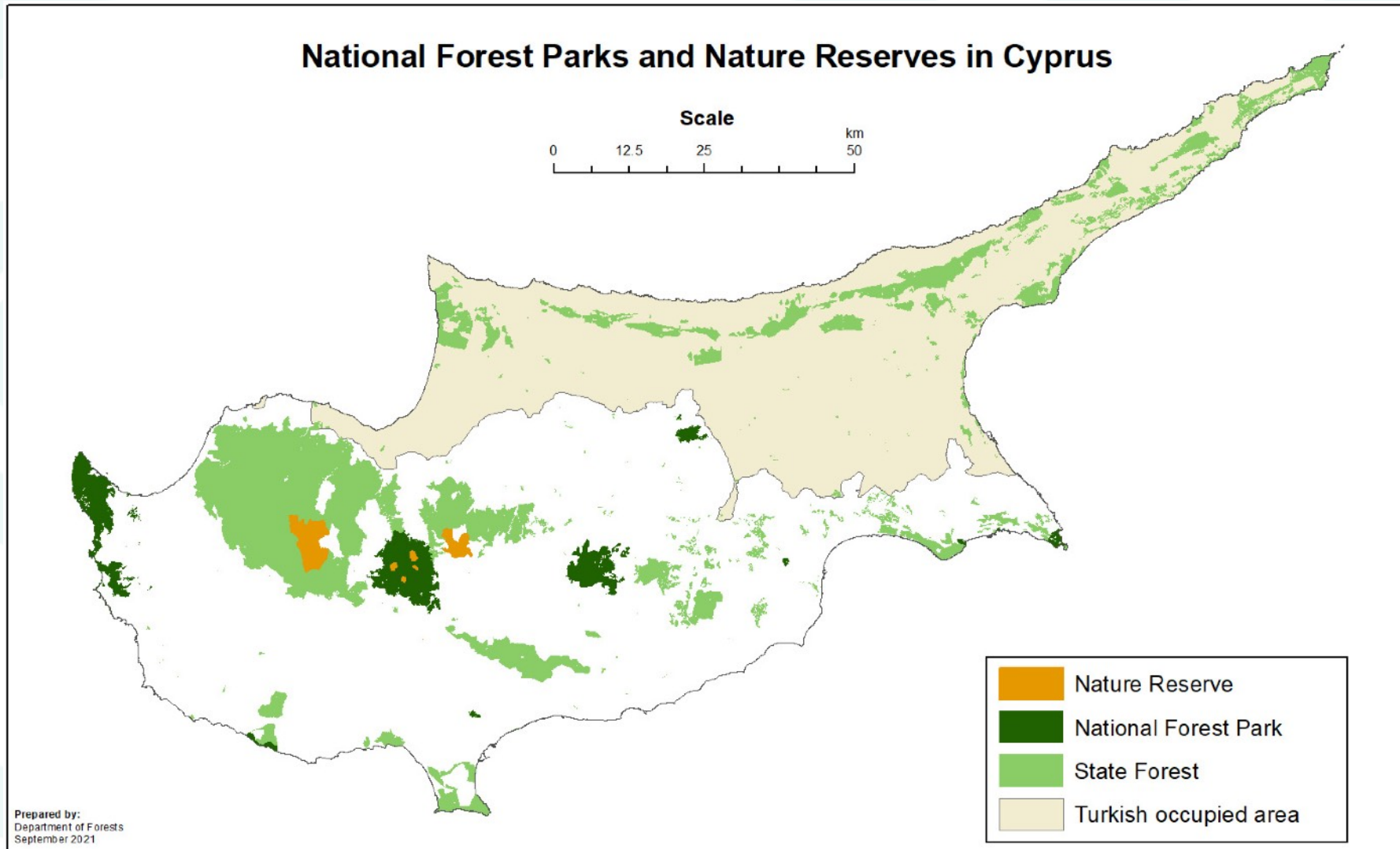
- Habitats Directive Sites (pSCI, SCI or SAC)
- Birds and Habitats directives

Birds Directive Sites (SPA)

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- Birds and Habitats directives

Number of Member States	Number of Biogeographical regions	Number of directives	Total number of sites designated under the selected directives	Sites designated under the Birds Directive (SPA)	Sites designated under the Habitats Directive (SCI & SAC)	Sites with SAC date defined	Sites with SAC date delayed	Sites with available management plans
1	2	2	72	36	44	33	10	60

Protected Areas under the Forest Law



Examples of Plant Diversity Conservation in Cyprus



In situ conservation

A total of 110 out of 142 endemic taxa of Cyprus are conserved *in situ*

Population reinforcement

- *Allium marathasicum* (CR, endemic) at Prodromos area
- *Dichoropetalum kyriakae* (EN, endemic) at Lemesos forest
- *Limonium mucronulatum* (CR, endemic) at Larnaka salt lake



Allium marathasicum



Dichoropetalum kyriakae



Limonium mucronulatum

In situ conservation

Reintroduction

- *Arum sintenisii* (VU, near-endemic): at Akamas peninsula
- *Peganum harmala* (CR): at Nicosia old walls



Arum sintenisii



Reintroduction of *Arum sintenisii* at Akamas NFP



Peganum harmala



In situ conservation

Establishment of new populations

- *Anthemis tomentosa* (EN): at Akamas peninsula and Gialia area



Anthemis tomentosa



Plants produced in nursery



Establishment at Gialia coast

In situ conservation

Control of invasive plants



Control of *Acacia saligna* at Gialia



In situ conservation

Restriction of access using restriction barriers



Ex situ conservation

- 53% of threatened taxa are conserved *ex situ* in seedbanks, in Cyprus
- 93% of the threatened endemic plants have at least one accession conserved *ex situ*
- There is also a substantial number of accessions conserved in foreign seedbanks

Number of taxa and accessions of threatened plants conserved in foreign genebanks

Name of genebank	Accessions	Taxa
National and Kapodistrian University of Athens, Department of Biology	208	65
Botanic Garden and Botanical Museum Berlin-Dahlem	67	51
Royal Botanical Garden KEW - Millennium Seed Bank	55	50

Managing the Natura 2000 network in Cyprus and shaping a sustainable future

LIFE18 IPE/CY/000006 IP Physis – ΠΑΝΔΩΤΕΙΡΑ

<https://pandoteira.cy/>



OVERALL CONTEXT

The project aims at the improvement of the conservation status of species and habitats of community interest through actions in the whole Natura 2000 network in Cyprus.

GENERAL INFORMATION

Implementation period: 07/2019-10/2029

Budget: 16,996,979 € (where 10,199,035 € co-funded by EU)

Coordinating Beneficiary



Associated Beneficiaries



Department of Forests



Game and Fauna Service



Terra Cypria Foundation



Birdlife Cyprus



AP Marine Environmental Consultancy Ltd



Open University of Cyprus



Frederick University



Federation of Environmental Organisations of Cyprus



ACC Perivallon kai Kainotomia Limited



I.A.C.O. Environmental & Water Consultants Limited



National and Kapodistrian University of Athens



Department of Fisheries and Marine Research



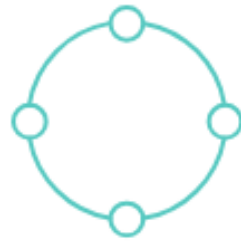
Cyprus University of Technology



The project was designed in such a way as to see the Natura 2000 network in a holistic manner, with actions focusing in several directions, including:



Filling the knowledge gaps for species and habitats.



Improving the governance of the Natura 2000 network through the introduction of institutional changes, such as establishment of management structures and private land management in Natura 2000 sites and establishing interactive GIS tools through web-based platforms.



Evaluating ecosystem services and further exploiting their socioeconomic dimension.



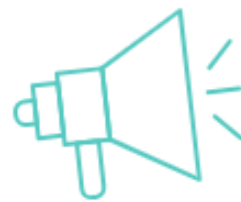
Tackling the issue of Invasive Alien Species.



Conducting and implementing action plans and management plans for species and habitats to improve their conservation status.



Implementing capacity building actions to reinforce the knowledge base of the stakeholders of the Natura 2000 network.



Implementing information and awareness actions, as well as campaigns so that the Natura 2000 network becomes known and well accepted among the citizens, in general, and the stakeholders, in particular, in the island.



Monitoring the project's effectiveness towards achieving the objectives of the Prioritized Action Framework (PAF) for Natura 2000 network in Cyprus.

Plant Diversity Conservation in Cyprus

Conclusion: Over the years there is a shift from scattered and fragmented conservation activities towards a more holistic approach, which recognizes the interdependence of species, habitats, and ecosystems and the importance of public participation and awareness.



THANK YOU

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