



REPUBLIC OF CYPRUS

A unique  
natural  
heritage  
at risk

# **Pentadaktylos** Mountain Range

# Pentadaktylos Mountain Range

A unique natural heritage at risk

2016

The **Commissioner for the Environment** expresses her appreciation and gratitude to all individuals, agencies and organisations that have contributed to the realisation of this publication.

**Research/text:** This publication has been prepared by the Office of the Commissioner for the Environment in cooperation with the following government agencies:

*Ministry of Foreign Affairs, Department of Forests, Department of Environment, The Mines Service*

Their contribution for the realisation of this publication is greatly appreciated.

Special thanks go to Frederick University, as well as to biologists Konstantinos Kounnamas and Charalambos Roussos who have kindly extended their cooperation for this publication. Their assistance is greatly valued.

**Photography:** A number of institutions and individuals have generously given their permission for the use of photographs in this publication. They are listed below in recognition of their kind cooperation, which is greatly appreciated.

*Andreas Manoli, Charalambos Christodoulou, Costas Kadis, Haris Nicolaou, Marios Andreou, Nicos Kassinis, Savvas Zotos*



Commissioner for the Environment

## FOREWORD

Cyprus is an island in the Eastern Mediterranean, situated between Europe, Asia and Africa. It has temperate climate with hot, dry summers, mild, wet winters and abundant sunshine throughout the year. It has a unique geological structure, imprinted on its geomorphology. The limestone mountain range of Pentadaktylos runs along almost the entire northern coast, the Troodos massif is located in the central and south-western part of the island, while the fertile plain of Mesaoria lays between the two ranges. The geomorphology contributes to the rich biodiversity and habitats of Cyprus, varying by altitude. >>>



*Sideritis cypria*: Included in Annex II of Directive 92/43/EEC and Appendix I of the Bern Convention on the Conservation of European Wildlife and Natural Habitats.

Cyprus has all attributes which make it a botanical paradise. Being an island, Cyprus is sufficiently isolated to allow the evolution of a strong endemic flower element (flora). At the same time, being surrounded by big continents, it incorporates botanical elements of the neighbouring land masses. Over 8% of the indigenous plants of the island, i.e. 145 different species and subspecies, are endemic to Cyprus and unique in Europe and in the world.

Since 1974, part of the territory of the Republic of Cyprus, including the mountain range of Pentadaktylos, has been under Turkish military occupation. Pentadaktylos, home to a number of unique species and subspecies of flora and fauna, has been subjected to unauthorised, uncontrolled and unsustainable quarrying and construction activities in recent years, that have impacted on the morphology of the mountain range, affected natural habitats and threaten species with extinction.

The present publication aims to bring this issue to the forefront, calling for action by the international community, through any means available to institutions and governments, for the protection of the environment in the area occupied by Turkey and, in particular, the conservation of the morphology of the mountain range and the habitats and species of Pentadaktylos.



## ECOLOGICAL IMPORTANCE

**Pentadaktylos** is one of the two mountain ranges of the island of Cyprus. It separates the Mesaoria plains from the shores of Keryneia and is considered to be the southernmost part of the Tauro-Diraride Alpine Zone. Pentadaktylos, which in Greek means “Five Fingers”, was named after a distinct landmark of five closely formed peaks, and is inextricably linked with local legends and traditions.

The Pentadaktylos mountain range has great natural importance, hosting many habitat types as well as flora and fauna species. It is the second most important biodiversity hotspot of Cyprus after the Troodos mountain range, and it is an Important Bird Area (IBA) according to Birdlife. For this reason, it was proposed by the LIFE Third Countries Programme (LIFE98 TCY/CY/172, 1999 - 2002) for inclusion in the Natura 2000 Network.

It was also included in the project for the “*Support to the Turkish Cypriot community as regards management and protection of potential NATURA 2000 Sites in the northern part of Cyprus*”, which was financed by the European Commission in the framework of Council Regulation 389/2006, with the consent of the Government of the Republic of Cyprus.

**Left: Long legged buzzard – *Buteo rufinus*:** Included in Annex I of Directive 2009/147/EEC, Appendix II of the Bern Convention on the Conservation of European Wildlife, Annex II of the Convention on the Conservation of Migratory Species of Wild Animals and Natural Habitats and Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.



9290 - *Cupressus* forests: Included in Annex I of Directive 92/43/EEC.

## HABITATS AND FLORA

The Pentadaktylos mountain range is a place of great floristic value for Cyprus, Europe and the world since it is a biodiversity hotspot. This is evident by the habitats and flora species found in the area. Specifically:

There are 14 important habitat types, out of which four (1520\*, 3170\*, 6220\* and 5230\*) are **priority habitat types**<sup>1</sup>, according to European Union's Habitats Directive 92/43/EEC.

### The 14 habitats are the following:

- 1520\* - Gypsum steppes (*Gypsophiletalia*)
- 3170\* - Mediterranean temporary ponds
- 5212 - *Juniperus phoenicea* arborescent matorral
- 5230\* - Arborescent matorral with *Laurus nobilis*
- 5330 - Thermo-Mediterranean and pre-steppe scrub
- 5420 - *Sarcopoterium spinosum* phryganas
- 6220\* - Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea*
- 8140 - Eastern Mediterranean screes
- 8210 - Calcareous inland cliffs with chasmophytic vegetation
- 8310 - Caves not open to the public
- 9290 - *Cupressus* forests
- 92D0 - Southern riparian galleries and thickets (*Nerio-Tamaricetea* and *Securinegion tinctoriae*)
- 9320 - *Olea* and *Ceratonia* forests
- 9540 - Mediterranean pine forests with endemic Mesogean pines

<sup>1</sup>According to the "Interpretation Manual of European Union Habitats", priority habitat types are defined as habitat types in danger of disappearance and whose natural range mainly falls within the territory of the European Union.

**Habitat types that have been identified on the Pentadaktylos mountain range\***



3170\* - **Mediterranean temporary ponds:** Priority habitat type, included in Annex I of Directive 92/43/EEC.



6220\* - **Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea:** Priority habitat type, included in Annex I of Directive 92/43/EEC.



9540 - **Mediterranean pine forests with endemic Mesogean pines:** Included in Annex I of Directive 92/43/EEC.

5420 - **Sarcopoterium spinosum phryganas:** Included in Annex I of Directive 92/43/EEC.



9320 - **Natural forest of Olea and Ceratonia:** Included in Annex I of Directive 92/43/EEC.



\* The pictures present the respective habitats from various places of the island.

There is a great number of plant species with high conservational value at national and global level, out of which 56 are endemic and 14 are local endemics to the mountain range.

**The 14 local endemics are:**

- Brassica hilarionis* Post
- Delphinium caseyi* B. L. Burt
- Dianthus cyprius* A. K. Jacks. & Turrill
- Onosma caespitosa* Kotschy
- Phlomis cypria* Post subsp *cypria*
- Rosularia pallidiflora* (Holmboe) Meikle
- Salvia veneris* Hedge
- Scutellaria sibthorpii* (Benth.) Halácsy
- Sedum lampusae* (Kotschy) Boiss
- Sideritis cypria* Post
- Silene fraudatrix* Meikle
- Solenopsis antiphonitis* Hadjik. & Hand
- Teucrium kyreniae* (P. H. Davis) Hadjik. & Hand
- Teucrium salaminium* Hadjik. & Hand



***Salvia veneris*:**  
Included in Annex II of Directive 92/43/EEC and Appendix I of the Bern Convention on the Conservation of European Wildlife and Natural Habitats.

***Brassica hilarionis*:** Included in Annex II of Directive 92/43/EEC and Appendix I of the Bern Convention on the Conservation of European Wildlife and Natural Habitats.



***Teucrium kyreniae*:**  
Local endemic plant of the Pentadaktylos mountain range.



***Phlomis cypria*:** Included in Annex II of Directive 92/43/EEC and Appendix I of the Bern Convention on the Conservation of European Wildlife and Natural Habitats.



## ANIMALS AND BIRDS SPECIES

The Pentadaktylos mountain range plays an important role as it provides habitats and nursery areas for various animals and bird species. Specifically:

- **18 reptile species** have been identified; many of them are included in the Annexes of the EU Habitats Directive, while Pentadaktylos' caves also provide nesting sites for the rare, protected Egyptian fruit-bat (*Rousettus aegyptiacus*) and many other protected **bat species**.
- **30 bird species** of Annex I of EU's Bird Directive (2009/147/EEC) have been identified at the Pentadaktylos range, which is a breeding and feeding area for, inter alia, Bonelli's eagle (*Aquila fasciata*) and the Long-legged buzzard (*Buteo rufinus*), while the Griffon vulture (*Gyps fulvus*) has also been seen on the range.



**Egyptian fruit-bat – *Rousettus aegyptiacus*:**  
Included in Annex II of Directive 92/43/EEC.



***Ophisops elegans schlueteri* (Böttger 1880):**  
Included in Annex IV of Directive 92/43/EEC.

**Bonelli's eagle - *Aquila fasciata*:** Included in Annex I of Directive 2009/147/EEC, Appendix III of the Bern Convention on the Conservation of European Wildlife and Natural Habitats and Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.



**Griffon vulture - *Gyps fulvus*:** Included in Annex I of Directive 2009/147/EEC, Appendix III of the Bern Convention on the Conservation of European Wildlife and Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.



## QUARRYING OF PENTADAKTYLOS

Pentadaktylos is comprised of a chain of mountain peaks, whose height reaches 1,024 m (Kyparissovouno peak), while the rocks consist mostly of recrystallised limestones, dolomites and marble. Its length is more than 100 km, while its width rarely exceeds 5 km. The mountain range is characterised by precipitous peaks, ravines and canyons, while due to the limestone rock at the area, many surface and underground karst formations such as caves, sinks and underground tunnels are found there.

Unfortunately, this unique, beautiful area is in danger of being destroyed due to excessive quarrying, overgrazing, littering, illegal hunting, domestic development and military activities.

Thirty six (36) illegal quarries hew the Pentadaktylos mountain range and result to the alteration of its structure. The tragic consequences of the quarrying are already present through the loss of important habitats and the endangerment with extinction of rare flora and fauna species.

The potential impacts of quarrying in the area are as follows:

- Loss of valuable rare habitats and species protected under EU legislation
- Destruction of the physical structure and functioning of these habitats, thereby causing a loss in overall ecosystem resilience
- Disturbance and/or displacement of sensitive species
- Loss of rare or endangered species, individuals or populations
- Change in species composition (local flora & fauna)
- Colonisation by alien and invasive pioneer species
- Change and degradation of aquifer and aquatic ecosystems

**Professionals warn that if quarrying activities do not stop soon, their impact to the natural environment (habitats, flora, fauna and landmarks) will be permanent and irreversible.**

**It is of utmost importance that action is taken immediately to mediate this threat which condemns the area's natural ecosystems to annihilation.**



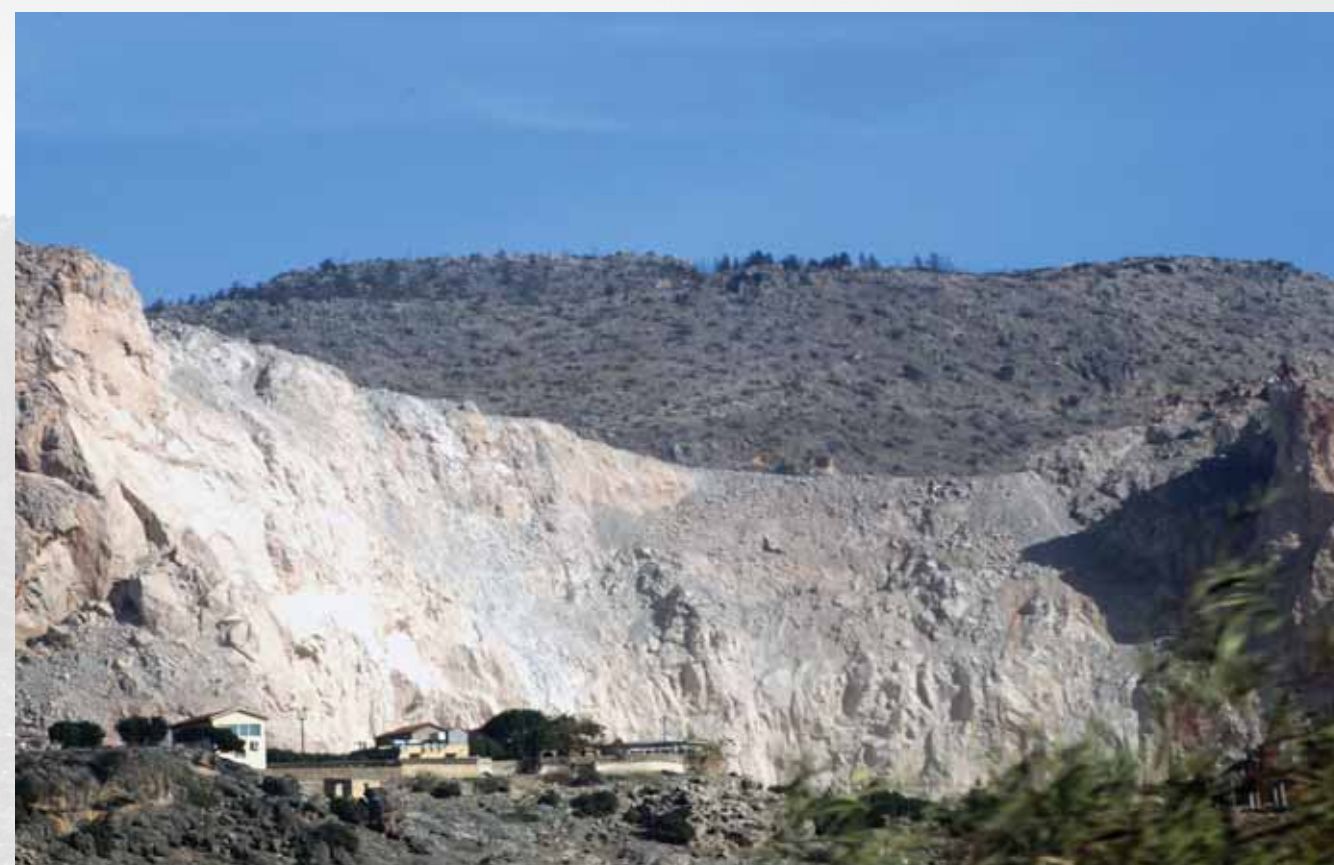
Pentadaktylos, "Pithari" area (1.12.2010).

The area was named after the Venetian era wine jars ("pitharia") that were discovered at the site. In those days many vines were established on the Pentadaktylos' slopes.



Pentadaktylos, “Kotsinokremmos” area (7.5.2003).

The area at the bottom of the picture is called “Limni”.  
A cave called “Stassousa” was located at the area, which was used  
as a church during the Roman and Byzantine era. The cave has been  
completely destroyed.



Pentadaktylos, “Kotsinokremmos” area (28.11.2013).

Pentadaktylos, the "Fonias" rock, northern slope (9.10.2013).

According to the tradition a monk from Kantara monastery was chased by two Saracens and in order to save himself, he climbed to a steep rock west of the castle and jumped over. A miracle took place and he wasn't killed, but the Saracens that followed him died. The rock was named "Fonias" ("Killer") and the hill "Kaloirin" ("Monk").



Pentadaktylos, the "Fonias" rock, southern slope (9.10.2013).

A closer view of the destruction in the area.




Pentadaktylos, Kythrea (2012).



Pentadaktylos, "Sysklipos" area (11.2.2014).





For further information:

**COMMISSIONER FOR THE ENVIRONMENT**

P.O. BOX 23348

1681 Nicosia

Tel.: +357 22 400190

Fax: +357 22 400176

Email: [ipanayiotou@ec.gov.cy](mailto:ipanayiotou@ec.gov.cy)

Website: [www.ec.gov.cy](http://www.ec.gov.cy)



P.I.O. 297/2016 - 1.000

ISBN 978-9963-50-425-1

Published by the Press and Information Office, Republic of Cyprus

[www.pio.gov.cy](http://www.pio.gov.cy)

Printed by Zavallis Litho Ltd